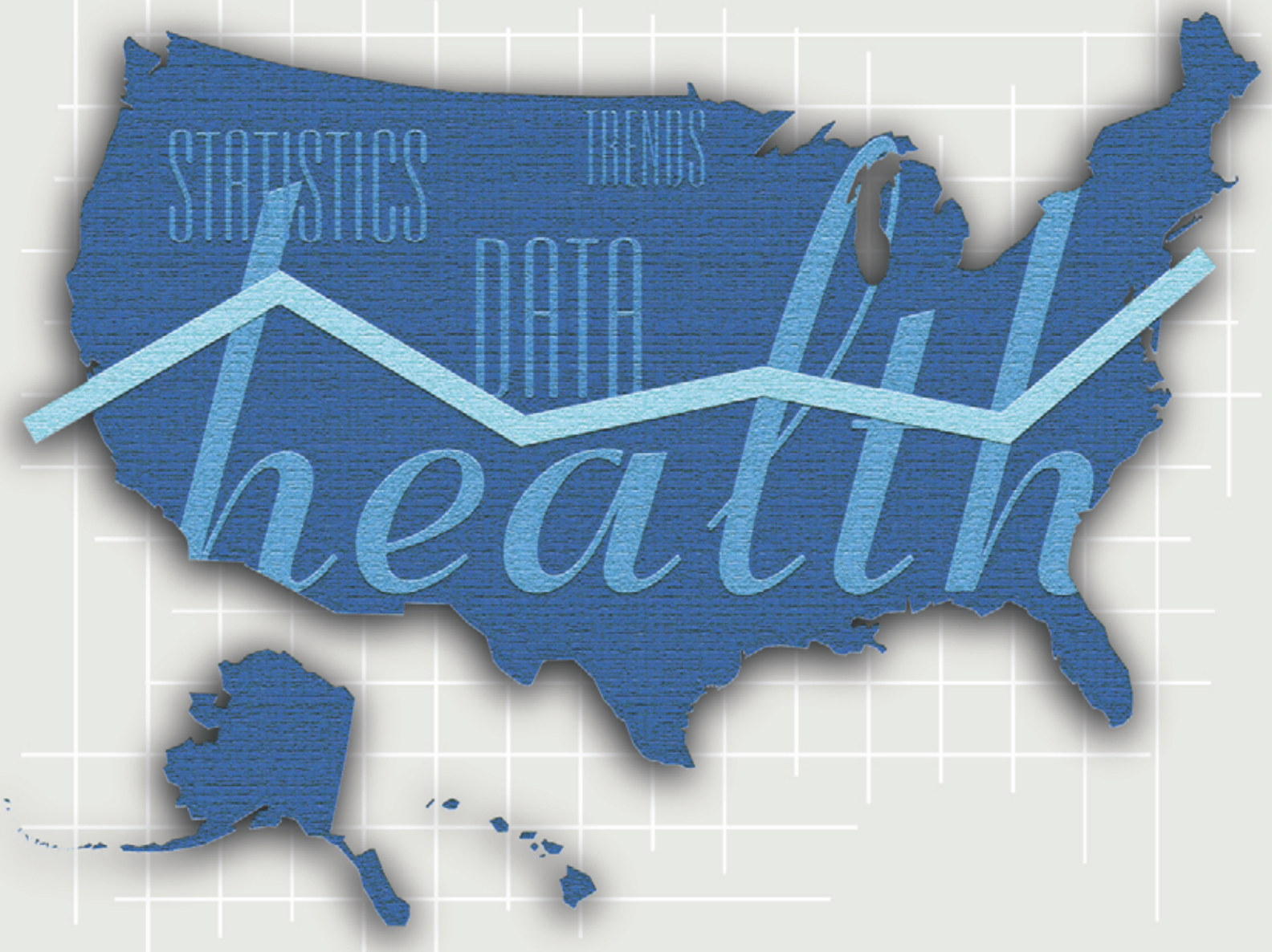
Health, United States, 2001

Urban and Rural Health Chartbook



CDC™

SAFER • HEALTHIER • PEOPLE™

Monitoring the Nation's Health

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention • National Center for Health Statistics

Copyright Information

Permission has been obtained from the copyright holders to reproduce certain quoted material in this report. Further reproduction of this material is prohibited without specific permission of the copyright holder. All other material contained in this report is in the public domain and may be used and reprinted without special permission; citation as to source, however, is appreciated.

Suggested Citation

Eberhardt MS, Ingram DD, Makuc DM, et al. Urban and Rural Health Chartbook. Health, United States, 2001. Hyattsville, Maryland: National Center for Health Statistics. 2001.

Library of Congress Catalog Number 76–641496
For sale by Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

Health, United States, 2001

Urban and Rural Health Chartbook

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics

August 2001
DHHS Publication No. (PHS) 01-1232-1

Department of Health and Human Services

Tommy G. Thompson
Secretary

Centers for Disease Control and Prevention

Jeffrey P. Koplan, M.D., M.P.H.
Director

National Center for Health Statistics

Edward J. Sondik, Ph.D.
Director

Preface

Health, United States, 2001 With Urban and Rural Health Chartbook is the 25th report on the health status of the Nation. This report was compiled by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC). The National Committee on Vital and Health Statistics served in a review capacity.

The *Health, United States* series presents national trends in health statistics. Major findings are presented in the highlights. The report includes a chartbook on urban and rural health, trend tables, extensive appendixes, and an index.

Urban and Rural Health Chartbook

In each edition of *Health, United States*, a chartbook focuses on a major health topic. This year the Urban and Rural Health Chartbook describes the health of people living in urban and rural communities. Urban and rural communities have different health priorities that are related to differences in demographics, health behavior, geographic isolation, and access to health care. This chartbook highlights some of these major differences and presents information on population characteristics, health-related behaviors, health status, and health care access and use for five levels of urbanization and four regions of the United States. The Urban and Rural Health Chartbook consists of 28 figures and accompanying text.

Trend Tables

The chartbook is followed by 148 trend tables organized around four major subject areas: health status and determinants, health care utilization, health care resources, and health care expenditures. A major criterion used in selecting the trend tables is the availability of comparable national data over a period of several years. The tables report data for selected years to highlight major trends in health statistics. Earlier editions of *Health, United States* may present data for additional years that are not included in the current printed report. Where possible, these additional years of data are available in Lotus 1–2–3 and Excel spreadsheet files on the NCHS Web site. Tables with additional data years are listed in Appendix III.

Racial and Ethnic Data

Many tables in *Health, United States* present data according to race and Hispanic origin consistent with Department-wide emphasis on expanding racial and ethnic detail in presenting health data. Trend data on race and ethnicity are usually in the greatest detail possible, after taking into account the quality of data, the amount of missing data, and the number of observations. The large differences in health status by race and Hispanic origin 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. New standards for presenting Federal data on race and ethnicity are described in Appendix II under *Race*.

Changes in This Edition

Each volume of *Health, United States* is prepared with the goal of maximizing its usefulness as a standard reference source while ensuring its continuing relevance. Comparability is fostered by including similar trend tables in each volume. Currency is ensured by adding new tables each year to reflect emerging topics in public health and making improvements in the content of ongoing tables. New to *Health, United States, 2001* is a table on suicidal ideation and attempts among adolescents based on data from the Youth Risk Behavior Survey (YRBS), (table 59); and a table on sources of payment for health care expenses by insurance coverage and selected demographic characteristics based on data from the National Medical Expenditures Survey (NMES) and Medical Expenditures Panel Survey (MEPS), (table 119).

Data for racial and ethnic groups have been expanded in tables showing fatal occupational injuries (table 50), cancer incidence (table 55), and mammography use (table 82). In addition, the new tables 59 and 119 present data for racial and ethnic groups.

In other changes, more data years are shown in trend tables on health insurance coverage for persons under 65 years of age (tables 128–130); prevalence of overweight children has been revised to reflect the new growth charts (table 69); Varicella vaccinations have been added to the table on childhood vaccinations (table 73); and inpatient hospitalizations for serious mental illness and alcohol- and drug-related diagnoses have been added in tables showing hospital discharge data (tables 93 and 94).

Two major changes affect mortality trend tables in this edition: (1) introduction of the Tenth Revision of the *International Classification of Diseases* (ICD-10) for coding cause-of-death; and (2) use of the year 2000 standard population for age adjustment.

In the first change, starting with 1999 mortality data, ICD-10 is used for coding cause of death in the trend

tables. In order to minimize discontinuity in mortality trends between ICD-9 and ICD-10, coding by earlier ICD revisions for some causes has been revised to more closely reflect ICD-10 coding. For example the trend for homicide replaces homicide and legal intervention (table 46) and malignant neoplasms of the trachea, bronchus, and lung replaces malignant neoplasms of the respiratory system (table 40).

In the second change, mortality data as well as data based on the National Health and Nutrition Examination Survey and National Hospital Discharge Survey are age adjusted using the year 2000 population, thus completing the phase in of the new population standard for age adjustment for NCHS data sources in *Health, United States* (see Appendix II, *Age adjustment*). Rates age adjusted to the 2000 standard differ from age-adjusted rates in previous editions of this report.

Appendixes

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 presents standard populations used for age adjustment (tables I, II, and III); ICD codes for causes of death from the Sixth through Tenth Revisions and the years when the Revisions were in effect (tables IV and V); comparability ratios between ICD-9 and ICD-10 for selected causes (table VI); ICD–9–CM codes for external cause of injury, diagnostic, and procedure categories (tables VII, IX, and X); industry codes from the Standard Industrial Classification Manual (table VIII); and sample tabulations of National Health Interview Survey data comparing the 1977 and 1997 Standards for Federal data on race and Hispanic origin (tables XI and XII).

Appendix III lists tables for which additional years of trend data are available electronically in Lotus 1–2–3 and Excel spreadsheet files on the NCHS Web site and CD-ROM.

The Index to Trend Tables is a useful tool for locating data by topic. Tables are cross-referenced by such topics as Child and adolescent health, Women's health, Elderly population, Nutrition related, State data, American Indian, Asian, Black, and Hispanic origin populations, Education, Poverty status, and Disability

Electronic Access

Health, United States may be accessed from the NCHS Web site at www.cdc.gov/nchs. Click on "Top 10 Links" and "Health, United States." From the *Health, United States* home page, one may also subscribe to the *Health, United States* listserv.

Health, United States, 2001, the chartbook on urban and rural health, and each of the 148 individual trend tables are available as separate Acrobat .pdf files on the *Health, United States* home page. Individual tables are downloadable as Lotus 1–2–3 and Excel spreadsheet files. Pdf and spreadsheet files for selected tables will be updated on the *Health, United States* home page, if more current data become available near the time when the book is released. Readers who register for the listserv will be notified of these periodic table updates. Previous editions of *Health, United States* and chartbooks, starting with the 1993 edition, also may be accessed from the *Health, United States* home page.

Health, United States is also available, along with other NCHS reports, on a CD-ROM entitled "Publications from the National Center for Health Statistics, featuring *Health, United States, 2001*," vol 1 no 7, 2001. These publications can be viewed, searched, printed, and saved using Adobe Acrobat software on the CD-ROM. The CD-ROM and complete *Health, United States* report may be purchased from the Government Printing Office.

Questions?

For answers to questions about this report, contact:
Data Dissemination Branch
National Center for Health Statistics
Centers for Disease Control and Prevention
6525 Belcrest Road, Room 1064
Hyattsville, Maryland 20782–2003
phone: 301–458–INFO
E-mail: nchsquery@cdc.gov
Internet: www.cdc.gov/nchs

The *Urban and Rural Health Chartbook* is reprinted from *Health, United States, 2001* and includes highlights of the trend tables and the appendixes from the complete report.

Acknowledgments

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

The Urban and Rural Health Chartbook was prepared by Mark S. Eberhardt, Deborah D. Ingram, Diane M. Makuc, Elsie R. Pamuk, Virginia M. Freid, Sam B. Harper, Charlotte A. Schoenborn, and Henry Xia. Data and analysis for specific charts were provided by Lara J. Akinbami, Margaret A. Cooke, Marni J. Hall, Maria F. Owings, and Kenneth C. Schoendorf of NCHS; Joseph C. Gfroerer and Patricia Royston of the Office of Applied Studies, Substance Abuse and Mental Health Services Administration; Leigh A. Henderson of Synectics for Management Decisions, Inc.; and Clemencia M. Vargas of the University of Maryland School of Dentistry. Statistical computing was provided by Louise Saulnier of TRW Corporation, Alan J. Cohen, and Catherine R. Duran. Technical assistance was provided by Felicity Skidmore, Kate M. Brett, Lisa Broitman, Rong Cai, Lois A. Fingerhut, Karen E. Fujii, Richard F. Gillum, Sarah W. Gousen, Kirk Greenway, Lillian R. Hsieh, Ellen A. Kramarow, Ji-Eun Lee, Andrea P. MacKay, Robert Pokras, J. Neil Russell, Dawn M. Scott, Staci Schweizer, Thomas C. Socey, Genevieve W. Strahan, and Elizabeth Zarate.

Advice on the content of the chartbook was provided by Joan F. Van Nostrand of the Office of Rural Health Policy, Health Resources and Services Administration; Thomas C. Ricketts III of the Cecil G. Sheps Center for Health Services Research, University of North Carolina; Calvin L. Beale of the Economic Research Service, United States Department of Agriculture, and Andrew F. Coburn of the Edmund S. Muskie School of Public Service, University of Southern Maine.

Health, United States, 2001 highlights, trend tables, and appendixes were prepared under the leadership of Kate Prager. Trend tables were prepared by Alan J. Cohen, Margaret A. Cooke, La-Tonya D. Curl, Catherine R. Duran, Virginia M. Freid, Andrea P. MacKay, Mitchell B. Pierre, Jr., Rebecca A. Placek, Anita L. Powell, Kate Prager, Laura A. Pratt, and Henry Xia with assistance from Karen E. Fujii, LaJeana Howie, Ji-Eun Lee, Louise Saulnier of TRW Corporation, Staci Schweizer, and Elizabeth Zarate. Production planning and coordination of appendixes and index to trend tables were managed by Anita L. Powell. Production planning and coordination of trend tables were managed by Rebecca A. Placek. Administrative and word processing assistance were provided by Carole J. Hunt, Camille A. Miller, and Anne E. Cromwell.

Publications management and editorial review were provided by Thelma W. Sanders and Rolfe W. Larson. The designer was Sarah M. Hinkle. Graphics were supervised by Stephen L. Sloan. Production was done by Jacqueline M. Davis and Annette F. Holman. Printing was managed by Joan D. Burton and Patricia L. Wilson.

Electronic access through the NCHS Internet site and CD-ROM were provided by Christine J. Brown, Michelle L. Bysheim, Jacqueline M. Davis, Annette F. Holman, Gail V. Johnson, Sharon L. Ramirez, Thelma W. Sanders, Tammy M. Stewart-Prather and Patricia A. Vaughan.

Data and technical assistance were provided by staff of the following NCHS organizations: *Division of Health Care Statistics*: Catharine W. Burt, Donald Cherry, Barbara J. Haupt, Linda S. Lawrence, Karen L. Lipkind, Nghi Ly, Linda F. McCaig, Susan M. Schappert, Alvin J. Sirrocco, Genevieve W. Strahan, and David A. Woodwell; *Division of Health Examination Statistics*: Margaret D. Carroll, Clifford L. Johnson, and Robert J. Kuczmarski; *Division of Health Interview Statistics*: Viona I. Brown, Pei-Lu Chiu, Robin A. Cohen, Richard H. Coles, Nancy G. Gagne, Cathy Hao, Ann M. Hardy, Kristina Kotulak-Hays, Susan S. Jack, Jane Page, Charlotte A. Schoenborn, Mira Shanks, Anne K. Stratton, and Luong Tonthat; *Division of Vital Statistics*: Robert N. Anderson, Linda E. Biggar, Thomas D. Dunn, Donna L. Hoyert, Kenneth D. Kochanek, Marian F. MacDorman, Joyce A. Martin, T.J. Mathews, Jeffrey D. Maurer, William D. Mosher, Sherry L. Murphy, Gail A. Parr, Harry M. Rosenberg, Manju Sharma, Betty L. Smith, and Stephanie J. Ventura; *Office of Analysis, Epidemiology and Health Promotion*: John Aberle-Grasse, Lois A. Fingerhut, and Deborah D. Ingram; and *Office of International Statistics*: Juan Rafael Albertorio-Diaz and Francis C. Notzon.

Additional data and technical assistance were also provided by the *National Center for HIV, STD, and TB Prevention, CDC*: Tim Bush, Melinda Flock, and Luetta Schneider; *Epidemiology Program Office, CDC*: Samuel L. Groseclose and Patsy A. Hall; *National Center for Chronic Disease Prevention and Health Promotion, CDC*: Sherry Everett Jones, Joy Herndon, and Lilo T. Strauss; *National Immunization Program, CDC*: Emmanuel Maurice and Dave Sanders; *Agency for Health Care Research and Quality*: Joel Cohen, Steven Machlin, and Joshua Thorpe; *Health Resources and Services Administration*: Evelyn Christian; *Substance Abuse and Mental Health*

Acknowledgments

Services Administration: Joanne Atay, Judy K. Ball, Joseph C. Gfroerer, Andrea Kopstein, Ronald Manderscheid, Patricia Royston, Richard Thoreson, and Deborah Trunzo; *National Institutes of Health*: Ken Allison, Lynn A. G. Ries, and Deborah Dawson; *Health Care Financing Administration*: Gerald S. Adler, Cathy A. Cowan, Janice D. Drexler, Frank Eppig, David A. Gibson, Leslie Greenwald, Helen C. Lazenby, Katharine R. Levit, Anna Long, Anthony C. Parker, and Madie W. Stewart; *Office of the Secretary, DHHS*: Mitchell Goldstein; *Census Bureau*: Joseph Dalaker, Bernadette D. Proctor, and Ann-Margaret Jensen; *Bureau of Labor Statistics*: Alan Blostin, Kay Ford, Daniel Ginsburg, and Peggy Suarez; *Department of Veterans Affairs*: Elizabeth Ahuja and Laura O'Shea; Alan Guttmacher Institute: Susan Tew; Association of Schools of Public Health: Wendy Katz; InterStudy: Richard Hamer; University of Michigan: Patrick O'Malley; Cowles Research Group: C. McKeen Cowles; and CSR Incorporated: Gerald D. Williams.

Contents

Preface iii
Acknowledgments v
List of Figures on Urban and Rural Health viii
Geographic Regions and Divisions of the United States ix

Highlights

Urban and Rural Health 3
Health Status and Determinants 6
Health Care Utilization and Resources 9
Health Care Expenditures 11

Urban and Rural Health Chartbook

Introduction 17
Population
- Region and Urbanization 22
- Population and Urbanization 24
- Age 26
- Race and Ethnicity 28
- Poverty 30

Health Behaviors and Risk Factors
- Adolescent Smoking 32
- Adult Smoking 34
- Alcohol Consumption 36
- Obesity 38
- Physical Inactivity 40

Mortality
- Infants 42
- Children and Young Adults 44
- Working-Age Adults 46
- Seniors 48
- Heart Disease 50
- Chronic Obstructive Pulmonary Diseases 52
- Unintentional Injuries and Motor Vehicle Traffic-Related Injuries 54
- Homicide 56
- Suicide 58

Other Health Status Measures
- Adolescent Births 60
- Limitation of Activity 62
- Total Tooth Loss 64

Health Care Access and Use
- Health Insurance 66
- Physician Supply 68
- Dentist Supply 70
- Dental Visits 72
- Inpatient Hospital Use 74
- Substance Abuse Treatment 76

Technical Notes 78
References 88
Data Tables for Figures 2–28 92

Appendixes

Contents 121
I. Sources and Limitations of Data 123
II. Glossary 156

List of Figures on Urban and Rural Health

Population

1. United States counties by region and urbanization level, 1990 — 23

2. Population by region and urbanization level: United States, 1998 — 25

3. Population 65 years of age and over by region and urbanization level: United States, 1998 — 26

4. Population in selected race and Hispanic origin groups by region and urbanization level: United States, 1998 — 28

5. Population in poverty by region and urbanization level: United States, 1997 — 30

Health Behaviors and Risk Factors

6. Cigarette smoking in the past month among adolescents 12–17 years of age by region and urbanization level: United States, 1999 — 32

7. Cigarette smoking among persons 18 years of age and over by sex, region, and urbanization level: United States, 1997–98 — 34

8. Alcohol consumption of 5 or more drinks in 1 day in the last year among persons 18–49 years of age by sex, region, and urbanization level: United States, 1997–98 — 36

9. Obesity among persons 18 years of age and over by sex, region, and urbanization level: United States 1997–98 — 38

10. Physical inactivity during leisure time among persons 18 years of age and over by sex, region, and urbanization level: United States, 1997–98 — 40

Mortality

11. Infant mortality rates by region and urbanization level: United States, 1996–98 — 42

12. Death rates for all causes among persons 1–24 years of age by sex, region, and urbanization level: United States, 1996–98 — 44

13. Death rates for all causes among persons 25–64 years of age by sex, region, and urbanization level: United States, 1996–98 — 46

14. Death rates for all causes among persons 65 years of age and over by sex, region, and urbanization level: United States, 1996–98 — 48

15. Death rates for ischemic heart disease among persons 20 years of age and over by sex, region, and urbanization level: United States, 1996–98 — 50

16. Death rates for chronic obstructive pulmonary diseases among persons 20 years of age and over by sex, region, and urbanization level: United States, 1996–98 — 52

17. Death rates for all unintentional injuries and motor vehicle traffic-related injuries by sex, region, and urbanization level: United States, 1996–98 — 54

18. Homicide rates by sex, region, and urbanization level: United States, 1996–98 — 56

19. Suicide rates among persons 15 years of age and over by sex, region, and urbanization level: United States, 1996–98 — 58

Other Health Status Measures

20. Birth rates among adolescents 15–19 years of age by region and urbanization level: United States, 1996–98 — 60

21. Limitation of activity caused by chronic health conditions among persons 18 years of age and over by sex, region, and urbanization level: United States, 1997–98 — 62

22. Edentulism (total tooth loss) among persons 65 years of age and over by poverty status, region, and urbanization level: United States, 1997–98 — 64

Health Care Access and Use

23. No health insurance coverage among persons under 65 years of age by poverty status, region, and urbanization level: United States, 1997–98 — 66

24. Patient care physicians per 100,000 population by physician specialty, region, and urbanization level: United States, 1998 — 68

25. Dentists per 100,000 population by region and urbanization level: United States, 1998 — 70

26. Dental visit within the past year among persons 18–64 years of age by region and urbanization level: United States, 1997–98 — 72

27. Hospital discharge rates and average length of stay among persons 18–64 years of age by sex and urbanization level: United States, 1998 — 75

28. Substance abuse treatment admission rates by primary substance, region, and urbanization level: United States, 1998 — 76

Highlights

Urbanization Level Defined

This chartbook classifies counties into five urbanization levels, three for metropolitan (metro) counties and two for nonmetropolitan (nonmetro) counties. From the most urban to the most rural, the urbanization levels are:

Metropolitan counties:

Large central - counties in large (1 million or more population) metro areas that contain all or part of the largest central city
Large fringe - remaining counties in large (1 million or more population) metro areas
Small - counties in metro areas with less than 1 million population

Nonmetropolitan counties:

With a city of 10,000 or more population
Without a city of 10,000 or more population

Urban-Rural Population

Communities at different urbanization levels differ in their demographic, environmental, economic, and social characteristics. These characteristics influence the magnitude and types of health problems communities face. In addition, more urban counties tend to have a greater supply of health care providers in relation to population and residents of more rural counties often live farther from health care resources.

■ The number and characteristics of counties at different urbanization levels vary by **region**. In the Northeast, over one-half of all counties are in metro areas compared with only one in five in the Midwest. Counties in the West generally have larger land areas than counties in other regions, increasing the likelihood that even metro county residents may be far from an urban center (figure 1).

■ Most of the U.S. **population** lives in metropolitan areas. One-half of all Americans live in large metro areas. Almost three-quarters of U.S. counties are classified as nonmetro, but they are home to only 20 percent of the population (figure 2).

■ The **age** structure of the population tends to get older as urbanization decreases. The upward urban-rural gradient in the proportion of the population that is 65 years of age and over is present in all regions, but is steepest in the Midwest and South (figure 3).

■ **Racial and ethnic** composition varies substantially by urbanization level and region. Central counties of large metro areas are more racially and ethnically diverse than counties at other urbanization levels. For the United States as a whole, 54 percent of the population of central counties is non-Hispanic white compared with over three-quarters at all other urbanization levels. Non-Hispanic black Americans constitute over 20 percent of central county residents in each region except the West. Hispanic persons constitute 18 percent or more of the population of central counties except in the Midwest. In the South, the proportion of the population of large fringe, small metro, and nonmetro counties that is non-Hispanic black is greater than in the other regions. In the West, the proportion of the population that is Asian or Pacific Islander, or Hispanic is greater than in any other region. Also, in the West, the proportion of the nonmetro population that is American Indian or Alaska Native is higher than in the other regions (figure 4).

■ In all regions of the United States, fringe counties of large metro areas have the lowest levels of **poverty** (less than 10 percent). Compared with fringe counties, poverty levels are more than twice as high in central counties of the Northeast and Midwest and in the most rural counties of the South. Poverty in small metro counties is higher in the South and West than in other regions (figure 5).

Urban-Rural Health Risk Factors

Improving health behaviors to reduce the risk of disease and disability poses distinct challenges for central counties of large metro areas, with their ethnically diverse and large economically disadvantaged populations. Equally difficult but different challenges confront the most rural counties with more dispersed and older populations.

■ Nationally, **adolescents** living in the most rural counties are the most likely to **smoke** and those living in central counties of large metro areas are the least likely to smoke. In 1999 for the United States as a whole, 19 percent of adolescents in the most rural counties smoked compared with 11 percent in central counties (figure 6).

■ Nationally, **adults** living in the most rural counties are most likely to **smoke** and those living in large metro (central and fringe) counties are least likely to smoke (27 compared with 20 percent of women and 31 compared with 25 percent of men, in 1997–98). Regionally, the largest urban-rural increases in smoking are seen for women in the Northeast and for men and women in the South (figure 7).

Some numbers for Figure 10 have been corrected and differ slightly from the printed edition.

- Nationally and regionally, men are twice as likely as women to consume five or more drinks in one day in the last year. In the Northeast, adults 18–49 years in central counties were less likely to report this level of **alcohol consumption** than those living in other urbanization levels. In the West, prevalence of this level of alcohol consumption was higher among adults living in nonmetro counties than other urbanization levels (figure 8).

- Self-reported **obesity** varies more by urbanization level for women than for men. Nationally, women living in fringe counties of large metro areas have the lowest prevalence of obesity and women living in the most rural counties have the highest (16 compared with 23 percent in 1997–98). Self-reported obesity among men ranges from 18 percent in central counties of large metro areas to 22 percent in the most rural counties (figure 9).

- **Physical inactivity** during leisure time varies substantially with level of urbanization but the patterns differ by region. In 1997–98 the proportion of the population physically inactive during leisure time was highest in nonmetro counties in the South (56 percent of women and 52 percent of men) and in central counties of large metro areas of the Northeast (51 percent of women and 47 percent of men) (figure 10).

Urban-Rural Mortality

- For the United States as a whole and within each region, **infant** mortality rates are lowest in fringe counties of large metro areas. In the Northeast and Midwest, central counties of large metro areas had the highest infant mortality rates in 1996–98 (45 percent higher than in fringe counties), while in the South and West, nonmetro counties had the highest rates (24 and 30 percent higher than in fringe counties) (figure 11).

- For the United States as a whole, death rates for **children and young adults** (ages 1–24 years) are lowest in fringe counties of large metro areas and highest in the most rural counties. In all regions except the Northeast, 1996–98 death rates in the most rural counties were over 50 percent higher than rates in fringe counties. In the Northeast and for males in the Midwest, death rates in central counties are as high as those in the most rural counties (figure 12).

- Nationally and within each region, death rates for **working-age adults** (age 25–64 years) are lowest in fringe counties of large metro areas. In the Northeast and Midwest, 1996–98 death rates were highest in central counties of large metro areas (34–53 percent higher than in fringe counties). In the South, death rates were highest in nonmetro counties (31–44 percent higher than in fringe counties) (figure 13).

- Nationally, death rates among **seniors** (age 65 years and over) are lower in large metro (central and fringe) counties than in nonmetro counties. Although in 1996–98 death rates for seniors varied by less than 10 percent across urbanization levels, this variation represents a large number of deaths (figure 14).

- For adults 20 years and over, urbanization patterns in **ischemic heart disease** (IHD) death rates differ by region. In the South, 1996–98 IHD death rates were lowest in fringe counties of large metro areas and over 20 percent higher in the most rural counties. In the Northeast and West, IHD death rates were highest in central counties of large metro areas (figure 15).

- For men 20 years and over, death rates for **chronic obstructive pulmonary diseases** (COPD) are lowest in large metro (central and fringe) counties and highest in nonmetro counties. For the nation as a whole, COPD rates among men were 30 percent higher in nonmetro counties than in large metro counties in 1996–98. Regionally, the urban-rural increase for men is largest in the Northeast, followed by the South. For women, COPD death rates vary little across urbanization levels, with an urban-rural increase found only in the Northeast (figure 16).

- Nationally and within each region, death rates from **unintentional injuries** increase markedly as counties become less urban (nationally, over 80 percent higher in the most rural counties than in fringe counties of large metro areas in 1996–98). Death rates for unintentional injuries were especially high in nonmetro counties of the South and West. Death rates for **motor vehicle traffic-related injuries** in the most rural counties are over twice as high as the rates in central counties of large metro areas (figure 17).

- For the United States as a whole and within each region, the highest **homicide** rates are found in central counties of large metro areas. In the Northeast and Midwest, 1996–98 homicide rates for males in central counties were about 7 times as high as those in nonmetro counties, where rates were lowest. In the South and West, the lowest homicide rates were found in fringe counties of large metro areas (figure 18).

- Nationally and within each region, **suicide** rates for males 15 years and over are lowest in large metro (central and fringe) counties and increase steadily as counties become less urban. In 1996–98 the urban-rural increase in male suicide was steepest in the West, where the rate for the most rural counties was nearly 80 percent greater than the rate in large metro counties (figure 19).

Other Urban-Rural Health Measures

Other important health indicators include adolescent childbearing, health-related activity limitations, and total tooth loss.

- The **birth rates for adolescents** 15–19 years of age are lowest in fringe counties of large metro areas. In the Northeast and Midwest, adolescent birth rates are substantially higher in central counties of large metro areas than in other urbanization levels. In the South and West, adolescent birth rates in small metro and nonmetro counties were similar to those in central counties (all more than 30 percent higher than rates in fringe counties) (figure 20).

- For the United States as a whole, **limitation in activity due to chronic health conditions** among adults is more common in nonmetro counties than in large metro counties. This urban-rural difference in activity limitation rates is most marked in the Northeast and South, where rates in nonmetro counties were more than 40 percent higher than those in large metro counties in 1997–98 (figure 21).

- For the United States as a whole, **total tooth loss** among seniors generally increases as urbanization declines. In 1997–98, almost one-half of lower income seniors living in nonmetro counties had lost all their natural teeth (figure 22).

Urban-Rural Health Care Access and Use

A community's health depends not only on the sociodemographic characteristics and risk factors of its residents, but also on their access to and use of health care services. Factors affecting access include health insurance coverage as well as provider supply.

- **Lack of health insurance** among nonelderly Americans is least common in fringe counties of large metro areas and most common in central counties and in the most rural counties. In 1997–98 lower income nonelderly persons were over three times as likely to be uninsured as higher income nonelderly persons at all urbanization levels. About one-third of lower income residents of central and nonmetro counties were uninsured in 1997–98 (figure 23).

- The urbanization pattern for **physician supply** depends on physician specialty. In 1998 the supply of family and general practice physicians rose slightly as urbanization decreases. By contrast, the supply of all other types of physicians decreased markedly as urbanization decreased, nationally and in all regions (figure 24).

- Nationally and in each region, **dentist supply** decreases markedly as urbanization decreases. Compared with other regions, the South had the fewest dentists per 100,000 population in 1998 at each level of urbanization (figure 25).

- The urbanization pattern for **dental care use** is similar to that for dentist supply. In 1997–98 for the United States as a whole, only 57 percent of adults (ages 18–64 years) in the most rural counties reported having a **dental visit** within the past year compared with 71 percent in fringe counties of large metro areas. Residents of nonmetro counties in the South were less likely to have had a dental visit in the past year than nonmetro residents of other regions (figure 26).

- **Inpatient hospital discharge rates** among adults (ages 18–64 years) are higher in nonmetro than in metro counties. Higher hospital use in nonmetro areas may result in part from delays in seeking care for conditions that could have been treated in ambulatory settings if detected earlier (figure 27).

- Admission rates to **substance abuse treatment** programs vary by primary substance and urbanization level of the county where the program is located. Nationally, alcohol treatment admission rates are higher in small metro and nonmetro counties with a city of 10,000 than in counties at other urbanization levels. Admission rates for opiates and cocaine tend to decrease as urbanization decreases (figure 28).

Mortality Trends

Overall life expectancy at birth remained the same and infant mortality was nearly level between 1998 and 1999, based on preliminary data. The Tenth Revision of the International Classification of Diseases (ICD-10) for coding cause of death was implemented in the United States in 1999, creating discontinuities in mortality trends between 1998 and 1999. Statements about mortality trends below take into account the effect of ICD-10 on the trend.

- In 1999 **life expectancy** at birth for the total population was unchanged from the record 76.7 years in 1998, based on preliminary data. Between 1993 and 1999 life expectancy at birth increased 3.2 years for black males to a record 67.8 years and 1.5 years for white males to a record 74.6 years (table 28).

- **Infant mortality** remained essentially unchanged between 1997 and 1999 at 7.1–7.2 deaths per 1,000 live births (based on preliminary data), after declining at an average rate of nearly 4 percent per year between 1970 and 1997 (table 23).

- Mortality from **heart disease**, the leading cause of death, continued to decline in 1999, based on preliminary data. Since 1970 heart disease mortality has declined at an average rate of about 2 percent per year (tables 30 and 32).

- Mortality from **cancer**, the second leading cause of death, declined 6 percent between 1990 and 1998, and continued to decline in 1999 (preliminary data), after adjusting for the discontinuity in the trend due to implementing ICD-10. In contrast cancer mortality increased slowly between 1970 and 1990 (tables 30 and 32).

- Mortality from **stroke**, the third leading cause of death, continued to decline in 1999 (preliminary data), after adjusting for the discontinuity in the trend due to implementing ICD-10. Between 1990 and 1998 stroke mortality declined slowly at an average rate of 1 percent per year. In contrast stroke mortality declined more rapidly between 1970 and 1990 at an average rate of about 4 percent per year (tables 30 and 32).

- Mortality from **chronic lower respiratory diseases**, the fourth leading cause of death, increased 13 percent between 1990 and 1998 and continued to increase in 1999, based on preliminary data. The upward trend in mortality from this cause is driven mainly by the upward trend in mortality among females (tables 30 and 32).

- Mortality from **unintentional injuries,** the fifth leading cause of death, declined 3 percent between 1990 and 1998 and continued to decline in 1999, based on preliminary data. The trend in unintentional injury mortality has been generally downward since the 1970's (tables 30 and 32).

Disparities in Mortality

Disparities in mortality among racial and ethnic groups continue. Starting with 1999 data, disparities among groups are measured using death rates age adjusted to the year 2000 standard population instead of the 1940 population. Disparities are generally smaller using this new standard, reflecting the greater weight that the 2000 standard gives to the older population for whom mortality differences among racial and ethnic groups tend to be smaller.

- In 1998 **infant mortality** rates were higher for infants of black, Hawaiian, and American Indian mothers (13.8, 10.0, and 9.3 deaths per 1,000 live births) than for infants of other race groups. Mortality rates for infants of Hispanic and non-Hispanic white mothers were similar (5.8 and 6.0 per 1,000 live births) (table 20).

- **Infant mortality** decreases as the mother's level of education increases and this disparity is greater for white mothers than for mothers of other racial and ethnic groups. In 1998 mortality for infants of non-Hispanic white mothers with less than 12 years of education was double that for infants whose mothers had 13 or more years of education. The disparity in infant mortality by mother's education was 36 percent for non-Hispanic black mothers and 8 percent for Mexican American mothers (table 21).

- In 1999 overall mortality was one-third higher for **black Americans** than for white Americans. Preliminary age-adjusted death rates for the black population exceeded those for the white population by 38 percent for **stroke**, 28 percent for **heart disease**, 27 percent for **cancer**, and more than 700 percent for **HIV disease** (table 30).

- **Homicide** is the leading cause of death for **young black males** 15–24 years of age and the second leading cause for **young Hispanic males**. In 1999 the preliminary homicide rate for young black males was 17 times the rate for young non-Hispanic white males, and the rate for young Hispanic males was 7 times the rate for young non-Hispanic white males. (table 46).

- **HIV disease** is the leading cause of death for **black males** 25–44 years of age and the third leading cause for **Hispanic males** in that age group. In 1999 the preliminary death rate for HIV disease for black males 25–44 years was more than 7 times the rate for non-Hispanic white males, and the rate for Hispanic

males 25–44 years was more than double the rate for non-Hispanic white males of that age (table 43).

■ In 1999 the preliminary death rate for **motor vehicle-related injuries for young American Indian males** 15–24 years of age was about 80 percent higher than the rate for young white males, and the preliminary **suicide** rate for young American Indian males was about double the rate for young white males. Death rates for the American Indian population are known to be underestimated (tables 45 and 47).

■ In 1999 preliminary death rates for **stroke for Asian American males** 45–54 and 55–64 years of age were 31–40 percent higher than corresponding rates for white males of those ages. Death rates for Asian Americans are known to be underestimated somewhat (table 38).

■ The risk of suicide is higher for elderly white males than for other groups. In 1999 the preliminary **suicide rate for white males** 85 years of age and over was more than 3 times that for young white males 15–24 years (table 47).

■ Between 1992 and 1999 the **occupational injury** death rate decreased 15 percent to 4.4 deaths per 100,000 employed workers. The two industries with the highest death rates were mining and agriculture, forestry, and fishing (22–24 deaths per 100,000). Construction with a death rate of 14 per 100,000 accounted for the largest number of deaths, 20 percent of all occupational injury deaths. The risk of a fatal occupational injury was highest among workers age 65 years and over (table 50).

Natality

Birth rates for teens continued the downward trend that began in 1992, while birth rates for women 25-44 years of age increased in 1999. The overall fertility rate increased for the second year after dropping each year during 1990-97. The proportion of babies born with low birthweight was unchanged from 1998.

■ In 1999 the **birth rate for teenagers** declined for the eighth consecutive year, to 49.6 births per 1,000 women aged 15–19 years, an all-time low for the Nation. Between 1991 and 1999 the teen birth rate declined more for 15–17 year-olds than for 18–19 year-olds (26 percent compared with 15 percent) (table 3).

■ In 1999 the **birth rate for unmarried women** increased slightly to 44.4 births per 1,000 unmarried women ages 15–44 years, 5 percent below its highest level, 46.9 in 1994. Over the past decade birth rates for unmarried black women declined steadily to 71.5 per 1,000; birth rates for unmarried Hispanic women increased to 93.4 per 1,000 in 1999, reversing a 4-year decline (table 9).

■ **Low birthweight** is associated with elevated risk of death and disability in infants. In 1999 the rate of low birthweight (infants weighing less than 2,500 grams at birth) was unchanged at 7.6 percent overall, up from 7.0 percent in 1990. During the 1990's low-birthweight rates decreased slightly among black births while increasing 16–18 percent among non-Hispanic white, American Indian, and Asian or Pacific Islander births (table 12).

■ **Cigarette smoking during pregnancy** is a risk factor for poor birth outcomes such as low birthweight and infant death. In 1999 the proportion of mothers who smoked cigarettes during pregnancy declined to a record low of 12.6 percent, down from 19.5 percent in 1989. However the percent of mothers ages 18–19 years who smoked continued to increase in 1999 and smoking rates for mothers ages 20–24 years rose for the first time in a decade (table 11).

Morbidity

Activity limitation and health status (self- or family member-assessed) are two summary measures of morbidity presented in this report. Additional measures of morbidity that are presented include the incidence of specific diseases.

■ **Activity limitation** due to chronic health conditions is common among noninstitutionalized elderly persons and increases substantially with age. In 1998 about 29 percent of persons 65–74 years of age reported an activity limitation compared with 47 percent of persons 75 years of age and over. Some 10 percent of noninstitutionalized persons 75 years of age and over reported needing help with personal care needs such as bathing, dressing, and eating and 21 percent reported needing assistance with routine needs such as household chores and shopping (table 57).

■ In 1999 the percent of persons reporting **fair or poor health** was higher for non-Hispanic black and Hispanic persons (15 and 12 percent) than for non-Hispanic white persons (8 percent) (age adjusted) (table 58).

■ In 1999, 7.5 percent fewer **AIDS cases** were reported among the non-Hispanic white population 13 years and over than in the previous year, whereas there was a slight increase (1.3 percent) in the number of new cases reported among the non-Hispanic black population. Among children under 13 years of age, 31 percent fewer cases were reported in 1999, a

continuation of the steep decline in pediatric AIDS incidence during the 1990's, principally among perinatally acquired infections (table 53).

- **Syphilis** facilitates transmission of HIV disease. The 1999 rate of 2.5 primary and secondary syphilis cases per 100,000 population was the lowest rate since national reporting began in 1941. However the decline in the incidence rate for primary and secondary syphilis slowed to 5 percent in 1999, following average reductions of more than 20 percent per year since the last major syphilis epidemic peaked in 1990 (table 52).

- **Gonorrhea** causes infertility and facilitates transmission of HIV disease. In 1999 gonorrhea incidence increased for the second year in a row to 133 cases per 100,000 population, following an average annual decline of 11 percent between 1990 and 1997 (table 52).

- Incidence rates for **all cancers combined** declined in the 1990's for males but not for females. Between 1990 and 1997 age-adjusted cancer incidence rates declined on average about 2 percent per year for non-Hispanic white males and Hispanic males. Although there was no significant change in cancer incidence for females overall, among Hispanic females, rates decreased on average almost 2 percent per year and among Asian or Pacific Islander females, rates increased almost 1 percent per year (table 55).

- The most frequently diagnosed **cancer sites in males** are prostate, followed by lung and bronchus and colon and rectum. Cancer incidence at these sites is higher for black males than for males of other racial and ethnic groups. In 1997 age-adjusted cancer incidence rates for black males exceeded those for white males by 60 percent for prostate, 58 percent for lung and bronchus, and 14 percent for colon and rectum (table 55).

- Breast is the most frequently diagnosed cancer site in females. **Breast cancer** incidence is higher for non-Hispanic white females than for females in other racial and ethnic groups. In 1997 age-adjusted breast cancer incidence rates for non-Hispanic white females exceeded those for black females by 22 percent, for Asian or Pacific Islander females by 44 percent, and for Hispanic females by 88 percent (table 55).

- Between 1980 and 1999 the **injuries with lost workdays** rate decreased 28 percent to 2.8 per 100 full-time equivalents (FTE's) in the private sector. The highest injury rate was reported for the transportation, communication, and public utilities industry (4.3 per 100 FTE's) (table 51).

Health Behaviors

Cigarette smoking is the single leading preventable cause of death in the United States. It increases the risk of lung cancer, heart disease, emphysema, and other respiratory diseases. Heavy and chronic use of alcohol and use of illicit drugs increase the risk of disease and injuries.

- In 1999 **cigarette smoking** among persons 25 years of age and over ranged from 11 percent among college graduates to 32 percent among persons without a high school diploma. Between 1974 and 1999 cigarette smoking levels declined for all educational groups with more rapid declines among persons with higher education (percents are age adjusted) (table 61).

- In 1999, 63 percent of adults 18 years of age and over reported they were **current drinkers**, 22 percent that they were lifetime abstainers, and 15 percent that they were former drinkers. Men were more likely than women to be current drinkers, one-half as likely to be lifetime abstainers, and equally as likely to be former drinkers (table 66).

- Between 1992 and 1999 the number of **cocaine-related emergency department episodes** per 100,000 population for persons 35 years and over increased by more than 80 percent to 64 per 100,000. Among those 26–34 years, the age group with the highest episode rates, the 1999 rate (162 per 100,000) was 16 percent higher than in 1992. The same patient may be involved in multiple drug-related episodes (table 65).

- Between 1993 and 1999, the percent of high school students who reported attempting suicide (8–9 percent) and whose **suicide attempts** required medical attention (about 3 percent) remained fairly constant. In 1999 girls were 80–90 percent more likely than boys to consider suicide or attempt suicide, and 50 percent more likely to make an attempt that required medical attention. In 1999 adolescent boys (15–19 years of age), however, were five times as likely to die from suicide as were adolescent girls, in part reflecting their choice of more lethal methods, such as firearms (table 59).

Preventive Health Care

Use of preventive health services helps reduce morbidity and mortality from disease. Use of several different types of preventive services has been increasing. However, disparities in use of preventive health care by race and ethnicity and by family income remain in evidence.

- Between 1990 and 1999 the percent of mothers receiving **prenatal care** in the first trimester of pregnancy increased from 76 to 83 percent. The largest increases in receipt of early prenatal care have occurred for racial and ethnic groups with the lowest levels of use, thereby reducing disparities in use of early care. However in 1999 the percent of mothers with early prenatal care still varied substantially among racial and ethnic groups, from 70 percent for American Indian mothers to 91 percent for Cuban mothers and Japanese mothers (table 6).

- In 1999, 78 percent of children 19–35 months of age received the combined **vaccination** series of 4 doses of DTP (diphtheria-tetanus-pertussis) vaccine, 3 doses of polio vaccine, 1 dose of measles-containing vaccine, and 3 doses of Hib (Haemophilus influenzae type b) vaccine, up from 69 percent in 1994. Children living below the poverty threshold were less likely to have received the combined vaccination series than were children living at or above poverty (73 compared with 81 percent) (table 73).

- In 1998 and 1999 only 100 cases of **measles** were reported, down from 28,000 cases in 1990, providing evidence of the success of vaccination efforts to increase population immunity to measles (table 52).

- Between 1987 and 1998 the percent of women 40 years of age and over with **mammography** screening in the previous 2-year period more than doubled, from 29 to 67 percent. During this period, the gap between poor women and women with family incomes at or above the poverty level narrowed. In 1998 poor women were 27 percent less likely than women with family incomes above the poverty level to have a recent mammogram (51 compared with 69 percent) while in 1987 poor women were nearly 50 percent less likely (16 compared with 31 percent) (table 82).

Access to Care

Access to health care is important for preventive care and for prompt treatment of illness and injuries. Some indicators of access to health care services include having a usual source of health care, having a recent health care contact, use of the emergency department, and treatment of health problems such as dental caries. Access to health care varies by health insurance status and poverty status.

- In 1998, 13 percent of children under 18 years of age had no **health insurance coverage**. Twenty-eight percent of children under 18 years with family incomes of 1–1.5 times the poverty level were without coverage compared with only 5 percent of those with family incomes at least twice the poverty level (table 130).

- In 1999, 16 percent of school-age children 6–17 years of age had no **health care visits to an office or clinic** within the past year. Poor school-age children were nearly twice as likely as those with family incomes at least twice the poverty level to be without a health care visit (23 compared with 12 percent) (table 75).

- In 1998–99 about 8 percent of school-age children 6–17 years of age had **no usual source of health care**. Nearly one-third of school-age children without health insurance coverage had no usual source of health care compared with 4 percent of those with insurance (table 76).

- In 1999 almost three-quarters of children 2–17 years of age had a **dental visit** in the past year. Poor and near poor children were less likely to have a recent dental visit than were those with family incomes at least twice the poverty level (58 and 62 percent compared with 80 percent) (table 80).

- In 1988–94 nearly one-quarter of school-age children 6–17 years of age had at least one untreated **dental caries** (cavity), down from 55 percent in 1971–74. Although substantial declines in untreated dental caries occurred for school-age children at all income levels, declines were greater for nonpoor than for poor and near poor children. In 1988–94 some 36 percent of school-age children living in poverty had untreated dental caries compared with about 15 percent of nonpoor children (table 81).

- In 1999, 15 percent of school-age children 6–17 years of age had an **emergency department visit** within the past 12 months. School-age children living below the poverty threshold were 50 percent more likely than nonpoor children to have a recent emergency department visit (21 compared with 14 percent) (table 77).

- In 1999, 17 percent of adults 18 years of age and over had an **emergency department visit** within the past 12 months and 5 percent had two or more visits. Having two or more emergency department visits was 3 times as common among poor adults as among those with family incomes at least twice the poverty level (12 compared with 4 percent) (table 79).

Outpatient Care

Major changes continue to occur in the delivery of health care in the United States, driven in large part by the need to rein in rising costs. One significant change has been a decline in use of inpatient services and an increase in outpatient services such as outpatient surgery, home health care, and hospice care.

- In 1999, 62 percent of all **surgical operations** in community hospitals were performed on outpatients, up from 51 percent in 1990, 35 percent in 1985, and 16 percent in 1980 (table 96).

- Between 1996 and 1998 use of **home health care** by persons 65 years of age and over declined from 547 to 381 per 10,000 population, after increasing steadily between 1992 and 1996. The recent decline was a result of the Balanced Budget Act of 1997, which imposed stricter limits on the use of home health services funded by Medicare and interim limits on Medicare payments to home health agencies from October 1997 until a prospective payment system was implemented for Medicare home health agencies in October 2000 (data are age adjusted) (table 88).

- Use of **hospice care** by persons 65 years of age and over increased by 35 percent to about 18 patients per 10,000 population during the period 1994 to 1998. Among the elderly, use of hospice services was slightly higher for males than females (20 compared with 17 patients per 10,000 in 1998). Cancer was the most common diagnosis among hospice patients (data are age adjusted) (table 89).

Inpatient Care and Resources

Utilization of hospital inpatient services has declined, as has the number of beds in community hospitals. Utilization of nursing home care has also declined.

- Between 1985 and 1999 the **hospital discharge rate** declined 22 percent, from 151 to 118 discharges per 1,000 population, while **average length of stay** declined 1.6 days, from 6.6 to 5.0 days (data are age adjusted) (table 91).

- **Hospital discharge rates** are higher among poor persons than among those with higher family incomes. In 1999 among persons under 65 years of age, hospital discharge rates for the poor were more than double those for persons with family incomes at least twice the poverty level (174 and 82 per 1,000 population). Average length of stay was 2.1 days longer for poor than for nonpoor persons (5.7 and 3.6 days) (data are age adjusted) (table 90).

- Between 1990 and 1999 the number of **community hospital beds** declined from 927,000 to 830,000. Community hospital occupancy, estimated at 63 percent in 1999, has been relatively stable since the mid-1990's, after declining from 67 percent in 1990 and 76 percent in 1980 (table 108).

- In 1999 there were almost 1.5 million elderly **nursing home residents** 65 years of age and over. More than one-half of the elderly residents were 85 years of age and over and almost three-fourths were female. Between the mid-1970's and 1999 nursing home utilization rates increased for the black population and decreased for the white population (table 97).

- In 1999 there were 1.8 million **nursing home beds** in facilities certified for use by Medicare and Medicaid beneficiaries. Between 1995 and 1999 nursing home bed occupancy in those facilities was relatively stable, estimated at 83 percent in 1999 (table 112).

- Between 1986 and 1998 the supply of **beds in State and county mental hospitals** was reduced by one-half, from 50 to 24 beds per 100,000 population (table 109).

National Health Expenditures

After 25 years of double-digit annual growth in national health expenditures, the rate of growth slowed during the 1990's. At the end of the decade the rate of growth started edging up again. The United States continues to spend more on health than any other industrialized country.

- In 1999 **national health care expenditures** in the United States totaled $1.2 trillion, increasing 5.6 percent from the previous year compared with a 4.8 percent increase in 1998. During the 1990's annual growth had slowed, following an average annual growth rate of 11 percent during the 1980's (table 114).

- The rate of increase in the medical care component of the **Consumer Price Index (CPI)** increased to 4.1 percent in 2000 from 3.3 percent per year during 1995–99. The CPI for hospital and related services showed the greatest price increase in 2000 (5.9 percent) compared with other components of medical care (table 115).

- Between 1995 and 1999 **health expenditures as a percent of the gross domestic product (GDP)** stabilized at 13.0–13.3 percent, due to the combination of strong economic growth and slower rates of increase in health spending than in earlier years (table 114).

- The United States spends a larger **share of the GDP on health** than any other major industrialized country. In 1998 the United States devoted 13.0 percent of the GDP to health compared with 10.4–10.6 percent each in Switzerland and Germany and 9.5–9.6 percent in Canada and France, countries with the next highest shares (table 113).

Expenditures by Type of Care and Source of Funds

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

- **Expenditures for hospital care** as a percent of national health expenditures continued to decline, from 41 percent in 1980 to 32 percent in 1999. Physician services accounted for 22 percent of the total in 1999, prescription drugs for 8 percent, and nursing home care for 7 percent (table 117).

- **Home health care expenditures** declined 4 percent between 1997 and 1999 as Medicare's cost controls and renewed fraud-and-abuse detection activities restrained growth in spending (table 117).

- In 1999 **prescription drug expenditures** increased 17 percent compared with an average annual rate of increase of 12 percent between 1995 and 1998. In 1999 prescription drugs posted one of the highest rates of price increase in the Consumer Price Index, 5.7 percent, although it dropped to 4.4 percent in 2000 (tables 115 and 117).

- The rate of growth in **total expenses in community hospitals** is edging upward. In 1999 community hospital total expenses increased 5.1 percent compared with a 4.3-percent increase in 1998 and an average annual increase of 3.5 percent between 1995 and 1997 (table 122).

- In 1999, 33 percent of **personal health care expenditures** were paid by the Federal Government and 11 percent by State and local government; private health insurance paid 34 percent and consumers paid 18 percent out-of-pocket (table 118).

- In 1999 the major **sources of funds** for hospital care were Medicare (31 percent) and private health insurance (32 percent). Physician services were also primarily funded by private health insurance (48 percent) and Medicare (20 percent). In contrast, nursing home care was financed primarily by Medicaid (47 percent) and out-of-pocket payments (27 percent) (table 118).

- In 1999, 43 percent of **prescription drug expenditures** were paid by private health insurance (up from one-quarter at the beginning of the decade), 35 percent by out-of-pocket payments (down from 59 percent in 1990), and 17 percent by Medicaid (table 118).

- In 1996, 84 percent of **persons under age 65** reported **medical expenses** averaging $1,900 per person with expense, an increase of 53 percent over 1987. Nineteen percent of these expenses were paid out-of-pocket, 57 percent by private insurance, and 18 percent by public coverage (mainly Medicaid) (table 119).

- In 1996 the **uninsured** under age 65 were less likely to have had a **medical expense** than were those with public or private coverage (62 percent compared with 84 and 88 percent) (table 119).

- In 1996, 96 percent of **elderly persons** reported **medical expenses** averaging $5,600 per person with expense, an increase of 46 percent over 1987. Fifteen percent of expenses were paid out-of-pocket, 19 percent by private insurance, and 64 percent by public programs (mainly Medicare and Medicaid) (table 119).

- In 1996, 88 percent of elderly persons had a **prescribed medicine expense** compared with 82 percent in 1987. In 1996 the average annual out-of-pocket prescribed medicine expense per elderly person with expense ($405) was 91 percent higher than in 1987 (table 119).
- In 1999 the average monthly charge per **nursing home** resident was $3,891. Residents for whom the source of payment was private insurance, family support, or their own income paid close to the average charge, compared with an average monthly charge of $5,800 when Medicare was the payor and $3,500 when Medicaid was the source of payment (table 124).
- **The National Institutes of Health (NIH)** account for about four-fifths of Federal funding for health research and development. In 1999 the National Cancer Institute accounted for 20 percent of NIH's research and development budget; the National Heart, Lung and Blood Institute for 12 percent; and the National Institute of Allergy and Infectious Diseases for 10 percent. The Department of Defense accounted for 6 percent of Federal funding for health research and development (table 126).
- In 2000 **Federal expenditures for HIV-related activities** increased 10 percent to $11 billion, compared with a 12-percent increase the previous year. Of the total Federal HIV-related spending in 2000, 58 percent was for medical care, 19 percent for research, 13 percent for cash assistance, and 10 percent for education and prevention (table 127).

Publicly Funded Health Programs

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

- In 1999 the **Medicare** program had 39 million enrollees and expenditures of $213 billion (table 135).
- In 1997, 83 percent of **Medicare** beneficiaries were non-Hispanic white, 9 percent were non-Hispanic black, and 6 percent were Hispanic. Some 22–25 percent of Hispanic and non-Hispanic black beneficiaries were persons under 65 years of age entitled to Medicare through **disability** compared with 10 percent of non-Hispanic white beneficiaries (table 137).
- In 1997 non-Hispanic white **Medicare** beneficiaries were more likely to have received **dental care** than were non-Hispanic black or Hispanic beneficiaries (45 percent compared with 24 percent and 29 percent) (table 137).
- **Total health expenditures per Medicare beneficiary** (including non-Medicare health expenditures) varied from $7,200 for Hispanic beneficiaries to $9,200 for non-Hispanic white and $12,000 for non-Hispanic black beneficiaries in 1997 (table 137).
- In 1999 **hospital insurance (HI)** accounted for 61 percent of Medicare expenditures. Expenditures for home health agency care decreased to 6 percent of HI expenditures in 1999, down from 14 percent in 1995 (table 135).
- In 1999 **supplementary medical insurance (SMI)** accounted for 39 percent of Medicare expenditures. Payments to managed care organizations increased to 20 percent of SMI expenditures in 1999, up from 6 percent in 1990 (table 135).
- Of the 32 million **Medicare enrollees in the fee-for-service program** in 1998, 11 percent were 85 years of age and over and 14 percent were under 65 years of age. Among elderly fee-for-service Medicare enrollees, payments increased with age from an average of $4,000 per year per enrollee for those aged 65–74 years to $7,600 for those 85 years and over. Average payments per fee-for-service enrollee declined in 1998 (table 136).
- In 1998 **Medicare payments per enrollee** varied by State, ranging from $3,600–$3,800 in Hawaii, Montana, North Dakota, and South Dakota to $6,800–$7,100 in Louisiana and the District of Columbia (table 145).
- In 1998 **Medicaid** vendor payments totaled $142 billion for 41 million recipients (table 138).
- In 1998 children under the age of 21 years accounted for 47 percent of **Medicaid recipients** but only 16 percent of expenditures. Aged, blind, and disabled persons accounted for 26 percent of recipients and 71 percent of expenditures (table 138).
- In 1998, 22 percent of **Medicaid payments** went to nursing facilities, 15 percent to inpatient general hospitals, 14 percent to prepaid health care, and 10 percent to prescribed drugs (table 139).
- In 1998, 50 percent of **Medicaid recipients** used prepaid health care at a cost averaging $955 per recipient (table 139).
- In 1998 the percent of **Medicaid recipients enrolled in managed care** varied substantially among States, from 0 in Alaska and Wyoming to

98–100 percent in Montana, Colorado, and Tennessee (table 146).

■ Between 1998 and 1999 spending on health care by the **Department of Veterans Affairs** increased 2.5 percent, to $17.9 billion. In 1999, 38 percent of the total was for inpatient hospital care, down from 58 percent in 1990; 44 percent for outpatient care, up from 25 percent in 1990; and 10 percent for nursing home care, unchanged since 1990. In 1999, 54 percent of inpatients and 40 percent of outpatients were low-income veterans without service-connected disability (table 140).

Privately Funded Health Care

About 70 percent of the population has private health insurance, most of which is obtained through the workplace. The share of employees' total compensation devoted to health insurance has been declining in recent years, but increased in 2000. The health insurance market continues to change as new types of health insurance products are introduced. Use of traditional fee-for-service medical care continues to decline.

■ Between 1994 and 1998 the age-adjusted proportion of the population under 65 years of age with **private health insurance** has remained stable at 71–72 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 1998 (table 128).

■ In 2000 **private employers' health insurance costs** per employee-hour worked increased to $1.09 from $1.00 in 1998, after declining from $1.14 in 1994. Among private employers the share of total compensation devoted to health insurance was 5.5 percent in 2000, up slightly from 5.4 percent in 1998 and 1999 (table 121).

■ In 2000 enrollment in **health maintenance organizations (HMO's)** totaled 81 million persons or 30 percent of the U.S. population. HMO enrollment ranged from 23 percent in the Midwest and South to 37 percent in the Northeast and 42 percent in the West. HMO enrollment increased steadily through 1999 but declined by 400,000 in 2000. The number of HMO plans decreased by 12 percent, to 568 plans in 2000 (table 133).

■ In 2000 the percent of the population enrolled in **HMO's** varied among the States, from 0 in Alaska to 53–54 percent in Massachusetts and California. Other States with 40 percent or more of the population enrolled in HMO's in 2000 included Connecticut, Maryland, Colorado, and Oregon (table 147).

■ In 1999, 17 percent of the U.S. population under age 65 years had no **health care coverage** (either public or private). The proportion of the nonelderly population without health care coverage varied from less than 10 percent in Rhode Island, Minnesota, Iowa, and Missouri to one-quarter or more in Louisiana, Texas, and New Mexico (table 148).

Urban and Rural Health Chartbook

Knowing the characteristics of communities and how they differ is important for shaping health policy (1). The level of urbanization in an area has long been recognized as an important characteristic affecting access to health services. Rural health policy, in particular, has traditionally focused on reduced access to health services caused by the relative scarcity of health care providers in nonmetropolitan areas (2). Increasingly, policy makers have recognized that communities at different urbanization levels also differ in their demographic, environmental, economic, and social characteristics, and that these characteristics greatly influence the magnitude and types of health problems communities face. The number of children and elderly persons, environmental and occupational exposures, economic resources, health-related behaviors, and availability and use of health services all vary with urbanization level. Many residents in large urban centers lack health insurance coverage (figure 23), for example, making access to health services a problem in these areas despite a large supply of health care providers (figures 24 and 25). This chartbook describes some of the differences in population characteristics, health risk factors, health status, and health care access across urbanization levels. The health indicators selected for examination in this chartbook represent topics of major public health concern. Some of these topics have been identified as Leading Health Indicators in Healthy People 2010 including physical activity (figure 10), obesity (figure 9), tobacco use (figures 6 and 7), alcohol abuse (figure 8), infant mortality (figure 11), unintentional injury and motor vehicle deaths (figure 17), homicide (figure 18), suicide (figure 19), and health insurance coverage (figure 23) (3). The examination of health indicators by urbanization level is primarily descriptive; causal mechanisms are likely to be varied and numerous. Descriptions of differences are important in assessing the magnitude and type of health problems confronting communities at different levels of urbanization.

Urbanization Level Defined

When developing policies to address problems of access to care and health status, policy makers have used a number of different classification systems to distinguish among different urbanization levels. The most commonly used classification systems are the Office of Management and Budget's (OMB) metropolitan-nonmetropolitan system and urbanization levels based on this system (4). As described in the Technical Notes, the OMB defines metropolitan areas (including metropolitan statistical areas, consolidated metropolitan statistical areas, and primary metropolitan statistical areas) according to published standards (5). The basic concept of a metropolitan area is that of a core area containing a large population nucleus, together with adjacent communities having a high degree of social and economic integration with that core. Counties included in a metropolitan area are considered to be metropolitan; counties not included in a metropolitan area are considered to be nonmetropolitan.

Metropolitan and nonmetropolitan, as defined by the OMB, are not synonymous with urban and rural as defined by the U.S. Bureau of the Census (6). The terms urban and rural as used in the chartbook are general descriptors only. They do not refer to the Bureau of the Census statistical definitions.

The use of the county as the geographic building block for the OMB metropolitan-nonmetropolitan system has a number of advantages. Counties are familiar entities to most persons, their boundaries are stable, and many data systems include county identifiers.

In this chartbook counties are grouped into five urbanization levels to reflect their position on a scale ranging from most urban to most rural (see Technical Notes detailed definitions of urbanization levels). This five-level classification system is based on the U. S. Department of Agriculture's Urban Influence Codes (see Technical Notes)— which, in turn, are based on the June 1993 OMB metropolitan-nonmetropolitan classification of counties. Use of a multilevel system permits description of urbanization in a more continuous fashion than the dichotomous metropolitan-nonmetropolitan classification. Use of a county-based system ensures availability of a wide variety of health data.

Three of the five urbanization levels in the chartbook classification system are for metropolitan (metro) counties and two are for nonmetropolitan (nonmetro) counties. The levels are:

Metropolitan counties

A. Large central
B. Large fringe
C. Small

Nonmetropolitan counties

D. With a city of 10,000 or more population
E. Without a city of 10,000 or more population.

Counties are assigned to level A if they contain all or part of the largest central city of a large (1 million or more population) metropolitan statistical area or primary metropolitan statistical area. Counties are

assigned to level B if they are in a large (1 million or more population) metropolitan statistical area or primary metropolitan statistical area but do not contain any part of the largest central city. Counties in metropolitan areas with less than 1 million population are assigned to level C. Level A counties are considered the most urban, with level B and level C counties considered progressively less urban. Level A counties are referred to as central counties, and level B counties as fringe counties.

Nonmetro counties are assigned to level D if they contain all or part of a city of 10,000 or more; otherwise nonmetro counties are assigned to level E. Level E counties are referred to as the most rural. When sample sizes are small, the two nonmetro levels are combined into one level, labeled D+E, in the figures.

The composition of the five urbanization categories for each region is described in the Technical Notes. For Levels A and B the metro areas contributing the most population are listed. For Levels C, D, and E, the States contributing the most population are listed.

Organization of the Chartbook

The *Urban and Rural Health Chartbook* presents charts on population characteristics, health risk factors, health status, and health care access for residents of U.S. counties grouped according to urbanization level. To examine regional variation in health patterns by urbanization level, charts also generally include estimates for each of four geographic regions - Northeast, Midwest, South, and West, as defined by the U.S. Bureau of the Census (see Appendix II, Geographic region). Many findings are also presented separately for men and women. For most of the charts, estimates by urbanization level are presented graphically as dots connected by lines. This style of graphical presentation emphasizes the ordering of the urbanization levels from most urban to most rural. It also facilitates the comparison of urbanization patterns by region and sex.

Age groups examined vary by outcome; most estimates are age adjusted to the year 2000 standard population (see Technical Notes). Some measures are presented by family income expressed as a percent of the Federal poverty threshold. It was not possible to produce a comprehensive examination of variation in health measures for racial and ethnic subgroups by urbanization level and geographic region. The uneven geographic distribution of racial and ethnic subgroups produces insufficient numbers of observations for reliable statistical analyses for many of the measures included in the chartbook; however, when sample size permits, differences for racial and ethnic subgroups of the population are discussed in the text.

The charts and accompanying text are followed by Technical Notes and a data table corresponding to each chart. The Technical Notes provide information about data sources and methods used that are not covered in Appendixes I and II. All data tables include the points graphed in the relevant chart; certain tables also include related data not included in the chart, as well as standard errors of estimates.

Population Characteristics

The first section of the chartbook describes selected sociodemographic characteristics of the U.S. population according to urbanization level within the four geographic regions of the United States. Nearly 80 percent of the U.S. resident population live in metro counties (figure 2). The Midwest and South are the most rural regions of the United States, with one in every four inhabitants residing in a nonmetro county.

Differences in the demographic, social, and economic conditions at different urbanization levels in each region help determine the degree and type of health problems and health care needs in particular areas. Populations in more rural counties are older (figure 3). Populations in central counties of large metro areas are more racially and ethnically diverse (figure 4). The relative economic advantage of residents of fringe counties in large metro areas (figure 5) is reflected in their generally most favorable outcomes for most of the health indicators examined in the remaining sections of the chartbook.

Health Behaviors and Risk Factors

The second section of the chartbook presents findings for selected measures of health-related behaviors and other risk factors. Nationally, cigarette smoking among adolescents is less common in central counties of large metro areas than in less urbanized counties (figures 6). Among adults cigarette smoking tends to be more common in nonmetro counties than in fringe counties of large metro areas (figure 7). Although the prevalence of heavy alcohol consumption varies little by urbanization level (figure 8), heavy alcohol consumption among men who are current drinkers is more common in nonmetro than metro counties. The prevalence of obesity varies little by urbanization level among men, but women living in fringe counties of large metro areas are less likely to be obese than

women in other counties (figure 9). Similarly, for the United States as a whole, leisure-time physical activity is relatively common among residents of fringe counties, whereas residents of other counties are more likely to be physically inactive in their leisure time (figure 10). Although there are regional differences in the patterns, where health behaviors vary across urbanization levels, higher rates of adverse behaviors are usually found in either nonmetro counties, or central counties of large metro areas, or both. Seeking to alter behavior leading to increased risk of disease and disability poses distinct challenges for central counties of large metro areas with their ethnically diverse and large economically disadvantaged populations, and equally distinct but different challenges in nonmetro counties with dispersed populations.

Mortality

The third section of the chartbook shows urban and rural patterns in death rates at specific ages and for selected causes. For each age group examined, fringe counties of large metro areas have the lowest death rates (figures 11–14). The urbanization category with the highest age-specific mortality varies by region and age group. Infant mortality rates are highest in central counties in the Northeast and Midwest, but rates in the South and West are highest in the small metro and nonmetro counties (figure 11). Depending on the region, the highest death rates for children and young adults (1–24 years of age) are found in either central counties of large metro areas or the most rural counties, but at both of these urbanization levels death rates tend to be higher than in fringe counties (figure 12). Intentional and unintentional injuries are major contributors to the pattern for this age group — with motor vehicle traffic-related injuries (figure 17) and suicide (figure 19) responsible for much of the excess mortality in nonmetro counties and homicide (figure 18) contributing to higher rates in central counties. In the Northeast and Midwest death rates for working age adults (25–64 years of age) are higher in central counties of large metro areas than in counties at all other urbanization levels. In the South residents of nonmetro counties have the highest death rates at 25–64 years of age (figure 13), due in part to higher death rates for ischemic heart disease (figure 15). For seniors (age 65 years and over), mortality is higher in nonmetro counties than in large metro counties (central and fringe), except in the Midwest. However, the relative urban-rural increase is less pronounced for seniors than for younger ages (figure 14). The higher prevalence of smoking in more rural counties (figure 7) contributes to the higher death rate from chronic obstructive pulmonary diseases for men in these counties (figure 16).

Other Health Status Measures

The fourth section of the chartbook shows urbanization patterns for other selected health status measures: teen childbearing, health-related activity limitation, and total tooth loss.

Birth rates among adolescents are lowest in fringe counties of large metro areas and substantially higher in counties at all other levels of urbanization. In all regions teen birth rates in central counties of large metro areas are much higher than those in fringe counties, and in the South and West small metro and nonmetro counties have rates similar to those in central counties (figure 20).

Two health measures strongly reflective of health-related quality of life are limitation of activity caused by chronic health conditions and total tooth loss (figures 21 and 22). The urbanization patterns observed for these two measures indicate that nonmetro counties have a larger proportion of their population with total tooth loss and with chronic health conditions that affect daily functioning than counties at other urbanization levels.

Health Care Access and Use

The last section of the chartbook focuses on health care access and use. These measures show that access to health care and use of health services vary by urbanization level. Residents of fringe counties of large metro areas, who tend to fare better on most measures of health status than residents of other counties, are more likely to have health insurance than residents of other counties. Lack of health insurance is most common in central counties of large metro areas and in the most rural counties (figure 23). Availability of physician specialists and dentists is reduced in nonmetro counties (figures 24 and 25), while hospitalization rates are higher and average length of stay is shorter (figure 27). In combination, these findings suggest that residents of more rural counties may resort to hospital care for conditions that could have been treated with ambulatory care, because ambulatory care was less available or financially inaccessible because they lack health insurance. In addition, nearly one-half of adults under 65 living in the most rural counties have not seen a dentist in the past year (figure 26). This relative lack of regular preventive

dental care may contribute to the high rates of total tooth loss seen in nonmetro counties (figure 22).

Chartbook Data Sources

Health-related and demographic data presented in this chartbook are from several national data systems. These are listed below and described in the Technical Notes and Appendix I.

The U.S. Census Bureau provided population estimates for 1996–98 by age, race, and Hispanic origin and 1997 estimates of the population in poverty. The 1997 and 1998 National Health Interview Survey of the National Center for Health Statistics was used for estimates of adult cigarette smoking, heavy alcohol use, obesity, physical inactivity, activity limitation, edentulism (total tooth loss), health insurance coverage, and dental visits. The 1999 National Household Survey on Drug Abuse of the Substance Abuse and Mental Health Services Administration was used to estimate cigarette smoking among adolescents. Data from the 1996–98 National Vital Statistics System were used to estimate death rates and teen birth rates. The 1998 National Hospital Discharge Survey of the National Center for Health Statistics was used to estimate hospital discharge rates and average length of hospital stay. Estimates of physicians were based on 1998 data collected by the American Medical Association and estimates of dentists were based on 1998 data collected by the American Dental Association. Data from the 1998 Treatment Episode Data Set (TEDS) maintained by the Substance Abuse and Mental Health Services Administration were used to estimate substance abuse treatment admission rates (see Technical Notes).

Data Gaps and Limitations

Data sources could only be used for this chartbook if they included county identifiers as well as data from a sufficient number of counties at each urbanization level to yield reliable estimates. Some health surveys collect information in fewer than 5 percent of U.S. counties. Many health surveys include only a limited number of nonmetro counties in their samples because of the high cost of collecting data in sparsely populated areas. Some surveys collect data for such a limited number of nonmetro counties that they cannot provide reliable estimates for nonmetro counties even taken as a whole. Many others sample a sufficient number of nonmetro counties to calculate reliable estimates for nonmetro counties as a whole, but not for nonmetro subcategories.

Reliable estimates for racial and ethnic subgroups within region and urbanization level can only be calculated in some cases. Most data sources do not have a sufficient number of observations from nonmetro counties to permit calculation of reliable estimates for racial and ethnic subgroups. Even the most comprehensive data systems, such as the National Vital Statistics System, do not yield reliable estimates for all racial and ethnic subgroups by region and urbanization level because of the uneven distribution of these subgroups across the country. For example, non-Hispanic black persons constitute only 1 percent of the population living in nonmetro counties in the West, with only 61 deaths from all causes occurring during 1996 for males and females ages 1–24 years. Estimates based on small numbers like this may not accurately reflect the true mortality experience of this group over time.

Respondent confidentiality is another factor that limits the ability to make subnational estimates. In the Northeast only 31 counties are classified as level D (nonmetro counties with a city of 10,000 or more population). Surveys that involve health institutions may have only one institution in this region and urbanization category from which to sample. If so, estimates for this category could lead to identification of an institution, thus violating the commitment to confidentiality required by law and made at data collection.

Yet another problem for some data sources is missing county of residence. This may occur because address or county of residence is not recorded due to cost or confidentiality constraints— frequently the case for data systems based on administrative records.

A more general caveat is that, even when available, county of residence may not provide an accurate reflection of the level of urbanization relevant to a given resident. It has long been recognized that, because of its geographic extent, a metropolitan county often includes territory not functionally integrated with a specific urban core. This is especially true for large counties, which often contain many small cities and sparsely populated territory located at a considerable distance from the primary urban core. Because, in general, the more western the State, the more territory a county encompasses, the county unit is not evenly suited to classifying territory in the United States. The need for a classification system that uses subcounty building blocks has become increasingly important as U.S. settlement patterns have become more complex: large urban cores dominate increasingly large areas surrounding them, employment and residential nodes have grown in suburban areas, commuting between less "urbanized"

territory and urban cores and suburban nodes has increased. However, while subcounty units would provide greater precision when classifying areas, few health data systems have subcounty data.

Conclusions

Nationally and regionally many measures of health, health care use, and health care resources vary by urbanization level.

The Americans who generally fare best on the health indicators examined in this chartbook are residents of fringe counties of large metro areas. The consistency of this pattern is striking, even though, for some indicators, differences across urbanization levels are not large. Nationally people living in fringe counties have the lowest levels of premature mortality partly reflecting lower death rates for unintentional injuries, homicide, and suicide. Teens in fringe counties have the lowest levels of teenage childbearing. Residents of fringe counties also have the lowest prevalence of physical inactivity during leisure time and obesity in women, two of the most common behavioral risk factors for chronic disease. The percent of the population with no health insurance and no dental visit in the past year also is lowest in fringe counties. For many of the health measures examined, the advantage of fringe county residents is also apparent within each region.

In contrast, the level of urbanization associated with adverse health behaviors, health outcomes, and health care use and access measures is less consistent. Nationally residents of the most rural counties have the highest death rates for children and young adults, the highest death rates for unintentional and motor vehicle traffic-related injuries, and among men, the highest mortality for ischemic heart disease and suicide. Residents of the most rural counties also have the highest levels of adolescent smoking and physical inactivity during leisure time for men. Residents of the most rural counties are least likely to have a dental visit during the past year and there are fewest specialist physicians and dentists per capita in the most rural counties. The most rural counties and other nonmetro counties have similarly high percents of adult residents with activity limitations caused by chronic health conditions; and both urbanization levels have similarly high prevalences of adult cigarette smoking. Residents of central counties of large metro areas and the most rural counties have similarly high percents of residents with no health insurance; and the most urban and most rural counties also have high proportions of women who are physically inactive during leisure time. In general, central counties of large metro areas often have the most adverse health measures in the Northeast and Midwest, while in the South and West nonmetro counties tend to fare the worst.

The decision to examine regional variation in the association between various health measures and urbanization level was based on the extensive literature documenting regional differences in mortality (7, 8), health behaviors (9), and availability and use of health services (10, 11). The data shown in the chartbook reconfirm the existence of regional variation in most health measures, while demonstrating that health and health care access patterns across urbanization levels are often region-specific as well.

Previous studies have focused on health at the extremes of the urbanization scale. A comprehensive report, *Rural Health in the United States* (12), highlighted health differences between rural and nonrural communities. At the other extreme, Andrulis and Goodman examined health in larger metropolitan areas, focusing on differences between central cities and their surrounding suburbs (13). This chartbook offers a perspective on how health measures vary across the complete range of urbanization levels, and examines similarities and differences in these patterns across regions.

Numerous factors are likely to be responsible for the patterns in health measures by urbanization level. First, the economic resources available to residents of an area exert a strong influence on many health indicators. The pattern of poverty — lowest in fringe counties of large metro areas and highest in central counties and the most rural counties — is clearly related to the pattern observed for most health measures. Other demographic differences — such as the relative contributions of racial and ethnic groups to an area's population — also play a major role in determining the health profile of an area, particularly with respect to health-related behaviors and access to and use of health services. The relative scarcity of health care resources in nonmetro areas is a continuing problem that is likely to have an enduring negative impact on health outcomes (14). Limited social support may result in reduced access to existing health care resources; older persons in less urbanized areas, for example, are more likely to live alone (15). Other likely contributors to health differences across urbanization levels are occupational differences (such as manual labor compared with white-collar service work) and environmental exposures (for example, air quality or fluoridation of water). Amelioration of these differences is not an easy task, but equal access to health information, prevention programs, and appropriate health care should improve health for all U.S. residents regardless of their geographic location.

Region and Urbanization

Classifying counties by urbanization level can be useful when considering the health status and health care needs of their populations. More urban counties tend to have a greater supply of health care providers. More rural counties have fewer residents, who often live farther from health care resources than their more urban counterparts. Figure 1 identifies the urbanization levels of the 3,142 counties in the United States as defined in this chartbook's introduction.

- Within the United States the number and characteristics of counties at different urbanization levels vary by region. In the Northeast, for example, over one-half of all counties are in metro areas compared with only one in five in the Midwest.
- Counties in the West generally have larger land areas than counties in other regions.
- It is important to note that any single urbanization level can be inadequate to describe counties covering large areas. In Southern California, for example, designation as a central or fringe county in a large metro area does not recognize that much of the area within the county may be far from any urban center.

Population and Urbanization

Although most U.S. counties are classified as nonmetropolitan, most Americans live in counties in metropolitan areas. In 1998, for example, the 73 percent of U.S. counties classified as nonmetro (figure 1) were home to only 20 percent of the population.

- One-half of the 273 million persons living in the United States in 1998 lived in counties in large metro areas with one million or more inhabitants — 29 percent of the total U.S. population in central counties and 21 percent in fringe counties. Another 30 percent lived in small metro counties.
- The Northeast contained 19 percent of the population. Sixty-five percent of these residents lived in large metro areas, about evenly divided between central and fringe counties; another 25 percent lived in small metro counties. Only 10 percent lived in nonmetro counties.
- The West contained 23 percent of the U.S. population. The West was similar to the Northeast in that 62 percent of its inhabitants lived in large metro counties, although different in that almost two-thirds of these lived in central counties. A slightly larger share of residents (14 percent) lived in nonmetro counties in the West than in the Northeast.
- The Midwest also contained 23 percent of the U.S. population, but less than half (46 percent) of the region's population lived in large metro counties. One in four Midwest residents lived in nonmetro counties and 14 percent in the most rural counties.
- The South contained slightly over one-third (35 percent) of the total population of the United States in 1998. Unlike other regions, the largest proportion of the South's population lived in small metro counties, the smallest proportion in large metro counties, and about the same percent as the Midwest in nonmetro counties.

Age

The age distribution of a county greatly influences the health status and health care needs of its population. The risk of serious illness and death is greater for infants and for elderly persons (age 65 and over) than for other age groups (1). The elderly also use a disproportionate share of health care resources. In 1995, only 13 percent of the U.S. population were seniors, but they were responsible for 41 percent of total personal expenditures for health care (2). In 1998 Medicare—the Federal health insurance entitlement for the elderly—was the payment source for almost one-third of all hospital care expenditures (*Health, United States, 2001*, table 118).

- The age structure of the population tends to get older as urbanization decreases. Infants and children ages 1–4 years constitute a slightly larger percentage of the population in central counties of large metro areas than in nonmetro counties in all regions (see Data Table). The proportion of the population that is elderly is higher in the more rural counties (12 percent in central counties in 1998 compared with 15 percent in the most rural counties).
- The urban-rural upward gradient in the proportion of the population that is elderly is present in all geographic regions but is steepest in the Midwest and South. The gradient is least pronounced in the Northeast, which has the highest proportion of elderly at all urbanization levels except for the most rural counties. The West has the smallest proportion of elderly at all levels except for the most urban.
- Urbanization and regional differences in the age distribution are due to several factors. Domestic and international migration has resulted in adults of reproductive age and their children moving to urban areas, especially in the West and South (3,4). Between 1965–95 the South and West have had a net increase, and the Midwest and Northeast a net decrease in population due to migration. Population subgroups with higher birth rates, such as black persons and persons of Hispanic origin (*Health, United States, 2001*, table 3), are also disproportionately located in large urban areas and in the West and South (figure 4).

Race and Ethnicity

Racial and ethnic disparities exist in the United States for most measures of health (*Health, United States, 2001*, trend tables). Each racial and ethnic subgroup tends to be concentrated in certain geographic areas. These concentration patterns, in turn, influence geographic patterns of health status (1) and other health-related measures (2). Considering differences in the racial and ethnic composition of populations is important when interpreting health-related information.

- Non-Hispanic white persons represent over three-quarters of the population in fringe counties of large metro areas (80 percent in 1998), small metro counties (77 percent), and nonmetro counties (82–84 percent), but only 54 percent in central counties. The population of central counties nationwide in 1998 was 21 percent Hispanic persons, 19 percent non-Hispanic black persons, 6 percent persons of non-Hispanic Asian or Pacific Island origin, and less than 1 percent persons of non-Hispanic American Indian or Alaska Native origin. All these groups except the last are less likely to live in nonmetro than in central counties.
- Differences in racial and ethnic composition across regions are striking. The Midwest was the most homogeneous in 1998, with white persons representing 84 percent of its population. The Northeast had a larger proportion of residents of Hispanic and Asian or Pacific Island origin compared with the Midwest. In the South non-Hispanic black persons constituted a larger proportion of the population than in any other region. The West had a disproportionately high concentration of persons of Hispanic origin and of Asian or Pacific Island origin, and the lowest share of white persons.
- The racial and ethnic composition at different urbanization levels also varies considerably by region. Persons of Hispanic origin constituted only 8 percent of central county residents in the Midwest in 1998 but 18–29 percent in the other regions. Non-Hispanic black persons constituted only 8 percent of the central county population in the West, but 22–26 percent in the other regions. In the South, non-Hispanic black Americans constituted over 18 percent of the population in the most rural counties, compared with less than 2 percent in the other regions. In the West, 9 percent of the most rural county population was of American Indian or Alaska Native origin and another 11 percent of Hispanic origin, compared with less than 6 percent for both groups combined in all other regions.

Poverty

Personal or family income is strongly related to most indicators of health status, health care access and use, and health-related behaviors (1). Thus, a county's economic well-being generally, and the share of its population living below the official poverty threshold in particular, greatly influence the health and health care needs of its residents.

- Thirteen percent of Americans lived with incomes below the poverty threshold in 1997 (*Health, United States, 2001*, table 2). The proportion of persons who were poor varied across regions, from a low of 11 percent in the Midwest to a high of 16 percent in the South.
- Fringe counties of large metro areas had the lowest concentration of poor persons in 1997 in all regions (7–9 percent). The highest levels of poverty in the Midwest and Northeast (14 and 18 percent, respectively) were in central counties of large metro areas. In the West, poverty levels in central counties and nonmetro counties were similar (approximately 16 percent), and in the South, the most rural counties had the most poverty (19 percent). Poverty in the small metro counties was higher in the South and West than elsewhere.

Adolescent Smoking

Smoking is the single most preventable cause of disease and death in the United States (1). Between 1991 and 1999 smoking among high school students increased from 28 to 35 percent (2). Over 80 percent of adults who are addicted to tobacco began smoking as adolescents (3). Tobacco-related illnesses are likely to cause the premature death of five million Americans who were 17 years of age or younger in 1995 (4).

- Current cigarette use (smoking 1 or more days in the past month) among adolescents 12–17 years of age differs by urbanization level. In 1999 adolescents living in central counties of large metro areas had the lowest rates of cigarette use (11 percent) and those living in the most rural counties the highest (19 percent).
- In each region except the Midwest, smoking was more common among adolescents living in nonmetro counties than among those living in central counties of large metro areas.
- In the Midwest adolescents in central counties of large metro areas were more likely to smoke (15 percent) than those in the central counties in the other three regions (10–11 percent).

Adult Smoking

After dramatic declines in cigarette smoking among adults following the first Surgeon General's Report in 1964 (1), the decline among adults stalled. The percent of adults smoking declined from 42 to 25 percent between 1965 and 1990. However by 1999, smoking prevalence had inched down only to 23 percent (*Health, United States, 2001*, table 60). Understanding where smoking prevalence remains high may assist in planning population-specific campaigns to reduce smoking.

- Nationally, adults living in the most rural counties are the most likely to smoke (27 percent of women and 31 percent of men in 1997–98) and those living in central and fringe counties of large metro areas are the least likely to smoke (20 percent of women and 24–25 percent of men). Higher rates in the most rural counties are likely to reflect two factors—delayed access to the medical and media resources that help change unhealthy behaviors (2), and lower educational attainment (3), which is strongly associated with smoking.
- Regionally, the largest increases in smoking in nonmetro compared with large metro counties were seen for women in the Northeast and for women and men in the South. In the South, for example, smoking rates for men rose from 24 percent in fringe counties to 33 percent in nonmetro counties.
- Smoking rates are generally lower in the West than in other regions. One contributing factor is that Asian and Hispanic Americans, who constitute a larger share of the population in this region, are less likely to smoke than other groups (4). Aggressive anti-smoking efforts in California also contribute to the lower rates in the West (5).

Alcohol Consumption

Consuming five or more drinks in 1 day in the last year is one indicator of heavy alcohol consumption. Infrequent consumption of alcoholic beverages at this level does not necessarily indicate alcohol abuse or alcoholism. However persons who consume this quantity of alcohol are at increased risk for alcohol-related disorders compared with persons who do not. Such alcohol consumption can also result in alcohol intoxication, which is commonly linked to homicides, traffic injuries, and domestic violence (1–3). Because alcohol use declines markedly with age, this section focuses on the highest risk group — adults ages 18–49 years.

- Nationally, men were about twice as likely as women to consume 5 or more drinks in 1 day in the last year (38 percent compared with 17 percent), a difference that persisted in each region.
- Nationally, the proportion of adults 18–49 years of age who consumed 5 or more alcoholic drinks in 1 day in the last year varied little by urbanization level. However, among current drinkers (those who consumed at least 1 drink in the last year), men living in nonmetro counties were more likely to consume 5 or more drinks in 1 day than those in metro counties (56 percent compared with 48–52 percent).
- In the Northeast, men and women living in central counties of large metro areas were less likely to report consumption of 5 or more drinks in 1 day in the last year than those living in other urbanization levels. In the West, prevalence of this level of alcohol consumption was higher among men and women living in nonmetro counties than in other urbanization levels.
- Periodic heavy drinking of alcohol is more common among non-Hispanic white, Hispanic, and American Indian persons (4) than among other groups. In the West these racial and ethnic groups account for 98 percent of the residents in nonmetro counties, compared with 61 percent in the central counties. Public health efforts to reduce the adverse health consequences of alcohol consumption need to take into account urbanization differences in racial and ethnic composition in order to develop culturally relevant treatment programs.

Obesity

Obesity (defined by a body weight to height ratio) has been linked to a variety of serious chronic illnesses, including diabetes, heart disease, cancer, and arthritis. Between the late 1970's and early 1990's, the proportion of U.S. adults who are obese increased from 14 percent to 22 percent (1), making it an increasing public health concern. Since the obesity estimates presented here are self-reports, they slightly underestimate obesity levels in comparison with estimates based on measured height and weight (1).

- Self-reported obesity varies more by urbanization level for women than for men. Nationally, for women in 1997–98, fringe county residents of large metro areas had the lowest age-adjusted prevalence (16 percent) and residents of the most rural counties the highest (23 percent).
- For men self-reported obesity varies little by urbanization level in any region except in the Midwest, where obesity is higher in nonmetro than in metro counties.
- For women obesity prevalence is generally lowest in fringe counties in each region, although regions differ in where obesity is high. In the Northeast and South, obesity is high among women living in nonmetro counties (23 percent). In the Midwest women living in central counties of large metro areas have high rates of obesity (25 percent).

Physical Inactivity

Regular physical activity and improved physical fitness offer numerous health benefits, including reduced risk for cardiovascular disease, diabetes, obesity, some cancers, and musculoskeletal conditions (1). Physical activity as used here is limited to "exercise, sports, or physically active hobbies" pursued during a person's leisure time. Health benefits may also be obtained through physical activity outside leisure time such as occupational activities, housekeeping, and transportation-related activities.

- Nationally, being inactive during leisure time is least common for residents of fringe counties of large metro areas (age-adjusted prevalence of 28 percent for men and 34 percent for women in 1997–98). Being inactive during leisure time is most common for men in the most rural counties and for women in the most rural counties as well as the central counties of large metro areas.
- Urbanization patterns in leisure time inactivity differ substantially among regions. Within each region, however, urbanization patterns for men and women tend to be similar.
- In the Northeast leisure time inactivity is substantially higher in central counties of large metro areas (51 percent of women and 47 percent of men in 1997–98) than in counties of any other urbanization level.
- In the South inactivity during leisure time is highest in nonmetro counties (56 percent of women and 52 percent of men in 1997–98).
- Demographic factors are related to, although they do not completely explain, differences in leisure-time inactivity across urbanization levels (2). Occupation is also relevant. People with physically active occupations are less likely to be physically active in their leisure time (3), and these occupations may be more common in nonmetro areas (4).

Some numbers for Figure 10 have been corrected and differ slightly from the printed edition.

Infants

Infant mortality, defined as death of a child before age one, is related to the underlying health of the mother, and to the availability and use of prenatal and perinatal services. This makes infant mortality a useful indicator of health problems within and across communities (1).

- Nationally, infant mortality rates are about 20 percent lower in fringe counties of large metro areas than in other urbanization levels (6.1 compared with 7.5–7.7 deaths per 1,000 live births in 1996–98). Urbanization levels with the highest infant mortality differ by region. In the Northeast and Midwest, infants living in central counties are at highest risk of death. In the South and West, infants in small metro and nonmetro counties are at highest risk.
- Geographic variation in racial and ethnic composition (figure 4) and poverty (figure 5) contributes to the urbanization differences in infant mortality. Infants born to black mothers are at higher risk of death than those in other racial and ethnic groups (*Health, United States, 2001* table 20) and those living in poverty are at higher risk of death than other infants (2).
- Mortality among non-Hispanic white infants is lowest in fringe counties and highest in nonmetro counties (5.2 compared with 6.9 per 1,000 live births). Among black infants, mortality is higher in small metro counties than in most other urbanization levels (not shown). Among Hispanic infants, mortality rates vary little across urbanization levels.
- Similar mortality rates among very low-birth weight infants across urbanization levels (not shown) may indicate widespread access to perinatal and neonatal intensive care, either through perinatal regionalization programs or local perinatal intensive care services (3). Wide disparities by urbanization level in Sudden Infant Death Syndrome (SIDS), the third leading cause of infant mortality, (ranging from 57 deaths per 100,000 live births in fringe counties to over 90 deaths per 100,000 in nonmetro counties) may indicate that the "Back to Sleep" public health campaign to reduce SIDS (4) may be less effective in reaching the nonmetro counties.

Children and Young Adults

Death rates for children and young adults (ages 1–24 years) are much lower than those for older persons. However, almost 70 percent of the deaths in this young group are due to injuries, both unintentional and intentional, and therefore largely preventable (1). The proportion of deaths due to injury increases with age from 44 percent for children 1–4 years old to 77 percent for young persons 15–24 years old (1).

- Nationally, the age-adjusted death rate for children and young adults increases steadily from fringe counties of large metro areas to the most rural counties (47 to 78 per 100,000 population for males, 23 to 38 per 100,000 for females in 1996–98).
- The mortality differential between fringe counties and the most rural counties in 1996–98 ranged from about 25 percent for both sexes in the Northeast to 105 percent for males in the West. For males and females in the Northeast and males in the Midwest, rates in central counties of large metro areas are as high as or higher than rates in the most rural counties.
- Almost one-half of the deaths occurring among children and young adults are attributable to unintentional injuries, which show a strong urban to rural increase (figure 17). The high death rates in central counties are partly attributable to the high homicide rates for young men in these counties (figure 18).

Working-Age Adults

Deaths among persons ages 25–64 years accounted for 22 percent of all deaths in the United States in 1998 (1). The three leading causes of death for working-age adults are cancer, heart disease, and unintentional injuries, with lung cancer the leading cause of cancer mortality (1).

- Nationwide age-adjusted death rates for working-age adults are lowest in fringe counties of large metro areas (399 per 100,000 population for men and 242 per 100,000 for women in 1996–98). For men, death rates in central counties and the most rural counties were 37–38 percent higher than in fringe counties. For women the excess in central counties and the most rural counties was 24 percent.
- In all regions the lowest death rates for working-age adults occur in the fringe counties of large metro areas. In the Northeast and Midwest, the death rates are highest in central counties (34–53 percent higher than in fringe counties). In the South death rates are highest in nonmetro counties (31–44 percent higher than in fringe counties).
- The regional differences in urbanization patterns observed for working-age adults reflect regional differences in the urbanization patterns of some leading causes of death for this age group. For example, heart disease death rates are higher in the rural South and for black Americans in central counties outside the South (figure 15) (2). Death rates from unintentional injuries are high in nonmetro counties (figure 17). Homicide rates are especially high in central counties in the Midwest and South (figure 18), while suicide rates are especially high in nonmetro counties in the West (figure 19). The regional differences in the urbanization patterns of these causes of death are partly attributable to differences in etiologic and demographic factors.

Seniors

Three-quarters of all deaths in the United States occur among persons age 65 and over (1). The top five causes of death for elderly Americans are heart disease, cancer, stroke, chronic obstructive pulmonary disease, and pneumonia (1). Provision of appropriate and timely health services can help seniors prevent, treat, and manage chronic illnesses, thus enhancing quality of life and preventing premature death.

- The national age-adjusted death rate for elderly men is lowest in large metro (central and fringe) counties and highest in nonmetro counties (about 6,100 compared with about 6,500–6,600 per 100,000 in 1996–98). For elderly women the rate is lowest in central counties of large metro areas and highest in nonmetro counties (4,410 compared with over 4,600 per 100,000). The urban-rural upward gradient for seniors (8 percent for men and 6 percent for women) is less steep than for younger persons, but it involves many more deaths because deaths rates for seniors are much higher than for younger persons.
- Urbanization patterns of mortality among seniors are similar for men and women within regions but vary across regions. In all regions except the Midwest, mortality among seniors is lowest in large metro (central and fringe) counties and highest in nonmetro counties. In the Midwest mortality is lower in nonmetro counties than in large metro counties.

Heart Disease

Heart disease is the leading cause of death in the United States. Ischemic heart disease accounts for more than 60 percent of heart disease deaths (1). Regional and urbanization differences in heart disease mortality have long been recognized (2). Increased understanding of these geographic patterns may help in development of effective strategies to reduce heart disease mortality.

- For the country as a whole, ischemic heart disease death rates for men 20 years and over are highest in the most rural counties (about 12 percent higher than in large fringe and small metro counties). For women the highest death rates occur in the central counties of large metro areas.
- Among adults 20 years and over, urbanization patterns of ischemic heart disease death rates vary across the regions. In the South there is a consistent urban-rural increase in the death rates (with rates in the most rural counties over 20 percent higher than in fringe counties). In the West ischemic heart disease death rates decrease as urbanization decreases. In the Northeast the highest death rate occurs in central counties of large metro areas.
- Some of the differences in heart disease mortality are probably due to variation in the distribution of recognized cardiovascular risk factors and sociodemographic characteristics, in access to or use of medical care, and in occupation, socioeconomic status, and education (2,3). High death rates in nonmetro counties of the South, for example, are consistent with high poverty and smoking rates in those counties (figures 5 and 7).

Chronic Obstructive Pulmonary Diseases

Chronic obstructive pulmonary diseases and allied conditions (COPD) are diseases characterized by obstruction of airflow (such as chronic bronchitis, emphysema, and asthma). COPD is the fourth leading cause of death in the United States, claiming over 112,000 lives in 1998 (1). Cigarette smoking is the most important risk factor for COPD (2). Occupational exposure to airborne pollutants such as solvents and dusts contribute to COPD (3).

- Nationwide, the age-adjusted COPD death rate for men 20 years and over increases as urbanization decreases (from 66 per 100,000 population in central counties of large metro areas in 1996–98 to 87–88 per 100,000 in nonmetro counties). For women there is no clear urban-rural gradient.
- For men the regional patterns follow the national pattern. Men in the Northeast have the largest urban-rural increase in COPD mortality, followed by men in the South. For women COPD death rates show an urban-rural increase only in the Northeast.
- Non-Hispanic white persons have higher COPD death rates than any other racial and/or ethnic group. Asians/Pacific Islanders have the lowest rates and have an urbanization pattern that reverses the national pattern (not shown).
- The higher rates of COPD found in nonmetro counties are consistent with cigarette smoking patterns (figure 7).

Unintentional Injuries and Motor Vehicle Traffic-Related Injuries

Deaths from unintentional injuries include those from motor vehicle traffic-related injuries (43 percent), falls (13 percent), poisoning (11 percent), and suffocation (5 percent). Unintentional injuries are the fifth leading cause of death overall and the leading cause for persons ages 1–44 years (1). Of all types of injury, those to the brain are most likely to result in death or disability (2). Sixteen percent of all unintentional injury deaths and 21 percent of motor vehicle deaths were attributable to traumatic brain injury in 1996–98 (3).

- Nationally, the age-adjusted unintentional injury death rate increases strongly as counties become less urban. For males in 1996–98, the death rate was 86 percent higher in the most rural counties than in fringe counties of large metro areas. For females the unintentional injury death rate was about 80 percent higher in the most rural counties than in large metro (central and fringe) counties.
- The nationwide urbanization pattern is replicated in each region. Unintentional injury death rates are especially high in the most rural counties of the South and West. High death rates among Hispanic persons and very high rates among American Indian persons (not shown) contribute to the higher mortality in nonmetro counties in the West.
- Nationwide and in each region, the age-adjusted rate for motor vehicle traffic-related deaths in the most rural counties is over twice the rate in central counties of large metro areas. The urbanization pattern for fatal motor vehicle injuries is similar to that for unintentional injuries, except that the motor vehicle death rate in fringe counties tends to be higher, rather than lower, than the rate in central counties.
- The excess risk of unintentional injury death in rural areas is associated with the higher incidence of fatal motor vehicle crashes and to some extent with more hazardous occupations such as commercial fishing, timber cutting, and farming (4,5). There are a number of reasons for the higher incidence of fatal crashes in rural areas: two lane highways, narrow or nonexistent shoulders, limited sight distance due to hills and curves, higher posted speed limits, lower rates of seat belt and child safety seat use, delays in discovery and extended Emergency Medical Services response times, and lack of medical emergency and trauma care facilities.

Homicide

After a sharp increase during the late 1980's and early 1990's, by 1998 the national homicide rate had dropped to its lowest level in about three decades (*Health, United States, 2001*, table 46). Even so, homicide is still the second leading cause of death for 15–24 year-olds and the sixth leading cause for 25–44 year-olds (1).

- For the Nation as a whole, age-adjusted homicide rates are highest in central counties of large metro areas and lowest in suburban counties. Homicide rates in small metro and nonmetro counties are somewhat higher than in fringe counties. This pattern holds for both sexes, although homicide rates for males are almost 5 times as high as for females in central counties (19 compared with 4 per 100,000 population in 1996–98) and 2–3 times as high at other urbanization levels (6–10 compared with 2–3 per 100,000).
- The urbanization pattern for homicide varies by region. In the Northeast and Midwest, the lowest rates for males occur in nonmetro counties. In the South and West, the lowest rates for both sexes occur in fringe counties. The Northeast and Midwest have the largest urban-rural differences in homicide; the South generally has the highest homicide rates at all urbanization levels.
- Firearm homicide accounts for 73 percent of homicides among males and 48 percent of homicides among females (not shown). Both firearm and nonfirearm homicide rates are markedly higher in central counties of large metro areas than in other urbanization levels.
- High homicide rates in central counties are primarily due to high rates for black and Hispanic men (not shown). High homicide rates in nonmetro counties in the South are primarily due to high rates among black men, American Indian men, and Hispanic men (not shown). These high rates, which are well-established (2), are associated with poorer socioeconomic conditions (3).

Suicide

Suicide is the eighth leading cause of death in the United States and the third leading cause for men ages 15–24 years (1). Persons of American Indian heritage have the highest age-adjusted suicide rates in the United States, followed by non-Hispanic white persons. Asian, black, and Hispanic persons have rates about one-half those of the other two groups.

- In the United States as a whole, there is a clear urban-rural increase in suicide rates for males but not for females. In 1996–98 age-adjusted suicide rates for males 15 years and over were 21–22 per 100,000 population in the large metro counties (central and fringe) and 31 per 100,000 in the most rural counties. Suicide rates for males 15 years and over are 4–6 times as high as those for females, with the divergence increasing as urbanization decreases.
- Among males, the urbanization pattern of suicide within each region follows the national pattern. The steepest urban-rural gradient is in the West. Among females, the only region with a clear urban-rural upward gradient is the West. For both sexes, the suicide rates in the nonmetro counties of the West were higher than those in any other region.
- Even though suicide attempts are higher for females (2,3), suicide rates are higher for males because males tend to use more reliably lethal methods. Among males, firearms account for 62 percent of suicides, suffocation for 19 percent, and poisoning for 12 percent. Among females, the proportions are 33, 17, and 34 percent, respectively (4).
- Firearm-related suicide rates (not shown) increase from large metro (central and fringe) counties to the most rural counties. Suicide rates from poisoning and most other methods are lower in the most rural counties. Firearm ownership, a strong predictor of suicide (5) is higher in the South and West than in the Midwest, and lowest in the Northeast (6). Lower treatment rates for depression in rural areas may contribute to the higher suicide rates (7).

Adolescent Births

Even though the adolescent birth rate in the United States declined from 1991 to 1999, over 900,000 adolescents still become pregnant each year (1,2). Two-thirds of teen pregnancies are unplanned (3). Unintended teen births can lead to inadequate educational achievement, reduced employment opportunities, and increased likelihood of living in poverty. Infants of adolescent mothers are also more likely to face adverse health outcomes such as low birthweight, preterm birth, and infant mortality (4). Behaviors that increase the risk for unintended pregnancy and early childbearing, which include sexual activity, drinking, and drug use, occur at similar rates among urban and rural teens (5,6).

- For the United States as a whole, the birth rate for adolescents living in fringe counties of large metro areas is much lower (36 per 1,000 female adolescents in 1996–98) than at other urbanization levels (54–60 per 1,000).
- Regions differ in the degree to which rates in central counties differ from rates in small metro and nonmetro counties. In the Northeast and Midwest, teen birth rates in 1996–98 in central counties were nearly twice as high as in fringe counties, but in less urbanized counties rates were only 40–50 percent higher. In the South and West, teen birth rates in central counties were similar to rates in small metro and nonmetro counties.
- Adolescent birth rates are lowest in the Northeast and highest in the South, reflecting, among other things, differences in the racial and ethnic composition of the adolescent population (figure 4). Because non-Hispanic black and Hispanic adolescents have higher birth rates than non-Hispanic white adolescents (*Health, United States, 2001*, table 3), regions with higher proportions of these racial and ethnic groups have higher adolescent birth rates overall (4).
- Sexually active adolescents in less urban areas may be at greater risk of unintended pregnancies, births, and poor birth outcomes because of more limited access to and availability of health and family planning services (6–9).

Limitation of Activity

Limitation of activity caused by chronic health conditions is a measure of limitation in the ability to perform common activities caused by one or more chronic health conditions. Activities reflected in this measure may include, but are not limited to, working, independently performing routine tasks such as household chores or shopping, and independently performing personal care activities such as bathing or eating (see Appendix II, Limitation of activity). Factors related to activity limitation include the number, type, and severity of chronic conditions (1). The prevalence of both chronic conditions and activity limitation increases with age (2), with health-related limitation in mobility or self-care increasing fourfold between ages 65–74 and 85 or older (3). Activity limitation can reflect both a diminished quality of life for the person experiencing restricted functioning and, in severe instances, an additional burden on family and community resources. Public health is concerned not only with preventing debilitating illnesses and injuries, but also with reducing their impact on functioning and quality of life (4).

- For the nation as a whole, age-adjusted activity limitation rates are lowest in fringe counties of large metro areas and highest in nonmetro counties (12 compared with 18 percent for men; 14 compared with 19 percent for women).
- The Northeast and South show sharp urban-rural increases in activity limitation for men and women, increasing from 12–14 percent of adults in large metro counties to 19–21 percent in nonmetro counties. Activity limitation levels in the nonmetro counties of these two regions tend to be higher than in nonmetro counties in the Midwest and West.
- In the Midwest and West, activity limitation levels in central counties of large metro areas tend to be higher than in fringe counties and more similar to levels in small metro and nonmetro counties.

Total Tooth Loss

Loss of all natural teeth — edentulism — can diminish a person's quality of life because of its negative psychological, social, and physical effects. Most tooth loss is the final consequence of dental caries and periodontal disease. Edentulism reflects not only previous disease but also inadequate supply and use of dental care and community preventive services. This discussion focuses on persons age 65 years and over, the group with the highest prevalence of edentulism.

- For the United States as a whole, the age-adjusted edentulism prevalence among seniors generally increases as urbanization declines, with men and women having similar levels of edentulism at all urbanization levels. This urban-rural increase in total tooth loss is consistent with the urban-rural decrease in the number of dentists per population (figure 25).
- Edentulism is more common among low-income seniors than among seniors with higher incomes (see Data Table). In 1997–98, 34 percent of low-income seniors in central counties of large metro areas had lost all their teeth, compared with 47 percent in the most rural counties.
- All regions except the Midwest show a generally upward urban-rural gradient, with the gradient steepest in the West, particularly among low-income residents.
- It is encouraging that the prevalence of edentulism has been declining for the past half century (1). Compared with the current group of seniors, persons now 45–64 years of age are expected to have a much lower prevalence of total tooth loss in their senior years (data not shown).

Health Insurance

Health insurance coverage is an important determinant of access to care. Although nearly all seniors are covered by Medicare, many persons under age 65 lack coverage. The major source of coverage for nonelderly persons is employer-sponsored group health insurance. Health insurance can also be purchased on an individual basis, but it typically costs more and provides less coverage than group insurance. Military programs provide care for active duty personnel, their dependents, and veterans. Joint Federal/State programs such as Medicaid provide coverage for some low-income persons.

- Nationally, the age-adjusted percent of the nonelderly population without health insurance varies by urbanization level. Residents of fringe counties of large metro areas are least likely to lack coverage (12 percent in 1997–98) and central and nonmetro county residents most likely (18–21 percent).
- Income is highly correlated with health coverage. Although similar urban-rural patterns characterize low and higher income groups, nonelderly persons below 200 percent of poverty were over three times as likely to be uninsured as higher income persons in 1997–98, throughout the urbanization range.
- Uninsurance rates among low-income Americans are uniformly higher in the South and West than in the Northeast and Midwest.
- Nationally, for the low-income population with insurance, the type of coverage differs somewhat by urbanization level. Among those with health insurance, Medicaid is more common in central counties of large metro areas and private insurance is more common in fringe counties of large metro areas. (see Data Table).
- Geographic variation in employment patterns and State variation in eligibility requirements of Medicaid programs contribute to regional health coverage differences. For example, low-income persons generally are most likely to have Medicaid in the Northeast and least likely in the South (see Data Table). Health safety net programs need to take into account geographic differences in types of coverage as well as in physical barriers to care (1) and provider supply (figure 24).

Physician Supply

Along with health insurance coverage, physician supply affects access to health care. Persons living in areas with few physicians must travel farther to obtain needed services. Although physician supply has risen sharply since the 1960's, physicians continue to favor more urban areas, leaving nonmetro residents generally with much lower physician supply relative to population (1,2). These differences may reflect oversupply in more urban areas and shortage in more rural areas (2).

- Among primary care physicians—which include family and general practitioners, general pediatricians, and general internists—the supply of general pediatricians and general internists decreases steadily as urbanization decreases. In 1998, there were six times as many general pediatricians per 100,000 population in central counties of large metro areas as in the most rural counties (24 compared with 4 per 100,000) and five times as many general internists (52 compared with 10 per 100,000). The urbanization gradient for obstetrician and/or gynecologists and other specialists follows a similar pattern.
- The supply of family and general practice physicians, in contrast to other physician groups, rises as urbanization decreases, but only slightly. This more even urbanization pattern is because general and family practice physicians can practice effectively with a smaller population base than can more specialized physicians.
- An urban-rural decrease in physician supply for all types of physicians except general and family practitioners is found in all regions.
- Efforts to increase physician supply in rural areas have included medical student financial incentives, changes in Medicare and Medicaid reimbursement formulae, and direct provision of care through community health centers and the National Health Service Corps (2).

Dentist Supply

Dentists provide preventive and curative dental care and play an important role in maintaining oral health. As with physicians, the supply of dentists affects access to needed care. The geographic distribution of dentists in the United States is uneven, due to the tendency of dentists, like physicians, to practice in more affluent areas.

- The supply of dentists in relation to population generally decreases as urbanization decreases in the country as a whole and in all regions. In 1998 the supply of dentists fell from 61–62 per 100,000 population in central and fringe counties of large metro areas to 29 in the most rural counties.
- Regionally, the supply of dentists in the most urban counties is highest in the Northeast and lowest in the South. In the most rural counties, the supply of dentists is highest in the Northeast and West and lowest, again, in the South.
- Over the last decade dentist supply has declined slightly (1). The number of new dental students has declined and the number of retiring dentists has increased, raising concern about future dentist supply (1) and possibly widening urbanization disparities.

Dental Visits

Professional care received during dental visits, in combination with individual care and community preventive activities, is essential for maintaining good oral health. Yearly dental visits provide the opportunity for preventive care, and for early diagnosis and treatment of oral problems (1). Family income is an important determinant of dental care use. Adults with income at 200 percent of poverty or above are substantially more likely to have had a recent dental visit than poorer adults (See *Health, United States, 2001*, table 80.)

- Dental care use in the United States varies by urbanization level in a manner similar to dentist supply (figure 25). Nationally in 1997–98, 71 percent of adults ages 18–64 years living in fringe counties of large metro areas reported a dental visit in the past year compared with 57 percent in the most rural counties.
- The urban-rural decrease in dental care use appears for each region, though at somewhat different absolute levels. In 1997–98, residents of the South were less likely to have seen a dentist in the past year compared with residents of the other three regions. Nonmetro county residents in the South were least likely to have seen a dentist in the past year (53 percent). This is consistent with the regional pattern of lower dentist supply in the South (figure 25).
- *Healthy People 2000* had the goal that 70 percent of all persons ages 35 years and over should have had a dental visit in the past year. In 1997–98 this goal was achieved by adults living in fringe counties (71 percent). Adults living in central counties of large metro areas and small metro counties came close to achieving this goal (66 percent and 64 percent, respectively). The most rural counties were considerably farther away, with only 57 percent of residents having seen a dentist within the past year.

Inpatient Hospital Use

Inpatient hospital use depends on both underlying medical conditions and factors that affect access to care, including health insurance coverage and physician supply. Discharge rates and average length of stay in non-Federal short stay hospitals among adults have been decreasing since the early 1980's. Factors contributing to this decline include pressure to control health care costs, development of new technologies that are less invasive, and increased use of outpatient procedures (1).

- Among men and women ages 18–64 years, nationwide age-adjusted hospital discharge rates, excluding maternity cases, were considerably higher among those living in nonmetro than in metro counties. For men, as for women, discharge rates in 1998 were similar for residents of large and small metro counties.
- Age-adjusted average lengths of stay were longer among central county residents of large metro areas than among nonmetro county residents (1½ days longer for men and nearly 1 day longer for women).
- Ambulatory care-sensitive conditions such as asthma, COPD, and diabetes are used as indicators of access to primary health care. Hospitalization rates for such conditions were higher among residents of nonmetro than metro counties in a study of adult hospital use in South Carolina (2). Low income, lack of insurance, and restricted availability of health care professionals are all more likely in nonmetro than in fringe or small metro counties. To the extent that such obstacles result in delays in seeking ambulatory care, nonmetro residents may have more hospitalizations because they become inpatients for conditions that, if detected earlier, could have been treated successfully with appropriate ambulatory care.

Substance Abuse Treatment

In the United States approximately 13 million people have substance abuse disorders; however, only about 3 million are receiving treatment (1). The national effort to help close this treatment gap (1) requires information on current admissions to substance abuse treatment programs.

- Figure 28 presents treatment admission rates according to the primary substance for which treatment is sought. Admission rates for the three most common reasons for substance abuse treatment— alcohol, opiates (primarily heroin), and cocaine are presented here. Additional information on treatment admission rates for marijuana and stimulants are presented in the data table for figure 28. Nearly 70 percent of all treatment admissions for substance abuse are included in the Treatment Episode Data Set, the source of these data (see Technical Notes). The treatment admission rates presented here are indicators of the relative burden on public funds of substance abuse admissions among counties at different urbanization levels, but are not estimates of the prevalence of substance abuse.
- Nationally, admission rates for alcohol are higher in nonmetro counties with a city of 10,000 or more and small metro counties than at other urbanization levels. By contrast, admission rates for opiates and cocaine generally decrease from the most urban to the most rural counties.
- Regionally, alcohol admission rates are highest in nonmetro counties with a city of at least 10,000 in the Northeast. Alcohol admission rates are lower in the South than in the other three regions. Opiate admission rates are highest in central counties of large metro areas in the Northeast. Cocaine admission rates are highest in central counties of large metro areas in the Northeast and Midwest.
- Comparing treatment admission rates by urbanization level requires caution because the rates are influenced by several factors including substance abuse rates, repeat admissions, treatment availability, willingness to seek treatment, and public funding levels.

Definition of County Urbanization Levels

This Chartbook uses a five-level urbanization classification scheme for counties. There are three urbanization levels for metropolitan counties and two for nonmetropolitan counties. All 3,142 U.S. counties and county equivalents were assigned to one of the five levels.

The three levels for metropolitan (metro) counties are:

A. Large central
B. Large fringe
C. Small

The two levels for nonmetropolitan (nonmetro) counties are:

D. With a city of 10,000 or more population
E. Without a city of 10,000 or more population

For figures 2–23, 26, and 27, urbanization level is for the county of residence of persons. For figures 24–25, urbanization level is for the county of the health care provider's preferred mailing address, which is assumed to be a practice location. For figure 28, urbanization level is for the county of the substance abuse treatment facility.

Metropolitan and Nonmetropolitan Counties

Metropolitan counties are those that are included in a metropolitan area. Nonmetropolitan counties are those that are not included in a metropolitan area.

Metropolitan Areas

The Office of Management and Budget (OMB) defines metropolitan areas according to published standards that are applied to Census Bureau data. The general concept of a metropolitan area is that of a core area containing a population nucleus, together with additional communities having a high degree of economic and social integration with that core. Standard definitions for metropolitan areas were first issued in 1949 and were modified in 1958, 1971, 1975, 1980, 1990, and December, 2000 (to be applied to the 2000 census data). The most currently defined metropolitan areas are based on application of the 1990 standards (1).

The collective term "metropolitan area" became effective with the 1990 standards (1). Metropolitan areas include metropolitan statistical areas (MSA's), consolidated metropolitan statistical areas (CMSA's), and primary metropolitan statistical areas (PMSA's).

The 1990 standards specify that an MSA must include 1) at least one city with 50,000 or more inhabitants or 2) a Census Bureau-defined urbanized area of at least 50,000 inhabitants and a total metropolitan population of at least 100,000 (75,000 in New England). In addition to the county or counties that contain the largest city, an MSA also includes counties that have a large portion of their population living in the urbanized area surrounding the largest city or that meet specified commuting and metropolitan character requirements.

If an MSA has a population of 1 million or more and meets requirements specified in the standards, it is termed a CMSA, consisting of two or more major components recognized as PMSAs.

The 1990 standards specify that the largest city in an MSA and/or CMSA be designated as a "central city". Additional cities qualify as central cities if requirements concerning population size and commuting patterns are met.

Assignment of Counties to the Urbanization Levels

The assignment of counties to the five urbanization levels was based on their classification in the Urban Influence code system (December 1996 Revision) developed by the Economic Research Service, U.S. Department of Agriculture (2). The categorization of counties as metropolitan or nonmetropolitan in the Urban Influence code system is based on the June 1993 OMB definition of metropolitan areas (the application of the 1990 metropolitan area standards to the 1990 decennial census data).

Urbanization Levels for Metropolitan Counties

The Urban Influence code system classifies metropolitan counties as either large metro (county is in an MSA/PMSA of 1 million or more population) or small metro (county is in an MSA/PMSA of less than 1 million population). For this chartbook, the large metro category of the Urban Influence code system was divided into two urbanization levels: large central metro and large fringe metro. Thus, for the chartbook metro counties were assigned to one of three urbanization levels as follows:

Large central metro—A county in a large (1 million or more population) MSA/PMSA was assigned to this urbanization level if it contains all or part of the largest central city of the MSA/PMSA.

Large fringe metro—A county in a large (1 million or more population) MSA/PMSA was assigned to this urbanization level if it does not contain any part of the largest central city of the MSA/PMSA. Note: counties in a few PMSA's with less than 1 million population were assigned to the large fringe urbanization level because the PMSA in which they are located is adjacent to a large central county of the CMSA.

Small metro—A county was assigned to this urbanization level if it was in a small (less than 1 million population) MSA/PMSA.

In the text, counties assigned to the large central urbanization level are referred to as "central" counties; counties assigned to the large fringe urbanization level are referred to as "fringe" counties.

Urbanization Categories for Nonmetropolitan Counties

The Urban Influence code system divides nonmetropolitan counties into seven categories based on adjacency to a metropolitan area and size of the largest city. A county is considered to have a city with a specified size if it includes all or part of the city. For this chartbook, the seven categories were collapsed into two categories: nonmetro counties with a city of 10,000 or more population and nonmetro counties without a city of 10,000 or more population. The categories were collapsed based on size of city rather than on adjacency to a metropolitan area because the effect of small cities in nonmetro areas is particularly important as their presence or absence affects health service availability.

Definition of Regions

For chartbook comparisons across geographic locations, the United States was divided into four regions: Northeast, Midwest, South, and West. These regions correspond to those defined by the U.S. Bureau of the Census (see Appendix II, Geographic region).

Composition of County Urbanization Levels by Region

The geographic composition of the five urbanization levels is described below. Table A describes the composition of the central and fringe categories in large metro areas. It lists the metropolitan areas included in these two urbanization categories, the number of counties from each MA, and the percent of the category's population from each metro area. Table B describes the composition of the small metro and nonmetro categories. It lists the States included in the small metro and nonmetro categories along with the number of counties from each State and the percent of the urbanization category's population from each State.

Northeast

The 217 counties in the Northeast are distributed among the 5 urbanization levels as follows: 16 large central, 44 large fringe, 64 small metro, 31 nonmetro with a city of 10,000 or more, and 62 nonmetro without a city of 10,000 or more.

Large central and large fringe metro—There are seven major metro areas in the Northeast. In 1998 the New York-Northern New Jersey-Long Island Consolidated Metropolitan Statistical Area (CMSA) contained 54 percent of the population residing in large central counties in the Northeast and 51 percent of the population residing in large fringe counties. The Boston-Worcester-Lawrence and Philadelphia-Wilmington-Atlantic City CMSA's had 12 and 11 percent of the large central population and 20 and 18 percent of the large fringe population, respectively. The other four major areas each had less than 10 percent of the region's central and fringe populations.

Small metro—In 1998 Pennsylvania and New York together accounted for 55 percent of the Northeast's small metro population. Connecticut and Massachusetts had 14 and 11 percent, respectively, of the small metro population. The remaining five Northeastern States had from 1–7 percent of the small metro population.

Nonmetro—Sixty-three percent of the population in nonmetro counties with a city of 10,000 or more lived in New York or Pennsylvania, 15 percent lived in New Hampshire, and 14 percent lived in Maine. Sixty-eight percent of the population in the most rural counties lived in New York or Pennsylvania, 16 percent lived in Maine, and 14 percent lived in Vermont. Nonmetro counties in the Northeast were, on average, more populous than nonmetro counties in other regions; those with a city of 10,000 or more had an average of 86,000 inhabitants, while the most rural counties averaged 39,000 inhabitants.

Midwest

The 1,055 Midwestern counties are distributed among the five urbanization levels as follows: 13 large central,

76 large fringe, 132 small metro, 171 nonmetro with a city of 10,000 or more, and 663 nonmetro without a city of 10,000 or more.

Large central and large fringe metro—There are 10 major metro areas in the Midwest. Thirty-four percent of the Midwest's large central population resided in the Chicago-Gary-Kenosha CMSA, 14 percent resided in Detroit-Ann Arbor-Flint CMSA, and 10 percent resided in Minneapolis-St. Paul. One-quarter of the large fringe population resided in the Chicago-Gary-Kenosha CMSA, 21 percent resided in the Detroit-Ann Arbor-Flint CMSA, and 16 percent resided in St. Louis. The remainder of the large central and fringe populations was distributed among the other major metro areas with the percents ranging from 3 to 9.

Small metro—In 1998 Ohio had 22 percent and Michigan had 18 percent of the Midwest's small metro residents. The remaining small metro residents were distributed across the region, from 1 percent in South Dakota to 12 percent in Indiana.

Nonmetro—In 1998 Ohio had the largest number of residents in nonmetro counties with a city of 10,000 or more (19 percent), followed by Illinois (13 percent), and Indiana (11 percent). The percent of residents in the most rural counties ranged from 3 percent in North Dakota to 13 percent in Michigan. Nonmetro counties with a city of 10,000 or more had an average population of 44,000. The most rural counties had an average population of 14,000.

South

Of the 1,424 counties in the South, 21 are large central, 106 are large fringe, 275 are small metro, 201 are nonmetro with a city of 10,000 or more, and 821 are nonmetro without a city of 10,000 or more.

Large central and large fringe metro—The South has 12 major metro areas. The majority of central county residents lived in the metropolitan areas of Miami-Ft. Lauderdale (19 percent), Dallas-Fort Worth (18 percent), and Houston-Galveston-Brazoria (17 percent). The other nine major metro areas each had less than 10 percent of the central county residents in 1998. Unlike other regions, where the same metropolitan areas tend to predominate in the central and fringe county categories, fringe county residents in the South were disproportionately located in the 25 fringe counties of the Washington-Baltimore CMSA (38 percent). Ten other major metro areas had fringe county residents ranging from 1 percent (San Antonio and Memphis) to 12 percent (Atlanta). Miami-Ft. Lauderdale had no fringe county residents.

Small metro—Florida and Texas had 18 percent and 16 percent, respectively, of the South's small metro residents. The other States had from 1 percent (Maryland) to 10 percent (North Carolina) of the small metro residents.

Nonmetro—In 1998 Texas had 14 percent and Georgia, North Carolina, and Mississippi each had 10–11 percent of the residents of nonmetro counties with a city of 10,000 or more. Texas, North Carolina, and Kentucky each had 10–12 percent of the residents of nonmetro counties without a city of 10,000 or more. In the South nonmetro counties with a city of 10,000 or more had an average population of 47,000 in 1998, and the most rural counties had an average population of 18,000.

West

The West's 446 counties are distributed across the 5 urbanization levels as follows: 13 large central, 27 large fringe, 51 small metro, 80 nonmetro with a city of 10,000 or more, 275 nonmetro without a city of 10,000 or more.

Large central and large fringe metro—The West has nine major metro areas. In 1998 three out of four central county residents in the West lived in California (47 percent in the Los Angeles-Riverside-Orange County CMSA, 14 percent in the San Francisco-Oakland-San Jose CMSA, 11 percent in San Diego or Phoenix-Mesa, and 4 percent in Sacramento-Yolo). Almost 63 percent of large fringe county residents were located in California (Los Angeles-Riverside-Orange County, San Francisco-Oakland-San Jose, and Sacramento-Yolo CMSA's). The Denver-Boulder-Greeley CMSA had 15 percent and the Portland-Salem CMSA had another 11 percent of the large fringe residents in the West.

Small metro—Almost one-third of the West's small metro residents lived in California. Another 15 percent lived in Washington and 11 percent lived in Nevada. Each of the other States had from 1 to 7 percent of the small metro residents.

Nonmetro—Oregon had the largest number of residents of nonmetro counties with a city of 10,000 or more (15 percent). Washington, California, and New Mexico had 11–14 percent. Colorado, California, and Idaho had the largest number of residents living in the most rural counties (15 percent, 13 percent, and 11 percent, respectively). In 1998 nonmetro counties with a city of 10,000 or more in the West had an average population of 61,000, while the most rural counties averaged 13,000.

Race and Hispanic Origin

Figure 4 presents the distribution of selected race and Hispanic origin groups by region and urbanization level. As shown in figure 4, the distribution of racial and Hispanic origin groups by region and urbanization level is so uneven that the most extensive data sources often do not yield reliable estimates at that level of disaggregation. For this reason, none of the other charts presents estimates by race and Hispanic origin. Race and Hispanic origin-specific differences in estimates are discussed in the text when there are sufficient numbers of observations to obtain reliable estimates. (See Appendix II, Race and Hispanic origin, for a discussion of race and Hispanic origin categories.)

Age Adjustment

Estimates in most charts are age adjusted in order to eliminate differences in observed estimates that result from differences in the age distribution of the population among urbanization levels and regions (see figure 3). The projected 2000 U.S. population was used as the standard population (3) (see Appendix II, Age adjustment). The specific age groups used for age adjustment are as follows:

- Figures 7, 9,10, and 21: 18–44, 45–54, 55–64, 65–74, 75 years and over;
- Figure 8: 18–29, 30–39, and 40–49 years;
- Figure 12: 1–4, 5–14, 15–19, and 20–24 years;
- Figure 13: 25–34, 35–44, 45–54, and 55–64 years;
- Figure 14: 65–74, 75–84, 85 years and over;
- Figures 15 and 16: 20–24, 25–34, 35–44, 45–54, 55–64, 65–74, 75–84, and 85 years and over;
- Figures 17 and 18: under 1, 1–4, 5–14, 15–24, 25–34, 35–44, 45–54, 55–64, 75–84, and 85 years and over;
- Figure 19: 15–24, 25–34, 35–44, 45–54, 55–64, 65–74, 75–84, and 85 years and over;
- Figure 22: 65–74, and 75 years and over;
- Figure 23: under 18, 18–44, and 45–64 years;
- Figure 27: 18–44, 45–54, and 55–64 years;
- Figure 28: 0–14, 15–19, 20–29, 30–39, 40–49, 50–59, 60–69, and 70 years and over.

Population Estimates (figures 2-4)

Population estimates were obtained from the U.S. Census Bureau. They are the July 1 resident population of counties in the United States, by age, sex, race, and Hispanic origin from the 1990–98 annual time series.

Population in Poverty (figure 5)

Estimates of the percent of persons in poverty are based on the official definition of poverty (4). They were calculated from model-based county level estimates of the number of poor persons in 1997 produced by the U.S. Census Bureau (http://www.census.gov/hhes/www/saipe.html). The U.S. Census Bureau used a combination of multiple regression estimation techniques and shrinkage techniques to create the estimates. The modeling relies on the March Current Population Survey, administrative data derived from tax returns, counts of food stamp recipients, estimated total resident population, and decennial census estimates. (For poverty level definition, see Appendix II, Poverty level.)

Cigarette Smoking (figures 6 and 7)

Cigarette smoking data originated from two sources. For persons ages 12–17 years (figure 6), the data originated from the 1999 National Household Survey on Drug Abuse (see Appendix I). In that survey current smoking was defined as smoking part or all of a cigarette during the past 30 days.

For those 18 years of age and over (figure 7), the data originated from the 1997 and 1998 National Health Interview Survey (NHIS), sample adult questionnaire (see Appendix I). In the NHIS, current smokers are persons who have smoked at least 100 cigarettes in their lifetime and now smoke cigarettes every day or some days.

Alcohol Consumption (figure 8)

The measure of alcohol consumption used in figure 8 is self-reported consumption of five or more drinks in one day in the last year. This measure is one indicator of heavy alcohol consumption. The data are from the

sample adult questionnaire of the 1997 and 1998 National Health Interview Survey (NHIS) (see Appendix I). See Appendix II, Current drinker for a description of the NHIS questions on alcohol consumption.

Obesity (figure 9)

Obesity was defined as having a body mass index (BMI) greater than or equal to 30 kg/m^2 (see Appendix II, Body mass index). Data are from the 1997 and 1998 NHIS, sample adult questionnaire (see Appendix I). The NHIS obtained this information by asking respondents 18 years of age and over to report their own height and weight without shoes. The self-reported estimates of obesity presented in figure 9 differ from those based on measured height and weight presented in *Health, United States, 2001* table 69. NHIS data were used in figure 9 because they provide sufficient data for estimates by urbanization level.

Physical Inactivity (figure 10)

Physical inactivity during leisure time is based on two questions in the 1997–98 National Health Interview Survey (NHIS), sample adult questionnaire (see Appendix I). In 1997 data on leisure time physical inactivity are for quarters 3 and 4 only due to an error in the Computer Assisted Personal Interview (CAPI) during quarters 1 and 2. Respondents were considered to be physically inactive during leisure time if they responded *never* or *unable to do this* to both of the following:

The next questions are about physical activities (exercise, sports, physically active hobbies...) that you may do in your LEISURE time.

> 1) How often do you do vigorous activities for at least 10 minutes that cause heavy sweating or large increases in breathing or heart rate?
>
> 2) How often do you do light or moderate activities for at least 10 minutes that cause only light sweating or a slight to moderate increase in breathing or heart rate?

Mortality (figures 11–19)

See Appendix I, National Center for Health Statistics, National Vital Statistics System for a description of the source for mortality data. Data for the 3 years 1996–98 were combined to increase reliability of estimates. Cause of death coding is for underlying cause of death based on the *International Classification of Diseases, Ninth Revision* (ICD-9) (see Appendix II, Cause of death). ICD–9 codes used for ischemic heart disease are 410–414. ICD–9 codes used for chronic obstructive pulmonary diseases are 490–496. External cause of injury codes (E-codes) were assigned for deaths for which the underlying cause of death was an injury. The E-codes used to define external causes of injury in the chartbook are:

unintentional injuries	E800–E949
motor vehicle traffic-related	E810–E819
homicide	E960–E969
suicide	E950–E959

The E-codes are designed to classify environmental events, circumstances, and conditions that contributed to the injury. E-codes have two dimensions: cause or mechanism of injury (for example, firearm, motor vehicle, and poisoning) and intent or manner of death (including unintentional, suicide, homicide, intent undetermined, and other). Population estimates are the July 1 resident population of counties in the United States by age, sex, race, and Hispanic origin for 1996–98 from the U.S. Bureau of the Census 1990–98 annual time series.

Mortality data are graphed on a log scale because of the large variation in death rates from different causes and for different ages. Use of a log scale facilitates presentation and comparison of mortality from causes or ages with disparate rates. The log scale also emphasizes relative rather than absolute change.

Teen Birth Rates (figure 20)

Birth rates were calculated for females 15–19 years of age. The birth data are complete counts of all live births occurring in the United States and are based on the National Vital Statistics System (see Appendix I). Data for the 3 years 1996–98 were combined to increase reliability of the estimates.

Limitation of Activity (figure 21)

Data on limitation of activity due to chronic health conditions were obtained from the 1997 and 1998 National Health Interview Survey, family core questionnaire (See Appendix I). In 1998 data on limitation of activity are for quarters 3 and 4 only due to an error in the Computer Assisted Personal

Interview (CAPI) during quarters 1 and 2. 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 due to one or more chronic health conditions. For persons 18 years of age and over, these activities include, but are not limited to: working, independently handling routine needs such as household chores and shopping, and independently performing personal care such as bathing, dressing, eating and getting around inside the home. Limitation of activity is assessed by asking respondents a series of questions about their need for help or other limitations in their ability to perform usual activities because of a physical, mental, or emotional problem. Respondents are also asked these questions about family members who are not present during the interview. (See Appendix II, Limitation of activity.)

Edentulism and Dental Visits (figures 22 and 26)

Estimates of the prevalence of edentulism (total tooth loss) among the elderly and the proportion of adults who had a dental visit in the year prior to interview are based on data from the 1997 and 1998 NHIS sample adult questionnaire (see Appendix I). To assess tooth loss, respondents were asked, "Have you lost all of your upper natural teeth and lower natural teeth?" Information on dental visits within the past year was based on the question, "About how long has it been since you last saw or talked to a dentist?"

Health Insurance Coverage (figure 23)

Estimates of the percent uninsured were obtained from the 1997 and 1998 NHIS family core questionnaire (see Appendix I). (For definition of uninsured, see Appendix II, Health insurance coverage.) Estimates are presented for the population under 65 years of age because almost all persons age 65 years and over are covered by Medicare.

Physicians (figure 24)

Physician-to-population ratios for 1998 were based on estimates of the number of professionally active patient care medical doctors based on data collected by the American Medical Association (AMA) and provided to the Area Resource File (ARF). Excluded from the analysis were about 5 percent of physicians who were osteopaths, due to incomparability of the classification system used for osteopathic and allopathic physicians. Osteopaths are more likely to be primary care physicians and to practice in rural areas. Medical doctors included Federal and non-Federal patient care doctors in office-based and hospital-based practices. Physician specialty data were based on self-reported primary area of specialty. Primary care physicians include physicians practicing in the general fields of family and general practice, general internal medicine, and general pediatrics. Physician data were classified by county of preferred mailing address from the AMA file (that is, 41 percent primary office, 50 percent home, and 9 percent unknown).

Population estimates are for the resident population as of July 1 from the U.S. Bureau of the Census (Estimates of the Population of Counties by Age, Sex, Race, and Hispanic Origin: 1990–98 annual time series). Physician data are graphed on a log scale because of the large variation in numbers of physicians in different specialties. Use of a log scale facilitates presentation of physician-to-population ratios for different specialties on the same figure. The log scale also emphasizes relative rather than absolute differences across urbanization levels. County level physician-to-population estimates do not reflect the fact that people may travel outside their county of residence for physician care (5). Additionally, physician-to-population estimates for specialists do not reflect the fact that specialty physician services may be imported into an area, for example, specialists from urban areas serving rural areas on a part-time basis (6). Information on the ARF is available at http://www.bhpr.hrsa.gov/ or by contacting: Bureau of Health Professions, HRSA, National Center for Health Workforce Information and Analysis, Parklawn Building, Room 8-47, 5600 Fishers Lane, Rockville, MD 20857.

Dentists (figure 25)

Dentist-to-population ratios are estimates of the number of professionally active dentists collected by the American Dental Association and provided to the ARF. Professionally active dentists included Federal and non-Federal dentists working full- or part-time in all practice settings. Dentists were classified by the county of their primary office. Excluded from the analysis were 5 percent of dentists with county location unknown. Therefore, dentist-to-population ratios presented in the chartbook are underestimates. Population estimates are for the resident population as of July 1 from the U.S. Bureau of the Census (Estimates of the Population of Counties by Age, Sex, Race, and Hispanic Origin: 1990–98 annual time series).

Hospital Discharge Rates and Average Length of Stay (figure 27)

The National Hospital Discharge Survey (NHDS) provides data to estimate total hospital discharge rates and average length of stay (see Appendix I). This survey includes a national sample of hospitals with an average length of stay of fewer than 30 days for all patients, general hospitals, or children's general hospitals. Federal, military, and Department of Veterans Affairs hospitals, as well as hospital units of nonhealth institutions (such as prison hospitals) and hospitals with fewer than six beds staffed for patient use, are excluded.

County of residence of the patient was not available, but was assigned based on the ZIP Code where the patient lived as recorded in the hospital record. In order to assign a county of residence, the following method was used. The source for the ZIP Code file was Environmental Systems Research Institute, Inc. (ESRI), which makes ArcView geographic information systems software. Several geographic files are included with ArcView, one of which contains U.S. ZIP Code locations for five-digit ZIP Codes for the entire United States. The ZIP Code locations provided to ESRI by Geographic Data Technology, Inc., are a 1998 database. Each ZIP Code in the file is a separate observation, and each contains information on the State and county or counties in which it is located. Roughly 90 percent of all ZIP Codes are located within a single county. For those that extend into multiple counties, the county in which the greatest physical area of the ZIP Code is located is listed as the major county, and minor counties are listed in decreasing order of ZIP Code area. For the very small number of ZIP Codes that physically extend into two different States, only the State containing the largest portion of the ZIP Code is listed. (For more about ZIP Codes, see Dynamap/ZIP Code Boundary & Inventory Files version 8, section 3 "Understanding ZIP Codes" Geographic Data Technology, Inc. 2000, pp.10–21 [http://www.geographic.com/support/docs/ZIP8_00.pdf].) The process of appending a county code and urbanization level to each record of the 1998 NHDS was successful for 96 percent of the records. The 4 percent of records that did not match were deleted from the analysis. Population estimates are the July 1 resident population of counties in the United States, by age, sex, race, and Hispanic origin from the U.S. Bureau of the Census 1990–98 annual time series.

Substance Abuse Treatment Admissions (figure 28)

Data on substance abuse treatment admissions were obtained from the Treatment Episode Data Set (TEDS) maintained by the Substance Abuse and Mental Health Services Administration (SAMHSA). TEDS is one of the three components of SAMHSA's Drug and Alcohol Services Information System (DASIS), which provides national- and State-level information on the numbers and characteristics of individuals admitted to alcohol and drug treatment and describes the facilities that deliver care to those individuals.

States collect substance abuse treatment information and provide it to SAMHSA. TEDS includes more than 1.5 million records per year of admissions to substance abuse treatment. In 1997 TEDS included data from over 7,500 facilities, representing an estimated 67 percent of substance abuse admissions countrywide. States report TEDS data primarily on admissions to facilities that receive State alcohol and/or drug agency funds (including Federal Block Grant funds) for provision of treatment services. The scope of facilities included in TEDS is affected by differences in State systems of licensure, certification, accreditation, and disbursement of public funds. Although States may report data from facilities that do not receive public funding, they generally do not because of the difficulty in obtaining data from these facilities. Facilities that may not be accountable to the States and thus not included in the TEDS data are: a) facilities that operate entirely with private funds; b) individual practitioners; c) hospital-based substance abuse treatment facilities not licensed through the State substance abuse agency; d) correctional facilities (State prisons and local jails); and e) Federal facilities operated by the Department of Veterans Affairs, the Department of Defense, and the Federal Bureau of Prisons.

TEDS data monitor the characteristics of treatment episodes for substance abusers. Most States are able to report all admissions to all eligible facilities, although some report only those admissions that were financed by public funds. TEDS does not attempt to include early intervention programs (considered prevention programs). Crisis intervention facilities, such as sobering-up stations and hospital emergency departments, are generally not included in TEDS, although a State may opt to include such programs in its TEDS submissions.

For this chartbook several key aspects regarding the TEDS data require notation. The urbanization levels

used for analysis of TEDS data correspond to location of the facility rather than client residence. Rate differences may reflect the presence or absence of treatment facilities in metro and nonmetro counties rather than county differences in the rates of substance abuse. In addition, clients may seek treatment outside their county of residence. Data are displayed according to primary substance (that is, the substance listed at admission as the primary substance abuse problem for which treatment is sought). Data were not included from Arizona, Colorado, Indiana, Maine, and West Virginia. Indiana, Maine, and West Virginia did not report 1998 data. Arizona and Colorado reported only at the State level. (Further information on TEDS is available from: http://www.samhsa.gov/statistics/statistics.html or the National Clearinghouse for Alcohol and Drug Information (NCADI), P.O. Box 2345, Rockville, MD 20847–2345.)

Table A. Metropolitan areas included in large central and large fringe metropolitan urbanization categories by region, 1998

Region and metropolitan area	Large central metropolitan category: Number of counties	Large central metropolitan category: Percent of category's population	Region and metropolitan area	Large fringe metropolitan category: Number of counties	Large fringe metropolitan category: Percent of category's population
Northeast	16	100	Northeast	44	100
New York-Northern New Jersey-Long Island	8	54	New York-Northern New Jersey-Long Island	18	51
Boston-Worcester-Lawrence	2	12	Boston-Worcester-Lawrence	7	20
Philadelphia-Wilmington-Atlantic City	2	11	Philadelphia-Wilmngton-Atlantic City	7	18
Pittsburgh	1	7	Pittsburgh	5	6
Buffalo-Niagara Falls	1	6	Rochester	5	2
Hartford	1	5	Buffalo-Niagara Falls	1	1
Rochester	1	4	Hartford	1	1
Midwest	13	100	Midwest	76	100
Chicago-Gary-Kenosha	1	34	Chicago-Gary-Kenosha	11	25
Detroit-Ann Arbor-Flint	1	14	Detroit-Ann Arbor-Flint	8	21
Minneapolis-St. Paul	2	10	St. Louis	11	16
Cleveland-Akron	1	9	Minneapolis-St. Paul	11	9
Columbus	1	7	Cleveland-Akron	5	6
Kansas City	3	6	Kansas City	8	5
Milwaukee-Racine	1	6	Cincinnati-Hamilton*	6	5
Cincinnati-Hamilton*	1	6	Indianapolis	8	5
Indianapolis	1	5	Milwaukee-Racine	3	4
St. Louis	1	2	Columbus	5	3
South	21	100	South	106	100
Miami-Fort Lauderdale	2	19	Washington-Baltimore	30	38
Dallas-Fort Worth	2	18	Atlanta	17	12
Houston-Galveston-Brazoria	1	17	Dallas-Fort Worth	10	9
Atlanta	3	10	Tampa-St. Petersburg-Clearwater	3	9
San Antonio	1	7	Houston-Galveston-Brazoria	7	8
Washington-Baltimore	2	6	New Orleans	7	5
Tampa-St. Petersburg-Clearwater	1	5	Charlotte-Gastonia-Rockhill	6	5
Memphis	1	5	Norfolk-Virginia Beach-Newport News	10	5
Norfolk-Virginia Beach-Newport News	4	4	Orlando	3	4
Orlando	1	4	Cincinnati-Hamilton*	6	2
Charlotte-Gastonia-Rockhill	1	3	Memphis	4	1
New Orleans	1	2	San Antonio	3	1
			Miami-Fort Lauderdale	0	0
West	13	100	West	27	100
Los Angeles-Riverside-Orange County	3	47	Los Angeles-Riverside-Orange County	2	31
San Francisco-Oakland-San Jose	3	14	San Francisco-Oakland-San Jose	7	27
Phoenix-Mesa	1	11	Denver-Boulder-Greeley	5	15
San Diego	1	11	Portland-Salem	5	11
Seattle-Tacoma-Bremerton	1	6	Seattle-Tacoma-Bremerton	2	6
Sacramento-Yolo	1	4	Sacramento-Yolo	3	5
Salt Lake City-Ogden	1	3	Salt Lake City-Ogden	2	4
Portland-Salem	1	2	Phoenix-Mesa	1	1
Denver-Boulder-Greeley	1	2	San Diego	0	0

*The Cincinnati-Hamilton MA includes counties in both the Midwest and South regions.

Table B. States included in small metropolitan and nonmetropolitan urbanization categories by region, 1998

Small metropolitan category			Nonmetropolitan categories: With a city ≥ 10,000 population			Nonmetropolitan categories: Without a city ≥ 10,000 population		
Region and State	Number of counties	Percent of category's population	Region and State	Number of counties	Percent of category's population	Region and State	Number of counties	Percent of category's population
Northeast	64	100	Northeast	31	100	Northeast	62	100
PA	21	31	NY	11	35	PA	26	46
NY	20	24	PA	8	28	NY	13	22
CT	3	14	NH	6	15	ME	10	16
MA	5	11	ME	3	14	VT	10	14
RI	4	7	RI	1	3	NH	1	2
NJ	4	6	MA	1	3	MA	2	1
ME	3	4	VT	1	2	CT	0	0
NH	1	1	CT	0	0	NJ	0	0
VT	3	1	NJ	0	0	RI	0	0
Midwest	132	100	Midwest	171	100	Midwest	663	100
OH	22	22	OH	25	19	MI	46	13
MI	16	18	IL	19	13	IA	76	12
IN	24	12	IN	17	11	MO	74	12
WI	13	11	MO	19	9	WI	42	11
IL	14	10	WI	10	9	IL	55	10
IA	10	7	MN	17	9	IN	38	9
KS	5	5	KA	18	8	MN	52	8
NE	6	5	MI	12	8	OH	24	8
MO	8	4	IA	13	7	KS	78	6
MN	7	3	NE	9	4	NE	78	5
ND	4	2	SD	8	2	SD	55	3
SD	3	1	ND	4	2	ND	45	3
South	275	100	South	201	100	South	821	100
FL	24	18	TX	41	14	TX	155	12
TX	34	16	GA	21	11	NC	50	10
NC	28	10	NC	15	10	KY	87	10
AL	21	8	MS	20	10	GA	96	9
SC	15	7	AL	13	8	TN	54	7
TN	23	7	TN	15	8	VA	62	7
OK	14	6	OK	17	7	MS	55	7
LA	16	5	KY	11	6	AR	52	6
VA	31	5	AR	12	6	SC	26	6
GA	22	4	LA	10	6	FL	29	5
KY	16	4	VA	11	5	WV	38	5
AR	10	3	WV	5	4	AL	33	5
DE	2	2	FL	4	3	OK	46	4
MS	6	2	SC	4	3	LA	30	4
WV	10	2	MD	2	1	MD	7	2
MD	3	1	DE	0	0	DE	1	1
West	51	100	West	80	100	West	275	100
CA	14	32	OR	11	15	CO	49	15
WA	8	15	WA	11	14	CA	17	13
NV	3	11	CA	7	13	ID	34	11
AZ	3	7	NM	11	11	MT	48	9
CO	4	7	ID	8	9	WA	16	8
NM	6	7	AZ	4	8	AZ	6	8
HI	1	6	MT	7	7	AK	24	7
OR	4	6	UT	5	6	OR	16	7
ID	2	3	HI	3	5	UT	20	6
AK	1	2	CO	4	4	NM	16	6
UT	1	2	WY	5	3	WY	16	5
MT	2	1	AK	2	2	NV	12	4
WY	2	1	NV	2	2	HI	1	2

≥ Greater than or equal to.

NOTE: See map on page viii.

References

Introduction

1. Institute of Medicine. Defining primary care: An interim report. Washington, DC: National Academy Press. 1994.

2. U.S. Congress, Office of Technology Assessment. Health care in rural America, OTA-H-434. Washington, DC: U.S. Government Printing Office.1990.

3. U.S. Department of Health and Human Services. Healthy People 2010. 2nd ed. With understanding and improving health and objectives for improving health. 2 vols. Washington, DC: U.S. Government Printing Office. 2000.

4. Ricketts TC, Johnson-Webb KD, Taylor P. Definitions of rural: A handbook for health policy makers and researchers. Technical Issues Paper. U.S. Department of Health and Human Services, Health Resources and Services Administration, Federal Office of Rural Health Policy. 1998.

5. Federal Register. Vol. 55 No. 82. March 30, 1990.

6. U.S. Census Bureau. Geographic areas reference manual. Washington, DC. 1994.

7. National Center for Health Statistics. Health, United States, 2000 With Adolescent Health Chartbook. Hyattsville, Maryland. 2000.

8. Stevens JA, Hasbrouck L. Durant TM, Dellinger, et al. CDC Surveillance Summaries, December 17, 1999. MMWR 48(SS08):27–50. 1999.

9. Kamimoto LA, Easton AN, Maurice E, et al. CDC Surveillance Summaries, December 17, 1999. MMWR 48(SS08):89–130. 1999.

10. Svenson JE, Spurlock C, Nypaver M. Factors associated with the higher traumatic death rate among rural children. Annals Emergency Medicine 27(5):625–32. 1996.

11. Monroe AC, Ricketts TC, Savitz LA. Cancer in rural versus urban populations: A review. J Rural Health 8(3):212–20. 1992.

12. Ricketts TC ed. Rural Health in the United States. New York, NY: Oxford University Press. 1999.

13. Andrulis DP, Goodman NJ. The social and health landscape of urban and suburban America. Chicago, IL: American Hospital Association Press. 1999.

14. Barnett E, Halverson JA, Elmes GA, Braham VE. Metropolitan and non-metropolitan trends in coronary heart disease mortality within Appalachia, 1980–1997. Ann Epidemiol 10:370–9. 2000.

15. Rogers CC. Changes in the older population and implications for rural areas. Rural Development Research Report No. 90. Washington, DC: U.S. Department of Agriculture, Economic Research Service. 1999.

Figure 3

1. Murphy SL. Deaths: Final data for 1998. National vital statistics reports; vol 48 no. 11. Hyattsville, Maryland: National Center for Health Statistics. 2000.

2. Hodgson TA, Cohen AJ. Medical expenditures for major diseases, 1995. Health Care Financing Review 21(2):119–64. 1999.

3. Schachter JP. Geographical mobility: 1990–95. Current population reports; P-23, no 200. U.S. Census Bureau. Available: http://www.census.gov/prod/2000pubs/p23-200.pdf. May 14, 2001.

4. U.S. Census Bureau. State population estimates and demographic components of population change: April 1, 1990 to July 1, 1999. Available: http://www.census.gov/population/estimates/state/st-99-2.txt. May 14, 2001.

Figure 4

1. Pickle LW, Mungiole M, Jones GK, White AA. Atlas of United States mortality. Hyattsville, Maryland: National Center for Health Statistics. 1996.

2. Centers for Disease Control and Prevention. CDC Surveillance Summaries, March 24, 2000. MMWR 49(No-SS-2). 2000.

Figure 5

1. Pamuk ER, Makuc DM, Heck KE, Reuben C, Lochner K. Socioeconomic Status and Health Chartbook. Health, United States, 1998. Hyattsville, Maryland: National Center for Health Statistics. 1998.

Figure 6

1. U.S. Department of Health and Human Services. Healthy People 2010. 2nd ed.. With understanding and improving health and objectives for improving health 2 vols. Washington, DC: U.S. Government Printing Office. 2000.

2. Centers for Disease Control and Prevention. Trends in cigarette smoking among high school students: United States, 1991–1999. MMWR 49:755–8. 2000.

3. U.S. Department of Health and Human Services. Preventing tobacco use among young people: A report of the Surgeon General. Atlanta, Georgia: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office of Smoking and Health. 1994. Available: http://www.cdc.gov/tobacco/sgryth2.htm. May 14, 2001.

4. Centers for Disease Control and Prevention. Projected smoking-related deaths among youth United States. MMWR 45:971–4. 1996.

Figure 7

1. U.S. Public Health Service. Smoking and health. Report of the Advisory Committee to the Surgeon General of the Public Health Service. U.S. Department of Health, Education, and Welfare, Public Health Service, PHS Publication No. 1103. 1964. Available: http://www.cdc.gov/tobacco/sgr/sgr_1964/sgr64.htm. May 14, 2001.

2. Pearson TA, Lewis C. Rural epidemiology: Insights from a rural population laboratory. Am J Epidemiology 148(10):949–57. 1998.

3. Newburger EC, Curry A. Educational attainment in the United States. Current population reports; P-20, no.528. U.S. Census Bureau. 1999.

4. U.S. Department of Health and Human Services. Tobacco use among U.S. racial/ethnic minority groups African Americans, American Indians and Alaska Natives, Asian Americans and Pacific

Islanders, and Hispanics: 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, Office on Smoking and Health. 1998.

5. Fichtenberg CM, Glantz SA. Association of the California Tobacco Control Program with declines in cigarette consumption and mortality from heart disease. New Engl J Med 343(24):1772–7. 2000.

Figure 8

1. Klatsky AL, Armstrong MA. Alcohol use, other traits, and risk of unnatural death: A prospective study. Alcohol Clin Exp Res 17(6):1156–62. 1993.

2. Substance Abuse and Mental Health Services Administration. Blood alcohol concentration. In: NCADI: Prevention primer. Available: http://www.health.org:80/govpubs/PHD627/blood.htm. May 14, 2001.

3. Coker AL, Smith PH, McKeown RE, King MJ. Frequency and correlates of intimate partner violence by type: Physical, sexual, and psychological battering. Am J Public Health 90(4):553–9. 2000.

4. Substance Abuse and Mental Health Services Administration. Appendix G: National tables. National Household Survey on Drug Abuse, 1999. Office of Applied Studies, SAMHSA . Available: http://www.samhsa.gov/oas/NHSDA/1999/Appendixg.htm. May 14, 2001.

Figure 9

1. Flegal KM, Carroll MD, Kuczmarski RJ, Johnson CL. Overweight and obesity in the United States: Prevalence and trends, 1960–1994. International J Obesity 22:39–47. 1998.

Figure 10

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. 85–172. 1996.

2. Centers for Disease Control and Prevention. Self-reported physical inactivity by degree of urbanization: United States, 1996. MMWR 47(50):1097–100. 1998.

3. Centers for Disease Control and Prevention. Prevalence of leisure-time and occupational physical activity among employed adults: United States, 1990. MMWR 49(19):420–4. 2000.

4. Brownson RC, Eyler AA, King AC, et al. Patterns and correlates of physical activity among US women 40 years and older. Am J Public Health 90(2):264–70. 2000.

Figure 11

1. Kleinman JC, Kiely JL. Infant mortality. Healthy People 2000 statistical notes; vol 1 no. 2. National Center for Health Statistics. 1991.

2. Centers for Disease Control and Prevention. Poverty and infant mortality United States, 1988. MMWR 44(49):923–7. 1995.

3. McCormick MC, Richardson DK. Access to neonatal intensive care. The Future of Children 5(1):162–75. 1995.

4. American Academy of Pediatrics Task Force on Infant Positioning and SIDS. Positioning and SIDS. Pediatrics 89(6):1120–6. 1992.

Figure 12

1. Murphy SL. Deaths: Final data for 1998. National vital statistics reports; vol 48 no 11. Hyattsville, Maryland: National Center for Health Statistics. 2000.

Figure 13

1. Murphy SL. Deaths: Final data for 1998. National vital statistics reports; vol 48 no 11. Hyattsville, Maryland: National Center for Health Statistics. 2000.

2. Barnett E, Halverson J. Disparities in premature coronary heart disease mortality by region and urbanicity among black and white adults ages 35–64, 1985–1995. Public Health Rep 115:52–64. 2000.

Figure 14

1. Murphy SL. Deaths: Final data for 1998. National vital statistics reports; vol 48 no 11. Hyattsville, Maryland: National Center for Health Statistics. 2000.

Figure 15

1. Murphy SL. Deaths: Final data for 1998. National vital statistics reports; vol 48 no 11. Hyattsville, Maryland: National Center for Health Statistics. 2000.

2. Ingram DD, Gillum R. Regional and urbanization differentials in coronary heart disease mortality in the United States, 1968–85. J Clin Epidemiol 42:857–68. 1989.

3. Pamuk ER, Makuc DM, Heck KE, Reuben C, Lochner K. Socioeconomic Status and Health Chartbook. Health, United States, 1998. Hyattsville, Maryland: National Center for Health Statistics. 1998.

Figure 16

1. Murphy SL. Deaths: Final data for 1998. National vital statistics reports; vol 48 no 11. Hyattsville, Maryland: National Center for Health Statistics. 2000.

2. Centers for Disease Control and Prevention. Progress in chronic disease prevention chronic disease reports: chronic obstructive pulmonary disease mortality—United States, 1986. MMWR 38(32):549–52. 1989.

3. Becklake MR. The work relatedness of airways dysfunction. In: Proceedings of the Ninth International Symposium on epidemiology in Occupational Health. Cincinnati, Ohio. 1–28. 1992.

Figure 17

1. Murphy SL. Deaths: Final data for 1998. National vital statistics reports; vol 48 no 11. Hyattsville, Maryland: National Center for Health Statistics. 2000.

2. U.S. Department of Health and Human Services. Traumatic brain injury in the United States: A Report to Congress. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. 1999. Available: http://cdc.gov/ncipc/pub-res/tbicongress.htm. May 14,2001.

3. National Center for Health Statistics. Multiple cause of death for ICD-9 data. 1996–98.

4. Blatt J, Furman SM. Residence location of drivers involved in fatal crashes. Accid Anal and Prev 30(6): 705–11. 1998.

5. Toscano GA, Windau JA. Profile of fatal work injuries in 1996. Bureau of Labor Statistics, Compensation and Working Conditions 3(1): 37–45. 1998.

Figure 18

1. Murphy SL. Deaths: Final data for 1998. National vital statistics reports; vol 48 no 11. Hyattsville, Maryland: National Center for Health Statistics. 2000.

2. Fingerhut LA, Ingram DD, Feldman JJ. Homicide rates among U.S. teenagers and young adults: Differences by mechanism, level of urbanization, race, and sex, 1987 through 1995. JAMA 280:423–7. 1998.

3. Cubbin C, Pickle LW, Fingerhut L. Social context and geographic patterns of homicide among U.S. black and white males. Am J Public Health 90(4):579–87. 2000.

Figure 19

1. Murphy SL. Deaths: Final data for 1998. National vital statistics reports; vol 48 no 11. Hyattsville, Maryland: National Center for Health Statistics. 2000.

2. Kann L, Kinchen SA, Williams BI, et al. CDC Surveillance Summaries, August 14, 1998. MMWR 47(SS-3);1–89. 1998.

3. Moscicki EK. Gender differences in completed and attempted suicides. Ann Epidemiol 4(2):152–8. 1994.

4. National Center for Health Statistics. Compressed Mortality File 1989–98.

5. Kaplan MS, Geling O. Firearm suicides and homicides in the United States: Regional variations and patterns of gun ownership. Soc Sci Med 46(9):1227–33. 1998.

6. Glaeser E, Glendon S. Who owns guns? Criminals, victims, and the culture of violence. Am Econ Rev Papers and Proceedings. 458–62. 1998.

7. Rost K, Zhang M, Fortney J, et al. Rural-urban differences in depression treatment and suicidality. Med Care 36(7):1098–107. 1998.

Figure 20

1. Curtin SC, Martin JA. Births: Preliminary data for 1999. National vital statistics reports; vol 48 no 14. Hyattsville, Maryland: National Center for Health Statistics. 2000.

2. Ventura SJ, Mosher WD, Curtin SC, Abma JC, Henshaw S. Trends in pregnancies and pregnancy rates by outcome: estimates for the United States, 1976–96. National Center for Health Statistics. Vital Health Stat 21(56). 2000.

3. Abma JC, Chandra A, Mosher WD, Peterson LS, Piccinino LJ. Fertility, family planning and women's health: new data from the 1995 National Survey of Family Growth. National Center for Health Statistics. Vital Health Stat 23(19). 1997.

4. Ventura SJ, Curtin SC, Mathews TJ. Variations in teenage birth rates, 1991–98: National and State trends. National vital statistics reports; vol 48 no. 6. Hyattsville, Maryland: National Center for Health Statistics. 2000.

5. Loda FA, Speizer IS, Martin KL, et al. Programs and services to prevent pregnancy, childbearing, and poor birth outcomes among adolescents in rural areas of the southeastern United States. J Adolesc Health 21:157–66. 1997.

6. Bennett T, Skatrud JD, Guild P, et al. Rural adolescent pregnancy: A view from the South. Fam Plann Perspect 29:256–-67. 1997.

7. U.S. Congress, Office of Technology Assessment. Adolescent Health—Volume I:Summary and policy options, Ota-h-468. Washington, DC: U. S. Government Printing Office. 1991.

8. Henshaw SK, Feivelson DJ. Teenage abortion and pregnancy statistics by State, 1996. Fam Plann Perspect 32:272–80. 2000.

9. Fothergill K, Feijoo A. Family planing services at school-based health centers: Findings from a national survey. J Adolesc Health 27:166–9. 2000.

Figure 21

1. Wilkins K, Park E. Chronic conditions, physical limitations and dependency among seniors living in the community. Health Reports 8(3):7–15. 1996.

2. LaPlante MP, Carlson D. Disability in the United States: Prevalence and causes, 1992. Disability Statistics Report (7). Washington, DC: U.S. Department of Education, National Institute on Disability and Rehabilitation Research. 1996.

3. Lin G. Regional assessment of elderly disability in the U.S. Social Science Med 50(7–8):1015–24. 2000.

4. Campbell VA, Crews JE, Moriarty DG, et al. CDC Surveillance Summaries, December 17, 1999. MMWR 48(SS08):131–56. 1999.

Figure 22

1. Johnson ES, Kelly JE, Van Kirk LE. Selected dental findings in adults by age, race, and sex, United States, 1960–1962. National Center for Health Statistics. Vital Health Stat 11(7). 1965.

Figure 23

1. Schur CL, Franco SJ. Access to Health Care. In: Ricketts T ed.. Rural Health in the United States. New York: Oxford University Press. 25–37. 1999.

Figure 24

1. Pasko T, Seidman B, Birkhead S. Physician characteristics and distribution in the US. American Medical Association, 2000–2001 Edition. 2000.

2. Rosenblatt RA, Hart LG. Physicians and rural America. In: Ricketts T ed. Rural Health in the United States. New York, NY: Oxford University Press. 38–51. 1999.

Figure 25

1. U.S. Department of Health and Human Services. Oral health in America: A report of the Surgeon General executive summary. Rockville, Maryland: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health. 2000.

Figure 26

1. U.S. Department of Health and Human Services. Oral health in America: A report of the Surgeon General executive summary. Rockville, Maryland: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health. 2000.

Figure 27

1. Duffy SQ, Farley DE. Patterns of decline among inpatient procedures. Public Health Reports 110:674–81. 1995.

2. Shi L, Samuels ME, Pease M, et al. Patient characteristics associated with hospitalizations for ambulatory care sensitive conditions in South Carolina. South Med J 92(10):989–98. 1999.

Figure 28

1. Substance Abuse and Mental Health Services Administration. Changing the conversation— improving substance abuse treatment: the national treatment plan initiative. Panel reports, public hearings, and participation acknowledgments. Rockville, Maryland: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Treatment. 2000. Available: http://www.samhsa.gov/centers/csat/content/ntp.htm. May 14, 2001.

Technical Notes

1. Federal Register, Vol 55 No. 82. March 30, 1990.

2. Ghelfi LM, Parker TS. A new county level measure of urban influence. Staff Report, Rural Economy Division, Economic Research Service, U.S. Department of Agriculture. 1995.

3. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People statistical notes no. 20. Hyattsville, Maryland: National Center for Health Statistics. 2001.

4. Office of Management and Budget. Statistical Policy Directive No. 14. Definition of poverty for statistical purposes. 1978. Available: http://www.census.gov/hhes/poverty/povmeas/ombdir14.html. May 14, 2001.

5. Kleinman JC, Makuc DM. Travel for ambulatory medical care. Medical Care 21(5):543–57. 1993.

6. Wakefield DS, Tracy R. Adjusting measures of physician availability to reflect importation of physician services into rural areas. J Rural Health 12(1):39–44. 1996.

Figure 2. Population by region and urbanization level: United States, 1998

Urbanization level	All regions	Northeast	Midwest	South	West
			Percent		
Total	100.0	100.0	100.0	100.0	100.0
Metropolitan counties:					
Large central	28.8	32.8	24.1	20.1	43.9
Large fringe	21.2	32.2	22.2	16.3	18.5
Small	30.0	25.1	27.3	38.4	23.5
Nonmetropolitan counties:					
With a city ≥ 10,000 population	9.1	5.2	12.0	9.8	8.1
Without a city ≥ 10,000 population	11.0	4.7	14.4	15.4	6.0

≥ Greater than or equal to.

Figure 3. Population by age, region, and urbanization level: United States, 1998

Region and urbanization level	All ages	Under 5 years	5–17 years	18–64 years	65 years and over
			Percent		
All regions	100.0	7.0	18.8	61.4	12.7
Metropolitan counties:					
Large central	100.0	7.5	18.3	62.4	11.8
Large fringe	100.0	6.9	18.8	62.5	11.8
Small	100.0	7.0	18.8	61.2	13.0
Nonmetropolitan counties	100.0	6.5	19.7	59.2	14.6
With a city ≥ 10,000 population	100.0	6.7	19.4	60.2	13.7
Without a city ≥ 10,000 population	100.0	6.4	19.9	58.3	15.3
Northeast:					
Metropolitan counties:					
Large central	100.0	6.8	17.3	62.3	13.6
Large fringe	100.0	6.4	17.9	61.8	13.9
Small	100.0	6.3	18.0	60.8	14.9
Nonmetropolitan counties	100.0	5.9	18.9	60.4	14.8
With a city ≥ 10,000 population	100.0	6.0	18.7	60.7	14.6
Without a city ≥ 10,000 population	100.0	5.9	19.1	60.0	15.0
Midwest:					
Metropolitan counties:					
Large central	100.0	7.3	18.3	61.8	12.7
Large fringe	100.0	7.0	19.7	62.4	10.9
Small	100.0	6.7	18.9	61.8	12.6
Nonmetropolitan counties	100.0	6.3	19.8	58.3	15.6
With a city ≥ 10,000 population	100.0	6.4	19.3	60.0	14.2
Without a city ≥ 10,000 population	100.0	6.3	20.2	56.8	16.7
South:					
Metropolitan counties:					
Large central	100.0	7.7	18.6	63.0	10.7
Large fringe	100.0	7.1	18.7	63.1	11.2
Small	100.0	7.0	18.4	61.4	13.1
Nonmetropolitan counties	100.0	6.6	19.2	59.7	14.5
With a city ≥ 10,000 population	100.0	6.8	19.0	60.6	13.5
Without a city ≥ 10,000 population	100.0	6.4	19.4	59.1	15.1
West:					
Metropolitan counties:					
Large central	100.0	7.8	18.9	62.3	11.0
Large fringe	100.0	7.3	19.1	63.0	10.6
Small	100.0	7.8	20.2	60.5	11.5
Nonmetropolitan counties	100.0	7.1	21.2	58.8	12.8
With a city ≥ 10,000 population	100.0	7.2	20.8	59.4	12.6
Without a city ≥ 10,000 population	100.0	7.1	21.8	58.0	13.1

≥ Greater than or equal to.

Figure 4. Population in selected race and Hispanic origin groups by region and urbanization level: United States, 1998

Region and urbanization level	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic Asian or Pacific Islander	Non-Hispanic American Indian or Alaska Native	Hispanic
	Percent				
All regions	72.3	12.1	3.7	0.7	11.2
Metropolitan counties					
Large central	54.3	18.5	6.4	0.4	20.5
Large fringe	80.2	7.7	4.0	0.3	7.8
Small	76.7	11.1	2.6	0.7	9.0
Nonmetropolitan counties	83.3	9.1	1.0	1.8	4.8
With a city ≥ 10,000 population	82.4	8.6	1.6	1.6	5.8
Without a city ≥ 10,000 population	84.1	9.5	0.5	2.0	4.0
Northeast:					
Metropolitan counties:					
Large central	54.5	21.6	6.2	0.2	17.5
Large fringe	83.8	6.3	3.6	0.2	6.1
Small	87.7	5.5	1.7	0.2	4.8
Nonmetropolitan counties	95.8	1.7	0.8	0.3	1.5
With a city ≥ 10,000 population	95.3	1.8	1.0	0.3	1.5
Without a city ≥ 10,000 population	96.3	1.5	0.5	0.4	1.4
Midwest:					
Metropolitan counties:					
Large central	63.1	25.8	3.0	0.3	7.8
Large fringe	88.5	5.8	1.9	0.3	3.5
Small	88.3	7.2	1.5	0.5	2.6
Nonmetropolitan counties	94.9	1.7	0.6	1.1	1.7
With a city ≥ 10,000 population	93.5	2.7	0.9	0.6	2.3
Without a city ≥ 10,000 population	96.1	0.9	0.4	1.5	1.2
South:					
Metropolitan counties:					
Large central	50.2	25.0	3.0	0.3	21.6
Large fringe	75.6	14.3	3.5	0.3	6.3
Small	71.4	17.8	1.4	0.6	8.8
Nonmetropolitan counties	75.0	18.6	0.5	1.2	4.8
With a city ≥ 10,000 population	73.1	19.2	0.8	1.5	5.6
Without a city ≥ 10,000 population	76.2	18.3	0.3	1.0	4.3
West:					
Metropolitan counties:					
Large central	52.0	7.8	10.8	0.6	28.8
Large fringe	70.8	2.9	8.1	0.7	17.5
Small	66.0	3.5	8.0	1.4	21.1
Nonmetropolitan counties	76.9	0.9	3.3	6.1	12.9
With a city ≥ 10,000 population	76.3	1.2	4.3	4.2	14.0
Without a city ≥ 10,000 population	77.6	0.6	1.8	8.6	11.4

≥ Greater than or equal to.

Figure 5. Population in poverty by region and urbanization level: United States, 1997

Urbanization level	All regions	Northeast	Midwest	South	West
			Percent		
Metropolitan counties:					
Large central	15.6	17.6	14.0	15.1	15.6
Large fringe	8.0	7.5	6.7	9.0	9.1
Small	13.2	10.6	10.5	14.6	15.0
Nonmetropolitan counties	15.4	12.1	11.7	18.5	15.8
With a city ≥ 10,000 population	14.6	12.0	11.1	17.6	15.7
Without a city ≥ 10,000 population	16.1	12.2	12.2	19.1	16.0

≥ Greater than or equal to.

Figure 6. Cigarette smoking in the past month among adolescents 12–17 years of age by region and urbanization level: United States, 1999

Region and urbanization level	Percent	SE
All regions	14.9	0.3
Metropolitan counties:		
Large central	11.0	0.5
Large fringe	15.9	0.7
Small	16.1	0.6
Nonmetropolitan counties	17.2	0.6
With a city ≥ 10,000 population	15.2	0.9
Without a city ≥ 10,000 population	18.9	0.9
Northeast:		
Metropolitan counties:		
Large central	10.6	1.4
Large fringe	16.5	1.7
Small	15.4	1.7
Nonmetropolitan counties	17.7	1.8
Midwest:		
Metropolitan counties:		
Large central	15.0	1.1
Large fringe	18.3	1.3
Small	18.7	1.2
Nonmetropolitan counties	17.6	1.0
South:		
Metropolitan counties:		
Large central	10.0	0.9
Large fringe	16.2	1.3
Small	16.4	1.0
Nonmetropolitan counties	17.9	1.2
West:		
Metropolitan counties:		
Large central	9.6	0.8
Large fringe	12.0	1.0
Small	13.3	1.1
Nonmetropolitan counties	14.2	1.2

SE Standard error.
≥ Greater than or equal to.

Figure 7. Cigarette smoking among persons 18 years of age and over by sex, region, and urbanization level: United States, 1997–98

Region and urbanization level	Total		Men		Women	
	Percent	SE	Percent	SE	Percent	SE
All regions	24.2	0.2	26.4	0.3	22.1	0.3
Metropolitan counties:						
Large central	22.6	0.4	25.4	0.6	20.0	0.5
Large fringe	21.6	0.5	23.6	0.6	19.5	0.6
Small	25.4	0.4	27.1	0.6	23.7	0.5
Nonmetropolitan counties	27.3	0.5	29.5	0.7	25.2	0.7
With a city ≥ 10,000 population	26.1	0.8	28.4	1.0	24.0	0.9
Without a city ≥ 10,000 population	28.5	0.6	30.6	0.9	26.5	0.8
Northeast:						
Metropolitan counties:						
Large central	24.4	0.8	26.0	1.2	23.0	1.0
Large fringe	21.6	0.9	23.7	1.3	19.7	1.0
Small	23.8	0.9	23.9	1.3	23.6	1.2
Nonmetropolitan counties	29.0	1.8	27.3	2.3	30.6	2.4
Midwest:						
Metropolitan counties:						
Large central	27.6	1.0	29.6	1.5	25.7	1.3
Large fringe	23.9	0.9	25.4	1.2	22.4	1.2
Small	26.5	1.0	29.3	1.5	23.7	1.1
Nonmetropolitan counties	26.1	0.9	27.8	1.2	24.3	1.3
South:						
Metropolitan counties:						
Large central	21.8	0.7	26.1	1.1	17.7	0.9
Large fringe	21.9	0.9	24.3	1.2	19.6	1.1
Small	26.2	0.7	28.3	0.9	24.2	0.9
Nonmetropolitan counties	29.3	0.7	32.8	1.1	26.1	0.9
West:						
Metropolitan counties:						
Large central	18.7	0.6	21.7	0.9	15.7	0.7
Large fringe	17.4	1.0	19.5	1.4	14.8	1.2
Small	22.8	1.0	23.6	1.4	22.0	1.2
Nonmetropolitan counties	22.9	1.3	25.4	1.5	20.4	1.5

SE Standard error.
≥ Greater than or equal to.

NOTE: Percents are age adjusted.

Figure 8. Alcohol consumption of 5 or more drinks in 1 day in the last year among persons 18-49 years of age by sex, region, and urbanization level: United States, 1997-98

Region and urbanization level	Total		Men		Women	
	Percent	SE	Percent	SE	Percent	SE
All regions	27.1	0.3	38.0	0.5	16.6	0.3
Metropolitan counties:						
Large central	24.8	0.5	34.9	0.8	15.2	0.5
Large fringe	29.5	0.7	40.5	1.0	18.7	0.8
Small	27.2	0.6	38.3	0.8	16.9	0.7
Nonmetropolitan counties	27.3	0.7	39.0	1.2	15.7	0.7
With a city ≥ 10,000 population	29.6	1.1	42.4	1.6	17.1	1.1
Without a city ≥ 10,000 population	24.8	1.0	35.3	1.6	14.2	1.0
Northeast:						
Metropolitan counties:						
Large central	21.4	1.1	30.3	1.7	13.4	1.1
Large fringe	29.6	1.2	41.2	1.8	18.2	1.4
Small	30.6	1.3	43.7	2.0	18.8	1.6
Nonmetropolitan counties	35.1	2.9	45.9	4.5	24.7	3.2
Midwest:						
Metropolitan counties:						
Large central	30.0	1.4	42.5	2.0	18.9	1.4
Large fringe	36.0	1.4	47.1	1.9	25.0	1.7
Small	30.2	1.3	40.7	1.5	20.3	1.8
Nonmetropolitan counties	29.0	1.3	41.4	2.2	16.7	1.2
South:						
Metropolitan counties:						
Large central	22.6	0.9	31.1	1.4	14.3	0.9
Large fringe	24.1	1.2	34.1	1.9	14.5	1.3
Small	24.7	0.9	35.5	1.2	14.5	0.8
Nonmetropolitan counties	21.4	0.9	32.0	1.6	11.1	0.7
West:						
Metropolitan counties:						
Large central	25.7	0.9	36.7	1.3	14.9	0.9
Large fringe	27.4	1.4	39.0	2.2	15.3	1.4
Small	26.3	1.2	36.7	2.0	17.0	1.2
Nonmetropolitan counties	37.4	1.9	51.9	1.6	22.7	2.6

SE Standard error.
≥ Greater than or equal to.

NOTE: Percents are age adjusted.

Figure 9. Obesity among persons 18 years of age and over by sex, region, and urbanization level: United States, 1997-98

Region and urbanization level	Total		Men		Women	
	Percent	SE	Percent	SE	Percent	SE
All regions	19.6	0.2	19.3	0.3	19.7	0.2
Metropolitan counties:						
Large central	19.1	0.4	17.9	0.5	20.2	0.5
Large fringe	17.7	0.4	19.0	0.6	16.3	0.5
Small	19.8	0.3	19.6	0.5	19.9	0.4
Nonmetropolitan counties	21.6	0.4	21.0	0.6	22.1	0.6
With a city ≥ 10,000 population	20.5	0.6	20.1	0.8	21.0	0.8
Without a city ≥ 10,000 population	22.7	0.5	22.0	0.8	23.3	0.8
Northeast:						
Metropolitan counties:						
Large central	19.1	0.7	18.9	1.1	19.2	1.0
Large fringe	17.7	0.7	19.0	1.1	16.3	0.9
Small	19.5	0.8	19.4	1.2	19.3	1.1
Nonmetropolitan counties	21.3	1.1	19.9	1.4	22.6	1.7
Midwest:						
Metropolitan counties:						
Large central	21.9	0.8	18.7	1.2	24.8	1.2
Large fringe	18.5	0.8	18.3	1.1	18.5	1.1
Small	19.8	0.7	19.0	1.1	20.4	0.8
Nonmetropolitan counties	22.8	0.9	23.1	1.0	22.4	1.2
South:						
Metropolitan counties:						
Large central	19.9	0.8	18.9	1.0	20.8	1.0
Large fringe	18.5	0.9	20.5	1.3	16.5	1.0
Small	20.4	0.5	20.3	0.7	20.4	0.7
Nonmetropolitan counties	21.9	0.6	20.4	1.0	23.2	0.9
West:						
Metropolitan counties:						
Large central	16.7	0.6	15.8	0.7	17.5	0.8
Large fringe	15.5	0.9	17.8	1.3	12.7	1.0
Small	18.4	0.7	18.8	1.0	18.0	1.0
Nonmetropolitan counties	17.3	0.9	17.8	1.0	16.9	1.5

SE Standard error.
≥ Greater than or equal to.

NOTE: Percents are age adjusted.

Figure 10. Physical inactivity during leisure time among persons 18 years of age and over by sex, region, and urbanization level: United States, 1997–98

Region and urbanization level	Total		Men		Women	
	Percent	SE	Percent	SE	Percent	SE
All regions	38.1	0.4	35.1	0.5	40.8	0.4
Metropolitan counties:						
Large central	40.7	0.7	36.8	0.9	44.2	0.8
Large fringe	30.9	0.7	27.6	0.9	33.8	0.9
Small	38.1	0.7	34.8	0.9	40.9	0.8
Nonmetropolitan counties	42.2	0.9	40.6	1.2	43.5	1.1
With a city > = 10,000	38.1	1.7	35.3	2.0	40.6	1.9
Without a city > = 10,000	46.3	1.6	45.9	1.9	46.5	1.7
Northeast:						
Metropolitan counties:						
Large central	49.2	1.4	46.9	1.9	51.1	1.7
Large fringe	33.6	1.2	30.8	1.5	36.1	1.5
Small	30.0	1.3	26.3	2.0	33.1	1.7
Nonmetropolitan counties	27.3	2.6	24.4	3.2	29.8	4.1
Midwest:						
Metropolitan counties:						
Large central	37.2	1.4	32.5	1.8	41.4	1.6
Large fringe	28.4	1.4	24.5	1.7	31.7	1.8
Small	36.6	1.5	33.7	1.8	39.0	1.7
Nonmetropolitan counties	36.8	1.4	37.0	1.9	36.5	1.7
South:						
Metropolitan counties:						
Large central	44.0	1.4	39.0	1.8	48.5	1.6
Large fringe	32.7	1.4	30.6	1.8	34.6	1.6
Small	42.8	1.0	39.2	1.3	46.1	1.1
Nonmetropolitan counties	54.2	1.3	52.4	1.6	55.8	1.5
West:						
Metropolitan counties:						
Large central	33.4	1.1	29.7	1.5	36.5	1.3
Large fringe	27.5	1.5	22.5	1.7	32.3	2.0
Small	35.0	2.0	32.6	2.5	36.9	2.2
Nonmetropolitancounties	26.4	2.3	23.5	2.6	29.2	2.3

SE Standard error.
≥ Greater than or equal to.

NOTE: Percents are age adjusted.

Some numbers for Figure 10 have been corrected and differ slightly from the printed edition.

Figure 11. Infant mortality rates by region and urbanization level: United States, 1996–98

Urbanization level	All regions		Northeast		Midwest		South		West	
	Rate	SE	Rate	SE	Rate	SE	Rate	SE	Rate	SE
	Infant deaths per 1,000 live births									
Total	7.2	0.02	6.6	0.06	7.7	0.05	8.0	0.04	6.1	0.05
Metropolitan counties:										
Large central	7.5	0.04	7.7	0.10	9.6	0.12	7.7	0.09	6.0	0.07
Large fringe	6.1	0.05	5.3	0.09	6.6	0.11	7.0	0.10	5.3	0.10
Small	7.5	0.05	6.6	0.12	7.5	0.10	8.1	0.07	6.5	0.10
Nonmetropolitan counties	7.7	0.06	6.2	0.19	7.0	0.11	8.7	0.09	6.9	0.14
With a city ≥ 10,000 population	7.7	0.09	6.3	0.27	7.1	0.16	8.9	0.15	6.7	0.18
Without a city ≥ 10,000 population	7.7	0.08	6.1	0.28	6.9	0.15	8.5	0.12	7.2	0.22

≥ Greater than or equal to.
SE Standard error.

Figure 12. Death rates for all causes among persons 1–24 years of age by sex, region, and urbanization level: United States, 1996–98

Region and urbanization level	Total		Males		Females	
	Rate	SE	Rate	SE	Rate	SE
	Deaths per 100,000 population					
All regions	43.3	0.1	58.1	0.2	28.0	0.2
Metropolitan counties:						
Large central	44.5	0.3	61.0	0.4	27.7	0.3
Large fringe	35.4	0.3	47.1	0.5	23.4	0.3
Small	41.7	0.3	55.5	0.4	27.4	0.3
Nonmetropolitan counties	52.3	0.4	69.0	0.6	34.2	0.4
With a city ≥ 10,000 population	46.2	0.5	60.5	0.8	30.7	0.6
Without a city ≥ 10,000 population	58.5	0.5	77.7	0.8	37.8	0.6
Northeast:						
Metropolitan counties:						
Large central	41.7	0.6	57.8	0.9	26.1	0.6
Large fringe	31.9	0.5	42.3	0.9	21.2	0.6
Small	34.0	0.6	45.8	1.0	21.7	0.7
Nonmetropolitan counties	37.6	1.0	49.9	1.6	24.2	1.2
With a city ≥ 10,000 population	35.6	1.3	47.6	2.1	22.5	1.5
Without a city ≥ 10,000 population	40.1	1.5	52.9	2.5	26.1	1.8
Midwest:						
Metropolitan counties:						
Large central	48.7	0.6	69.8	1.1	28.4	0.7
Large fringe	35.4	0.6	47.8	1.0	22.7	0.7
Small	37.0	0.5	49.7	0.8	24.3	0.6
Nonmetropolitan counties	47.4	0.6	61.6	1.0	31.8	0.7
With a city ≥ 10,000 population	41.1	0.8	52.6	1.3	28.7	1.0
Without a city ≥ 10,000 population	54.5	1.0	71.7	1.5	35.7	1.1
South:						
Metropolitan counties:						
Large central	50.6	0.6	69.1	0.9	32.3	0.6
Large fringe	40.3	0.6	54.2	1.0	26.2	0.7
Small	46.1	0.4	61.2	0.6	30.6	0.5
Nonmetropolitan counties	58.1	0.6	77.0	0.9	38.1	0.6
With a city ≥ 10,000 population	53.0	0.8	70.0	1.3	35.2	1.0
Without a city ≥ 10,000 population	62.0	0.8	82.4	1.2	40.4	0.9
West:						
Metropolitan counties:						
Large central	39.3	0.4	52.5	0.7	24.9	0.5
Large fringe	33.8	0.6	43.2	1.0	23.4	0.7
Small	42.6	0.6	56.1	0.9	27.8	0.7
Nonmetropolitan counties	53.3	0.9	71.4	1.4	33.1	1.0
With a city ≥ 10,000 population	45.9	1.1	61.3	1.7	29.0	1.2
Without a city ≥ 10,000 population	65.9	1.6	88.7	2.6	39.9	1.8

NOTE: Rates are age adjusted.
SE Standard error.
≥ Greater than or equal to.

Figure 13. Death rates for all causes among persons 25–64 years of age by sex, region, and urbanization level: United States, 1996–98

Region and urbanization level	Total		Men		Women	
	Rate	SE	Rate	SE	Rate	SE
	Deaths per 100,000 population					
All regions	386.0	0.3	497.5	0.5	280.7	0.4
Metropolitan counties:						
Large central	419.6	0.6	549.8	1.0	299.5	0.7
Large fringe	319.1	0.6	399.3	1.0	241.6	0.7
Small	384.9	0.6	496.1	0.9	280.6	0.7
Nonmetropolitan counties	411.9	0.7	532.3	1.1	295.9	0.8
With a city ≥ 10,000 population	399.8	1.0	514.3	1.7	290.4	1.2
Without a city ≥ 10,000 population	421.5	1.0	546.6	1.5	300.4	1.1
Northeast:						
Metropolitan counties:						
Large central	445.9	1.3	591.4	2.2	317.6	1.5
Large fringe	314.4	1.1	395.6	1.8	237.5	1.3
Small	346.2	1.3	441.0	2.2	256.6	1.6
Nonmetropolitan counties	355.1	2.1	454.4	3.5	258.2	2.6
With a city ≥ 10,000 population	355.5	3.0	457.0	4.8	257.2	3.6
Without a city ≥ 10,000 population	354.7	3.1	451.7	4.9	259.3	3.7
Midwest:						
Metropolitan counties:						
Large central	445.7	1.4	582.7	2.3	322.7	1.7
Large fringe	309.6	1.2	380.4	1.9	240.3	1.5
Small	347.4	1.2	438.8	1.9	260.7	1.4
Nonmetropolitan counties	352.3	1.2	448.4	1.9	258.6	1.4
With a city ≥ 10,000 population	350.2	1.8	442.3	2.8	261.2	2.1
Without a city ≥ 10,000 population	354.2	1.6	453.7	2.6	256.8	1.9
South:						
Metropolitan counties:						
Large central	450.8	1.3	596.9	2.1	316.0	1.5
Large fringe	351.9	1.2	446.2	2.0	260.9	1.5
Small	424.4	0.9	555.5	1.5	304.2	1.0
Nonmetropolitan counties	481.2	1.1	633.5	1.9	338.6	1.3
With a city ≥ 10,000 population	471.9	1.8	619.5	3.0	335.4	2.1
Without a city ≥ 10,000 population	486.9	1.5	642.1	2.4	340.7	1.7
West:						
Metropolitan counties:						
Large central	362.1	1.0	468.3	1.6	259.2	1.2
Large fringe	291.6	1.4	362.5	2.1	221.6	1.7
Small	363.5	1.3	464.3	2.2	264.5	1.6
Nonmetropolitan counties	364.3	1.7	460.2	2.7	267.1	2.1
With a city ≥ 10,000 population	361.6	2.3	458.4	3.6	265.4	2.7
Without a city ≥ 10,000 population	368.3	2.6	463.3	4.1	269.8	3.1

SE Standard error.
≥ Greater than or equal.

NOTE: Rates are age adjusted.

Figure 14. Death rates for all causes among persons 65 years of age and over by sex, region, and urbanization level: United States, 1996–98

Region and urbanization level	Total		Men		Women	
	Rate	SE	Rate	SE	Rate	SE
	Deaths per 100,000 population					
All regions	5,204.5	2.3	6,279.3	4.2	4,504.5	2.7
Metropolitan counties:						
Large central	5,063.8	4.3	6,104.7	8.0	4,409.9	5.1
Large fringe	5,111.4	5.2	6,087.0	9.5	4,479.9	6.1
Small	5,227.1	4.2	6,333.0	7.7	4,512.3	4.9
Nonmetropolitan counties	5,416.0	4.8	6,562.3	8.6	4,626.8	5.7
With a city ≥ 10,000 population	5,428.4	7.4	6,586.1	13.5	4,659.3	8.7
Without a city ≥ 10,000 population	5,407.4	6.3	6,546.7	11.2	4,602.8	7.4
Northeast:						
Metropolitan counties:						
Large central	5,071.8	8.6	6,138.2	16.1	4,427.0	10.0
Large fringe	5,110.7	8.7	6,128.2	16.2	4,469.0	10.2
Small	5,219.3	9.5	6,396.3	17.9	4,501.5	11.1
Nonmetropolitan counties	5,447.3	15.6	6,573.3	28.4	4,700.0	18.3
With a city ≥ 10,000 population	5,469.5	21.7	6,659.8	40.1	4,699.8	25.3
Without a city ≥ 10,000 population	5,423.9	22.4	6,483.8	40.1	4,700.9	26.5
Midwest:						
Metropolitan counties:						
Large central	5,390.0	9.7	6,625.0	18.5	4,656.9	11.2
Large fringe	5,330.4	11.2	6,428.4	20.9	4,648.5	13.0
Small	5,318.3	9.1	6,565.4	17.2	4,553.1	10.5
Nonmetropolitan counties	5,225.7	8.1	6,414.1	14.6	4,413.0	9.4
With a city ≥ 10,000 population	5,296.2	12.7	6,546.0	23.4	4,493.9	14.7
Without a city ≥ 10,000 population	5,176.2	10.4	6,328.3	18.6	4,353.7	12.3
South:						
Metropolitan counties:						
Large central	5,204.2	9.4	6,321.9	17.4	4,507.0	11.0
Large fringe	5,129.6	10.3	6,094.9	18.7	4,484.5	12.2
Small	5,259.6	6.3	6,370.6	11.5	4,539.3	7.3
Nonmetropolitan counties	5,661.8	7.5	6,918.4	13.7	4,824.8	8.7
With a city ≥ 10,000 population	5,690.3	12.5	6,984.0	23.2	4,867.2	14.5
Without a city ≥ 10,000 population	5,646.1	9.3	6,884.3	16.9	4,800.2	11.0
West:						
Metropolitan counties:						
Large central	4,738.0	7.6	5,611.0	13.5	4,149.4	9.0
Large fringe	4,798.9	12.0	5,578.9	21.2	4,267.4	14.4
Small	5,005.2	10.5	5,860.6	18.1	4,375.1	12.7
Nonmetropolitan counties	5,069.1	12.9	5,847.0	21.5	4,446.4	15.9
With a city ≥ 10,000 population	5,101.3	17.1	5,874.7	28.7	4,492.9	21.0
Without a city ≥ 10,000 population	5,027.1	19.6	5,812.8	32.6	4,383.7	24.2

SE Standard error.
≥ Greater than or equal to.

NOTE: Rates are age adjusted.

Figure 15. Death rates for ischemic heart disease among persons 20 years of age and over by sex, region, and urbanization level: United States, 1996-98

Region and urbanization level	Total		Men		Women	
	Rate	SE	Rate	SE	Rate	SE
	Deaths per 100,000 population					
All regions	251.1	0.2	324.5	0.4	196.8	0.2
Metropolitan counties:						
Large central	259.1	0.4	326.5	0.8	211.7	0.5
Large fringe	245.9	0.5	313.5	0.9	195.6	0.5
Small	239.6	0.4	314.9	0.7	184.0	0.4
Nonmetropolitan counties	263.6	0.5	347.1	0.8	198.4	0.5
With a city ≥ 10,000 population	256.0	0.7	339.5	1.3	193.0	0.8
Without a city ≥ 10,000 population	269.2	0.6	352.8	1.1	202.5	0.7
Northeast:						
Metropolitan counties:						
Large central	306.0	0.9	378.3	1.7	257.6	1.0
Large fringe	262.8	0.8	331.1	1.6	213.0	0.9
Small	254.0	0.9	331.8	1.7	198.2	1.0
Nonmetropolitan counties	276.5	1.5	359.3	2.8	212.8	1.7
With a city ≥ 10,000 population	282.1	2.1	368.4	3.9	217.5	2.3
Without a city ≥ 10,000 population	270.5	2.1	350.0	3.9	207.8	2.4
Midwest:						
Metropolitan counties:						
Large central	256.1	0.9	329.2	1.7	206.2	1.0
Large fringe	266.5	1.0	341.2	2.0	211.8	1.2
Small	243.4	0.8	323.2	1.6	186.5	0.9
Nonmetropolitan counties	263.9	0.8	352.0	1.4	195.8	0.9
With a city ≥ 10,000 population	258.2	1.2	348.9	2.3	191.5	1.3
Without a city ≥ 10,000 population	268.0	1.0	354.5	1.9	198.9	1.1
South:						
Metropolitan counties:						
Large central	251.7	0.9	324.3	1.6	201.0	1.0
Large fringe	227.0	0.9	294.9	1.7	176.0	1.0
Small	242.5	0.6	321.9	1.1	184.5	0.6
Nonmetropolitan counties	279.6	0.7	369.5	1.3	211.2	0.8
With a city ≥ 10,000 population	271.8	1.2	363.6	2.2	205.0	1.3
Without a city ≥ 10,000 population	284.1	0.9	373.0	1.6	214.9	1.0
West:						
Metropolitan counties:						
Large central	227.7	0.7	286.5	1.3	183.6	0.8
Large fringe	211.4	1.1	271.8	1.9	165.3	1.2
Small	207.3	0.9	266.6	1.6	159.1	1.0
Nonmetropolitan counties	199.7	1.1	260.5	1.9	147.1	1.2
With a city ≥ 10,000 population	201.2	1.4	261.3	2.5	150.4	1.6
Without a city ≥ 10,000 population	197.8	1.6	259.5	2.8	142.8	1.8

SE Standard error.
≥ Greater than or equal to.
NOTE: Rates are age adjusted.

Figure 16. Death rates for chronic obstructive pulmonary diseases among persons 20 years of age and over by sex, region, and urbanization level: United States, 1996-98

Region and urbanization level	Total		Men		Women	
	Rate	SE	Rate	SE	Rate	SE
			Deaths per 100,000 population			
All regions	57.9	0.1	75.6	0.2	47.4	0.1
Metropolitan counties:						
Large central	52.9	0.2	66.0	0.3	45.3	0.2
Large fringe	54.7	0.2	67.4	0.4	47.6	0.3
Small	61.1	0.2	80.0	0.4	49.9	0.2
Nonmetropolitan counties	62.5	0.2	87.2	0.4	46.9	0.3
With a city ≥ 10,000 population	64.0	0.3	88.0	0.6	49.4	0.4
Without a city ≥ 10,000 population	61.5	0.3	86.7	0.5	45.0	0.3
Northeast:						
Metropolitan counties:						
Large central	42.3	0.3	52.4	0.6	36.7	0.4
Large fringe	48.8	0.4	60.0	0.7	42.8	0.4
Small	55.0	0.4	73.1	0.8	45.2	0.5
Nonmetropolitan counties	64.9	0.7	87.6	1.4	51.6	0.8
With a city ≥ 10,000 population	67.5	1.0	91.1	2.0	54.3	1.2
Without a city ≥ 10,000 population	62.1	1.0	84.1	1.9	48.7	1.2
Midwest:						
Metropolitan counties:						
Large central	53.4	0.4	69.0	0.8	44.9	0.5
Large fringe	57.3	0.5	73.7	0.9	48.8	0.6
Small	61.9	0.4	84.1	0.8	49.6	0.5
Nonmetropolitan counties	57.2	0.4	81.2	0.7	41.9	0.4
With a city ≥ 10,000 population	60.0	0.6	84.0	1.1	45.7	0.7
Without a city ≥ 10,000 population	55.1	0.5	79.3	0.9	39.1	0.5
South:						
Metropolitan counties:						
Large central	55.0	0.4	69.2	0.7	46.7	0.5
Large fringe	56.5	0.4	69.6	0.8	48.6	0.5
Small	60.3	0.3	78.8	0.5	49.2	0.3
Nonmetropolitan counties	63.8	0.3	92.1	0.6	46.3	0.4
With a city ≥ 10,000 population	63.6	0.6	92.1	1.1	46.6	0.6
Without a city ≥ 10,000 population	64.0	0.4	92.1	0.8	46.2	0.5
West:						
Metropolitan counties:						
Large central	59.8	0.4	72.3	0.6	52.0	0.4
Large fringe	59.9	0.6	70.2	1.0	53.9	0.7
Small	69.2	0.5	85.4	0.9	58.6	0.6
Nonmetropolitan counties	70.0	0.6	86.7	1.1	58.3	0.8
With a city ≥ 10,000 population	69.9	0.8	85.2	1.4	59.3	1.0
Without a city ≥ 10,000 population	70.2	1.0	88.7	1.7	56.9	1.2

SE Standard error.
≥ Greater than or equal to.

NOTE: Rates are age adjusted.

Figure 17. Death rates for all unintentional injuries and motor vehicle traffic-related injuries by sex, region, and urbanization level: United States, 1996-98

Region and urbanization level	Unintentional injuries						Motor vehicle traffic-related injuries					
	Total		Males		Females		Total		Males		Females	
	Rate	SE	Rate	SE	Rate	SE	Rate	SE	Rate	SE	Rate	SE
	Deaths per 100,000 population											
All regions	36.1	0.1	50.8	0.1	23.0	0.1	15.8	0.0	21.9	0.1	10.3	0.0
Metropolitan counties:												
Large central	31.2	0.1	44.9	0.2	19.1	0.1	11.5	0.1	16.3	0.1	7.1	0.1
Large fringe	29.1	0.1	40.3	0.2	19.3	0.1	12.5	0.1	17.1	0.1	8.3	0.1
Small	36.5	0.1	51.2	0.2	23.5	0.1	16.1	0.1	22.4	0.1	10.4	0.1
Nonmetropolitan counties	49.7	0.2	69.1	0.3	31.8	0.2	25.1	0.1	33.9	0.2	16.7	0.1
With a city ≥ 10,000 population	44.6	0.2	62.0	0.4	28.7	0.3	21.4	0.2	29.1	0.3	14.2	0.2
Without a city ≥ 10,000 population	54.1	0.2	75.1	0.4	34.4	0.3	28.3	0.2	38.1	0.3	18.9	0.2
Northeast:												
Metropolitan counties:												
Large central	28.3	0.2	42.2	0.4	16.6	0.2	7.9	0.1	11.6	0.2	4.8	0.1
Large fringe	25.7	0.2	35.8	0.4	16.9	0.2	10.2	0.1	14.1	0.2	6.5	0.2
Small	29.5	0.3	41.8	0.5	19.0	0.3	11.6	0.2	16.3	0.3	7.4	0.2
Nonmetropolitan counties	36.0	0.5	50.0	0.8	22.8	0.5	16.3	0.3	22.4	0.5	10.3	0.4
With a city ≥ 10,000 population	33.7	0.6	47.4	1.1	20.7	0.7	14.8	0.4	21.1	0.7	8.7	0.5
Without a city ≥ 10,000 population	38.5	0.7	52.9	1.2	25.1	0.8	18.0	0.5	24.0	0.8	12.2	0.6
Midwest:												
Metropolitan counties:												
Large central	31.6	0.3	45.2	0.5	20.4	0.3	10.6	0.2	15.3	0.3	6.6	0.2
Large fringe	29.3	0.3	40.5	0.5	19.9	0.3	12.9	0.2	17.6	0.3	8.5	0.2
Small	32.2	0.3	44.7	0.5	21.5	0.3	13.3	0.2	18.5	0.3	8.6	0.2
Nonmetropolitan counties	43.9	0.3	59.8	0.5	29.3	0.3	22.0	0.2	29.0	0.3	15.3	0.2
With a city ≥ 10,000 population	38.9	0.4	53.1	0.7	26.4	0.5	18.5	0.3	24.5	0.5	13.0	0.3
Without a city ≥ 10,000 population	48.2	0.4	65.6	0.7	31.9	0.5	25.1	0.3	33.0	0.5	17.5	0.4
South:												
Metropolitan counties:												
Large central	34.7	0.3	49.6	0.5	21.7	0.3	15.2	0.2	21.7	0.3	9.3	0.2
Large fringe	33.1	0.3	45.6	0.5	22.0	0.3	15.9	0.2	21.8	0.3	10.5	0.2
Small	39.8	0.2	56.1	0.3	25.3	0.2	18.9	0.1	26.3	0.2	12.1	0.1
Nonmetropolitan counties	55.0	0.3	77.6	0.5	34.5	0.3	29.1	0.2	40.1	0.3	18.8	0.2
With a city ≥ 10,000 population	50.0	0.4	70.4	0.8	32.0	0.5	25.2	0.3	34.9	0.5	16.4	0.3
Without a city ≥ 10,000 population	58.3	0.4	82.3	0.6	36.2	0.4	31.7	0.3	43.6	0.5	20.5	0.3
West:												
Metropolitan counties:												
Large central	30.2	0.2	43.1	0.4	18.2	0.2	11.7	0.1	16.1	0.2	7.5	0.1
Large fringe	28.6	0.3	40.0	0.5	18.4	0.3	10.9	0.2	14.5	0.3	7.6	0.2
Small	39.9	0.3	55.2	0.5	25.3	0.3	16.7	0.2	22.6	0.3	11.0	0.2
Nonmetropolitan counties	54.9	0.5	75.3	0.8	34.6	0.5	25.4	0.3	33.5	0.5	17.3	0.4
With a city ≥ 10,000 population	49.3	0.6	68.3	1.0	30.8	0.6	22.2	0.4	29.8	0.7	14.7	0.5
Without a city ≥ 10,000 population	62.8	0.8	85.1	1.3	39.9	0.9	30.1	0.5	38.8	0.9	21.0	0.6

SE Standard error.
≥ Greater than or equal to.

NOTE: Rates are age adjusted.

Figure 18. Homicide rates by sex, region, and urbanization level: United States, 1996–98

Region and urbanization level	Total		Males		Females	
	Rate	SE	Rate	SE	Rate	SE
	Deaths per 100,000 population					
All regions	7.1	0.0	11.1	0.1	3.2	0.0
Metropolitan counties:						
Large central	11.5	0.1	18.9	0.1	4.2	0.1
Large fringe	3.9	0.0	5.7	0.1	2.0	0.0
Small	6.4	0.1	9.6	0.1	3.2	0.1
Nonmetropolitan counties	5.3	0.1	7.5	0.1	3.1	0.1
With a city ≥ 10,000 population	5.2	0.1	7.3	0.1	3.0	0.1
Without a city ≥ 10,000 population	5.4	0.1	7.6	0.1	3.2	0.1
Northeast:						
Metropolitan counties:						
Large central	10.0	0.1	16.8	0.3	3.5	0.1
Large fringe	2.4	0.1	3.5	0.1	1.3	0.1
Small	3.1	0.1	4.4	0.2	1.7	0.1
Nonmetropolitan counties	2.1	0.1	2.5	0.2	1.7	0.2
With a city ≥ 10,000 population	2.2	0.2	2.4	0.2	1.9	0.2
Without a city ≥ 10,000 population	2.0	0.2	2.5	0.3	1.5	0.2
Midwest:						
Metropolitan counties:						
Large central	14.5	0.2	24.0	0.3	5.4	0.2
Large fringe	3.7	0.1	5.4	0.2	2.0	0.1
Small	4.3	0.1	6.2	0.2	2.5	0.1
Nonmetropolitan counties	2.4	0.1	3.1	0.1	1.8	0.1
With a city ≥ 10,000 population	2.5	0.1	3.2	0.2	1.7	0.1
Without a city ≥ 10,000 population	2.4	0.1	3.0	0.2	1.8	0.1
South:						
Metropolitan counties:						
Large central	13.9	0.2	22.9	0.3	5.1	0.1
Large fringe	5.4	0.1	8.3	0.2	2.6	0.1
Small	8.4	0.1	12.8	0.2	4.1	0.1
Nonmetropolitan counties	8.1	0.1	11.8	0.2	4.4	0.1
With a city ≥ 10,000 population	8.4	0.2	12.4	0.3	4.5	0.2
Without a city ≥ 10,000 population	7.9	0.1	11.5	0.2	4.3	0.1
West:						
Metropolitan counties:						
Large central	9.0	0.1	14.6	0.2	3.2	0.1
Large fringe	4.0	0.1	6.0	0.2	2.0	0.1
Small	6.9	0.1	10.4	0.2	3.3	0.1
Nonmetropolitan counties	4.9	0.1	6.9	0.2	2.8	0.2
With a city ≥ 10,000 population	4.9	0.2	6.9	0.3	2.8	0.2
Without a city ≥ 10,000 population	4.9	0.2	6.9	0.4	2.8	0.2

SE Standard error.
≥ Greater than or equal to.

NOTE: Rates are age adjusted.

Figure 19. Suicide rates among persons 15 years of age and over by sex, region, and urbanization level: United States, 1996-98

Region and urbanization level	Total		Males		Females	
	Rate	SE	Rate	SE	Rate	SE
	Deaths per 100,000 population					
All regions	14.5	0.0	24.7	0.1	5.5	0.0
Metropolitan counties:						
Large central	13.2	0.1	22.3	0.2	5.3	0.1
Large fringe	12.6	0.1	21.4	0.2	5.0	0.1
Small	15.2	0.1	25.8	0.2	5.8	0.1
Nonmetropolitan counties	17.3	0.1	30.0	0.2	5.7	0.1
With a city ≥ 10,000 population	16.5	0.2	28.3	0.3	5.9	0.1
Without a city ≥ 10,000 population	18.0	0.2	31.4	0.3	5.6	0.1
Northeast:						
Metropolitan counties:						
Large central	10.3	0.2	17.4	0.3	4.2	0.1
Large fringe	10.0	0.2	17.2	0.3	3.7	0.1
Small	11.6	0.2	20.2	0.4	4.1	0.2
Nonmetropolitan counties	15.1	0.4	26.4	0.7	4.7	0.3
With a city ≥ 10,000 population	14.7	0.5	25.5	0.9	4.9	0.4
Without a city ≥ 10,000 population	15.6	0.5	27.5	1.0	4.6	0.4
Midwest:						
Metropolitan counties:						
Large central	12.6	0.2	21.7	0.4	4.8	0.2
Large fringe	12.1	0.2	20.9	0.4	4.4	0.2
Small	13.7	0.2	23.8	0.4	5.0	0.2
Nonmetropolitan counties	15.0	0.2	26.4	0.4	4.5	0.2
With a city ≥ 10,000 population	13.8	0.3	24.2	0.5	4.4	0.2
Without a city ≥ 10,000 population	16.1	0.3	28.3	0.5	4.6	0.2
South:						
Metropolitan counties:						
Large central	14.3	0.2	24.5	0.4	5.7	0.2
Large fringe	14.3	0.2	24.0	0.4	5.8	0.2
Small	15.7	0.1	26.7	0.3	6.3	0.1
Nonmetropolitan counties	17.4	0.2	30.2	0.3	6.0	0.1
With a city ≥ 10,000 population	16.7	0.3	28.7	0.5	6.3	0.2
Without a city ≥ 10,000 population	17.8	0.2	31.1	0.4	5.8	0.2
West:						
Metropolitan counties:						
Large central	14.8	0.2	24.4	0.3	6.2	0.1
Large fringe	15.5	0.3	25.3	0.5	6.7	0.2
Small	18.9	0.2	31.3	0.5	7.5	0.2
Nonmetropolitan counties	23.3	0.3	38.7	0.6	8.2	0.3
With a city ≥ 10,000 population	21.5	0.4	35.5	0.8	8.1	0.4
Without a city ≥ 10,000 population	25.8	0.6	43.1	1.0	8.5	0.5

SE Standard error.
≥ Greater than or equal to.

NOTE: Rates are age adjusted.

Figure 20. Birth rates among adolescents 15–19 years of age by region and urbanization level: United States, 1996–98

Urbanization level	All regions	Northeast	Midwest	South	West
	Births per 1,000 female adolescents				
Total	52.4	36.7	46.2	62.9	54.7
Metropolitan counties:					
Large central	59.6	49.5	63.8	67.8	57.2
Large fringe	36.1	24.7	33.8	46.0	41.5
Small	53.6	36.5	43.7	61.7	60.1
Nonmetropolitan counties	56.3	33.2	43.8	70.4	54.3
With a city ≥ 10,000 population	54.6	32.3	43.7	69.8	53.7
Without a city ≥ 10,000 population	57.9	34.3	44.0	70.9	55.1

≥ Greater than or equal to.

Figure 21. Limitation of activity caused by chronic health conditions among persons 18 years of age and over by sex, region, and urbanization level: United States, 1997–98

Region and urbanization level	Total		Men		Women	
	Percent	SE	Percent	SE	Percent	SE
All regions	15.3	0.2	14.4	0.2	15.9	0.2
Metropolitan counties:						
Large central	14.1	0.3	13.2	0.3	14.8	0.3
Large fringe	13.0	0.3	12.2	0.4	13.7	0.4
Small	15.9	0.3	14.9	0.4	16.7	0.3
Nonmetropolitan counties	18.1	0.4	17.5	0.5	18.5	0.5
With a city ≥ 10,000 population	17.7	0.6	16.9	0.7	18.3	0.7
Without a city ≥ 10,000 population	18.4	0.7	18.0	0.8	18.6	0.7
Northeast:						
Metropolitan counties:						
Large central	12.8	0.6	12.5	0.7	12.9	0.7
Large fringe	13.0	0.5	12.4	0.7	13.5	0.7
Small	16.3	0.7	15.1	0.9	17.2	0.8
Nonmetropolitan counties	20.2	1.2	19.1	1.5	21.1	1.7
Midwest:						
Metropolitan counties:						
Large central	16.2	0.7	15.0	0.8	17.0	0.8
Large fringe	13.4	0.6	12.1	0.8	14.5	0.8
Small	15.6	0.7	14.6	1.0	16.4	0.7
Nonmetropolitan counties	16.8	0.7	16.9	0.9	16.6	0.8
South:						
Metropolitan counties:						
Large central	13.4	0.5	12.3	0.6	14.1	0.6
Large fringe	13.4	0.6	13.3	0.8	13.4	0.7
Small	15.9	0.4	14.8	0.5	16.8	0.5
Nonmetropolitan counties	19.3	0.7	18.6	0.8	19.8	0.7
West:						
Metropolitan counties:						
Large central	14.5	0.5	13.3	0.6	15.4	0.6
Large fringe	12.3	0.6	10.5	0.8	13.8	0.8
Small	16.3	0.7	16.0	0.9	16.5	0.8
Nonmetropolitan counties	15.3	1.1	14.4	1.1	16.1	1.5

SE Standard error.
≥ Greater than or equal to.

NOTE: Percents are age adjusted.

Figure 22. Edentulism (total tooth loss) among persons 65 years of age and over by poverty status, region, and urbanization level: United States, 1997-98

Region and urbanization level	Family income as a percent of poverty level					
	All income		Under 200 percent		200 percent or more	
	Percent	SE	Percent	SE	Percent	SE
All regions	29.7	0.5	40.8	0.9	23.3	0.7
Metropolitan counties:						
Large central	26.8	0.9	33.8	1.6	22.4	1.4
Large fringe	25.7	1.1	37.4	2.1	19.5	1.4
Small	29.9	1.0	41.2	1.6	25.0	1.3
Nonmetropolitan counties	35.7	1.1	47.2	1.6	25.9	1.6
With a city ≥ 10,000 population	33.5	1.6	47.6	2.3	23.2	2.2
Without a city ≥ 10,000 population	37.6	1.7	47.0	2.3	29.0	2.6
Northeast:						
Metropolitan counties:						
Large central	30.8	1.8	36.0	2.8	26.6	3.0
Large fringe	24.9	1.8	38.6	3.5	18.2	2.3
Small	31.3	2.1	41.5	3.2	23.7	3.0
Nonmetropolitan counties	38.3	3.4	49.6	4.6	29.1	5.9
Midwest:						
Metropolitan counties:						
Large central	28.6	2.0	34.2	3.9	27.2	3.3
Large fringe	27.4	2.0	38.0	4.7	21.5	2.9
Small	32.8	2.7	43.2	4.6	29.9	3.0
Nonmetropolitan counties	29.5	2.2	40.5	3.0	23.5	2.6
South:						
Metropolitan counties:						
Large central	27.1	1.8	40.3	3.2	22.0	3.0
Large fringe	28.1	2.1	39.2	4.1	20.2	3.0
Small	29.7	1.4	41.5	2.4	23.8	2.0
Nonmetropolitan counties	39.7	1.7	49.3	2.3	28.2	2.8
West:						
Metropolitan counties:						
Large central	21.8	1.4	25.8	2.8	17.6	2.1
Large fringe	21.2	2.7	29.1	5.0	18.3	3.6
Small	25.2	1.8	36.0	4.0	22.8	2.6
Nonmetropolitan counties	36.2	2.3	52.1	3.7	24.1	3.4

SE Standard error.
≥ Greater than or equal to.

NOTE: Percents are age adjusted.

Figure 23. Health insurance coverage among persons under 65 years of age by poverty status, region, and urbanization level: United States, 1997-98

Region and urbanization level	Family income as a percent of poverty level											
	All incomes		Under 200 percent		200 percent or more		All incomes		Under 200 percent		200 percent or more	
	Percent	SE	Percent	SE	Percent	SE	Percent	SE	Percent	SE	Percent	SE
	Uninsured						Medicaid					
All regions	16.9	0.2	32.5	0.4	8.4	0.2	9.2	0.2	23.7	0.4	1.8	0.1
Metropolitan counties:												
Large central	19.6	0.4	34.6	0.8	10.0	0.3	12.2	0.4	29.8	0.9	2.0	0.2
Large fringe	12.2	0.4	29.6	1.1	6.6	0.3	5.0	0.3	19.3	0.9	1.3	0.1
Small	16.1	0.3	31.1	0.7	7.9	0.3	9.0	0.3	22.4	0.7	1.9	0.1
Nonmetropolitan counties	19.6	0.5	33.4	0.8	9.7	0.4	9.8	0.4	20.9	0.7	2.0	0.2
With a city ≥ 10,000 population	18.1	0.9	32.8	1.7	8.9	0.6	9.3	0.6	20.4	1.3	1.8	0.3
Without a city ≥ 10,000 population	21.0	0.8	34.0	1.0	10.6	0.8	10.4	0.6	21.2	0.8	2.2	0.3
Northeast:												
Metropolitan counties:												
Large central	16.5	0.7	27.7	1.4	9.0	0.7	16.5	1.4	38.8	2.7	2.4	0.4
Large fringe	11.0	0.6	26.1	2.3	6.3	0.5	6.0	0.6	24.7	2.0	1.6	0.3
Small	10.3	0.6	23.4	1.7	5.8	0.5	9.1	0.7	28.9	1.8	1.9	0.3
Nonmetropolitan counties	13.9	1.5	24.2	1.9	7.9	1.0	10.1	1.0	23.9	1.8	2.0	0.6
Midwest:												
Metropolitan counties:												
Large central	16.0	0.7	27.8	1.6	8.7	0.7	13.1	1.0	33.2	1.9	2.2	0.4
Large fringe	9.0	0.6	23.0	2.0	4.9	0.4	4.0	0.5	18.7	2.2	1.1	0.2
Small	11.7	0.6	23.4	1.1	5.6	0.5	7.8	0.7	20.7	1.7	1.6	0.2
Nonmetropolitan counties	13.5	0.8	25.7	1.7	6.4	0.5	7.2	0.5	18.0	1.3	1.4	0.2
South:												
Metropolitan counties:												
Large central	21.8	0.8	41.4	1.4	10.8	0.6	7.9	0.5	20.3	1.3	1.5	0.3
Large fringe	15.2	0.8	36.1	2.1	7.7	0.6	4.4	0.4	14.4	1.4	0.8	0.2
Small	19.1	0.5	36.2	1.0	9.4	0.4	8.7	0.4	19.8	0.9	2.0	0.2
Nonmetropolitan counties	24.4	0.8	38.2	1.1	11.7	0.8	11.8	0.6	21.4	0.9	2.6	0.4
West:												
Metropolitan counties:												
Large central	22.1	0.6	38.0	1.3	10.7	0.5	12.2	0.6	29.0	1.3	2.1	0.2
Large fringe	14.4	0.9	32.3	2.3	8.3	0.7	5.8	0.6	20.4	1.8	1.7	0.3
Small	20.0	0.9	32.2	2.0	9.9	0.9	11.8	0.8	26.7	1.4	2.3	0.4
Nonmetropolitan counties	22.2	1.1	35.7	2.5	14.2	1.5	9.7	1.4	22.4	2.7	1.7	0.4

Figure 23. Health insurance coverage among persons under 65 years of age by poverty status, region, and urbanization level: United States, 1997-98—Con.

Region and urbanization level	Family income as a percent of poverty level											
	All incomes		Under 200 percent		200 percent or more		All incomes		Under 200 percent		200 percent or more	
	Percent	SE	Percent	SE	Percent	SE	Percent	SE	Percent	SE	Percent	SE
	Private insurance						Private insurance obtained through workplace					
All regions	71.2	0.3	39.1	0.5	87.7	0.2	65.6	0.3	35.0	0.5	82.1	0.3
Metropolitan counties:												
Large central	65.9	0.6	31.5	0.8	86.5	0.4	60.7	0.6	27.9	0.8	80.9	0.5
Large fringe	80.7	0.5	46.3	1.4	90.5	0.4	74.9	0.5	41.4	1.3	84.9	0.5
Small	71.2	0.6	41.1	0.9	87.1	0.4	66.2	0.5	37.4	0.8	82.1	0.5
Nonmetropolitan counties	68.1	0.7	41.6	1.0	86.6	0.5	61.7	0.7	36.9	0.9	79.9	0.7
With a city ≥ 10,000 population	69.8	1.2	42.2	1.7	87.4	0.8	64.2	1.2	37.6	1.6	81.7	1.1
Without a city ≥ 10,000 population	66.4	1.2	41.0	1.3	85.8	0.9	59.4	1.2	36.3	1.2	78.1	1.1
Northeast:												
Metropolitan counties:												
Large central	64.9	1.5	29.5	2.0	88.0	0.8	60.7	1.5	25.4	1.8	84.0	1.0
Large fringe	81.9	1.0	45.9	2.9	91.7	0.6	77.7	1.0	41.4	2.7	88.1	0.7
Small	79.0	1.1	45.2	2.2	91.2	0.7	74.7	1.1	41.3	2.1	86.7	0.8
Nonmetropolitan counties	73.1	2.2	47.1	3.1	87.6	1.3	69.5	1.9	41.1	2.2	85.5	1.5
Midwest:												
Metropolitan counties:												
Large central	68.8	1.3	34.8	1.9	88.2	0.9	64.9	1.3	30.8	1.8	84.6	0.9
Large fringe	85.5	0.9	52.7	2.8	93.0	0.6	79.4	0.9	47.5	2.6	87.1	0.8
Small	78.5	1.0	51.2	2.0	91.5	0.6	73.3	1.0	46.9	1.9	86.4	0.9
Nonmetropolitan counties	77.4	1.1	52.4	2.5	90.9	0.6	69.1	1.3	44.7	2.3	83.1	1.1
South:												
Metropolitan counties:												
Large central	67.2	1.0	33.6	1.4	85.0	0.8	61.2	1.0	29.9	1.4	78.5	0.9
Large fringe	76.4	1.1	43.7	2.5	87.6	0.8	70.3	1.1	38.6	2.5	81.9	1.0
Small	67.7	0.8	37.9	1.2	84.6	0.8	62.8	0.8	34.3	1.1	79.8	0.8
Nonmetropolitan counties	61.1	1.1	36.3	1.2	84.2	1.0	56.1	1.1	33.5	1.1	78.2	1.1
West:												
Metropolitan counties:												
Large central	63.7	0.9	29.6	1.3	85.7	0.7	57.6	0.9	26.5	1.2	78.7	0.8
Large fringe	78.0	1.3	43.1	2.7	88.6	0.8	70.1	1.3	38.0	2.5	81.0	1.2
Small	63.1	1.5	35.1	2.2	82.4	1.4	57.2	1.5	31.9	2.1	75.9	1.4
Nonmetropolitan counties	65.0	2.0	37.3	2.3	81.5	2.1	56.8	1.5	31.7	2.3	71.7	1.7

SE Standard error.
≥ Greater than or equal to.

NOTE: Percents are age adjusted.

Figure 24. Patient care physicians per 100,000 population by physician specialty, region, and urbanization level: United States, 1998

Region and urbanization level	General and family practitioners	General pediatricians	General internists	Obstetricians and gynecologists	Other specialists	All physicians
	Physicians per 100,000 population					
All regions	28.7	16.5	34.1	12.4	135.0	226.7
Metropolitan counties:						
Large central	26.8	23.8	51.9	16.7	189.3	308.5
Large fringe	24.8	18.4	34.9	12.9	132.5	223.5
Small	32.1	15.0	30.0	12.3	138.3	227.7
Nonmetropolitan counties	30.5	6.1	13.8	5.9	54.1	110.4
With a city ≥ 10,000 population	30.6	8.9	18.0	9.1	80.6	147.2
Without a city ≥ 10,000 population	30.5	3.7	10.4	3.3	32.1	80.0
Northeast:						
Metropolitan counties:						
Large central	18.2	32.1	82.6	19.4	238.5	390.9
Large fringe	21.9	26.1	51.4	16.2	176.8	292.3
Small	26.3	16.7	40.0	13.3	145.5	241.8
Nonmetropolitan counties	29.9	9.6	22.9	7.7	87.7	157.7
With a city ≥ 10,000 population	30.6	10.4	24.0	9.0	98.3	172.3
Without a city ≥ 10,000 population	29.1	8.7	21.6	6.2	76.0	141.7
Midwest:						
Metropolitan counties:						
Large central	32.1	24.4	58.0	18.6	198.3	331.4
Large fringe	24.4	13.8	28.4	11.2	108.7	186.5
Small	36.6	13.3	28.4	10.9	134.2	223.4
Nonmetropolitan counties	32.0	4.4	11.2	4.4	42.5	94.5
With a city ≥ 10,000 population	31.1	7.4	15.9	7.5	68.4	130.3
Without a city ≥ 10,000 population	32.6	1.9	7.3	1.9	21.0	64.8
South:						
Metropolitan counties:						
Large central	27.4	22.9	40.8	17.4	189.7	298.2
Large fringe	23.4	16.5	29.3	12.1	117.2	198.5
Small	32.3	16.2	29.8	13.2	148.5	240.0
Nonmetropolitan counties	27.7	6.2	13.3	6.2	50.7	104.1
With a city ≥ 10,000 population	28.2	9.9	18.1	10.6	84.7	151.6
Without a city ≥ 10,000 population	27.4	3.8	10.2	3.5	29.0	73.7
West:						
Metropolitan counties:						
Large central	28.7	18.8	36.8	13.4	152.4	250.0
Large fringe	31.7	15.3	26.2	11.3	117.4	201.9
Small	31.8	12.4	23.2	10.7	111.0	189.1
Nonmetropolitan counties	36.4	6.9	15.3	6.7	66.5	131.8
With a city ≥ 10,000 population	34.4	8.7	17.8	8.6	81.9	151.4
Without a city ≥ 10,000 population	39.3	4.4	11.7	4.0	44.5	103.9

≥ Greater than or equal to.

Figure 25. Dentists per 100,000 population by region and urbanization level: United States, 1998

Urbanization level	All regions	Northeast	Midwest	South	West
	Dentists per 100,000 population				
Total	52.5	64.6	51.8	44.1	56.1
Metropolitan counties:					
Large central	61.7	69.9	64.7	54.0	60.3
Large fringe	60.6	73.3	57.4	48.3	63.1
Small	49.8	55.8	50.6	47.0	50.4
Nonmetropolitan counties	34.5	40.9	36.6	28.9	43.1
With a city ≥ 10,000 population	41.3	44.8	42.4	37.1	45.7
Without a city ≥ 10,000 population	29.0	36.7	31.7	23.6	39.5

≥ Greater than or equal to.

Figure 26. Dental visit within the past year among persons 18-64 years of age by region and urbanization level: United States, 1997-98

Region and urbanization level	Percent	SE
All regions	64.8	0.3
Metropolitan counties:		
Large central	65.6	0.5
Large fringe	71.4	0.6
Small	63.7	0.6
Nonmetropolitan counties	58.7	0.7
With a city ≥ 10,000 population	60.5	1.1
Without a city ≥ 10,000 population	56.8	1.1
Northeast:		
Metropolitan counties:		
Large central	68.6	1.1
Large fringe	72.5	1.1
Small	69.4	1.2
Nonmetropolitan counties	64.3	1.8
Midwest:		
Metropolitan counties:		
Large central	67.6	1.1
Large fringe	73.2	1.2
Small	68.7	1.0
Nonmetropolitan counties	64.2	1.3
South:		
Metropolitan counties:		
Large central	64.2	1.0
Large fringe	68.2	1.2
Small	60.1	1.0
Nonmetropolitan counties	52.8	1.1
West:		
Metropolitan counties:		
Large central	63.1	0.9
Large fringe	71.3	1.4
Small	61.2	1.3
Nonmetropolitan counties	59.9	1.4

SE Standard error.
≥ Greater than or equal to.

Figure 27. Hospital discharge rates and average length of stay among persons 18–64 years of age by sex and urbanization level: United States, 1998

	Total		Men		Women	
Urbanization level	*Rate*	SE	Rate	SE	Rate	SE
			Discharges per 1,000 population			
Total	72.9	2.8	68.5	2.7	77.5	3.0
Metropolitan counties:						
Large central	67.5	4.6	66.3	4.8	68.8	4.6
Large fringe	65.0	5.3	61.5	5.2	68.5	5.5
Small	70.8	7.7	64.1	6.8	77.4	8.7
Nonmetropolitan counties	92.6	9.4	85.4	8.9	100.3	10.3
			Average length of stay in days			
Total	4.7	0.1	5.1	0.1	4.3	0.1
Metropolitan counties:						
Large central	5.3	0.1	5.9	0.2	4.8	0.2
Large fringe	4.5	0.3	4.8	0.3	4.3	0.3
Small	4.6	0.1	5.2	0.2	4.3	0.1
Nonmetropolitan counties	4.2	0.1	4.4	0.2	4.0	0.1

SE Standard error.

NOTE: Estimates are age adjusted.

Figure 28. Substance abuse treatment admission rates by primary substance, region and urbanization level: United States, 1998

Region and urbanization level	Alcohol	Opiates	Cocaine	Marijuana	Stimulants
	Admissions per 100,000 population				
All regions	258.4	89.6	87.9	77.8	25.9
Metropolitan counties:					
Large central	190.5	148.7	117.2	67.5	26.4
Large fringe	241.7	101.0	70.1	67.4	17.6
Small	307.9	67.6	97.5	90.8	27.0
Nonmetropolitan counties	310.5	16.7	45.0	86.3	33.1
With a city ≥ 10,000 population	387.1	23.9	59.5	106.9	45.7
Without a city ≥ 10,000 population	244.7	10.6	32.2	67.8	21.8
Northeast:					
Metropolitan counties:					
Large central	342.1	276.2	167.8	92.4	1.5
Large fringe	369.4	196.1	106.9	82.6	1.6
Small	466.7	204.2	123.1	104.3	1.6
Nonmetropolitan counties	505.4	61.7	86.2	136.8	3.1
With a city ≥ 10,000 population	613.1	66.0	106.4	154.3	2.9
Without a city ≥ 10,000 population	382.4	57.4	62.9	115.6	3.3
Midwest:					
Metropolitan counties:					
Large central	246.2	75.3	166.1	98.0	7.9
Large fringe	231.2	38.6	67.2	79.6	7.1
Small	459.7	27.1	122.3	143.2	25.2
Nonmetropolitan counties	401.7	9.0	33.1	114.0	31.5
With a city ≥ 10,000 population	491.4	13.2	47.3	138.9	37.9
Without a city ≥ 10,000 population	323.4	5.3	20.4	91.4	25.7
South:					
Metropolitan counties:					
Large central	77.3	51.5	100.0	51.4	2.9
Large fringe	143.6	40.9	54.1	51.0	2.1
Small	194.3	25.4	94.6	64.6	8.6
Nonmetropolitan counties	160.8	8.4	49.8	48.2	11.9
With a city ≥ 10,000 population	201.1	12.2	68.9	60.0	19.2
Without a city ≥ 10,000 population	134.1	5.8	36.9	39.9	6.9
West:					
Metropolitan counties:					
Large central	141.2	183.9	66.9	45.7	73.9
Large fringe	198.3	125.1	38.4	53.3	83.7
Small	292.0	106.9	49.0	88.2	109.4
Nonmetropolitan counties	486.9	31.3	26.9	122.7	126.0
With a city ≥ 10,000 population	493.3	42.2	32.3	131.0	139.4
Without a city ≥ 10,000 population	481.3	14.4	18.3	109.3	104.3

≥ Greater than or equal to.

NOTES: Rates are age adjusted. Indiana, Maine, and West Virginia did not report 1998 data and are excluded from all rate calculations. In addition, Colorado and Arizona did not report facility location and are excluded from calculations by urbanization level.

Appendixes

Appendix Contents

I. Sources and Limitations of Data 123

Introduction 123
Department of Health and Human Services
Centers for Disease Control and Prevention
National Center for Health Statistics
National Vital Statistics System 124
National Linked File of Live Births and Infant Deaths 128
Compressed Mortality File 128
National Survey of Family Growth 128
National Health Interview Survey 129
National Immunization Survey 131
National Health and Nutrition Examination Survey 131
National Health Provider Inventory (National Master Facility Inventory) 133
National Nursing Home Survey 133
National Home and Hospice Care Survey 134
National Hospital Discharge Survey 135
National Survey of Ambulatory Surgery 136
National Ambulatory Medical Care Survey 136
National Hospital Ambulatory Medical Care Survey 136
National Center for HIV, STD, and TB Prevention
AIDS Surveillance 137
Epidemiology Program Office
National Notifiable Diseases Surveillance System 137
National Center for Chronic Disease Prevention and Health Promotion
Abortion Surveillance 138
Youth Risk Behavior Survey 138
Agency for Healthcare Research and Quality
National Medical Expenditure Survey 139
Medical Expenditure Panel Survey 139
Health Resources and Services Administration
Bureau of Health Professions
Nurse Supply Estimates 140
Substance Abuse and Mental Health Services Administration
Office of Applied Studies
National Household Survey on Drug Abuse 140
Drug Abuse Warning Network 141
Uniform Facility Data Set 142
Center for Mental Health Services
Surveys of Mental Health Organizations 142
National Institutes of Health
National Cancer Institute
Surveillance, Epidemiology, and End Results Program 143
National Institute on Drug Abuse
Monitoring the Future Study 143
Health Care Financing Administration
Office of the Actuary
Estimates of National Health Expenditures 144
Estimates of State Health Expenditures 145
Medicare National Claims History Files 145
Medicare Current Beneficiary Survey 146
Medicaid Data System 146
Online Survey Certification and Reporting Database 147
Department of Commerce
Bureau of the Census
Census of Population 147
Current Population Survey 148
Population Estimates 148
Department of Labor
Bureau of Labor Statistics
Annual Survey of Occupational Injuries and Illnesses 148
Census of Fatal Occupational Injuries 149
Consumer Price Index 149
Employment and Earnings 150
Employer Costs for Employee Compensation 150
Department of Veterans Affairs
The Patient Treatment File 151
The Patient Census File 151
The Outpatient Clinic File 151
Environmental Protection Agency
Aerometric Information Retrieval System 151
United Nations
Demographic Yearbook 152
World Health Statistics Annual 152
Alan Guttmacher Institute
Abortion Survey 152
American Association of Colleges of Osteopathic Medicine 153
American Association of Colleges of Pharmacy 153
American Association of Colleges of Podiatric Medicine 153
American Dental Association 153
American Hospital Association
Annual Survey of Hospitals 153
American Medical Association
Physician Masterfile 153
Annual Census of Hospitals 154
Association of American Medical Colleges 154
Association of Schools and Colleges of Optometry 154
Association of Schools of Public Health 154

Appendix Contents

InterStudy
National Health Maintenance Organization Census 155
National League for Nursing 155

II. Glossary 156

Glossary Tables

I. Projected year 2000 U.S. population and proportion distribution by age for age adjusting death rates 157
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 158
III. Projected year 2000 U.S. resident population and age groups used to age adjust survey data 158
IV. Revision of the *International Classification of Diseases (ICD)*, according to year of conference by which adopted and years in use in the United States 159
V. Cause-of-death codes, according to applicable revision of *International Classification of Diseases (ICD)* 160
VI. Comparability of selected causes of death between the Ninth and Tenth Revisions of the *International Classification of Diseases (ICD)* 161
VII. Codes for first-listed external causes of injury from the *International Classification of Diseases, Ninth Revision, Clinical Modification* 165
VIII. Codes for industries, according to the *Standard Industrial Classification (SIC) Manual* 169
IX. Codes for diagnostic categories from the *International Classification of Diseases, Ninth Revision, Clinical Modification* 170
X. Codes for procedure categories from the *International Classification of Diseases, Ninth Revision, Clinical Modification* 171
XI. Current cigarette smoking by persons 18 years of age and over, according to race and Hispanic origin under the 1977 and 1997 Standards for Federal data on race and ethnicity: United States, average annual, 1993–95 178
XII. Private health care coverage for persons under 65 years of age, according to race and Hispanic origin under the 1977 and 1997 Standards for Federal data on race and ethnicity: United States, average annual 1993–95 179

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 are 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. These data 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, if 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. Such statistics do not include data 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, table notes describe the universe and 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 because of different survey methodologies, sampling frames, questionnaires, definitions, and tabulation categories. For example, cigarette use is measured by the Health Interview Survey, the National Household Survey of Drug Abuse, and the Monitoring the Future Survey.

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 are noted with asterisks in selected tables. The criteria used to designate unreliable estimates are indicated in 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 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 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.

Birth certificate items—

Race—Data on birth rates, birth characteristics, and fetal death rates for 1980 and more recent years for liveborn infants and fetal deaths are presented in this report according to race of mother, unless specified otherwise. Before 1980 data were tabulated by race of newborn and fetus, taking into account the 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, if race was unknown, the birth was classified as white. Beginning in 1964 unknown race was classified according to information on the previous record.

Maternal age—Mother's age was reported on the birth certificate by all States. Data are presented for mothers age 10–49 years through 1996 and 10–54 years starting in 1997, based on mother's date of birth or age as reported on the birth certificate. The age of mother is edited for upper and lower limits. When the age of the mother is

computed to be under 10 years or 55 years or over (50 years or over in 1964–96), it is considered not stated and imputed according to the age of the mother from the previous birth record of the same race and total birth order (total of fetal deaths and live births). Before 1963 not stated ages were distributed in proportion to the known ages for each racial group. Beginning in 1997 the birth rate for the maternal age group 45–49 years includes data for mothers age 50–54 years in the numerator and is based on the population of women 45–49 years in the denominator.

Maternal education—Mother's education was reported on the birth certificate by 38 States in 1970. Data were not available from Alabama, Arkansas, California, Connecticut, Delaware, District of Columbia, Georgia, Idaho, Maryland, New Mexico, Pennsylvania, Texas, and Washington. In 1975 these data were available from four 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 New York City. In 1989–91 mother's education was missing only from Washington and New York State outside 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 three additional States, Connecticut, Delaware, and Georgia, increasing the number of States reporting prenatal care to 42 and the District of Columbia. Starting in 1980 prenatal care information was available for the entire United States.

Marital status—Mother's marital status was reported on the birth certificate by 39 States and the District of Columbia in 1970, and by 38 States and the District of Columbia in 1975. The incidence of births to unmarried women in States with no direct question on marital status was assumed to be the same as the incidence in reporting States in the same geographic division. Starting in 1980 for States without a direct question, marital status was inferred by comparing the parents' and child's surnames and other information concerning the father. In 1980–96 marital status was reported on the birth certificates of 41–45 States. In 1997, all but four States (Connecticut, Michigan, Nevada, and New York) and, in 1998, all but two States (Michigan and New York) included a direct question about mother's marital status on their birth certificates.

Hispanic origin—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 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 in the standard format 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; in 1994–98, for 46 States, the District of Columbia, and New York City; and in 1999 information on tobacco use became available from Indiana and New York, increasing the number of reporting States to 48, the District of Columbia, and New York City.

Death certificate items—

Education of decedent—Information on educational attainment of decedents became available for the first time in 1989 due to revision of the U.S. Standard Certificate of Death. Mortality data by educational attainment for 1989 were based on data from 20 States and by 1994–96 increased to 45 States and the District of Columbia. In 1994–96 the following States either did not report educational attainment on the death certificate or the information was more than 20 percent incomplete: Georgia, Kentucky, Oklahoma, Rhode Island, and South Dakota. In 1997–99 information on decedent's education was available from Oklahoma, increasing the reporting area to 46 States and the District of Columbia. Information on the death certificate about the decedent's educational attainment is reported by the funeral director based on information provided by an informant such as next of kin.

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

The validity of information about the decedent's education was evaluated by comparing self-reported education obtained in the Current Population Survey with education on the death certificate for decedents in the National Longitudinal Mortality Survey (NLMS). (Sorlie PD, Johnson NJ: Validity of education information on the death certificate, Epidemiology 7(4):437–9, 1996.) Another analysis compared self-reported education collected in the first National Health and Nutrition Examination Survey (NHANES I) with education on the death certificate for decedents in the NHANES I Epidemiologic Followup Study. (Makuc DM, Feldman JJ, Mussolino ME: Validity of education and age as reported on death certificates, American Statistical Association 1996 Proceedings of the Social Statistics Section, 102–6, 1997.) Results of both studies indicated that there is a tendency for some people who did not graduate from high school to be reported as high school graduates on the death certificate. This tendency results in overstating the death rate for high school graduates and understating the death rate for the group with less than 12 years of education. The bias was greater among older than younger decedents and somewhat greater among black than white decedents.

In addition, educational gradients in death rates based on the National Vital Statistic 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 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 NLMS was too small to permit comparison for this ethnic group.

Hispanic origin—In 1985 mortality data by Hispanic origin of decedent were based on deaths to residents of the following 17 States and the District of Columbia whose data on the death certificate were at least 90 percent complete on a place-of-occurrence basis and of comparable format: Arizona, Arkansas, California, Colorado, Georgia, Hawaii, Illinois, Indiana, Kansas, Mississippi, Nebraska, New York, North Dakota, Ohio, Texas, Utah, and Wyoming. In 1986 New Jersey began reporting Hispanic origin of decedent, increasing the number of reporting States to 18 and the District of Columbia in 1986 and 1987. In 1988 Alabama, Kentucky, Maine, Montana, North Carolina, Oregon, Rhode Island, and Washington were added to the reporting area, increasing the number of States to 26 and the District of Columbia. In 1989 an additional 18 States were added, increasing the Hispanic reporting area to 44 States and the District of Columbia. In 1989 only Connecticut, Louisiana, Maryland, New Hampshire, Oklahoma, and Virginia were not included in the reporting area. Starting with 1990 data in this book, the criterion

was changed to include States whose data were at least 80 percent complete. In 1990 Maryland, Virginia, and Connecticut, in 1991 Louisiana, and in 1993 New Hampshire were added, increasing the reporting area for Hispanic origin of decedent to 47 States and the District of Columbia in 1990, 48 States and the District of Columbia in 1991 and 1992, and 49 States and the District of Columbia in 1993–96. Only Oklahoma did not provide this information in 1993–96. Starting in 1997 Hispanic origin of decedent was reported by all 50 States and the District of Columbia. Based on data from the U.S. Bureau of the Census, the 1990 reporting area encompassed 99.6 percent of the U.S. Hispanic population. In 1990 more than 96 percent of death records included information on origin of decedent.

Race and Hispanic origin—Death rates by race and Hispanic origin are based on information from death certificates (numerators of the rates) and on population estimates from the Census Bureau (denominators) (see Appendix I, Bureau of the Census). Race and ethnicity information on the death certificate are reported by the funeral director as provided by an informant, often the surviving next of kin, or, in the absence of an informant, on the basis of observation. Race and ethnicity information from the census is by self-report. To the extent that race and Hispanic origin are inconsistent between these two data sources, death rates will be biased. Studies have shown that persons self-reported as American Indian, Asian, or Hispanic on census and survey records may sometimes be reported as white or non-Hispanic on the death certificate, resulting in an underestimation of deaths and death rates for the American Indian, Asian, and Hispanic groups. Bias also results from undercounts of some population groups in the census, particularly young black and white males and elderly persons, resulting in an overestimation of death rates. The net effects of misclassification and under coverage result in overstated death rates for the white population and black population estimated to be 1 percent and 5 percent, respectively; and understated death rates for other population groups estimated as follows: American Indians, 21 percent; Asian or Pacific Islanders, 11 percent; and Hispanics, 2 percent. For more information, see Rosenberg HM, Maurer JD, Sorlie PD, Johnson NJ, et al. Quality of death rates by race and Hispanic origin: A summary of current research, 1999. National Center for Health Statistics. Vital Health Stat 2(128). 1999.

Infant and maternal mortality rates are calculated with denominators comprising the number of live births rather than population estimates. Starting with 1980 infant and maternal mortality trends are based on maternal race and ethnicity of the live birth in the denominator. Before 1980 infant and maternal mortality trends were based on child's race in the denominator, which took into account the race of both parents. Infant and maternal mortality trends for Hispanics began with 1985 and are based on Hispanic origin of 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.

Mortality data in *Health, United States* are presented for four major race groups, white, black, American Indian or Alaska Native, and Asian or Pacific Islander, in accordance with 1977 U.S. Office of Management and Budget (OMB) standards for presenting Federal statistics on race. Over the next several years, major changes will occur in the way Federal agencies collect and tabulate data on race and Hispanic origin, in accordance with new guidelines from OMB (see Appendix II, *Race*). The major difference between the current and new guidelines is adoption of data-collection procedures in which respondents can identify with more than one race group.

1999 Preliminary Mortality File—Preliminary morality data are based on continuous receipt and processing of statistical death records by the National Center for Health Statistics (NCHS). Preliminary data for 1999 are based on records of deaths that occurred during 1999 and were received and had undergone quality control by NCHS as of January 3, 2001. More than 99 percent of the deaths that occurred in 1999 are included in the preliminary file. The preliminary 1999 file differs from the final file in that medical or cause-of-death data had not yet been received for a small proportion of deaths that occurred in 1999 (less than 1 percent). Because of its completeness, the preliminary 1999 file is expected to be very close to the final file for most of the major categories shown in *Health, United States*. Tables based on final 1999 mortality data will be posted on the *Health, United States* web site when data become available. The 1999 mortality file differs from previous years' mortality files in that ICD-10 was introduced in

1999 for coding and classifying cause-of-death data. For more information, see: Kochanek KD, Smith BL, Anderson RN. Death: Preliminary data for 1999. National vital statistics reports. Hyattsville, Maryland: National Center for Health Statistics. 2001. In press.

For more information, see: National Center for Health Statistics, Technical Appendix, *Vital Statistics of the United States, 1998*, Vol. I, Natality, and Vol. II, Mortality, Part A available on the NCHS home page at www.cdc.gov/nchs/. Click on Vital Statistics, Birth Data and Mortality Data.

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 variables on the national natality file, including the more accurate racial and ethnic information, as well as 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 1995–98. Data for 1995 and after are not strictly comparable with unweighted birth cohort data for earlier years. While birth cohort linked files have methodological advantages, their production incurs substantial delays in data availability, since it is necessary to wait until the close of a second data year to include all infant deaths to the birth cohort. Starting with data year 1995, more timely linked file data are produced in a period data format preceding the release of the corresponding birth cohort format. Other changes to the data set starting with 1995 data include addition of record weights to correct for the 2.2–2.5 percent of records that could not be linked and addition of an imputation for not stated birthweight. The 1995–98 weighted mortality rates are less than 1 percent to 4 percent higher than unweighted rates for the same period. The 1995–98 weighted mortality rates with imputed birthweight are less than 1 percent to 6.3 percent higher than unweighted rates with imputed birthweight for the same period.

For more information, see: Prager K. Infant mortality by birthweight and other characteristics: United States, 1985 birth cohort. National Center for Health Statistics. Vital Health Stat 20(24). 1994; MacDorman MF, Atkinson JO. Infant mortality statistics from the 1997 period linked birth/death data set. Monthly vital statistics report; vol 47 no 23, supp. Hyattsville, MD: National Center for Health Statistics. 1999; or visit the NCHS home page at www.cdc.gov/nchs/.

Compressed Mortality File

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

National Survey of Family Growth

Data from the National Survey of Family Growth (NSFG) are based on samples of women ages 15–44 years in the civilian noninstitutionalized population of the United States. The first and second cycles, conducted in 1973 and 1976, excluded most women who had never been married. The third, fourth, and fifth cycles, conducted in 1982, 1988, and 1995, included all women ages 15–44 years.

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

Interviews are conducted in person by professional female interviewers using a standardized questionnaire. In 1973–88 the average interview length was about 1 hour. In 1995 the average interview lasted

about 1 hour and 45 minutes. In all cycles black women were sampled at higher rates than white women, so that detailed statistics for black women could be produced.

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

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

Interviewing for Cycle 3 of NSFG was conducted from August 1982 to February 1983. The sample design was similar to that in Cycle 2: 31,027 households were selected in 79 PSU'S. Household screener interviews were completed in 29,511 households (95.1 percent). Of the 9,964 eligible women identified, 7,969 were interviewed. For the first time in NSFG, Cycle 3 included women of all marital statuses.

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

Between July and November 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 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, and coding, editing, and processing data were built into NSFG to minimize nonsampling error.

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

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 sample design plan of NHIS follows a multistage probability design that permits a continuous sampling of the civilian noninstitutionalized population residing in the United States. The survey is designed in such a way that the sample scheduled for each week is representative of the target population, and the weekly samples are additive over time. The response rate for the ongoing portion of the survey (core) has been between 94 and 98 percent over the years. Response rates for special health topics (supplements) have generally been lower. For example, the response rate was 80 percent for the 1994 Year 2000 Supplement, which included questions about cigarette smoking and use of such preventive services as mammography.

In 1985 NHIS adopted several new sample design features although, conceptually, the sampling plan remained the same as the previous design. Two major changes included reducing the number of primary sampling locations from 376 to 198 for sampling efficiency and oversampling the black population to improve the precision of the statistics. The sample was designed so that a typical NHIS sample for the data collection years 1985–94 consisted of approximately 7,500 segments containing about 59,000 assigned households. Of these households, an expected 10,000 were vacant, demolished, or occupied by persons not in the target population of the survey. The expected sample of 49,000 occupied households yielded a probability sample of about 127,000 persons. In 1994 the sample numbered 116,179 persons.

In 1995 the NHIS sample was redesigned again. Major design changes included increasing the number of primary sampling units from 198 to 358 and oversampling the black and Hispanic populations to improve the precision of the statistics. The sample was designed so that a typical NHIS sample for the data collection years 1995–2004 will consist of approximately 7,000 segments. The expected sample of 44,000 occupied respondent households will yield a probability sample of about 106,000 persons. In 1997 the sample numbered 103,477 persons; 98,785 persons in 1998, and 97,059 persons in 1999.

The NHIS questionnaire fielded from 1982 to 1996 consisted of two parts: a set of basic health and demographic items known as the Core questionnaire and one or more sets of questions on current health topics (supplements). Information was collected from responsible family members residing in the household. Proxy responses were acceptable for Core and Supplement questionnaires when family members were not present at the time of interview. Data for children were collected from proxy respondents.

In 1997 the NHIS questionnaire was redesigned and consists of three parts: a basic module, a periodic module, and a topical module. The basic module functions as the new Core questionnaire and comprises three components (Family Core, Sample Adult Core, Sample Child Core). For the Family Core, information is obtained about all members of the family by interviewing adult members of the household or from adult proxy respondents. For the Sample Adult Core, one adult in the household is randomly selected to participate; proxy respondents are not used in this component. For families with children under 18 years of age, one child in the household is randomly selected for participation in the Sample Child Core. Data for this component are collected from a knowledgeable adult in the household. Periodic and topical modules will be incorporated into future years of NHIS.

In 1997 the collection methodology changed from paper and pencil questionnaires to computer-assisted personal interviewing (CAPI). The NHIS questionnaire was also revised extensively in 1997. In some instances, basic concepts measured in NHIS changed and in other instances the same concepts were measured in a different way. While some questions remain the same over time, they may be preceded by different questions or topics. For some questions, there was a change in the reference period for reporting an event or condition. Because of the extensive redesign of the questionnaire in 1997 and introduction of the CAPI method of data collection, data from 1997 and later years may not be comparable with earlier years.

A description of the survey design, methods used in estimation, and general qualifications of the data obtained from the survey are presented in: Botman SL, Moore TF, Moriarity CL, and Parsons VL. Design and estimation for the National Health Interview Survey, 1995–2004. National Center for Health Statistics. Vital Health Stat 2(130). 2000; 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; Adams PF, Hendershot G,

Marano M. Current estimates from the National Health Interview Survey, 1996. National Center for Health Statistics. Vital Health Stat 10(200). 1999; or visit the NCHS home page at www. cdc.gov/nchs/.

National Immunization Survey

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

NIS uses a two-phase sample design. First, a random-digit-dialing (RDD) sample of telephone numbers is drawn. When households with age-eligible children are contacted, the interviewer collects information on the vaccinations received by all age-eligible children. In 1999 the overall response rate was 65 percent, yielding data for 34,442 children aged 19–35 months. The interviewer also collects information on the vaccination providers. In the second phase, all vaccination providers are contacted by mail. The vaccination information from providers was obtained for 67 percent of all children who were eligible for provider followup in 1999. 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: Zell ER, Ezzati-Rice TM, Battaglia PM, Wright RA. National Immunization Survey: The Methodology of a Vaccination Surveillance System. Public Health Reports 115:65–77. 2000; or visit the NCHS home page at www.cdc.gov/nchs/.

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 ages 6–11 years (NHES II) and 12–17 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 used 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 persons 6 months–5 years of age, 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. Nutritional applications of the Health and Nutrition Examination Surveys (HANES). Ann Rev Nutr 7:441–63. 1987.

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 used 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. Hispanic ethnicity of these populations was determined by self-report.

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

For more information on HHANES, see: Maurer KR. Plan and operation of the Hispanic Health and Nutrition Examination Survey, 1982–84. National Center for Health Statistics. Vital Health Stat 1(19). 1985.

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

The NHANES III target population is the civilian noninstitutionalized population 2 months of age and over. The sample design provides for oversampling among children 2–35 months of age, persons 70 years of age and over, black Americans, and Mexican Americans. Race is reported for the household by the respondent.

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

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

Two new additional goals for the NHANES III survey are:

- contribute to an understanding of disease etiology
- 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; or visit the NCHS home page at www.cdc.gov/nchs/.

National Health Provider Inventory (National Master Facility Inventory)

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

National Nursing Home Survey

NCHS conducted six National Nursing Home Surveys, the first survey from August 1973-April 1974; the second from May-December 1977; the third from August 1985-January 1986; the fourth from July-December 1995; the fifth from July-December 1997; and the sixth from July-December 1999.

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 expenses, 82 percent for staff, and 98 percent for residents.

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 1985 NNHS was similar to the 1973–74 survey in that it excluded personal or domiciliary care homes. The sample of 1,220 homes was selected from a sampling frame of 20,479 nursing and related-care homes. The frame consisted of all homes in the 1982 NMFI; homes identified in the 1982 Complement Survey of NMFI " 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 expenses 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 1995, 1997, and 1999 NNHS were similar to the 1985 and 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 residents' 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. 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.

The 1999 sample of 1,423 nursing homes was the same basic sample used in 1995 and 1997. The 1999 sample of 1,423 nursing homes was selected from a sampling frame of 18,419. The frame consisted of the most current National Health Provider Inventory. A supplemental frame was used to add facilities not in the 1997 frame. Like the 1995 and 1997 surveys, the 1999 survey excluded out-of-scope and out-of-business nursing homes identified in 1997. The 1999 NNHS included a discharge resident component.

Statistics for the National Nursing Home Surveys are derived by a multistage estimation procedure that provides essentially unbiased national estimates and has three major components: (a) inflation by the reciprocals of the probabilities of sample selection, (b) adjustment for nonresponse, and (c) ratio adjustment to fixed totals. The surveys are adjusted for three types of nonresponse: (1) when an eligible nursing facility did not respond; (2) when the facility failed to complete the sampling lists; and (3) when the facility did not complete the facility questionnaire but did complete the questionnaire for residents in the facility.

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). 1989. 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, MD: National Center for Health Statistics. 1997. For more information on the 1997 NNHS, see: The National Nursing Home Survey: 1997 summary. National Center for Health Statistics. Vital Health Stat 13(147). 2000. For more information on the 1999 NNHS, see: Advance data report available in the summer of 2001. Information about the 1997 and 1999 NNHS is also available at the NCHS home page at www.cdc.gov/nchs/.

National Home and Hospice Care Survey

The National Home and Hospice Care Survey (NHHCS) is a sample survey of health agencies and hospices. Initiated in 1992, it was also conducted in 1993, 1994, 1996, and 1998. The original sampling frame consisted of all home health care agencies and hospices identified in the 1991 National Health Provider Inventory (NHPI). The 1992 sample contained 1,500 agencies. These agencies were revisited during the 1993 survey (excluding agencies that had been found to be out of scope for the survey). In 1994 in-scope agencies identified in the 1993 survey were revisited, along 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. In 1998 the updated sampling frame consisted of 16,500 home health and hospice agencies. A sample of 1,350 agencies was selected.

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 and 1998 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 those on the rolls of the agency as of midnight the day before the survey. Discharges were selected to estimate the number of discharges from the agency during the year before the survey.

After the samples were selected, a patient questionnaire was completed for each current patient and discharge by interviewing the staff member most familiar with the care provided to the patients. The respondent was requested to refer to the medical records for each patient. For additional information see: Haupt BJ. Development of the National Home and Hospice Care Survey. National Center for Health Statistics. Vital Health Stat 1(33). 1994; or visit the NCHS home page at www.cdc.gov/nchs/.

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 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 *Health, United States*.

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, with hospitals stratified according to bed size and geographic region. Sample hospitals were selected with probabilities ranging from certainty for the largest hospitals to 1 in 40 for the smallest hospitals. Within each sample hospital, a systematic random sample of discharges was selected from the daily listing sheet. Initially, the within-hospital sampling rates for selecting discharges varied inversely with the probability of hospital selection, so that the overall probability of selecting a discharge was approximately the same across the sample. Those rates were adjusted for individual hospitals in subsequent years to control the reporting burden of those hospitals.

In 1985, for the first time, two data-collection procedures were used for the survey. The first was the traditional manual system of sample selection and data abstraction. In the manual system, sample selection and transcription of information from the hospital records to abstract forms were performed by either the hospital staff or representatives of NCHS or both. The second was an automated method, used in approximately 17 percent of the sample hospitals in 1985, involving the purchase of data tapes from commercial abstracting services. These tapes were then subjected to the 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 varied inversely with probability of hospital selection within the PSU. Discharge records from hospitals submitting data via commercial abstracting services and selected State data systems (approximately 40 percent of sample hospitals) were arrayed by primary diagnoses, patient sex and age group, and date of discharge before sampling. Otherwise, the procedures for sampling discharges within hospitals were the same as those used in the prior design.

In 1997 the hospital sample was updated by continuing the sampling process among hospitals that were NHDS-eligible for the sampling frame in 1997 but not in 1994. 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 and 1994.

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 1998, 513 hospitals were selected, 495 were within scope, 478 participated (97 percent), and 307,000 medical records were abstracted. In 1999, 513 hospitals were selected, 487 were within scope, 458 participated (94 percent), and 300,460 medical records were abstracted.

For more detailed information on the design of NHDS and the magnitude of sampling errors associated with NHDS estimates, see: Popovic JR, Kozak, LJ. National Hospital Discharge Survey: Annual summary 1998. Vital Health Stat 13 (148). 2000; Dennison C, Pokras R. Design and operation of the National Hospital Discharge Survey: 1988 redesign. National Center for Health Statistics. Vital Health Stat 1(39). 2000; or visit the NCHS home page at www.cdc.gov/nchs/.

National Survey of Ambulatory Surgery

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

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

For more detailed information on the design of NSAS, see: McLemore T, Lawrence L. Plan and operation of the National Survey of Ambulatory Surgery. National Center for Health Statistics. Vital Health Stat 1(37). 1997; or visit the NCHS home page at www.cdc.gov/nchs/.

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.

In the 1998 survey a sample of 2,500 physicians was selected. The response rate was 68 percent, and data were provided on 23,339 records. In 1999 a sample of 2,499 physicians was selected. The response rate was 63 percent and data were provided on 20,790 records.

The estimation procedure used in NAMCS has three basic 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: 1998 summary. Advance data from vital and health statistics; no 315. Hyattsville, MD: National Center for Health Statistics. 2000; or visit the NCHS home page at www.cdc.gov/nchs/.

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 1998 the hospital response rate for NHAMCS was

96 percent for ED's and 90 percent for OPD's. In 1999 the hospital response rate for NHAMCS was 93 percent for ED's and 86 percent for OPD's. Hospital staff were asked to complete Patient Record Forms (PRF) for a systematic random sample of patient visits occurring during a randomly assigned 4-week reporting period. On the PRF, up to three physicians' diagnoses were collected and coded by NCHS to the *International Classification of Diseases, Clinical Modification* (ICD–9–CM). Additionally, if the cause-of-injury check box was marked on the PRF, up to three external causes of injury were coded by NCHS to the ICD–9–CM Supplementary Classification of External Causes of Injury and Poisoning. In 1998 the number of PRF's completed for ED's was 24,175 and for OPD's 29,402. In 1999 the number of PRF's completed for ED's was 21,103 and for OPD's 29,487.

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; or visit the NCHS home page at www.cdc.gov/nchs/.

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 that is then transmitted electronically to CDC without personal identifiers.

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

Decreases in AIDS incidence and in the number of AIDS deaths, first noted in 1996, have been ascribed to the effect of new treatments, which prevent or delay the onset of AIDS and premature death among HIV-infected persons, and result in an increase in the number of persons living with HIV and AIDS. A growing number of States require confidential reporting of persons with HIV infection and participate in CDC's integrated HIV/AIDS surveillance system that compiles information on the population of persons newly diagnosed and living with HIV infection.

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 Prevention Surveillance and Epidemiology, 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 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. The system also provides summary data on an annual basis. State epidemiologists report cases of notifiable diseases to EPO, and EPO tabulates and publishes these data in the *Morbidity and Mortality Weekly Report (MMWR*) and the *Summary of Notifiable Diseases, United States* (entitled *Annual Summary* before 1985). Notifiable disease surveillance is conducted by public health practitioners at local, State, and national levels to support disease prevention and control activities.

Notifiable disease reports are received from health departments in the 50 States, five territories, New York City, and the District of Columbia. Policies for reporting notifiable disease cases can vary by disease or reporting jurisdiction, depending on case status classification (i.e., confirmed, probable, or suspect). CSTE and CDC annually review the status of national infectious disease surveillance and recommend additions or deletions to the list of nationally notifiable diseases based on the need to respond to emerging priorities. For example, Q fever and tularemia became nationally notifiable in 2000. However, reporting

nationally notifiable diseases to CDC is voluntary. Reporting is currently mandated by law or regulation only at the local and State level. Therefore, the list of diseases that are considered notifiable varies slightly by State. For example, reporting of cyclosporiasis to CDC is not done by some States in which this disease is not notifiable to local or State authorities. More information regarding notifiable diseases, including case definitions for these conditions, is available on the Internet at www.cdc.gov/epo/phs.htm.

Notifiable disease data are useful for analyzing disease trends and determining relative disease burdens. However, these data must be interpreted in light of reporting practices. Some diseases that cause severe clinical illness (e.g., plague and rabies) are most likely reported accurately if diagnosed by a clinician. However, persons who have diseases that are clinically mild and infrequently associated with serious consequences (e.g., salmonellosis) might not seek medical care from a health care provider. Even if these less severe diseases are diagnosed, they are less likely to be reported.

The degree of completeness of data reporting also is influenced by the diagnostic facilities available; the control measures in effect; public awareness of a specific disease; and the interests, resources, and priorities of State and local officials responsible for disease control and public health surveillance. Finally, factors such as changes in case definitions for public health surveillance, introduction of new diagnostic tests, or discovery of new disease entities can cause changes in disease reporting that are independent of the true incidence of disease.

For more information, see: Centers for Disease Control and Prevention, Summary of Notifiable Diseases, United States, 1999 *Morbidity and Mortality Weekly Report* 48(53) Public Health Service, DHHS, Atlanta, GA, 2000; or write: Chief, Surveillance Systems Branch, Division of Public Health Surveillance and Informatics. Epidemiology Program Office, Centers for Disease Control and Prevention, 4770 Buford Highway, MS K74, Atlanta, GA 30341–3717; or visit the EPO home page at www.cdc.gov/epo/dphsi/phs.htm.

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 from 1973–1997 abortion data have been available from 52 reporting areas: 50 States, the District of Columbia, and New York City. Beginning in 1998, abortion data are available only from 48 reporting areas coming from central health agencies. The total number of legal induced abortions is available for all reporting areas; however, not all areas collect information regarding the characteristics of women who obtain abortions. Furthermore the number of States reporting each characteristic and the number of States with complete data for each characteristic vary from year to year. State data with more than 15 percent unknown for a given characteristic are excluded from the analysis of that characteristic.

For 48 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. In general the procedures were reported by the State in which the procedure is performed. However, two reporting areas (the District of Columbia and Wisconsin) report characteristics of abortions only for area/state residents; characteristics for out of area/state residents are unavailable.

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, December 8, 2000. *Morbidity and Mortality Weekly Report* 2000;49 (NoSS-11), Abortion Surveillance - United States, 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 30341; or visit the NCCDPHP home page at www.cdc.gov/nccdphp.

Youth Risk Behavior Survey

The national Youth Risk Behavior Survey (YRBS) is conducted by the Centers for Disease Control and Prevention's National Center for Chronic Disease Prevention and Health Promotion to monitor the prevalence of priority health risk behaviors among high school students in grades 9–12 that contribute to

morbidity and mortality in both adolescence and adulthood.

The national YRBS of high school students was conducted in 1990, 1991, 1993, 1995, 1997, and 1999. The national YRBS school-based surveys employ a three-stage cluster sample design to produce a nationally representative sample of students in grades 9–12 attending public and private high schools. The first-stage sampling frame contains primary sampling units (PSU's) consisting of large counties or groups of smaller, adjacent counties. The PSU's are then stratified based on degree of urbanization and relative percent of black and Hispanic students in the PSU. The PSU's are selected from these strata with probability proportional to school enrollment size. At the second sampling stage, schools are selected with probability proportional to school enrollment size. To enable separate analysis of data for black and Hispanic students, schools with substantial numbers of black and Hispanic students are sampled at higher rates than all other schools. The third stage of sampling consists of randomly selecting one or two intact classes of a required subject from grades 9–12 at each chosen school. All students in the selected classes are eligible to participate in the survey. A weighting factor is applied to each student record to adjust for nonresponse and for the varying probabilities of selection, including those resulting from the oversampling of black and Hispanic students. SUDAAN was used to compute standard errors.

National YRBS data are subject to at least two limitations. First, these data apply only to adolescents who attend regular high school. These students may not be representative of all persons in this age group because those who have dropped out of high school or attend an alternative high school for behavioral or other reasons are not surveyed. Second, the extent of underreporting or overreporting cannot be determined, although the survey questions demonstrate good test-retest reliability.

For further information on the YRBS, see: CDC. Youth risk behavior surveillance—United States, 1999. CDC surveillance summaires, June 9, 2000. MMWR 2000:49(SS-05); or write: Director, Division of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, 4770 Buford Highway NE, Mail Stop K-32, Atlanta, GA 30341-3717; or visit the Division of Adolescent and School Health home page at www.cdc.gov/nccdphp/dash/.

Agency for Healthcare Research and Quality

National Medical Expenditure Survey

The Household Survey (HS) and the Medical Provider Survey (MPS) components of the 1987 National Medical Expenditure Survey (NMES) were designed to provide nationally representative estimates of the health status, health insurance coverage, and health care use and expenditures for the U.S. civilian noninstitutionalized population for the calendar year 1987. The HS consisted of four rounds of household interviews. Income was collected in a special supplement administered early in 1988. Events under the scope of the MPS included medical services provided by or under the direction of a physician, all hospital events, and home health care. The sample of events included in the MPS was all events for persons covered by Medicaid and for a 25-percent sample of HS respondents. For the first core household interview, 17,500 households were selected. The 12-month joint core questionnaire/health questionnaire/access supplement response rate for the household component of the NMES was 72 percent. Missing expenditure data were imputed.

For further information see: Hahn B and Lefkowitz D. Annual expenses and sources of payment for health care services (AHRQ Pub. No. 93–0007). National Medical Expenditure Survey Research Findings 14, Agency for Healthcare Research and Quality. Rockville, MD. Public Health Service. Nov. 1992.

Medical Expenditure Panel Survey

The 1996 Medical Expenditure Panel Survey (MEPS) updates the 1987 NMES survey. MEPS is designed to understand how the growth of managed care and other changes in the health care delivery system affect the use, type, and costs of health care. MEPS consists of four components:

- The Household Component (HC), a nationally representative survey of the civilian noninstitutionalized population, collected data on approximately 10,000 families (24,000 individuals), drawn from a subsample of households that participated in the prior year's National Health Interview Survey conducted by the National Center for Health Statistics. The panel design of the survey featured several rounds of interviewing covering two full calendar years. Data were collected on health status, health insurance coverage, health care use and expenditures, and sources of payment for health services.

- The Nursing Home Component (NHC) gathered information from a sample of approximately 800 nursing homes and more than 5,000 residents. Data were collected on characteristics of the facilities and services offered, expenditures and sources of payment on an individual resident level, and resident characteristics, including functional limitation, cognitive impairment, age, income, and insurance coverage, and the availability and use of community-based care prior to nursing home admission.
- The Medical Provider Component (MPC) covered approximately 3,000 hospitals, nearly 17,000 physicians, and 500 home health care providers and collected information to supplement the MEPS HC, and additional data to estimate the expenses of people enrolled in managed care plans.
- The Insurance Component (IC) consisted of two subcomponents. The household sample collected detailed information from employers and union officials on the health insurance held by and offered to respondents to the MEPS HC. The list sample collected data on the types and costs of workplace health insurance from 40,000 business establishments and governments.

For further information, see MEPS: A New National Health Information Resource. AHRQ Publication No. 00-P050, May 2000. Agency for Healthcare Research and Quality, Rockville, MD. Also available at www.ahrq.gov/data/mepsinfo.htm.

Health Resources and Services Administration

Bureau of Health Professions

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 Survey on Drug Abuse

Data on trends in use of cigarettes, alcohol, marijuana, and cocaine among persons 12 years of age and over are from the National Household Survey on Drug Abuse (NHSDA), sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA). The survey covers 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. Persons excluded from the survey include homeless people who do not use shelters, active military personnel, and residents of institutional group quarters, such as jails and hospitals. Hawaii and Alaska were included for the first time in 1991.

The survey underwent major changes in 1994 and 1999. Changes in 1994 to the questionnaire and data-editing procedures affected the reporting of substance abuse prevalence rates. A split sample design was used in 1994 to estimate the magnitude of the impact of the new methodology for each drug category. An adjustment procedure was developed and applied to the pre-1994 estimates in order to describe long-term trends in drug use. The adjusted estimates are presented in *Health, United States*. A description of the adjustment method can be found in the 1998 NHSDA Main Findings, NHSDA Series H-11, Appendix, available from SAMHSA.

In 1994–98 the survey employed a multistage probability sample design. Young people (age 12–34 years), black Americans, Hispanics, and residents of Arizona and California were oversampled. In 1998 the sample included 25,500 respondents. The screening and interview response rates were 93 percent and 77 percent, respectively.

Prior to 1999, the NHSDA was conducted as a paper-and-pencil interview (PAPI) lasting about an hour. The NHSDA PAPI instrumentation consisted of a questionnaire booklet that was completed by the interviewer and a set of individual answer sheets that were completed by the respondent. All substance-use questions and other sensitive questions appeared on the self-administered answer sheets so that the interviewer was not aware of the respondent's answers. Less sensitive questions such as demographics, occupational status, household size, and composition were asked aloud by the interviewer and recorded in the questionnaire booklet.

In 1999, the NHSDA underwent another major redesign affecting the method of data collection, sample design, sample size, and oversampling. The method of data collection was changed from PAPI to a computer-assisted interview (CAI). The 1999 survey used a combination of computer-assisted personal interview conducted by the interviewer (CAPI) and a computer-assisted self-interview (ACASI). For the most part, questions previously administered by the interviewer are now administered by the interviewer using CAPI. Use of ACASI is designed to provide the respondent with a highly private and confidential means of responding to questions and should increase the level of honest reporting of illicit drug use and other sensitive behaviors.

The 1999 NHSDA sample size was expanded from previous years. The sample design was also changed from a strictly national design to a State-based sampling plan. This sample employed a 50-State design with an independent, multistage area probability sample for each of the 50 States and the District of Columbia. The eight States with the largest population (which together account for 48 percent of the total U.S. population age 12 years and over) were designated as large sample States (California, Florida, Illinois, Michigan, New York, Ohio, Pennsylvania, and Texas). For these States, the design provided a sample large enough to support direct State estimates. For the remaining 42 States and the District of Columbia, smaller, but adequate, samples were selected to support State estimates using small-area estimation (SAE) techniques. The 1999 NHSDA design also oversampled youths and young adults, so that each State's sample was approximately equally distributed among three major age groups: 12–17 years, 18–25 years, and 26 years and older.

Each State was stratified into regions (48 regions in each of eight large States, 12 regions in each of 42 small States). At the first stage of sampling, eight area segments were selected in each region, for a total of 7,200 sample units nationally. In these segments, 169,166 addresses were screened and 66,706 persons were interviewed within the screened addresses in 1999. The survey was conducted from January through December 1999. Weighted response rates for household screening and for interviewing were 89.6 percent and 68.6 percent, respectively. Weighted response rates for the individual States for household screening ranged from 96.1 percent to 79.9 percent. For interviewing the response rates for the States ranged from 82.8 percent to 58.4 percent. A description of this new methodology can be found in Summary of Findings from the 1999 National Household Survey on Drug Abuse, available from SAMHSA.

These important changes between the CAI and PAPI methodology and other design changes in 1999 have a major impact on the data produced from the NHSDA. The 1999 estimates of substance-use prevalence are not comparable with earlier estimates. To assess trends, SAMHSA included a supplemental national sample employing the PAPI methodology in 1999. This sample of 13,809 persons employed a paper questionnaire that was identical to the one fielded in 1998. Weighting, editing, and imputation procedures were also conducted in a manner comparable to prior years' surveys. These supplemental PAPI samples are for 1999 only and no PAPI data will be available in subsequent survey years. The 1999 PAPI prevalence estimates are included in Table 63. The 1999 CAI prevalence estimates are presented in the *Chartbook on Urban and Rural Health*.

For more information on the National Household Survey on Drug Abuse (NHSDA), see: NHSDA Series: H-12 Summary of Findings from the 1999 National Household Survey on Drug Abuse; 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 Web site at www.drugabusestatistics.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 hospital emergency departments (ED's) and from medical examiner facilities. The major objectives of the DAWN data system include monitoring of drug-abuse patterns and trends, identification of substances associated with drug-abuse episodes, and assessment of drug-related consequences and other health hazards. Estimates

reported in this publication are from the hospital ED component of DAWN.

Hospitals eligible for DAWN are non-Federal, short-stay general hospitals that have a 24-hour emergency department. Since 1988 the DAWN emergency department 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 eligible drug-abuse episodes by reviewing emergency department records and abstracting and submitting data on each reportable case. To be included in DAWN, the patient presenting to the ED must meet all of the following four criteria: (a) patient was between ages 6 and 97 years and was treated in the hospital's ED; (b) patient's presenting problem(s) for the ED visit was induced by or related to drug use, regardless of when drug use occurred; (c) episode involved use of an illegal drug or use of a legal drug or other chemical substance contrary to directions; (d) patient's reason for using the substance(s) was dependence, suicide attempt or gesture, and/or psychic effect.

The data from the DAWN sample are used to generate estimates of the total number of emergency department drug-abuse episodes and drug mentions in all eligible hospitals in the coterminous United States and in the 21 metropolitan areas. Overall, a response rate of 82 percent of sample hospitals was obtained in the 1999 survey.

For further information, see Drug Abuse Warning Network (DAWN) Series D-15, Year-End 1999 Emergency Department Data from the Drug Abuse Warning Network; DAWN Series D-13, Drug Abuse Warning Network Annual Medical Examiner Data 1998; or write: Office of Applied Studies, Substance Abuse and Mental Health Services Administration, Room 16–105, 5600 Fishers Lane, Rockville, MD 20857; or visit the SAMHSA home page at www.drugabusestatistics.samhsa.gov/.

Uniform Facility Data Set

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

Treatment facilities contacted through UFDS are identified from the National Master Facility Inventory (NMFI), which lists all State-sanctioned substance abuse treatment and prevention facilities and additional treatment facilities identified through business directories and other sources. In 1996 only State-sanctioned facilities were included in the published tables. The 1997 and 1998 data include facilities identified through business directories and other sources. Response rates to the surveys were 86, 88, and 91 percent in 1996, 1997, and 1998, respectively. The survey was not conducted in 1999.

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: 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's) and general hospital mental health services (GHMHS's). 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). 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 *Health, United States*. 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, changes in definition of CMHC's and 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-04, 5600 Fishers Lane, Rockville, MD 20857. For further information on mental health, see: Center for Mental Health Services, *Mental Health, United States, 1998.* Manderscheid R, Henderson MJ, eds. DHHS Pub. No. (SMA) 99–3285. Washington, DC. Superintendent of Documents, U.S. Government Printing Office. 1998; *Mental Health, United States, 2001*, forthcoming; or visit the Center for Mental Health Services home page at www.samhsa.gov/cmhs/cmhs.htm.

National Institutes of Health

National Cancer Institute

Surveillance, Epidemiology, and End Results Program

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

This report covers residents of one of the following geographic areas at the time of the initial diagnosis of cancer: Atlanta, Georgia; Detroit, Michigan; Seattle-Puget Sound, Washington; San Francisco-Oakland, Los Angeles, and San Jose-Montery, 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 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: Ries LAG Eisner MP, Kosary CL, et al. (eds). *SEER Cancer Statistics Review 1973-97* . National Cancer Institute. Bethesda, MD. 2000; or visit the SEER home page at www.seer.cancer.gov.

National Institute on Drug Abuse

Monitoring the Future Study

Monitoring the Future Study (MTF) is a large-scale epidemiological survey of drug use and related attitudes. It has been conducted annually since 1975 under a series of investigator-initiated research grants from the National Institute on Drug Abuse 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 selection of particular geographic areas, stage two selection of one or more schools in each area, and state three selection of students within each school. Data are collected using self-administered questionnaires conducted 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 the *Dropout Rates in the United States: 1999* (published by the National Center for Educational Statistics, Pub. No. NCES 2001–022) stated that among persons 15–16 years and 17 yeas of age, 3.4 percent have dropped out of school, while the dropout percent increases to 4.7 percent of persons 18 years of age, and to 11.1 percent for persons 19 years of age. Therefore, surveying eighth graders (where dropout rates are much lower than for high school seniors) should be effective for picking up students at higher risk for drug use.

Approximately 45,200 8th, 10th, and 12th graders in 435 schools were surveyed in 2000. In 2000 the annual senior samples comprised roughly 13,300 seniors in 134 public and private high schools nationwide, selected to be representative of all seniors in the continental United States. The 10th-grade samples involved about 14,600 students in 145 schools in 2000, and the 2000 eighth-grade samples had approximately 17,300 students in 156 schools. Response rates of 83 percent, 85 percent, and 87 percent for 12th, 10th, and 8th-graders in 1999 have been relatively constant across time. Absentees constitute virtually all of the nonrespondents.

For further information on Monitoring the Future Study, see: National Institute on Drug Abuse, National Survey Results on Drug Use from the Monitoring the Future Study, 1975–1999, Vol. I., Secondary School Students, NIH Pub. No. 00–4802, Bethesda, MD: Public Health Service, printed August 2000; or visit the NIDA home page at www.nida.nih.gov or the Monitoring the Future home page at www.monitoringthefuture.org/.

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. 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 Services Annual Survey and the quinquennial Census of Service Industries.

The estimates of retail spending for prescription drugs are based on results of a Health Care Financing Administration (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; the 1987 National Medical Expenditure Survey and the 1996 Medical Expenditure Panel Survey conducted by the Agency for Healthcare Research and Quality; and spending by Medicare and Medicaid. 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 primarily based upon data from the U.S. Bureau of the Census

Services Annual Survey and the quinquennial Census of Service Industries.

Expenditures for construction include those spent on the erection or renovation of hospitals, nursing homes, medical clinics, and medical research facilities, but not for private office buildings providing office space for private practitioners. Expenditures for noncommercial research (the cost of commercial research by drug companies is assumed to be imbedded in the price charged for the product; to include this item again would result in double counting) are developed from information gathered by the National Institutes of Health and the National Science Foundation.

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, National Academy of Social Insurance*, 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 and the 1996 Medical Expenditure Panel Survey conducted by the Agency for Healthcare Research and Quality; and from private surveys conducted by the American Hospital Association, American Medical Association, American Dental Association and IMS Health, an organization that collects data from the pharmaceutical industry is used to develop estimates of direct spending by customers.

For more specific information on definitions, sources, and methods used in the National Health Accounts, visit the Health Care Financing Administration home page at www.hcfa.gov/STATS/STATS.HTM.

Estimates of State Health Expenditures

Estimates of personal health care 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.

State estimates in this edition of *Health, United States* use as national totals those NHE estimates published in *Health, United States, 2000*. NHE differ from the sum of State estimates. NHE included 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. NHE published in this edition of *Health, United States* reflect new data and benchmark revisions incorporated after completion of the State estimates.

For more information, contact: Office of the Actuary, Health Care Financing Administration, 7500 Security Blvd., Baltimore, MD 21244–1850; or visit the Health Care Financing Administration home page at www.hcfa.gov.

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. These 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). These records include all Part A and Part B utilization and entitlement data. Records for 1999 were maintained on more than 39 million

enrollees and 48,735 institutional providers including 6,162 hospitals, 14,991 skilled nursing facilities, 9,029 home health agencies, 2,289 hospices, 3,002 outpatient physical therapy facilities, 543 comprehensive outpatient rehabilitation facilities, 3,580 end-state renal dialysis facilities, 3,515 rural health clinics, 1,000 community mental health centers, 2,742 ambulatory surgical centers, and 1,882 Federally qualified health centers. Over one billion claims were processed in fiscal year 1999.

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 www.hcfa.gov.

Medicare Current Beneficiary Survey

The Medicare Current Beneficiary Survey (MCBS) is a continuous survey of a nationally representative sample of about 18,000 aged and disabled Medicare beneficiaries enrolled in Medicare Part A (hospital insurance), or Part B (medical insurance), or both, and residing in households or long-term care facilities. The survey provides comprehensive time-series data on utilization of health services, health and functional status, health care expenditures, and health insurance and beneficiary information (such as income, assets, living arrangement, family assistance, and quality of life). The longitudinal design of the survey allows each sample person to be interviewed 3 times a year for 4 years, whether he or she resides in the community or a facility or moves between the two settings, using the version of the questionnaire appropriate to the setting. Sample persons in the community are interviewed using computer-assisted personal interviewing (CAPI) survey instruments. Because long-term care facility residents often are in poor health, information about institutionalized patients is collected from proxy respondents such as nurses and other primary care givers affiliated with the facility. The sample is selected from the Medicare enrollment files with oversampling among disabled persons under age 65 and among persons 80 years of age and over.

Medicare claims are linked to survey-reported events to produce the Cost and Use file that provides complete expenditure and source of payment data on all health care services, including those not covered by Medicare.

For a description of the MCBS, see: A profile of the Medicare Current Beneficiary Survey, by GS Adler. Health Care Financing Review, vol 15 no 4. Health Care Financing Administration. Washington, DC. Public Health Service. 1994. For further information on the MCBS, visit the HCFA home page at www.hcfa.gov.

Medicaid Data System

Many State Medicaid agencies continue to submit data annually to the Health Care Financing Administration (HCFA) using the Form HCFA-2082, *Statistical Report on Medical Care: Eligibles, Recipients, Payments, and Services*. However, the majority of Medicaid data are derived from the Medicaid Statistical Information System (MSIS). States participating in MSIS provide HCFA with a larger database through submission of computer tapes. HCFA then extracts comparable data to produce a mirror copy of the HCFA-2082 report. The Federal reporting period is between October 1 and September 30 of the fiscal year.

The following information may help when using Medicaid data:

- HCFA performs many statistical edits to ensure consistency and identification of aberrant and missing data. HCFA may substitute cell values only when necessary in order to maintain consistency.
- Medical Vendor Payments exclude lump sum adjustments (such as payments to disproportionate share hospitals). States must adjust payments to qualified hospitals that provide inpatient services to a disproportionate number of Medicaid recipients and/or other low income persons.
- The number of recipients and eligibles reported on the HCFA-2082 are referred to as "unduplicated," which simply means that each person is counted once based on their eligibility grouping (for example, Aged or Blind or Disabled) when they first receive medical services.
- The Medicaid data presented in *Health, United States* are contained in the Medicaid statistical system (HCFA-2082 Report and the MSIS tapes). Data reported on the quarterly Medicaid financial report (HCFA-64) submitted to HCFA by States for reimbursement may differ from the Medicaid statistical report, primarily because the HCFA-64 includes disproportionate share hospital payments, payments to

health maintenance organizations and Medicare, and quarterly payment adjustments.

For further information on Medicaid data, see *Medicaid Statistics, Program and Financial Statistics, Fiscal Year 1997*, HCFA Pub. No. 10129, Health Care Financing Administration, Baltimore, MD. U.S. Government Printing Office, May 1999; or call the Medicaid Hotline at 410-786-0165. For additional information and data visit the HCFA Web site at www.hcfa.gov.

Online Survey Certification and Reporting Database

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

Information on the number of beds, residents, and resident characteristics is collected during an inspection of all certified facilities. The information in OSCAR is based on each facility's own administrative record system in addition to interviews with key administrative staff members.

All certified nursing homes are inspected by representatives of the State survey agency (generally the department of health) at least once every 15 months. Therefore a complete census must be based on a 15-month reporting cycle rather than a 12-month cycle. The 1995 data come from a 15-month cycle ending July 31, 1995. The 1996 data are based on a cycle ending January 24, 1997; and the 1997, 1998, and 1999 data from cycles ending December of those years. Some nursing homes are inspected twice or more often during any given reporting cycle. In order to avoid overcounting, the data must be edited and duplicates removed. Data editing and compilation were performed by Cowles Research Group and published in the group's *Nursing Home Statistical Yearbook* series.

For more information, see: Cowles CM, 1995 Nursing Home Statistical Yearbook. 1996 Nursing Home Statistical Yearbook. 1997 Nursing Home Statistical Yearbook. Anacortes, WA: Cowles Research Group (CRG), 1995; 1997; 1998; Cowles CM, 1998 Nursing Home Statistical Yearbook. 1999 Nursing Home Statistical Yearbook. Washington, DC: American Association of Homes and Services for the Aging (AAHSA), 1999; 2000; 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 www.hcfa.gov or the CRG Web page at www.longtermcareinfo.com/CRG. The e-mail contact for CRG is MickCowles@aol.com and for AAHSA is akerman@aahsa.org.

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 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 population subgroups.

The 2000 CPS sample is located in 754 sample areas, with coverage in every State and the District of Columbia. In an average month during 2000, the number of housing units or living quarters eligible for interview was about 50,000; of these about 6 or 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 used.

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, DC. U.S. Government Printing Office, Feb. 1994 and Feb. 1995; or visit the CPS home page at www.bls.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 a variety of other 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 at 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 a Federal/State program in which employer reports are collected from about 169,000 private industry establishments and processed by State agencies cooperating with BLS. Data for the mining industry and for railroad activities are provided by Department of Labor's Mine Safety and Health Administration and Department of Transportation's Federal Railroad Administration. Excluded from the survey are self-employed individuals; farmers with fewer than 11 employees; private households; Federal Government agencies; and employees in State and local government agencies. Establishments are classified in industry categories based on the 1987 Standard Industrial Classification (SIC) Manual, as defined by the Office of Management and Budget.

Survey estimates of occupational injuries and illnesses are based on a scientifically selected probability sample, rather than a census of the entire population.

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 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 diseases that may be caused by inhalation, absorption, ingestion, or direct contact. Lost workday cases involve days away from work, days of restricted work activity, or both. The response rate is about 92 percent.

The number of injuries and illnesses reported in any given year can be influenced by the level of economic activity, working conditions and work practices, worker experience and training, and the number of hours worked. Long-term latent illnesses caused by exposure to carcinogens are believed to be understated in the survey's illness measures. In contrast, new illnesses such as contact dermatitis and carpal tunnel syndrome are easier to relate directly to workplace activity.

For more information, see: Bureau of Labor Statistics, Workplace Injuries and Illnesses in 1999, Washington, DC. U.S. Department of Labor, December 2000; or visit the BLS occupational safety and health Internet site at stats.bls.gov/oshhome.htm.

Census of Fatal Occupational Injuries

The Census of Fatal Occupational Injuries (CFOI), administered by the Bureau of Labor Statistics (BLS) in conjunction with participating State agencies, compiles comprehensive and timely information on fatal work injuries occurring in the 50 States and the District of Columbia. To compile counts that are as complete as possible, the BLS census uses diverse sources to identify, verify, and profile fatal work injuries. Key information about each workplace fatality (occupation and other worker characteristics, equipment or machinery involved, and circumstances of the event) is obtained by cross-referencing the source records. Work relationship is verified for each work injury fatality by using at least two independent source documents. For a fatality to be included in the census, the decedent must have been employed (that is, working for pay, compensation, or profit) at the time of the event, engaged in a legal work activity, or present at the site of the incident as a requirement of his or her job. These criteria are generally broader than those used by Federal and State agencies administering specific laws and regulations. Fatalities that occur during a person's commute to or from work are excluded from the census counts.

Data for the CFOI are compiled from various Federal, State, and local administrative sources—including death certificates, workers' compensation reports and claims, reports to various regulatory agencies, medical examiner reports, and police reports—as well as news reports. Diverse sources are used because studies have shown that no single source captures all job-related fatalities. Source documents are matched so that each fatality is counted only once. To ensure that a fatality occurred while the decedent was at work, information is verified from two or more independent source documents or from a source document and a followup questionnaire.

States may identify additional fatal work injuries after data collection closeout for a reference year. In addition, other fatalities excluded from the published count because of insufficient information to determine work relationship may subsequently be verified as work related. States have up to one year to update their initial published State counts. Occupational fatalities and rates shown in this report are revised, except for the most recent year, and may differ from original data published by CFOI. Increases in the published counts based on additional information have averaged less than 100 fatalities per year or less than 1.5 percent of the total.

For more information, see: Bureau of Labor Statistics, *National Census of Fatal Occupational Injuries, 1999*. Washington, DC. U.S. Department of Labor. August 2000; or visit the CFOI Internet site at stats.bls.gov/oshfat1.htm.

Consumer Price Index

The Consumer Price Index (CPI) is a monthly measure of the average change in the prices paid by urban consumers for a fixed market basket of goods and services. The all-urban index (CPI-U) introduced in 1978 covers residents of metropolitan areas as well as

residents of urban parts of nonmetropolitan areas (about 87 percent of the U. S. population in 1990).

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

The index measures price changes from a designated reference date, 1982–84, which equals 100. An increase of 22 percent, for example, is shown as 122. This change can also be expressed in dollars as follows: the price of a base period market basket of goods and services bought by all urban consumers has risen from $10 in 1982–84 to $17.22 in 1999.

The current revision of the CPI, completed in 2000, reflects spending patterns based on the Survey of Consumer Expenditures from 1993 to 1995, the 1990 Census of Population, and the ongoing Point-of-Purchase Survey. Using an improved sample design, prices for the goods and services required to calculate the index are collected in urban areas throughout the country and from retail and service establishments. Data on rents are collected from tenants of rented housing and residents of owner-occupied housing units. Food, fuels, and other goods and services are priced monthly in urban locations. Price information is obtained through visits or calls by trained BLS field representatives using computer-assisted telephone interviews.

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

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

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

For more information, see: Bureau of Labor Statistics, *Handbook of Methods*, BLS Bulletin 2490, U.S. Department of Labor, Washington, DC. April 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, DC. April 1988; or visit the BLS home page at 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. The 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. 2001, vol 48 no 1, Washington, DC. U.S. Government Printing Office. Jan. 2001; or visit the BLS home page at www.bls.gov.

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 the 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 1975-99* , Bulletin 2532, Oct. 2000; or visit the BLS home page at www.bls.gov.

Department of Veterans Affairs

Data are obtained from the Department of Veterans Affairs (VA) National Patient Care Database. 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, Office of Policy and Planning, Policy Analysis Service, 810 Vermont Ave., NW, Washington, DC 20420; or visit the VA home page at www.va.gov.

Environmental Protection Agency

Aerometric Information Retrieval System

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 numbered about 4,000. 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, 1998*, EPA-454/R-00–003, Research Triangle Park, NC, March 2000; or write: Office of Air Quality Planning and Standards, Environmental Protection Agency, Research Triangle Park, NC 27711. For additional information, see: National Center for Health Statistics, *Monitoring Air Quality in Healthy People 2000*, Statistical Notes, No. 9. Hyattsville, MD: 1995; or visit the EPA Office of Air Quality Planning and Standards home page at www.epa.gov/oar/oaqps.

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) definitions of the total population, (b) definitions used to classify the population into its urban and rural components, (c) difficulties relating to age reporting, (d) extent of over- or underenumeration, and (e) 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.

International demographic trend data are available on a CD-ROM entitled United Nations, 2000. Demographic Yearbook—Historical Supplement 1948–97. CD-ROM Special Issue. United Nations publication sales number E/F.99.XIII.12.

For more information, see: United Nations, *Demographic Yearbook 1998*, United Nations, New York, 2000; or visit the United Nations home page at www.un.org or their Web site locator at www.unsystem.org.

World Health Statistics Annual

The World Health Organization (WHO) prepares the *World Health Statistics Annual*, an annual volume of information on vital statistics and causes of death designed for use by the medical and public health professions. Each volume is the result of a joint effort by the national health and statistical administrations of many countries, the United Nations, and WHO. United Nations estimates of vital rates and population size and composition, where available, are reprinted directly in the *Statistics Annual*. For those countries for which the United Nations does not prepare demographic estimates, primarily smaller populations, the latest available data reported to the United Nations and based on reasonably complete coverage of events are used.

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

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

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

For more information, see: World Health Organization, *World Health Statistics Annual 1996*, World Health Organization, Geneva, 1998; World Health Statistics 1997–99 at www.who.int/whosis; or visit the WHO home page at www.who.int.

Alan Guttmacher Institute

Abortion Survey

The Alan Guttmacher Institute (AGI) conducts periodic surveys 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 higher 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 www.agi-usa.org.

American Association of Colleges of Osteopathic Medicine

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

For more information, see: *Annual Statistical Report, 1999*, American Association of Colleges of Osteopathic Medicine: Rockville, MD, 2000; or visit the AACOM home page at www.aacom.org.

American Association of Colleges of Pharmacy

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

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

American Association of Colleges of Podiatric Medicine

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

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

American Dental Association

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

For more information, see: American Dental Association, *1997–98 Survey of Predoctoral Dental Educational Institutions*. Chicago, IL. 1998; or visit the ADA home page at www.ada.org.

American Hospital Association

Annual Survey of Hospitals

Data from the American Hospital Association (AHA) annual survey are based on questionnaires sent to all hospitals, AHA-registered and nonregistered, in the United States and its associated areas. U.S. Government hospitals located outside the United States were excluded. Questionnaires were mailed to all hospitals on AHA files. For nonreporting hospitals and for the survey questionnaires of reporting hospitals on which some information was missing, estimates were made for all data except those on beds, bassinets, and facilities. Data for beds and bassinets of nonreporting hospitals were based on the most recent information available from those hospitals. Facilities and services and inpatient-service area data include only reporting hospitals and, therefore, do not include estimates.

Estimates of other types of missing data were based on data reported the previous year, if available. When unavailable, 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: Health Forum, LLC, an affiliate of the American Hospital Association, *Hospital Statistics, 2001*. Chicago, IL. 2001; or visit the AHA home page at www.aha.org.

American Medical Association

Physician Masterfile

A masterfile of physicians has been maintained by the American Medical Association (AMA) since 1906. The

Physician Masterfile contains data on almost every physician in the United States, members and nonmembers of the 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., 2001–2002* ed. Chicago, IL. 2001; or visit the AMA home page at 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 the AMA.

In each annual census, questionnaires were sent to hospitals asking for the number of beds, bassinets, births, and 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 the 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; 146(2):109–184. 1951; or visit the AMA home page at 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, DC. 2000, or visit the AAMC home page at www.aamc.org.

Association of Schools and Colleges of Optometry

The Association of Schools and Colleges of Optometry (ASCO) compiles data on 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 www.opted.org.

Association of Schools of Public Health

The Association of Schools of Public Health (ASPH) compiles data on the 29 schools of public health in the United States and Puerto Rico. Questionnaires are sent annually to all member schools, and the response rate is 100 percent.

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

For further information, write: Association of Schools of Public Health, 1101 15th Street, NW, Suite 910, Washington, DC 20005; or visit the ASPH home page at www.asph.org.

InterStudy

National Health Maintenance Organization Census

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

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

For further information, see: *The InterStudy Competitive Edge*. InterStudy Publications, St. Paul, MN. 2000; or visit the InterStudy home page at www.hmodata.com.

National League for Nursing

The division of research of the National League for Nursing (NLN) conducts The Annual Survey of Schools of Nursing in October of each year. Questionnaires are sent to all graduate nursing programs (master's and doctoral), baccalaureate programs designed exclusively for registered nurses, basic registered nursing programs (baccalaureate, associate degree, and diploma), and licensed practical nursing programs. Data on enrollments, first-time admissions, and graduates are completed for all nursing education programs. Response rates of approximately 80 percent are achieved for other areas of inquiry.

For more information, see: National League for Nursing, *Nursing Data Review*, New York, NY. 1998; or visit the NLN home page at www.nln.org.

Appendix II

Glossary

The glossary is an alphabetical listing of terms used in *Health, United States*. It includes cross references to related terms and synonyms. It also contains the standard populations used for age adjustment and *International Classification of Diseases* (ICD) codes for cause of death and diagnostic and procedure categories. New standards for presenting Federal data on race and ethnicity are described under *Race*.

Abortion—The Centers for Disease Control and Prevention's (CDC) surveillance system counts legal induced abortions only. For surveillance purposes, legal abortion is defined as a procedure performed by a licensed physician or someone acting under the supervision of a licensed physician to induce the termination of a pregnancy.

Acquired immunodeficiency syndrome (AIDS)—All 50 States and the District of Columbia report AIDS cases to CDC using a uniform surveillance 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); 1993 for adults and adolescents *(MMWR* 1992; 41 (no. RR-17): 1–19); and 1994 for pediatric cases *(MMWR* 1994; 43 (no. RR-12): 1–19). The revisions incorporated a broader range of AIDS-indicator diseases and conditions and used HIV diagnostic tests to improve the sensitivity and specificity of the definition. The 1993 expansion of the case definition caused a temporary distortion of AIDS incidence trends. In 1995 new treatments for HIV and AIDS (protease inhibitors) were approved. These therapies have prevented or delayed the onset of AIDS and premature death among many HIV-infected persons. AIDS surveillance data are published semiannually by CDC in the HIV/AIDS Surveillance Report. See related *Human immunodeficiency virus (HIV) infection*.

Active physician—See *Physician*.

Activities of daily living (ADL)—Activities of daily living are activities related to personal care and include bathing or showering, dressing, getting in or out of bed or a chair, using the toilet, and eating. If a sample person from the Medicare Current Beneficiary Survey had any difficulty performing an activity by himself or herself and without special equipment, or did not perform the activity at all because of health problems, the person was categorized as having a limitation in that activity. The limitation may have been temporary or chronic at the time of the interview. Sample persons who were administered a community interview answered health status and functioning questions themselves if able to do so. A proxy, such as a nurse, answered questions about the sample person's health status and functioning for the long-term care facility interview. In the National Health Interview Survey respondents were asked about needing the help of another person with personal care needs because of a physical, mental, or emotional problem. Persons are considered to have an ADL limitation if any causal condition is chronic. See related *Instrumental activities of daily living (IADL)*; *Limitation of activity*.

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 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 rates are calculated by the direct method as follows:

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

where r_i = rate in age group i in the population of interest

p_i = standard population in age group i

$P = \sum_{i=1}^{n} p_i$

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

Age adjustment by the direct method requires use of a standard age distribution. The standard for age adjusting death rates and estimates from most surveys in *Health, United States* is the year 2000 projected U.S. resident population. Starting with *Health, United States, 2001*, the year 2000 population replaces the 1940 U.S. population for age adjusting mortality statistics. The 2000 standard population also replaces the 1970 civilian noninstitutionalized population and 1980 U.S. resident population, which previously had been used as standard age distributions for age adjusting estimates from NCHS surveys.

The year 2000 standard has implications for race and ethnic differentials in mortality. For example, the mortality ratio for the black and white populations is reduced from 1.6 using the 1940 standard to 1.4 using the year 2000 standard, reflecting the greater weight that the year 2000 standard gives to the older population where race differentials in mortality are smaller.

For more information on implementation of the new population standard for age adjustment of death rates, see Anderson RN, Rosenberg HM. Age Standardization of Death Rates: Implementation of the Year 2000 Standard. National vital statistics reports; vol 47 no 3. Hyattsville, Maryland: National Center for Health Statistics. 1998; for more information on the derivation of age adjustment weights for use with NCHS survey data, see Klein RJ, Schoenborn CA. Age Adjustment Using the 2000 Projected U.S. Population. Healthy People Statistical Notes no 20. Hyattsville, Maryland: National Center for Health Statistics. 2001; both reports are available through the NCHS home page at www.cdc.gov/nchs; the year 2000 projected U.S. resident population is available through the Bureau of the Census home page at www.census.gov/prod/1/pop/p25–1130/, table 2.

Mortality data—Death rates are age adjusted to the year 2000 standard population (table I). Age-adjusted rates are calculated using age-specific death rates per 100,000 population rounded to 1 decimal place. Adjustment is based on 11 age groups with two 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).

Age-adjusted rates for years of potential life lost (YPLL) before age 75 years also use the year 2000 standard population and are based on eight age groups (under 1 year, 1–14 years, 15–24 years, and 10-year age groups through 65–74 years).

Table I. Projected year 2000 U.S. population and proportion distribution by age for age adjusting death rates

Age	*Population*	*Proportion distribution (weights)*	*Standard million*
Total	274,634,000	1.000000	1,000,000
Under 1 year	3,795,000	0.013818	13,818
1–4 years	15,192,000	0.055317	55,317
5–14 years	39,977,000	0.145565	145,565
15–24 years	38,077,000	0.138646	138,646
25–34 years	37,233,000	0.135573	135,573
35–44 years	44,659,000	0.162613	162,613
45–54 years	37,030,000	0.134834	134,834
55–64 years	23,961,000	0.087247	87,247
65–74 years	18,136,000	0.066037	66,037
75–84 years	12,315,000	*0.044842	44,842
85 years and over	4,259,000	0.015508	15,508

*Figure is rounded up instead of down to force total to 1.0.

SOURCE: Anderson RN, Rosenberg HM. Age Standardization of Death Rates: Implementation of the Year 2000 Standard. National vital statistics reports; vol 47 no 3. Hyattsville, Maryland: National Center for Health Statistics. 1998.

Maternal mortality rates for 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—Estimates based on the National Health Interview Survey (NHIS) are age adjusted to the year 2000 projected resident population (table III). Information on the age groups used in the age adjustment procedure is contained in the footnotes on the relevant tables. Prior to the 2000 edition of *Health, United States* these estimates were age adjusted to the 1970 civilian noninstitutionalized population.

Health Care Surveys—Estimates based on the National Hospital Discharge Survey (NHDS), the National Survey of Ambulatory Surgery (NSAS), the National Ambulatory Medical Care Survey (NAMCS), the National Hospital Ambulatory Medical Care Survey (NHAMCS), the National Nursing Home Survey (NNHS) (resident rates table), and the National Home and Hospice Care Survey (NHHCS) are age adjusted to the year 2000 standard population (table III). Information on the age groups used in the age adjustment procedure is contained in the footnotes on the relevant tables.

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, D.C. U.S. Government Printing Office, May 1973.

National Health and Nutrition Examination Survey—Estimates based on the National Health Examination Survey (NHES) and the National Health and Nutrition Examination Survey (NHANES) are age adjusted to the year 2000 standard population using five age groups: 20–34 years, 35–44 years, 45–54 years, 55–64 years, and 65–74 years (table III). Prior to the 2000 edition of *Health, United States* these estimates were age adjusted to the 1980 U.S. resident population.

AIDS—See *Acquired immunodeficiency syndrome*.

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

Air pollution—See *Pollutant*.

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

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

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

Average annual rate of change (percent change)—In *Health, United States* average annual rates of change or growth rates are calculated as follows:

Table III. Projected year 2000 U.S. resident population and age groups used to age adjust survey data

Survey and age	*Number in thousands*
NHIS, NAMCS, NHAMCS, NHHCS, NNHS, NHDS, and NSAS	
All ages	274,634
18 years and over	203,851
25 years and over	117,593
40 years and over	118,180
65 years and over	34,710
Under 18 years	70,783
2–17 years	63,229
18–44 years	108,150
25–34 years	37,233
35–44 years	44,659
45–64 years	60,991
45–54 years	37,030
55–64 years	23,961
65–74 years	18,136
75 years and over	16,574
40–64 years:	
40–49 years	42,285
50–64 years	41,185
NHES and NHANES	
20–74 years	179,276
20–34 years	55,490
35–44 years	44,659
45–54 years	37,030
55–64 years	23,961
65–74 years	18,136
SAMHSA's DAWN	
6 years and over	251,751
6–11 years	24,282
12–17 years	23,618
18–25 years	29,679
26–34 years	33,812
35 years and over	140,360

SOURCE: U.S. Bureau of Census: Current Population Reports. P25–1130. Population Projections of the United States by Age, Sex, Race, and Hispanic Origin, table 2. U.S. Government Printing Office, Washington, DC, 1996.

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

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, 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, 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 average length of stay by dividing the number of inpatient days by the number of admissions. See related *Days of care; Discharge; Patient*.

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

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

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

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

Body mass index (BMI)— BMI is a measure that adjusts bodyweight for height. It is calculated as weight in kilograms divided by height in meters squared. Overweight for children and adolescents is defined as BMI at or above the sex- and age-specific 95th percentile BMI cut points from the revised CDC Growth Charts (www.cdc.gov/growthcharts/). Healthy weight for adults is defined as a BMI of 18.5 to less than 25; overweight, as greater than or equal to a BMI of 25; and obesity, as greater than or equal to a BMI of 30. BMI cut points are defined in the Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2000. U.S. Department of Agriculture, Agricultural Research Service, Dietary Guidelines Advisory Committee, p.23, or access on the Internet at www.health.gov/dietaryguidelines/dgac/; NHLBI Obesity Education Initiative Expert Panel on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults—The Evidence Report. Obes Res 1998;6:51S-209S or access on the Internet at www.nhlbi.nih.gov/guidelines/obesity/ob_gdlns.htm; and in U.S. Department of Health and Human Services. *Tracking Healthy People 2010*. Washington, DC: U.S.

Government Printing Office, November 2000. Objectives 19.1, 19.2, and 19.3, or access on the Internet at www.health.gov/healthypeople/Document/HTML/Volume2/19Nutrition.htm.

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 using the international rules for selecting the underlying cause of death from the conditions stated on the death certificate. Cause of death is coded according to the appropriate revision of the *International Classification of Diseases* (ICD) (see table IV). Effective with deaths occurring in 1999, the U.S. began using the Tenth Revision of the ICD (ICD–10); during the period 1979–98, causes of death were coded according to the Ninth Revision (ICD–9). Table V lists ICD codes for the Sixth through Tenth Revisions for causes of death shown in *Health, United States*.

Changes in classification of causes of death in successive revisions of the ICD may result in discontinuities in cause-of-death trends. These discontinuities are measured using comparability ratios. For further discussion, see the Mortality Technical Appendix available on the NCHS web site at www.cdc.gov/nchs/about/major/dvs/mortdata.htm. See related *Comparability ratio; International Classification of Diseases*.

Table IV. Revision of the *International Classification of Diseases (ICD)* 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	1979–1998
Tenth	1992	1999–

Appendix II

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

Cause of death (Tenth Revision titles)	*Sixth and Seventh Revisions*	*Eighth Revision*	*Ninth Revision*	*Tenth Revision*
Natural causes	. . .	. . .	001–799	A00–R99
Communicable diseases	. . .	. . .	001–139, 460–466, 480–487	A00–B99, J00–J22
Chronic and noncommunicable diseases	. . .	. . .	140–459, 467–479, 488–799	C00–I99, J23–R99
Injuries and adverse effects/External causes	. . .	. . .	E800–E999	V01–Y89
Meningococcal Infection	. . .	. . .	036	A39
Septicemia	. . .	. . .	038	A40–A41
Human immunodeficiency virus (HIV) disease[1]	. . .	. . .	*042–*044	B20–B24
Malignant neoplasms	140–205	140–209	140–208	C00–C97
Colon, rectum, and anus	153–154	153–154	153, 154	C18–C21
Mesothelioma	. . .	158, 163.0	158, 163	C45
Trachea, bronchus, and lung	162–163	162	162	C33–C34
Breast	170	174	174–175	C50
Prostate	177	185	185	C61
In situ neoplasms and benign neoplasms	. . .	. . .	210–239	D00–D48
Diabetes mellitus	260	250	250	E10–E14
Anemias	. . .	. . .	280–285	D50–D64
Meningitis	. . .	. . .	320–322	G00, G03
Alzheimer's disease	. . .	. . .	331.0	G30
Diseases of heart[2]	6th: 410–443 7th: 400–402, 410–443	390–398, 402, 404, 410–429	390–398, 402, 404–429	I00–I09, I11, I13, I20–I51
Ischemic heart diseases[2]	. . .	. . .	410–414	I20–I25
Cerebrovascular diseases[2]	330–334	430–438	430–438	I60–I69
Atherosclerosis	. . .	. . .	440	I70
Influenza and pneumonia	480–483, 490–493	470–474, 480–486	480–487	J10–J18
Chronic lower respiratory diseases[2]	. . .	. . .	490–496	J40–J47
Coalworkers' pneumoconiosis	. . .	515.1	500	J60
Pneumoconiosis due to asbestosis and other mineral fibers	. . .	515.2	501	J61
Pneumoconiosis due to dust containing silica	. . .	515.0	502	J62
Chronic liver disease and cirrhosis	581	571	571	K70, K73–K74
Nephritis, nephrotic syndrome, and nephrosis	. . .	. . .	580–589	N00–N07, N17–N19, N25–N27
Pregnancy, childbirth, and the puerperium	640–689	630–678	630–676	O00–O99
Congenital malformations, deformations and chromosomal abnormalities	. . .	. . .	740–759	Q00–Q99
Certain conditions originating in the perinatal period	. . .	. . .	760–779	P00–P96
Newborn affected by maternal complications of pregnancy	. . .	. . .	761	P01
Newborn affected by complications of placenta, cord, and membranes	. . .	. . .	762	P02
Disorders related to short gestation and low birthweight, not elsewhere classified	. . .	. . .	765	P07
Birth trauma	. . .	. . .	767	P10–P15
Intrauterine hypoxia and birth asphyxia	. . .	. . .	768	P20–P21
Respiratory distress of newborn	. . .	. . .	769	P22
Sudden infant death syndrome	. . .	. . .	798.0	R95
Unintentional injuries[2,3]	E800–E962	E800–E949	E800–E949	V01–X59, Y85–Y86
Motor vehicle-related injuries[3]	E810–E835	E810–E823	E810–E825	V02–V04, V09.0, V09.2, V12–V14, V19.0–V19.2, V19.4–V19.6, V20–V79, V80.3–V80.5, V81.0–V81.1, V82.0–V82.1, V83–V86, V87.0–V87.8, V88.0–V88.8, V89.0, V89.2
Suicide	E963, E970–E979	E950–E959	E950–E959	X60–X84, Y87.0
Assault (homicide)	E964, E980–E983	E960–E969	E960–E969	X85–Y09, Y87.1
Injury by firearms	. . .	E922, E955, E965, E970, E985	E922, E955.0–E955.4, E965.0–E965.4, E970, E985.0–E985.4	W32–W34, X72–X74, X93–X95, Y22–Y24, Y35.0

. . . Cause-of-death code numbers are not provided for causes not shown in *Health, United States*.

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

[2]Comparability ratios between ICD-10 and ICD-9 were calculated using ICD-9 codes most nearly comparable with the corresponding ICD-10 codes for Diseases of heart 390–398, 402, 404, 410–429; Ischemic heart diseases 410–414, 429.2; Cerebrovascular diseases 430–434, 436–438; Chronic lower respiratory diseases 490–494, 496; Unintentional injuries E800-E869, E880-E929. See related table VI and *Comparability ratio*.

[3]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." Unintentional injuries include adverse effects in the Sixth through Ninth Revisions.

Cause-of-death ranking—Selected causes of death of public health and medical importance comprise tabulation lists and are ranked according to the number of deaths assigned to these causes. The top-ranking causes determine the leading causes of death. Certain causes on the tabulation lists are not ranked if, for example, the category title represents a group title (such as Major cardiovascular diseases and Symptoms, signs, and abnormal clinical and laboratory findings, not elsewhere classified); or the category title begins with the words "Other" and "All other." In addition when one of the titles that represents a subtotal (such as Malignant neoplasms) is ranked, its component parts are not ranked. The tabulation lists used for ranking in the *Tenth Revision of the International Classification of Diseases* (ICD) include the List of 113 Selected Causes of Death, which replaces the ICD–9 List of 72 Selected Causes, HIV infection and Alzheimer's disease; and the ICD–10 List of 130 Selected Causes of Infant Death, which replaces the ICD–9 List of 60 Selected Causes of Infant Death and HIV infection. See related *International Classification of Diseases*.

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

Cocaine-related emergency department episodes—The Drug Abuse Warning Network monitors selected adverse medical consequences of cocaine and other drug abuse episodes by measuring contacts with hospital emergency departments. 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*.

Table VI. Comparability of selected causes of death between the Ninth and Tenth Revisions of the *International Classification of Diseases (ICD)*

Cause of death[1]	*Preliminary comparability ratio*[2]
Human immunodeficiency virus (HIV) disease	1.1448
Malignant neoplasms	1.0068
Colon, rectum, and anus	0.9993
Trachea, bronchus, and lung	0.9837
Breast	1.0056
Prostate	1.0134
Diabetes mellitus	1.0082
Diseases of heart	0.9858
Ischemic heart diseases	0.9990
Cerebrovascular diseases	1.0588
Influenza and pneumonia	0.6982
Chronic lower respiratory diseases	1.0478
Chronic liver disease and cirrhosis	1.0367
Pregnancy, childbirth, and the puerperium	*
Unintentional injuries	1.0305
Motor vehicle-related injuries	0.9754
Suicide	0.9962
Assault (homicide)	0.9983
Injury by firearms	0.9973

*Figure does not meet standards of reliability or precision.
[1]See table V for ICD–9 and ICD–10 cause-of-death codes.
[2]Ratio of number of deaths classified by ICD–10 to number of deaths classified by ICD–9.

SOURCE: Anderson RN, Miniño AM, Hoyert DL, Rosenberg HM. Comparability of cause-of-death classification between ICD–9 and ICD–10: Preliminary estimates. National Vital Statistics Reports. Vol 49 No 2. Hyattsville, Maryland: National Center for Health Statistics. 2001.

Community hospitals—See *Hospital*.

Comparability ratio— About every 10–20 years the *International Classification of Diseases* (ICD) is revised to stay abreast of advances in medical science and changes in medical terminology. Each of these revisions produces breaks in the continuity of cause-of-death statistics. Discontinuities across revisions are due to changes in classification and rules for selecting underlying cause of death. Classification and rule changes impact cause-of-death trend data by shifting deaths away from some cause-of-death categories and into others. Comparability ratios measure the effect of changes in classification and coding rules. For causes shown in table VI, comparability ratios range between 0.98 and 1.14, except for Influenza and pneumonia, for which the comparability ratio is 0.70, indicating that Influenza and

pneumonia is 30 percent less likely to be selected as the underlying cause of death in ICD-10 than in ICD-9.

Another factor also contributes to discontinuities in death rates across revisions. For selected causes of death, the ICD-9 codes used to calculate death rates for 1980 through 1998 in this report differ from the ICD-9 codes most nearly comparable with the corresponding ICD-10 cause-of-death category for 1999. Some causes of death for which this difference in codes contributes to the discontinuity are Ischemic heart diseases, Cerebrovascular diseases, and Unintentional injuries.

Preliminary comparability ratios shown in table VI are based on a comparability study in which the same deaths were coded by both the Ninth and Tenth Revisions. The comparability ratio was calculated by dividing the number of deaths classified by ICD-10 by the number of deaths classified by ICD-9. The resulting ratios represent the net effect of the Tenth Revision on cause-of-death statistics and can be used to adjust mortality statistics for causes of death classified by the Ninth Revision to be comparable with cause-specific mortality statistics classified by the Tenth Revision.

The application of comparability ratios to mortality statistics helps to make the analysis of change between 1998 and 1999 more accurate and complete. The1998 comparability-modified death rate is calculated by multiplying the comparability ratio by the 1998 death rate. Comparability-modified rates should be used to estimate mortality change between 1998 and 1999. For three causes of death listed in table VI (Ischemic heart diseases, Cerebrovascular diseases, and Unintentional injuries), 1998 comparability-modified rates cannot be calculated by multiplying the comparability ratio by the 1998 rates presented in this report because the ICD-9 codes used for the 1998 death rates differ from the ICD-9 codes most nearly comparable with the corresponding ICD-10 codes, as discussed above. For these three causes the 1998 comparability-modified age-adjusted death rate per 100,000 for all persons is 197.9 for Ischemic heart diseases; 63.1 for Cerebrovascular diseases; and 36.1 for Unintentional injuries.

Caution should be taken when applying the comparability ratios presented in table VI to age-, race-, or sex-specific mortality data. Demographic subgroups will sometimes differ with regard to their cause-of-death distribution. This will result in some demographic variation in cause-specific comparability ratios.

For more information, see Anderson RN, Miniño AM, Hoyert DL, Rosenberg HM. Comparability of cause of death between ICD-9 and ICD-10: Preliminary estimates; and Kochanek KD, Smith BL, Anderson RN. Deaths: Preliminary data for 1999. National vital statistics reports. Vol 49 No 2 and Vol 49 No 3. Hyattsville, MD: National Center for Health Statistics. 2001. See related *Cause of death; International Classification of Diseases;* and tables IV and V (footnote 2).

Compensation—See *Employer costs for employee compensation*.

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)—The CPI is prepared by the U.S. Bureau of Labor Statistics. It is a monthly measure of the average change in the prices paid by urban consumers for a fixed market basket of goods and services. The medical care component of 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 drinker—Starting with 1997 the National Health Interview Survey is collecting information on alcohol consumption in the sample adult questionnaire. Adult respondents are asked two screening questions about lifetime alcohol consumption: "In any one year, have you had at least 12 drinks of any type of alcoholic beverage? In your entire life, have you had at

least 12 drinks of any type of alcoholic beverage?" Persons who report at least 12 drinks in a lifetime are then asked a series of questions about alcohol consumption in the past year: "In the past year, how often did you drink any type of alcoholic beverage? In the past year, on those days that you drank alcoholic beverages, on the average, how many drinks did you have? In the past year, on how many days did you have 5 or more drinks of any alcoholic beverage?"

Current smoker— Before 1992 a current smoker was defined by the following questions from the National Health Interview Survey (NHIS): "Have you ever smoked 100 cigarettes in your lifetime?" and "Do you smoke now?" (traditional definition). In 1992 the definition of current smoker in the NHIS was modified to specifically include persons who smoked on "some days." In 1992 cigarette smoking data were collected for a half-sample with half the respondents (one-quarter sample) using the traditional smoking questions and for the other half of respondents (one-quarter sample) using a revised smoking question ("Do you smoke every day, some days, or not at all?"). An unpublished analysis of the 1992 traditional smoking measure revealed that the crude percent of current smokers 18 years of age and over remained the same as 1991. The statistics for 1992 combine data collected using the traditional and the revised questions. For further information on survey methodology and sample sizes pertaining to the NHIS cigarette data for data years 1965–92 and other sources of cigarette smoking data available from the National Center for Health Statistics, see: National Center for Health Statistics, *Bibliographies and Data Sources, Smoking Data Guide,* No. 1, DHHS Pub. No. (PHS) 91–1308–1, Public Health Service. Washington, DC: U.S. Government Printing Office. 1991.

Starting with 1993, data estimates of cigarette smoking prevalence were based on the revised definition that is considered a more complete estimate of smoking prevalence. In 1993–95 estimates of cigarette smoking prevalence were based on a half-sample. Smoking data were not collected in 1996. Starting in 1997 smoking data were collected in the sample adult questionnaire.

Days of care—According to the American Hospital Association, days, hospital days, or inpatient days are the number of adult and pediatric days of care rendered during the entire reporting period. Days of care for newborns are excluded.

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

In the National Hospital Discharge Survey, days of care refers to the total number of patient days accumulated by patients at the time of discharge from non-Federal short-stay hospitals during a reporting period. All days from and including the date of admission but not including the date of discharge are counted. See related *Admission; Average length of stay; Discharge; Hospital; Patient*.

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

Dental visit—In the National Health Interview Survey respondents are asked "About how long has it been since you last saw or talked to a dentist? Include all types of dentists, such as orthodonists, oral surgeons, and all other dental specialists as well as hygienists."

Diagnosis—See *First-listed diagnosis*.

Diagnostic and other nonsurgical procedures—See *Procedure*.

Discharge—The National Health Interview Survey defines a hospital discharge as the completion of any continuous period of stay of one night or more in a hospital as an inpatient. According to the National Hospital Discharge Survey and the American Hospital Association, discharge is the formal release of an inpatient by a hospital (excluding newborn infants), that is, the termination of a period of hospitalization (including stays of 0 nights) by death or by disposition to a place of residence, nursing home, or another hospital. See related *Admission; Average length of stay; Days of care; Patient*.

Domiciliary care homes—See *Nursing home*.

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

Education—Two approaches to defining educational categories are used in this report. The more recent approach used to collect and present survey data defines educational categories based on information about educational credentials, such as diplomas and degrees. The older approach defines educational categories based on years of education completed.

Beginning in 1997 the National Health Interview Survey (NHIS) questionnaire was changed to ask "What is the highest level of school ___ has completed or the highest degree received?" Responses were used to categorize individuals according to educational credentials (for example, no high school diploma or

general equivalency diploma (GED); high school diploma or GED; some college, no bachelor's degree; bachelor's degree or higher).

Prior to 1997 the education variable in NHIS was measured by asking "What is the highest grade or year of regular school ___ has ever attended?" and "Did ___ finish the grade/year?" Responses were used to categorize individuals according to years of education completed (for example, less than 12 years, 12 years, 13–15 years, 16 or more years). Years of educational attainment is currently used to present vital statistics data.

Data from the 1996 and 1997 NHIS were used to compare distributions of educational attainment for adults 25 years of age and over using categories based on educational credentials (1997) with categories based on years of education completed (1996). A larger percent of persons reported "some college" than "13–15 years" of education and a correspondingly smaller percent reported "high school diploma or GED" than "12 years of education." In 1997, 19 percent of adults reported no high school diploma, 31 percent a high school diploma or GED, 26 percent some college, and 24 percent a bachelor's degree or higher. In 1996, 18 percent of adults reported less than 12 years of education, 37 percent 12 years of education, 20 percent 13–15 years, and 25 percent 16 or more years of education.

See related Appendix I, *National Vital Statistics System*. For further information on measurement of education, see: Kominski R and Siegel PM. Measuring education in the Current Population Survey. *Monthly Labor Review*, Sept. 1993: 34–38.

Emergency department—According to the National Hospital Ambulatory Medical Care Survey (NHAMCS), an emergency department is a hospital facility that provides 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. See related *Emergency department visit; Outpatient department*.

Emergency department visit—Starting with the 1997 National Health Interview Survey, respondents to the sample adult and sample child questionnaires are asked about the number of visits to hospital emergency rooms during the past 12 months. Visits resulting in a hospital admission are included. In the National Hospital Ambulatory Medical Care Survey 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. Visits resulting in a hospital admission are excluded. See related *Emergency department; Injury-related visit*.

Employer costs for employee compensation—This is 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. In the National Health and Nutrition Examination Survey and the National Health Interview Survey (in years prior to 1997) family income is the total income received by members of a family (or by an unrelated individual) in the 12 months before the interview. Starting in 1997 the National Health Interview Survey has been collecting family income data for the calendar year prior to the interview. (For

example, 1997 family income data are based on 1996 calendar year information.) Family income includes wages, salaries, rents from property, interest, dividends, profits and fees from their own businesses, pensions, and help from relatives. In the National Health Interview Survey, family income data are used in the computation of poverty level. For data years 1990–96, about 16–18 percent of persons had missing data on poverty level. Missing values were imputed for family income using a sequential hot deck within matrix cells imputation approach. A detailed description of the imputation procedure as well as data files with imputed annual family income for 1990–96 are available from NCHS on CD-ROM NHIS Imputed Annual Family Income 1990–96, Series 10, Number 9A. See related *Poverty level*.

Federal hospitals—See *Hospital*.

Federal physicians—See *Physician*.

Fee-for-service health insurance—This is private (commercial) health insurance that reimburses health care providers on the basis of a fee for each health service provided to the insured person. Also known as indemnity health insurance. See related *Health insurance coverage*.

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

Fetal death—In the World Health Organization's definition, also adopted by the United Nations and the National Center for Health Statistics, a fetal death is death before the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation, the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. For statistical purposes, fetal deaths are classified according to gestational age. In this report tabulations are shown for fetal deaths with stated or presumed gestation of 20 weeks or more and of 28 weeks or more, the latter gestational age group also known as late fetal deaths. See related *Gestation; Live birth; Rate: Death and related rates*.

First-listed diagnosis—In the National Hospital Discharge Survey, this is the first recorded final diagnosis on the medical record face sheet (summary sheet).

First-listed external cause of injury—In the National Hospital Ambulatory Medical Care Survey, this is the first-listed external cause of injury coded from the Patient Record Form (PRF). Up to three causes of injury can be reported on the PRF. Injuries are coded by NCHS to the *International Classification of Diseases, Ninth Revision, Clinical Modification* Supplementary Classification of External Causes of Injury and Poisoning. See table VII for a listing of injury categories and codes. See related *Injury-related visit*.

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

Table VII. Codes for first-listed external causes of injury from the *International Classification of Diseases, Ninth Revision, Clinical Modification*

External cause of injury category	*E-Code numbers*
Unintentional	E800–E869, E880–E929
Motor vehicle traffic	E810–E819
Falls	E880–E886, E888
Struck by or against objects or persons	E916–E917
Caused by cutting and piercing instruments or objects	E920
Intentional (suicide and homicide)	E950–E969

- 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 care contact—Starting in 1997 the National Health Interview Survey has been collecting information on health care contacts with doctors and other health care professionals. This information is collected in a detailed section pertaining to all types of health care contacts. Analyses of the percent of children without a health care visit are based upon the following question: "During the past 12 months, how many times has ___ seen a doctor or other health care professional about (his/her) health at a doctor's office, a clinic, or some other place? Do not include times ____was hospitalized overnight, visits to hospital emergency rooms, home visits, or telephone calls." Analyses of the distribution of health care visits are based on a summary measure combining information about visits to doctors' offices or clinics, emergency departments, and home visits. See related *Emergency department visit; Home visit*.

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), and by type of expenditures (for example, hospital care, physician services, and drugs), and are in current dollars for the year of report. Data are compiled from a variety of sources.

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

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

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

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

Health insurance coverage—National Health Interview Survey (NHIS) respondents were asked about their health insurance coverage in the previous month in 1993–96 and at the time of the interview in other years. Questions on health insurance coverage

were expanded starting in 1993 compared with previous years. In 1997 the entire questionnaire was redesigned and data were collected using a computer assisted personal interview (CAPI).

Respondents are covered by private health insurance if they indicate private health insurance or if they are covered by a single service hospital plan, except in 1997 and 1998 when no information on single service plans was obtained. Private health insurance includes managed care such as health maintenance organizations (HMO's).

Until 1996 persons were defined as having Medicaid or other public assistance coverage if they indicated that they had either Medicaid or other public assistance, or if they reported receiving Aid to Families with Dependent Children (AFDC) or Supplemental Security Income (SSI). After welfare reform in late 1996, Medicaid was delinked from AFDC and SSI. Starting in 1997 persons were considered to be covered by Medicaid if they reported Medicaid or a State-sponsored health program.

Medicare or military health plan coverage is also determined in the interview, and in 1997 and 1998 other government-sponsored programs were determined as well.

If respondents do not report coverage under one of the above types of plans and they have unknown coverage on either private health insurance or Medicaid, they are considered to have unknown coverage.

The remaining respondents are considered uninsured. The uninsured are persons who do not have coverage under private health insurance, Medicare, Medicaid, public assistance, a State-sponsored health plan, other government-sponsored programs, or a military health plan. Persons with only Indian Health Service coverage are considered uninsured. Estimates of the percent of persons who are uninsured based on the NHIS (table 130) may differ slightly from those based on the March Current Population Survey (CPS) (table 148) due to differences in survey questions, recall period, and other aspects of survey methodology. See related *Fee-for-service health insurance; Health maintenance organization; Managed care; Medicaid; Medicare*.

Health maintenance organization (HMO)—An HMO is a prepaid health plan delivering comprehensive care to members through designated providers, having a fixed monthly payment for health care services, and requiring members to be in a plan for a specified period of time (usually 1 year). Pure HMO enrollees use only the prepaid capitated health services of the HMO's panel of medical care providers. Open-ended HMO enrollees use the prepaid HMO health services but in addition may receive medical care from providers who are not part of the HMO's panel. There is usually a substantial deductible, copayment, or coinsurance associated with use of nonpanel providers. These open-ended products are governed by State HMO regulations. HMO model types are:

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

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

Mixed—An HMO that combines features of group and IPA. This category was introduced in mid-1990 because HMO's are continually changing and many now combine features of group and IPA plans in a single plan.

See related *Managed care*.

Health services and supplies expenditures—See *Health expenditures, national*.

Health status, respondent-assessed—Health status was measured in the National Health Interview Survey by asking the respondent "Would you say _____'s health is excellent, very good, good, fair, or poor?"

Hispanic origin—Hispanic origin includes persons of Mexican, Puerto Rican, Cuban, Central and South American, and other or unknown Latin American or Spanish origins. Persons of Hispanic origin may be of any race. See related *Race*.

HIV—See *Human immunodeficiency virus infection*.

Home health care—Home health care as defined by the National Home and Hospice Care Survey is care provided to individuals and families in their place of residence for promoting, maintaining, or restoring health; or for minimizing the effects of disability and illness including terminal illness.

Home visit—Starting in 1997 the National Health Interview Survey has been collecting information on home visits received during the past 12 months. Respondents are asked "During the past 12 months, did you receive care at home from a nurse or other health care professional? What was the total number of home visits received?" These data are combined with data on visits to doctors' offices, clinics, and emergency departments to provide a summary measure of health care visits. See related *Emergency department visit; Health care contact*.

Hospice care—Hospice care as defined by the National Home and Hospice Care Survey is a program of palliative and supportive care services providing physical, psychological, social, and spiritual care for dying persons, their families, and other loved ones. Hospice services are available in home and inpatient settings.

Hospital—According to the American Hospital Association, hospitals are licensed institutions with at least six beds whose primary function is to provide diagnostic and therapeutic patient services for medical conditions by an organized physician staff, and have continuous nursing services under the supervision of registered nurses. The World Health Organization considers an establishment to be a hospital if it is permanently staffed by at least one physician, can offer inpatient accommodation, and can provide active medical and nursing care. Hospitals may be classified by type of service, ownership, size in terms of number of beds, and length of stay. In the National Hospital Ambulatory Medical Care Survey (NHAMCS) hospitals include all those with an average length of stay for all patients of less than 30 days (short-stay) or hospitals whose specialty is general (medical or surgical) or children's general. Federal hospitals and hospital units of institutions and hospitals with fewer than six beds staffed for patient use are excluded. See related *Average length of stay; Bed; Days of care; Emergency department; Outpatient department; Patient*.

Community hospitals traditionally included all non-Federal short-stay hospitals except facilities for the mentally retarded. In the revised definition the following additional sites are excluded: hospital units of institutions, and alcoholism and chemical dependency facilities.

Federal hospitals are operated by the Federal Government.

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

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

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

Psychiatric hospitals are ones whose major type of service is psychiatric care. See *Mental health organization*.

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

Short-stay hospitals in the National Hospital Discharge Survey are those in which the average length of stay is less than 30 days. The National Health Interview Survey defines short-stay hospitals as any hospital or hospital department in which the type of service provided is general; maternity; eye, ear, nose, and throat; children's; or osteopathic.

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

Hospital-based physician—See *Physician*.

Hospital days—See *Days of care*.

Human immunodeficiency virus (HIV) disease—Mortality coding: Starting with data year 1999 and the introduction of the Tenth Revision of the *International Classification of Diseases* (ICD–10), the title for this cause of death changed to HIV disease from HIV infection and the ICD codes changed to B20-B24. Beginning with data for 1987, NCHS introduced category numbers *042–*044 for classifying and coding HIV infection as a cause of death in ICD–9. 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 indicated that these codes were not part of the original ICD–9. Before 1987 deaths involving HIV infection were classified to Deficiency of cell-mediated immunity (ICD–9 279.1) contained in the title All other diseases; to

Table VIII. Codes for industries, according to the *Standard Industrial Classification (SIC) Manual*

Industry	*Code numbers*
Agriculture, forestry, and fishing	01–09
Mining	10–14
Construction	15–17
Manufacturing	20–39
Transportation 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

Pneumocystosis (ICD–9 136.3) contained in the title All other infectious and parasitic diseases; to Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues; and to a number of other causes. Therefore, before 1987, death statistics for HIV infection are not strictly comparable with data for 1987 and later years, and are not shown in this report.

Morbidity coding: The National Hospital Discharge Survey codes diagnosis data using the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD–9–CM). Discharges with diagnosis of HIV as shown in *Health, United States* have at least one HIV diagnosis listed on the face sheet of the medical record and are not limited to the first-listed diagnosis. During 1984 and 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; International Classification of Diseases, Ninth Revision, Clinical Modification*.

ICD; ICD codes—See *Cause of death; International Classification of Diseases*.

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. Two editions of the SIC are used for coding industry data in *Health, United States*: the 1977 supplement to the 1972 edition and the 1987 edition. The changes between versions include a few detailed titles created to correct or clarify industries or to recognize changes within the industry. Codes for major industry divisions (table VIII) were not changed between versions.

Establishments engaged in the same kind of economic activity are classified by the same industry code, regardless of type of ownership— corporations, sole proprietorships, and government agencies. Data from the Census of Fatal Occupational Injuries are therefore further broken out by private sector and government. Data from the Survey of Occupational Injuries and Illnesses are provided for the private sector only and exclude the self-employed.

The category "Private sector" includes all industry divisions except public administration and military. The category "Not classified" is used for fatalities for which there was insufficient information to determine a specific industry classification.

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 related *Live birth; Rate: Death and related rates*.

Injury-related visit—In the National Hospital Ambulatory Medical Care Survey an emergency department visit was considered injury related if, on the Patient Record Form (PRF), the checkbox for injury was indicated. In addition, injury visits were identified if the physician's diagnosis or the patient's reason for visit code was injury related. See related *Emergency department visit; First-listed external cause of injury.*

Inpatient care—See *Mental health service type*.

Inpatient days—See *Days of care*.

Instrumental activities of daily living (IADL)—Instrumental activities of daily living are activities related to independent living and include

preparing meals, managing money, shopping for groceries or personal items, performing light or heavy housework and using a telephone. If a sample person from the Medicare Current Beneficiary Survey had any difficulty performing an activity by himself or herself and without special equipment, or did not perform the activity at all because of health problems, the person was categorized as having a limitation in that activity. The limitation may have been temporary or chronic at the time of the interview. Sample persons who were administered a community interview answered health status and functioning questions themselves if able to do so. A proxy, such as a nurse, answered questions about the sample person's health status and functioning for long-term care facility interview. In the National Health Interview Survey respondents are asked about needing the help of another person for handling routine IADL needs due to a physical, mental, or emotional problem. Persons are considered to have an IADL limitation if any causal condition is chronic. See related *Activities of daily living (ADL); Limitation of activity*.

Insured—See *Health insurance coverage*.

Intermediate care facilities—See *Nursing home.*

International Classification of Diseases (ICD)—The ICD provides the ground rules for coding and classifying cause-of-death data. The ICD is developed collaboratively between the World Health Organization (WHO) and ten international centers, one of which is housed at NCHS. The purpose of the ICD is to promote international comparability in the collection, classification, processing, and presentation of health statistics. Since the beginning of the century, the ICD has been modified about once every 10 years, except for the 20-year interval between ICD–9 and ICD–10 (see table IV). The purpose of the revisions is to stay abreast with advances in medical science. New revisions usually introduce major disruptions in time series of mortality statistics (see tables V and VI). For more information, see www.cdc.gov/nchs/about/major/dvs/icd10des.htm. See related *Cause of death; Comparability ratio; 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 Revision*. In *Health, United States* the ICD–9–CM is used to code morbidity data and starting with data year 1999 ICD–10 is used to code mortality data.

Table IX. 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
Alcohol and drug	291–292, 303–305
Serious mental illness	295–298
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
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

Diagnostic groupings and code number inclusions for ICD–9–CM are shown in table IX; procedures and code number inclusions are shown in table X.

ICD–9–CM is 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: classification of factors influencing health status and contact with health services and classification of external causes of injury and poisoning. For more information, see www.cdc.gov/nchs/icd9.htm. See related *Condition; International Classification of Diseases*.

Late fetal death rate—See *Rate: Death and related rates*.

Leading causes of death—See *Cause-of-death ranking*.

Length of stay—See *Average length of stay*.

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

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 due to a chronic condition. Limitation of activity is assessed by asking respondents a series of questions about limitations in their ability to perform activities usual for their age group because of a physical, mental, or emotional problem. Respondents are asked about limitations in activities of daily living, instrumental activities of daily living, play, school, work, difficulty walking or remembering, and any other activity limitations. For reported limitations, the causal health conditions are determined and respondents are considered limited if one or more of these conditions is chronic.

Sample persons from the Medicare Current Beneficiary Survey who reported no limitations in the activities of daily living (ADL) or instrumental activities of daily living (IADL) due to health problems were included in the category "none." Sample persons with limitations in at least one IADL, but no ADL, were included in the category "IADL" only. Sample persons with ADL limitations were categorized by the number of limitations (1 to 2, 3 to 5) regardless of the number of IADL limitations. See related *Activities of daily living; Condition; Instrumental activities of daily living*.

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

Procedure category	*Code numbers*
Extraction of lens	13.1–13.6
Insertion of prosthetic lens (pseudophakos)	13.7
Myringotomy with insertion of tube	20.01
Tonsillectomy, with or without adenoidectomy	28.2–28.3
Coronary angioplasty (Prior to 1997)	36.0
(Beginning in 1997)	36.01–36.05, 36.09
Coronary artery bypass graft	36.1
Cardiac catheterization	37.21–37.23
Pacemaker insertion or replacement	37.7–37.8
Carotid endarterectomy	38.12
Endoscopy of large or small intestine with or without biopsy	45.11–45.14, 45.16, 45.21–45.25
Cholecystectomy	51.2
Prostatectomy	60.2–60.6
Bilateral destruction or occlusion of fallopian tubes	66.2–66.3
Hysterectomy	68.3–68.7, 68.9
Cesarean section	74.0–74.2, 74.4, 74.99
Repair of current obstetrical laceration	75.5–75.6
Reduction of fracture	76.7, 79.0–79.3
Arthroscopy of knee	80.26
Excision or destruction of intervertebral disc	80.5
Total hip replacement	81.51
Lumpectomy	85.21
Mastectomy	85.4
Angiocardiography with contrast material	88.5

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*.

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 significant 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— Medicaid was authorized by Title XIX of the Social Security Act in 1965 as a jointly funded cooperative venture between the Federal and State governments to assist States in the provision of adequate medical care to eligible needy persons. Medicaid is the largest program providing medical and health-related services to America's poorest people. Within broad Federal guidelines, each of the States establishes its own eligibility standards; determines the type, amount, duration, and scope of services; sets the rate of payment for services; and administers its own program. Thus, the Medicaid program varies considerably from State to State, as well as within each State over time. 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 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 provision of direct mental health services to the mentally ill or emotionally disturbed. Excluded are private office-based practices of psychiatrists, psychologists, and other mental health providers; psychiatric services of all types of hospitals or outpatient clinics operated by Federal agencies other than the Department of Veterans Affairs (for example, Public Health Service, Indian Health Service, Department of Defense, and Bureau of Prisons); general hospitals that have no separate psychiatric services but admit psychiatric

patients to nonpsychiatric units; and psychiatric services of schools, colleges, halfway houses, community residential organizations, local and county jails, State prisons, and other human service providers. The major types of mental health organizations are described below.

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

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

Multiservice mental health organizations directly provide two or more of the program elements defined under Mental health service type and are not classifiable as a psychiatric hospital, general hospital, or residential treatment center for emotionally disturbed children. (The classification of a psychiatric or general hospital or 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 concerned primarily 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) Is not licensed as a psychiatric hospital and has the primary purpose of providing individually planned mental health treatment services in conjunction with residential care; (b) Includes a clinical program directed by a psychiatrist, psychologist, social worker, or psychiatric nurse with a graduate degree; (c) Serves children and youth primarily under the age of 18; and (d) Has the primary diagnosis for the majority of admissions as mental illness, classified as other than mental retardation, developmental disability, or substance-related disorders, according to DSM-II/ICDA-8 or DSM-IIIR/ICD–9–CM 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:

24-hour mental health care, formerly called inpatient care, provides care in a mental health hospital setting.

Less than 24-hour care, formerly called outpatient or partial care treatment, provides mental health services on an ambulatory basis.

Residential treatment care provides 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 Office of Management and Budget (OMB) defines metropolitan areas according to published standards that are applied to Census Bureau data. The collective term "metropolitan area" includes metropolitan statistical areas (MSA's), consolidated metropolitan statistical areas (CMSA's), and primary metropolitan statistical areas (PMSA's). An MSA is a county or group of contiguous counties that contains at least one city with a population of 50,000 or more or a Census Bureau-defined urbanized area of at least 50,000 with a metropolitan population of at least 100,000. In addition to the county or counties that contain all or part of the main city or urbanized area, an MSA may contain other counties that are metropolitan in character and are economically and socially integrated with the main city. If an MSA has a population of 1 million or more and meets requirements specified in the standards, it is termed a CMSA, consisting of two or more major components, each of which is recognized as a PMSA. In New England, cities and towns, rather than counties, are used to define MSA's.

Counties that are not within an MSA are considered to be nonmetropolitan.

For National Health Interview Survey (NHIS) data before 1995, metropolitan population is based on MSA's as defined by OMB in 1983 using the 1980 Census. Starting with the 1995 NHIS, metropolitan population is based on MSA's as defined by OMB in 1993 using the 1990 Census. For further information on metropolitan areas, see U.S. Department of Commerce, Bureau of the Census, *State and Metropolitan Area Data Book*. See related *Urbanization*.

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 revenues—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 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 Survey 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 (NMFI), which provided the sampling frame for 1973–74, 1977, and 1985 National Nursing Home Surveys, a nursing home was an establishment with three or more beds that provided nursing or personal care services to the aged, infirm, or chronically ill. The following definitions of nursing home types applied to facilities listed in the NFMI. The 1977 National Nursing Home Survey included personal care homes and domiciliary care homes while the National Nursing Home Surveys of 1973–74, 1985, 1995, 1997, and 1999 excluded them.

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.

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 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.

Beginning with the 1995 through the 1999 National Nursing Home Surveys, nursing homes are defined as facilities that routinely provide nursing care services and have three or more beds set up for residents. Facilities may be certified by Medicare or Medicaid or not certified but licensed by the state as a nursing home. The facilities may be freestanding or a distinct unit of a larger facility.

See related *Nursing care; Resident*.

Nursing home expenditures—See *Health expenditures, national*.

Obesity—See *Body Mass Index (BMI)*.

Occupancy rate—The American Hospital Association defines hospital occupancy rate as the average daily census divided by the average number of hospital beds during a reporting period. Average daily census is defined by the American Hospital Association as the average number of inpatients, excluding newborns, receiving care each day during a reporting period. The occupancy rate for facilities other than hospitals is calculated as the number of residents reported at the time of the interview divided by the number of beds reported. In the Online Survey Certification and Reporting database, occupancy is the total number of residents on the day of certification inspection divided by the total number of beds on the day of certification.

Office—In the National 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. Offices in health maintenance organizations and private offices in hospitals are included. See related *Office visit; Outpatient visit; Physician*.

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*.

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. See related *Emergency department; Outpatient visit*.

Outpatient surgery—According to the American Hospital Association, outpatient surgery is performed on patients who do not remain in the hospital overnight and occurs in inpatient operating suites, outpatient surgery suites, or procedure rooms within an outpatient care facility. Outpatient surgery is a surgical operation, whether major or minor, performed in operating or procedure rooms. A surgical operation involving more than one surgical procedure is considered one surgical operation. See related *Ambulatory surgery; Procedure*.

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. In the National Hospital Ambulatory Medical Care Survey 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 visit; Outpatient department*.

Overweight—See *Body Mass Index (BMI)*.

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 not practicing, 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 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 in this county and residing in embassies or similar quarters. Also excluded are international workers and international students in this country and Americans living abroad. The resident population is usually the denominator when calculating birth and death rates and incidence of disease. The resident population is also the denominator for selected population-based rates that use numerator data from the National Nursing Home Survey.

Civilian population is the resident population excluding members of the Armed Forces. However, families of members of the Armed Forces are included. This population is the denominator in rates calculated for the NCHS National Hospital Discharge Survey, the National Home and Hospice Care Survey, and the National Survey of Ambulatory Surgery.

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 aged and dependent persons (for example, nursing homes and convalescent homes); homes for dependent and neglected children; homes and schools for mentally or physically handicapped persons; homes for unwed mothers; psychiatric, tuberculosis, and chronic disease hospitals; and residential treatment centers. Census Bureau estimates of the civilian noninstitutionalized population are used to calculate sample weights for the NCHS National Health Interview Survey, National Health and Nutrition Examination Survey, and National Survey of Family Growth, and as denominators in rates calculated for the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey.

Postneonatal mortality rate—See *Rate: Death and related rates*.

Poverty level—Poverty statistics are based on definitions originally developed by the Social Security Administration. These include a set of money income thresholds that vary by family size and composition. Families or individuals with income below their appropriate thresholds are classified as below the poverty level. These thresholds are updated annually by the U.S. Bureau of the Census to reflect changes in the Consumer Price Index for all urban consumers (CPI-U). For example, the average poverty threshold for a family of four was $16,660 in 1998 and $13,359 in 1990. For more information, see U.S. Bureau of the Census: *Money Income of Households, Families, and Persons in the United States, 1996.* Series P-60. Washington, DC: U.S. Government Printing Office. See related *Consumer Price Index; Family income*.

Preferred provider organization (PPO)—This is a 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*.

Table XI. Current cigarette smoking by persons 18 years of age and over, according to race and Hispanic origin under the 1977 and 1997 Standards for Federal data on race and ethnicity: United States, average annual 1993-95

1997 Standards	*Sample size*	*Percent*	*Standard error*	*1977 Standards*	*Sample size*	*Percent*	*Standard error*
			Race				
White only	46,228	25.2	0.26	White	46,664	25.3	0.26
Black or African American only	7,208	26.6	0.64	Black	7,334	26.5	0.63
American Indian or Alaska Native only	416	32.9	2.53	American Indian or Alaska Native	480	33.9	2.38
Asian only	1,370	15.0	1.19	Asian or Pacific Islander	1,411	15.5	1.22
Multiple race total	786	34.5	2.00				
Black or African American; White	83	*21.7	6.05				
American Indian or Alaska Native; White	461	40.0	2.58				
			Race, any mention				
White, any mention	46,882	25.3	0.26				
Black or African American, any mention	7,382	26.6	0.63				
American Indian or Alaska Native, any mention	965	36.3	1.71				
Asian, any mention	1,458	15.7	1.20				
Native Hawaiian or Other Pacific Islander, any mention	53	*17.5	5.10				
			Hispanic origin and race				
Not Hispanic or Latino:				Non-Hispanic:			
White only	42,421	25.8	0.27	White	42,976	25.9	0.27
Black or African American only	7,053	26.7	0.65	Black	7,203	26.7	0.64
American Indian or Alaska Native only	358	33.5	2.69	American Indian or Alaska Native	407	35.4	2.53
Asian only	1,320	14.8	1.21	Asian or Pacific Islander	1,397	15.3	1.24
Multiple race total	687	35.6	2.15				
Hispanic or Latino	5,175	17.8	0.65	Hispanic	5,175	17.8	0.65

*Relative standard error 20–30 percent.

NOTES: The 1997 Standards for Federal data on race and ethnicity set five single race groups (White, Black, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander) and allow respondents to report one or more race groups. Estimates for single race and multiple race groups not shown above do not meet standards for statistical reliability or confidentiality (relative standard error greater than 30 percent). Race groups under the 1997 Standards were based on the question, "What is the group or groups which represents _____ race?" For persons who selected multiple groups, race groups under the 1977 Standards were based on the additional question, "Which of those groups would you say best represents ____ race?" Race-specific estimates in this table were calculated after excluding respondents of other and unknown race. Other published race-specific estimates are based on files in which such responses have been edited. Percents are age adjusted to the year 2000 standard using three age groups: Under 18 years, 18–44 years, and 45–64 years of age. See Appendix II, Age adjustment.

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

Private expenditures—See *Health expenditures, national*.

Procedure—The National Hospital Discharge Survey (NHDS) and the National Survey of Ambulatory Surgery (NSAS) define a procedure as a surgical or nonsurgical operation, diagnostic procedure, or therapeutic procedure (such as respiratory therapy) recorded on the medical record of discharged patients. A maximum of four procedures per discharge in NHDS and up to six procedures per discharge in NSAS were recorded and coded to the *International Classification of Diseases, Ninth Revision, Clinical Modification*. Previous editions of *Health, United States* classified procedures into surgical and diagnostic and other nonsurgical procedures. The distinction between surgical and diagnostic and nonsurgical procedures has become less meaningful due to development of minimally invasive and noninvasive surgery. Thus the practice of classifying procedures as surgical or diagnostic has been discontinued. See related *Ambulatory surgery; Outpatient surgery*.

Proprietary hospitals—See *Hospital*.

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

Public expenditures—See *Health expenditures, national*.

Public health activities—Public health activities may include any of the following essential services of public health—surveillance, investigations, education, community mobilization, workforce training, research, and personal care services delivered or funded by governmental agencies.

Race—In 1977 the Office of Management and Budget (OMB) issued Race and Ethnic Standards for Federal Statistics and Administrative Reporting in order to

Table XII. Private health care coverage for persons under 65 years of age, according to race and Hispanic origin under the 1977 and 1997 Standards for Federal data on race and ethnicity: United States, average annual 1993-95

1997 Standards	*Sample size*	*Percent*	*Standard error*	*1977 Standards*	*Sample size*	*Percent*	*Standard error*
			Race				
White only	168,256	76.1	0.28	White	170,472	75.9	0.28
Black or African American only	30,048	53.5	0.63	Black	30,690	53.6	0.63
American Indian or Alaska Native only	2,003	44.2	1.97	American Indian or Alaska Native	2,316	43.5	1.85
Asian only	6,896	68.0	1.39	Asian or Pacific Islander	7,146	68.2	1.34
Native Hawaiian or Other Pacific Islander only	173	75.0	7.43				
Multiple race total	4,203	60.9	1.17				
Black or African American; White	686	59.5	3.21				
American Indian or Alaska Native; White	2,022	60.0	1.71				
Asian; White	590	71.9	3.39				
Native Hawaiian or Other Pacific Islander; White	56	59.2	10.65				
			Race, any mention				
White, any mention	171,817	75.8	0.28				
Black or African American, any mention	31,147	53.6	0.62				
American Indian or Alaska Native, any mention	4,365	52.4	1.40				
Asian, any mention	7,639	68.4	1.27				
Native Hawaiian or Other Pacific Islander, any mention	283	68.7	6.23				
			Hispanic origin and race				
Not Hispanic or Latino:				Non-Hispanic:			
White only	146,109	78.9	0.27	White	149,057	78.6	0.27
Black or African American only	29,250	53.9	0.64	Black	29,877	54.0	0.63
American Indian or Alaska Native only	1,620	45.2	2.15	American Indian or Alaska Native	1,859	44.6	2.05
Asian only	6,623	68.2	1.43	Asian or Pacific Islander	6,999	68.4	1.40
Native Hawaiian or Other Pacific Islander only	145	76.4	7.79				
Multiple race total	3,365	62.6	1.18				
Hispanic or Latino	31,040	48.8	0.74	Hispanic	31,040	48.8	0.74

NOTES: The 1997 Standards for Federal data on race and ethnicity set five single race groups (White, Black, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander) and allow respondents to report one or more race groups. Estimates for single race and multiple race groups not shown above do not meet standards for statistical reliability or confidentiality (relative standard error greater than 30 percent). Race groups under the 1997 Standards were based on the question, "What is the group or groups which represents _____ race?" For persons who selected multiple groups, race groups under the 1977 Standards were based on the additional question, "Which of those groups would you say best represents ____ race?" Race-specific estimates in this table were calculated after excluding respondents of other and unknown race. Other published race-specific estimates are based on files in which such responses have been edited. Percents are age adjusted to the year 2000 standard using three age groups: Under 18 years, 18–44 years, and 45–64 years of age. See Appendix II, Age adjustment.

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

promote comparability of data among Federal data systems. The 1977 standards called for the Federal Government's data systems to classify individuals into the following four racial groups: American Indian or Alaska Native, Asian or Pacific Islander, black, and white. Depending on the data source, the classification by race was based on self-classification or on observation by an interviewer or other person filling out the questionnaire.

In 1997 new standards were announced for classification of individuals by race within the Federal Government's data systems (*Federal Register*, 62FR58781–58790). The 1997 standards have five racial groups: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or other Pacific Islander, and White. These five categories are the minimum set for data on race for Federal statistics. The 1997 standards also offer an opportunity for respondents to select more than one of the five groups, leading to many possible multiple race categories. As with the single race groups, data for the multiple race groups are to be reported when estimates meet agency requirements for reliability and confidentiality. The 1997 standards allow for observer or proxy identification of race but clearly state a preference for self-classification.

All Federal data systems are required to comply with the 1997 standards by 2003. Although some data systems already permit tabulation of race-specific estimates under the 1997 standards, most do not. In order to facilitate comparisons of race-specific

estimates across the various data systems presented in *Health, United States*, the 1977 standard categories are used in all trend tables and charts. However, for illustration, two health statistics (cigarette smoking and private health insurance coverage) based on data from the 1993–95 National Health Interview Survey have been tabulated by race and Hispanic origin using both the 1997 and 1977 standards (tables XI and XII). In these illustrations, three separate tabulations using the 1997 standards are shown: 1) Race: mutually exclusive race groups, including several multiple race combinations; 2) Race, any mention: race groups that are not mutually exclusive because each race category includes all persons who mention that race; and 3) Hispanic origin and race: detailed race and Hispanic origin with a multiple race total category. When applicable, comparison tabulations are shown for the 1977 standards. Under the 1997 standards the sample size in each race group declines slightly when compared with the 1977 standards because there are more race groups. There are few multiple race groups with sufficient numbers of observations to meet standards of statistical reliability. Tables XI and XII also illustrate changes in the terms used for specific groups in the 1997 standards. The race designation of Black was changed to Black or African American and the ethnicity designation of Hispanic was changed to Hispanic or Latino.

Additional information is provided in Appendix I under National Vital Statistics System. Also see related *Hispanic origin*.

Rate—A rate is a measure of some event, disease, or condition in relation to a unit of population, along with some specification of time. See related *Age adjustment; Population*.

- *Birth and related rates*

  Birth rate is calculated by dividing the number of live births in a population in a year by the midyear resident population. For census years, rates are based on unrounded census counts of the resident population, as of April 1. For the noncensus years of 1981–89 and 1991, rates are based on national estimates of the resident population, as of July 1, rounded to 1,000's. Population estimates for 5-year age groups are generated by summing unrounded population estimates before rounding to 1,000's. Starting in 1992 rates are based on unrounded national population estimates. Birth rates are expressed as the number of live births per 1,000 population. The rate may be restricted to births to women of specific age, race, marital status, or geographic location (specific rate), or it may be related to the entire population (crude rate). See related *Cohort fertility; Live birth*.

  Fertility rate is the total number of live births, regardless of age of mother, per 1,000 women of reproductive age, 15–44 years.

- *Death and related rates*

  Death rate is calculated by dividing the number of deaths in a population in a year by the midyear resident population. For census years, rates are based on unrounded census counts of the resident population, as of April 1. For the noncensus years of 1981–89 and 1991, rates are based on national estimates of the resident population, as of July 1, rounded to 1,000's. Population estimates for 10-year age groups are generated by summing unrounded population estimates before rounding to 1,000's. Starting in 1992 rates are based on unrounded national population estimates. Rates for the Hispanic and non-Hispanic white populations in each year are based on unrounded State population estimates for States in the Hispanic reporting area. Death rates are expressed as the number of deaths per 100,000 population. The rate may be restricted to deaths in specific age, race, sex, or geographic groups or from specific causes of death (specific rate) or it may be related to the entire population (crude rate).

  Fetal death rate is the number of fetal deaths with stated or presumed gestation of 20 weeks or more divided by the sum of live births plus fetal deaths, stated per 1,000 live births plus fetal deaths. *Late fetal death rate* is the number of fetal deaths with stated or presumed gestation of 28 weeks or more divided by the sum of live births plus late fetal deaths, stated per 1,000 live births plus late fetal deaths. See related *Fetal death; Gestation*.

  Infant mortality rate based on period files is calculated by dividing the number of infant deaths during a calendar year by the number of live births reported in the same year. It is expressed as the number of infant deaths per 1,000 live births. *Neonatal mortality rate* is the number of deaths of children under 28 days of age, per 1,000 live births. *Postneonatal mortality rate* is the number of deaths of children that occur between 28 days and 365 days after birth, per 1,000 live births. See related *Infant death*.

  Birth cohort infant mortality rates are based on linked birth and infant death files. In contrast to

period rates in which the births and infant deaths occur in the same period or calendar year, infant deaths comprising the numerator of a birth cohort rate may have occurred in the same year as, or in the year following the year of birth. The birth cohort infant mortality rate is expressed as the number of infant deaths per 1,000 live births. See related *Birth cohort*.

Perinatal relates to the period surrounding the birth event. Rates and ratios are based on events reported in a calendar year. *Perinatal mortality rate* is the sum of late fetal deaths plus infant deaths within 7 days of birth divided by the sum of live births plus late fetal deaths, stated per 1,000 live births plus late fetal deaths. *Perinatal mortality ratio* is the sum of late fetal deaths plus infant deaths within 7 days of birth divided by the number of live births, stated per 1,000 live births.

Maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy. 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 Pregnancy, childbirth, and the puerperium, ICD–10 codes O00–O99. (See related table V.) *Maternal mortality rate* is defined as the number of maternal deaths per 100,000 live births. The maternal mortality rate is a measure of the likelihood that a pregnant woman will die from maternal causes. The number of live births used in the denominator is a proxy for the population of pregnant women who are at risk of a maternal death.

Region—See *Geographic region and division*.

Registered hospitals—See *Hospital*.

Registered nursing education—Registered nursing data are shown by level of educational preparation. Baccalaureate education requires at least 4 years of college or university; associate degree programs are based in community colleges and are usually 2 years in length; and diploma programs are based in hospitals and are usually 3 years in length.

Registration area—The United States has separate registration areas for birth, death, marriage, and divorce statistics. In general, registration areas correspond to States and include two separate registration areas for the District of Columbia and New York City. All States have adopted laws that require registration of births and deaths and reporting of fetal deaths. It is believed that more than 99 percent of 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 each constitutes a separate registration area, although their data are not included in statistical tabulations of U.S. resident data. See related *Reporting area*.

Relative standard error—The relative standard error (RSE) is a measure of an estimate's reliability. The RSE of an estimate is obtained by dividing the standard error of the estimate (SE(r)) by the estimate itself (r). This quantity is expressed as a percent of the estimate and is calculated as follows: RSE=100 x (SE(r)/r).

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 (DC). 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 DC. Starting in 1997 the Hispanic reporting area included all 50 States and DC. See related *Registration area; National Vital Statistics System* in Appendix I.

Resident—In the Online Survey 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*.

Rural—See *Urbanization*.

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.

Suicidal ideation—Suicidal ideation is having thoughts of suicide or of taking action to end one's own life. Suicidal ideation includes all thoughts of suicide, both when the thoughts include a plan to commit suicide and when they do not include a plan. Suicidal ideation is measured in the Youth Risk Behavior Survey by the question "During the past 12 months, did you ever seriously consider attempting suicide?"

Surgical operations—See *Procedure*.

Surgical specialties—See *Physician specialty*.

Uninsured—See *Health insurance coverage*.

Urbanization—In this report, death rates are presented according to the urbanization level of the decedent's county of residence. Counties and county equivalents were assigned to one of five urbanization levels based on their classification in the Urban Influence code system (December 1996 Revision) developed by the Economic Research Service, U.S. Department of Agriculture. There are three levels for metropolitan counties and two levels for nonmetropolitan counties. The categorization of counties as metropolitan or nonmetropolitan in the Urban Influence code system is based on the June 1993 OMB definition of metropolitan areas (the application of the 1990 metropolitan area standards to the 1990 decennial census data). Metropolitan areas include metropolitan statistical areas (MSA's), consolidated metropolitan statistical areas (CMSA's), and primary metropolitan statistical areas (PMSA's). See *Metropolitan statistical area* in Appendix II for definitions of metropolitan and nonmetropolitan counties.

The Urban Influence code system classifies metropolitan counties as either large metro (counties in MSA/PMSA's of 1 million or more population) or small metro (counties in MSA/PMSA's of less than 1 million population). For this report, the large metro category of the Urban Influence code system was divided into two urbanization levels: large central metro and large fringe metro. Thus, metropolitan counties were assigned to one of three metropolitan urbanization levels: (a) *large central* - counties in large (1 million or more population) MSA/PMSA's that contain all or part of the largest central city of the MSA/PMSA; (b) *large fringe* - counties in large (1 million or more population) MSA/PMSA's that do not contain any part of the largest central city of the MSA/PMSA (counties in a few PMSA's with less than 1 million population were assigned to the large fringe urbanization level because the PMSA in which they are located is adjacent to a large central county of the CMSA); and (c) *small* - counties in small (less than 1 million population) MSA/PMSA's.

The Urban Influence code system divides nonmetropolitan counties into seven categories based on adjacency to a metropolitan area and size of the

largest city. A county is considered to have a city with a specified size if it includes all or part of the city. The seven categories were collapsed into two categories: (d) *nonmetro counties with a city of 10,000 or more population* and (e) *nonmetro counties without a city of 10,000 or more population*.

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 and 1996 NHIS, the respondent was asked "Is there one doctor, person, or place that ____usually goes to when ____is sick or needs advice about ____health?" Starting in 1997 the respondent was asked "Is there a place that ____usually goes when he/she is sick or you need advice about (his/her) health?" Persons who report the emergency department as their usual source of care are defined as having no usual source of care in this report.

Wages and salaries—See *Employer costs for employee compensation*.

Years of potential life lost—Years of potential life lost (YPLL) is a measure of premature mortality. Starting with *Health, United States, 1996-97* , YPLL is presented for persons under 75 years of age because the average life expectancy in the United States is over 75 years. YPLL-75 is calculated using the following eight age groups: under 1 year, 1–14 years, 15–24 years, 25–34 years, 35–44 years, 45–54 years, 55–64 years, 65–74 years. The number of deaths for each age group is multiplied by 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.