MEPS

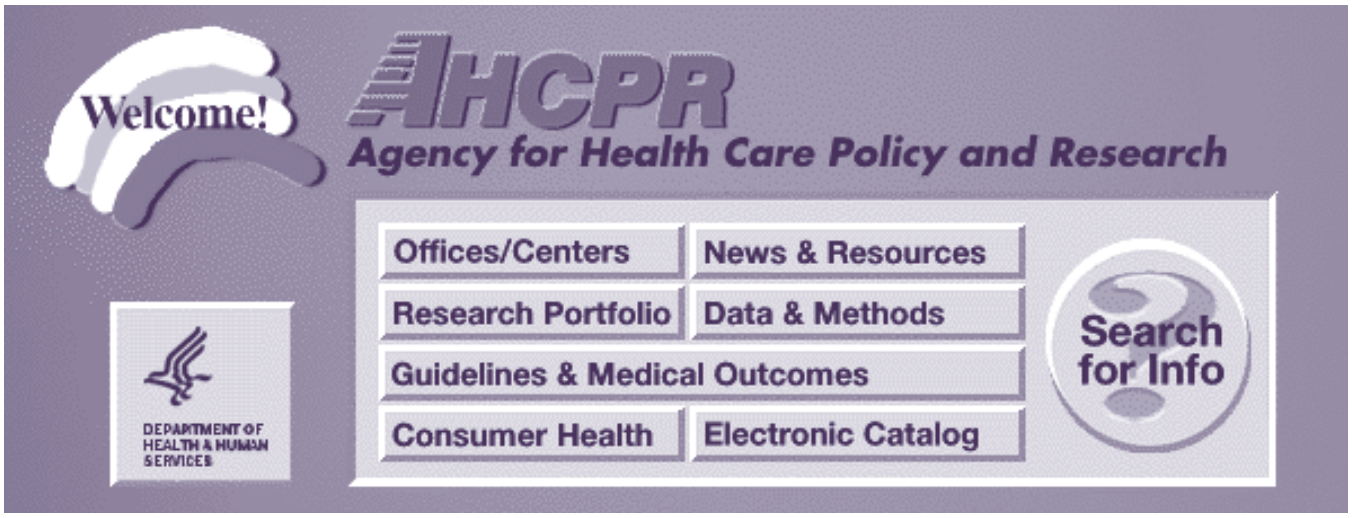
Design and Methods of the
Medical Expenditure Panel Survey
Household Component

# Methodology

## Report 1

**U.S. Department of Health and Human Services**
Public Health Service
Agency for Health Care Policy and Research

Agency for Health Care Policy and Research

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# The Medical Expenditure Panel Survey (MEPS)

## Background

The Medical Expenditure Panel Survey (MEPS) is conducted to provide nationally representative estimates of health care use, expenditures, sources of payment, and insurance coverage for the U.S. civilian noninstitutionalized population. MEPS also includes a nationally representative survey of nursing homes and their residents. MEPS is cosponsored by the Agency for Health Care Policy and Research (AHCPR) and the National Center for Health Statistics (NCHS).

MEPS comprises four component surveys: the Household Component (HC), the Medical Provider Component (MPC), the Insurance Component (IC), and the Nursing Home Component (NHC). The HC is the core survey, and it forms the basis for the MPC sample and part of the IC sample. The separate NHC sample supplements the other MEPS components. Together these surveys yield comprehensive data that provide national estimates of the level and distribution of health care use and expenditures, support health services research, and can be used to assess health care policy implications.

MEPS is the third in a series of national probability surveys conducted by AHCPR on the financing and use of medical care in the United States. The National Medical Care Expenditure Survey (NMCES) was conducted in 1977, the National Medical Expenditure Survey (NMES) in 1987. Beginning in 1996, MEPS continues this series with design enhancements and efficiencies that provide a more current data resource to capture the changing dynamics of the health care delivery and insurance system.

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The design efficiencies incorporated into MEPS are in accordance with the Department of Health and Human Services (DHHS) Survey Integration Plan of June 1995, which focused on consolidating DHHS surveys, achieving cost efficiencies, reducing respondent burden, and enhancing analytical capacities. To accommodate these goals, new MEPS design features include linkage with the National Health Interview Survey (NHIS), from which the sample for the MEPS HC is drawn, and enhanced longitudinal data collection for core survey components. The MEPS HC augments NHIS by selecting a sample of NHIS respondents, collecting additional data on their health care expenditures, and linking these data with additional information collected from the respondents' medical providers, employers, and insurance providers.

## Household Component

The MEPS HC, a nationally representative survey of the U.S. civilian noninstitutionalized population, collects medical expenditure data at both the person and household levels. The HC collects detailed data on demographic characteristics, health conditions, health status, use of medical care services, charges and payments, access to care, satisfaction with care, health insurance coverage, income, and employment.

The HC uses an overlapping panel design in which data are collected through a preliminary contact followed by a series of six rounds of interviews over a 2 1/2-year period. Using computer-assisted personal interviewing (CAPI) technology, data on medical expenditures and use for 2 calendar years are collected from each household. This series of data collection rounds is launched each subsequent year on a new sample of households to provide overlapping panels of survey data and, when combined with other ongoing panels, will provide continuous and current estimates of health care expenditures.

The sampling frame for the MEPS HC is drawn from respondents to NHIS, conducted by NCHS. NHIS provides a nationally representative sample of the U.S. civilian noninstitutionalized population, with oversampling of Hispanics and blacks. A subsample of 10,500 households was drawn from the NHIS sampling frame for the initial 1996 MEPS HC panel. Every 5 years the HC sample size is increased. Beginning with

the 1997 panel, policy-relevant population subgroups are oversampled. The subgroups initially targeted include adults with functional impairments, children with functional limitations in their activities, individuals aged 18-64 who are predicted to have high levels of medical expenditures, and individuals with family income less than 200 percent of the poverty level.

## Medical Provider Component

The MEPS MPC supplements and validates information on medical care events reported in the MEPS HC by contacting medical providers identified by household respondents. The MPC sample includes all hospitals, hospital physicians, home health agencies, and pharmacies reported in the HC. Also included in the MPC are all office-based physicians:

- Providing care for HC respondents receiving Medicaid.
- Associated with a 75-percent sample of households receiving care through an HMO (health maintenance organization) or managed care plan.
- Associated with a 25-percent sample of the remaining households.

The 1996 sample is projected to provide data from approximately 2,700 hospitals, 12,400 office-based physicians, 7,000 separately billing hospital physicians, and 500 home health providers.

Data are collected on medical and financial characteristics of medical events reported by HC respondents, including:

- Diagnoses coded according to ICD-9 (9th Revision, International Classification of Diseases) and DSM-IV (Fourth Edition, *Diagnostic and Statistical Manual of Mental Disorders*).
- Physician procedure codes classified by CPT-4 (Current Procedural Terminology, Version 4).
- Inpatient stay codes classified by DRGs (diagnosis-related groups).
- Charges, payments, and the reasons for any difference between charges and payments.

The MPC is conducted through telephone interviews and mailed survey materials.

## Insurance Component

The MEPS IC collects data on health insurance plans obtained through employers, unions, and other sources of private health insurance. Data obtained in the IC include the number and types of private insurance plans offered, benefits associated with these plans, premiums, contributions by employers and employees, eligibility requirements, and employer characteristics.

Establishments participating in the MEPS IC are selected through four sampling frames:

- A list of employers or other insurance providers identified by MEPS HC respondents who report having private health insurance at the Round 1 interview.
- A Bureau of the Census list frame of private sector business establishments.
- The Census of Governments from the Bureau of the Census.
- An Internal Revenue Service list of the self-employed.

To provide an integrated picture of health insurance, data collected from the first sampling frame (employers and other insurance providers) are linked back to data provided by the MEPS HC respondents. Data from the other three sampling frames are collected to provide annual national and State estimates of the supply of private health insurance available to American workers and to evaluate policy issues pertaining to health insurance.

The MEPS IC is an annual panel survey. For the survey conducted in 1997, the sample includes approximately 7,000 establishments identified through the MEPS HC, 27,000 identified through the business establishments list frame, 1,900 from the Census of Governments, and 1,000 identified through the list of the self-employed. Data are collected from the selected organizations through a prescreening telephone interview, a mailed questionnaire, and a telephone followup for nonrespondents.

## Nursing Home Component

The 1996 MEPS NHC is a survey of nursing homes and persons residing in or admitted to nursing homes at any time during calendar year 1996. The NHC gathers information on the demographic characteristics, residence history, health and functional status, use of services, use of prescription medications, and health care expenditures of nursing home residents. Nursing home administrators and designated staff also provide information on facility size, ownership, certification status, services provided, revenues and expenses, and other facility characteristics. Data on the income, assets, family relationships, and care-giving services for sampled nursing home residents are obtained from next-of-kin or other knowledgeable persons in the community. In keeping with the DHHS Survey Integration Plan, the NHC is designed to be conducted every 5 years.

The 1996 MEPS NHC sample was selected using a two-stage stratified probability design. In the first stage, facilities were selected; in the second stage, facility residents were sampled, selecting both persons in residence on January 1, 1996, and those admitted during the period January 1 through December 31.

The sample frame for facilities was derived from the National Health Provider Inventory, which is updated periodically by NCHS. The MEPS NHC data are collected in person in three rounds of data collection over a 1 1/2-year period using the CAPI system. Community data are collected by telephone using computer-assisted telephone interviewing (CATI) technology. At the end of data collection, the sample will consist of approximately 800 responding facilities, 3,100 residents in the facility on January 1, and approximately 2,200 eligible residents admitted during 1996.

## Survey Management

MEPS data are collected under the authority of the Public Health Service Act. They are edited and published in accordance with the confidentiality provisions of this act and the Privacy Act. NCHS provides consultation and technical assistance.

Data collection is conducted under contract by Westat, Inc., Rockville, MD, and the National Opinion Research Center at the University of Chicago, as well as through an interagency agreement with Bureau of the Census. Technical consultation is provided by Medstat, Inc., Boston, MA. Data processing support is provided under contract by Social & Scientific Systems, Inc., Bethesda, MD.

As soon as data collection and editing are completed, the MEPS survey data are released to the public in staged releases of summary reports and microdata files. Summary reports are released as printed documents and electronic files. Microdata files are released on CD-ROM and/or as electronic files.

Printed documents and CD-ROMs are available through the AHCPR Publications Clearinghouse. Write or call:

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Additional information on MEPS is available from the MEPS project manager or the MEPS public use data manager at the Center for Cost and Financing Studies, Agency for Health Care Policy and Research, 2101 East Jefferson Street, Suite 500, Rockville, MD 20852 (301/594-1406).

# Table of Contents



**Tables**

# Design and Methods of the Medical Expenditure Panel Survey Household Component

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## Introduction

The Medical Expenditure Panel Survey (MEPS) is the third in a series of nationally representative surveys of medical care use and expenditures sponsored by the Agency for Health Care Policy and Research (formerly the National Center for Health Services Research). The first of these surveys, called the National Medical Care Expenditure Survey (NMCES), was conducted in 1977, and the second, called the National Medical Expenditure Survey (NMES), in 1987. The 1996 MEPS, which is cosponsored by the National Center for Health Statistics (NCHS), will update the 1987 data to reflect the dramatic changes that have occurred in the U.S. health care system over the last decade.

## Background

Major changes have taken place in the Nation's health care delivery system since NMES was conducted almost 10 years ago. The most notable is the rapid expansion of managed care arrangements such as HMOs (health maintenance organizations), PPOs (preferred provider organizations), and other provider networks that seek to minimize increases in health care costs. New hybrid forms of health insurance coverage also have appeared. Changes such as these have affected both the private and public sectors. The new MEPS provides information about the current state of the health care system in the United States and the changes that have taken place since the last national survey of medical expenditures was conducted in 1987. The information collected by MEPS also provides valuable baseline data for use in evaluating future changes in the system.

The MEPS study design was developed to enhance the capabilities to study changes in health care delivery and the effects of new health policies. These are important objectives in view of the various health reform initiatives being implemented by States and the Federal Government. The MEPS design allows for the production of annual estimates for 2 calendar years. It also permits the tracking of changes in employment, income, health status, and medical care use and expenditures over the 2 consecutive years during which households will be interviewed. In addition, National Health Interview Survey (NHIS) baseline data are available for persons in the MEPS panels, thereby adding another data point for comparisons of change over time.

MEPS extends the NMES series of studies on medical expenditures and health insurance and provides, for the first time, data suitable for detailed analysis of trends and changes in these areas. The survey is a unique resource for a number of reasons, including:

- **Scope.** MEPS provides information on a broad spectrum of the population. The survey sample base represents the civilian noninstitutionalized population and, in a separate component, the population institutionalized in nursing homes. MEPS also provides information on many types of health care services, expenditures, and sources of payment for both individuals and families.
- **Population basis.** Because MEPS is a survey of persons, population groups that are or may become of special policy concern can be identified and analyzed. This is especially important for analyzing the effect of particular eligibility requirements on the enrollment and budgets of public programs and on those who are not eligible for such programs.
- **Cost-effectiveness.** MEPS will collect data needed by groups that might otherwise either sponsor separate or overlapping surveys, or do without crucial information needed for important decisions. Experience has demonstrated that broad-based data on use, expenses, and financing of health care

collected from a nationally representative sample can meet the data needs of a wide variety of users in a cost-effective manner.

## Household Component

The sample design of the NMES household surveys has been revised for MEPS. The MEPS sample is not defined through an initial screening round. Instead, it is selected as a nationally representative subsample of households that participated in NHIS. The 1996 MEPS sample (based on the 1995 NHIS) is being carried forward into 1997 and combined with a new subsample of households responding to the 1996 NHIS. These two panel samples (the 1996 MEPS sample and the new MEPS selections from the 1996 NHIS) will jointly define the sample base for the 1997 MEPS Household Component. Table 1 shows the study design of the 1996 and 1997 MEPS Household Components. Table 2 summarizes various features of the study design of the Household Component.

In 1996, the MEPS sample linked to the 1995 NHIS was selected. It was drawn from a nationally representative NHIS subsample that included 195 primary sampling units and approximately 1,700 segments, yielding approximately 10,500 responding NHIS households. These households were recontacted in MEPS. This NHIS subsample reflects an oversample of Hispanics and blacks. Other groups with high public policy relevance in the areas of health care use and financing are oversampled as part of the MEPS 1997 panel to improve the precision of the estimates for those groups.

Households selected for participation in the 1996 or 1997 MEPS Household Components are interviewed in person five times (Rounds 1-5) and a last time during a brief telephone interview (Round 6). The rounds of data collection are spaced approximately 4 months apart. The interviews take place with a family respondent who reports for himself or herself and for other family members.

## Preliminary Contact

Mail and telephone contacts take place prior to the first MEPS interview with the NHIS participating households selected for each MEPS panel (Round 1). The purpose of the preliminary contact is to enlist the household respondent into MEPS and plan for the delivery of record-keeping materials before the study observation period begins on January 1st of the survey year. In December, an advance letter announcing MEPS is mailed to the family respondent at the address where the NHIS interview was conducted. An interviewer follows up on the letter with a telephone call to confirm its arrival, verify the identity of the household, identify the MEPS family respondent (if different from the NHIS respondent), and announce the future mailing of a study calendar and record file. These materials are sent, along with $5 to compensate respondents for the time and effort devoted to keeping records in preparation for the Round 1 interview. An interviewer telephones a second time to confirm the arrival of these materials and arrange for a convenient time to conduct the Round 1 interview.

Households that do not have a telephone or cannot be reached using the telephone number from NHIS are contacted by mail and asked to return a postcard identifying a telephone number where they can be contacted (e.g., the number at work or a neighbor's house).

## Core Rounds

Data collection for the MEPS Household Component takes place using a computer-assisted personal interview (CAPI) system. A core instrument is administered in each of the first five rounds of data collection, with periodic supplements added in selected rounds to deal with specific topics in greater depth. Dependent interviewing methods, in which respondents are asked to confirm or revise data provided in earlier interviews, is used to update information in several of the core questionnaires, such as employment and health insurance, after the initial interview.

## Core Instrument

The core instrument is used to collect data about all persons in sampled households. It includes questionnaires on demographics, health status and conditions, use, charges and payments, prescribed and over-the-counter medicines purchased, employment, and health insurance.

## Periodic Supplements

Supplements scheduled for inclusion in the survey include questionnaires on access to and satisfaction with care, income and assets, long-term care, and alternative care (which includes approaches to health care that are different from those typically practiced by medical doctors in the United States, such as acupuncture and homeopathic treatments).

## Self-Administered Questionnaire

All adults in sample households are asked to complete a self-administered questionnaire in Round 2. This questionnaire collects information about health behaviors and opinions that would be difficult, if not impossible, to collect on a proxy basis from the family respondent. Similar information is collected for children as part of the regular interview with the household survey respondent, usually the mother.

## Medical Provider Permission Forms

Signed permission forms are requested in Round 1, much earlier than in past NMES studies, in order to expedite the timetable for the later Medical Provider Component of the survey, which collects data about specific medical events directly from providers. Results from a previous methodological study suggested that early requests for signed permission forms involving office-based physicians have a modest negative effect on survey cooperation rates in later rounds. Therefore, the requests for signed permission forms in Round 1 are limited to events taking place in hospitals. In Round 2 and subsequent rounds, requests for signed permission forms apply to all types of providers included in the Medical Provider Component of MEPS (that is, hospitals, physicians, and home health agencies), including those associated with use reported in Round 1.

## Health Insurance Permission Forms

Signed permission forms are needed to contact sources of employment and private health insurance coverage in the Insurance Component of the survey, which collects data directly from individuals' sources of health insurance (typically their employers). These requests are initiated in Round 2 and apply to the insurance sources associated with plans held at the time of the Round 1 interview.

## Health Insurance Policy Booklet Requests

Following procedures tested successfully in a previous methodological study, MEPS interviewers ask respondents to provide health insurance booklets or other summary materials that describe the characteristics of private plans held by family members at the time of the Round 1 interview. The requests for policy information include all sources of private insurance coverage, not just employment-related coverage. Respondents are reimbursed $15 for the time and effort involved in procuring policy booklets.

## Provider Directories

To assist in the identification of medical providers and the preparation of an unduplicated list of medical providers, interviewers use a computerized database (directory) of health providers that has been loaded into the CAPI laptop computer. With search software loaded into the laptops, interviewers can query the database of providers in the course of the MEPS interview. If a match is found in the database for the provider specified by the household respondent, the matched directory record is associated with the household member. Directory records include the following information for each provider: a unique provider identification number; the provider's name, address, and telephone number; and the provider's specialty (for individual office-based physicians).

## Uses of Data

At the most basic level, the objective of the MEPS Household Component is to collect data that can be used to produce annual estimates for a variety of measures related to the characteristics of individuals; their health insurance coverage; and their health care use, expenditures, and sources of payment. The data can also be used to support behavioral analyses that inform researchers and policymakers about how the characteristics of individuals and families, including their health insurance, affect medical care use and spending.

Data obtained in this study will be used to produce the following national estimates for calendar years 1996 and 1997:

- Annual estimates of health care use and expenditures for persons and families.
- Annual estimates of sources of payment for health care expenses, including amounts paid by public programs, such as Medicare and Medicaid, and by private insurance, as well as out-of-pocket payments.
- Annual estimates of health care use, expenditures, and sources of payment for persons and families by type of service, including inpatient hospital stays, ambulatory care, home health care, dental care, and purchases of prescribed and over-the-counter medicines.
- The number and characteristics of the population eligible for each of the public programs, including the use of services and expenditures of the population eligible for benefits under Medicare, Medicaid, CHAMPUS and CHAMPVA (Civilian Health and Medical Program for the Uniformed Services and Civilian Health and Medical Program, Veterans' Affairs), and the Department of Veterans' Affairs.
- The number, characteristics, use of services, expenditures, and benefits of persons and families with individual or group coverage; commercial or nonprofit coverage; and coverage through HMOs or other managed care arrangements.

In addition to national estimates, data collected in this longitudinal study will be used to study determinants of the use of services and expenditures, and the effects of individual characteristics and policy changes on medical care use and expenses. These behavioral analyses will include studies of:

- Social and demographic factors such as employment and income.
- Methods of financing health care and health insurance.
- Health habits, lifestyles, and behavioral patterns of individuals and families.
- Health needs of specific subpopulation groups of current or potential policy interest, such as the elderly and members of racial or ethnic minorities.

Finally, data collected in this survey–in conjunction with data from the 1977 NMCES and the 1987 NMES–will be used to study trends in the nature and distribution of national health expenditures, sources of care, and amounts and types of services used by the U.S. noninstitutionalized population.

## Table 1. Panel design for the MEPS Household Component, 1996 and 1997

| Item | Calendar year 1996 | | Calendar year 1997 | | Calendar year 1998 | |
|---|---|---|---|---|---|---|
| 1996 panel (from 1995 NHIS) | Round 1 | Round 2 | Round 3 | Round 4 | Round 5 | Round 6 |
| Field period | 3/96-7/96 | 8/96-11/96 | 2/97-5/97 | 8/97-11/97 | 2/98-5/98 | 6/98-7/98 |
| Responding households | 9,500 | 9,000 | 8,800 | 8,500 | 8,300 | 8,100 |
| 1997 panel (from 1996 NHIS) | — | — | Round 1 | Round 2 | Round 3 | Round 4 |
| Field period | — | — | 3/97-7/97 | 8/97-11/97 | 2/98-5/98 | 8/98-11/98 |
| Responding households | — | — | 5,800 | 5,500 | 5,400 | 5,200 |
| Total responding households | 9,500 | 9,000 | 14,600 | 14,000 | 13,700 | 13,300 |

**Note:** MEPS is Medical Expenditure Panel Survey. NHIS is National Health Interview Survey.

## Table 2. Design features of the MEPS Household Component, 1996 panel

| Feature | 1995 | 1996 | | 1997 | | 1998 | |
|---|---|---|---|---|---|---|---|
| Data collection | Preliminary contact | Round 1 | Round 2 | Round 3 | Round 4 | Round 5 | Round 6 |
| Reference period | — | 1/1/96 to date of Round 1 interview | Date of Round 1 interview to date of Round 2 interview | Date of Round 2 interview to date of Round 3 interview | Date of Round 3 interview to date of Round 4 interview | Date of Round 4 interview to 12/31/97 | — |
| Field period | 12/95-1/96 | 3/96-7/96 | 8/96-11/96 | 2/97-5/97 | 8/97-11/97 | 2/98-5/98 | 6/98-7/98 |
| Interview mode | Mail and telephone | In-person, CAPI | In-person, CAPI | In-person, CAPI | In-person, CAPI | In-person, CAPI | Telephone |

**Note:** CAPI is computer-assisted personal interview. MEPS is Medical Expenditure Panel Survey.
**Source:** Agency for Health Care Policy and Research, Center for Cost and Financing Studies

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