



## Introduction

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The National Health and Nutrition Examination Survey (NHANES) is a program of studies designed to assess the health and nutritional status of adults and children in the United States. The survey is unique in that it combines interviews and physical examinations. NHANES is a major program of the National Center for Health Statistics (NCHS). NCHS is part of the Centers for Disease Control and Prevention (CDC) and is responsible for producing vital and health statistics for the nation.

The NHANES program began in the early 1960s and has been conducted as a series of surveys focusing on different population groups or health topics. In 1999, the survey became a continuous program that has a changing focus on a variety of health and nutrition measurements to meet emerging needs. The survey examines a nationally representative sample of about 5,000 people each year. These people are located in counties across the country, 15 of which are visited each year.

The NHANES interview includes demographic, socioeconomic, dietary, and health-related questions. The examination component consists of medical, dental, and physiological measurements, as well as laboratory tests administered by highly trained medical personnel.

Findings from this survey will be used to determine the prevalence of major diseases and risk factors for diseases. Information will be used to assess nutritional status and its association with health promotion and disease prevention. NHANES findings are also the basis for national standards for such measurements as height, weight, and blood pressure.

Data from this survey will be used in epidemiological studies and health sciences research, which help develop sound public health policy, direct and design health programs and services, and expand the health knowledge of the nation.

## Survey Content

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As in past health examination surveys, data will be collected on the prevalence of chronic conditions in the population.

Estimates for previously undiagnosed conditions, as well as those known to and reported by respondents, are produced through the survey. Such information is a particular strength of the NHANES program.

Risk factors—the aspects of a person’s lifestyle, constitution, heredity, or environment that may increase the chances of developing a certain disease or condition—will be examined. Smoking, alcohol consumption, sexual practices, drug use, physical fitness and activity, weight, and dietary intake will be studied. Data on certain aspects of reproductive health, such as use of oral contraceptives and breastfeeding practices, will also be collected.

The diseases, medical conditions, and health indicators to be studied include:

- Anemia
- Body composition and bone density
- Cardiovascular diseases
- Diabetes
- Environmental exposures
- Infectious diseases
- Kidney diseases

- Nutrition
- Obesity
- Oral health
- Physical activity and physical functioning
- Reproductive history and sexual behavior
- Respiratory diseases (asthma, chronic bronchitis, emphysema)
- Sexually transmitted diseases

The sample for the survey is selected to represent the U.S. population of all ages. To produce reliable statistics, NHANES oversamples people 60 and over, African Americans, Asians, and Hispanics.

Since the United States has experienced dramatic growth in the number of older people during this century, the aging population has major implications for health care needs, public policy, and research priorities. NCHS is working with public health agencies to increase the knowledge of the health status of older Americans. NHANES has a primary role in this endeavor.

All participants visit the physician. Dietary interviews and body measurements are included for everyone. All but the very young have a blood sample taken and will see the dentist. Depending upon the age of the participant, the rest of the examination includes tests and procedures to assess the various aspects of health listed above. In general, the older the individual, the more extensive the examination.

## Survey Operations

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Health interviews are conducted in respondents' homes. Health measurements are performed in specially designed and equipped mobile centers, which travel to locations throughout the country. The study team consists of a physician, a dentist, medical and health technicians, and dietary and health interviewers. Many of the study staff are bilingual (English/Spanish).

An advanced computer system using high-end servers, desktop PCs, and wide-area networking collect and process all of the NHANES data, nearly eliminating the need for paper forms and manual coding operations. This system allows interviewers to use tablet computers with electronic pens. The staff at the mobile centers can automatically transmit data into databases through such devices as digital scales and stadiometers. Touch-sensitive computer screens let respondents enter their own responses to certain sensitive questions in complete privacy. Survey information is available to NCHS staff within 24 hours of collection, which enhances the capability of collecting quality data and allows for faster release of the results to the public.

In each location, local health and government officials are notified of the upcoming survey. Households in the study area receive a letter from the NCHS Director to introduce the survey. Local media may feature stories about the survey.

NHANES is designed to facilitate and encourage participation. Transportation is provided to and from the mobile centers if necessary. Participants each receive compensation and a report of their medical findings. All information collected in the survey is kept confidential. Privacy is protected by public laws.



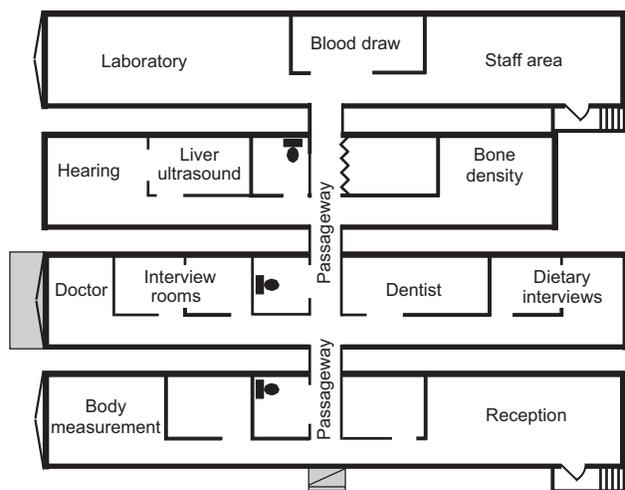
## Uses of the Data

Information from NHANES is made available through an extensive series of publications and articles in scientific and technical journals. For data users and researchers throughout the world, survey data are available on the internet.

Research organizations, universities, health care providers, and educators benefit from survey information. Primary data users are the federal agencies that collaborated in the design and development of the survey. The National Institutes of Health, the Food and Drug Administration, and CDC are among the agencies that rely upon NHANES to provide data essential for the implementation and evaluation of program activities. The U.S. Department of Agriculture and NCHS cooperate in planning and reporting dietary and

nutrition information from the survey. NHANES' partnership with the U.S. Environmental Protection Agency allows continued study of the many important environmental influences on our health.

**Mobile examination center diagram**



NHANES' record of important accomplishments is made possible by the thousands of Americans who have participated.

- Past surveys have provided data to create the growth charts used nationally by pediatricians to evaluate children's growth. The charts have been adapted and adopted worldwide as a reference standard—and are updated using the latest NHANES figures.
- Blood lead data were instrumental in developing policy to eliminate lead from gasoline and food and soft drink cans. Survey data indicate the policy has been even more effective than originally envisioned, with a decline in elevated blood lead levels of more than 70% since the 1970s.
- Overweight prevalence figures have led to the proliferation of programs emphasizing diet and exercise, stimulated additional research, and provided a means to track trends in obesity.
- Data have continued to indicate that undiagnosed diabetes is a significant problem in the United States. Efforts by government and private agencies to increase public awareness, especially among minority populations, have been intensified.

These are just a few examples of how survey findings have been used. The current program promises continuing contributions and some new initiatives.

- Information collected in this survey will help the Food and Drug Administration decide if there is a need to change vitamin and mineral fortification regulations for the nation's food supply.

- National programs to reduce hypertension and cholesterol levels continue to depend on NHANES data to steer education and prevention programs toward those at risk and to measure success in curtailing risk factors associated with heart disease, the nation's number one cause of death.

Because NHANES is now an ongoing program, the information collected contributes to annual estimates in topic areas included in the survey. For small population groups and less prevalent conditions and diseases, data must be accumulated over several years to provide adequate estimates. The new continuous design also allows increased flexibility in survey content.

Results of NHANES benefit people in the United States in important ways. Facts about the distribution of health problems and risk factors in the population give researchers important clues to the causes of disease. Information collected from the current survey is compared with information collected in previous surveys. This allows health planners to detect the extent that various health problems and risk factors have changed in the U.S. population over time. By identifying the health care needs of the population, government agencies and private sector organizations can establish policies and plan research, education, and health promotion programs that help improve present health status and will prevent future health problems.

For more information about the National Center for Health Statistics, contact:

National Center for Health Statistics  
Information Dissemination Staff  
3311 Toledo Road, MS-P08  
Hyattsville, MD 20782-2064

**Telephone:** 1-800-232-4636

**E-mail:** [cdcinfo@cdc.gov](mailto:cdcinfo@cdc.gov)

**Internet:** <http://www.cdc.gov/nchs>

For more information about the National Health and Nutrition Examination Survey, you may visit the NHANES website at: <http://www.cdc.gov/nhanes>.