

Section F

TECHNICAL NOTES

Analytic Methods

Oral Health U.S., 2002 contains predominantly descriptive statistics including frequencies, percentages, ratios, incidence, prevalence and mortality rates, and calculations of cost. In general, only results with statistical significance at the 95% confidence level are discussed unless otherwise stated. SAS, versions 6.12 and 8.0 (SAS, 1999), and SUDAAN, versions 7.5.3A and 7.6 (Shah et al., 1997), were used for statistical programming with the exception of data from SEER (NCI, 2000). SEER data are provided with a self-contained statistical programming package that was used for analysis of these data (NCI, 2000).

Occasionally, data from published material were used. In these cases references are provided and statistical analytic methods vary with the source of data. Whenever possible, nationally representative data were used. The national surveys collecting these data generally use multistage probability samples. Resulting analyses employ sampling weights. In these instances SUDAAN was used to obtain accurate variances and confidence intervals. Confidence intervals are provided in tables whenever possible. In some cases, data were obtained from published documents and confidence intervals were not available. The significance of trends was examined by performing a regression analysis on the data (Korn & Graubard, 1999). The most recent data available for each indicator were used. In a few cases an indicator was considered important enough to include even though the most recent data were more than 5 years old. Some data are reported for which the numbers are too low for statistical evaluation. This was done when these data were the only source available.

Differences between population subgroups were examined using demographic variables. These variables include age, gender, race/ethnicity, education, and federal poverty level. The age groups used for analysis vary depending on the medical/health implications of the indicator. In some cases age groups vary depending on how data in individual surveys were collected. Education is presented with three categories: less than 12th grade or 12 years of education, 12th grade or 12 years of education, and more than 12th grade or 12 years of education. For adults, the education of the survey participant is used. For children and adolescents, the education of the person identified as head of household is used. The categorization of race/ethnicity depends on the individual survey. For instance, in NHANES III, Mexican Americans were oversampled and race/ethnicity is categorized as non-Hispanic white, non-Hispanic black, and Mexican American. In many analyses the numbers available for other racial/ethnic groups do not allow statistical conclusions to be drawn. In NHANES I, the groups of white, black, and other are most frequently used. Data from the NHIS generally use race/ethnic groups of non-Hispanic white, non-Hispanic black, and Hispanic. Other surveys may use white, black, and other or in some cases group white and other ethnic groups and consider black, or black and Hispanic as separate groups. Analyses are generally limited to the race/ethnic groups provided on public use tapes or CD-ROMs of survey data.

Federal poverty level is determined by income thresholds that vary by family size and the number of related children in the household who are younger than 18 years. Poverty thresholds are derived from the measure of poverty used for calculating the number of persons living in poverty in the United

States or in states or regions. The thresholds do not vary geographically, but they are updated annually using the Consumer Price Index. See the Census Bureau's website (<http://www.census.gov/hhes/poverty/threshld.html>) for more information. Different indicators of poverty status have been used by different federal agencies in the surveys they conduct. In most national surveys a poverty income ratio is presented. The poverty income ratio is the ratio of a family's income to the poverty threshold defined by the U.S. Census Bureau appropriate to the family's composition. For most analyses in this report, a cut point of 1.00 was used to differentiate those living below the federal poverty level (less than 1.00) from those living at or above the federal poverty level (1.00 or more). This cut point is used in NHANES I and III and in the NHIS. MEPS defines less than 100% of the federal poverty level as negative or poor; 100% to less than 125% as near poor; 125% to less than 200% as low income; 200% to 400% as middle income; and 400% and above as high income. BRFSS reports only income categories with no associated poverty level categories.

The issue of separating the effects of race/ethnicity and income was approached by stratifying the sample on one variable and looking at the second variable within each stratum. For instance, comparisons between racial/ethnic groups were done separately for those living below the poverty level and for those living at or above it. These analyses are limited by the sample sizes in each group.

If data suggested an age dependency or if various subgroups being compared included individuals with large differences in age distribution, analyses were age adjusted to evaluate the possible impact of different age distributions on the observed results. Procedures based on those described by Anderson and Rosenberg (1998) were used. Direct age standardization applies age-specific rates from two or more sample populations to a standard age distribution in order to eliminate differences in the observed rates that are due to differences in age distributions between populations. This weighted average of the category-specific rates provides a single rate that reflects the numbers of events that would have been expected if the populations being compared had identical age distributions (Hennekens & Buring, 1987). Age adjustments in this report were made using the year 2000 U.S. population age distribution (Anderson & Rosenberg, 1998), with the exception of data from SEER. In this case the statistical analysis program provided calculates age adjustment to the 1970 U.S. population.

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Sources of Data

A brief description of each of the surveys used as a data source in *Oral Health U.S., 2002* follows. Included are:

- Behavioral Risk Factor Surveillance System
- First National Health and Nutrition Examination Survey
- Fluoridation Census
- Medical Expenditure Panel Survey–Household Component
- National Health Accounts

- National Health Interview Survey
- National Hospital Ambulatory Medical Care Survey
- National Medical Care Expenditure Survey
- National Medical Expenditure Survey–Household Component
- National Nursing Home Survey
- National Oral Health Surveillance System
- National Survey of Oral Health–U.S. Employed Adults
- National Survey of Oral Health in U.S. School Children
- National Vital Statistics System
- 1999 Oral Health Survey of American Indian and Alaskan Native Dental Patients
- School Health Policies and Programs Study
- Synopses of State and Territorial Dental Public Health Programs
- Surveillance, Epidemiology, and End Results
- Third National Health and Nutrition Examination Survey
- Uniform Data System
- Youth Risk Behavioral Surveillance System

Behavioral Risk Factor Surveillance System (BRFSS)

BRFSS collects uniform, state-specific data on preventive health practices and risk behaviors that are linked to chronic diseases, injuries, and preventable infectious diseases in the U.S. adult population. The BRFSS consists of three major parts: the core components, optional modules, and state-added questions. The core components are administered in all states. Each state decides whether to include optional modules in its state data collection. The states can also add additional questions relevant to their needs.

The BRFSS is conducted annually by the Centers for Disease Control and Prevention (CDC) jointly with all 50 states, the District of Columbia, and three territories. Most states use a disproportionate stratified sampling design. Data are collected through standardized telephone interviews based on a random sample of residential telephone numbers within each state. Interviews are conducted with civilian adults (18 years of age and older) living in households with a telephone.

The tobacco-related questions are included in the core and are nationally representative. Data from the 1996, 1997, and 1999 surveys were used in this report. The health insurance questions were asked in the core. However, the dental insurance question was asked in the oral health optional module and is not nationally representative. The oral health module of BRFSS had been an optional module. However, in the 1999 survey it was included in the “emerging” core. It may become part of the core at a later date and provide nationally representative data. Oral health-related topics include caries, access to dental care, dental insurance, gingivitis, smokeless tobacco, cigarette use, and dental visits.

For more information, visit <http://www.cdc.gov/nccdphp/brfss>.

First National Health and Nutrition Examination Survey (NHANES I) 1971-75

NHANES I was conducted from 1971 through 1975 on a national probability sample of approximately 32,000 persons, aged 1-74 years, from the civilian, noninstitutionalized U.S. population. It excluded people residing on Indian reservations. A multistage, stratified probability sample design

was used. Successive sampling units used were the primary sampling unit (a county or counties), census enumeration district, segment (a cluster of households), household, eligible person, and sample person. Certain population groups thought to be at high risk for malnutrition were also oversampled. These groups included people living below the federal poverty level, preschool children, women of childbearing age, and elderly persons. The survey included 31,973 interviewed persons, of whom 23,808 had a physical exam. A subsample of persons 25-74 years of age (3,854) received more detailed health examinations. After the nutrition survey, the detailed medical examination was also given to additional adults 25-74 years of age. This group formed the NHANES I Augmentation.

Extensive data on health and nutrition were collected by interview, physical exam, and clinical measurements. Examinations were carried out in specially constructed mobile examination centers. The general physician's examination gathered data on physical conditions pertinent to nutrition and certain chronic diseases. A specific dental examination focused on caries, periodontal disease, oral hygiene, edentulism, chewing and eating difficulties, treatment needs, and occlusion.

For more information, visit <http://www.cdc.gov/nchs/nhanes.htm>.

Medical Expenditure Panel Survey—Household Component (MEPS-HC)

MEPS-HC provides nationally representative estimates of health services used by the U.S. civilian noninstitutionalized population, the cost of these services, and health insurance coverage. The MEPS-HC collects data on demographic characteristics, health conditions and health status, health care utilization, access to care, satisfaction with care, charge and payment information, employment and income, health insurance, and interview administration. The MEPS-HC is one of four component surveys within the MEPS; the other components are the Medical Provider Component, the Insurance Component, and the Nursing Home Component.

The MEPS-HC collects data from a nationally representative sample of households through an overlapping panel design. In this design, data are collected through a preliminary contact followed by a series of five rounds of interviews over a 2½-year period. Two calendar years of medical expenditures and utilization are collected from each household. As an overlapping panel survey, this series of data collection rounds is launched again each subsequent year on a new sample of households drawn from the National Health Interview Survey sampling frame to provide overlapping panels of survey data, which, when combined with other ongoing panels, will provide continuous and current estimates of health care expenditures at both the person and household level.

Oral health-related variables include reason for dental visit, traumatic injuries, dental care utilization, dental services received, medications, dental expenses, and payment. The 1996 and 1997 versions were used in this report.

For more information, visit <http://www.meps.ahrq.gov>.

National Health Accounts (NHA)

The NHA identifies all goods and services that relate to health care in the nation and determines the amount of money used for the purchase of these goods and services. NHA data are collected and compiled by the Centers for Medicare and Medicaid Services (formerly the Health Care Financing Administration). The NHA collects data on all of the main components of the health care system and the sources of funds that finance the purchases. The NHA collects data on an annual basis and applies a common set of definitions that allow comparisons to be made among categories and over time.

The NHA reports national expenditures for dental services and specifies expenditures by source of payment. Expenditures by source of payment are reported by out of pocket payments, private insurance, total private consumer funds, and federal, state and local, and total government funds. Population totals are provided to allow for cost per capita calculations.

For more information, visit <http://www.hcfa.gov/stats/nhe-oact/lessons>.

National Health Interview Survey (NHIS)

The NHIS is conducted annually by the National Center for Health Statistics, Centers for Disease Control and Prevention. It has been conducted continuously since it began in 1957. The NHIS collects data regarding the extent and distribution of illness, disability and chronic impairments, activity limitations, injuries, and the use of health services. Each year special topics are added as supplements. NHIS employs a multistage probability sample of the civilian noninstitutionalized U.S. population and collects data through personal household interviews. The NHIS sample includes an oversampling of blacks and Hispanics. Information is obtained about each member of the household.

The NHIS questionnaire that was fielded from 1982 to 1996 consisted of a core questionnaire plus current health topic supplements. In 1997, the NHIS questionnaire was redesigned to include a core questionnaire composed of three components: the Family Core, Sample Adult Core, and Sample Child Core.

Oral health-related variables collected in the NHIS include missing teeth, oral cancer, and tobacco. Data from the 1989, 1992, and 1998 NHIS were used in this report. In the 1989 NHIS, supplements on dental care and orofacial pain were included. Questions for these supplements were asked of a subsample of the NHIS respondents.

For more information, visit <http://www.cdc.gov/nchs/nhis.htm>.

National Hospital Ambulatory Medical Care Survey (NHAMCS)

The NHAMCS collects data on the utilization and provision of ambulatory care services in hospital emergency and outpatient departments. It has been conducted annually by the National Center for Health Statistics, Centers for Disease Control and Prevention since 1992. The NHAMCS is a national probability sample of visits to the emergency and outpatient departments of noninstitutional general and short-stay hospitals. The NHAMCS uses a four-stage probability design of primary sampling units (PSUs), hospitals within PSUs, clinics within hospitals, and patient visits within clinics. Hospital staff complete a Patient Record form for a systematic random sample of patient visits during a randomly assigned 4-week reporting period.

Data are obtained on demographic characteristics of patients, expected source of payment, patients' complaints, physicians' diagnoses, diagnostic/screening services, procedures, medication therapy, disposition, types of health care professionals seen, causes of injury where applicable, and certain characteristics of the hospital. Data specific to oral health include emergency dental care, dental care satisfaction, and dental services received.

Data from the 1999 NHAMCS were analyzed for this report.

For more information, visit <http://www.cdc.gov/nchs/about/major/ahcd/nhamcsds.htm>.

National Medical Care Expenditure Survey (NMCES): 1977

NMCES was the first in a series of three national probability surveys conducted by the Agency for Healthcare Research and Quality on the financing and use of medical care in the United States. The NMCES sample used a stratified, multistage area probability design to sample the civilian noninstitutionalized population of the United States. This survey obtained data from respondents on their insurance status and on health services use and expenditures. NMCES collected data on population characteristics, health status, access to care, health insurance coverage, personal and family health care use, and expenditures and sources of payment for medical and related services. Data were also gathered on hospital inpatient care and ambulatory physician and nonphysician care. Oral health-related variables included the use, costs, and source of payment for dental services.

For more information, visit <http://www.ahrq.gov>.

National Medical Expenditure Survey (NMES), 1987: Household Survey

NMES provided extensive information on the use of health services, health expenditures, and the financing of these expenditures. The NMES Household Survey was one of four component surveys of the NMES. The other three components were the Institutionalized Population Component, the Survey of American Indian/Alaska Natives, and the Medicare Records Component. In addition, the Household Survey was supplemented with a Medical Provider Survey and a Health Insurance Plans Survey.

The Household Survey of NMES was based on a national probability sample of the civilian noninstitutionalized population in the United States. The survey sample used a stratified multistage area probability design. Oversampled population subgroups included poor and low-income families, the elderly, the functionally impaired, blacks, and Hispanics. The Household Survey included four rounds of personal and telephone interviews at 4-month intervals. Data were collected on household composition, employment, insurance characteristics, illnesses, use of health services, expenditures, and health care sources of payment.

Oral health-related data included dental visit information, use of dental services, dental expenses, and sources of payment.

For more information, visit <http://www.ahrq.gov>.

National Nursing Home Survey (NNHS)

The NNHS provides information on nursing homes from the perspectives of the provider of services as well as of the recipient. The NNHS is a continuing series of national sample surveys of nursing homes, their residents, and their staff. This survey has been conducted in 1973-74, 1977, 1985, 1995, 1997, and 1999.

The NNHS uses a stratified two-stage probability design. The first stage of selection is a probability sample of the nursing facilities defined by bed size and certification. All nursing homes included in this survey have at least three beds and either are certified by Medicare or Medicaid as a skilled nursing or intermediate care facility or have a state license to operate as a nursing home. The second stage is the selection of current residents and discharges. A sample of up to six current residents and six discharges per facility is selected.

Data about the facilities include characteristics such as size, ownership, Medicare/Medicaid certification, occupancy rate, days of the care provided, and expenses. For recipients, data are obtained on

demographic characteristics, health status, and services received. Oral health-related data include dental care utilization, denture ownership and use, dental services received, edentulism, and perceived oral health status.

Data from the 1997 NNHS were analyzed for this report.

For more information, visit <http://www.cdc.gov/nchs/about/major/nnhsd/nnhsd.htm>.

National Oral Health Surveillance System (NOHSS)

The NOHSS is designed to help public health programs monitor the burden of oral disease, use of the oral health care delivery system, and the status of community water fluoridation on both a state and national level. The NOHSS includes indicators of oral health, guidelines for oral conditions and oral health care, information on state dental programs, and links to other important sources of oral health information. Data sources for NOHSS include national and state-based surveys.

Oral health-related data include caries, edentulism, oral cancer, oral lesions, sealants, and untreated dental decay.

For more information, visit <http://www.cdc.gov/nohss>.

National Survey of Oral Health—U.S. Employed Adults 1985-1986

This survey was designed to establish the prevalence of coronal caries, root caries, and periodontal destruction in a readily accessible adult population to permit future detection of trends by geographic region and within 5-year age intervals.

The sample of employed adults was selected through the use of a cascading five-stage sample design that comprised, successively, primary sampling units (counties or groups of contiguous counties), ZIP code areas within counties, clusters of business establishments within ZIP code areas, establishments within clusters, and employees of these establishments. Employees in the categories of agriculture and mining and those working as household domestics were excluded from the survey because of lack of access or economic reasons. The stratification variables were standard metropolitan statistical areas, percent urban, income, percent establishments with 100+ employees, and percent minority employees. A dentist administered a questionnaire and performed an oral clinical exam at the facility or in a mobile examination center.

Oral health-related variables include coronal caries, edentulism, periodontal disease, loss of attachment, frequency of dental visits, and gingival bleeding.

For more information, visit <http://www.nidcr.nih.gov>.

National Survey of Oral Health in U.S. School Children 1986-87

This survey was designed to provide precise estimates of the prevalence of dental caries in school children. It was also designed to provide statistically reliable estimates of the prevalence and severity of dental fluorosis, gingival bleeding, periodontal diseases, and soft tissue lesions.

The sampling frame for the survey consisted of all children in grades K-12 enrolled in public or private schools in the United States (excluding Alaska). A multistage probability sample was drawn that represented 43 million children in the selected age groups. Special education, vocational-technical, pre-kindergarten, adult education, and remedial classes were excluded. The three-stage sample

design consisted of primary sampling units—school districts or groups of contiguous school districts; schools within the selected school districts; classrooms within the selected schools. At the third stage of sampling, all students within the sampled classrooms were candidates for examination. Signed parental consent forms were required for the oral examinations.

Questionnaires completed by the parents or guardians provided extensive residential histories and information regarding the sources of drinking water, including natural or adjusted fluoride exposure. Data collection forms used included the Dental Caries Examination Form, Periodontal Examination Form, Oral Mucosal Tissue Examination Form, Residential History Form, and Questionnaire on Use of Tobacco Products and Alcohol.

Oral health-related data include coronal caries, fluoride supplements, oral lesions, cigarette use, periodontal disease, smokeless tobacco use, and sealants.

For more information, visit <http://www.nidcr.nih.gov>.

National Vital Statistics System (NVSS)

The NVSS is responsible for the nation's official vital statistics (births, deaths, marriages, divorces, and fetal deaths). These vital statistics are provided through state-operated registration systems. Standard forms for the collection of the data and model procedures for the uniform registration of the events are developed and recommended for state use through cooperative activities of the states and the National Center for Health Statistics.

Oral health-related data include oral malformations and deaths due to oral cancers. The 1998 mortality data and the 1998 natality data were used in this report.

For more information, visit <http://www.cdc.gov/nchs/nvss.htm>.

1999 Oral Health Survey of American Indian and Alaska Native Dental Patients

This survey examined the oral health status, trends, and treatment patterns among American Indians/Alaska Natives. This nationwide dental patient-based survey used a convenience sample of dental clinic users. The sample was designed to estimate the oral health status of American Indian and Alaska Native dental patients at both the national level and within the Indian Health Service's 12 Area Programs. Tribal, urban, and/or Indian Health Service dental clinics within these 12 areas voluntarily participated in the survey. Each participating area was asked to examine at least 200 patients within each of five age groups. Some areas oversampled children, while other areas did not examine adults or elders. Sampling differences were adjusted to represent some 350,000 Native Americans who receive care in these clinics each year. The survey collected data from 12,881 dental patients ranging in age from 2 to 96 years.

A questionnaire was administered and a clinical exam performed. Data were collected on demographic and health factors including tobacco use and diabetes. Examinations provided data on oral pathology status, oral prosthetic appliance status, edentulism, fluorosis status, root caries, dental caries status of permanent and/or primary teeth, and periodontal status.

For more information, visit <http://www.ihs.gov>.

School Health Policies and Programs Study

The purposes of this survey are to monitor the status of the nation's school health policies and programs, describe the professional qualifications of personnel delivering health care and coordinating school health activities, and identify factors that facilitate or impede health care delivery.

Data are collected to assess characteristics of eight components at the elementary, middle/junior high, and senior high school levels. These are health education, physical education, health services, food service, school policy, mental health and social services, faculty and staff health promotion, and family and community involvement.

For more information, visit <http://www.cdc.gov/nccdphp/dash/shpps/index.htm>.

Synopses of State and Territorial Dental Public Health Programs

Data for the synopses were collected from state and territorial dental directors through a short questionnaire. Information collected in the survey fell into three main categories: demographics, administration, and programs. Included in the demographics section were questions related to the number of Medicaid-eligible children in the state, number of dental schools, and number of licensed dentists. The administration section included questions related to full-time equivalent employees and funding sources. The programs section included questions related to programs funded, collected, or facilitated by the state's dental health program. These programs included access to care, community water fluoridation, dental screening, dental sealants, early childhood caries, oral health education, tobacco cessation, and fluoride supplements. Data were reported for the most recent completed year. Generally, this is for the fiscal year ending prior to February of each year.

The data for the synopses can be found at <http://www2.cdc.gov/nccdphp/doh/synopses/index.asp>. The information is supplied by the Association of State and Territorial Dental Directors, <http://www.astdd.org>.

Surveillance, Epidemiology, and End Results (SEER)

SEER collects information on cancer incidence and survival in the United States. The SEER program currently collects and publishes cancer incidence and survival data from 11 population-based cancer registries and 3 supplemental registries covering approximately 14% of the U.S. population. Information on more than 2.5 million in situ and invasive cancer cases is included in the SEER database, and approximately 160,000 new cases are added each year within the SEER catchment areas. The SEER registries routinely collect data on patient demographics, primary tumor site, morphology, stage at diagnosis, first course of treatment, and follow-up for vital status.

Oral health-related variables include oral cancers. Data from 1992-1997 were used in this report.

For more information, visit <http://seer.cancer.gov>.

Third National Health and Nutrition Examination Survey (NHANES III) 1988-94

NHANES III obtained information about the health and nutrition status of the U.S. population including services received for or because of health conditions. The goals of NHANES III were to estimate national prevalence of selected diseases and risk factors, estimate national population distributions of selected health parameters, document and investigate reasons for secular trends in selected diseases and risk factors, contribute to an understanding of disease etiology, and investigate the natural history of selected diseases.

NHANES III used a stratified multistage probability design. The sample represents the total civilian noninstitutionalized population, 2 months of age or older. Primary sampling units were selected in the first stage, area segments were selected in the second stage, households were selected in the third stage, and individuals were selected in the final stage. An interviewer administered a household and family (if appropriate) questionnaire in person. A clinical exam was administered in a medical examination center or in the home if the person was unable to come to the center.

Oral health-related variables include coronal caries, early childhood caries, root caries, edentulism, oral mucosa, orthodontia, and perceived treatment needs.

For more information, visit <http://www.cdc.gov/nchs/products/catalogs/subject/nhanes3/nhanes3.htm#order>.

Uniform Data System (UDS)

The UDS is used to collect data on the Bureau of Primary Health Care, Health Resources and Services Administration-sponsored programs in the areas of medical, dental, behavioral, and enabling services to ensure compliance with legislative mandates and to report to Congress and policymakers on program accomplishments. The UDS has two components: the Universal Report and the Grant Reports. These reports provide data on services, staffing, and financing across all the programs that are monitored. The grantee recipient submits annual reports through the UDS electronically. Standard forms are used by all grantees to increase validity and reliability.

The UDS contains reports on services offered, user demographics, socioeconomic characteristics, staffing and utilization, selected diagnoses and services, prenatal profile, costs, managed care, and revenue.

Oral health-related data include preventive care/oral hygiene, restorations, emergency dental care, staffing of oral health care providers, dental care utilization, and dental care expenses.

For more information, visit <http://www.bphc.hrsa.gov/uds>.

Water Fluoridation Reporting System (Formerly Fluoridation Census)

The Water Fluoridation Reporting System monitors the number of people in the United States served by fluoridated water systems. It was last conducted in 2000. States reported data on each fluoridated water system and the communities each system served. The state reports included fluoridation status and type of water system—adjusted, consecutive (water purchased from another system), or natural; the system from which water was purchased, if consecutive; the population receiving fluoridated water; the date when fluoridation started; and the chemical used for fluoridation, if adjusted.

The Water Fluoridation Reporting System was maintained by the Centers for Disease Control and Prevention's National Center for Prevention Services, Division of Oral Health and participating states.

The 2000 data were used in this report.

For more information, visit <http://www.cdc.gov/nohss/FSMain.htm>.

Youth Risk Behavioral Surveillance System (YRBSS)

The YRBSS is an epidemiologic surveillance system that was established to monitor the prevalence of youth behaviors that influence health. The YRBSS includes two components: the national school-based survey and the national alternative high school survey. This report uses data from the national school-based survey. The YRBSS focuses on priority health-risk behaviors established during youth. These include behaviors that result in intentional and unintentional injuries; tobacco use; alcohol and other drug use; sexual behaviors that result in HIV infection, other sexually transmitted diseases, and unintended pregnancies; dietary behaviors; and physical activity.

The YRBSS uses a three-stage cluster sample design to produce a nationally representative sample of 9th through 12th grade students in the United States. The first-stage sampling frame includes primary sampling units consisting of large counties or groups of smaller, adjacent counties selected with probabilities proportional to school enrollment size. At the second stage of selection, schools are selected with probability proportional to school enrollment size. Schools with substantial numbers of black and Hispanic students are sampled at relatively higher rates than other schools. The final stage of sampling consists of randomly selecting within each chosen school at each grade, 9 through 12, one or two intact classes of a required subject such as English or social studies. All students in selected classes are eligible to participate.

The 1993, 1995, 1997, and 1999 surveys were used in this report.

For more information, visit <http://www.cdc.gov/nccdphp/dash/yrbs/>.

