Plan and Operation of the National Health and Nutrition Examination Surveys

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History

The National Center for Health Statistics (NCHS) has conducted three National Health Examination Surveys of the U.S. population since 1960. Beginning in 1971, a large study of nutrition was added to the surveys and thus, the name was changed to the National Health and Nutrition Examination Survey, also known as NHANES. Now NCHS is planning to conduct the fourth National Health and Nutrition Examination Survey.

Goals of NHANES surveys

All NHANES surveys shared similar basic goals, which include the following: 1) to estimate the national prevalence of selected diseases and risk factors; 2) to provide national population reference distributions of selected health parameters; and 3) to document and investigate reasons for secular trends in selected diseases and risk factors. Recent NHANES surveys have been designed for both descriptive studies and analytic purpose. Therefore, NHANES III and IV are expected to contribute to an understanding of disease etiology, and to investigation of the natural history of selected diseases.

Topics

The topics for the NHANES surveys are usually selected by peer review. Criteria for selection are: scientific worth, public health importance, practical utility and feasibility. There are some changes in topics from survey to survey, basically a reflection of changing perception of the
public health importance, utility of the data, or lack of funding.

NHANES IV topics will include the following topics: cardiovascular disease, diabetes, respiratory disease, kidney disease, bone status, tuberculosis, sexually transmitted diseases, reproductive health, mental health, alcohol-related birth defects, tobacco use and exposure, dietary intake and behavior, and physical fitness.

**Sample design**

The NHANES surveys have been designed to obtain nationally representative information on the health and nutritional status of the American population through direct physical examinations. The physical examination component is truly a trade mark of NHANES surveys since no other databases can provide such comprehensive and quality data in a standardized manner.

The eligible population for NHANES surveys is the U.S. civilian, noninstitutional population. The sample design employs a stratified multistage probability sample of counties, blocks and persons randomly selected from households. Children, elderly persons, and members of minority groups are over sampled to achieve more accurate estimates for these subpopulations.

**Survey operation**

NCHS usually contracts with a large survey research company, Westat, to carry out data collection. For NHANES III, Westat employed 27 full-time field staff for household interviews, 32 for examination, and 15 for administrative purpose. These field workers traveled 11 months of each year collecting data. Several pretests or pilot studies were conducted before survey went into the field.

**Analyses guidelines**

Because of the complex survey design used in NHANES surveys, traditional statistical methods based on the assumption of a simple random sample are no longer applicable. Sampling weights and design effect must be taken into account when estimating variances and testing for statistical significance. Special programs, such as SUDAAN, has to be used for certain analyses.