MEPS HC-033B:
1999 DENTAL VISITS

May 2002

Agency for Healthcare Research and Quality
Center for Cost and Financing Studies

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A. Data Use Agreement

Individual identifiers have been removed from the microdata contained in the files on this CD-ROM. Nevertheless, under sections 308 (d) and 903 (c) of the Public Health Service Act (42 U.S.C. 242m and 42 U.S.C. 299 a-1), data collected by the Agency for Healthcare Research and Quality (AHRQ) and/or the National Center for Health Statistics (NCHS) may not be used for any purpose other than for the purpose for which they were supplied; any effort to determine the identity of any reported cases, is prohibited by law.

Therefore in accordance with the above referenced Federal statute, it is understood that:

1. No one is to use the data in this data set in any way except for statistical reporting and analysis.

2. If the identity of any person or establishment should be discovered inadvertently, then (a) no use will be made of this knowledge, (b) the Director, Office of Management, AHRQ will be advised of this incident, (c) the information that would identify any individual or establishment will be safeguarded or destroyed, as requested by AHRQ, and (d) no one else will be informed of the discovered identity.

1 No one will attempt to link this data set with individually identifiable records from any data sets other than the Medical Expenditure Panel Survey or the National Health Interview Survey.

By using these data you signify your agreement to comply with the above-stated statutorily based requirements, with the knowledge that deliberately making a false statement in any matter within the jurisdiction of any department or agency of the Federal Government violates 18 U.S.C. 1001 and is punishable by a fine of up to $10,000 or up to 5 years in prison.

The Agency for Healthcare Research and Quality requests that users cite AHRQ and the Medical Expenditure Panel Survey as the data source in any publications or research based upon these data.

B. Background

The Medical Expenditure Panel Survey (MEPS) provides nationally representative estimates of health care use, expenditures, sources of payment, and insurance coverage for the U.S. civilian noninstitutionalized population. MEPS is cosponsored by the Agency for Healthcare Research and Quality (AHRQ) and the National Center for Health Statistics (NCHS).

MEPS is a family of three surveys. The Household Component (HC) is the core survey and forms the basis for the Medical Provider Component (MPC) and part of the Insurance Component (IC). 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 AHRQ on the financing and use of medical care in the United States. The National Medical Care Expenditure Survey (NMCES) was conducted in 1977, and the National Medical Expenditure Survey (NMES) was conducted in 1987. Since 1996, MEPS has continued 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.

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 advance these goals, MEPS includes linkage with the National Health Interview Survey (NHIS)–a survey conducted by NCHS 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.

1.0 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 five rounds of interviews over a 2½-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. NHIS provides a nationally representative sample of the U.S. civilian noninstitutionalized population, with oversampling of Hispanics and blacks.

2.0 Medical Provider Component

The MEPS MPC supplements and/or replaces information on medical care events reported in the MEPS HC by contacting medical providers and pharmacies identified by household respondents. The MPC sample includes all home health agencies and pharmacies reported by HC respondents. Office-based physicians, hospitals, and hospital physicians are also included in the MPC but may be subsampled at various rates, depending on burden and resources, in certain years.

Data are collected on medical and financial characteristics of medical and pharmacy events reported by HC respondents. The MPC is conducted through telephone interviews and record abstraction.

3.0 Insurance Component

The MEPS IC collects data on health insurance plans obtained through private and public-sector employers. 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, and employer characteristics.

Establishments participating in the MEPS IC are selected through three 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.

To provide an integrated picture of health insurance, data collected from the first sampling frame (employers and other insurance providers identified by MEPS HC respondents) are linked back to data provided by those respondents. Data collected from the two Census Bureau sampling frames are used to produce annual national and State estimates of the supply and cost of private health insurance available to American workers and to evaluate policy issues pertaining to health insurance. National estimates of employer contributions to group health insurance from the MEPS IC are used in the computation of Gross Domestic Product (GDP) by the Bureau of Economic Analysis.

The MEPS IC is an annual panel survey. Data are collected from the selected organizations through a prescreening telephone interview, a mailed questionnaire, and a telephone follow-up for nonrespondents.

4.0 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.

As soon as data collection and editing are completed, the MEPS survey data are released to the public in staged releases of summary reports, microdata files, and compendiums of tables. Data are also released through MEPSnet, an online interactive tool developed to give users the ability to statistically analyze MEPS data in real time. Summary reports and compendiums of tables are released as printed documents and electronic files. Microdata files are released on CD-ROM and/or as electronic files.

Printed documents and selected public use file data on CD-ROMs are available through the AHRQ Publications Clearinghouse. Write or call:

AHRQ Publications Clearinghouse
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Silver Spring, MD 20907
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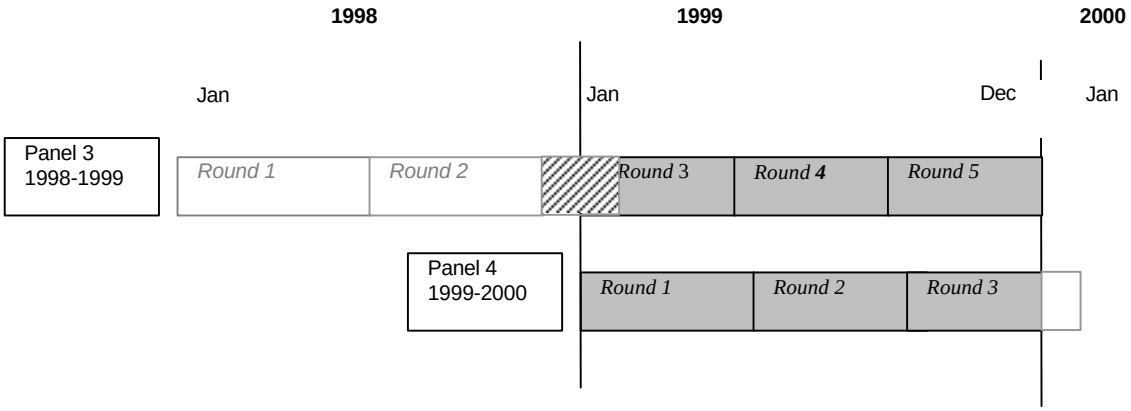
Be sure to specify the AHRQ number of the document or CD-ROM you are requesting. Selected electronic files are available through the Internet on the MEPS Web site: http://www.meps.ahrq.gov/

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 Healthcare Research and Quality.

C. Technical and Programming Information

1.0 General Information

This documentation describes one in a series of public use event files from the 1999 Medical Expenditure Panel Survey (MEPS) Household Component (HC). Released as an ASCII data file and SAS transport file, this public use file provides detailed information on dental events for a nationally representative sample of the civilian noninstitutionalized population of the United States. Data from the dental file can be used to make estimates of dental event utilization and expenditures for calendar year 1999. As illustrated below, this file consists of MEPS survey data obtained in the 1999 portion of Round 3 (Round 2 for some cases, see DVR2FLAG) and Rounds 4 and 5 for Panel 3, as well as Rounds 1, 2 and the 1999 portion of Round 3 for Panel 4 (i.e., the rounds for the MEPS panels covering calendar year 1999).



NOTE: Typically for MEPS panels, MEPS Round 2 data collection ends in the first year of a panel and Round 3 data collection begins in the first year of the panel and crosses the year boundary into the second year of the panel. The crosshatched area in the above figure signifies that Round 2 data collection for approximately one quarter of the Panel 3 households began in 1998, the first year of the panel, but ended in 1999. For those households, all of the Round 3 data collection occurred in 1999. For the other three quarters of Panel 3 households, Round 2 data collection followed the typical pattern and began and ended in 1998. For those households, Panel 3 Round 3 data collection took place during both the first and second years of the panel, as is typically done for Round 3.

Each record on this event file represents a unique dental event; that is, a dental event reported by the household respondent. Counts of dental event utilization are based entirely on household reports. Dental events were not included in the Medical Provider Component (MPC); therefore, the household reports all expenditure and payment data on the dental file.

Data from this event file can be merged with other 1999 MEPS HC data files, for the purposes of appending person-level data such as demographic characteristics or health insurance coverage to each dental event record on the current file.

This file can be also used to construct summary variables of expenditures, sources of payment, and

related aspects of the dental event. Aggregate annual person-level information on the use of dental events and other health services use is provided on the MEPS 1999 full year Person Level Expenditure file where each record represents a MEPS sampled person.

The following documentation offers a brief overview of the types and levels of data provided the content and structure of the files and the codebooks. It contains the following sections:

Data File Information
Sample Weights and Variance Estimation Variables
Strategies for Estimation
Merging/linking MEPS Data Files
References
Attachment 1: Definitions
Variable to Source Crosswalk

For more information on MEPS HC survey design, see S. Cohen, 1997; J. Cohen, 1997; and S. Cohen, 1996. A copy of the MEPS HC survey instrument used to collect the information on the dental file is available on the MEPS web site at the following address: <http**:**//www.meps.ahrq.gov>.

2.0 Data File Information

The 1999 dental public use data set consists of one event level data file. The file contains characteristics associated with the dental event and imputed expenditure data. For users wanting to impute expenditures, pre-imputed data are available through the CCFS data center. Please visit the CCFS data center website for details: <http://www.meps.ahrq.gov>. The data user/analyst is forewarned that the imputation of expenditures will necessitate a sizable commitment of resources: financial; staff; and time.

The 1999 dental public use data set contains 23,169 dental event records; of these records, 22,757 are associated with persons having a positive person-level weight (PERWT99F). This file includes dental event records for all household survey respondents who resided in eligible responding households and reported at least one dental event. Each record represents one household-reported dental event that occurred during calendar year 1999. Dental visits known to have occurred after December 31, 1999 are not included on this file. Some household respondents may have multiple dental events and thus will be represented in multiple records on this file. Other household respondents may have reported no dental events and thus will have no records on this file. These data were collected during the 1999 portion of Round 3 (Round 2 for some cases, see DVR2FLAG), and Rounds 4 and 5 for Panel 3, as well as Rounds 1, 2, and the 1999 portion of Round 3 for Panel 4 of the MEPS HC. The persons represented on this file had to meet either (a) or (b) below:

a) Be classified as a key in-scope person who responded for his or her entire period of 1999 eligibility (i.e., persons with a positive 1999 full-year person-level sampling weight (PERWT99F > 0)), or

b) Be classified as either an eligible non-key person or an eligible out-of-scope person

who responded for his or her entire period of 1999 eligibility, and belonged to a family (i.e., all persons with the same value for FAMID) in which all eligible family members responded for their entire period of 1999 eligibility, and at least one family member had a positive 1999 full-year person weight (i.e., eligible non-key or eligible out-of-scope persons who are members of a family all of whose members have a positive 1999 full-year family-level weight (WTFAM99>0)).

Please refer to Attachment 1 for definitions of keyness, in-scope, and eligibility.

Each dental event record includes the following: date of the dental event; type of provider seen, if visit was due to an accident; reason for dental event; procedure(s) associated with the dental event; whether or not medicines were prescribed; flat fee information; imputed sources of payment; total payment and total charge of the dental event expenditure; and a full-year person-level weight.

Data from this file can be merged the MEPS 1999 Full Year Population Characteristics file using the unique person identifier, DUPERSID, to append person characteristics such as demographic or health insurance characteristics to each record. Dental events can also be linked to the MEPS 1999 Prescribed Medicine File. Please see section 5.0 for details on how to merge MEPS data files.

Panel 3 cases (PANEL99 = 3 on 1999 person level file) can also be linked back to the 1998 MEPS HC public use data files. However, the user should be aware that at this time no weight is being provided to facilitate 2-year analysis of Panel 3 data.

2.1 Codebook Structure

For each variable on the Dental Visits files, both weighted and unweighted frequencies are provided in the codebook. The codebook and data file sequence list variables in the following order:

Unique person identifiers
Unique dental event identifiers
Other survey administration variables
Dental characteristics
Imputed expenditure variables
Weight and variance estimation variables

2.2 Reserved Codes

The following reserved code values are used:

Value	Definition
-1 INAPPLICABLE	Question was not asked due to skip pattern.
-7 REFUSED	Question was asked and respondent refused to answer question.
-8 DK	Question was asked and respondent did not know answer.
-9 NOT ASCERTAINED	Interviewer did not record the data.

Generally, values of -1, -7, -8, and -9 have not been edited on this file. The values of -1 and -9 can be edited by the data users/analysts by following the skip patterns in the HC survey questionnaire (located on the MEPS web site: <http://www.meps.ahrq.gov>).

2.3 Codebook Format

The dental codebook describes an ASCII data set (although the data are also being provided in a SAS transport file). The following codebook items are provided for each variable:

Identifier	Description
Name	Variable name (maximum of 8 characters)
Description	Variable descriptor (maximum of 40 characters)
Format	Number of bytes
Type	Type of data: numeric (indicated by NUM) or character (indicated by CHAR)
Start	Beginning column position of variable in record
End	Ending column position of variable in record

2.4 Variable Naming

In general, variable names reflect the content of the variable, with an 8 character limitation. All imputed/edited variables end with an "X."

2.4.1 General

Variables were derived from the HC survey questionnaire. The source of each variable is identified in Section D, the "Variable - Source Crosswalk." Sources for each variable are indicated in one of four ways:

(1) variables which are derived from CAPI or assigned in sampling are so indicated as "capi derived" or "assigned in sampling;"

(2) variables which come from one or more specific questions have those questionnaire sections and question numbers indicated in the "Source" column
- EV-Event Roster section
- FF- Flat Fee section
- CP- Charge Payment section;

(3) variables constructed from multiple questions using complex algorithms are labeled “Constructed” in the “Source” column; and

(4) variables which have been edited or imputed are so indicated.

2.4.2 Expenditure and Sources of Payment Variables

These variable names follow a standard naming convention, are 7 characters in length and end with an “X” indicating they are fully edited and imputed.

The total sum of payments variables, 12 sources of payment variables, and the total charge variables are named consistently in the following way:

The first two characters indicate the type of event:

IP - inpatient stay	OB - office-based visit
ER - emergency room visit	OP - outpatient visit
HH - home health visit	DV - dental visit
OM - other medical equipment	RX - prescribed medicine

In the case of the source of payment variables, the third and fourth characters indicate:

SF - self or family	OF - other Federal Government	XP - sum of payments
MR - Medicare	SL - State/local government	
MD - Medicaid	WC - Workers Compensation	
PV - private insurance	OT - other insurance	
VA - Veterans	OR - other private	
CH - CHAMPUS/CHAMPVA	OU - other public	

The fifth and sixth characters indicate the year (99). The seventh character ('X') indicates the variable was edited/imputed.

For example: DVSF99X is the edited/imputed amount paid by self or family for 1999 dental expenditures.

2.5 File Contents

2.5.1 Survey Administration and ID Variables

2.5.1.1 Person Identifiers (DUID - DUPERSID)

The dwelling unit ID (DUID) is a 5-digit random number assigned after the case was sampled for MEPS. The 3-digit person number (PID) uniquely identifies each person within the dwelling unit. The 8-character variable DUPERSID uniquely identifies each person represented on the file and is the

combination of the variables DUID and PID. For detailed information on dwelling units and families, please refer to the documentation for the 1999 Full Year Population Characteristics file or to definitions listed in Attachment 1.

2.5.1.2 Record Identifiers (EVNTIDX - FFEEIDX)

EVNTIDX uniquely identifies each dental event (i.e., each record on the dental file) and is the variable required to link dental events to data files containing details on conditions and/or prescribed medicines (MEPS 1999 Medical Condition File and MEPS 1999 Prescribed Medicines file; respectively). For details on linking see Section 5.0 or the Appendix File MEPS 1999.

FFEEIDX is a constructed variable, which uniquely identifies a flat fee group, that is, all events that were part of a flat fee payment situation. For example, a charge for orthodontia is typically covered in a flat fee arrangement where all visits are covered under one flat fee dollar amount. These events would have the same value for FFEEIDX. FFEEIDX identifies a flat fee payment situation that was identified using information from the Household Component. Please note that FFEEIDX should be used to link up all MEPS event files (excluding prescribed medicines) in order to determine the full set of events that are part of a flat fee group.

2.5.1.3 Record Indicators (EVENTRN - DVR2FLAG)

EVENTRN indicates the round in which the dental event was first reported. Please note: Rounds 3 (Round 2 for some cases, see DVR2FLAG), 4, and 5 are associated with MEPS survey data collected from Panel 3. Likewise, Round 1, 2, and 3 are associated with data collected from Panel 4.

DVR2FLAG indicates whether or not a Panel 3 Round 2 event occurred in 1999. DVR2FLAG was assigned a value of 1 where an event in Round 2 of Panel 3 occurred in a portion of calendar year 1999. Events from Panel 4 will have DVR2FLAG set to -1. Typically, only Round 3 of a MEPS panel covers two calendar years, so the DVR2FLAG was developed to identify where data collection procedures were modified. All utilization data for calendar year 1999 is provided on this file regardless of the round in which it happened to be collected. Data users/analysts need not modify any procedures to deal with this departure from the usual data collection process as the event variables have been developed so that the process is transparent.

2.5.2 Characteristics of Dental Events

2.5.2.1 Date of Dental Visit (DVDATEYR – DVDATEDD)

This file contains variables describing dental events reported by household respondents in the Dental Section of the MEPS HC survey questionnaire. There are three variables which indicate the day, month and year a dental event occurred (DVDATEDD, DVDATEMM, DVDATEYR, respectively). These variables have not been edited or imputed.

2.5.2.2 Type of Provider Seen (GENDENT - DENTYPE)

Respondents were asked about the type of provider seen during the dental visit, e.g. general dentist, dental hygienist, or orthodontist. More than one type of provider may have been identified on an event record.

2.5.2.3 Treatment, Procedures, and Services (EXAMINE - DENTMED)

Respondents were asked about the types of services or treatments they received during the visit (EXAMINE - TMDTMJ), such as root canal or x-rays, and whether or not the visit was because of an accident (DENTINJ). More than one type of service or treatment may have been identified on an event record. Some procedures or services identified in DENTOTHR as "Dental services other specify" have been edited to appropriate procedure and service categories. Both the edited and unedited versions of these variables are included on the file. DENTMED indicates whether or not the respondent received a prescription medication, including free samples, during the dental visit.

2.5.3 Flat Fee Variables (FFDVTYPE, FFBEF99, FFTOT00)

2.5.3.1 Definition of Flat Fee Payments

A flat fee is the fixed dollar amount a person is charged for a package of services provided during a defined period of time. Examples would be an orthodontist's fee, which covers multiple visits; or a dental surgeon's fee covering surgical procedure and post-surgical care. A flat fee group is the set of medical services that are covered under the same flat fee payment situation. The flat fee groups represented on the dental file, includes flat fee groups where at least one of the health care events, as reported by the HC respondent, occurred during 1999. By definition, a flat fee group can span multiple years. Furthermore, a single person can have multiple flat fee groups.

There are four variables on the dental file that describe a flat fee payment situation and the number of medical events that are part of a flat fee group.

2.5.3.2 Flat Fee Variable Descriptions

Flat Fee ID (FFEEIDX)

As noted earlier in the Section 2.5.1.2 "Record Identifiers," for a person, the variable FFEEIDX can be used to uniquely identify all events that are part of the same flat fee group. It can identify such events from all of the1999 MEPS event files (excluding the prescribed medicines file) because FFEEIDX is the same value on all of the MEPS event files. For the dental events that are not part of a flat fee payment situation, the flat fee variables described below are all set to –1 INAPPLICABLE.

Flat Fee Type (FFDVTYPE)

FFDVTYPE indicates whether the 1999 dental event is the "stem" or "leaf" of a flat fee group. A stem (records with FFDVTYPE = 1) is the initial dental service (event) which is followed by other dental events that are covered under the same flat fee payment. The leaves of the flat fee group (records with FFDVTYPE = 2) are those dental events that are tied back to the initial medical event (the stem) in the flat fee group. These "leaf" records have their expenditure variables set to zero.

Counts of Flat Fee Events that Cross Years (FFBEF99-FFTOT00)

As described in Section 2.5.3.1, a flat fee payment situation covers multiple events and the multiple events could span multiple years. For situations where a 1999 dental visit is part of a group of events, and some of the events occurred before or after 1999, counts of the known events are provided on the dental record. Indicator variables are provided if some of the events occurred before or after 1999. These variables are:

> FFBEF99 -- total number of pre-1999 events in the same flat fee group as the 1999 dental event. This count would not include 1999 dental events.
>
> FFTOT00 -- indicates whether or not there are 2000 medical events in the same flat fee group as the 1999 dental event record.

2.5.3.3 Caveats of Flat Fee Groups

Data users/analysts should note that flat fee payment situations are common on the dental file. There are 4,416 dental events that are identified as being part of a flat fee payment group.

In general, every flat fee group should have an initial visit (stem) and at least one subsequent visit (leaf). There are some situations where this is not true. For some of these flat fee groups, the initial visit reported occurred in 1999, but the remaining visits that were part of this flat fee group occurred in 2000. In this case, the 1999 flat fee group represented on this file would consist of one event (the stem). The 2000 "leaf" events that are part of this flat fee group are not represented on the file. Similarly, the household respondent may have reported a flat fee group where the initial visit began in 1998 but subsequent visits occurred during 1999. In this case, the initial visit would not be represented on the file. This 1999 flat fee group would then only consist of one or more leaf records and no stem.

2.5.4 Expenditure Data

2.5.4.1 Definition of Expenditures

Expenditures refer to what is paid for dental services. More specifically, expenditures in MEPS are defined as the sum of payments for care received, including out of pocket payments and payments made by private insurance, Medicaid, Medicare and other sources. The definition of expenditures used in MEPS differs slightly from its predecessors: the 1987 NMES and 1977 NMCES surveys where

"charges" rather than sum of payments were used to measure expenditures. This change was adopted because charges became a less appropriate proxy for medical expenditures during the 1990's due to the increasingly common practice of discounting. Although measuring expenditures as the sum of payments incorporates discounts in the MEPS expenditure estimates, the estimates do not incorporate any payment not directly tied to specific medical care visits, such as bonuses or retrospective payment adjustments paid by third party payers. Another general change from the two prior surveys is that charges associated with uncollected liability, bad debt, and charitable care (unless provided by a public clinic or hospital) are not counted as expenditures because there are no payments associated with those classifications. While charge data are provided on this file, data users/analysts should use caution when working with this data because a charge does not typically represent actual dollars exchanged for services or the resource costs of those services, nor are they directly comparable to the resource costs of those services, nor are they directly comparable to the expenditures defined in the 1987 NMES (for details on expenditure definitions see Monheit et al, 1999). AHRQ has developed factors to apply to the 1987 NMES expenditure data to facilitate longitudinal analysis. These factors can be assessed via CCFS data center. For more information see the data center section of the MEPS web site <http://www.meps.ahrq.gov>.

2.5.4.2 Imputation and Data Editing Methodologies of Expenditure Variables

The general methodology used for editing and imputing expenditure data is described below. Neither the dental events nor other medical expenditures (such as glasses, contact lenses, and hearing devices) were included in the MPC. Therefore, although the general procedures remain the same, for dental and other medical expenditures, editing and imputation methodologies were applied only to household-reported data. Specific methodologies for editing and imputing dental expenditure follows.

2.5.4.2.1 General Data Editing Methodology

Logical edits were used to resolve internal inconsistencies and other problems in the HC survey-reported data. The edits were designed to preserve partial payment data from households and providers, and to identify actual and potential sources of payment for each household-reported event. In general, these edits accounted for outliers, copayments or charges reported as total payments, and reimbursed amounts that were reported as out of pocket payments. In addition, edits were implemented to correct for misclassifications between Medicare and Medicaid and between Medicare HMOs and private HMOs as payment sources. These edits produced a complete vector of expenditures for some events, and provided the starting point for imputing missing expenditures in the remaining events.

2.5.4.2.2 General Hot-Deck Imputation

A weighted sequential hot-deck procedure was used to impute for missing expenditures as well as total charge. The procedure uses survey data from respondents to correct for missing non-respondent data, while preserving the respondents' weighted distribution in the imputation process. Classification variables vary by event type in the hot-deck imputations, but total charge and insurance coverage are key variables in all of the imputations. Separate imputations were performed for nine categories of medical provider care: inpatient hospital stays, outpatient hospital department visits, emergency room

visits, visits to physicians, visits to non-physician providers, dental services, home health care by certified providers, home health care by paid independents, and other medical expenses. After the imputations were finished, visits to physician and non-physician providers were combined into a single medical provider file. The two categories of home care also were combined into a single home health file.

2.5.4.2.3 Dental Data Editing and Imputation

Expenditures on visits to dentists were developed in a sequence of logical edits and imputations. The household edits were used to correct obvious errors in the reporting of expenditures, and to identify actual and potential sources of payments. Some of the edits were global (i.e., applied to all events). Others were hierarchical and mutually exclusive. One of the more important edits separated flat fee events from simple events. This edit was necessary because groups of events covered by a flat fee (i.e., a flat fee bundle) were edited and imputed separately from individual events covered by a single charge (i.e., simple events). Dental services were imputed as flat fee events if the charges covered a package of health care services (e.g., orthodontia), and all of the services were part of the same event type (i.e., a pure bundle). If a bundle contained more than one type of event, the services were treated as simple events in the imputations (See Section 2.5.3 for more detail on the definition and imputation of events in flat fee bundles.)

Logical edits also were used to sort each event into a specific category for the imputations. Events with complete expenditures were flagged as potential donors for the hot-deck imputations, while events with missing expenditure data were assigned to various recipient categories. Each event was assigned to a recipient category based on its pattern of missing data. For example, an event with a known total charge but no expenditures information was assigned to one category, while an event with a known total charge and some expenditures information was assigned to a different category. Similarly, events without a known total charge were assigned to various recipient categories based on the amount of missing data.

The logical edits produced nine recipient categories for events with missing data. Eight of the categories were for events with a common pattern of missing data and a primary payer other than Medicaid. These events were imputed separately because persons on Medicaid rarely know the provider's charge for services or the amount paid by the state Medicaid program. As a result, the total charge for Medicaid-covered services was imputed and discounted to reflect the amount that a state program would pay for the care.

Separate hot-deck imputations were used to impute for missing data in each of the other eight recipient categories. The donor pool included "free events" because, in some instances, providers are not paid for their services. These events represent charity care, bad debt, provider failure to bill, and third party payer restrictions on reimbursement in certain circumstances. If free events were excluded from the donor pool, total expenditures would be over-counted because the cost of free care would be implicitly included in paid events and explicitly included in events that should have been treated as free from provider.

2.5.4.3 Capitation Imputation

Health maintenance organizations (HMOs) receive time-based (capitation) payments to cover their members' cost of health care. Services provided by HMOs are referred to as "capitated events" in the MEPS expenditure imputations. They are singled out for special treatment because the payments received by HMOs are not tied directly to individual events and services. That is, per person per month payments to an HMO, as opposed to fee-for-service reimbursement for health care, pose a problem in the estimation of health care costs because MEPS uses event-level payments for service as its measure of expenditures. Capitated events are sent through there own imputation procedure.

2.5.4.4 Imputation Flag Variable (IMPFLAG)

Unlike prior data releases, only one imputation flag was created for 1999 event files. This variable, IMPFLAG, is a six-category variable that indicates if the event contains complete Household Component (HHC) or Medical Provider Component (MPC) data, was fully or partially imputed, or was imputed in the capitated imputation process. Following is how the new imputation flag is coded; the categories are mutually exclusive.

IMPFLAG= 0 (not eligible for imputation)
IMPFLAG=1 (complete HC data)
IMPFLAG=2 (complete MPC data)
IMPFLAG=3 (fully imputed)
IMPFLAG=4 (partially imputed)
IMPFLAG=5 (capitation imputation)

2.5.4.5 Flat Fee Expenditures

The approach used to count expenditures for flat fees was to place the expenditure on the first visit of the flat fee group. The remaining visits have zero payments. Thus, if the first visit in the flat fee group occurred prior to 1999, all of the events that occurred in 1999 will have zero payments. Conversely, if the first event in the flat fee group occurred at the end of 1999, the total expenditure for the entire flat fee group will be on that event, regardless of the number of events it covered after 1999.

2.5.4.6 Zero Expenditures

As noted above, there are some dental events reported by respondents where the payments were zero. This could occur for several reasons including (1) free care was provided, (2) bad debt was incurred, (3) care was covered under a flat fee arrangement beginning in an earlier year, or (4) follow-up visits were provided without a separate charge (e.g. after a surgical procedure). If all of the dental events for a person fell into one of these categories, then the total annual expenditures for that person would be zero.

2.5.4.7 Sources of Payment

In addition to total expenditures, variables are provided which itemize expenditures according to major

source of payment categories. These categories are:

1. Out of pocket by user or family

2. Medicare

3. Medicaid

4. Private Insurance

5. Veteran's Administration, excluding CHAMPVA

6. CHAMPUS or CHAMPVA

7. Other Federal sources - includes Indian Health Service, Military Treatment Facilities, and other care by the Federal government

8. Other State and Local Source - includes community and neighborhood clinics, State and local health departments, and State programs other than Medicaid.

9. Workers Compensation

10. Other Unclassified Sources - includes sources such as automobile, homeowner's, liability, and other miscellaneous or unknown sources.

Two additional source of payment variables were created to classify payments for particular persons that appear inconsistent due to differences between survey questions on health insurance coverage and sources of payment for medical events. These variables include:

11. Other Private - any type of private insurance payments reported for persons not reported to have any private health insurance coverage during the year as defined in MEPS; and

12. Other Public - Medicaid payments reported for persons who were not reported to be enrolled in the Medicaid program at any time during the year.

Though relatively small in magnitude, data users/analysts should exercise caution when interpreting the expenditures associated with these two additional sources of payment. While these payments stem from apparent inconsistent responses to health insurance and source of payment questions in the survey, some of these inconsistencies may have logical explanations. For example, private insurance coverage in MEPS is defined as having a major medical plan covering hospital and physician services. If a MEPS sampled person did not have such coverage but had a single service type insurance plan (e.g. dental insurance) that paid for a particular episode of care, those payments may be classified as "other private". Some of the "other public" payments may stem from confusion between Medicaid and other state and local programs or may be from persons who were not enrolled in Medicaid, but were presumed eligible by a provider who ultimately received payments from the program.

2.5.4.8 Dental Expenditure Variables (DVFS99X- DVTC99X)

Dental expenditures were obtained only through the Household Component Survey. For cases with missing expenditure data, dental expenditures were imputed using the procedures described above. DVFS99X - DVOT99X are the 12 sources of payment, DVTC99X is the total charge, and DVXP99X is the sum of the 12 sources of payments for the dental expenditure. The 12 sources of payment are: self/family, Medicare, Medicaid, private insurance, Veterans Administration, CHAMPUS/CHAMPVA, other federal, state/local governments, Workman's Compensation, other private insurance, other public insurance and other insurance.

2.5.4.9 Rounding

Expenditure variables have been rounded to the nearest penny. Person level expenditure information to be released on the MEPS 1999 Person Level Expenditure File will be rounded to the nearest dollar. It should be noted that using the MEPS event files to create person level totals will yield slightly different totals than those found on the person level expenditure file. These differences are due to rounding only. Moreover, in some instances, the number of persons having expenditures on the event files for a particular source of payment may differ from the number of persons with expenditures on the person level expenditure file for that source of payment. This difference is also an artifact of rounding only. Please see the 1999 Appendix File for details on such rounding differences.

3.0 Sample Weight (PERWT99F)

3.1 Overview

There is a single full year person-level weight (PERWT99F) assigned to each record for each key, in-scope person who responded to MEPS for the full period of time that he or she was in-scope during 1999. A key person either was a member of an NHIS household at the time of the NHIS interview, or became a member of such a household after being out-of-scope at the time of the NHIS (examples of the latter situation include newborns and persons returning from military service, an institution, or living outside the United States). A person is in-scope whenever he or she is a member of the civilian noninstitutionalized portion of the U.S. population.

3.2 Details on Person Weights Construction

The person-level weight PERWT99F was developed in three stages. A person level weight for Panel 4 was created, including both an adjustment for nonresponse over time and poststratification, controlling to Current Population Survey (CPS) population estimates based on five variables. Variables used in the establishment of person-level poststratification control figures included: census region (Northeast, Midwest, South, West); MSA status (MSA, non-MSA); race/ethnicity (Hispanic, black but non-Hispanic, and other); sex; and age. Then a person level weight for Panel 3 was created, again including an adjustment for nonresponse over time and poststratification, again controlling to CPS population estimates based on the same five variables. When poverty status information derived from income variables became available, a 1999 composite weight was formed from the Panel 3 and Panel

4 weights by multiplying the Panel weights by .5. Then a final poststratification was done on this composite weight variable, including poverty status (below poverty, from 100 to 125 percent of poverty, from 125 to 200 percent of poverty, from 200 to 400 percent of poverty, at least 400 percent of poverty) as well as the original five poststratification variables in the establishment of control totals.

3.2.1 MEPS Panel 3 Weight

The person level weight for MEPS Panel 3 was developed using the 1998 full year weight for an individual as a "base" weight for survey participants present in 1998. For key, in-scope respondents who joined a RU some time in 1999 after being out of scope in 1998, the 1998 family weight associated with the family the person joined served as a "base" weight. The weighting process included an adjustment for nonresponse over Rounds 4 and 5 as well as poststratification to population control figures for December 1999. These control figures were derived by scaling back the population totals obtained from the March 1999 CPS to reflect the December, 1999 CPS estimated population distribution across age and sex categories as of December, 1999. Variables used in the establishment of person level poststratification control figures included: census region (Northeast, Midwest, South, West); MSA status (MSA, non-MSA); race/ethnicity (Hispanic, black but non-Hispanic, and other); sex, and age. Overall, the weighted population estimate for the civilian, noninstitutionalized population on December 31, 1999 is 273,003,778. Key, responding persons not in-scope on December 31, 1999 but in-scope earlier in the year retained, as their final Panel 3 weight, the weight after the nonresponse adjustment.

3.2.2 MEPS Panel 4 Weight

The person level weight for MEPS Panel 4 was developed using the MEPS Round 1 person-level weight as a 'base" weight. For key, in-scope respondents who joined a RU after Round 1, the Round 1 family weight served as a "base" weight. The weighting process included an adjustment for nonresponse over Round 2 and the 1999 portion of Round 3 as well as poststratification to the same population control figures for December 1999 used for the MEPS Panel 3 weights. The same five variables employed for Panel 3 poststratification (census region, MSA status, race/ethnicity, sex, and age) were used for Panel 4 poststratification. Similarly, for Panel 4, key, responding persons not in-scope on December 31, 1999 but in-scope earlier in the year retained, as their final Panel 4 weight, the weight after the nonresponse adjustment.

Note that the MEPS round 1 weights (for both panels with one exception as noted below) incorporated the following components: the original household probability of selection for the NHIS; ratio-adjustment to NHIS-based national population estimates at the household (occupied dwelling unit) level; adjustment for nonresponse at the dwelling unit level for Round 1; and poststratification to figures at the family and person level obtained from the March 1999 CPS data base.

3.2.3 The Final Weight for 1999

Variables used in the establishment of person level poststratification control figures included: poverty status (below poverty, from 100 to 125 percent of poverty, from 125 to 200 percent of poverty, from 200 to 400 percent of poverty, at least 400 percent of poverty); census region (Northeast, Midwest,

South, West); MSA status (MSA, non-MSA); race/ethnicity (Hispanic, black but non-Hispanic, and other); sex, and age. Overall, the weighted population estimate for the civilian, noninstitutionalized population for December 31, 1999 is 273,003,778 (PERWT99F>0 and INSC1231=1). The inclusion of key, in-scope persons who were not in-scope on December 31, 1999 brings the estimated total number of persons represented by the MEPS respondents over the course of the year up to 276,410,767 (PERWT99F>0). The weighting process included poststratification to population totals obtained from the 1996 MEPS Nursing Home Component for the number of individuals admitted to nursing homes. For the 1999 full year file an additional poststratification was done to population totals obtained from the 1998 Medicare Current Beneficiary Survey (MCBS) for the number of deaths among Medicare beneficiaries experienced in the 1999 MEPS.

3.2.4 Coverage

The target population for MEPS in this file is the 1999 U.S. civilian, noninstitutionalized population. However, the MEPS sampled households are a subsample of the NHIS households interviewed in 1998 (Panel 3) and 1999 (Panel 4). New households created after the NHIS interviews for the respective Panels and consisting exclusively of persons who entered the target population after 1998 (Panel 3) or after 1999 (Panel 4) are not covered by MEPS. These would include families consisting solely of: immigrants; persons leaving the military; U.S. citizens returning from residence in another country; and persons leaving institutions. It should be noted that this set of uncovered persons constitutes only a tiny proportion of the MEPS target population

4.0 Strategies for Estimation

This file is constructed for efficient estimation of utilization, expenditure, and sources of payment for dental events and to allow for estimates of number of persons with dental utilization in 1999.

4.1 Variables with Missing Values

It is essential that the analyst examine all variables for the presence of negative values used to represent missing values. For continuous or discrete variables, where means or totals may be taken, it may be necessary to set minus values to values appropriate to the analytic needs. That is, the analyst should either impute a value or set the value to one that will be interpreted as missing by the computing language used. For categorical and dichotomous variables, the analyst may want to consider whether to recode or impute a value for cases with negative values or whether to exclude or include such cases in the numerator and/or denominator when calculating proportions.
Methodologies used for the editing/imputation of expenditure variables (e.g. sources of payment, flat fee, and zero expenditures) are described in Section 2.5.4.

4.2 Basic Estimates of Utilization, Expenditure and Sources of Payment

While the examples described below illustrate the use of event level data in constructing person level total expenditures, these estimates can also be derived from the person level expenditure file unless the characteristic of interest is event specific.

In order to produce national estimates related to dental visits utilization, expenditure and sources of payment, the value in each record contributing to the estimates must be multiplied by the weight (PERWT99F) contained on that record.

Example 1

For example, the total number of dental visits, for the civilian non-institutionalized population of the U.S. in 1999 is estimated as the sum of the weight (PERWT99F) across all dental visit event records. That is,

$$\sum W_j = 295{,}912{,}020 \qquad (1)$$

Example 2

Subsetting to records based on characteristics of interest expands the scope of potential estimates. For example, the estimate for the mean out-of-pocket payment per dental visit (for those who had such expense greater than 0) should be calculated as the weighted mean of amount paid by self/family. That is,

$$(\sum W_j X_j)/(\sum W_j) = \$109.60 \qquad (2)$$

where

$\sum W_j = 239{,}005{,}940$ and $X_j = DVSF99X_j$

for all records with $DVXP99X_j > 0$

This gives $109.60 as the estimated mean amount of out-of-pocket payment of expenditures associated with dental visits and 239,005,940 as an estimate of the total number of dental visits with expenditure. Both of these estimates are for the civilian non-institutionalized population of the U.S. in 1999.

Example 3

Another example would be to estimate the average proportion of total expenditures (where event expense is greater than 0) paid by private insurance per dental visit. This should be calculated as the weighted mean of the proportion of the total dental visit expenditures paid by private insurance at the dental visit level. That is,

$$(\sum W_j Y_j)/(\sum W_j) = 0.4613 \qquad (3)$$

where

$\sum W_j = 239{,}005{,}940$ and $Y_j = DVPV99X_j / DVXP99X_j$

for all records with $DVXP99X_j > 0$

This gives 0.4613 as the estimated mean proportion of total expenditures paid by private insurance for dental visits with expenditure for the civilian non-institutionalized population of the U.S. in 1999.

4.3 Estimates of the Number of Persons with Dental Visits

When calculating an estimate of the total number of persons with dental visits, users can use a person-level file or this event file. However, this event file must be used when the measure of interest is defined at the event level. For example, to estimate the number of persons in the civilian non-institutionalized population of the U.S., with a dental visit in 1999 because of accident or injury, this event file must be used. This would be estimated as

$$\sum W_i X_i \qquad \text{across all unique persons i on this file} \qquad (4)$$

where

W_i is the sampling weight (PERWT99F) for person i

and

$X_i = 1$ if $DENTINJ_j = 1$ for any dental visit record of person i.

$= 0$ otherwise

4.4 Person-Based Ratio Estimates

4.4.1 Person-Based Ratio Estimates Relative to Persons with Dental Visits

This file may be used to derive person-based ratio estimates. However, when calculating ratio estimates where the denominator is persons, care should be taken to properly define and estimate the unit of analysis up to person level. For example, the mean expense for persons with dental visits is estimated as,

$$(\sum W_i Z_i)/(\sum W_i) \qquad \text{across all unique persons i on this file} \qquad (5)$$

where

W_i is the sampling weight (PERWT99F) for person i

and

$Z_i = \sum DVXP98X_j$ across all dental visit events of person i.

4.4.2 Person-Based Ratio Estimates Relative to the Entire Population

If the ratio relates to the entire population, this file cannot be used to calculate the denominator, as only those persons with at least one dental visit are represented on this data file. In this case the 1999 person level file, which has data for all sampled persons, must be used to estimate the total number of persons (i.e. those with use and those without use). For example, to estimate the proportion of civilian non-institutionalized population of the U.S. with at least one dental visit due to accident or injury, the numerator would be derived from data on this event file, and the denominator would be derived from data on the person-level file. That is,

$(\sum W_i Z_i)/(\sum W_i)$ across all unique persons i on the MEPS HC-person level file (6)

where

W_i is the sampling weight (PERWT99F) for person i

and

$Z_i = 1$ if $DENTINJ_j = 1$ for any dental visit record of person i.

$= 0$ otherwise.

4.5 Sampling Weights for Merging Previous Releases of MEPS Household Data with this Event File

There have been several previous releases of MEPS Household Survey public use data. Unless a variable name common to several files is provided, the sampling weights contained on these data files are file-specific. The file-specific weights reflect minor adjustments to eligibility and response indicators due to birth, death, or institutionalization among respondents.

For estimates from a MEPS data file that do not require merging with variables from other MEPS data files, the sampling weight(s) provided on that data file are the appropriate weight(s). When merging a MEPS Household data file to another, the major analytical variable (i.e. the dependent variable) determines the correct sampling weight to use.

4.6 Variance Estimation

To obtain estimates of variability (such as the standard error of sample estimates or corresponding confidence intervals) for estimates based on MEPS survey data, one needs to take into account the complex sample design of MEPS. Various approaches can be used to develop such estimates of variance including use of the Taylor series or various replication methodologies. Replicate weights have not been developed for the MEPS 1999 data. Variables needed to implement a Taylor series estimation approach are provided in the file and are described in the paragraph below.

Using a Taylor Series approach, variance estimation strata and the variance estimation PSUs within these strata must be specified. The corresponding variables on the MEPS full year utilization database are VARSTR99 and VARPSU99, respectively. Specifying a "with replacement" design in a computer software package such as SUDAAN (Shah, 1996) should provide standard errors appropriate for assessing the variability of MEPS survey estimates. It should be noted that the number of degrees of freedom associated with estimates of variability indicated by such a package may not appropriately reflect the actual number available. For MEPS sample estimates for characteristics generally distributed throughout the country (and thus the sample PSUs), there are over 100 degrees of freedom associated with the corresponding estimates of variance. The following illustrates these concepts using two examples from section 4.2.

Examples 2 and 3 from Section 4.2

Using a Taylor Series approach, specifying VARSTR99 and VARPSU99 as the variance estimation strata and PSUs (within these strata) respectively and specifying a Awith replacement@ design in a

computer software package SUDAAN will yield standard error estimate of $4.02 and 0.0096 for the estimated mean of out-of-pocket payment and the estimated mean proportion of total expenditures paid by private insurance respectively.

5.0 Merging/Linking MEPS Data Files

Data from the dental file can be used alone or in conjunction with other files. This section provides instructions for linking the dental file with other MEPS public use files, including: the conditions file, the prescribed medicines file, and a person-level file.

5.1 Linking a Person-Level File to the Dental File

Data from the dental event file can be used alone or in conjunction with other files. Merging characteristics of interest from other MEPS files (e.g., 1999 Full Year Population Characteristics File or 1999 Prescribed Medicines File) expands the scope of potential estimates. For example, to estimate the total number of dental events of persons with specific demographic characteristics (such as age, race, and sex), population characteristics from a person-level file need to be merged onto the dental file. This procedure is shown below.

Create data set PERSX by sorting the 1999 Full Year Population Characteristics File, by the person identifier, DUPERSID. Keep only variables to be merged onto the dental file and DUPERSID.

Create data set DENT by sorting the dental events file by person identifier, DUPERSID.

Create final data set NEWDENT by merging these two files by DUPERSID, keeping only records on the dental file.

The following is an example of SAS code which completes these steps:

```
PROC SORT DATA=1999 Full Year Population Characteristics File
(KEEP=DUPERSID AGE SEX EDUC)
OUT=PERSX;
  BY DUPERSID;
RUN;
PROC SORT DATA=DENT;
  BY DUPERSID;
RUN;

DATA NEWDENT;
  MERGE DENT (IN=A) PERSX(IN=B);
  BY DUPERSID;
IF A;
RUN;
```

The 1999 Appendix File provides examples of how to merge other MEPS data files.

5.2 Linking the Dental File to the Medical Conditions File and/or the Prescribed Medicines File

Due to survey design issues, there are limitations/caveats that data users/analyst must keep in mind when linking the different files. Those limitations/caveats are listed below. For detailed linking examples, including SAS code, data users/analysts should refer to the 1999 Appendix File.

5.2.1 Limitations/Caveats of RXLK (the Prescribed Medicine Link File)

The RXLK file provides a link from the MEPS event files to the prescribed medicine records on the 1999 Prescribed Medicine Event File. When using RXLK, analysts should keep in mind that one dental visit can link to more than one prescribed medicine record. Conversely, a prescribed medicine event may link to more than one dental visit or different types of events. When this occurs, it is up to the analyst to determine how the prescribed medicine expenditures should be allocated among those dental and/or medical events.

5.2.2 Limitations/Caveats of CLNK (the Medical Conditions Link File)

The CLNK provides a link from MEPS event files to the Medical Conditions File. When using the CLNK, analysts should keep in mind that (1) conditions are self-reported and (2) there may be multiple conditions associated with a dental visit. Users should also note that not all dental visits link to the condition file.

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Attachment 1

Definitions

Dwelling Units, Reporting Units, Families, and Persons - The definitions of Dwelling Units (DUs) and Group Quarters in the MEPS Household Survey are generally consistent with the definitions employed for the National Health Interview Survey. The dwelling unit ID (DUID) is a five-digit random ID number assigned after the case was sampled for MEPS. The person number (PID) uniquely identifies all persons within the dwelling unit. The variable DUPERSID is the combination of the variables DUID and PID.

A Reporting Unit (RU) is a person or group of persons in the sampled dwelling unit who are related by blood, marriage, adoption or other family association, and who are to be interviewed as a group in MEPS. Thus, the RU serves chiefly as a family-based "survey operations" unit rather than an analytic unit. Regardless of the legal status of their association, two persons living together as a "family" unit were treated as a single reporting unit if they chose to be so identified.

Unmarried college students under 24 years of age who usually live in the sampled household, but were living away from home and going to school at the time of the Round 1 MEPS interview, were treated as a Reporting Unit separate from that of their parents for the purpose of data collection. These variables can be found on MEPS person level files.

In-Scope - A person was classified as in-scope (IN-SCOPE) if he or she was a member of the U.S. civilian, non-institutionalized population at some time during the Round 1 interview. This variable can be found on MEPS person level files.

Keyness -The term "keyness" is related to an individual's chance of being included in MEPS. A person is key if that person is appropriately linked to the set NHIS sampled households designated for inclusion in MEPS. Specifically, a key person either was a member of an NHIS household at the time of the NHIS interview, or became a member of such a household after being out-of-scope prior to joining that household (examples of the latter situation include newborns and persons returning from military service, an institution, or living outside the United States).

A non-key person is one whose chance of selection for the NHIS (and MEPS) was associated with a household eligible but not sampled for the NHIS, who happened to have become a member of a MEPS reporting unit by the time of the MEPS Round 1 interview. MEPS data, (e.g., utilization and income) were collected for the period of time a non-key person was part of the sampled unit to permit family level analyses. However, non-key persons who leave a sample household would not be contacted again for subsequent interviews. Non-key individuals are not part of the target sample used to obtain person level national estimates.

It should be pointed out that a person may be key even though not part of the civilian, non-institutionalized portion of the U.S population. For example, a person in the military may be living with his or her civilian spouse and children in a household sampled for the 1995 NHIS. The person in the military would be considered a key person for MEPS. However, such a person would not

receive a person-level sample weight so long as he or she was in the military. All key persons who participated in the first round of a MEPS Panel received a person level sample weight except those who were in the military. The variable indicating "keyness" is KEYNESS. This variable can be found on MEPS person level files.

Eligibility -The eligibility of a person for MEPS pertains to whether or not data were to be collected for that person. All key, in-scope persons of a sampled RU were eligible for data collection. The only non-key persons eligible for data collection were those who happened to be living in the same RU as one or more key persons, and their eligibility continued only for the time that they were living with a key person. The only out-of-scope persons eligible for data collection were those who were living with key in-scope persons, again only for the time they were living with a key person. Only military persons meet this description. A person was considered eligible if they were eligible at any time during Round 1. The variable indicating "eligibility" is ELIGRND1, where 1 is coded for persons eligible for data collection for at least a portion of the Round 1 reference period, and 2 is coded for persons not eligible for data collection at any time during the first round reference period. This variable can be found on MEPS person level files.

Unimputed - This means that only a series of logical edits were applied to the MPC data to correct for several problems including outliers, copayments or charges reported as total payments, and reimbursed amounts counted as out of pocket payments. This data was used as the imputation source to account for missing HC data.

Imputation -Imputation is more often used for item missing data adjustment through the use of predictive models for the missing data, based on data available on the same (or similar) cases. Hot-deck imputation creates a data set with complete data for all nonrespondent cases, often by substituting the data from a respondent case that resembles the nonrespondent on certain known variables.

D. Variable-Source Crosswalk

MEPS HC-033B: 1999 Dental Visits

Survey Administration Variables

Variable	Description	Source
DUID	Dwelling unit ID	Assigned in sampling
PID	Person number	Assigned in sampling
DUPERSID	Sample person ID (DUID + PID)	Assigned in sampling
EVNTIDX	Event ID	Assigned in Sampling
EVENTRN	Event round number	CAPI derived
DVR2FLAG	Indicates whether or not a Panel 3 Round 2 event occurred in 1999	Constructed
FFEEIDX	Flat fee ID	Constructed

Dental Events Variables

Variable	Description	Source
DVDATEYR	Event start date – year	CAPI derived
DVDATEMM	Event start date – month	CAPI derived
DVDATEDD	Event start date – day	CAPI derived
GENDENT	General dentist seen	DN03
DENTHYG	Dental hygienist seen	DN03
DENTTECH	Dental technician seen	DN03
DENTSURG	Dental surgeon seen	DN03
ORTHODNT	Orthodontist seen	DN03
ENDODENT	Endodontist seen	DN03
PERIODNT	Periodontist seen	DN03
DENTYPE	Other dental specialist seen	DN03
EXAMINE	General exam or consultation	DN04
CLENTETX	Edited CLENTETH	DN04 (Edited)
CLENTETH	Cleaning, prophylaxis, or polishing	DN04

Variable	Description	Source
JUSTXRAY	X-rays, radiographs or bitewings	DN04
FLUORIDE	Fluoride treatment	DN04
SEALANT	Sealant application	DN04
FILLINGX	Edited FILLING	DN04 (Edited)
FILLING	Fillings	DN04
INLAY	Inlays	DN04
CROWNSX	Edited CROWNS	DN04 (Edited)
CROWNS	Crowns or caps	DN04
ROOTCANX	Edited ROOTCANL	DN04 (Edited)
ROOTCANL	Root canal	DN04
GUMSURGX	Edited GUMSURG	DN04 (Edited)
GUMSURG	Periodontal scaling/root planing or gum	DN04
RECLVISX	Edited RECLIVIS	DN04 (Edited)
RECLIVIS	Periodontal recall visit	DN04
EXTRACT	Extraction, tooth pulled	DN04
IMPLANT	Implants	DN04
ABSCESS	Abscess or infection treatment	DN04
ORALSURX	Edited ORALSURG	
ORALSURG	Oral surgery	DN04
BRIDGESX	Edited BRIDGES	DN04 (Edited)
BRIDGES	Bridges	DN04
DENTUREX	Edited DENTURES	DN04 (Edited)
DENTURES	Dentures or partial dentures	DN04
REPAIR	Repair bridges/dentures or relining	DN04
ORTHDONX	Edited ORTHDONT	DN04 (Edited)
ORTHDONT	Orthodontia, braces or retainers	DN04
WHITEN	Bonding, whitening or bleaching	DN04
TMDTMJ	Treatment for TMD or TMJ	DN04
DENTPROX	Edited DENTPOC	DN04OV

Variable	Description	Source
DENTPROC	Other dental procedures	DN04OV
DENTOTHX	Edited DENTOTHR	DN04 (Edited)
DENTOTHR	Other specified dental procedures	DN04
DENTINJ	Visit because of accident or injury	DN01
DENTMED	Receive medicine including free sample	DN05

Flat Fee Variables

Variable	Description	Source
FFDVTYPE	Flat fee bundle	Constructed
FFBEF99	Total # of visits in flat fee before 1999	FF05
FFTOT00	Total # of visits in flat fee after 1999	FF02

Imputed Expenditure Variables

Variable	Description	Source
DVSF99X	Amount paid, family (Imputed)	CP07,CP09A, CP11-CP34OV2 (Edited)
DVMR99X	Amount paid, Medicare (Imputed)	CP07,CP09A, CP11-CP34OV2 (Edited)
DVMD99X	Amount paid, Medicaid (Imputed)	CP07,CP09A, CP11-CP34OV2 (Edited)
DVPV99X	Amount paid, private insurance (Imputed)	CP07,CP09A, CP11-CP34OV2 (Edited)
DVVA99X	Amount paid, Veterans (Imputed)	CP07,CP09A, CP11-CP34OV2 (Edited)
DVCH99X	Amount paid, CHAMPUS/CHAMPVA (Imputed)	CP07,CP09A, CP11-CP34OV2 (Edited)
DVOF99X	Amount paid, other federal (Imputed)	CP07,CP09A, CP11-CP34OV2 (Edited)
DVSL99X	Amount paid, state and local gov't (Imputed)	CP07,CP09A, CP11-CP34OV2 (Edited)
DVWC99X	Amount paid, worker's comp (Imputed)	CP07,CP09A, CP11-CP34OV2 (Edited)
DVOR99X	Amount paid, other private (Imputed)	CP07,CP09A, CP11-CP34OV2 (Edited)
DVOU99X	Amount paid, other public (Imputed)	CP07,CP09A, CP11-CP34OV2 (Edited)
DVOT99X	Amount paid, other insurance (Imputed)	CP07,CP09A, CP11-CP34OV2 (Edited)
DVXP99X	Sum of DVSF99X – DVOT99X	Constructed
DVTC99X	Household reported total charge (Imputed)	CP09A,CP09OV (Edited)
IMPFLAG	Imputation Status	Constructed

Weights

Variable	Description	Source
PERWT99F	Final Person Level Weight, 1999	Constructed
VARPSU99	Variance estimation PSU,1999	Constructed
VARSTR99	Variance estimation stratum, 1999	Constructed