MEPS HC 254C:
2024 Other Medical Expenses

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A. Data Use Agreement

Individual identifiers have been removed from the microdata contained in these files. Nevertheless, under Sections 308(d) and 903(c) of the Public Health Service Act (42 U.S.C. 242m and 42 U.S.C. 299a-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 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 previously referenced federal statute, it is understood that

1. No one is to use the data in this dataset 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) Director - Office of Management Services 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 dataset with individually identifiable records from any datasets other than the Medical Expenditure Panel Survey or the National Health Interview Survey. Furthermore, linkage of the Medical Expenditure Panel Survey and the National Health Interview Survey may not occur outside the AHRQ Data Center, NCHS Research Data Center (RDC), or the U.S. Census RDC network.

By using these data, you signify your agreement to comply with the previously 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 Title 18, part 1, Chapter 47, Section 1001, and is punishable by a fine of up to $10,000 or up to 5 years in prison.

AHRQ requests that users cite AHRQ and the Medical Expenditure Panel Survey as the data source in any publications or research based on these data.

B. Background

1.0 Household Component

The Medical Expenditure Panel Survey (MEPS) provides nationally representative estimates of healthcare use, expenditures, payment sources, and health insurance coverage for the U.S. civilian noninstitutionalized population. The MEPS Household Component (HC) also provides estimates of respondents' health status, demographic and socio-economic characteristics, employment, access to care, and satisfaction with care. Estimates can be produced for individuals, families, and selected population subgroups. The survey's panel design includes five rounds of interviews spanning 2 full calendar years. The interviews use computer-assisted personal interviewing (CAPI) technology or computer-assisted video interviewing (CAVI) technology to collect information about each household member, which the survey builds on from interview to interview. A single household respondent reports all data for a sampled household.

The MEPS HC was initiated in 1996. Each year, a new panel of sampled households is selected. Because the data collected are comparable to those from earlier medical expenditure surveys conducted in 1977 and 1987, it is possible to analyze long-term trends. Historically, each annual MEPS HC sample consists of up to 15,000 households. Data can be analyzed at the person, family, or event level. Data must be weighted to produce national estimates.

The set of households selected for each MEPS HC panel is a subsample of households participating in the previous year's National Health Interview Survey (NHIS) conducted by NCHS. The NHIS sampling frame provides a nationally representative sample of the U.S. civilian noninstitutionalized population. In 2006, NCHS implemented a new NHIS sample design that included households with Asian persons in addition to households with Black and Hispanic persons in minority group oversampling. In 2016, NCHS introduced another sample design that discontinued the oversampling of these minority groups.

2.0 Medical Provider Component

When the household CAPI instrument is completed and permission is obtained from the sampled members to contact their medical provider(s), a sample of these providers is contacted by telephone to obtain information that household respondents cannot accurately provide. This part of MEPS is called the Medical Provider Component (MPC), and it collects information on dates of visits, diagnosis and procedure codes, and charges and payments. The Pharmacy Component (PC), a subcomponent of the MPC, does not collect data on charges or on diagnosis and procedure codes, but it does collect detailed information on drugs, including the National Drug Code (NDC) and medicine name, as well as payment amounts. The MPC is not designed to yield national estimates; it is primarily used as an imputation source to supplement or replace household-reported expenditure information.

3.0 Survey Management and Data Collection

MEPS HC and MPC data are collected under the authority of the Public Health Service Act. The MEPS HC data are collected under contract with Westat, and the MEPS MPC data are collected under contract with RTI International. Datasets and summary statistics are edited and published in accordance with the confidentiality provisions of the Public Health Service Act and the Privacy Act. NCHS provides consultation and technical assistance.

As soon as the MEPS data are collected and edited, they are released to the public in stages of microdata files and tables via the MEPS website and AHRQ Data Tools site.

Additional information on MEPS is available from the MEPS project manager or the MEPS public use data manager at the Center for Financing, Access and Cost Trends, AHRQ, 5600 Fishers Lane, Rockville, MD 20857 (301-427-1406).

C. Technical and Programming Information

1.0 General Information

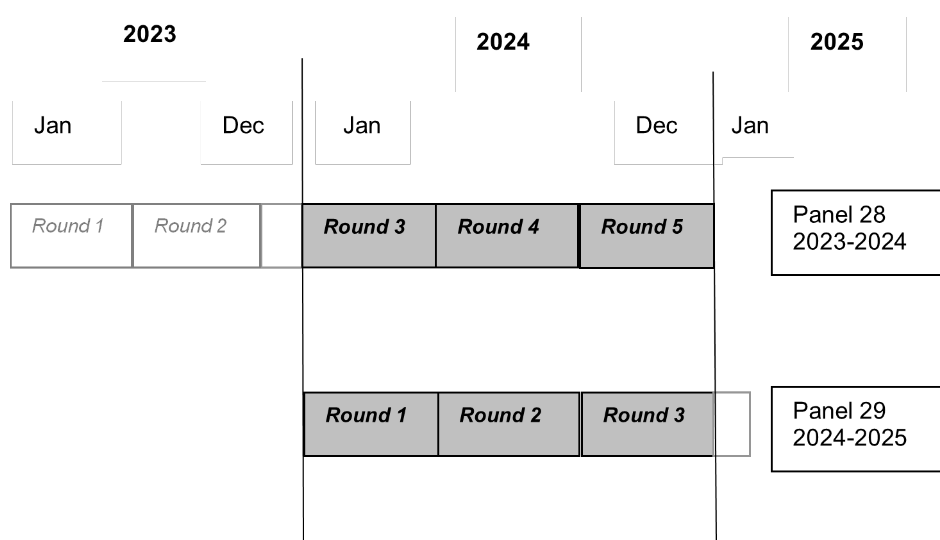
This documentation describes one in a series of public use files (PUFs) from the 2024 MEPS HC. It was released as an ASCII data file (with related SAS, SPSS, R, and Stata programming statements and data user information) and as a SAS dataset, SAS transport file, Stata dataset, and Excel file. The 2024 Other Medical Expenses PUF (hereafter referred to as the OME PUF) provides information on the purchases of and expenditures for visual aids, medical equipment, supplies, and other medical items for a nationally representative sample of the U.S. civilian noninstitutionalized population. Data from the OME PUF can be used to estimate the other medical event expenditures associated with medical items for the calendar year 2024. The purchase of medical equipment, supplies, and other medical items is based entirely on household reports. They were not included in the MPC; therefore, all expenditure and payment data on the OME PUF are reported by the household.

This file contains 23 variables and has a logical record length of 147 with an additional 2-byte carriage return/line feed at the end of each record. As illustrated in the following figure, this PUF consists of MEPS survey data obtained in (1) the 2024 portion of Round 3 and all of Rounds 4 and 5 for Panel 28, and (2) Rounds 1 and 2 and the 2024 portion of Round 3 for Panel 29 (i.e., the rounds for the MEPS panels covering the calendar year 2024).

MEP full-year (FY) 2024 includes two panels of data.

Figure 1

Portions of MEPS Panel 28 and Panel 29 Survey Data Included on the 2024 OME PUF



The OME PUF contains one record for each type of medical item reported as being purchased or otherwise obtained by a household member during the specified reference period.

Other medical expense categories included on this file are:

- Glasses or contact lenses
- Ambulance services
- Disposable supplies
- Long-term medical equipment (e.g., mobility aids, hearing devices, equipment used at home, alterations/modifications)

Data from this event file can be merged with other 2024 MEPS HC data files to append person-level data, such as demographic characteristics or health insurance coverage, to each OME record.

This file can also be used to construct summary variables for expenditures, source of payment, and related aspects of the purchase of medical items. Aggregate annual person-level information on expenditures for Other Medical equipment is provided on the MEPS 2024 Full Year Consolidated Public Use File (hereafter referred to as the Consolidated PUF) where each record represents a MEPS sampled person.

This document offers a brief overview of the types and levels of data provided, and the content and structure of the file and the codebook. It contains the following sections:

- Data File Information (Section C.2.0)
- Survey Sample Information (Section C.3.0)
- Strategies for Estimation (Section C.4.0)
- Merging/Linking MEPS Data Files (Section C.5.0)
- Variable - Source Crosswalk (Appendix)

For more information on the MEPS HC sample design, see Chowdhury et al (2019). A copy of the MEPS HC survey instrument used to collect the information in this OME PUF is available on the MEPS website.

2.0 Data File Information

The 2024 OME PUF consists of one event-level file, which contains characteristics associated with the other medical event and imputed expenditure data.

The 2024 OME PUF contains 11,607 other medical expenditure records; of these, 11,487 are associated with persons who have a positive person-level weight (PERWT24F). This PUF includes records for all household members who resided in eligible responding households and were reported to have purchased or otherwise obtained at least one type of medical item such as medical equipment, glasses, or ambulance services, during the calendar year 2024. Some persons may have been reported to have obtained more than one type of medical item and, therefore, have several records on this file. Conversely, persons who were not reported to have obtained a medical item in 2024 have no records on this file. These data were obtained from the MEPS HC in (1) the 2024 portion of Round 3 and all of Rounds 4 and 5 for Panel 28, and (2) Rounds 1, 2, and the 2024 portion of Round 3 for Panel 29. The persons represented in this PUF had to meet either of the following criteria:

1. Be classified as a Key in-scope person who responded for their entire period of 2024 eligibility (i.e., persons with a positive 2024 full-year person-level weight, PERWT24F > 0).

2. Be an eligible member of a family whose Key in-scope members have a positive person-level weight (PERWT24F > 0). (Such a family consists of all persons with the same value for FAMIDYR.) That is, the person must have a positive full-year family-level weight (FAMWT24F > 0). Note: FAMIDYR and FAMWT24F are variables on the Consolidated PUF.

Persons with no other medical events for 2024 are not included on this event-level OME PUF but are represented on the person-level Consolidated PUF.

Each record includes the following: type of medical item obtained, imputed sources of payment, total payment and total charge for the medical item, and a full-year person-level weight.

To append person-level information such as demographic characteristics or health insurance coverage to each event record, data from this PUF can be merged with 2024 MEPS HC person-level data (e.g. Consolidated PUF) using the DUPERSID person identifier. Please see Section 5.0 or HC 254I: Appendix to MEPS 2024 Event Files (hereafter referred to as the Appendix PUF) for details on how to merge MEPS data files.

2.1 Codebook Structure

For most variables on the OME PUF, both weighted and unweighted frequencies are provided in the accompanying codebook. The exceptions to this are weight variables and variance estimation variables. Only unweighted frequencies of these variables are included in the accompanying codebook file. See the Weights Variables list in the appendix.

The codebook and data file list variables in the following order:

- Unique person identifier
- Unique OME identifier

- Type of other medical expenses
- Imputed expenditure variables
- Weight and variance estimation variables

The person identifier corresponds to a unique person and the OME identifier corresponds to a unique event.

2.2 Reserved Codes

The OME PUF contains the following reserved code values (Table 1).

Table 1

Reserved Code Values and Definitions

Value	Label	Definition
-1	Inapplicable	Question was not asked due to skip pattern
-7	Refused	Question was asked and respondent refused to answer question
-8	Don’t Know	Question was asked and respondent did not know answer or the information could not be ascertained
-15	Cannot be Computed	Value cannot be derived from data

The value -15 Cannot be Computed (-15) is assigned to MEPS constructed variables in cases where there is not enough information from the MEPS instrument to calculate the constructed variables. “Not enough information” is often the result of skip patterns in the data or missing information stemming from the responses Refused (-7) or Don’t Know (-8). Note that, in addition to Don’t Know, reserved code -8 includes cases for which the information from the question was not ascertained.

Generally, values of -1, -7, -8, and -15 for non-expenditure variables have not been edited in this PUF. Analysts who would like to recode these values can find skip patterns in the HC survey questionnaire located on the MEPS website.

2.3 Codebook Format

The codebook describes an ASCII dataset and provides the programming identifiers for each variable (Table 2)

Table 2

Programming Identifiers for Each Variable on the Other Medical Events PUF

Identifier	Description
Name	Variable name
Description	Variable descriptor
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 Source and Naming Conventions

In general, variable names reflect the variable's content. All edited/imputed variables end with an "X".

As the collection, universe, or categories of variables were altered, some variable names have been appended with "_Myy", where "yy" indicates the collection year in which the alterations were made. Such alterations are described in detail throughout this document.

2.4.1 Variable - Source Crosswalk

Variables on this OME PUF were derived from the CAPI. The source of each variable is identified in the appendix in one of four ways:

1. Variables derived from CAPI or assigned in sampling are indicated as "CAPI derived" or "Assigned in sampling"
2. Variables from one or more specific questions have questionnaire sections and question numbers indicated in the Source column; questionnaire sections are identified as
    - EV - Event Roster section
    - CP - Charge Payment section
3. Variables constructed from multiple questions by using complex algorithms are labeled "Constructed" in the Source column
4. Variables that have been edited or imputed are so indicated

2.4.2 Expenditure and Source of Payment Variables

The names of the expenditure and source of payment variables follow a standard convention, are seven characters in length, and end in an “X,” indicating that they were edited/imputed. Please note that imputed means that a series of logical edits, as well as an imputation process to account for missing data, were performed on the variable.

The total sum of payments and 10 sources of payment variables are named using the following approaches:

The first two characters indicate the type of event:

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

The third and fourth characters indicate the source of payment:

- SF - self or family
- MR - Medicare
- MD - Medicaid
- PV - private insurance
- VA - Veterans Administration/CHAMPVA
- OF - other federal government
- SL - state/local government
- WC - Workers’ Compensation
- OT - other insurance
- TR - TRICARE
- XP - sum of payments

In addition, the total charge variable is indicated by “TC” in the variable name.

The fifth and sixth characters (24) indicate the year. The seventh character, “X,” indicates that the variable was edited/imputed.

For example, OMSF24X is the edited/imputed amount paid by self or family for 2024 other medical equipment and expenditures.

2.5 File Contents

2.5.1 Survey Administration Variables

Person Identifiers (DUID, PID, DUPERSID)

The definitions of dwelling units (DUs) in the MEPS HC are generally consistent with the definitions used in NHIS. The dwelling unit identifier (DUID) is a seven-digit number consisting of a two-digit panel number followed by a five-digit random number assigned after the case was sampled for MEPS. A three-digit person number (PID) uniquely identifies each person within the DU. The variable DUPERSID is the combination of the variables DUID and PID. Identifiers begin with the two-digit panel number.

For detailed information on DUs and families, please refer to the documentation for the 2024 Consolidated PUF.

Record Identifiers (EVNTIDX)

EVNTIDX uniquely identifies each OME event (i.e., each record on this PUF). EVNTIDX begins with the two-digit panel number and ends with the two-digit event type number. For details on linking, see Section C.5.0 or the Appendix PUF.

Round Indicator (EVENTRN)

EVENTRN indicates the round in which the other medical event was reported. Each record represents a summary of expenditures for items purchased or otherwise obtained for 2024. If a person’s reference period crosses between Year 1 and Year 2 of a panel, the question “whether a particular OM type was purchased/used” for each of the four OM types (glasses/contacts, ambulance services, disposable supplies, and long-term medical equipment) is asked separately for each of the 2 years of a panel. Note: Rounds 3 (partial), 4, and 5 are associated with data collected from Panel 28; Rounds 1, 2, and 3 (partial) are associated with data collected from Panel 29.

Panel Indicator (PANEL)

PANEL is a constructed variable used to specify the panel number for the person. PANEL will indicate either Panel 28 or Panel 29 for each person on the PUF. Panel 28 started in 2023, and Panel 29 started in 2024.

2.5.2 Other Medical Type Variable (OMTYPE_M18)

Other medical expenditures (OMTYPE_M18) include glasses or contact lenses, ambulance services, disposable supplies, and long-term medical equipment. The OM-type questions are asked in every round.

2.5.3 Condition Codes

Conditions data are not collected for other medical events; therefore, this PUF cannot be linked to the Conditions PUF.

2.5.4 Expenditure Data

Definition of Expenditures

Expenditures in this PUF refer to payments for the medical item. More specifically, expenditures in MEPS are defined as the sum of payments for each medical item that was obtained, including out-of-pocket payments and payments made by private insurance, Medicaid, Medicare and other sources. The definition of expenditures used in MEPS differs from its predecessors, the 1987 National Medical Expenditure Survey (NMES) and 1977 National Medical Care Expenditure Survey (NMCES), where "charges" rather than the sum of payments were used to measure expenditures. This change was adopted because charges became a less appropriate proxy for medical expenditures during the 1990s as a result of the increasingly common practice of discounting. Although measuring expenditures as the sum of payments incorporates discounts in the MEPS expenditure estimates, these estimates do not incorporate any payment not directly tied to specific medical care events, such as bonuses or retrospective payment adjustments paid by third-party payers. Currently, 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 associated payments.

Although charge data are provided in this PUF, analysts should use caution when working with these data because a charge does not typically represent actual dollars exchanged for services or the resource costs of those services, nor are the charge data 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 are published in Zuvekas and Cohen (2002); they can also be accessed via the Center for Financing, Access and Cost data center. For more information, see the Data Center section of the MEPS website. If examining trends in MEPS expenditures, please refer to Section C.3.5 for more information.

Data Editing and Imputation Methodologies of Expenditure Variables

The general methodology used for editing and imputing expenditure data is described in this section. The MPC did not include dental events or other medical expenditures (e.g., glasses,

ambulance, disposable supplies). 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. Please see the following for the differences between these editing/imputation methodologies. Separate imputations were performed for simple (non-flat fee) events.

General Data Editing Methodology

Logical edits were used to resolve internal inconsistencies and other problems in the HC data. The edits were designed to (1) preserve partial payment data from households and providers and (2) 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. In addition, edits were implemented to correct for payment source misclassifications between Medicare and Medicaid, and between Medicare health maintenance organizations (HMOs) and private HMOs. These edits produced a complete vector of expenditures for some events and provided the starting point for imputing missing expenditures for the remaining events.

Imputation Methodologies

The predictive mean matching imputation method was used to impute missing expenditures. This procedure uses regression models (based on events with completely reported expenditure data) to predict total expenses for each event. Then, for each event with missing payment information, a donor event with the closest predicted payment with the same pattern of expected payment sources was used to impute the missing payment value.

A weighted sequential hot-deck procedure was used to impute the missing total charges. This procedure uses survey data from donors to replace missing data while considering the donors' weighted distribution in the imputation process, ensuring that the weighted distribution of recipients' expenditures reflects the weighted distribution of the donors' expenditures.

Other Medical Expenses Data Editing and Imputation

The CAPI instrument collects the total charge and out-of-pocket expenditures for disposable supplies (OMTYPE_M18=3) in a range format. The ranges were replaced with mean dollar amounts of respective expenditures reported in each range in prior years.

Table 3

Total Charge Expenditure Ranges and Mean Dollar Replacement Amounts

Total charge range for OMTYPE_M18=3	Mean dollar amounts
$0	$0
$1 - $10	$8.10
$11 - $30	$20.50
$31 - $100	$57.80
$101 or more	$1,571.70

Table 4

Out of Pocket Payment Ranges and Mean Dollar Replacement Amounts

Out-of-pocket payment range for OMTYPE_M18=3	Mean dollar amounts
$0	$0
$1 - $10	$6.70
$11 - $30	$20.40
$31 - $100	$56.20
$101 or more	$442.60
-7, -8, -15	-8

Expenditures for other medical equipment and services were developed in a sequence of logical edits and imputations. The household edits were used to correct obvious errors in expenditure reporting and identify actual and potential sources of payments. Some of the edits were global (i.e., applied to all events), whereas others were hierarchical and mutually exclusive.

Logical edits were used to sort each event into a specific category for the imputations. Events with complete expenditures were flagged as potential donors for the predictive mean imputations, and events with missing expenditure data were assigned to various recipient categories based on the extent of their missing charge and expenditure data. For example, an event with a known total charge but no expenditure information was assigned to one category, whereas an event with a known total charge and partial expenditure information was assigned to a different category. Similarly, events without a known total charge and no or partial expenditure information were assigned to separate recipient categories.

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. Medicaid 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 might pay for the care.

Separate predictive mean imputations were used to impute missing data in each of the 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 overcounted because the distribution of free events among complete events (donors) would not be represented among incomplete events (recipients).

Imputation Flag Variable (IMPFLAG)

IMPFLAG is a six-category variable that indicates whether the event contains complete HC or MPC data, was fully or partially imputed, or was imputed in the capitated imputation process (for OP and OB events only). The following list identifies how the imputation flag is coded; the categories are mutually exclusive.

IMPFLAG = 0; not eligible for imputation (includes zeroed out events)

IMPFLAG = 1; complete HC data

IMPFLAG = 2; complete MPC data (not applicable to other medical events)

IMPFLAG = 3; fully imputed

IMPFLAG = 4; partially imputed

IMPFLAG = 5; complete MPC data through capitation imputation (not applicable to other medical events)

Flat Fee Expenditures

A flat fee is the fixed dollar amount a person is charged for a package of healthcare services provided during a defined period. Other medical service events cannot be reported as a flat fee group.

Zero Expenditures

Some respondents reported persons obtaining medical items with zero payments. This could occur if (1) the item or service was free or (2) bad debt was incurred. If all medical events for a person fell into one of these categories, then the total annual expenditures for that person would be zero.

Sources of Payment

In addition to total expenditures, variables are provided that itemize expenditures according to the following major source of payment categories:

1. Out-of-pocket by user (self or family) - includes any deductible, coinsurance, and copayment amounts not covered by other sources, as well as payments for services and providers not covered by the person’s insurance or other sources
2. Medicare
3. Medicaid

4. Private insurance
5. Veterans Administration/CHAMPVA, excluding TRICARE
6. TRICARE
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, and liability insurance, and other miscellaneous or unknown sources

Other Medical Expenditure Variables (OMSF24X to OMTC24X)

Other medical expenditure data were obtained only through the MEPS HC. For cases with missing expenditure data, other medical expenditures were imputed using the procedures described previously.

OMSF24X to OMOT24X are the 10 sources of payment. OMTC24X is the total charge, and OMXP24X is the sum of the 10 sources of payment for the other medical expenditures. The 10 sources of payment are self/family (OMSF24X), Medicare (OMMR24X), Medicaid (OMMD24X), private insurance (OMPV24X), Veterans Administration/CHAMPVA (OMVA24X), TRICARE (OMTR24X), other federal sources (OMOF24X), state and local (non-federal) government sources (OMSL24X), workers' compensation (OMWC24X), and other insurance (OMOT24X).

Rounding

Expenditure variables on this OME PUF have been rounded to the nearest penny. Person-level expenditure information to be released on the Consolidated PUF will be rounded to the nearest dollar. Of note, using the MEPS event PUFs to create person-level totals will yield slightly different totals from those found on the Consolidated PUF. These differences are due to rounding only. Moreover, in some instances, the number of persons with expenditures in the event PUFs for a particular source of payment may differ from the number of persons with expenditures in the person-level expenditure PUF for that source of payment. This difference is also an artifact of rounding only.

3.0 Survey Sample Information

3.1 Discussion of Pandemic Effects on Quality of MEPS Data

Like most surveys, MEPS has been substantially affected by the COVID-19 pandemic. One effect of the pandemic is significantly lower response rates (see Section C.3.2 in the Consolidated PUF), which might differentially exclude households more likely to experience IP stays. The demographic shifts on MEPS between 2019 and 2022 suggest a more educated, higher-income, older MEPS sample. (For more details, see Section C.3.1 of the 2020 Consolidated PUF, Section C3.1 of the 2021 Consolidated PUF, and Section C.3.1.2 of the 2022 Consolidated PUF.) MEPS sample design modifications due to the COVID-19 pandemic reverted in 2022. Thus, concerns about potential bias due to these modifications no longer apply to data collected in this PUF.

To examine the quality of the MEPS FY 2024 data, analyses compared health-care utilization and health insurance coverage for the MEPS target population between the panels fielded. These comparisons were undertaken for the full sample and three age groups: 0-17, 18-64, and 65 or older. Analysts found no abnormal differences between the two panels. Analyses across years also suggest a rebound to pre-pandemic utilization levels for most essential event types.

The development of the person-level weights for the MEPS FY 2024 data was designed to limit the potential for response bias. However, analysts of the MEPS FY 2024 data should continue to exercise caution when interpreting estimates and assessing analyses, especially for data collected from 2020 through 2022. This includes comparing estimates with those of other years and conducting corresponding trend analyses.

3.2 Sample Weight (PERWT24F)

A single full-year person-level weight (PERWT24F) is assigned to each record for each Key in-scope person who responded to MEPS for the entire duration that they were in scope during 2024. A Key person was either a member of a responding NHIS household at the time of the interview or joined a family associated with such a household after being out of scope at the time of NHIS (the latter circumstance includes newborns and those returning from military service, an institution, or residence in a foreign country). A person is in scope whenever they are a member of the U.S. civilian noninstitutionalized population.

3.3 Details on Person Weight Construction

The person-level weight PERWT24F was developed in several stages. First, a person-level weight for Panel 28 was created, including an adjustment for nonresponse over time and raking. Raking involved adjusting to several sets of marginal control totals reflecting Current Population

Survey (CPS) population estimates based on six variables. The six variables used to establish the initial person-level control figures were the following:

- Educational attainment of the reference person (no degree, high school/GED only or some college, bachelor's or a higher degree)
- Census region (Northeast, Midwest, South, West)
- Metropolitan statistical area (MSA) status (MSA, non-MSA) (Note: For confidentiality reasons, the MSA status variables are no longer released for public use)
- Race/ethnicity (Hispanic; Black, non-Hispanic; Asian, non-Hispanic; other);
- Sex (male, female)
- Age (0-18, 19-25, 26-34, 35-44, 45-64, and 65 or older).

The person-level weight for Panel 29 was created similarly. A composite weight was formed by multiplying each weight from Panel 28 by the factor 0.44 and each weight from Panel 29 by the factor 0.56. The choice of factors reflects the relative effective sample sizes of the two panels, helping to limit the variance of estimates obtained from pooling both samples.

Weights for the 2024 Consolidated PUF were then developed by raking the composite weight to CPS-based control totals, replacing educational attainment with poverty status while retaining the other five raking variables previously indicated. Specifically, control totals based on CPS estimates of poverty status (five categories: below poverty, from 100%-125 percent of poverty, from 125%-200 of poverty, from 200%-400% of poverty, at least 400% of poverty) in addition to race/ethnicity, sex, region, and MSA status are used to calibrate weights.

3.3.1 MEPS Panel 28 Weight Development Process

The person-level weight for Panel 28 was developed using the 2023 full-year weight as a "base" weight for survey participants present in 2024.

For Key in-scope members who joined a reporting unit (RU) at some time in 2024 after being out of scope in 2023, the initially assigned person-level weight was the corresponding 2023 family weight. The weighting process also included an adjustment for person-level nonresponse over Rounds 4 and 5 as well as raking to the population control figures for December 2024 for Key responding persons in scope on December 31, 2024. These control totals were derived by scaling back the population distribution obtained from the March 2025 CPS to reflect the December 31, 2024 estimated population total (estimated based on Census projections for January 1, 2025). The six variables listed in Section C3.3 were also used for person-level raking: education of the reference person, Census region, MSA status, race/ethnicity, sex, and age. The final weight for Key responding persons who were not in scope on December 31, 2024 but were in scope earlier in the year was the nonresponse-adjusted person weight without raking.

Note that the 2023 full-year weight that was used as the base weight for Panel 28 was derived using the 2023 MEPS Round 1 weight and reflected adjustment for nonresponse over the remaining data collection rounds in 2023 as well as raking to the December 2023 population control figures.

3.3.2 MEPS Panel 29 Weight Development Process

The person-level weight for Panel 29 was developed using the 2024 Round 1 person-level weight as a base weight. The Round 1 weights incorporated the following components: the original household probability of selection for NHIS and for the NHIS subsample reserved for MEPS, an adjustment for NHIS nonresponse, the probability of selection for MEPS from NHIS, an adjustment for nonresponse at the DU level for Round 1, and raking to control figures at the person level from the March CPS of the corresponding year. For Key in-scope members who joined an RU after Round 1, the Round 1 DU weight served as a base weight.

The weighting process also included an adjustment for nonresponse over the remaining data collection rounds in 2024, as well as raking to the same population control figures for December 2024 that were used for the Panel 28 weight for Key responding persons in scope on December 31, 2024. The same six variables used for Panel 28 raking (education level of the reference person, census region, MSA status, race/ethnicity, sex, and age) were also used for Panel 29 raking. Similar to Panel 28, the Panel 29 final weight for Key responding persons who were not in scope on December 31, 2024, but were in scope earlier in the year was the nonresponse-adjusted person weight without raking.

3.3.3 The Final Weight for 2024

The final raking of those in scope at the end of the year has been described previously. In addition, the composite weights of two groups of persons who were out of scope on December 31, 2024, were adjusted for expected undercoverage. Specifically, the weights of those who were out of scope on December 31, 2024, but in scope at some time during the year and were residing in a nursing home at the end of the year were poststratified to an estimate of the number of persons who were residents of Medicare- and Medicaid-certified nursing homes for part of the year (approximately 3-9 months) during 2014. This estimate was developed from data on the Minimum Data Set (MDS) of the Centers for Medicare & Medicaid Services (CMS). The weights of persons who died while in scope were poststratified to corresponding estimates derived using data from the Centers for Disease Control and Prevention (CDC), NCHS, and About Provisional Mortality Statistics, 2018 through Last Week on the CDC WONDER online database (released in 2025, the latest available data at the time). Separate decedent control totals were developed for the “65 or older” and “under 65” civilian noninstitutionalized populations.

Overall, the weighted population estimate for the civilian noninstitutionalized population for December 31, 2024, is 336,022,966 (PERWT24F >0 and INSC1231=1). The sum of person-level weights across all persons assigned a positive person-level weight is 339,797,629.

3.4 Coverage

The target population associated with MEPS is the 2024 U.S. civilian noninstitutionalized population. However, the MEPS sampled households are a subsample of the NHIS households interviewed in 2022 (Panel 28) and 2023 (Panel 29). New households created after the NHIS interviews for the respective panels and consisting exclusively of persons who entered the target population after 2022 (Panel 28) or after 2023 (Panel 29) are not covered by the 2024 MEPS. Nor are previously out-of-scope persons who joined an existing household but are not related to the current household residents. Thus, persons not covered by a given MEPS panel include some members of the following groups: newborns, immigrants, persons leaving the military, U.S. citizens returning from residence in another country, and persons leaving institutions. Those not covered represent a small proportion of the MEPS target population.

3.5 Using MEPS Data for Trend Analysis

For analysts using the MEPS data for trend analysis, there are uncertainties associated with 2020, 2021, and 2022 data quality, as discussed in Section C.3.1. Evaluations of important MEPS estimates suggest that the estimates are of reasonable quality. Nevertheless, analysts are advised to exercise caution when interpreting these estimates, particularly for trend analyses, because the pandemic substantially affected healthcare access and related factors (e.g., health insurance coverage, employment status).

MEPS began in 1996, and the utility of the survey for analyzing health-care trends expands with each additional year of data; however, when examining trends over time using the MEPS, the duration being analyzed should be considered. In particular, large shifts in survey estimates over short periods (e.g., from one year to the next) that are statistically significant should be interpreted with caution, unless they are attributable to known factors such as changes in public policy, economic conditions, or the MEPS methodology.

With respect to methodological considerations, changes in data collection methods, such as interviewer training, were introduced in 2013 to obtain more complete information about healthcare utilization from MEPS respondents; the changes were fully implemented in 2014. This effort likely improved data quality and reduced underreporting starting in the second half of 2013 and continuing throughout the 2014 full-year files. The changes have also affected analyses involving utilization trends across years. Changes in the NHIS sample design in 2016 and 2018 could also affect trend analyses. The new NHIS sample design is based on more up-to-date information related to the distribution of housing units across the United States. As a result, it can be expected to better cover the full civilian noninstitutionalized population - the target population for MEPS - and many of its subpopulations. Improved coverage of the target population helps to reduce the potential for bias in both NHIS and MEPS estimates.

Another change with the potential to affect trend analyses involves major modifications to the MEPS instrument design and data collection process, particularly in the events sections of the instrument. These were introduced in spring 2018 and thus affected data beginning with Round 1 of Panel 23, Round 3 of Panel 22, and Round 5 of Panel 21. Because the FY 2017 MEPS files were established from data collected in Rounds 1-3 of Panel 22 and Rounds 3-5 of Panel 21, they

reflect two instrument designs. To mitigate the effect of such differences within the same full-year file, the Panel 22 Round 3 data and the Panel 21 Round 5 data were transformed to be as consistent as possible with data collected under the previous design. The changes to the instrument were designed to make data collection more efficient and easier to administer. In addition, data on some items, such as those related to health-care events, were expected to be more complete, with the potential of identifying more events. Increases in service use reported since the implementation of these changes are consistent with these expectations. *Note: Analysts should be aware of the possible impacts of these changes on data, especially trend analyses, that include the year 2018 because of the design transition.*

Process changes, such as data editing and imputation, may also affect trend analyses. For example, analysts should refer to Section C.2.5.11: Utilization, Expenditures, and Sources of Payment Variables in the Consolidated PUF (HC 256). For more details, refer to the documentation for the prescription drug file (HC 254A) when analyzing prescription drug spending over time. As always, before conducting trend analyses, analysts should review relevant documentation sections for descriptions of changes that might affect interpretation over time.

To smooth or stabilize trend analyses based on the MEPS data, analysts may also wish to consider statistical approaches such as comparing pooled time periods (e.g., 1996-1997 vs 2011-2012), working with moving averages, or using modeling techniques with several consecutive years of data.

Finally, statistical significance tests should be conducted to assess the likelihood that observed trends are not attributable to sampling variation. In addition, researchers should be aware of the impact of multiple comparisons on Type I error. Without making appropriate allowance for multiple comparisons, conducting numerous statistical significance tests of trends will increase the likelihood of concluding that a change has occurred when one has not.

4.0 Strategies for Estimation

This file is constructed for the estimation of utilization, expenditures, and sources of payment for other medical expenditures, as well as the number of persons who obtained medical items in 2024.

4.1 Basic Estimates of Utilization, Expenditures, and Sources of Payment

This file contains round-specific expenditure data on purchases of each type of medical equipment, supplies, and services (see the following description and the OMTYPE_M18 variable in the codebook for more details). Data are not collected on the actual number of purchases of the items/services represented on this file, so it is not possible to estimate the average expenditure per unit of service.

Records for purchases of insulin and diabetic supplies were included in the OME PUFs for 1996-2004. Beginning with the 2005 file, these records were excluded from the OME PUF because the expenditures have always been included on the Prescribed Medicines PUF. The Prescribed Medicines file is a more appropriate source for estimates of both utilization and expenditures for insulin and diabetic supplies.

Each record on this file contains person-specific information on total expenditures during a specific round for a given category of medical equipment, services, and supplies (a maximum of three records per category of medical equipment for a sampled person). Variables for annual expenditure data for each category of medical equipment, services, and supplies (obtained by cumulating across round-specific data on this file) are included on the Consolidated PUF.

Estimates of the total number of persons with expenditures for an item during the year are the sum of the weight variable (PERWT24F) across relevant records (e.g., for ambulance services, records where OMTYPE_M18 = 2). Estimates of expenditure variables must be weighted by PERWT24F to be nationally representative. For example, the estimate for the total expenditures for ambulance services paid out of pocket is produced by summing the product of the variables PERWT24F and OMSF24X across all events in the file where OMTYPE_M18 = 2 as follows (the subscript "j" identifies each event and represents a numbering of events from 1 through the total number of events in the file):

$\sum W_j X_j$, where

$W_j = PERWT24F_j$ (full-year weight for the person associated with event j) and

$X_j = OMSF24X_j$ (amount paid by self/family for event j) where OMTYPE_M18 = 2.

The estimate for the average expenditures for ambulance services paid out of pocket per person per round with that type of expense is produced as follows (the subscript "j" identifies each event and represents a numbering of events from 1 through the total number of events in the file):

$(\sum W_j X_j)/(\sum W_j)$, where

$W_j = PERWT24F_j$ (full-year weight for the person associated with event j) and

$X_j = OMSF24X_j$ (amount paid by self/family for event j) where OMTYPE_M18 = 2.

This type of estimate and corresponding standard error (SEs) can be derived using an appropriate computer software package for complex survey analysis such as SAS, Stata, SUDAAN, R, or SPSS. Although variables are contained on the full-year annual file for aggregate expenditures across these types of services/items (OMTYPE_M18 = 1, 2, 3, or 4), it is necessary to use this file to produce an annual estimate for a specific category of service. Small sample sizes make it advisable to pool multiple years of MEPS data to produce statistically reliable estimates for some of the items.

4.2 Variables With Missing Values

Analysts must 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 calculated, it may be necessary to set negative values to values appropriate to analytic needs. That is, analysts should either impute a value or set it to a value that the software package will interpret as missing. For categorical and dichotomous variables, analysts can consider whether to recode or impute a value for cases with negative values or whether to include or exclude such cases in the numerator, denominator, or both when calculating proportions.

Section C.2.5.4 describes methodologies used for the editing/imputation of expenditure variables (e.g., sources of payment, zero expenditures).

4.3 Variance Estimation (VARSTR, VARPSU)

To obtain estimates of variability in MEPS estimates (e.g., the standard error of sample estimates or corresponding confidence intervals), analysts should consider MEPS's complex sample design for both person-level and family-level analyses. Several methods have been developed to estimate standard errors for surveys with complex sample designs, including the Taylor series linearization method, balanced repeated replication (BRR), and jackknife replication; various software packages can implement these methods. MEPS analysts most commonly use the Taylor series approach. Although this PUF does not contain replicate weights, analysts can use the BRR method to construct replicate weights to develop variances for more complex estimators (see Section C.4.3.2).

4.3.1 Taylor Series Linearization Method

The variables needed to calculate appropriate standard errors based on the Taylor series linearization method are included on this file, as well as all other MEPS PUFs. Software packages that support the Taylor series linearization method include SUDAAN, R, Stata, SAS (version 8.2 or higher), and SPSS (version 12.0 or higher). For complete information on a package's capabilities, analysts should refer to the software's user documentation.

With the Taylor series linearization method, variance estimation strata and the variance estimation primary sampling units (PSUs) within these strata must be specified. The variables VARSTR and VARPSU on this OME PUF identify the sampling strata and PSUs required by the variance estimation programs. Specifying a "with replacement" design in one of the previously mentioned software packages will provide estimated standard errors appropriate for assessing the variability of MEPS estimates. Note that the number of degrees of freedom associated with estimates of variability indicated by a package may not appropriately reflect the number available. For variables of interest distributed throughout the country (and thus across the MEPS sample PSUs), one can generally expect to see at least 100 degrees of freedom associated with the estimated standard errors for national estimates based on this MEPS database.

Before 2002, the MEPS variance strata and PSUs were developed independently from year to year, and the last two characters of the strata and PSU variable names denoted the year. Beginning with the 2002 point-in-time PUF, the approach changed with the intention that variance strata and PSUs would be developed to be compatible with all future PUFs until the NHIS design changed. Thus, when pooling data from 2002 through Panel 11 in the 2007 files, analysts can use the variance strata and PSU variables provided without modifying them for variance estimation purposes for estimates covering multiple years of data. There are 203 variance estimation strata, each stratum has either two or three variance estimation PSUs.

Beginning with Panel 12 in the 2007 files, a new set of variance strata and PSUs was developed because of the introduction of a new NHIS design. There are 165 variance strata with either two or three variance estimation PSUs per stratum. Therefore, there are a total of 368 (203 + 165) variance strata in the 2007 Consolidated PUF because it consists of two panels selected under two independent NHIS sample designs. Because both MEPS panels in the full-year files from 2008 to 2016 are based on the same NHIS design, there are only 165 variance strata. These strata (VARSTR values) have been numbered from 1,001 to 1,165 so they can be readily distinguished from those developed under the former NHIS sample design when pooling data across multiple years.

The NHIS sample design was changed again in 2016, effectively changing the MEPS design beginning with calendar year 2017. Beginning with Panel 22 in the 2017 files, a new set of variance strata and PSUs was developed. There are 117 variance strata with either two or three variance estimation PSUs per stratum. Therefore, there are a total of 282 (165 + 117) variance strata in the 2017 Consolidated PUF because it consists of two panels selected under two independent NHIS sample designs. To simplify data pooling across multiple years of the MEPS, the variance strata numbering system was changed. The strata associated with the new design are numbered from 2001 to 2117.

The NHIS sample design was further modified in 2018, so the MEPS variance structure for the 2019 Consolidated PUF was also modified, reducing the number of variance strata to 105. The new variance structure maintained consistency with the prior structure by assigning the 2019 variance strata to values within the same 2001 to 2117 range, though there are now some gaps in the sequence of assigned values. Because of the modification, each stratum could contain up to five variance estimation PSUs.

For Panel 26 in the 2021 and 2022 Consolidated PUFs, an additional NHIS sample was used for MEPS to account for increasing nonresponse during the pandemic (as discussed in Section C.3.1). The additional sample was assigned to the existing variance strata, so the 2021 and 2022 Consolidated PUFs continued to have 105 variance strata, numbered from 2001 to 2117, with a few gaps in the values in that range. In many cases, the additional sample was assigned to new variance estimation PSUs. Thus, in the 2021 and 2022 Consolidated PUFs, each stratum contained up to eight variance estimation PSUs.

Additional NHIS samples were no longer needed beginning in 2023, leading to fewer variance estimation PSUs than in the 2021 and 2022 Consolidated PUFs. The Consolidated PUF continues to have 105 variance strata, numbered from 2001 to 2117, with a few gaps in the values in that range. Each stratum contains up to seven variance estimation PSUs.

When pooling data across multiple years of MEPS data, analysts should note that, to obtain appropriate standard errors, it is necessary to specify a common variance structure. Before 2002, each annual PUF was released with a variance structure unique to the particular MEPS sample in that year. Starting in 2002, the annual PUFs were released with a common variance structure to allow analysts to pool data from 2002 to 2018. However, analysts can no longer do this routinely because the variance structure was modified beginning in 2019.

To ensure that variance strata are identified appropriately for variance estimation purposes when pooling MEPS data across several years, analysts should proceed as follows:

1. When pooling any year from 2002 to 2018, use the variance strata numbering as is.

2. When pooling (a) any year from 1996 to 2001 with any year from 2002 or later, or (b) the year 2019 and beyond with any earlier year, use the pooled linkage PUF HC-036, which contains the proper variance structure. The HC-036 PUF is updated every year so that appropriate variance structures are available with pooled data. Further details are included in the public use documentation for the HC-036 PUF.

4.3.2 Balanced Repeated Replication Method

BRR replicate weights are not provided on this MEPS OME PUF for the purposes of variance estimation. However, a file containing a BRR structure is available so that analysts can form replicate weights, if desired, from the final MEPS weight to compute variances of MEPS estimates using either BRR or Fay's modified BRR (Fay, 1989) methods. The replicate weights are useful for computing variances of complex nonlinear estimators for which a Taylor linear form is neither easy to derive nor available in commonly used software. For instance, it is not possible to calculate the variances of a median or the ratio of two medians by using the Taylor linearization method. For these types of estimators, analysts can calculate a variance using BRR or Fay's modified BRR methods. However, it should be noted that the replicate weights are derived from the final weight through a shortcut approach. Specifically, the replicate weights are not computed from the base weight, and all adjustments made in different stages of weighting are not applied independently in each replicate. Thus, the variances computed using this one-step BRR do not capture the effects of all weighting adjustments that would be captured in a set of fully developed BRR replicate weights. The Taylor series approach does not fully capture the effects of the different weighting adjustments, either.

The dataset HC-036BRR: MEPS 1996-2024 Replicates for Variance Estimation File contains the information necessary to construct the BRR replicates. It includes a set of 128 flags (BRR1-BRR128) in the form of half-sample indicators, each of which is coded 0 or 1 to indicate whether the person should or should not be included in that particular replicate. These flags can be used in conjunction with the full-year weight to construct the BRR replicate weights. For an analysis of MEPS data pooled across years, the BRR replicates can be formed in the same way by using the HC-036: MEPS 1996-2024 Pooled Linkage Variance Estimation File. For more information about creating BRR replicates, analysts can refer to the documentation for the HC-036BRR pooled linkage file on the AHRQ website.

5.0 Merging/Linking MEPS Data Files

Data from this PUF can be used alone or in conjunction with other PUFs for different analytic purposes. Merging characteristics of interest from other MEPS PUFs expands the scope of potential estimates. For example, the medical event PUFs can be merged with the person-level Consolidated PUF to calculate event-level estimates for persons with specific characteristics (e.g., age, race, sex, education).

Most of the event PUFs can also be linked to the Medical Conditions PUF by using the Condition-Event Link (CLNK) PUF. When using the CLNK PUF, analysts should keep in mind that (1) conditions are household reported, (2) multiple conditions may be associated with a medical event, (3) one condition may link to more than one event, and (4) not all medical events link to the Medical Conditions PUF.

In addition to linking to other MEPS PUFs, each MEPS panel can also be linked back to the previous year's NHIS PUFs. This is because the set of households selected for MEPS is a subsample of NHIS participants. For information on obtaining MEPS/NHIS link files please see the MEPS website.

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Appendix
Variable-Source Crosswalk

FOR MEPS HC 254C: 2024 OTHER MEDICAL EXPENSES

See the Household section under Survey Components on the MEPS home page for information on the MEPS HC questionnaire sections shown in the Source column (e.g., OM) of the tables in this appendix.

Survey Administration Variables

Variable	Description	Source
DUID	Panel # + encrypted DU identifier	Assigned in sampling
PID	Person number	Assigned in sampling
DUPERSID	Person ID (DUID + PID)	Assigned in sampling
EVNTIDX	Event ID	Assigned in Sampling
EVENTRN	Event round number	CAPI derived
PANEL	Panel number	Constructed

Other Medical Events Variables

Variable	Description	Source
OMTYPE_M18	Other medical expense type	OM10, 30, 40, 50

Imputed Expenditure Variables

Variable	Description	Source
OMSF24X	Amount paid, family (Imputed)	CP Section (Edited)
OMMR24X	Amount paid, Medicare (Imputed)	CP Section (Edited)
OMMD24X	Amount paid, Medicaid (Imputed)	CP Section (Edited)
OMPV24X	Amount paid, private insurance (Imputed)	CP Section (Edited)
OMVA24X	Amount paid, Veterans/CHAMPVA (Imputed)	CP Section (Edited)
OMTR24X	Amount paid, TRICARE (Imputed)	CP Section (Edited)

Variable	Description	Source
OMOF24X	Amount paid, other federal (Imputed)	CP Section (Edited)
OMSL24X	Amount paid, state & local government (Imputed)	CP Section (Edited)
OMWC24X	Amount paid, workers' compensation (Imputed)	CP Section (Edited)
OMOT24X	Amount paid, other insurance (Imputed)	CP Section (Edited)
OMXP24X	Sum of OMSF24X-OMOT24X (Imputed)	Constructed
OMTC24X	Household reported total charge (Imputed)	CP Section (Edited)
IMPFLAG	Imputation status	Constructed

Weights Variables

Variable	Description	Source
PERWT24F	Expenditure file person weight, 2024	Constructed
VARSTR	Variance estimation stratum, 2024	Constructed
VARPSU	Variance estimation PSU, 2024	Constructed