HC-077A:
2003 Prescribed Medicines

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Center for Financing, Access and Cost Trends
Agency for Healthcare Research and Quality
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A. Data Use Agreement

Individual identifiers have been removed from the microdata contained in these file(s). 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 statute-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.

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 a new and 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) and the National Center for Health Statistics (NCHS).

MEPS is a family of three surveys. The Household Component (HC) is the core survey and forms the basis for the Medical Provider Component (MPC) and part of the Insurance Component (IC). Together these surveys yield comprehensive data that provide national estimates of the level and distribution of health care use and expenditures, support health services research, and can be used to assess health care policy implications.

MEPS is the third in a series of national probability surveys conducted by AHRQ on the financing and use of medical care in the United States. The National Medical Care Expenditure Survey (NMCES) was conducted in 1977, and the National Medical Expenditure Survey (NMES) was conducted in 1987. Since 1996, MEPS has continued this series with design enhancements and efficiencies that provide a more current data resource to capture the changing dynamics of the health care delivery and insurance system.

The design efficiencies incorporated into MEPS are in accordance with the Department of Health and Human Services (DHHS) Survey Integration Plan of June 1995, which focused on consolidating DHHS surveys, achieving cost efficiencies, reducing respondent burden, and enhancing analytical capacities. To advance these goals, MEPS includes linkage with the National Health Interview Survey (NHIS)–a survey conducted by NCHS from which the sample for the MEPS HC is drawn–and enhanced longitudinal data collection for core survey components. The MEPS HC augments NHIS by selecting a sample of NHIS respondents, collecting additional data on their health care expenditures, and linking these data with additional information collected from the respondents' medical providers, employers, and insurance providers.

1.0 Household Component (HC)

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 two and one-half 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. NHIS provides a nationally representative sample of the U.S. civilian noninstitutionalized population, with oversampling of Hispanics and blacks.

2.0 Medical Provider Component (MPC)

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

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

3.0 Insurance Component (IC)

The MEPS IC collects data on health insurance plans obtained through private and public-sector employers. Data obtained in the IC include the number and types of private insurance plans offered, benefits associated with these plans, premiums, contributions by employers and employees, and employer characteristics.

Establishments participating in the MEPS IC are selected through three sampling frames:

- A list of employers or other insurance providers identified by MEPS HC respondents who report having private health insurance at the Round 1 interview.
- A Bureau of the Census list frame of private-sector business establishments.
- The Census of Governments from the Bureau of the Census.

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

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

4.0 Survey Management

MEPS data are collected under the authority of the Public Health Service Act. They are edited and published in accordance with the confidentiality provisions of this act and the Privacy Act. NCHS provides consultation and technical assistance.

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

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

AHRQ Publications Clearinghouse
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 through the Internet on the MEPS Web site:

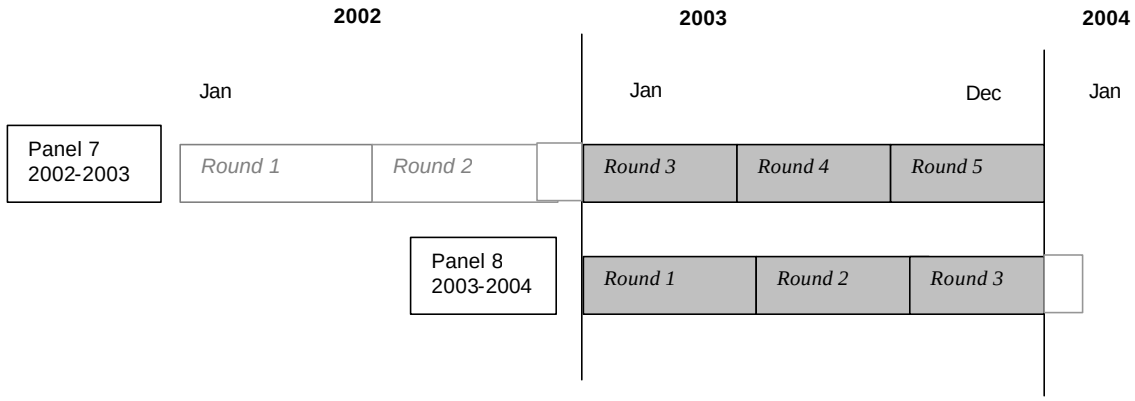
http://www.meps.ahrq.gov/

Additional information on MEPS is available from the MEPS project manager or the MEPS public use data manager at the Center for Financing, Access and Cost Trends, Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850 (301/427-1406).

C. Technical Information

1.0 General Information

This documentation describes one in a series of public use event files from the 2003 Medical Expenditure Panel Survey Household Component (MEPS HC) and Medical Provider Component (MPC). Released as an ASCII data file and SAS transport file, this public use file provides detailed information on household reported prescribed medicines for a nationally representative sample of the civilian noninstitutionalized population of the United States and can be used to make estimates of prescribed medicine utilization and expenditures for calendar year 2003. As illustrated below, this file consists of MEPS survey data obtained in the 2003 portion of Round 3 and Rounds 4 and 5 for Panel 7, as well as Rounds 1, 2 and the 2003 portion of Round 3 for Panel 8 (i.e., the rounds for the MEPS panels covering calendar year 2003).



Each record on this event file represents a unique prescribed medicine event; that is, a prescribed medicine reported as being purchased by the household respondent. In addition to expenditures related to the prescribed medicine, each record contains household reported characteristics and medical conditions associated with the prescribed medicine.

Data from this event file can be merged with other 2003 MEPS HC data files, for purposes of appending person characteristics such as demographic or health insurance coverage to each prescribed medicine record.

Counts of prescribed medicine utilization are based entirely on household reports. Information from the Pharmacy Component (PC) (within the MEPS Medical Provider Component (MPC), see section B.2.0 for more details on the MPC) was used to provide expenditure and payment data, as well as details of the medication (e.g., strength, quantity, etc.).

The file can be used to construct summary variables of expenditures, sources of payment, and other aspects of utilization of prescribed medicines. Aggregate annual person-level information on the use of prescribed medicines and other health services use is provided on the 2003 Full Year Consolidated Data File, where each record represents a MEPS sampled person.

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

Data File Information
Sample Weight
General Data Editing and Imputation Methods
Strategies for Estimation
Merging/Linking MEPS Data Files
References
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 this file is available on the MEPS Web site at the following address: <http://www.meps.ahrq.gov>.

2.0 Data File Information

This public use data set contains 304,324 prescribed medicine records. Each record represents one household reported prescribed medicine that was purchased during calendar year 2003. Of the 304,324 prescribed medicine records, 298,293 records are associated with persons having a positive person-level weight (PERWT03F). The persons represented on this file had to meet either criterion a or b below:

a) Be classified as a key inscope person who responded for his or her entire period of 2003 eligibility (i.e., persons with a positive 2003 full-year person-level sampling weight (PERWT03F > 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 2003 eligibility, and belonged to a family (i.e., all persons with the same value for a particular FAMID variable) in which all eligible family members responded for their entire period of 2003 eligibility, and at least one family member has a positive 2003 full-year person weight (i.e., eligible non-key or eligible out-of-scope persons who are members of a family, all of whose members have a positive 2003 full-year MEPS family-level weight (FAMWT03F >0).

Please refer to Attachment 1 for definitions of key, non-key, inscope and eligible. Persons with no prescribed medicine use for 2003 are not included on this file (but are represented on MEPS person-level files). A codebook for the data file is provided (in file H77ACB.PDF).

This file includes prescribed medicine records for all household survey respondents who resided in eligible responding households and reported at least one prescribed medicine. Only prescribed medicines that were purchased in calendar year 2003 are represented on this file. This file includes prescribed medicines identified in the Prescribed Medicines section of the HC survey

instrument, as well as those prescribed medicines identified in association with other medical events. Each record on this file represents a single acquisition of a prescribed medicine reported by household respondents. Some household respondents may have multiple acquisitions of prescribed medicines and thus will be represented in multiple records on this file. Other household respondents may have reported no acquisitions of prescribed medicines and thus will have no records on this file.

When diabetic supplies, such as syringes and insulin, were mentioned in the Other Medical Equipment section of the MEPS HC, the interviewer was directed to collect information on these items in the Prescription Medicines section of the MEPS questionnaire. The respondent was also asked the questions in the Charge and Payment section of the HC. To the extent that these items are purchased without a prescription, they represent a non-prescription addition to the MEPS prescription drug expenditure and utilization data. Although these items may be purchased without a prescription, a prescription purchase may be required to obtain third party payments. Analysts are free to code and define diabetic supply/equipment and insulin events utilizing their own coding mechanism. If desired, this would enable analysts to subset the Prescribed Medicines file to exclude these types of events.

It should also be noted that refills are included on this file. The HC obtains information on the name of the prescribed medicine and the number of refills, if any, associated with it. The data collection design for the HC does not allow separate records to be created for multiple acquisitions of the same prescribed medicine. However, in the PC, each original purchase, as well as any refill, is considered a unique prescribed medicine event. Therefore, for the purposes of editing, imputation and analysis, all records in the HC were "unfolded" to create separate records for each original purchase and each refill. Please note: MEPS did not collect information in the HC to distinguish multiple acquisitions of the same drug between the original purchase and refills. The survey only collected data on the number of times a prescribed medicine was acquired during a round. In some cases, all purchases may have been refills of an original purchase in a prior round or prior to the survey year. The file also includes a variable, (SAMPLE), which indicates whether or not the household reported receiving a free sample of that drug in that round. (To obtain more details on free samples, please see section 2.7.2.5.)

Each record on this file includes the following: an identifier for each unique prescribed medicine; detailed characteristics associated with the event (e.g., national drug code (NDC), medicine name, selected Multum Lexicon variables [see section 2.7.3 for more information on the Multum Lexicon variables included on this file], etc.); conditions, if any, associated with the medicine; the date on which the person first used the medicine; total expenditure and sources of payments; types of pharmacies that filled the household's prescriptions; whether the prescription is one in which the household received a free sample of it during the round; and a full-year person-level weight.

Data from this file can be merged with previously released MEPS HC person-level data using the unique person identifier, DUPERSID, to append person characteristics such as demographic or health insurance coverage to each record. Data from this file can also be merged with the 2003 Full Year Consolidated Data File to estimate expenditures for persons with prescribed medicines. The Prescribed Medicines event file can also be linked to the MEPS 2003 Medical Conditions

File and additional MEPS 2003 event files. Please see the 2003 Appendix File for details on how to link MEPS data files.

2.1 Using MEPS Data for Trend and Longitudinal Analysis

MEPS began in 1996 and several annual data files have been released. As more years of data are produced, MEPS will become increasingly valuable for examining health care trends. However, it is important to consider a variety of factors when examining trends over time using MEPS. Statistical significance tests should be conducted to assess the likelihood that observed trends are attributable to sampling variation. MEPS expenditures estimates are especially sensitive to sampling variation due to the underlying skewed distribution of expenditures. For example, 1 percent of the population accounts for about one-quarter of all expenditures. The extent to which observations with extremely high expenditures are captured in the MEPS sample varies from year to year (especially for smaller population subgroups), which can produce substantial shifts in estimates of means or totals that are simply an artifact of the sample(s). The length of time being analyzed should also be considered. In particular, large shifts in survey estimates over short periods of time (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 or MEPS survey methodology. Looking at changes over longer periods of time can provide a more complete picture of underlying trends. Analysts may wish to consider using techniques to smooth or stabilize trends analyses of MEPS data such as pooling time periods for comparison (e.g., 1996-97 versus 1998-99), working with moving averages, or using modeling techniques with several consecutive years of MEPS data to test the fit of specified patterns over time. Finally, researchers should be aware of the impact of multiple comparisons on Type I error because performing numerous statistical significance tests of trends increases the likelihood of inappropriately concluding a change is statistically significant.

The records on this file can be linked to all other 2003 MEPS-HC public use data sets by the sample person identifier (DUPERSID). Panel 7 cases (PANEL03=7) can be linked back to the 2002 MEPS-HC public use files. However, the user should be aware that, at this time, no weight is provided to facilitate two-year analysis of Panel 7 data.

2.2 Codebook Structure

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

Unique person identifiers
Unique prescribed medicine identifiers
Other survey administration variables
Prescribed medicine characteristics variables
ICD-9 codes
Clinical Classification Software codes
Multum Lexicon variables

Expenditure variables
Weight and variance estimation variables

2.3 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.
-13	VALUE SUPPRESSED	Data suppressed.
-14	NOT YET TAKEN/USED	Respondent answered that the medicine has not yet been used.

Generally, values of -1, -7, -8 and -9 have not been edited on this file. However, this is not true if the pharmacist determined a prescription drug name to be a confidentiality risk. In these instances, generally, -9 was replaced for the drug name determined a confidentiality risk. The values of -1 and -9 can be edited by analysts by following the skip patterns in the questionnaire. The value of -13 was assigned when originally reported HC data were suppressed because imputed versions of the variable are available on the Public Use File. The value -14 was a valid value only for the variable representing the year the respondent reported having first used the medicine (RXBEGYRX). RXBEGYRX= -14 means that when the interviewer asked the respondent the year he/she first started using the medicine, he/she responded that he/she had not yet starting using the medicine.

A copy of the Household Component questionnaire can be found on the World Wide Web at http://meps.ahrq.gov/ and clicking on the link in the Prescribed Medicines box.

2.4 Codebook Format

The 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

2.5 Variable Naming

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

2.5.1 General

Variables contained on this file were derived from the HC questionnaire itself, the MPC data collection instrument, the CAPI, or from the Multum Lexicon database from Cerner Multum, Inc. The source of each variable is identified in section D, 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; (3) variables constructed from multiple questions using complex algorithms are labeled "Constructed" in the "Source" column; (4) variables which have been imputed are so indicated; and (5) variables derived from the Multum Lexicon database from Cerner Multum, Inc. are so indicated.

2.5.2 Expenditure and Source of Payment Variables

Only imputed/edited versions of the expenditure variables are provided on the file. Expenditure variables on this event file follow a standard naming convention and are 7 characters in length. The 12 source of payment variables and one sum of payments variable are named consistently in the following way:

The first two characters indicate the type of event:

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

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

SF - self or family	OF - other Federal Government	XP - sum of payments
MR - Medicare	SL - State/local government	
MD - Medicaid	WC - Worker's Compensation	
PV - private insurance	OT - other insurance	
VA - Veterans	OR - other private	
TR - TRICARE	OU - other public	

The fifth and sixth characters indicate the year (03). All imputed/edited expenditure variables end with an "X."

For example, RXSF03X is the edited/imputed amount paid by self or family for the 2003 prescribed medicine expenditure.

2.6 Data Collection

Data regarding prescription drugs were obtained through the HC questionnaire and a pharmacy follow-back component (within the Medical Provider Component).

2.6.1 Methodology for Collecting Household Reported Variables

During each round of the MEPS HC, all respondents were asked to supply the name of any prescribed medicine they or their family members purchased or otherwise obtained during that round. For each medicine in each round, the following information was collected: whether any free samples of the medicine were received; the name(s) of any health problems the medicine was prescribed for; the number of times the prescription medicine was obtained or purchased; the year, month, and day on which the person first used the medicine; and a list of the names, addresses, and types of pharmacies that filled the household's prescriptions. In the HC, respondents were asked if they send in claim forms for their prescriptions or if their pharmacy providers do this automatically for them at the point of purchase. For those that said their pharmacy providers automatically send in claims for them at the point of purchase, charge and payment information was collected in the pharmacy follow-back component (unless the purchase was an insulin or diabetic supply/equipment event that was mentioned in the household component; see section 3.0 for details). However, charge and payment information was collected for those that said they send in their own prescription claim forms, because it was thought that payments by private third-party payers for those that filed their own claim forms for prescription purchases would not be available from pharmacies. Uninsured persons were treated in the same manner as those whose pharmacies filed their prescription claims at the point of purchase. Persons who said they did not know if they sent in their own prescription claim forms were treated as those who said they did send in their own prescription claim forms.

An inaccuracy in the number of times a household reported purchasing or otherwise obtaining a prescription drug in a particular round for a small percentage of household reported medications was discovered. This inaccuracy was due to an instrument design flaw, which caused interviewer error, and in isolated cases, resulted in misreported large numbers of prescription refills for a medicine in a given round. This inaccuracy was confined to only a very small percentage of unique drugs on the original data delivered. Outlier values where this situation occurred were determined by comparing the number of days a respondent was in the round and the number times the person reported having purchased or otherwise obtained the drug in the round, and were determined in consultation with an industry expert. For these events, a new value for the number of times a drug was purchased or otherwise obtained by a person in a round was imputed. In addition, the prescribed medicine events in which a household respondent did not know/remember the number of times a certain prescribed medicine was purchased or otherwise obtained were imputed a value for that variable.

For those rounds that spanned two years, drugs mentioned in that round were allocated between the years based on the number of times the respondent said the drug was purchased in the respective year, the year the person started taking the drug, the length of the person's round, the dates of the person's round, and the number of drugs for that person in the round. In addition, a "folded" version of the PC on an event level, as opposed to an acquisition level, was used for these types of events to assist in determining how many acquisitions of the drug should be allocated between the years.

2.6.2 Methodology for Collecting Pharmacy Reported Variables

If the respondent with the prescription gave written permission to release his or her pharmacy records, pharmacy providers identified by the household were contacted by telephone for the pharmacy follow-back component. Following an initial telephone contact, the signed permission forms and materials explaining the study were faxed (or mailed) to cooperating pharmacy providers. The materials informed the providers of all persons participating in the survey who had prescriptions filled at their place of business and requested a computerized printout of all prescriptions filled for each person. For each medication listed, the following information was requested: date filled; national drug code (NDC); medication name; strength of medicine (amount and unit); quantity (package size/amount dispensed); total charge; and payments by source.

2.7 File Contents

2.7.1 Survey Administration Variables

2.7.1.1 Person Identifier Variables (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 2003 Full Year Population Characteristics File.

2.7.1.2 Record Identifier Variables (RXRECIDX, LINKIDX)

The variable RXRECIDX uniquely identifies each record on the file. This 15-character variable is comprised of the following components: prescribed medicine event generated through the HC (positions 1-12) + enumeration number (positions 13-15). The prescribed medicine event generated through the HC (positions 1-12) can be used to link a prescribed medicine event to the conditions file and to other event files, via link files, and is provided on this file as the variable LINKIDX. (For more details on linking, please refer to section 5.2 and to the 2003 Appendix File.)

The following hypothetical example illustrates the structure of these ID variables. This example illustrates a person in Round 1 of the household interview who reported having purchased

Amoxicillin three times. The following example shows three acquisition-level records, all having the same RXNDC (00093310905), for one person (DUPERSID=00002026) in one round. Only one NDC is associated with a prescribed medicine event because matching was performed at an event level, as opposed to an acquisition level. (For more details on matching, please see section 3.0). The LINKIDX (000020260083) remains the same for all three records, whereas the RXRECIDX (000020260083001, 000020260083002, 000020260083003) differs for all three records.

DUPERSID	RXRECIDX	LINKIDX	RXNDC
00002026	000020260083001	000020260083	00093310905
00002026	000020260083002	000020260083	00093310905
00002026	000020260083003	000020260083	00093310905

2.7.1.3 Round Variable (PURCHRD)

The variable PURCHRD indicates the round in which the prescribed medicine was purchased and takes on the value of 1, 2, 3, 4, or 5. Rounds 3, 4, and 5 are associated with MEPS survey data collection from Panel 7. Similarly, Rounds 1, 2, and 3 are associated with data collected from Panel 8.

2.7.2 Characteristics of Prescribed Medicine Events

2.7.2.1 Date When Prescribed Medicine Was First Taken (RXBEGDD-RXBEGYRX)

There are three variables which indicate when a prescribed medicine was first taken (used), as reported by the household. They are the following: RXBEGDD indicates the day a person first started taking a medicine, RXBEGMM denotes the month in which a person first started taking a medication, and RXBEGYRX reflects the year in which a person first started taking a medicine. These "first taken" questions are only asked the first time a prescription is mentioned by the household. These questions are not asked of refills of the prescription for a person in subsequent rounds and result in a value of -1 being assigned to those types of events for these variables. For purposes of confidentiality, RXBEGYRX was bottom-coded at 1918 which makes RXBEGYRX consistent with the top-coding of the age variables on the 2003 Full Year Population Characteristics Public Use File (HC-073).

2.7.2.2 Prescribed Medicine Attributes (RXNAME-RXSTRUNT)

For each prescribed medicine included on this file, several data items collected describe in detail the medication obtained or purchased. These data items are the following:

a. Medication name - pharmacy reported (RXNAME)
b. Medication name - household reported (RXHHNAME)
c. National drug code (RXNDC)
d. Quantity of the prescribed medicine dispensed (RXQUANTY); e.g., number of tablets in the prescription

e. Form of the prescribed medicine (RXFORM); e.g., powder
f. Unit of measurement for form of Rx/prescribed medicine (RXFRMUNT); e.g., oz
g. Strength of the dose of the prescribed medicine (RXSTRENG); e.g., 10
h. Unit of measurement for the strength of the dose of the prescribed medicine (RXSTRUNT); e.g., gm

Please refer to Attachments 1, 2, and 3 for definitions for RXFORM, RXFRMUNT, and RXSTRUNT abbreviations, codes and symbols.

The national drug code (NDC) generally, and on this file, is an 11-digit code. The first 5 digits indicate the manufacturer of the prescribed medicine. The next 4 digits indicate the form and strength of the prescription, and the last 2 digits indicate the package size from which the prescription was dispensed. NDC values were imputed from a proprietary database to certain PC prescriptions because the NDC reported by the pharmacy provider did not match to a proprietary database. These records are identified by RXFLG=3. AHRQ's licensing agreement with the proprietary database precludes the release of these imputed NDC values to the public, so for these prescriptions, the household reported name of the prescription (RXHHNAME) and the original NDC (RXNDC) and prescription name (RXNAME) reported by the pharmacy are provided to allow users to do their own imputation. However, the imputed NDC values for the RXFLG=3 cases may be accessed through the MEPS Data Center. For those events not falling in the RXFLG=3 category, the reserve code (-13) is assigned to the household reported medication name (RXHHNAME). For information on accessing confidential data through the MEPS Data Center, contact the MEPS Project Director by email at: <mepspd@ahrq.gov>.

Imputed data on this event file, unlike other MEPS event files, may still have missing data. This is because imputed data on this file are imputed from the PC or from a proprietary database. These sources did not always include complete information for each variable but did include an NDC, which would typically enable an analyst to obtain any missing data items. For example, although there are a substantial number of missing values for the strength of the prescription that were not supplied by the pharmacist, these missing values were not imputed because this information is embedded in the NDC.

2.7.2.3 Type of Pharmacy (PHARTP1-PHARTP7)

Household respondents were asked to list the type of pharmacy from which their medications were purchased. A household could list multiple pharmacies associated with their prescriptions in a given round or over the course of all rounds combined covering the survey year. As a result this file contains, at most, seven of these household reported pharmacies, but there was no link in the survey or in the data file enabling users to know the type of pharmacy from which a specific prescription was obtained if multiple pharmacies are listed. The set of variables (PHARTP1-PHARTP7) identify the types of pharmacy providers from which the person's prescribed medicines were purchased. The possible types of pharmacies include the following: (1) mail-order, (2) another store, (3) HMO/clinic/hospital, (4) drug store, and (5) on-line. A -1 value for PHARTPn indicates that the household did not report an "n^{th}" pharmacy.

2.7.2.4 Analytic Flag Variables (RXFLG-DIABFLG)

There are five flag variables included on this file (RXFLG, PCIMPFLG, CLMOMFLG, INPCFLG, and DIABFLG).

The variable RXFLG indicates how the NDC for a specific prescribed medicine event was imputed. This variable indicates whether or not there was any imputation performed on this record for the NDC variable, and if imputed, from what source the NDC was imputed. If no imputation was performed, RXFLG=1. If the imputation source was another PC record, RXFLG=2. Similarly, if the imputation source was a secondary, proprietary database and not the PC database, RXFLG=3. For RXFLG=3 records, all the original data reported by the pharmacy and the household reported medication name are included on the record. Including only the original pharmacy reported data for these records was necessary in order to comply with legal restrictions associated with using the secondary data source as an imputation source. The imputed NDC value for the RXFLG=3 cases was used in the data editing, but is not available for public release. However, the imputed NDCs for the RXFLG=3 cases are available through the MEPS Data Center. Information on this topic can be obtained through the MEPS Project Director at <mepspd@ahrq.gov>.

PCIMPFLG indicates the type of match between a household reported event and a PC reported event. There are only two possible values for this variable (PCIMPFLG =1 or =2). These values indicate the possible "match-types" and are the following: =1 is an exact match for a specific event for a person between the PC and the HC and =2 is not an exact match between the PC and HC for a specific person (not an exact match means that a person's household reported event did not have a matched counterpart in their corresponding PC records). PCIMPFLG assists analysts in determining which records have the strongest link to data reported by a pharmacy. It should be noted that whenever there are multiple purchases of a unique prescribed medication in a given round, MEPS did not collect information that would enable designating any single purchase as the "original" purchase at the time the prescription was first filled, and then designating other purchases as "refills." The user needs to keep this in mind when the purchases of a medication are referred to as "refills" in the documentation. Because matching was performed at an event level as opposed to an acquisition level, the values for PCIMPFLG are either =1 or =2. Additionally, matching on an event- versus acquisition-level results in only one NDC being associated with a prescribed medicine event. (For more details on general data editing/imputation methodology, please see section 3.0).

CLMOMFLG indicates if a prescription medicine event went through the charge and payment section of the HC. Prescription medicine events that went through the charge and payment section of the HC include: (1) events where the person filed their own prescription claim forms with their insurance company, (2) events for persons who responded they did not know if they filed their own prescription claim forms with their insurance company, and (3) insulin and diabetic supply/equipment events (OMTYPE=2 or =3) that were mentioned in the Other Medical section of the HC. For these types of events information on payment sources was retained to the extent that these data were reported by the household in the charge and payment section of the HC.

INPCFLG denotes whether or not a household respondent had at least one prescription drug purchase in the PC (0=no, 1=yes).

When diabetic supplies, such as syringes and insulin, were mentioned in the Other Medical Equipment section of the MEPS HC, the interviewer was directed to collect information on these items in the Prescription Medicines section of the MEPS questionnaire. To the extent that these items are purchased without a prescription, they represent a non-prescription addition to the MEPS prescription drug expenditure and utilization data. Although these items may be purchased without a prescription, a prescription purchase may be required to obtain third party payments. Diabetic supplies can be identified in the file by using the variable, DIABFLG (0=not a diabetic supply/equipment or insulin, 1=is a diabetic supply/equipment or insulin). Diabetic supply/equipment and insulin events were identified with the assistance of an industry expert by utilizing a proprietary database, which assisted in assigning codes to each prescribed medicine event. This code assignment took into account the characteristics of the event. However, if desired, analysts are free to code and define diabetic supply/equipment and insulin events utilizing their own coding mechanism. If desired, DIABFLG can also be used by analysts to exclude diabetic supplies/equipment from their analyses.

2.7.2.5 The Sample Variable (SAMPLE)

SAMPLE indicates if a respondent reported receiving a free sample of the prescription medicine in the round (0=no, 1=yes). Each household respondent was asked in each round whether or not they received any free samples of a reported prescribed medicine during the round. However, respondents were not asked to report the number of free samples received, nor was it made clear that any free samples received were included in the count of the number of times that the respondent reported purchasing or otherwise obtaining the prescribed medicine during the round. Therefore, SAMPLE=1 for all acquisitions that a respondent reported for a person for a specific prescription medicine during the round. This allows individual analysts to determine for themselves how free samples should be handled in their analysis.

2.7.2.6 Condition Codes (RXICD1X-RXICD3X) and Clinical Classification Codes (RXCCC1X-RXCCC3X)

Information on household reported medical conditions associated with each prescribed medicine event are provided on this file. There are up to three condition and clinical classification codes listed for each prescribed medicine event (99.7% of prescribed medicine events have 0-3 condition records linked). To obtain complete information associated with an event, the analyst must link to the 2003 Medical Conditions File. Details on how to link to the MEPS 2003 Medical Conditions File are provided in the 2003 Appendix File. The user should note that due to confidentiality restrictions, provider reported condition information (for non-prescription medicines events) is not publicly available. Provider reported condition data (again, for non-prescription medicines events) can be accessed through the MEPS Data Center only.

The medical conditions reported by the HC respondent were recorded by the interviewer as verbatim text, which were then coded to fully-specified 2003 ICD-9-CM codes, including medical condition, V codes, and a small number of E codes, by professional coders. Although

codes were verified and error rates did not exceed 2.5 percent for any coder, 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. For detailed information on conditions, please refer to the documentation on the 2003 Medical Conditions File. For frequencies of conditions by event type, please see the 2003 Appendix File.

The ICD-9-CM condition codes were aggregated into clinically meaningful categories. These categories, included on the file as RXCCC1X-RXCCC3X, were generated using Clinical Classification Software (CCS) (formerly known as Clinical Classifications for Health Care Policy Research (CCHPR), 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. Similarly, the procedure codes have been collapsed from fully-specified codes to two-digit code categories. Because of this collapsing, it is possible for there to be duplicate ICD-9-CM condition or procedure codes linked to a single medical event when different fully-specified codes are collapsed into the same code. This would result in two or more of the code variables on this file being set to the same value on a single record. For more information on ICD-9-CM codes, see the HC-078 documentation.

The condition codes (and clinical classification codes) linked to each prescribed medicine event are sequenced in the order in which the conditions were reported by the household respondent, which was in chronological order of reporting and not in order of importance or severity. Analysts who use the 2003 Medical Conditions file in conjunction with this prescribed medicines event file should note that the conditions on this file are sorted differently than they appear on the Medical Conditions file.

2.7.3 Multum Lexicon variables from Cerner Multum, Inc.

Each record on this file contains the following Multum Lexicon variables:

PREGCAT - pregnancy category variable - identifies the FDA pregnancy category to which a particular drug has been assigned

GBO - brand/generic designation variable - designates the product's status as a brand name drug or a generic drug

TCn - therapeutic classification variable - assigns a drug to one or more therapeutic/chemical categories; can have up to three categories per drug

TCnSn - therapeutic sub-classification variable - assigns one or more sub-categories to a more general therapeutic class category given to a drug

TCnSn_n - therapeutic sub sub-classification variable - assigns one or more sub sub-categories to a more general therapeutic class category and sub-category given to a drug

For additional information on these and other Multum Lexicon variables, as well as the Multum Lexicon database itself, please refer to the following Web site: http:/www.multum.com/Lexicon.htm.

Researchers using the Multum Lexicon variables are requested to cite Multum Lexicon as the data source.

2.7.4 Expenditure Variables (RXSF03X-RXXP03X)

2.7.4.1 Definition of Expenditures

Expenditures on this file refer to what is paid for health care services. More specifically, expenditures in MEPS are defined as the sum of payments for care received, including out of pocket payments and payments made by private insurance, Medicaid, Medicare and other sources. The definition of expenditures used in MEPS differs slightly from its predecessors, the 1987 NMES and 1977 NMCES surveys, where "charges" rather than "sum of payments" were used to measure expenditures. This change was adopted because charges became a less appropriate proxy for medical expenditures during the 1990s due to the increasingly common practice of discounting charges. Although measuring expenditures as the sum of payments incorporates discounts in the MEPS expenditure estimates, the estimates do not incorporate any manufacturer or other rebates associated with Medicaid or other purchases. 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, Wilson, Arnett, 1999).

If examining trends in MEPS expenditures or performing longitudinal analysis on MEPS expenditures, please refer to section C, sub-section 2.1 for more information.

2.7.4.2 Sources of Payment

In addition to total expenditures, variables are provided which itemize expenditures according to major source of payment categories. These categories are:

1. Out of pocket by user or family
2. Medicare
3. Medicaid
4. Private Insurance
5. Veteran's Administration
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. Worker's Compensation
10. Other Unclassified Sources - includes sources such as automobile, homeowner's, liability, and other miscellaneous or unknown sources

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

11. Other Private - any type of private insurance payments reported for persons not reported to have any private health insurance coverage during the year as defined in MEPS; and
12. Other Public - Medicaid payments reported for persons who were not reported to be enrolled in the Medicaid program at any time during the year

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

2.7.5 Sample Weight (PERWT03F)

2.7.5.1 Overview

There is a single full year person-level weight (PERWT03F) 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 2003. 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.

2.7.5.2 Details on Person Weights Construction

The person-level weight PERWT03F was developed in several stages. Person-level weights for Panels 7 and 8 were created separately. The weighting process for each panel included an

adjustment for nonresponse over time and poststratification. Poststratification was achieved by 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. A 2003 composite weight was then formed by multiplying each panel weight by .5 and then poststratifying the resulting weight to the same set of CPS-based control totals. When poverty status information derived from income variables became available, a final poststratification was done on the resulting 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.

2.7.5.3 MEPS Panel 7 Weight

The person-level weight for MEPS Panel 7 was developed using the 2002 full year weight for an individual as a "base" weight for survey participants present in 2002. For key, in-scope respondents who joined an RU some time in 2003 after being out-of-scope in 2002, the 2002 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 2003. These control figures were derived by scaling back the population totals obtained from the March 2003 CPS to reflect the December 2003 CPS estimated population distribution across age and sex categories as of December 2003. 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, 2003 is 286,779,677. Key, responding persons not in-scope on December 31, 2003 but in-scope earlier in the year retained, as their final Panel 7 weight, the weight after the nonresponse adjustment.

2.7.5.4 MEPS Panel 8 Weight

The person-level weight for MEPS Panel 8 was developed using the MEPS Round 1 person-level weight as a "base" weight. For key, in-scope respondents who joined an 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 2003 portion of Round 3 as well as poststratification to the same population control figures for December 2003 used for the MEPS Panel 7 weights. The same five variables employed for Panel 7 poststratification (census region, MSA status, race/ethnicity, sex, and age) were used for Panel 8 poststratification. Similarly, for Panel 8, key, responding persons not in-scope on December 31, 2003 but in-scope earlier in the year retained, as their final Panel 8 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 2003 CPS data base.

2.7.5.5 The Final Weight for 2003

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, 2003 is 286,779,677 (PERWT03F>0 and INSC1231=1). The weights of some persons out-of-scope on December 31, 2003 were also poststratified. Specifically, the weights of persons out-of-scope on December 31, 2003 who were in-scope some time during the year and also entered a nursing home during the year were poststratified to a corresponding control total obtained from the 1996 MEPS Nursing Home Component. The weights of persons who died while in-scope during 2003 were poststratified to corresponding estimates derived using data obtained from the Medicare Current Beneficiary Survey (MCBS) and Vital Statistics information provided by the National Center for Health Statistics (NCHS). Separate control totals were developed for the "65 and older" and "under 65" civilian noninstitutionalized populations.

2.7.5.6 Coverage

The target population for MEPS in this file is the 2003 U.S. civilian noninstitutionalized population. However, the MEPS sampled households are a subsample of the NHIS households interviewed in 2001 (Panel 7) and 2002 (Panel 8). New households created after the NHIS interviews for the respective Panels and consisting exclusively of persons who entered the target population after 2001 (Panel 7) or after 2002 (Panel 8) are not covered by MEPS. Neither are previously out-of-scope persons who join an existing household but are unrelated to the current household residents. Persons not covered by a given MEPS panel thus include some members of the following groups: immigrants; persons leaving the military; U.S. citizens returning from residence in another country; and persons leaving institutions. The set of uncovered persons constitutes only a small segment of the MEPS target population.

3.0 General Data Editing and Imputation Methodology

The general approach to preparing the household prescription data for this file was to utilize the PC prescription data to impute information collected from pharmacy providers to the household drug mentions. For events that went through the charge and payment section of the HC (events where the person filed their own prescription claim forms with their insurance company, events for persons who responded they did not know if they filed their own prescription claim forms with their insurance company, and insulin and diabetic supply/equipment events (OMTYPE=2 or =3) that were mentioned in the Other Medical section of the HC), information on payment sources was retained to the extent that these data were reported by the household in the charge and payment section of the HC. A matching program was adopted to link PC drugs and the corresponding drug information to household drug mentions. To improve the quality of these

matches, all drugs on the household and pharmacy files were coded using a proprietary database on the basis of the medication names provided by the household and pharmacy, and, when available, the NDC provided in the pharmacy follow-back component. The matching process was done at an event level, as opposed to an acquisition level. Considerable editing was done prior to the matching to correct data inconsistencies in both data sets and to fill in missing data and correct outliers on the pharmacy file.

Drug price-per-unit outliers were analyzed on the pharmacy file by first identifying the average wholesale unit price (AWUP) of the drug by linkage through the NDC to a secondary data file. In general, prescription drug unit prices were deemed to be outliers by comparing unit prices reported in the pharmacy database to the AWUP reported in the secondary data file and were edited, as necessary. Outlier thresholds were established in consultation with industry experts.

Drug matches between household drug mentions and pharmacy drug events for a person in the PC were based on drug code, medication name, and the round in which the drug was reported. The matching of household drug mentions to pharmacy drugs was performed so that the most detailed and accurate information for each prescribed medicine event was obtained. Exact dates of purchase were only available from the follow-back component. The matching program assigned scores to potential matches. Numeric variables required exact matches to receive a high score, while partial scores could be assigned to matches between character variables, such as prescription name, depending on the degree of similarity in the spelling and sound of the medication names. Household drug mentions that were deemed exact matches to PC drugs for the same person in the same round required sufficiently high scores to reflect a high quality match. Exact matches were used only once and were taken out of the donor pool from that point on (i.e., these matches were made without replacement). Any refill of a household drug mention that had been matched to a pharmacy drug event was also matched to the same pharmacy drug event. All remaining unmatched household drug mentions for persons either in or out of the PC were statistically matched to the entire pharmacy donor base with replacement by medication name, drug code, type of third party coverage, health conditions, age, sex, and other characteristics of the individual. Potential PC donor records were omitted from these matches whenever a NDC was imputed to the PC record and was not an exact match on a generic product code applied to all records in the HC and PC.

For more information on the MEPS Prescribed Medicines editing and imputation procedures, please see J. Moeller, 2001.

3.1 Rounding

Expenditure variables on the 2003 Prescribed Medicines file have been rounded to the nearest penny. Person-level expenditure variables released on the 2003 Full Year Consolidated Data File were rounded to the nearest dollar. It should be noted that using the 2003 MEPS event files to create person-level totals will yield slightly different totals than those found on the 2003 Full Year Consolidated Data File. These differences are due to rounding only. Moreover, in some instances, the number of persons having expenditures on the 2003 event files for a particular source of payment may differ from the number of persons with expenditures on the 2003 Full

Year Consolidated Data File for that source of payment. This difference is also an artifact of rounding only. Please see the 2003 Appendix File for details on such rounding differences.

3.2 Edited/Imputed Expenditure Variables (RXSF03X-RXXP03X)

There are 13 expenditure variables included on this event file. All of these expenditures have gone through an editing and imputation process and have been rounded to the second decimal place. There is a sum of payments variable (RXXP03X) which for each prescribed medicine event sums all the expenditures from the various sources of payment. The 12 sources of payment expenditure variables for each prescribed medicine event are the following: amount paid by self or family (RXSF03X), amount paid by Medicare (RXMR03X), amount paid by Medicaid (RXMD03X), amount paid by private insurance (RXPV03X), amount paid by the Veterans Administration (RXVA03X), amount paid by TRICARE (RXTR03X), amount paid by other federal sources (RXOF03X), amount paid by state and local (non-federal) government sources (RXSL03X), amount paid by Worker's Compensation (RXWC03X), and amount paid by some other source of insurance (RXOT03X). As mentioned previously, there are two additional expenditure variables called RXOR03X and RXOU03X (other private and other public, respectively). These two expenditure variables were created to maintain consistency between what the household reported as their private and public insurance status for hospitalization and physician coverage and third party prescription payments from other private and public sources (such as a separate private prescription policy or prescription coverage from the Veterans Administration, the Indian Health Service, or a State assistance program other than Medicaid). 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 source of payment questions in the survey, some of these inconsistencies may have logical explanations. Please see section 2.7.4 for details on these and all other source of payment variables.

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 prescribed medicine purchases during 2003.

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 are described in Section 3.0.

4.2 Basic Estimates of Utilization, Expenditure and Sources of Payment

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

In order to produce national estimates related to prescribed medicines utilization, expenditure and sources of payment, the value in each record contributing to the estimates must be multiplied by the weight (PERWT03F) contained on that record.

Example 1

For example, the total number of prescribed medicines events[1] for the civilian non-institutionalized population of the U.S. in 2003 is estimated as the sum of the weight (PERWT03F) across all prescribed medicines event records. That is,

$$\Sigma W_j = 2{,}801{,}512{,}035 \qquad \text{for all records} \qquad (1)$$

Example 2

Subsetting to records based on characteristics of interest expands the scope of potential estimates. For example, the estimate for the mean out-of-pocket payment per prescription medicine purchase should be calculated as the weighted mean of amount paid by self/family. That is,

$$(? W_j X_j)/(? W_j) = \$28.47 \qquad (2)$$

where

$$? W_j = 2{,}801{,}512{,}035 \text{ and } X_j = \text{RXSF03X}_j$$

This gives $28.47 as the estimated mean amount of out-of-pocket payment of expenditures associated with prescribed medicines events and 2,801,512,035 as an estimate of the total number of prescription medicine purchases. Both of these estimates are for the civilian non-institutionalized population of the U.S. in 2003.

[1] In this and all other examples, unless otherwise noted, prescribed medicines records include diabetic supplies\equipment and insulin.

Example 3

Another example would be to estimate the average proportion of total expenditures paid by private insurance per prescription medicine purchase. This should be calculated as the weighted mean of the proportion of the total prescription medicine purchase paid by private insurance at the prescribed medicines event level. That is,

$$(? W_j Y_j)/(? W_j) = 0.2626 \qquad (3)$$

where

$$? W_j = 2{,}801{,}512{,}035 \text{ and } Y_j = RXPV03X_j / RXXP03X_j$$

This gives 0.2626 as the estimated mean proportion of total expenditures paid by private insurance per prescription medicine purchase for the civilian non-institutionalized population of the U.S. in 2003.

4.3 Estimates of the Number of Persons with Prescribed Medicine Events

When calculating an estimate of the total number of persons with prescribed medicine events, users can use a person-level file or this event file. However, this event file must be used when the measure of interest is defined at the event level. For example, to estimate the number of persons in the civilian non-institutionalized population of the U.S. with a prescribed medicine purchase in 2003 with an RXNDC = "00093310905" (Amoxicillin), this event file must be used. This would be estimated as

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

where

W_i is the sampling weight (PERWT03F) for person i

and

$X_i = 1$ if RXNDC = "00093310905" for any purchase of person i.

$= 0$ otherwise

4.4 Person-Based Ratio Estimates

4.4.1 Person-Based Ratio Estimates Relative to Persons with Prescribed Medicine Events

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

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

where

W_i is the sampling weight (PERWT03F) for person i

and

Z_i = ? RXXP03X$_j$ across all prescription purchases 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 prescribed medicine event 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 prescribed medicine event with RXNDC = "00093310905" (Amoxicillin) in 2003, 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,

(? W_i Z_i)/(? W_i) across all unique persons i on the MEPS HC-073 file (6)

where

W_i is the sampling weight (PERWT03F) for person i

and

Z_i = 1 if RXNDC$_j$ = "00093310905" for any event of person i.
= 0 otherwise.

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

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

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

4.6 Variance Estimation

To obtain estimates of variability (such as the standard error of sample estimates or corresponding confidence intervals) for estimates based on MEPS survey data, one needs to take into account the complex sample design of MEPS. Various approaches can be used to develop such estimates of variance including use of the Taylor series or various replication methodologies. Replicate weights have not been developed for the MEPS 2003 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 VARSTR and VARPSU, respectively. Specifying a "with replacement" design in a computer software package such as SUDAAN (Shah, 1996) should provide standard errors appropriate for assessing the variability of MEPS survey estimates. It should be noted that the number of degrees of freedom associated with estimates of variability indicated by such a package may not appropriately reflect the actual number available. For MEPS sample estimates for characteristics generally distributed throughout the country (and thus the sample PSUs), there are over 100 degrees of freedom associated with the corresponding estimates of variance. The following illustrates these concepts using two examples from section 4.2.

Examples 2 and 3 from Section 4.2

Using a Taylor Series approach, specifying VARSTR and VARPSU 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 $0.3927 and 0.0052 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 this event file can be used alone or in conjunction with other files. This section provides instructions for linking the 2003 prescribed medicines file with other 2003 MEPS public use files, including a 2003 person-level file, the 2003 conditions file, and the other 2003 event files.

5.1 Linking a Person-Level File to the Prescribed Medicines File

Merging characteristics of interest from other 2003 MEPS files (e.g., the 2003 Full Year Consolidated File or the 2003 Office Based Provider File) expands the scope of potential estimates. For example, to estimate the total number of prescribed medicines purchased or otherwise obtained by persons with specific characteristics (e.g., age, race, and sex), population characteristics from a person-level file need to be merged onto the prescribed medicines file. This procedure is illustrated below. The 2003 Appendix File provides additional details on how to merge 2003 MEPS data files.

1. Create data set PERSX by sorting a Full Year Population Characteristics File (file HCXXX), by the person identifier, DUPERSID. Keep only variables to be merged on to the prescribed medicines file and DUPERSID.

2. Create data set PMEDS by sorting the prescribed medicines file by person identifier, DUPERSID.

3. Create final data set NEWPMEDS by merging these two files by DUPERSID, keeping only records on the prescribed medicines file.

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

```
PROC SORT DATA=HCXXX(KEEP=DUPERSID AGE31X SEX RACEX)
OUT=PERSX;
   BY DUPERSID;
RUN;

PROC SORT DATA= HC077A OUT=PMEDS;
    BY DUPERSID;
RUN;

DATA NEWPMEDS;
    MERGE PMEDS (IN=A) PERSX(IN=B);
    BY DUPERSID;
            IF A;
RUN;
```

5.2 Linking the 2003 Conditions File and/or the Other 2003 MEPS Event Files to the 2003 Prescribed Medicines File

Due to survey design issues, there are limitations/caveats that an analyst must keep in mind when linking the different files. Those limitations/caveats are listed below. For detailed linking examples, including SAS code, analysts should refer to the 2003 Appendix File.

5.3 Limitations/Caveats of RXLK and CLNK

The RXLK file provides a link between the 2003 prescribed medicine records and the other 2003 MEPS event files. When using RXLK, analysts should keep in mind that a prescribed medicine event may link to more than one medical event. When this occurs, it is up to the analyst to determine how the prescribed medicine expenditures should be allocated among those events. In order to obtain complete information about those other event files, the analyst must link to the other public use event files.

The CLNK provides a link between the 2003 Medical Conditions File and the 2003 Prescribed Medicines file. When using the CLNK, analysts should keep in mind that (1) conditions are self reported and (2) there may be multiple conditions associated with a drug purchase. Analysts need to verify that a particular medication is indeed an appropriate medication in treating the condition. Moreover, there may be some drugs that were purchased to treat a specific health condition for which there is no such link to the condition file because the respondent did not report the condition as being related to the prescribed medicine.

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D. Variable-Source Crosswalk

MEPS HC-077A: 2003 Prescribed Medicines Events

Survey Administration Variables

Variable	Description	Source
DUID	Dwelling unit ID	Assigned in sampling
PID	Person number	Assigned in sampling
DUPERSID	Sample person ID (DUID + PID)	Assigned in sampling
RXRECIDX	Record ID – Unique Prescribed Medicine Identifier	Constructed
LINKIDX	Link to condition and other event files	CAPI derived
PURCHRD	Round in which the Rx/prescribed medicine was obtained/purchased	CAPI derived

Prescribed Medicines Events Variables

Variable	Description	Source
RXBEGDD	Day person first used medicine	PM11OV1
RXBEGMM	Month person first used medicine	PM11OV2
RXBEGYRX	Year person first used medicine	PM11
RXNAME	Medication name (Imputed)	Imputed
RXHHNAME	Household reported medication name	PM05
RXNDC	National drug code (Imputed)	Imputed
RXQUANTY	Quantity of Rx/prescribed medicine (Imputed)	Imputed
RXFORM	Form of Rx/prescribed medicine (Imputed)	Imputed
RXFRMUNT	Unit of measurement for form of Rx/prescribed medicine (Imputed)	Imputed
RXSTRENG	Strength of Rx/prescribed medicine dose (Imputed)	Imputed
RXSTRUNT	Unit of measurement for strength of Rx/prescribed medicine dose (Imputed)	Imputed
PHARTP1-PHARTP7	Type of pharmacy provider – (1st-7th)	PM16
RXFLG	Flag variable indicating imputation source for NDC on pharmacy donor record	Constructed

Variable	Description	Source
PCIMPFLG	Flag indicating type of household to pharmacy prescription match	Constructed
CLMOMFLG	Charge/payment, Rx claim filing, and OMTYPE =2 or =3 (insulin and diabetic supply equipment events) status	CP01/Constructed
INPCFLG	Flag indicating if the person has at least one record in the pharmacy component	Constructed
DIABFLG	Flag indicating whether or not prescribed medicine was classified as insulin or diabetic supply/equipment	Constructed
SAMPLE	Flag indicating if a respondent received a free sample of this drug in the round	CAPI derived
RXICD1X	3 digit ICD-9 condition code	PM09
RXICD2X	3 digit ICD-9 condition code	PM09
RXICD3X	3 digit ICD-9 condition code	PM09
RXCCC1X	Modified Clinical Classification Code	Constructed/Edited
RXCCC2X	Modified Clinical Classification Code	Constructed/Edited
RXCCC3X	Modified Clinical Classification Code	Constructed/Edited
PREGCAT	Multum Pregnancy Category	Cerner Multum, Inc.
GBO	Multum Brand/Generic Designation	Cerner Multum, Inc.
TC1	Multum Therapeutic Class #1	Cerner Multum, Inc.
TC1S1	Multum Therapeutic Sub-Class #1 for TC1	Cerner Multum, Inc.
TC1S1_1	Multum Therapeutic Sub-Sub-Class for TC1S1	Cerner Multum, Inc.
TC1S1_2	Multum Therapeutic Sub-Sub-Class for TC1S1	Cerner Multum, Inc.
TC1S2	Multum Therapeutic Sub-Class #2 for TC1	Cerner Multum, Inc.
TC1S2_1	Multum Therapeutic Sub-Sub-Class for TC1S2	Cerner Multum, Inc.
TC2	Multum Therapeutic Class #2	Cerner Multum, Inc.
TC2S1	Multum Therapeutic Sub-Class #1 for TC2	Cerner Multum, Inc.
TC2S1_1	Multum Therapeutic Sub-Sub-Class for TC2S1	Cerner Multum, Inc.
TC2S1_2	Multum Therapeutic Sub-Sub-Class for TC2S1	Cerner Multum, Inc.
TC2S2	Multum Therapeutic Sub-Class #2 for TC2	Cerner Multum, Inc.
TC3	Multum Therapeutic Class #3	Cerner Multum, Inc.
TC3S1	Multum Therapeutic Sub-Class #1 for TC3	Cerner Multum, Inc.

Variable	Description	Source
TC3S1_1	Multum Therapeutic Sub-Sub-Class for TC3S1	Cerner Multum, Inc.
RXSF03X	Amount paid, self or family (Imputed)	CP11/Edited/ Imputed
RXMR03X	Amount paid, Medicare (Imputed)	CP12/CP13/Edited/ Imputed
RXMD03X	Amount paid, Medicaid (Imputed)	CP12/CP13/Edited/ Imputed
RXPV03X	Amount paid, private insurance (Imputed)	CP12/CP13/Edited/ Imputed
RXVA03X	Amount paid, Veteran's Administration (Imputed)	CP12/CP13/Edited/ Imputed
RXTR03X	Amount paid, TRICARE (Imputed)	CP12/CP13/Edited/ Imputed
RXOF03X	Amount paid, other Federal (Imputed)	CP12/CP13/Edited/ Imputed
RXSL03X	Amount paid, state and local government (Imputed)	CP12/CP13/Edited/ Imputed
RXWC03X	Amount paid, Worker's Compensation (Imputed)	CP12/CP13/Edited/ Imputed
RXOT03X	Amount paid, other insurance (Imputed)	CP12/CP13/Edited/ Imputed
RXOR03X	Amount paid, other private (Imputed)	Constructed/Imputed
RXOU03X	Amount paid, other public (Imputed)	Constructed/Imputed
RXXP03X	Sum of payments RXSF03X – RXOU03X (Imputed)	CP12/CP13/Edited/ Imputed

Weights

Variable	Description	Source
PERWT03F	Poverty/mortality/nursing home adjusted person-level weight	Constructed
VARSTR	Variance estimation stratum, 2003	Constructed
VARPSU	Variance estimation PSU, 2003	Constructed

Attachment 1

Definitions of Abbreviations for RXFORM

Dosage Form	Definition
-7	refused
-8	don't know
-9	not ascertained
ACC	accessory
ADR	acetic acid drop
AE	aerosol
AER	aerosol
AERO	aerosol
AEROSOL	
AMP	ampule
ARO	aerosol solid
AUTO INJ	auto-injection
BACK SUPPORT BELT	
BAG	
BALM	
BAN	bandage
BANDAGE	
BAR	
BATTERY	
BENCH	
BOT	bottle
BOTTLE	
BOX	
BOXES	
BRACE	
BRIEF	
BUT	butterfly
C	capsules, or cream (varies)
C12	12 hour extended-release capsule
C24	24 hour extended-release capsule
CA	capsule
CANE	
CAP	capsule
CAP DR	delayed-release capsule
CAP ER	extended-release capsule
CAP SA	slow-acting capsule
CAPLET	
CAPLT	caplet
CAPS	capsules

Dosage Form	Definition
CAPSULE	
CAPSULE SA	slow-acting capsule
CATHETER	
CC	cubic centimeter
CER	extended-release capsule
CHAMBER	
CHEW	chewable tablet
CHEW TAB	chewable tablet
CHEW TABS	chewable tablets
CHEWABLE	
CHW	chewable tablets
COLLAR	
COMBO	
COMPOUND	
CON	condom
CONDOM	
CONTAINER	
COTTON	
CPSR	slow-release capsule
CR	cream
CRE	cream
CREA	cream
CREAM	
CRM	cream
CRYSTAL	
CTB	chewable tablets
CTG	cartridge
CUTTER	
DEV	device
DEVICE	
DIA	diaper
DIAPER	
DIAPHRAM	
DIS	disk, or dermal infusion system
DISK	
DOS PAK	dose pack
DR	drop
DRE	dressing
DRESSING	
DROP	
DROPS	
DROPS OPTH OTI	ophthalmic/otic drops
DROPS SUSP	drops suspension
DRP	drop

Dosage Form	Definition
DRPS	drops
DSK	disk
DSPK	tablets in a dose pack
EAR DROP	
EAR DROPS	
EAR SUSP	ear suspension
EC TABS	enteric coated tablets
ECC	enteric coated capsules
ECT	enteric coated tablets
ELI	elixir
ELIX	elixir
ELIXIR	
ELX	elixir
EMERGENCY KIT	
EMO	emollient
EMU	emulsion
ENEMA	
ERTA	extended-release tablets
EXTN CAP	extended-release capsule
EXTRACT	
EYE DRO	eye drop
EYE DROP	
EYE DROPS	
EYE SO	eye solution
FIL	film
FILM ER	film, extended-release
FILMTAB	
FILMTABS	
FOA	foam
FOAM	
GAU	gauze
GAUZE	
GEF	effervescent granules
GEL	
GFS	gel-forming solution
GLOVE	
GRA	granules
GRR	grams
GTT	drops
GUM	
HOSE	medical hosiery
HU	capsule
ICR	control-release insert
IN	injectible

Dosage Form	Definition
INH	inhalant
INH AER	inhalant aerosol
INHAL	inhalant
INHAL SOL	inhalant solution
INHALER	
INHL	inhalant
INJ	injectible
INJECTION (S)	
INSERT	
INSULIN	
IV	intravenous
JEL	jelly
JELLY	
KIT	
L	lotion
LANCET	
LANCET (S)	
LI	liquid
LIQ	liquid
LIQUID	
LOT	lotion
LOTION	
LOZ	lozenge
LOZENGE	
MASK	
MCG	microgram
METER	
MG	milligram
MIS	miscellaneous
MIST	
MONITOR	
MOUTHWASH	
NAS	nasal spray
NASAL	
NASAL INHALER	
NASAL POCKET HL	nasal inhaler, pocket
NASAL SOLN	nasal solution
NASAL SPR	nasal spray
NASAL SPRAY	
NDL	needle
NE	nebulizer
NEB	nebulizer
NEBULIZER	
NMA	enema

Dosage Form	Definition
NMO	nanomole, millimicromole
ODR	ophthalmic drop (ointment)
ODT	oral disintegrating tablet
OIL	
OIN	ointment
OINT	ointment
OINT TOP	topical ointment
OINTMENT	
ONT	ointment
OP	ophthalmic solution
OP DROPS	ophthalmic drops
OP SOL	ophthalmic solution
OPH S	ophthalmic solution or suspension
OPH SOL	ophthalmic solution
OPH SOLN	ophthalmic solution
OPHTH DROP (S)	ophthalmic drops
OPHTH OINT	ophthalmic ointment
OPHTH SOLN	ophthalmic solution
OPT SLN	ophthalmic solution
OPT SOL	ophthalmic solution
OPTH	ophthalmic solution or suspension or ointment
OPTH S	ophthalmic solution or suspension
OPTH SLN	ophthalmic solution
OPTH SOL	ophthalmic solution
OPTH SUSP	ophthalmic suspension
OPTIC	
ORAL	
ORAL INHL	oral inhalant
ORAL PWD	oral powder
ORAL RINSE	
ORAL SOL	oral solution
ORAL SUS	oral suspension
ORAL SUSP	oral suspension
OTI	otic solution
OTIC	
OTIC SOL	otic solution
OTIC SOLN	otic solution
OTIC SUSP	otic suspension
PA	tablet pack, pad or patch (varies)
PAC	pack
PAD	
PADS	

Dosage Form	Definition
PAK	pack
PAS	paste
PAT	patch
PATCH	
PCH	patch
PDR	powder
PDS	powder for reconstitution
PEDIATRIC DROPS	
PI1	powder for injection, 1 month
PI3	powder for injection, 3 months
PIH	powder for inhalation
PKG	package
PKT	packet
PLEDGETS	
PO-SYRUP	syrup by mouth (oral syrup)
POPSICLE	
POUCH	
POW	powder
POWD	powder
POWDER	
POWDER/SUSPENS	powder/suspension
PRO	prophylactic
PULVULE	
PWD	powder
PWD F/SOL	powder for solution
RCTL SUPP	rectal suppository
RECTAL CREAM	
REDITABS	
RINSE	
ROLL	
S	syrup, suspension, solution (varies)
SA CAPS	slow-acting capsules
SA TAB	slow-acting tablet
SA TABLETS	slow-acting tablets
SA TABS	slow-acting tablets
SAL	salve
SER	extended-release suspension
SET	
SGL	soft b23gel cap
SHA	shampoo
SHAM	shampoo
SHMP	shampoo
SHOE	
SLT	sublingual tablet

Dosage Form	Definition
SL TAB	sublingual tablet
SO	solution
SOA	soap
SOL	solution
SOLN	solution
SOLUTION	
SP	spray
SPONGE	
SPR	spray
SPRAY	
SRN	syringe
STP	strip
STR	strip
STRIP	
STRIPS	
SU	suspension, solution, suppository, powder, or granules for reconstitution (varies)
SUB	sublingual
SUP	suppository
SUPP	suppository
SUPPOSITORIES	
SUPPOSITORY	
SUS	suspension
SUS/LIQ	suspension/liquid
SUSP	suspension
SUSPEN	suspension
SUSPENDED RELEASE CAPLET	
SUSPENSION	
SWA	swab
SWAB	
SWABS	
SYP	syrup
SYR	syrup
SYRINGE	
SYRP	syrup
SYRUP	
T	tablet
T12	12 hour extended-release tablet
T24	24 hour extended-release tablet
TA	tablet
TAB	tablet
TAB CHEW	chewable tablet

Dosage Form	Definition
TAB DR	delayed-release tablet
TAB EC	enteric coated tablet
TAB SL	slow-acting tablet
TABL	tablet
TABLET (S)	
TABLETS (S)	
TABS	tablets
TAP	tape
TAPE	
TB	tablet
TBCH	chewable tablet
TBSL	sublingual tablet
TBSR	slow-release tablet
TCP	tablet, coated particles
TDM	extended-release film
TDS	transdermal system
TEF	effervescent tablet
TER	extended-release tablet
TES	test
TEST	
TEST STRIP	
TEST STRIPS	
TIN	tincture
TOP CREAM	topical cream
TOP OINT	topical ointment
TOP SOL	topical solution
TOP SOLN	topical solution
TOPICAL CREAM	
TOPICAL SOLUTION	
TRO	troche
TTB	time release tablet
TUB	tube
TUBE	
UNDERWEAR	
UNIT DOSE	
UNT	unit
VAGINAL CREAM	
VAPORIZER	
VIAL	
VIAL(S)	
VIL	vial
WAF	wafer
WALKER	
WASH	

Dosage Form	Definition
WIPES	
Z-PAK	

Attachment 2

Definitions of Codes and Abbreviations for RXFRMUNT

Code	Description
-7	refused
-8	don’t know
-9	not ascertained
CC	cubic centimeter
GM	gram
L	liter
ML	milliliter
OZ	ounce

Attachment 3

Definitions of Abbreviations, Codes and Symbols for RXSTRUNT

Abbreviations, Codes and Symbols	Definition
-7	refused
-8	don't know
-9	not ascertained
%	percent
09	compound
CC	cubic centimeters
DOSE	dose
DRP	drop
G	gram
GM	gram
GR	grain
HR or HRS	hour, hours
INH	inhalation
IU	international unit
MCG	microgram
MEQ	microequivalent
MG	milligram
ML	milliliter
MMU	millimass units
PACKET	packet
SQ CM	square centimeter
U	units