Medical Expenditure Panel Survey

Health Care Utilization And Expenditures Data

Health Care Utilization

- **Utilization is called an "event" in MEPS**

- **Event is a catch-all term for**

    - **Hospital and office-based medical provider visits**
    - **Dental visits**
    - **Purchases and refills of prescribed medicines**
    - **Home health care**
    - **Purchases of certain types of medical supplies and equipment**

- **Each event in MEPS is a unique record based on household-reported utilization data**

Event Types

- **Hospital Inpatient Stays (IP)**
- **Emergency Room Visits (ER)**
- **Outpatient Department Visits (OP)**
- **Office-Based Medical Provider Visits (OB)**
- **Dental Visits (DV)**
- **Prescription Medicine Purchases (RX)**
- **Home Health Care (HH)**
- **Other Medical Expenses (OM)**

MEPS contains information on eight types of events reported by households.

Health Care Expenditures

- **Collected at the event level**

- **Represent payments to providers of the health care**

- **Payments are shown by source, e.g., the individual, a private insurance plan, or a public program**

- **Total expenditure is the sum of payments by all sources**

Sources of Expenditure Data

- **Expenditures derived from two sources**
    - Household component (HC) of MEPS
    - Medical provider component (MPC) of MEPS

- **MPC data used to replace or supplement household -reported expenditures**

- **Incomplete data on expenditures for an event is imputed - no missing values**

MPC data are needed because household respondents frequently cannot provide complete information on expenditures by third parties. People in a managed care plan or a public program such as Medicaid, for example, usually know their out-of-pockets expenses but not the amounts paid by by their insurance.

MPC Data

- **Collected for:**
  - **Physician Office Visits**
  - **Outpatient Department Visits**
  - **Hospital Inpatient Stays**
  - **Emergency Room Visits**
  - **Prescribed Medicines (Pharmacy Component)**
  - **Home Health Agency Care**
- **Not collected for:**
  - **Non-physician Office Visits**
  - **Dental Visits**
  - **Home Health - Independent Providers**
  - **Other Medical Expenses**

In the charge and payment section of the household questionnaire, respondents are asked to list the sources of payment and amounts paid for each of their events. For most event types, the medical provider, with the respondent's permission, is contacted and asked to provide similar information. The medical provider information is used to fill gaps in the information provided by household respondents.

Event File Expenditures

- **Expenditure variables**

- **Sources of data**

Source of Payment Categories

- Self or family (SF)
- Medicare (MR)
- Medicaid (MD)
- Private insurance (PV)
- Veterans (VA)
- TRICARE (TR)

- Other federal gov't (OF)
- State or local gov't (SL)
- Worker's comp (WC)
- Other private (OR)
- Other public (OU)
- Other insurance (OT)

Twelve source of payment categories are created from information collected in the household and medical provider components of MEPS. Two of the categories—other private (OR) and other public (OU)—were constructed to handle conflicting information in the health insurance and payment sections of the household questionnaire. For example, a survey respondent may have reported a private insurance payment when he or she did not have private health insurance. In a situation such as this, the source of payment would be shown as "other private."

Expenditures for Hospital Care (IP, ER, and OP Events)

- **Facility Expenditure Variables**
  - **evFSF04X, … , evFOT04X**
  - **evFXP04X (total facility payments)**
  - **evFTC04X (total facility charge)**

- **Separately Billing Doctor (SBD) Expenditure Variables**
  - **evDSF04X, … , evDOT04X**
  - **evDXP04X (total SBD payments)**
  - **evDTC04X (total SBD charge)**

- **Total Charges and Expenditures for hospital event**
  - **evTC04X (evFTC04X + evDTC04X)**
  - **evXP04X (evFXP04X + evDXP04X)**

IP, ER, and OP events have two sets of expenditure variables. One set—the facility expenditures–covers expenses for direct hospital care such as room and board, diagnostic and laboratory work, x-rays and similar charges, as well as any physician services included in the hospital charge. The other set—separately billing doctor expenditures—covers expenses for physicians' services not included in the facility charges.

Analysts interested in total charges and expenditures for a hospital event should use the variables evTC04X and evXP04X, which include both the facility and the separately billing doctor amounts.

Expenditures for OB, DV, OM, HH, and RX Events

- **12 Source of payment variables (evSF04X through evOT04X)**

- **Total expenditure variable (evXP04X)**
  - **The sum of payments by all sources**

- **Total charge variable (evTCH04X)**
  - **The provider's charge before adjustment or discount**
  - **Not included for RX events**

General Expenditure Caveats

- **Flat fee events**

- **Zero dollar events**

Flat Fee Payment Groups

- **What is a Flat Fee?**
  - A fixed dollar amount paid for a group of health care services (e.g., orthodontic care)

- **Flat fee structure**
  - Stem - Initial medical visit - expenditures
  - Leaf - subsequent medical visits - zero expenditures

A flat fee is a fixed charge for a package of health care services provided over time, and a flat fee group is the set of events covered by the charge. At least one of the events in the flat fee group reported by the HC respondent must have occurred during the reference year. Other events in the flat fee group could have occurred before or after the reference year.

Flat Fee Variables

- **Flat Fee ID: FFEEIDX**

- **Stem (1) or Leaf (2): FFevTYPE**

- **Pre-2004 Events in group: FFBEF04**

- **Post-2004 Events in group: FFTOT05**

FFEEIDX is the unique identifier of events in a flat fee group. FFevTYPE indicates whether the event is the "stem" or a "leaf" in a group of events covered by a flat fee. The stem (FFevTYPE=1) is the initial event covered by the flat fee, and it contains all of the expenditure information for events in the flat fee group. A leaf event (FFevTYPE=2) is a subsequent event in the flat fee group, and all of its expenditure variables are set to zero.

FFBEF03 shows the number of pre-2004 events in the same flat fee group, and FFTOT04 show the number of post-2004 events in the same flat fee group.

Flat fees are not allowed on the RX event file, and they are only permitted to cross two event types—outpatient department (OP) visits and office-based medical provider (OB) visits. For events that are not part of a flat fee payment situation, the flat fee variables are set to inapplicable (-1).

Zero Dollar Events

- **Leaf event in flat fee bundle from prior year**

- **Bad debt**

- **Free care**

- **Post-operative care covered by a global surgical package**

Zero expenditure events in the annual files can occur for several reasons, and the MEPS annual files typically have a small number of people with utilization data but no medical expenditures.

Expenditure Data Files

- **Full Year Consolidated File**
  - One record for each person in MEPS
  - Summary of all events and expenditures
  - No detail on expenditures for or characteristics of individual events
- **Event Files (8)**
  - One record for each reported event
  - Detail on expenditures for and characteristics of an event

Event File Detail

- **Common Variables**

  - Unique person/event ID
  - Expenditures by source
  - Total expenditure/charge
  - Imputation flags
  - Variance estimation variables
  - Full year person weight

- **Event specific variables**

  - Type of provider
  - Medical conditions
  - Services/procedures
  - Date(s) of care
  - Reason for event
  - Any medicine prescribed

Each record in the event files has these types of variables. **DUPERSID** uniquely identifies the person who had the event. **EVENTIDX** uniquely identifies each event on a file, and provides the link to corresponding data in the conditions and prescribed medicines files.

Inpatient Stay Information

- **Have operation?**
- **Stay begin with ER visit?**
- **Number of nights in hospital**
- **Reason for stay (5 broad reasons)**
- **Stay related to specific condition (yes or no)**
- **VA facility?**

Inpatient Stay File Caveats

- **Number of newborns in year**

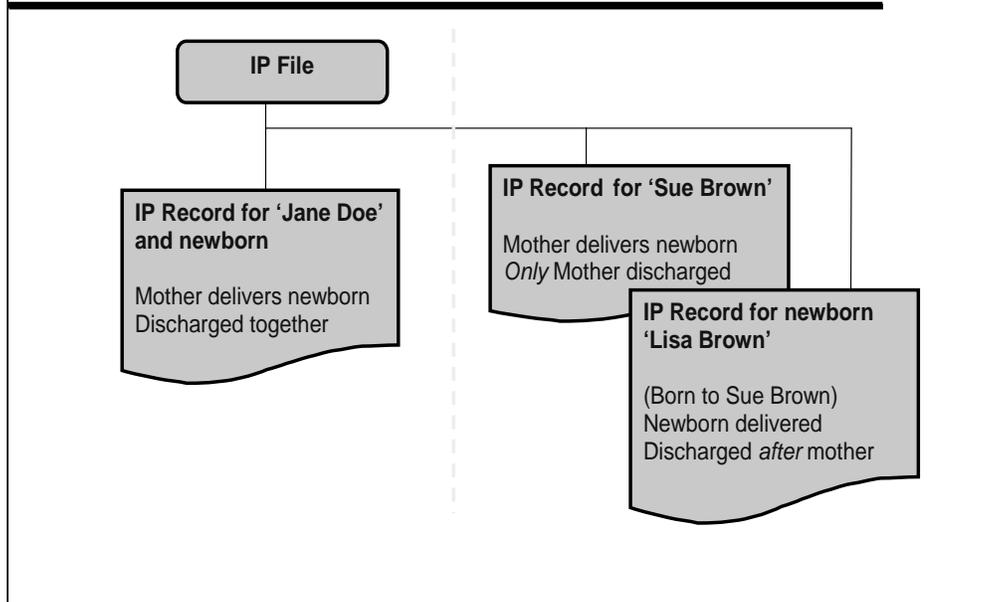- **Mother/Newborn expenditures**

- **IP stays beginning with an ER visit**

Number of Newborns

- **Cannot use "reason entered hospital" to determine number of newborns in the calendar year**

- **RSNINHOS = 4 (to give birth to a baby) does not always indicate a live birth—false labor pains or a still birth**

- **Infants born during 2003 should be identified by using AGE03X = 0 in the Full Year Consolidated File**

Mother/Newborn Expenditures

IP File

IP Record for 'Jane Doe' and newborn

Mother delivers newborn
Discharged together

IP Record for 'Sue Brown'

Mother delivers newborn
Only Mother discharged

IP Record for newborn 'Lisa Brown'

(Born to Sue Brown)
Newborn delivered
Discharged *after* mother

In most cases, when a baby is delivered in a hospital, the stay and related expenses are incorporated into the mother's hospital stay record. A newborn will have a separate hospital stay record only if it is discharged after the mother. Then the birth will be represented as 2 records—one for the mother and one for the baby. Each subsequent readmission of a newborn to a hospital also results in a separate record for the newborn.

IP Stays Beginning with ER Visit

- **EMERROOM is an unedited variable showing whether the IP stay began with an ER visit**

- **ERHEVIDX is a constructed variable identifying the corresponding ER event in the ER file**

- **In the 2004 IP file, only 562 of the 1,597 events identified as beginning with an ER visit could be linked to the corresponding event in the ER file.**

The discrepancy between EMERROOM and ERHEVIDX reflects inconsistencies in household-reported information. For example, a survey respondent can report an inpatient stay beginning with an emergency room visit even though he or she did not report the emergency room visit in the Emergency Room Section of the household questionnaire.

IP Stays Beginning with ER Visit (cont'd)

- **If ERHEVIDX is a valid ID, facility expenditures for the corresponding ER event are on the IP record**

- **The corresponding ER record can have separately billing doctor expenses but no facility expenses**

  - **ERFXP04X = $0**
  - **ERDXP04X > $0**

If an inpatient stay begins with an emergency room visit, facility charges for the ER event are assumed to have been included in the hospital's charges for the inpatient stay.

Services Received During ER, OP or OB Visit

- **Laboratory tests**
- **Sonogram/Ultrasound**
- **X-ray**
- **Mammogram**
- **MRI/CAT SCAN**

- **EKG/ECG**
- **EEG**
- **Vaccination**
- **Anesthesia**
- **Other tests or exams**

Code all that apply.

Main Medical Provider
(OP and OB Visits)

- **VA facility?**
- **Specialty if a physician**
  - **33 specialties plus "other"**
- **Type of provider if not a physician**
  - **17 types plus "other"**

Main Medical Provider
(OP and OB Visits)

Specialty if a physician:

ALLERGY/IMMUNOLOGY	**ONCOLOGY (TUMORS, CANCER)**
ANESTHESIOLOGY	**OPHTHALMOLOGY (EYES)**
CARDIOLOGY (HEART)	**ORTHOPEDICS**
DERMATOLOGY (SKIN)	**OSTEOPATHY (DO)**

ENDOCRINOLOGY/METABOLISM
    (DIABETES, THYROID)
	OTORHINOLARYNGOLOGY
	      (EAR, NOSE, THROAT)

FAMILY PRACTICE	**PATHOLOGY**
GASTROENTEROLOGY	**PEDIATRICIAN**
GENERAL PRACTICE	**PHYSICAL MEDICINE/REHAB**
GENERAL SURGERY	**PLASTIC SURGERY**
GERIATRICS (ELDERLY)	**PROCTOLOGY**
GYNECOLOGY-OBSTETRICS	**PSYCHIATRY/PSYCHIATRIST**
HEMATOLOGY (BLOOD)	**PULMONARY**
HOSPITAL RESIDENCE	**RADIOLOGY**
INTERNAL MEDICINE (INTERNIST)	**RHEUMATOLOGY (ARTHRITIS)**
NEPHROLOGY (KIDNEYS)	**THORACIC SURGERY (CHEST)**
NEUROLOGY	**UROLOGY**
NUCLEAR MEDICINE	**OTHER DR SPECIALTY**

Main Medical Provider
(OP and OB Visits)

Type of provider if not a physician:
CHIROPRACTOR
DENTIST/
DENTAL CARE PERSON
MIDWIFE
NURSE/NURSE PRACTITIONER
OPTOMETRIST
PODIATRIST
PHYSICIAN'S ASSISTANT
PHYSICAL THERAPIST
OCCUPATIONAL THERAPIST

PSYCHOLOGIST
SOCIAL WORKER
TECHNICIAN
ACUPUNCTURIST
MASSAGE THERAPIST
HOMEOPATHIC/
NATUROPATHIC/
HERBALIST
ALTERNATIVE/
COMPLEMENTARY
CARE PROVIDER

Respondents are asked to name the main type of provider they talked to during the visit.

Treatments During an OP or OB Visit

- **Physical therapy**
- **Occupational therapy**
- **Speech therapy**
- **Chemotherapy**
- **Radiation therapy**
- **Kidney dialysis**
- **IV therapy**
- **Treatment for drug or alcohol**
- **Received allergy shot**
- **Psychotherapy or counseling**

Code all that apply.

MEPS Home Health File

- **File includes information on 3 types of home health care providers:**

    - **Formal providers such as home health agencies, hospitals, and nursing homes**

    - **Paid independent providers**

    - **Informal providers such as family and friends**

MEPS Home Health File

■ **What Is a Home Health Event?**

  – **A home health event is a month of similar services provided by the same provider**

Similar services are one or more types of services (e.g., nursing care, homemaker services, physical therapy) that the person receives at about the same frequency each month.

EXAMPLE - if someone received 4 visits from a nurse, 10 visits from a homemaker, and 4 visits from a physical therapist for 3 months, then there will be 3 event records on the file.

Data were collected in this manner because when the MEPS questionnaire was developed agencies, hospitals, and nursing homes provided home health expenditure data in this manner. Costs were not broken down by the number of times a specific type of worker visits. Because agencies, hospitals, and nursing homes provided expenditure data in this manner and to have a consistent definition of a home health event, this definition was applied to all types of home health providers.

MEPS Home Health File

- **Type of home health worker was asked for home health care provided by an agency, hospital or nursing home**

    - **Check all that apply – can have more than one type of worker on a single record**

One or more types of workers can be listed on each agency, hospital or nursing home home health record.

It is important to note that this is household reported data which is subjective and can be impacted by the type of insurance a person has.

Examples of home heath workers: nurses, physical therapists, home health aides, homemakers, hospice workers.

MEPS Home Health File

- **Treatments, therapies and services variables**
  - **For all home health events**
    - **Was event due to a hospitalization**
    - **Was event due to a condition**
    - **Was person helped with daily activities**
    - **Did person receive companionship services**
    - **Did person receive other type of services**

  - **Additional variables on file for formal providers only**
    - **Was person taught how to use medical equipment**
    - **Did person receive medical treatment**

Medical condition related data are not included on the home health file. One would have to link to the Medical Conditions file to retrieve condition related data.

MEPS Home Health File

- **Frequency of visits variables**
  - **Weeks per month**
  - **Days per week**
  - **Days per month**
  - **Summary variable – number of home health days person received care in a month (HHDAYS)**

- **Length of visits variables**
  - **Times per day**
  - **Length of visit (hours, minutes)**

All events are asked - How often did "someone" or "someone from _____" come to the home

(Skip pattern of these questions is determined by how respondent answers preceding question(s))

Caveats of HHDAYS –

1) HHDAYS accounts for all visits within an event - regardless of type of worker

2) Number of times a specific type of worker visited the home is not known

3) Intensity of care can be estimated using hours of care per day

For frequency of visits and length of visit questions, there is no distinction made by type of home health worker for events which include more than one provider coming to the home.

For some types of analyses, this may be a problem –

e.g., homemakers frequently stay for several hours while a nurse or therapist usually doesn't stay for more than an hour. If someone had 12 visits in a month and was seen by both a nurse and a homemaker, you wouldn't know if there were 8 visits by the homemaker and 4 by the nurse, or if there were 6 visits from the nurse and 6 visits from the homemaker.

MEPS Home Health File

- **From where are the expenditure data derived?**
  - **Home health agency, hospital, and nursing home**
    - **Sampled at a rate of 100% for MPC**
    - **No household responses**
  - **Independent paid providers**
    - **Not included in MPC**
    - **Household responses only**
  - **Informal providers**
    - **No expenditure data**

All expenditure data for paid independent providers are household reported.

There is no expenditure data for informal care. Informal provider care results in a -1 for all expenditure categories.

MEPS Prescribed Medicines File

- **each record represents a unique prescribed medicine purchase and includes drug characteristics associated with that purchase**
- **includes all prescribed medicines purchases reported by household respondents for the year (includes diabetic supply/equipment and insulin)**
- **includes data collected from the household component and pharmacy component**

There is an insulin, diabetic supply/equipment flag (DIABFLG) included on the file which indicates these types of events. This determination was based on drug characteristics.

Although, these types of purchases usually do not require a Rx, they are included in the MEPS prescribed medicines estimates because many times a Rx is written so insurance will pay for the drug.

DIABFLG will allow analysts to exclude these events from their analysis, if they so desire.

- **Household Component (HC) variables collected in each round**

    - **Medicine name**
    - **Number of times purchased**
    - **Used to treat a condition**
    - **Date first used**
    - **Pharmacy information**
    - **Names of free samples**
    - **Who files prescribed drug insurance claims**

Respondents were asked about those Rx that linked to other medical events first.

Respondents were asked who files prescribed drug insurance claims – whether the respondent sends in claim forms for their Rx purchases or if the pharmacy submits the claim at the point of purchase. For the former, respondents go through the C/P section of the HC; for the latter, respondents do not go through the C/P section of the HC.

There is a free sample flag (SAMPLE) included on the file which indicates the person received at least one free sample of the drug.

The names, addresses and types of pharmacies that filled their Rx were collected from the respondents; only type of pharmacy is released on the Public Use File.

MEPS Prescribed Medicines File

- **Pharmacy Component (PC)**
  - Sample of approximately 8,000 pharmacies per year
  - Need signed permission form from respondent
  - Telephone and mail contact
  - Ask for computerized printout or "patient profile" to include:

    - Date filled
    - National drug code (NDC)
    - Drug name
    - Drug characteristics
    - Sources and amounts of payment

Patient profiles can be provided by mail, fax, disc, handwritten listing or over the phone

Drug characteristics include form, strength, units of measurement for form and/or strength, and quantity.

MEPS Prescribed Medicines File

- **Data Editing/Imputation**
  - **Pharmacy Component used as edit/imputation source**
  - **Generic codes assigned to each Household Component and Pharmacy Component event to assist with matching**
  - **Utilization is based on what the household reports**
  - **Outliers, data inconsistencies and missing data were identified and edited, as necessary**

The generic codes were assigned based on medication name and NDC, when available. These codes were assigned by professional medical coders.

Matching was based primarily on generic code, medication name, round reported and person id (when possible).

Utilization is based on what the household reports. Not all people allowed MEPS to go to their pharmacy and not all pharmacies participated.

- Drug characteristics included for each prescribed medicine event
  - **Medication name**
  - **National drug code (NDC)**
  - **Quantity dispensed (e.g., 50)**
  - **Form (e.g., suspension)**
  - **Strength (e.g., 10)**
  - **Unit of measurement of form (e.g., cc) and strength (e.g., mg)**
  - **Brand/generic designation (from Multum Lexicon)**
  - **Therapeutic class, sub-class, and sub sub-class (from Multum Lexicon)**
  - **Pregnancy category (from Multum Lexicon)**

Medication name can be HC reported or PC reported. For most events (80-85%), imputed PC medication name is included on the file. However, for 15-20% of records each year, the NDC was imputed from a secondary data source (First Data Bank). AHRQ was prohibited from releasing those imputed NDCs due to legal restrictions related to a signed licensing agreement. For those records, the original HC reported medication name, PC medicine name and NDC are included on the record. By releasing these variables, analysts are able to do their own NDC imputations for those records based on the same data AHRQ used for imputation. Analysts can also have access to the AHRQ imputed NDCs in the AHRQ Data Center.

There are a number of missing values for form and strength on the file (missing data from the pharmacies). AHRQ did not impute these missing values because an analyst can obtain that information from the NDC.

Multum Lexicon variables are from Cerner Multum, Inc.

There can be up to three therapeutic class designations per drug.

MEPS Prescribed Medicines File

- Additional information included for each prescribed medicine record

    – **Round purchased**
    – **Date prescribed medicine was first taken**
    – **Type(s) of pharmacy**
    – **Conditions associated with prescribed medicine**
    – **Sources and amounts of payment**
    – **Total payment**

The possible types of pharmacies include: (1) mail-order, (2) HMO/clinic/hospital, (3) drug store (4) another store, and (5) online (started as an option in 2001). There is no direct link between a Rx event and a pharmacy.

There are up to 3 condition codes --ICD-9 at the 3 digit, and CCS codes (a diagnosis categorization variable) -- listed for each Rx event. For those events where a respondent mentioned more than 3 conditions, an analyst must link to the MEPS Medical Conditions File to obtain all conditions related to the Rx event.

The Rx file is the only event file where LINKIDX is the linking variable. The Rx file is the only event file where EVNTIDX (which is synonymous with LINKIDX) is not the unique identifier. On the Rx file, the unique identifier is the variable RXRECIDX. There are linking examples provided in the Appendix File.

Total payment=sum of payments

Caveats of the
Prescribed Medicines File

- ■ **Does not include expenditure imputation flag**
- ■ **Does not include a total charge variable**
- ■ **Does not include flat fee variables**

No imputation flag for expenditures are included on the file because only imputed expenditures are on the file.

No total charge variable because pharmacy providers did not want to reveal discounts.

**Type of Provider
Seen in Dental Visit**

- General dentist
- Orthodontist

- Dental Hygienist
- Endodontist

- Dental Technician
- Periodontist

- Dental Surgeon
- Other

These services, which are received during the visit, include lab tests, a sonogram or ultrasound, x-rays, a mammogram, an MRI or CAT scan, an electrocardiogram, an electroencephalogram, a vaccination, anesthesia, or other diagnostic tests or exams.

Dental Services and Procedures

- Diagnostic or preventative
- Restorative or endodontic
- Periodontic
- Oral surgery
- Prosthetics
- Orthodontics
- Other procedures

Other Medical Expenses

- Glasses/contacts
- Insulin/diabetic supplies
- Ambulance services
- Orthopedic items
- Hearing devices

- Prostheses
- Medical equipment
- Disposable supplies
- Bathroom aids
- Home alterations

OM Data Collection

- **Not included in MPC**

- **Expenses are collected in Round 3 as a summary for the entire year**

- **Exceptions -- collected every round**
  - **Glasses**
  - **Insulin and diabetic supplies**

Insulin and diabetic supplies are reported as prescribed medicine expenditures and are missing from the OM file.

OM File Caveats

- **A record can represent 1 or more purchases of an item or service; e.g.,**
    - A $1,000 expenditure for ambulance services represents an unknown number of trips

- **Not linked to conditions**
    - It is not known which condition required the use of an ambulance

OM File Caveats (cont'd)

- **Purchases of insulin and diabetic supplies are shown on the OM file**

- **Expenditures for the insulin and diabetic supplies are shown on the Prescribed Medicines File**

    - **All expenditure variables for insulin and diabetic supplies on the OM file have a value of "-1"**