

**MEPS HC-026F:
1998 Outpatient Department Visits**

**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 in this release. 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.
3. 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

This documentation describes one in a series of public use files from the Medical Expenditure Panel Survey (MEPS). The survey provides an extensive data set on the use of health services and health care in the United States.

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 is cosponsored by the Agency for Healthcare Research and Quality (AHRQ) (formerly the Agency for Health Care Policy and Research (AHCPR)) and the National Center for Health Statistics (NCHS).

MEPS comprises three component surveys: the Household Component (HC), the Medical Provider Component (MPC), and the Insurance Component (IC). 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 AHRQ on the financing and use of medical care in the United States. The National Medical Care Expenditure Survey (NMCES, also known as NMES-1) was conducted in 1977. The National Medical Expenditure Survey (NMES-2) was conducted 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.

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 sampling frame for the MEPS HC is drawn, and continuous 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 two 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.

2.0 Medical Provider Component

The MEPS MPC supplements and validates 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 hospitals, hospital physicians, home health agencies, and pharmacies reported in the HC. Also included in the MPC are all office-based physicians who:

- were identified by the household respondent as providing care for HC respondents receiving Medicaid.
- were selected through a 75-percent sample of HC households receiving care through an HMO (health maintenance organization) or managed care plan.
- were selected through a 25-percent sample of the remaining HC households.

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

- Diagnoses coded according to ICD-9-CM (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 (Common Procedure Terminology, Version 4).
- Inpatient stay codes classified by DRGs (diagnosis- related groups).
- Prescriptions coded by national drug code (NDC), medication name, strength, and quantity dispensed.
- Charges, payments, and the reasons for any difference between charges and payments.

The MPC is conducted through telephone interviews and mailed survey materials. In some instances, providers sent medical and billing records which were abstracted into the survey instruments.

3.0 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 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 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 survey. Data are collected from the selected organizations through a pre-screening 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 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 AHRQ Publications Clearinghouse. Write or call:

AHRQ Publications Clearinghouse
Attn: (publication number)
P.O. Box 8547
Silver Spring, MD 20907
800/358-9295
410/381-3150 (callers outside the United States only)
888/586-6340 (toll-free TDD service; hearing impaired only)

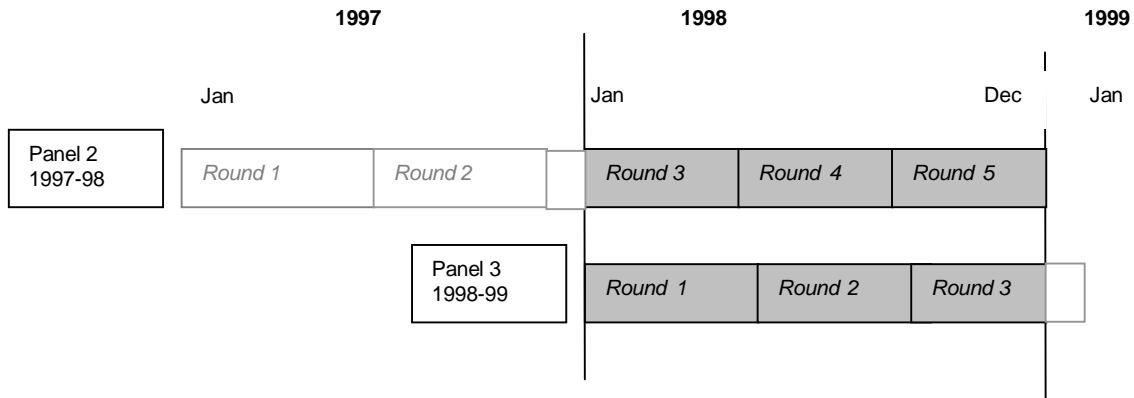
Be sure to specify the AHRQ number of the document or CD-ROM you are requesting. Selected electronic files are available from the Internet on the MEPS web site: <<http://www.meps.ahrq.gov/>>.

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 1998 Medical Expenditure Panel Survey (MEPS) Household (HC) and Medical Provider Components (MPC). Released as an ASCII data file and SAS transport file, this public use file provides detailed information on outpatient visits for a nationally representative sample of the civilian noninstitutionalized population of the United States and can be used to make estimates of outpatient utilization and expenditures for calendar year 1998. As illustrated below, this file consists of MEPS survey data obtained in the 1998 portion of Round 3 and Rounds 4 and 5 for Panel 2, as well as Rounds 1,2 and the 1998 portion of Round 3 for Panel 3 of the HC (i.e., the rounds for the MEPS panels covering calendar year 1998).



Each record on this event file represents a unique outpatient department event; that is, an outpatient event reported by the household respondent. In addition to expenditures related to this event, each record contains household reported medical conditions and procedures associated with the outpatient visit.

Data from this event file can be merged with other MEPS HC data files, for the purpose of appending person characteristics such as demographic or health insurance characteristics to each outpatient visit record.

Counts of outpatient visits are based entirely on household reports. Information from the MEPS MPC was used to supplement expenditure and payment data reported by the household.

This file can be also used to construct summary variables of expenditures, sources of payment, and related aspects of outpatient visits. Aggregate annual person-level information on the use of outpatient departments and other health services use is provided on the MEPS 1998 Full Year Person Level Expenditure file, where each record represents a MEPS sampled person.

This 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
- Codebooks
- Variable to Source Crosswalk

For more information on MEPS HC survey design see S. Cohen, 1997; J. Cohen, 1997; and S. Cohen, 1996. For information on the MEPS MPC design, see S. Cohen, 1998. A copy of the survey instrument used to collect the information on the outpatient file is available on the MEPS web site at the following address: <<http://www.meps.ahrq.gov>>.

2.0 Data File Information

The outpatient public use data set consists of two event-level data files. File 1 contains characteristics associated with the outpatient visit and imputed expenditure data. File 2 contains pre-imputed expenditure data from the Household and Medical Provider Components, for all outpatient visits on File 1. Please see Attachment 1 for definitions of imputed, and pre-imputed expenditure variables.

Both File 1 and File 2 of the outpatients public use data set contains variables and frequency distribution for a total of 10,472 outpatient visits reported during the 1998 portion of round 3, and rounds 4 and 5 for Panel 2, as well as rounds 1,2, and the 1998 portion of round 3 for Panel 3 of the MEPS HC. This file includes records of outpatient visits for all household survey respondents who resided in eligible responding households and who reported at least one outpatient visit. Records where the outpatient visit was known to have occurred after December 31, 1998 are not included on this file. Of these records, 10,342 were associated with persons having positive person-level weights (WTDPER98). The persons represented on this file had to meet criteria for either (a) or (b):

(a) Be classified as a key in-scope person who responded for his or her entire period of 1998 eligibility (i.e., persons with a positive 1998 full-year person-level sampling weight (WTDPER98>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 1998 eligibility, and belonged to a family (i.e., all persons with the same value of FAMID) in which all eligible family members responded for their entire period of 1998 eligibility, and at least one family member has a positive 1998 fill-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 1998 full-year MEPS family-level weight (WTFAM98>0)).

For each variable on the file, both weighted and unweighted frequencies are provided in the codebook.

Each record of the outpatient visit on File 1 includes the following information: date of the visit; whether or not the survey respondent saw the doctor; type of care received; type of services (i.e. lab test, sonogram or ultrasound, x-rays, etc) received; medicines prescribed during the visit; flat fee information; imputed sources of payment; total payment and total charge; and a full-year person-level weight.

File 2 of outpatient public use data set is intended for data users/analysts who want to perform their own imputations to handle missing data. This file contains one set of un-imputed expenditure information from the Medical Provider Component as well as one set of pre-imputed expenditure information from the Household Component. Both sets of expenditure data have been subject to minimal logical editing that 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. However, missing data were not imputed.

Data from both Files 1 and 2 can be merged with previously released 1998 MEPS HC person level data using the unique person identifier, DUPERSID, to append person characteristics such as demographic or health insurance characteristics to each record. The outpatient visits on this file can also be linked to the MEPS 1998 Medical Conditions File and to the MEPS Prescribed Medicines File. Please see the Section 5.0 for details on how to link MEPS data files.

Panel 2 cases (PANEL98 = 2 on the MEPS 1998 Full Year Population Characteristics File) can also be linked back to the 97 MEPS HC public use data files. However, the data user/analysts should be aware that at this time no weight is being provided to facilitate two-year analysis of Panel 2 data.

2.1 Codebook Structure

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

File 1

- Unique person identifiers
- Unique outpatient visit identifiers
- Other survey administration variables
- Outpatient visit event-level variables
- ICD-9 codes
- Clinical Classification Software codes
- Imputed expenditure variables
- Weight and variance estimation variables

File 2

Unique person identifiers
 Unique outpatient visit identifiers
 Pre-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, -1,-7, -8, and -9 have not been edited on this file. The values of -1 and -9 can be edited by data users/analysts by following the skip patterns in the questionnaire.

2.3 Codebook Format

This 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 a "X".

2.4.1 General

Variables contained on Files 1 and 2 were derived either from the HC survey questionnaire itself, the MPC data collection instrument or from the CAPI. The source of each variable is identified in Section E, entitled, “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;
- (2) variables which come from one or more specific questions have those numbers and the questionnaire section 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 imputed are so indicated.

2.4.2 Expenditure and Sources of Payment Variables

Both pre-imputed and imputed versions of the expenditure and sources of payment variables are provided on 2 separate files. Variables on Files 1 and 2 follow a standard naming convention and are 8 characters in length. Please note that pre-imputed means that a series of logical edits have been performed on the variable but missing data remains. The imputed versions incorporate the same edits but have also undergone the imputation process to account for missing data.

All imputed variables on File 1 end with an “X” indicating they are full edited and imputed. The pre-imputed variables on File 2 end with an “H” indicating that the data source was from the MEPS Household Component and ends with a “M” if the data source was the MEPS Medical Provider Component.

The total sum of payments, 12 sources of payment variables, and 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 |

For expenditure variables on these files, the third character indicates whether the expenditure (or amount paid) is associated with the facility (F) or the physician (P).

In the case of the sources of payment variables, the fourth and fifth characters indicate:

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

The sixth and seventh characters indicate the year (98) and the last character of all imputed/edited variables is an “X.”

For example, OPFSF98X is the edited/imputed amount paid by self or family for the facility portion of the expenditure associated with an outpatient visit.

2.5 File 1 Contents

2.5.1 Survey Administration Variables

2.5.1.1 Person Identifiers (DUID, PID, 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 1998 Full Year Population Characteristics File or to the definitions listed in Attachment 1.

2.5.1.2 Record Identifiers (EVNTIDX, EVENTRN, FFEEIDX)

EVNTIDX uniquely identifies each outpatient event (i.e. each record on the outpatient file) and is the variable required to linking outpatient events to data files containing details on conditions and/or prescribed medicines (MEPS 1998 Medical Condition file and MEPS 1998 Prescribed Medicine file; respectively). For details on linking see Section 5.0 or the MEPS 1998 Appendix file.

EVENTRN indicates the round in which the outpatient visit was first reported. Please note: Rounds 3, 4, and 5 are associated with MEPS survey data collected from Panel 2. Likewise, Rounds 1, 2, and 3 are associated with data collected from Panel 3.

FFEEIDX uniquely identifies a flat fee group, that is, all events that were part of a flat fee payment situation. For example, if a patient receives stitches in an outpatient visit and comes back to have the stitches removed ten days later in a follow-up outpatient visit, both visits are covered under one flat fee dollar amount. These two events (the initial outpatient visit and the subsequent outpatient visit) have the same value for FFEEIDX. 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.

2.5.2 MPC Data Indicator (MPCDATA)

While all hospital outpatient visits are sampled into the Medical Provider Component, not all outpatient visits records have MPC data associated with them. This is dependent upon the cooperation of the household respondent to provide permission forms to contact the outpatient facility as well as the cooperation of the outpatient facility to participate in the survey. MPCDATA is a constructed variable which indicates whether or not MPC data were collected for the outpatient visit.

2.5.3 Characteristics of Outpatient Visits

File 1 contains variables describing outpatient events reported by respondents in the Outpatient Department section of the MEPS Household questionnaire. The questionnaire contains specific probes for gathering details about the outpatient visit. Unless noted otherwise, the following variables are provided as unedited.

2.5.3.1 Visit Details (OPDATEYR - VSTRELCN)

When a person reported having had a visit to a hospital outpatient department or special clinic, the date of the outpatient visit was reported (OPDATEYR, OPDATEMM, OPDATEDD). Also reported were: if the person was referred by another physician or medical provider (REFERDBY), and if during the visit the person talked to the medical provider in person or over the telephone (SEEDOC). If the person did not see a physician (i.e., medical doctor), the respondent was asked to identify the type of medical person that was seen (MEDPTYPE). The amount of time actually spent with the medical provider (TIMESPNT), the type of care the person received (VSTCTGRY), and whether or not the visit or telephone call was related to a specific condition (VSTRELCN) were also determined.

2.5.3.2 Treatment, Services, Procedures, and Prescription Medicines (PHYSTH - DOCOUTF)

Types of treatment received during the outpatient visit include physical therapy (PHYSTH), occupational therapy (OCCUPTH), speech therapy (SPEECHTH), chemotherapy (CHEMOTH), radiation therapy (RADIATTH), kidney dialysis (KIDNEYD), IV therapy (IVTHER), drug or alcohol treatment (DRUGTRT), allergy shots (RCVSHOT), and psychotherapy/counseling (PSYCHOTH). Services received during the visit included whether or not the person received lab tests (LABTEST), a sonogram or ultrasound (SONOGRAM), x-rays (XRAYS), a mammogram (MAMMOG), an MRI or CAT scan (MRI), an electrocardiogram (EKG), an electroencephalogram (EEG), a vaccination (RCVVAC), anesthesia (ANESTH), or other diagnostic tests or exams (OTHSVCE). Whether or not a surgical procedure was performed during the visit was asked (SURGPROC) and, if so, the procedure name (SURGNAME). Finally, The questionnaire determined if a medicine was prescribed for the person during the visit (MEDPRESC) and if the person saw any of the same doctors or surgeons at their place of practice outside of the outpatient department or clinic (DOCOUTF).

2.5.3.3 Other Visit Details (VAPLACE)

VAPLACE is a constructed variable that indicates whether the outpatient department or clinic was a VA facility. This variable only has valid data for providers that were sampled into the Medical Provider Component. All other providers are classified as unknown

2.5.4 Conditions and Procedures Codes (OPICD1X-OPICD4X, OPPO1X) and Clinical Classification Codes (OPCCC1X-OPCCC4X)

Information on household reported medical conditions and procedures associated with each outpatient visit is provided on this file. There are up to four condition codes (OPICD1X-OPICD4X) and 1 procedure code (OPPO1X) listed for each outpatient visit. In order to obtain complete information on conditions and procedures associated with an event, the analyst must link to the Medical Conditions File. Please see Section 5.0 for details on how to link this file to the Medical Conditions File. The user should note that due to confidentiality restrictions, provider-reported condition information is not publicly available.

The medical conditions reported by the Household Component respondent were recorded by the interviewer as verbatim text, which were then coded to fully-specified 1998 ICD-9-CM codes, including medical condition and V codes (see Health Care Financing Administration, 1980), by professional coders. Although codes were verified and error rates did not exceed 2.5 percent for any coder, data users/analysts should not presume this level of precision in the data; the ability of household respondents to report condition data that can be coded accurately should not be assumed (see Cox and Cohen, 1985; Cox and Iachan, 1987; Edwards, et al, 1994; and Johnson and Sanchez, 1993). For detailed information on conditions, please refer to the documentation on the Medical Condition File.

The ICD-9-CM conditions and procedures codes were aggregated into clinically meaningful categories. These categories, included on the file as OPCCC1X-OPCCC4X, were generated using Clinical Classification Software (formerly known as Clinical Classifications for Health Care Policy Research (CCHPR)), (Elixhauser, et al., 1998), which aggregates conditions and V-codes into 260 mutually exclusive categories, most of which are clinically homogeneous.

In order to preserve respondent confidentiality, nearly all of the condition codes provided on this file have been collapsed from fully-specified codes to 3-digit code categories. The reported ICD-9-CM code values were mapped to the appropriate clinical classification category prior to being collapsed to the 3-digit categories.

The conditions and procedures codes (and clinical classification codes) linked to each outpatient visit are sequenced in the order in which the conditions were reported by the household respondent, which was in chronological order of occurrence and not in order of importance or severity. Labels for all values of the variables OPICD1X-OPICD4X and OPPO1X are provided in the SAS programming statements in this release (see the H26FSU.TXT File). Data users/analysts who use the Medical

Conditions file in conjunction with this outpatient visit file should note that the order of conditions on this file is not identical to that on the Medical Conditions file.

2.5.5 Flat Fee Variables

2.5.5.1 Definition of Flat Fee Payments

A flat fee is the fixed dollar amount a person is charged for a package of health care services. Examples would be: an obstetrician's fee covering a normal delivery, as well as pre- and post-natal care; or a surgeon's fee covering surgical procedure along with post-surgical care. A flat fee group is the set of medical services (i.e., events) that are covered under the same flat fee payment situation. The flat fee groups represented on this file includes flat fee groups where at least one of the health care events, as reported by the HC respondent, occurred during 1998. By definition a flat fee group can span multiple years and a single person can have multiple flat fee groups.

2.5.5.2 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 the 1998 MEPS event files (excluding the prescribed medicine file) because FFEEIDX is the same value on all of the MEPS event files. For the outpatient 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 (FFOATYPE)

FFOATYPE indicates whether the 1998 outpatient visit is the "stem" or "leaf" of a flat fee group. A stem (records with FFOATYPE = 1) is the initial medical service (event) which is followed by other medical events that are covered under the same flat fee payment. The leaves of the flat fee group (records with FFOATYPE = 2) are those medical events that are tied back to the initial medical event (the stem) in the flat fee group.

Counts of Flat Fee Events that Cross Years (FFBEF98 - FFTOT98)

As described above, a flat fee payment situation covers multiple events and the multiple events could span multiple years. For situations where a 1998 outpatient visit is part of a group of events, and some of the events occurred before or after 1998, counts of the known events are provided on the outpatient visit record. Indicator variables are provided if some of the events occurred before or after 1998. These variables are:

FFBEF98 -- total number of pre-1998 events in the same flat fee group as the 1998 outpatient visit record. This count would not include the 1998 outpatient visit.

FFTOT99 -- indicates whether or not there are 1999 medical events in the same flat fee group as the 1998 outpatient visit record.

2.5.5.3 Caveats of Flat Fee Groups

There are 258 outpatient visits 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 1998 but the remaining visits that were part of this flat fee group occurred in 1999. In this case, the 1998 flat fee group represented on this file would consist of one event (the stem). The 1999 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 1997 but subsequent visits occurred during 1998. In this case, the initial visit would not be represented on the file. This 1998 flat fee group would then only consist of one or more leaf records and no stem.

2.5.6 Expenditure Data

2.5.6.1 Definition of Expenditures

Expenditures on Files 1 and 2 refer to what is paid for outpatient services. More specifically, expenditures in MEPS are defined as the sum of payments for care received for each outpatient visit, 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. For details on expenditure definitions, please reference the following: “Informing American Health Care Policy” (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 the CCFS Data Center. For more information see the Data Center section of the MEPS web site <<http://www.meps.ahrq.gov>>.

Expenditure data related to outpatient visits are broken out by facility and separately billing doctor expenditures. This file contains five categories of expenditure variables per visit: basic hospital outpatient facility expenses, expenses for doctors who billed separately from the outpatient facility for any services provided during the outpatient visit, total expenses, which is the sum of the facility and physician expenses; facility total charge and doctor total charge.

2.5.6.2 Imputation and Data Editing Methodologies of Expenditure Variables

The expenditure data included on this file were derived from both the MEPS Household (HC) and the Medical Provider Components (MPC). The MPC contacted medical providers identified by household respondents. The charge and payment data from medical providers were used in the expenditure imputation process to supplement missing household data. For all outpatient visits, MPC data were used if complete; otherwise, HC data were used if complete. Missing data for outpatient visits where HC data were not complete and MPC data were not collected or complete were derived through the imputation process.

2.5.6.2.1 General Data Editing Methodology

Logical edits were used to resolve internal inconsistencies and other problems in the HC and MPC 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, co-payments 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.

2.5.6.2.2 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 replace missing data, while taking into account 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.

Expenditures for services provided by separately billing doctors in hospital settings were also edited and imputed. These expenditures are shown separately from hospital facility charges for hospital inpatient, outpatient, and emergency room care.

2.5.6.3 Capitation Imputation

The imputation process was also used to make expenditure estimates at the event level for events that were paid on a capitated basis. The capitation imputation procedure was designed as a reasonable approach to complete event level expenditures for respondents in managed care plans. This procedure

was conducted in two stages. First, HMO events reported in the MPC as covered by capitation arrangements were imputed using similar HMO events paid on a fee-for-service, with total charge as a key variable. Then this completed set of MPC events was used as the donor pool for unmatched household-reported events for sample persons in HMOs. By using this strategy, capitated HMO events were imputed as if the provider were reimbursed from the HMO on a discounted fee-for-service basis.

2.5.6.4 Imputation Methodology for Outpatient Department Visits

Facility expenditures for outpatient visits were developed in a sequence of logical edits and imputations. “Household” edits were applied to sources and amounts of payment for all events reported by HC respondents. “MPC” edits were applied to provider-reported sources and amounts of payment for records matched to household-reported events. Both sets of edits were used to correct obvious errors in the reporting of expenditures. After the data from each source were edited, a decision was made as to whether household- or MPC-reported information would be used in the final editing and hot-deck imputations for missing expenditures. The general rule was that MPC data would be used for matched events, since providers usually have more complete and accurate data on sources and amounts of payment than households.

Separate imputations were performed for flat fee and simple events. Most outpatient visits were imputed as simple events because hospital facility charges are rarely bundled with other events.

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 eight recipient categories for events with missing data. Imputing expenditures for some of these events was problematic, however, because the providers were not reimbursed on a fee-for-service basis. Therefore, expenditures for services provided in capitated or staff model health maintenance organizations (HMOs) were imputed prior to the main imputations.

Expenditures for the remaining events were imputed through separate hot-deck imputations for each of the eight recipient categories. The donor pool in these imputations was restricted to events with complete expenditures from the MPC, although some unmatched events had complete household-reported expenditures. Unmatched household events with complete data were not allowed to donate information to other events because the MPC data were considered to be more reliable.

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.

2.5.6.5 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 1998, all of the events that occurred in 1998 will have zero payments. Conversely, if the first event in the flat fee group occurred at the end of 1998, the total expenditure for the entire flat fee group will be on that event, regardless of the number of events it covered after 1998.

2.5.6.6 Zero Expenditures

There are some outpatient 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 medical events for a person fell into one of these categories, then the total annual expenditures for that person would be zero.

2.5.6.7 Discount Adjustment Factor

An adjustment was also applied to some HC reported expenditure data because an evaluation of matched HC/MPC data showed that respondents who reported that charges and payments were equal were often unaware that insurance payments for the care had been based on a discounted charge. To compensate for this systematic reporting error, a weighted sequential hot-deck imputation procedure was implemented to determine an adjustment factor for HC reported insurance payments when charges and payments were reported to be equal. As for the other imputations, selected predictor variables were used to form groups of donor and recipient events for the imputation process.

2.5.6.8 Sources of Payment

In addition to total expenditures, variables are provided which itemize expenditures according to major sources 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. Worker's Compensation
10. Other Unclassified Sources - includes sources such as automobile, homeowner's, liability, and other miscellaneous or unknown sources.

Two additional sources of payment variables were created to classify payments for events with apparent inconsistencies between insurance coverage and sources of payment based on data collected in the survey. 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, users 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 sources 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.

Data users/analysts should also note that the Other Public and Other Private sources of payment categories only exist on File 1 for imputed expenditure data since they were created through the editing/imputation process. File 2 reflects 10 sources of payment as it was collected through the survey.

2.5.6.9 Outpatient Facility Expenditure Variables (OPFSF98X-OPFOT98X, OPFTC98X, OPFXP98X)

Outpatient visit expenses include all expenses for treatment, services, tests, diagnostic and laboratory work, x-rays, and similar charges, as well as any physician services included in the hospital outpatient visit charge.

Outpatient visit expenditures were obtained primarily through the MPC. If the physician charges were included in the outpatient visit bill, then this expenditure is included in the facility expenditure variables. The imputed facility expenditures are provided on this file. OPFSF98X - OPFOT98X are the 12 sources of payment, OPFTC98X is the facility total charge, and OPFXP98X is the sum of the 12 sources of payments for the facility 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.

2.5.6.10 Outpatient Physician Expenditures (OPDSF98X - OPDOT98X, OPDTC98X, OPDXP98X)

Separately billing doctor (SBD) expenses typically cover services provided to patients in hospital settings by providers like anesthesiologists, radiologists, and pathologists, whose charges are often not included in outpatient facility bill.

For physicians who bill separately (i.e. outside the outpatient facility bill), a separate data collection effort within the Medical Provider Component was performed to obtain this same set of expenditure information from each separately billing doctor. It should be noted that there could be several separately billing doctors associated with a medical event. For example, an outpatient visit could have a radiologist and a pathologist associated with it. If their services are not included in the outpatient visit bill then this is one medical event with 2 separately billing doctors. The imputed expenditure information associated with the separately billing doctors was summed to the event level and is provided on the file. OPDSF98X - OPDOT98X are the 12 sources of payment, OPDXP98X is the sum of the 12 sources of payments, and OPDTC98X is the physician total charge.

Data users/analysts need to take into consideration whether to analyze facility and SBD expenditures separately, combine them within service categories, or collapse them across service categories (e.g. combine SBD expenditures with expenditures for physician visits to offices and/or outpatient departments). Data users/analysts interested in total expenditure should use the variable OPXP98X, which includes both the facility and physician amounts.

2.5.6.11 Rounding

Expenditure variables on File 1 have been rounded to the nearest penny. Person-level expenditure information to be released 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 1998 Appendix File for details on such rounding differences.

2.5.6.12 Identifying Imputed Expenditures

If the data user/analyst desires to identify whether sources of payment and total charge have been imputed, simply compare the expenditure variable of interest from File 2 with the corresponding variable from File 1. An imputed value would be one having a missing value on File 2 while the value on File 1 would be zero or greater. In a small number of cases, an imputed value on File 1 will have a corresponding value of zero rather than missing on File 2.

As explained in the “Sources of Payment” section, there are 10 sources of payment variables in the pre-imputed expenditure data on File 2, while the imputed expenditure data on File 1 contains 12 sources of payment variables. The additional two sources of payment (which are not reported as separate sources of payment through the data collection) are Other Private and Other Public. These sources of payment categories were constructed to resolve apparent inconsistencies between individuals’ reported insurance coverage and their sources of payment for specific events, such as where the insurance variables indicated uninsured all year but the person reported private insurance as a payor source.

2.6 File 2 Contents: Pre-imputed Expenditure Variables

Pre-imputed expenditure data are provided on this file. Pre-imputed means that only a series of logical edits were applied to both the HC and MPC data to correct for, among other things, outliers, co-payments or charges reported as total payments, and reimbursed amounts counted as out of pocket payments. Edits were also implemented to correct for mis-classifications between Medicare and Medicaid and between Medicare HMO’s and private HMO’s as payment sources as well as a number of other data inconsistencies that could be resolved through logical edits. This file contains no imputed data.

As described previously, there are two components that went into creating the total medical expenditure variable: household reported expenditure data and provider reported expenditure data. Both expenditure data are provided in their pre-imputed form and have not gone through the same level of quality control as their imputed counterpart. This means that (in some instances) there are large amounts of missing data. The household and provider reported facility pre-imputed expenditure data are provided on this file (OPSF98H - OPOT98H and OPFSF98M-OPFOT98M respectively).

The user should note that there are 10 sources of payment variables in the pre-imputed expenditure data, while the imputed expenditure data on File 1 contains 12 sources of payment variables. The additional two sources of payment (which are not reported as separate sources of payment through the data collection) are Other Private and Other Public. These sources of payment categories were constructed to resolve apparent inconsistencies between individuals’ reported insurance coverage and their sources of payment for specific events. File 2 also includes a variable indicating uncollected liability. Uncollected liability was not used in imputation.

The users should also note the variable HHSFFIDX, which is the original flat fee identifier that was derived during the household interview, should be used only if they are interested in performing their own expenditure imputation.

3.0 Sample Weights and Variance Estimation Variables (WTDPER98- VARPSU98)

3.1 Overview

There is a single full year person-level weight (WTDPER98) 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 1998. 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 WTDPER98 was developed in three stages. A person level weight for Panel 3 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 2 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 1998 composite weight was formed from the Panel 2 and Panel 3 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 2 Weight

The person level weight for MEPS Panel 2 was developed using the 1997 full year weight for an individual as a “base” weight for survey participants present in 1997. For key, in-scope respondents who joined a RU some time in 1998 after being out of scope in 1997, the 1997 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 1998. These control figures were derived by scaling back the population totals obtained from the March 1998 CPS to reflect the December, 1998 CPS estimated population distribution across age and sex categories as of December, 1998. 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, 1998 is 270,114,457. Key, responding persons not

in-scope on December 31, 1998 but in-scope earlier in the year retained, as their final Panel 2 weight, the weight after the nonresponse adjustment.

3.2.2 MEPS Panel 3 Weight

The person level weight for MEPS Panel 3 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 1998 portion of Round 3 as well as poststratification to the same population control figures for December 1998 used for the MEPS Panel 2 weights. The same five variables employed for Panel 2 poststratification (census region, MSA status, race/ethnicity, sex, and age) were used for Panel 3 poststratification. Similarly, for Panel 3, key, responding persons not in-scope on December 31, 1998 but in-scope earlier in the year retained, as their final Panel 3 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 1998 CPS data base.

3.2.3 The Final Weight for 1998

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, 1998 is 270,114,457 (WTDPER98>0 and INSC1231=1). The inclusion of key, in-scope persons who were not in-scope on December 31, 1998 brings the estimated total number of persons represented by the MEPS respondents over the course of the year up to 273,533,690 (WTDPER98>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 1998 full year file an additional poststratification was done to population totals obtained from the 1997 Medicare Current Beneficiary Survey (MCBS) for the number of deaths among Medicare beneficiaries experienced in the 1998 MEPS.

3.2.4 Coverage

The target population for MEPS in this file is the 1998 U.S. civilian, noninstitutionalized population. However, the MEPS sampled households are a subsample of the NHIS households interviewed in 1997 (Panel 2) and 1998 (Panel 3). New households created after the NHIS interviews for the respective Panels and consisting exclusively of persons who entered the target population after 1997 (Panel 2) or after 1998 (Panel 3) 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 outpatient care and to allow for estimates of number of persons with outpatient visits during 1998.

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 expenditure) are described in Section 2.5.6.

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 outpatient visits, expenditure and sources of payment, the value in each record contributing to the estimates must be multiplied by the weight (WTDPER98) contained on that record.

Example 1

For example, the total number of outpatient visits, for the civilian non-institutionalized population of the U.S. in 1998 is estimated as the sum of the weight (WTDPER98) across all outpatient visit records. That is,

$$\sum W_j = 126,144,139 \quad (1)$$

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 for outpatient visits (for those who had such expense greater than 0) should be calculated as the weighted mean of the facility bill and doctor's bill paid by self/family. That is,

$$(\sum W_j X_j)/(\sum W_j) = \$37.92 \quad (2)$$

where $X_j = OPFSF98X_j + OPDSF98X_j$ and $\sum W_j = 120,216,857$

for all records with $OPXP98X_j > 0$

This gives \$37.92 as the estimated mean amount of out-of-pocket payment of expenditures associated with outpatient visits and 120,216,857 as an estimate of the total number of such outpatient visits with expenditures. Both of these estimates are for the civilian non-institutionalized population of the U.S. in 1998.

Example 3

Another example would be to estimate the average proportion of total expenditures paid by private insurance for outpatient visits with expenditure. This should be calculated as the weighted mean of the proportion of total expenditures paid by private insurance at the event level. That is,

$$(\sum W_j Y_j)/(\sum W_j) = 0.4185 \quad (3)$$

where $Y_j = (OPFPV98X_j / OPDPV98X_j)/OPXP98X_j$ and $\sum W_j = 120,216,857$

for all outpatient visit records with $OPXP98X_j > 0$.

This gives 0.4185 as the estimated mean proportion of total expenditures paid by private insurance for outpatient visits with expenditure for the civilian non-institutionalized population of the U.S. in 1998.

4.3 Estimates of the Number of Persons with Outpatient Visit

When calculating an estimate of the total number of persons with outpatient 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 outpatient visits where the patient sees a doctor, this event file must be used. This would be estimated as

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

where W_i is the sampling weight (WTDPER98) for person i

and

$$X_i = \begin{cases} 1 & \text{if SEEDOC}_j = 1 \text{ for any outpatient visit record of person } i. \\ 0 & \text{otherwise} \end{cases}$$

4.4 Person-Based Ratio Estimates

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

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

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

where

W_i is the sampling weight (WTDPER98) for person i

and

$Z_i = \sum \text{OPXP98}X_j$ across all outpatient visits for 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 outpatient visit are represented on this data file. In this case the 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 outpatient visit where s/he saw a doctor, 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,

$$(\sum W_i Z_i) / (\sum W_i) \quad \text{across all unique persons } i \text{ on the person level file} \quad (6)$$

where W_i is the sampling weight (WTDPER98) for person i

and

$Z_i = \begin{cases} 1 & \text{if SEEDOC}_j = 1 \text{ for any outpatient visit of person } i. \\ 0 & \text{otherwise.} \end{cases}$

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 1998 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 VARSTR98 and VARPSU98, 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

Examples 2 and 3 from Section 4.2

Using a Taylor Series approach, specifying VARSTR98 and VARPSU98 as the variance estimation strata and PSUs (within these strata) respectively and specifying a “with replacement” design in a computer software package SUDAAN will yield standard error estimates of \$5.20 and 0.0227 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 current file can be used alone or in conjunction with other files. This section provides instructions for linking the outpatient visits 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 Outpatient Visit File

Merging characteristics of interest from other MEPS files (e.g., 1998 Population Characteristics File, or the 1998 Use and Expenditure File) expands the scope of potential estimates. For example, to estimate the total number of outpatient visits for persons with specific characteristics (e.g., age, race, and sex), population characteristics from a person-level file need to be merged onto the outpatient visit file. This procedure is illustrated below. The 1998 Appendix File provides additional detail on how to merge MEPS data files.

1. Create data set PERSX by sorting the Full Year Population Characteristics file, by the person identifier, DUPERSID. Keep only variables to be merged on to the outpatient visit file and DUPERSID.
2. Create data set OPAT by sorting the outpatient visit file by person identifier, DUPERSID.
3. Create final data set NEWOPAT by merging these two files by DUPERSID, keeping only records on the outpatient visit file.

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

```
PROC SORT DATA=1998 Full Year Population Characteristics file
(KEEP=DUPERSID AGE SEX RACEX)
OUT=PERSX;
  BY DUPERSID;
RUN;

PROC SORT DATA=OPAT;
  BY DUPERSID;
RUN;

DATA NEWOPAT;
  MERGE OPAT(IN=A) PERSX(IN=B);
  BY DUPERSID;
  IF A;
RUN;
```

5.2 Linking the Outpatient Visit file to the MEPS 1998 Medical Conditions File and/or the MEPS 1998 Prescribed Medicines File

Due to survey design issues, there are limitations/caveats that data users/analysts 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 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 1998 Prescribed Medicine Event File. When using RXLK, data users/analysts should keep in mind that one outpatient visit can link to more than one prescribed medicine record. Conversely, a prescribed medicine event may link to more than one outpatient visit or different types of events. When this occurs, it is up to the data users/analysts to determine how the prescribed medicine expenditures should be allocated among those 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, data users/analysts should keep in mind that (1) conditions are self-reported and (2) there may be multiple conditions associated with an outpatient visit. Users should also note that not all outpatient 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 (INSCOPE) 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 of 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 recontacted 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 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.

Pre-imputed - This means that only a series of logical edits were applied to the HC data to correct for several problems including outliers, copayments or charges reported as total payments, and reimbursed amounts counted as out of pocket payments. Missing data remains.

Un-imputed - 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
FOR MEPS HC-026F: 1998 OUTPATIENT DEPARTMENT VISITS**

File 1:

Survey Administration and ID Variables

| Variable | Description | Source |
|-----------------|------------------------------|----------------------|
| DUID | Dwelling unit ID (encrypted) | Assigned in sampling |
| PID | Person number (encrypted) | Assigned in sampling |
| DUPERSID | Sample person ID (encrypted) | Assigned in sampling |
| EVNTIDX | Event ID | Assigned in Sampling |
| EVENTRN | Event Round number | CAPI Derived |
| FFEEIDX | Flat Fee ID | CAPI Derived |
| MPCDATA | MPC data flag | CAPI Derived |

Outpatient Department Visit Variables

| Variable | Description | Source |
|-----------------|--|---------------|
| OPDATEYR | Event date - year | CAPI derived |
| OPDATEMM | Event date - month | CAPI derived |
| OPDATEDD | Event date - day | CAPI derived |
| REFERDBY | Patient referred for this visit by another physician | OP03 |
| SEEDOC | Did Patient talk to MD this visit/phone call | OP04 |
| MEDPTYPE | Type of MED person Patient talked to on visit date | OP05 |
| TIMESPNT | Time Patient spent with doctor/medical person | OP06 |
| VSTCTGRY | Best category for care Patient received on visit | OP07 |
| VSTRELCN | This visit/phone call related to specific condition | OP08 |
| PHYSTH | This visit did Patient have physical therapy | OP10 |
| OCCUPTH | This visit did Patient have occupational therapy | OP10 |
| SPEECHTH | This visit did Patient have speech therapy | OP10 |
| CHEMOTH | This visit did Patient have chemotherapy | OP10 |
| RADIATTH | This visit did Patient have radiation therapy | OP10 |
| KIDNEYD | This visit did Patient have kidney dialysis | OP10 |
| IVTHER | This visit did Patient have IV therapy | OP10 |
| DRUGTRT | This visit did Patient have treatment for drugs or alcohol | OP10 |
| RCVSHOT | This visit did Patient receive an allergy shot | OP10 |
| PSYCHOTH | Did Patient have psychotherapy/counseling? | OP10 |

| Variable | Description | Source |
|-----------------|--|------------------------|
| LABTEST | This visit did Patient have lab tests | OP11 |
| SONOGRAM | This visit did Patient have sonogram or ultrasound | OP11 |
| XRAYs | This visit did Patient have x-rays | OP11 |
| MAMMOG | This visit did Patient have a mammogram | OP11 |
| MRI | This visit did Patient have an MRI | OP11 |
| EKG | This visit did Patient have an EKG or ECG | OP11 |
| EEG | This visit did Patient have an EEG | OP11 |
| RCVVAC | This visit did Patient receive a vaccination | OP11 |
| ANESTH | This visit did Patient receive anesthesia | OP11 |
| OTHSVCE | This visit did Patient have other diagnostic tests/exams | OP11 |
| SURGPROC | Was surgical procedure performed on Patient this visit | OP12 |
| SURGNAME | Surgical procedure name in categories | OP13 |
| MEDPRESC | Any medicines prescribed for Patient this visit | OP14 |
| DOCOUTF | Any doctor/surgeon also seen outside of provider | OP16 |
| VAPLACE | Outpatient clinic is a VA facility | Constructed |
| OPICD1X | 3-digit ICD-9 condition code | Edited |
| OPICD2X | 3-digit ICD-9 condition code | Edited |
| OPICD3X | 3-digit ICD-9 condition code | Edited |
| OPICD4X | 3-digit ICD-9 condition code | Edited |
| OPPRO1X | 2-digit ICD-9 procedure code | Edited |
| OPCCC1X | Modified Clinical Classification Code | Constructed/ Edited |
| OPCCC2X | Modified Clinical Classification Code | Constructed/ Edited |
| OPCCC3X | Modified Clinical Classification Code | Constructed/ Edited |
| OPCCC4X | Modified Clinical Classification Code | Constructed/ Edited |

Flat Fee Variables

| Variable | Description | Source |
|-----------------|---|---------------|
| FFOATYPE | Flat fee bundle | FF01, FF02 |
| FFBEF98 | Total # of visits in flat fee before 1998 | FF05 |
| FFTOT99 | Total # of visits in flat fee after 1998 | FF10 |

Imputed Expenditure Variables

| Variable | Description | Source |
|-----------------|---|-----------------------|
| OPXP98X | Total expenditure for outpatient department visit | Constructed |
| OPTC98X | Total charge for outpatient department visit | Constructed |
| OPFSF98X | Facility amount paid, family (imputed) | CP11 (Edited/Imputed) |

| Variable | Description | Source |
|-----------------|---|-----------------------|
| OPFMR98X | Facility amount paid, Medicare (imputed) | CP09 (Edited/Imputed) |
| OPFMD98X | Facility amount paid, Medicaid (imputed) | CP07 (Edited/Imputed) |
| OPFPV98X | Facility amount paid, private insurance (imputed) | CP07 (Edited/Imputed) |
| OPFVA98X | Facility amount paid, Veterans (imputed) | CP07 (Edited/Imputed) |
| OPFCH98X | Facility amount paid, CHAMP/CHAMPVA (imputed) | CP07 (Edited/Imputed) |
| OPFOF98X | Facility amount paid, other federal (imputed) | CP07 (Edited/Imputed) |
| OPFSL98X | Facility amount paid, state/local govt. (imputed) | CP07 (Edited/Imputed) |
| OPFWC98X | Facility amount paid, Workers Comp (imputed) | CP07 (Edited/Imputed) |
| OPFOR98X | Facility amount paid, other private (imputed) | Constructed |
| OPFOU98X | Facility amount paid, other public (imputed) | Constructed |
| OPFOT98X | Facility amount paid, other insurance (imputed) | CP07 (Edited/Imputed) |
| OPFXP98X | Facility sum of payments OPFSF98X -OPFOT98X | Constructed |
| OPFTC98X | Facility total charge (imputed) | CP09 (Edited/Imputed) |
| OPDSF98X | Doctor amount paid, family (imputed) | CP11 (Edited/Imputed) |
| OPDMR98X | Doctor amount paid, Medicare (imputed) | CP09 (Edited/Imputed) |
| OPDMD98X | Doctor amount paid, Medicaid (imputed) | CP07 (Edited/Imputed) |
| OPDPV98X | Doctor amount paid, private insurance (imputed) | CP07 (Edited/Imputed) |
| OPDVA98X | Doctor amount paid, Veterans (imputed) | CP07 (Edited/Imputed) |
| OPDCH98X | Doctor amount paid, CHAMP/CHAMPVA (imputed) | CP07 (Edited/Imputed) |
| OPDOF98X | Doctor amount paid, other federal (imputed) | CP07 (Edited/Imputed) |
| OPDSL98X | Doctor amount paid, state/local govt. (imputed) | CP07 (Edited/Imputed) |
| OPDWC98X | Doctor amount paid, Worker's Comp (imputed) | CP07 (Edited/Imputed) |
| OPDOR98X | Doctor amount paid, other private (imputed) | Constructed |
| OPDOU98X | Doctor amount paid, other public (imputed) | Constructed |
| OPDOT98X | Doctor amount paid, other insurance (imputed) | CP07 (Edited/Imputed) |
| OPDXP98X | Doctor sum of payments OPDSF98X -OPDOT98X | Constructed |
| OPDTC98X | Doctor total charge (imputed) | CP09(Edited/Imputed) |

Weights

| Variable | Description | Source |
|-----------------|---|---------------|
| WTDPER98 | Person weight full-year 1998 (poverty/mortality adjusted) | Constructed |
| VARPSU98 | Variance estimation PSU 1998 | Constructed |
| VARSTR98 | Variance estimation stratum | Constructed |

File 2:

Survey Administration and ID Variables

| Variable | Description | Source |
|-----------------|----------------------------------|-------------------------|
| DUID | Dwelling unit ID (encrypted) | Assigned in sampling |
| PID | Person number (encrypted) | Assigned in sampling |
| DUPERSID | Sample person ID (encrypted) | Assigned in sampling |
| EVNTIDX | EVNT ID: DUPERSID + Event number | Assigned in Sampling |
| HHSFFIDX | Household reported flat fee ID | CAPI Derived |

Pre-imputed Expenditure Variables

| Variable | Description | Source |
|-----------------|---|---------------|
| OPSF98H | Household reported amount paid, family (pre-imputed) | CP11 (Edited) |
| OPMR98H | Household reported amount paid, Medicare (pre-imputed) | CP09 (Edited) |
| OPMD98H | Household reported amount paid, Medicaid (pre-imputed) | CP07 (Edited) |
| OPPV98H | Household reported amount paid, private insurance (pre-imputed) | CP07 (Edited) |
| OPVA98H | Household reported amount paid, Veterans (pre-imputed) | CP07 (Edited) |
| OPCH98H | Household reported amount paid, CHAMP/CHAMPVA (pre-imputed) | CP07 (Edited) |
| OPOF98H | Household reported amount paid, other federal (pre-imputed) | CP07 (Edited) |
| OPSL98H | Household reported amount paid, state/local govt. (pre-imputed) | CP07 (Edited) |
| OPWC98H | Household reported amount paid, Worker's Comp (pre-imputed) | CP07 (Edited) |
| OPOT98H | Household reported amount paid, other insurance (pre-imputed) | CP07 (Edited) |
| OPUC98H | Household reported amount paid, uncollected liability (pre-imputed) | CP07 (Edited) |
| OPTC98H | Household reported total charge (pre-imputed) | CP09 (Edited) |

| Variable | Description | Source |
|-----------------|---|---------------|
| OPSF98M | MPC reported amount paid, family (unimputed) | HEF8a |
| OPMR98M | MPC reported amount paid, Medicare (unimputed) | HEF8b |
| OPMD98M | MPC reported amount paid, Medicaid (unimputed) | HEF8c |
| OPPV98M | MPC reported amount paid, private insurance (unimputed) | HEF8d |
| OPVA98M | MPC reported amount paid, Veterans (unimputed) | HEF8e |
| OPCH98M | MPC reported amount paid, CHAMP/CHAMPVA (unimputed) | HEF8f |
| OPOF98M | MPC reported amount paid, other federal (unimputed) | HEF8g |
| OPSL98M | MPC reported amount paid, state/local govt. (unimputed) | HEF8g |
| OPWC98M | MPC reported amount paid, Worker's Comp (unimputed) | HEF8g |
| OPOT98M | MPC reported amount paid, other insurance (unimputed) | HEF8g |
| OPTC98M | MPC reported total charge (unimputed) | HEF9 |

Weights

| Variable | Description | Source |
|-----------------|---|---------------|
| WTDPER98 | Person weight full-year 1998 (poverty/mortality adjusted) | Constructed |
| VARPSU98 | Variance estimation PSU 1998 | Constructed |
| VARSTR98 | Variance estimation stratum | Constructed |