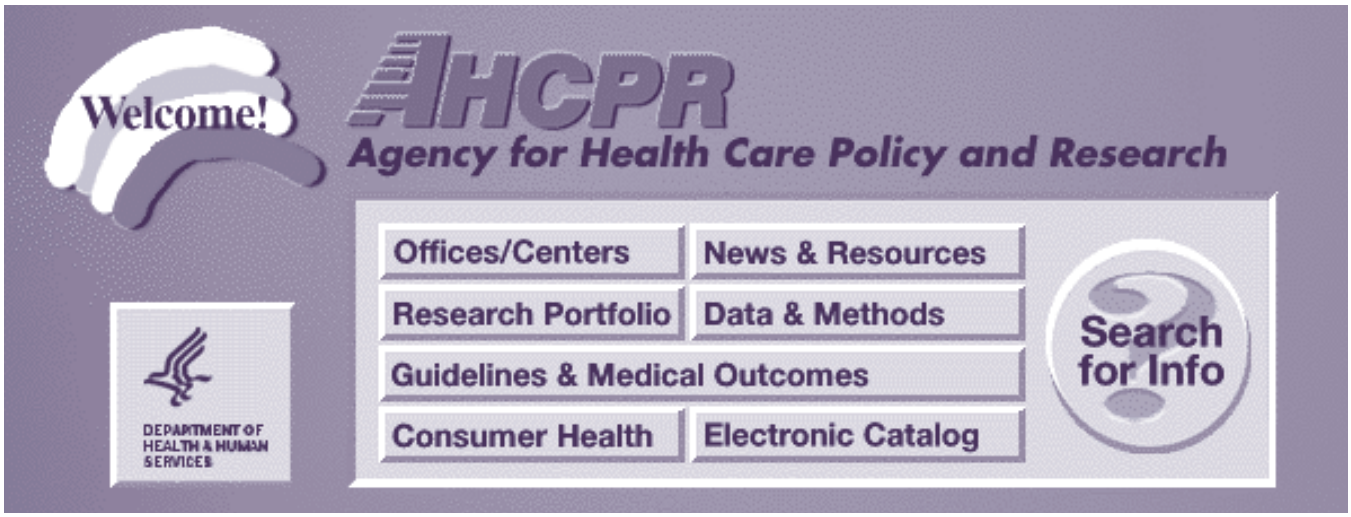
MEPS

Sample Design of the 1996
Medical Expenditure Panel Survey
Household Component

Methodology Report 2

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

Table

Sample Design of the 1996 Medical Expenditure Panel Survey Household Component

by Steven B. Cohen, Ph.D.,
Agency for Health Care Policy and Research

Introduction

The Household Component of the 1996 Medical Expenditure Panel Survey (MEPS) is designed to produce national and regional estimates of the health care use, expenditures, sources of payment, and insurance coverage of the U.S. civilian noninstitutionalized population. MEPS includes surveys of medical providers, employers, and other health insurance providers to supplement the data provided by household respondents. The MEPS design permits both person-based and family-level estimates. Government agencies, legislative bodies, and health professionals need comprehensive national estimates to use in formulating and analyzing national health policies. The scope and depth of this data collection effort reflect this need.

MEPS collects data on the specific health services that Americans use, how frequently they use them, the cost of these services, and how they are paid for, as well as data on the cost, scope, and breadth of private health insurance held by and available to the U.S. population. MEPS is unparalleled for the degree of detail in its data. In addition, through MEPS, the medical expenditures and health insurance data of survey respondents can be linked to other characteristics such as demographic variables, employment status, economic status, health status, and use of health services. Moreover, MEPS is the only national survey that provides a foundation for estimating the impact of changes in sources of payment for health services and insurance coverage on different economic groups or special populations of interest, such as the poor, the elderly, veterans, the uninsured, and racial and ethnic minorities.

In this report, the sample design of MEPS, initially referred to as the National Medical Expenditure Survey (NMES-3), is described. The 1995 National Health Interview Survey (NHIS) is the sample frame for the 1996 MEPS. The redesigned MEPS reflects the first stage of implementation of the Department of Health and Human Services (DHHS) Survey Integration Plan, which provides directives targeted to improve the analytic capacity of programs, fill major data gaps, and establish a framework in which DHHS data activities are streamlined and rationalized. Through this effort, specifically through a linkage to NHIS, MEPS has achieved a number of significant design improvements and analytic enhancements.

This report discusses the design efficiencies and enhancements in analytic capacity that have been and will be realized through the MEPS sample design integration with NHIS. It includes a summary of sample size specifications and precision targets for national population estimates and health care expenditure estimates for policy-relevant population subgroups. It also discusses the modification of MEPS from a periodic annual survey to an ongoing continuous data collection effort with each expenditure panel of households followed for 2 years.

DHHS Survey Integration Plan

As part of the Reinventing Government Part II (REGO II) activities, DHHS targeted improvement of the analytic capacity of its programs, filling of major data gaps, and establishment of a survey consolidation framework in which DHHS data activities are streamlined and rationalized. A Survey Consolidation Working Group was charged with developing a consensus plan for meeting these objectives (Hunter, Arnett, Cohen, et al., 1995; Arnett, Hunter, Cohen, et al., 1996).

A major concentration of the Survey Integration Plan was the redesign of the health care expenditure and insurance studies conducted by DHHS, which include the National Medical Expenditure Survey (NMES), the Medicare Current Beneficiary Survey (MCBS), the National Employer Health Insurance Survey (NEHIS), and NHIS. The proposed survey integration plan was designed to achieve significant cost efficiencies by eliminating duplicative efforts and reducing overall respondent burden. Furthermore, the analytic capacities of the component surveys are enhanced because their design features are integrated. To improve survey design capabilities, enhancements such as an ongoing longitudinal survey effort and the capacity to derive State-specific health care estimates were considered. Consideration was also given to including a periodic institutional component in the survey to provide national use and expenditure estimates for the population residing in nursing homes (Hunter, Arnett, Cohen, et al., 1995).

Enhancements and Efficiencies Through Survey Integration

One attraction of the DHHS Survey Integration Plan is the enhanced analytic capacity to be achieved by linking the distinct surveys through design integration. This could be realized by sample size expansions through survey mergers, such as the planned integration between MEPS and MCBS and the consolidation of employer surveys conducted by DHHS. Also, use of NHIS as a sample frame for MEPS increases the analytic content of the resultant linked surveys. Through design integration of DHHS surveys, inefficiencies associated with duplicative survey efforts can be significantly reduced. Another goal is to reduce survey design costs by implementing a uniform framework for DHHS-sponsored surveys that has overlapping analytic focus with respect to questionnaire content, data editing, imputation, estimation, database structure, and development of analytic files. Additional efficiencies in survey operations in future years are anticipated as a consequence of conducting an annual medical expenditure survey rather than one every decade.

By moving to this integrated, annual household data collection effort, DHHS expands and enhances its analytic capabilities. The new format:

- Retains the design of the core NHIS household interview. This core will provide cross-sectional population statistics on health status and health care use, with sufficient sample size to allow for analyses based on detailed breakdowns by age, race, sex, income, and other sociodemographic characteristics. The core will also allow the use of data on a broad range of topics currently covered by NHIS.
- Retains the analytic capacity to obtain annual and quarterly population estimates of health care use and the prevalence of health conditions, both for the Nation and for policy-relevant population subgroups.
- Provides the ability to model individual and family-level health status, access to care and use, expenditures, and insurance behavior over the year and examine the distribution of these measures across individuals. The longitudinal feature of MEPS (collecting data over multiple years) further enhances the capacity to model behavior over time.
- Provides the ability to relate data from a detailed sample (e.g., MEPS) to a larger sample (e.g., NHIS) to enhance the utility of MEPS for national health account estimation and microsimulation modeling, including disaggregation by age group or geographic area.
- Provides the potential to yield both national and State-level estimates for marginal costs using the enhanced sample design of the NHIS, which includes 358 primary sampling units.
- Provides the following as a result of the longitudinal aspect of the MEPS integrated data collection effort—
  - An increase in statistical power to examine change or make comparisons over time.
  - The capacity to examine changes over time as well as changes in the relationships among measures of health status, access to care, health care use, expenditures, health insurance coverage, employment, functional limitations and disabilities, and demographic characteristics.

MEPS Household Component

The original NMES-3 sample design called for an independent screening interview to identify a nationally representative sample and facilitate oversampling of policy-relevant population subgroups. Data collection and training costs associated with this independent screening interview were projected to exceed $8 million. As part of the DHHS Survey Integration Plan, this separate screening interview was eliminated. Instead, NHIS was specified as the sampling frame for MEPS. NHIS is an ongoing annual household survey of approximately 42,000 households (109,000 individuals) conducted by the National Center for Health Statistics (NCHS) to obtain national estimates on health care use, health conditions, health status, insurance coverage, and access for the U.S. civilian noninstitutionalized population. In addition to the cost savings achieved by substituting NHIS as the MEPS sample frame, the design modification will result in an enhanced analytic capacity of the resultant survey data. Use of the 1995 NHIS data in concert with the 1996 MEPS data provides an additional capacity for longitudinal analyses not available in the original (NMES-3) design. Furthermore, the greater number and dispersion of the sample primary sampling units that comprise the MEPS national sample should result in improvements in precision over the original design specifications.

To fill major data gaps identified by DHHS, MEPS is specified as a continuous survey with sample peaks at 5-year intervals. The initial sample for the 1996 MEPS (10,597 NHIS dwelling units) is smaller than originally planned but will now also permit estimates for calendar year 1997 through an overlapping panel design. The 1996 panel will be followed for data collection through 1997. A new nationally representative sample of 6,300 dwelling units will be selected from the 1996 NHIS to supplement the 1996 MEPS panel in order to meet the original precision specifications for certain specified policy-relevant population subgroups for calendar year 1997. As detailed in Cohen (1996), these policy-relevant population subgroups are:

- Adults (18 years and older) with functional impairments.
- Children with limitations of activity.
- Individuals 18-64 years who are predicted to incur high medical expenditures.
- Individuals predicted to have family income less than 200 percent of the poverty level.

Before MEPS began, preliminary contact was made with the NHIS responding households selected for MEPS to announce the survey and introduce record-keeping activities. The revised MEPS study design includes several components. In addition to the Nursing Home Component, it comprises:

- The Household Component (HC), consisting of an overlapping panel design in which any given sample panel is interviewed a total of six times over 3 consecutive years to yield annual data for 2 calendar years.
- The Medical Provider Component (MPC), with a sample of medical providers that treated HC persons.
- The Insurance Component (IC), with a sample of employers and other sources of health insurance of HC persons.

The survey is cosponsored by the Agency for Health Care Policy and Research (AHCPR) and NCHS. Westat and the National Opinion Research Center (NORC) are the data collection organizations for the 1996 MEPS Household Component.

Sample Design

The 1996 MEPS Household Component sample was selected from households that responded to the 1995 NHIS. NHIS is designed to permit the selection of nationally representative subsamples from any one of four panels. Furthermore, any combination of one to four panels will provide a nationally representative sample of households. Each NHIS panel subsample for a given quarter of a calendar year is nationally representative. The 1996 MEPS household sample was selected from two of the four 1995 NHIS panels and encompassed half of the households in the NHIS sample during the second and third quarters of 1995.

The complete 1995 NHIS sample (panels 1-4) consists of 358 primary sampling units, or PSUs (which are counties or groups of contiguous counties), and approximately 42,000 responding households. The sample PSUs selected for NHIS were stratified by geographic area (Census region and State), metropolitan status, and sociodemographic measures (Judkins, Marker, and Waksberg, 1994). Within sample PSUs, a sample of blocks (segments) was selected after the blocks were stratified by measures of minority population density that allowed for an oversample of areas with high population concentrations of blacks and Hispanics. A nationally representative sample of approximately 71,000 addresses within sampled blocks was selected and targeted for further screening to facilitate an oversample of blacks and Hispanics as part of the 1995 NHIS interview.

The 1995 NHIS subsample selected for the 1996 MEPS consists of 195 PSUs. In the two targeted quarters of 1995, these PSUs included 1,675 sample segments (second-stage sampling units) and 10,597 responding households. This NHIS sample reflects oversampling of households with Hispanics and blacks at a ratio of approximately 2.0:1 for Hispanics and 1.5:1 for blacks. This 1996 MEPS sample constitutes a panel that will be surveyed to collect annual data for 2 consecutive years.

A new 1997 MEPS panel sample will be selected as a nationally representative subsample of households responding to the 1996 NHIS. More specifically, this 1997 MEPS sample will be selected from two of the four NHIS panels. It will reflect additional disproportionate sampling in order to satisfy the precision requirements specified for the 1997 MEPS Household Component, which generally coincide with the original plan for the 1996 survey (Cohen, 1996). As in 1995, the complete 1996 NHIS sample will consist of 358 PSUs with a targeted sample of approximately 42,000 responding households. A nationally representative subsample will be reserved for the 1997 MEPS prior to additional subsampling. This subsampling will come from the same 195 PSUs selected for the 1996 MEPS household sample and include approximately 21,000 responding NHIS households. It reflects an oversample of Hispanics and blacks at the same ratios as before (Hispanics, 2.0:1; blacks, 1.5:1). A nationally representative subsample of approximately 6,300 NHIS responding households (6,480 reporting units) will be selected for the new 1997 MEPS panel. This sample will consist of an oversample of the following policy-relevant subgroups: functionally impaired adults, children limited in activities, adults predicted to have high medical expenditures, and persons predicted to have family income less than 200 percent of the poverty level.

An oversample of the elderly who are not functionally impaired was not planned for the 1997 survey. Such data will be available from the 1997 Medicare Current Beneficiary Survey, and consolidation of MCBS and MEPS is planned. MCBS, an annual person-based survey, obtains data for Medicare beneficiaries. The same types of estimates of health care use, expenditures, sources of payment, and health insurance coverage can be derived from the two surveys. The new 1997 MEPS panel will be fielded to collect annual data for 2 consecutive years.

The 1997 MEPS Household Component sample will consist of the new 1997 MEPS panel in combination with the second year of the 1996 MEPS sample. Overall, the 1997 MEPS household sample will consist of approximately 13,700 reporting units that will complete the full series of MEPS interviews, yielding use and expenditure data for calendar year 1997. (The number of reporting units is adjusted for Round 1 "split-offs"—family member(s) who move apart from the originally sampled household—but not for split-offs in Rounds 2 and 3.) Sample selection procedures for the 1997 MEPS have been implemented in-house by AHCPR staff, based on data keyed from the 1996 NHIS interviews.

In 1998, a new MEPS sample of approximately 5,200 households (5,350 reporting units) will be selected as a nationally representative subsample of households that responded to the 1997 NHIS. In addition, the entire 1997 panel of 5,397 reporting units will be continued to obtain calendar year 1998 data on health care use and expenditures. The targeted response rate for Rounds 4 and 5 is 97 percent. Consequently, the 1998 MEPS sample will consist of approximately 9,500 reporting units (adjusted for split-offs in Round 1) completing three core rounds of data collection to obtain calendar year data (4,457 households from the new sample, 5,078 from the 1997 MEPS sample). In 1998, the 1996 MEPS panel will be retired.

For 1998-2001, the survey will scale back to an overall sample of approximately 9,500 reporting units completing three core rounds of data collection to obtain calendar year data on health care use and expenditures. Each year, approximately 5,000 reporting units will continue from the previous year. In 2002, the survey will begin another 5-year cycle, with an increase to 13,700 reporting units (adjusted for Round 1 split-offs) completing three core rounds of data collection to obtain calendar year data. Coupled with data from MCBS, this will provide DHHS with the same analytic capabilities with respect to sample size that were first proposed for the 1996 NMES-3.

Sampling Unit Definitions and Eligibility Criteria

The definitions for dwelling units and group quarters in the MEPS Household Component are generally consistent with the definitions employed for NHIS. More specificially, a dwelling unit is a house, apartment, group of rooms, or single room occupied as separate civilian non-institutional living quarters or vacant but intended for occupancy as separate living quarters. Group quarters consist of a single civilian noninstitutional dwelling or structure in which nine or more unrelated persons reside and where inhabitants are not considered a part of any other dwelling unit. A reporting unit is a person or group of persons in the sampled dwelling unit that are related by blood, marriage, adoption, or other family associations, and are to be interviewed at the same time in MEPS. Examples of discrete reporting units follow.

- A married daughter and her husband living with her parents in the same dwelling are considered one reporting unit.
- A husband and wife and their unmarried daughter, age 18, who is living away from home at college constitute one family, but two reporting units.
- Three unrelated persons living in the same dwelling unit would be three reporting units.

College students under 24 years of age who usually live in the sampled household but are currently living away from home and going to school are treated as separate reporting units for the purpose of data collection.

The 1996 MEPS sample consisted of households (dwelling units) that responded to the 1995 NHIS in the two panels reserved for MEPS, with the basic unit of analysis defined as the person. Analysis is planned using both the individual and the family as units. Through the reenumeration section of the Round 1 questionnaire, the status of each individual sampled at the time of the NHIS interview is classified as "key" or "non-key," "in-scope" or "out-of-scope," and "eligible" or "ineligible" for MEPS data collection. For an individual to be in-scope and eligible for person-level estimates derived from the MEPS household survey, he or she must be a member of the civilian noninstitutionalized population for some period of time in the calendar year of analytic interest. Because a person's eligibility for the survey may change after the NHIS interview, sampling reenumeration takes place in each subsequent reinterview for persons in all households selected into the core survey. The keyness, in-scope, and eligibility indicators, together, define the target sample to be used for person-level national estimates. Only persons who are key, in-scope, and eligible for data collection are considered in the derivation of person-level national estimates from MEPS.

Key Persons

Key survey participants are defined as all civilian noninstitutionalized individuals who resided in households that responded to the nationally representative NHIS subsample reserved for MEPS (e.g., approximately 10,600 households from the 1995 NHIS), with the exception of college students interviewed at dormitories. Members of the Armed Forces who are on full-time active duty are also defined as key persons if they reside in responding NHIS households that include other family members who are civilian noninstitutionalized individuals. However, they are out of scope for person-level estimates derived from the survey.

All individuals who join the NHIS reporting units that define the 1996 MEPS household sample (in Round 1 or later MEPS rounds) and were not available for selection during the time of the NHIS interview are also considered key persons. These include newborn babies,

individuals who were in an institution or outside the country, and military personnel previously residing on military bases.

College students under 24 years of age interviewed at dormitories in the 1995 NHIS are considered ineligible for the 1996 MEPS sample. Furthermore, any unmarried college student under 24 years of age who responded to the 1995 NHIS interview while living away at school (not in a dormitory) is excluded from the sample if it is determined in the MEPS Round 1 interview that the person is unmarried, under 24 years of age, and a student who has parents living elsewhere and who resides at his or her current housing only during the school year. If, on the other hand, the person's status at the time of the MEPS Round 1 interview is no longer that of an unmarried student under 24 years of age living away from home, then the person is retained as a key person.

Additionally, during the MEPS Round 1 interview with NHIS sample respondents, a determination is made whether there are any related college students under 24 years of age who usually live in the sampled household but are currently living away from home and going to school. These college students are considered key persons and are identified and interviewed at their college address but linked to the sampled household for family analyses. Some of these college students will have been identified as living in the sampled household at the time of the 1995 NHIS interview. The remainder are identified at the time of the MEPS Round 1 interview.

Non-Key Persons

Persons who were not living in the original sampled dwelling unit at the time of the 1995 NHIS interview and who had a nonzero probability of selection for that survey are considered non-key. If such persons happen to be living in sampled households in Round 1 or later rounds, MEPS data are collected for the period of time they are part of the sampled unit to permit family analyses. Non-key persons who leave any sampled household are not recontacted for subsequent interviews. Non-key individuals are not part of the target sample used to obtain person-level national estimates.

A key person from the NHIS sampled household selected for MEPS may move out in Round 1 or later rounds and join or create another family. Data on all members of this new household who are related by blood, marriage, adoption, or foster care to the person from the NHIS sampled household are obtained from the time that the sampled person joined the household. Similarly, data are collected in Round 1 and later rounds on all related persons who join NHIS sampled households selected into MEPS.

Persons in NHIS sampled households selected in MEPS may subsequently enter an institution, thus no longer qualifying as a member of the U.S. civilian noninstitutionalized population. For those who enter nursing homes, data collection continues during the nursing home stay. For those who enter other institutions, data collection is suspended while they are instiutionalized, but their whereabouts are monitored during the field period. If they rejoin the U.S. civilian noninstitutionalized population, HC data collection resumes. (This is also the procedure for those entering military service away from home or moving out of the United States.)

MEPS Data Collection Eligibility

In order for a MEPS reporting unit to be eligible for data collection, it must include at least one individual who is key and in-scope for some period of time during the reference period for a given round of data collection. If this condition holds, the persons who are key and in-scope and all other individuals who are members of the reporting unit (living together and related by blood, marriage, adoption, or other family associations) are eligible for data collection in a given round of MEPS.

Sample Size Targets and Precision Requirements

The 1996 MEPS sample size targets require approximately 9,000 reporting units yielding the complete series of core interviews (Rounds 1-3) to obtain use and expenditure data for calendar year 1996. The expected yield at each stage of data collection for each new MEPS sample linked to the NHIS (Table 1) is as follows:

Table 1. Expected number of responding reporting units and associated response rate for 1996 and 1997 MEPS Household Component

Panel and response	NHIS linked sample	Calendar year 1996		Calendar year 1997		Calendar year 1998	
1996 MEPS panel		Round 1A	Round 2A	Round 3A	Round 4A	Round 5A	Round 6A
Responding reporting units	[1]11,424 [2]10,800	[1]9,488	[3]9,018	[3]8,792	[3]8,528	[3]8,272	[3]8,106
(Response rate)	94%	83%	95%	97.5%	97%	97%	98%
1997 MEPS panel				Round 1B	Round 2B	Round 3B	Round 4B
Responding reporting units	[1]6,857 [2]6,480	—	—	[1]5,828	[3]5,536	[3]5,397	[3]5,235
(Response rate)	94%	—	—	85%	95%	97.5%	97%

[1]Includes "splits-offs" (family member(s) who move apart from the originally sampled household) in Round 1 of the 1996 and 1997 MEPS panels.
[2]Original sample of reporting units.
[3]Does not include split-offs after Round 1.

Note: The estimates of response rates shown here are for the original sample of responding NHIS reporting units, including split-offs in Round 1. These rates are also expected to apply to split-offs in subsequent rounds (households that will be created in the course of the survey field period as a result of key persons moving away from originally sampled NHIS households).
MEPS is Medical Expenditure Panel Survey. NHIS is National Health Interview Survey.

Source: Agency for Health Care and Policy Research, Center for Cost and Financing Studies. 1996 Medical Expenditure Panel Survey—Household Component.

- An NHIS response rate of 94 percent at the household level.
- A response rate of 85 percent (83 percent achieved for the 1996 MEPS) among reporting units at Round 1 (conditional on a completed NHIS interview).
- A round-specific response rate of 95 percent among reporting units at Round 2.
- A round-specific response rate of 97.5 percent among reporting units at Round 3.
- A round-specific response rate of 97 percent among reporting units at Rounds 4 and 5.
- A round-specific response rate among reporting units of 98 percent at Round 6.

Consequently, the targeted response rate for obtaining calendar year 1996 data on health care use and expenditures from the 1996 MEPS sample is 77 percent, conditional on response to NHIS (interviews for Rounds 1-3), or 72 percent overall.

The response rate target for the MEPS core interviews for obtaining calendar year 1997 data on health care use and expenditures from the new 1997 MEPS sample is 79 percent, conditional on response to NHIS (interviews for Rounds 1-3), or 74 percent overall (Table 1).

The minimum acceptable response rate target for the MEPS core interviews within a PSU is 65 percent for calendar year 1997 data from the new MEPS panel, conditional on NHIS response (interviews for Rounds 1-3), and is 60 percent for calendar years 1996 and 1997 for the 1996 MEPS panel (interviews for Rounds 1-5, conditional on response to NHIS).

The 1995 NHIS response rate achieved for MEPS-eligible households was 94 percent. Of 10,639 responding NHIS dwelling units eligible for MEPS, 99.6 percent were identified with enough information to allow MEPS data collection. Of the 11,424 eligible reporting units targeted for interviews in Round 1, 9,488 (83.1 percent) responded. Overall, the joint NHIS-Round 1 response rate for the 1996 MEPS household survey was 77.7 percent (.939 x .996 x .831).

The sample size specifications were set to meet precision requirements developed for MEPS. The precision requirements for the first year of MEPS were relaxed relative to the original design specifications of NMES-3 because of major changes in the survey design as a consequence of the DHHS Survey Integration Plan. These changes included sample size constraints (restricting the sample to the 195-PSU NHIS subsample), and inclusion of the first quarter of the 1995 NHIS sample in a disability survey sponsored by the Assistant Secretary of Planning and Evaluation, DHHS (Cohen, 1996; DiGaetano, 1994).

For the 1996 MEPS sample, the relative standard error for a population estimate of 20 percent for the overall population at the family level was specified to be no more than 2.7 percent, and the relative standard error for a population estimate of 20 percent for the overall population at the person level was specified to be no more than 1.7 percent. For example, if the estimate of the percentage of the national population uninsured at any time during 1996 were 20 percent, the standard error of the estimate should not exceed 0.34 percent. That would translate to a 95-percent confidence interval (19.33 percent, 20.67 percent) for the insurance coverage estimate characterizing the Nation at the person level. The 1996 MEPS sample is selected from a nationally representative 1995 NHIS subsample characterized by 195 PSUs, 1,675 segments, and approximately 9,000 responding households at the end of Round 3, with disproportionate sampling rates ranging from 1.0 to 0.5. Preliminary design work suggests that these conditions should yield average design effects for MEPS survey estimates of annual use and expenditures in the 1.5-1.6 range.

The 1996 MEPS sample linked to NHIS was designed to produce unbiased estimates for the four Census regions, with oversampling of Hispanics and blacks. The expected sample yield after three rounds of data collection at the person level is approximately 22,000 overall, with 3,400 black non-Hispanic individuals and 4,200 Hispanic individuals. The average design effect target for survey estimates for the 1996 MEPS is 1.6. The sample design should satisfy the following precision requirements for mean estimates of the following measures of health care use and expenditures at the person level: total health expenditures, use, and expenditure for inpatient hospital stays, physician visits, dental visits, and prescribed medicines.

Demographic group	Persons at the end of Round 3	Average relative standard error
Black non-Hispanic	3,400	.065
Hispanic	4,200	.055
Overall population	22,000	.025

Procedures for Data Collection

The preliminary contact with households responding to NHIS and subsampled as part of a MEPS panel is described in Cohen (1997). Procedures in the rounds of data collection are described below.

Rounds 1-5

Five interviews are conducted with each NHIS panel selected for MEPS at 3- to 4-month intervals over an approximately 24-month field period. The first three rounds (Rounds 1A-3A) define the 1996 MEPS Household Component and collect the main body of annual use and expenditure data for calendar year 1996. Rounds 3A-5A of the 1996 MEPS panel are combined with Rounds 1B-3B of the 1997 MEPS panel to yield the sample base for the 1997 MEPS Household Component and the source of annual estimates for that calendar year. All interviews are conducted in person through a computer-assisted personal interview (CAPI). Round 1 asks about the period from January 1 of the MEPS year to the date of that interview; Round 2 will ask about the time from the Round 1 interview through the date of the Round 2 interview, and Round 3 asks

about the time from the date of the Round 2 interview through the date of the Round 3 interview in 1997.

Questionnaires for these field rounds parallel those used in the 1987 NMES but include some modifications implemented for a 1992 feasibility study and further changes stemming from the feasibility study and the NMES-3 pretest. The instruments contain items that are asked once in the life of the study, items that are asked repeatedly in each round, and items that are updated in later rounds. Questions asked only once include basic sociodemographic characteristics. Core questions asked repeatedly include health status, health insurance coverage, employment status, days of restricted activity due to health problems, medical use, hospital admissions, and purchase of medicines. For each health encounter identified, data are obtained on the nature of health conditions, characteristics of the provider, services provided, associated charges, and sources and amounts of payment.

Permission forms for medical providers and for sources of employment and private health insurance coverage are collected in the field. Anyone who reports being employed but not covered by private health insurance is asked to sign a permission form that allows contact with the employer. A sample of medical providers identified by MEPS respondents is contacted in the survey of medical providers, MPC, to verify and supplement information provided by the family respondent in the household interview. Employers and other health insurance providers are contacted in the survey of health insurance providers, IC, to verify analogous insurance information and collect other information on insurance characteristics that household respondents would not typically know.

As a consequence of a successful test in the feasibility study, copies of policies for the private insurance coverage of sampled persons are collected from household respondents. The requests for insurance policies are initiated in Round 1 and followed up in Round 2 for eligible individuals who did not provide copies of their policies at the time of the first request. A description of the type of documents to be collected, a list of the policies identified by the respondent, and request forms to be given to providers are given to interviewing staff to assist in this effort.

Round 6

Round 6 is concerned with obtaining valuable ancillary information before a MEPS panel is retired. For the 1996 MEPS panel, it takes place after April 15, 1998, and asks for details on tax filing information. The majority of Round 6 interviews are administered by telephone from the interviewers' homes. In-person interviews are conducted for respondents without access to a telephone or for whom telephone administration is not feasible (e.g., respondents with hearing or comprehension problems).

Summary

The benefits of the redesigns incorporated in MEPS include significant cost savings, enhanced analytic capacities, increased opportunities for longitudinal analyses, reduction of major data gaps, and major improvements in providing timely data access to the research community at large. MEPS will provide information to help understand how the dramatic growth of managed care, changes in private health insurance, and other dynamics of today's market-driven health care delivery system have affected, and are likely to affect, the kinds, amounts, and costs of health care that Americans use. The survey will also provide necessary data for projecting who benefits from and who bears the cost of changes to existing health policy and the creation of new policies.

The MEPS data will serve as the primary source of information for research efforts examining how health care use and expenditures vary among different sectors of the population (such as the elderly, veterans, children, disabled persons, minorities, the poor, and the uninsured) and how the health insurance of households varies by demographic characteristics, employment status and characteristics, geographic locale, and other factors. The MEPS data will provide answers to questions about private health insurance costs and coverage, such as how employers' costs vary by region, and help evaluate the growing impact of managed care and of enrollment in different types of managed care plans.

The first MEPS data became available on public use data tapes in spring 1997. MEPS data also will be used in a series of studies to be published by AHCPR and by AHCPR researchers and others publishing in the scientific literature. As a consequence of the shift to a continuous ongoing annual survey, additional efficiencies in survey data collection, data editing, and imputation tasks will be realized, as well as further improvements in the timely release of MEPS data products to the research community.

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U.S. Department of Health and Human Services
Public Health Service
Agency for Health Care Policy and Research
2101 East Jefferson Street, Suite 501
Rockville, MD 20852

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