Skip Navigation

Medical Expenditure Panel Survey
Medical Provider Component (MEPS-MPC)

Methodology Report 2019 Data Collection

Deliverable OP3-5
Version 2.0
June 2021

Prepared for:
Agency for Healthcare Research and Quality
Peter Tice, PhD
AHRQ Project Officer
AHRQ, Center for Financing, Access & Cost Trends
5600 Fishers Lane
Rockville, Maryland 20857

Prepared by:
RTI International
3040 Cornwallis Road
PO Box 12194
Research Triangle Park, NC 27709-2194

RTI Project Number 0215974.003
AHRQ Contract Number HHSA290201300007C

Table of Contents

1. Introduction

The Medical Expenditure Panel Survey (MEPS) has been conducted by the Agency for Healthcare Research and Quality (AHRQ) each year since 1996. MEPS is a set of large-scale surveys of families and individuals, their medical providers, and their employers across the United States. MEPS collects data on specific health services, including frequency of use, costs, and sources of payment for services, and on the cost and scope of health insurance covering U.S. workers.

This report describes the methodology of the 2019 Cycle of the MEPS Medical Provider Component (MPC[1]) . The MEPS-MPC collects data from Hospitals, Office-Based Doctors, Home Health Agencies, Institutions (such as long-term care facilities) and Pharmacies reported by MEPS Household Component (HC) respondents as well as doctors who provide services for patients in Hospitals but bill separately from the Hospital (referred to as Separately Billing Doctors or SBDs). (See Section 2.1 for additional information about provider types.) The MEPS-HC is conducted by Westat, Inc. and the MEPS-MPC is conducted by RTI International and Social & Scientific Systems, Inc. (SSS, a DLH Holdings Corp. Company).

Each cycle, providers for the MPC sample each year are identified in three rounds of HC data collection for two HC panels (see Table 2-1). Overall the HC panel design features five rounds of interviewing over the course of two full calendar years. The HC collects data from a sample of families and individuals in selected communities across the United States, drawn from a nationally representative subsample of households that participated in the prior year's National Health Interview Survey (conducted by the National Center for Health Statistics of the Centers for Disease Control and Prevention).

The household interviewscollect detailed information for each person in the household including demographic characteristics, health conditions, health status, use of medical services, charges and source of payments, access to care, satisfaction with care, health insurance coverage, income, and employment. To support the MPC, the HC further collects

signed Authorization Forms (AFs) from those respondents who indicated using medical services during the reporing period. These AFs allow the MPC to contact the respondent medical providers to request both the medical record and billing data associated with the reported respondent medical events.

Return to Table of Contents

1.1 Changes from 2018 MPC to 2019 MPC

In preparation for the start to the 2019 MPC cycle data collection, recommended Contact Guide and Event Form changes was submitted to AHRQ for review and approval. This included not just the routine change of updating the reference year from 2018 to 2019, but also the movement of the Hopsital, OBD, Home Health, and Institution Event Forms from Hatteras software to Blaise software (following a similar change made to the Pharmacy and SBD Event Forms prior to the 2018 MPC cycle data collction). The move to Blaise necessitated some relatively minor changes in instruments across provider types due to differences between Hatteras and Blaise, such as:

- Changes in onscreen instructions for data collectors due to operational differences between Hatteras and Blaise. For example, dates in Hatteras were collected with different fields for month, date, and year. In Blaise, these are captured in one field.
- Changes to structure of questions such as the Hospital inpatient event begin and end date question. In Hatteras, this is one question, but Blaise requires that this be two questions, although the underlying content of the question is unchanged.
- The collection of diagnoses is two questions in Blaise instead of one in Hatteras. In Hatteras the question asks once, "I need the diagnosis for this visit. I would prefer the ICD-10 codes or the DSM-5 codes, if they are available." The same question is asked in Blaise. But if a code cannot be supplied, a follow-up item prompts, "I need the diagnosis for this stay" in order to collect the description.

The Contact Guide was also moved from Hatteras software to a custom built windows MVVM .net desktop module, and the various Contact Guide versions for each provider type were consolidated into one. While item wording was retained as much as possible, there were some changes to items due to (a) the change in programs from Hatteras to the desktop module, and (b) the combination of Contact Guides for different provider types into one Contact Guide for all provider types.

Other changes for the 2019 cycle included:

- The addition of a hard check to the Hospital, OBD, Home Health, Institution, and SBD Event Forms to require a reason for payments being less than charges,
- Updating of the question wording for clarity in the Hospital and Institution Event Forms for collecting an "other specify" SBD specialty and role,
- Added a graphic to the Hospital, OBD, Home Health, and Institution Event Forms that shows the correct format of ICD-10 and DSM-5 codes,
- Added a fill of "in long term care" for the Hospital Event Form items that collect a DRG code for inpatient stays and collect the full charge, when the location of service is in a long term care unit,
- Eliminated the skipping of Event Form questions and DCS instructions based on data collection mode (telephone or abstraction), so screens display identically for both modes,
- Improved the logic that uses terms in the diagnosis descriptions in the Hospital and Institution Event Forms to programmatically determine whether certain specialties are expected as SBDs within an event,
- Disallowed Don't Know and Refuse responses for the Home Health and Home Non-Health Event Form item capturing billing period length,
- Eliminated the skipping of the OBD Event Form location of service for a global fee date if the date is Don't Know or Refuse,
- Reinstated an instruction in all Non-Pharmacy Event Forms that directs DCSs to indicate a patient is not an eligible veteran if the POC does not understand the question,
- In Non-Pharmacy Event Forms, added a hard check if a DCS enters No when confirming that total payments were less than total charges – requiring a correction to charges/payments or an answer of Yes,
- Corrected ICD-10 formatting guidance when entering diagnosis codes in place of inpatient procedural codes in the Hospital event form,
- Upgraded the Contact Guide to allow identification of multiple primary POCs for a single contact group,
- Added two POC categorization options in the Contact Guide to better identify records/billing service POCs who work on-site at a provider's facility,
- Moved the Provider Confirmation screen from the Case Management System (CMS) into the Contact Guide and programmed it to be asked of each primary POC,
- Moved the processes for sending AF packets and dispositioning calls from the CMS into the Contact Guide,
- Eliminated a Pharmacy Event Form item that collected Healthcare Common Procedure Coding System (HCPCS) codes from facilities supplying only durable medical equipment, because data are no longer captured from those facilities,
- In the Pharmacy Event Form, added new dosage forms (vaginal ring, pen, powder for solution, and emulsion) and quantity units (pen needles, blisters, inhalations).
- In the Pharmacy Event Form, changed dosage form designation for caplets to CAPL from CAP,
- Started collecting in the Contact Guide whether a Pharmacy is a military provider, and
- Customized a prompt in the Contact Guide for Pharmacy providers, to correctly name the types of billing forms being requested.

Detailed information about item wording and instrument flow is available in *Deliverable OP3-12, MPC 2019 Final Data Collection Instruments*.

The onset of the COVID-19 pandemic in the U.S. in mid-March 2020 required the data collection team to substantially alter plans and assumptions to accommodate remote operations that helped ensure the safety and health of project staff. The team transitioned to remote data collection in March, following facility closure. As a result of many state, county, and municipal "stay-at-home" mandates, provider points of contact (POCs) became more difficult to reach and struggled to adapt technologically, overcoming system and fax access issues, staff shortages, and reduced hours onsite, among other impacts. By September 2020, the MPC data collection team's staffing began to stabilize. While most provider POCs had also adjusted to remote work and began to process requests more routinely, there were still lengthy and longer than normal turnaround times for receiving records at the end of the data collection cycle.

Because both the MPC data collection activities and staff at provider organizations were deeply impacted by the upheaval resulting from the national health emergency, the amount of data collected by the MPC was considerably less in calendar year 2020 than is typical. Fewer providers had the staff resources and technology accommodations to participate under the initial COVID-19 circumstances. In particular, participation was negatively impacted among providers with larger numbers of patient-providers pairs, and especially among the OBD providers. An additional impact is that data collected contained fewer than average medical events per patient-provider pair. Also, the addition of new staff to counterbalance attrition experienced in the initial transition from onsite to remote work along with new procedures and systems introduced to accommodate remote work unintentionally but not unexpectedly increased the abstraction error rates above those experienced in a normal cycle, although error rates were maintained beneath the 2% threshold.

Necessary IT system enhancements and overhauls were implemented between April through September that allowed for offsite abstraction and improved records management for remote staff. System enhancements and improvements included:

- Providing abstractors with the ability to highlight data elements within PDF files of records online in place of the previous process of highlighting hardcopy records in preparation for abstraction,
- Creating an electronic Abstraction Notes Form (eANF) to replace a hardcopy version used by abstractors to build efficiency into the abstraction process, and
- Replacing the filing system for hardcopy records with a Document Processing Module to streamline the receipt, archiving, and accessing of electronic and scanned records.

Return to Table of Contents

2. Preparations for the 2019 MPC

This section describes the 2019 MPC provider sample and preparations for data collection, including grouping patient-provider pairs by provider, grouping providers for the purpose of contacting facilities, and updating locating information.

Return to Table of Contents

2.1 Sample Preparations

Respondents in the HC are asked to identify all medical providers associated with healthcare services received by each member of the household for the reference period associated with the time period of the interview date. Thus, the basic sample unit in the MPC is a patient-provider pair (referred to as a “pair”) where the patient is a member of a household participating in the HC and the provider is identified in the household survey as one associated with a medical event (i.e., an office visit, a Hospital stay or visit to an outpatient or emergency department, a prescription for medicine, or other healthcare event). To facilitate the MPC contacting medical providers household members are asked to sign an Authorization Form (AF) indicating their agreement to allow providers to release medical record and billing information about the event to the MPC. This form is compliant with the Health Insurance Portability and Accountability Act (HIPAA) implemented in 2003.

Within the HC, the term “medical provider” is intended to include any type of practitioner contacted by the household for what the household considers to be healthcare—hospitals, clinics, long-term care institutions, HMOs, medical doctors and doctors of osteopathy, dentists, home care providers, optometrists, podiatrists, chiropractors, psychologists, and other practitioners.

Eligibility for the MPC is restricted to services rendered in a hospital or by a medical doctor or doctor of osteopathy (MD or DO) or under the supervision of a MD or DO. The MPC excludes services provided by dentists, optometrists, psychologists, podiatrists, chiropractors, and other kinds of healthcare practitioners who do not provide care under the supervision of a MD or DO. Care provided by home care agencies is an exception to this criterion; the sample design includes all care provided through a home care agency. Pharmacies reported as sources of prescription medicines obtained by household respondents make up a fifth group of MPC pairs generated from the MEPS-HC. However, the MPC excludes pharmacies that provided durable medical equipment (DME) only and no prescriptions. Finally, additional pairs identified during the MPC data collection as SBDs are identified in medical records obtained from Hospitals and Institutions.

In summary, provider types included in the MPC are:

Hospitals—Providers associated with an inpatient stay as well as hospital outpatient department or emergency room

Institutions—Long-term care providers

Pharmacies—Pharmacies (corporate and non-corporate) where household respondents obtained or purchased prescription medicines

Office-Based Doctors (OBDs)—Physicians

Home Health—Providers associated with care provided in the home of the household respondent, including either healthcare (Health Agencies) or other services excluding healthcare (Non-Health Agencies)

Separately Billing Doctors (SBDs)—Providers added to the MPC sample during abstraction of medical and patient account records of Hospitals and Institutions. Charges and payments for their services are not included in the Hospital or Institution financial records and must be obtained by contacting the offices of the SBDs.

Return to Table of Contents

2.1.1 Sample files in the 2019 MPC

The HC contractor prepared pair data from the computer assisted personal interview (CAPI) survey instrument used in the HC. For Non-Pharmacy pairs, the file includes pairs with eligible dates of utilization (that is, calendar year 2019). In the file for Pharmacy pairs, the events (prescriptions) are not dated. Files for all provider types include the Authorization Forms (AF) signed by the household respondents. AHRQ subsampled OBDs at the HC Reporting Unit (RU) level, and delivered the extracted MPC sample files to RTI. The 2019 MPC OBD subsampling rate was 60%. Table 2-1 summarizes design features of the HC related to the MPC.

Table 2-1. Household Component Design Features related to the MPC

	2016		2017		2018		2019	
	Panel 20, Year 2 (Round 5)	**Panel 21, Year 1 (Round 3)**	**Panel 21, Year 2 (Round 5)**	**Panel 22, Year 1 (Round 3)**	**Panel 21, Year 2 (Round 5)**	**Panel 23, Year 1 (Round 3)**	**Panel 24, Year 2 (Round 5)**	**Panel 24, Year 1 (Round 3)**
No. of PSUs for household sample	183	183	183	168	168	143	143	139
No. of household interviews	7,421	7,043	6,778	6,808	6,584	6,703	na [1]	na [1]
Subsampling of Office-Based Doctors in CAPI	No	No	No	No	No	No	No	No
Subsampling of Office-Based Doctors after CAPI	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Sources: MEPS Household Component Annual Methodology Report (July 15, 2020) Westat, Inc, Table 1.1 and Table 4.2.

1 The number of completed household interviews for these Panels/Rounds was not available in Table 4.2 of the July 15, 2020 Household Component Methodology Report.

Input to the MPC sample was provided in six separate files.

1. Records in the **main sample file** were identified at the pair (PAIRID) level. All other files used to construct and load the sample were merged with this file. This file identified the MPC cases loaded into the Integrated Data Collection System (IDCS) Control System (CS) and tracked throughout the MPC data collection period. For the purposes of data collection in the MPC, the CS tracked at the event level, pair level, and provider level. During the matching process, the MPC data collected was linked back to the pairs from this original HC sample file.
2. The **person file** contained identifying information for every household member associated with a pair in the main sample file. The file can be merged with the main sample using the person ID (PERSID).
3. Provider contact information is contained in the **NPI provider directory** used by HC interviewers and the **monthly non-matched** files delivered by Westat containing providers not found in the NPI directory. For providers identified in the NPI directory, the provider ID (PDDIRID) is the NPI ID (NPIPRVID) from the NPI directory. For providers not identified in the directory, the provider ID (PDDIRID) is the PROVID assigned by Westat in the monthly files of non-matched providers. Both files contain

provider name and contact information. For the non-matched providers, the contact information is the provider name and address that was provided by the HC respondent. The contact information was then loaded into the control system as part of the MPC case.

4. The **Pharmacy directory file** can be merged with the main sample file using PHADIRID (same as PDDIRID) so that the name and contact information of the Pharmacy can be loaded as part of the Pharmacy case.
5. Beginning with the 2017 HC, a **Pharmacy NPI directory** was used by the HC interviewers to assign IDs to pharmacies. If a match was found, a pharmacy NPI ID was assigned to the pharmacy reported by the HC respondent. The pharmacy NPI directory was delivered with the sample files and was merged with the main sample file using the Pharmacy NPI ID (NPIPHAID).
6. Beginning with the 2018 cycle, RTI developed code for assigning pharmacy chain codes by searching for text strings in the pharmacy names.

Return to Table of Contents

2.1.2 MPC Sample Delivery from Household Component

For the 2019 MPC, Westat extracted the sample files used for inclusion in the MPC sample in four waves. Westat delivered the Pharmacy sample files directly to RTI. The Non-Pharmacy files were first delivered to AHRQ for OBD subsampling and then forwarded to RTI for processing. The waves of sample files were delivered to RTI in January (Wave 1), April (Wave 2), May (Wave 3), and July (Wave 4) of 2020. Wave 3 was supplemental sample that primarily included OBD pairs. The supplemental Wave 3 sample was added to allow for pairs to be more easily completed, given the challenge of reaching some providers during the COVID-19 pandemic. A total of 53,330 pairs were in the 2019 MPC sample derived from the HC; 39,192 (73.5%) in Wave 1 of sample delivery; 6,756 (12.7%) in Wave 2; 2,500 (4.7%) in Wave 3; and 4,882 (9.2%) in Wave 4.

The following data elements were included in the MPC sample in order to identify each pair:

- Unique person and Provider IDs used to link the data collected through the MPC back to the household-generated data for the matching process
- Identifying information of the household member, such as name, address, gender, and date of birth, parent name if person under age 18, spouse name (if married), and policy holder name for insured persons
- Identifying information about each provider, such as name, address, and telephone number
- At the pair level, the number of each type of event identified for the person for that provider and any other HC variables necessary to assign priority flags (see section 2.2.4 below).

These data elements are necessary to define a pair, a key data collection unit of the MPC. The extracted file records were sorted so that all pairs for a provider were listed together, thereby creating provider-level records. (For more information about the data elements included in the extraction files, see the deliverable *OP3-6/8/9 – Consolidated Sample Implementation Plan for the 2019 MPC*.)

Return to Table of Contents

2.2 Sample Maintenance

In order to facilitate data collection, RTI sorted providers into contact groups, that is, groups where several providers share the same contact information (e.g., telephone number, practice name, street number, and provider name). Potential groups were carefully reviewed to confirm that grouping was appropriate. In the formation of contact groups, provider identification numbers and other detailed information from the HC were preserved to assure accurate linkages back to the initial sample files. During the MPC data collection, the IDCS enabled contact groups to change as facilities could be restructured, bought out by other entities, or change location of the medical and/or patient account records.

Return to Table of Contents

2.2.1 Contact Groups

All pairs were assigned to contact groups. A pair was assigned to a contact group first by checking whether the provider in the 2019 MPC sample was in a previous cycle's MPC sample. If so, the pair was assigned to the provider's most recent contact group. Providers not found in a previous MPC sample were grouped to form a new contact group based on the provider's contact information. An automated process grouped pairs by telephone number, address fields, and a SOUNDEX program in SAS to identify similar practice or provider names.

As in prior cycles, before delivery of sampled pairs, Westat checked for duplicate pairs based on unique identification numbers assigned to each person (PERSID) and provider (PROVID). The sample preparation process at RTI included further checking for duplicate pairs by searching the sample files for pairs that had the same PERSID and NPI identifier but a different PROVID. When duplicate pairs were identified, one pair was assigned a code that indicated the pair had been merged. This merged code was used to

prevent the pair from being fielded. The other pair was fielded for data collection.

An additional check searched pairs within the same RU for instances where pairs had the same provider telephone number (reasoning that in these situations, providers with the same telephone numbers might be the same individual). Suspected duplicate providers were confirmed through manual review of provider names and addresses and, if associated with the same person, merged as above.

All Veterans Administration (VA) providers were grouped together because of their common organizational structure that makes them significantly different from the other providers in the sample. Once records were receipted, VA providers were assigned to a small group of Hospital abstractors so that they could be worked consistently.

Similarly, HMO providers were grouped together and assigned to a small team to coordinate contacts with common corporate offices rather than with the individual providers. This grouping facilitated efficient contacts for recruiting HMO providers into the study and helped to make records abstraction more consistent and efficient.

Return to Table of Contents

2.2.2 Provider Type Classification

Provider type classification in the MPC is critically important operationally for several reasons. Because Hospital events are likely to be associated with high expenditures, it is important to track provider type participation to assure that Hospital providers are responsive to the survey. Hospitals are often complex environments, especially for data collection projects, and thus the MPC data collection instruments are designed to assist the data collection staff in dealing with multiple points of contact within the Hospital and with potentially more complicated medical records and patient account information. The MPC Hospital data collection forms are also designed to facilitate the collection of SBD information associated with Hospital events.

Provider type was assigned at both the pair level and the provider level. The initial provider type for the pair was assigned during the HC interview when the household respondent identifies the type of medical events associated with a medical provider. During sample processing, the household provider type is updated. First, labs and dialysis centers, VAproviders, imaging centers, and surgery centers are assigned a Hospital provider type. Second, providers are assigned a Hospital provider type if they were in a Hospital contact group in the previous wave.

Note that the provider type assigned during the HC could have been incorrect because of a household respondent's misunderstanding about a provider's status. Typically, this occurred when a household respondent confused Hospital and Office-Based Doctors. Efforts were made to correct the classification during sample preparation and during the field period.

Following the sorting of provider pairs into contact groups, RTI reviewed the composition of contact groups to see if provider classification at the pair level was consistent within contact group. Inconsistencies, such as an OBD pair in a Hospital contact group, were resolved by creating a new contact group, so that all providers within a contact groups were consistent.

In addition, during data collection, staff periodically learned that the provider type was incorrect and the field was updated so that the appropriate event form could be administered. The most common change was to a Hospital provider from another provider type, typically an OBD provider. This provider type change was important so that the appropriate Hospital Event Form could be used to collect SBD information. Updating provider type was uncommon among other provider types.

As a result of such provider type changes during sample preparation and during data collection, in the 2019 MPC the count of Hospital pairs increased by 1,613 pairs, an increase of 16% between the count of Hospital pairs in the HC sample and the count at the close of the field period. Among changes to Hospital provider, 76% occurred during sample preparation and 24% during data collection. The overall count of Home Health pairs increased by 47, an increase of approximately 5%. The overall count of Institution pairs stayed the same and the overall count of OBD pairs decreased by 1661 (7.3%).

Return to Table of Contents

2.2.3 Priority Code

A priority code was attached to both providers and person/provider pairs. High priority cases include patients or providers expected to be associated with high costs. These priority cases were closely tracked and monitored during MPC data collection using production reports that track the progress of completing these priority cases. Priority flags were attached at the person level to ensure that contact groups with patients having priority flags were given priority by the data collection staff when working MPC cases. Priority flags set at the person level were rolled up to the provider and contact group levels. A priority flag was set if the person met one or more of the following criteria:

Hospital stay or Home Health event
- Deceased
- Institutionalized in a healthcare facility
- Outpatient or office visit surgery.

If an SBD was identified in a high priority Hospital pair, the SBD pair was also coded as high priority.

Return to Table of Contents

2.2.4 Fielding the 2019 MPC Sample

The initial 2019 MPC sample (consisting of Hospital, Institution, OBD, Pharmacy, and Home Health pairs identified in the HC) was fielded in four waves, including a supplemental wave of primarily OBD pairs, following the receipt of each wave from Westat and AHRQ. Given the HC data collection procedures, it is possible for a pair to be included in more than one wave of the MPC sample. Before fielding each subsequent wave, the sample was reviewed to identify pairs that had been included in an earlier wave. When a pair in the new wave matched a pair from an earlier wave and the same event types were reported in both (or all three) waves, the pair was not fielded in the later wave. If different event types are reported, the case is reviewed to determine whether additional data collection is necessary. (Fielding the SBD sample is discussed in Section 3.1 below.)

Return to Table of Contents

2.3 Integrated Data Collection System

The MPC IDCS supported the 2019 MPC data collection and tracking requirements. Its main purposes were to:

- Manage and update the provider contact information
- Collect updated information via telephone, or hardcopy form into one central database
- Produce reports for project staff as well as AHRQ, updating data collection progress at the event, pair, and provider level
- Provide a secure model to contain information with RTI's Enhanced Security Network
- Produce data files for the matching process.

The IDCS consisted of two main systems. It is a Windows .Net MVVM based system that facilitated obtaining provider POCs, call scheduling, contact information, appointment times, and event/status information. This system was tightly integrated with Blaise based MEPS-MPC Event Forms for data capture either during telephone calls or record abstraction. The components of the IDCS are described in the following paragraphs.

Return to Table of Contents

2.3.1 Components of the Integrated Data Collection System

Case Management System (CMS)

The CMS provided oversight and control over the MPC sample by tracking pending and final disposition for individual cases and for the aggregate sample. For individual cases, the CMS tracked the completion of data collection by individual medical events, patients, providers and provider practices (contact groups), providing production supervisors and project staff a tool for measuring progress in completing the varied data collection units in the MPC. At the aggregate level, the CMS produced daily standard or customized reports to track performance of the data collection activity. The CMS was used to monitor production of cases completed via record abstraction as well as by telephone.

Contact Guide

The Contact Guide was programmed as an aid for recruiting providers across all provider types. The Contact Guide was used to record contact information for several points of contact within a provider organization (e.g., a group practice or Hospital) and results of each contact. The Contact Guide included the capability to generate packages of materials, including copies of the patient's signed AF that were then either faxed or mailed to providers. Starting with the 2017 cycle, a secure portal was also used for sending AF packets to providers and receiving scanned medical records from them. The Guide interacted with the CMS to prompt follow-up contacts with providers after an appropriate time (24 hours for faxed material or material sent via the webportal; 5 days for mailed material).

Event Forms

Event Forms were used for collecting information either during telephone calls with providers or by abstracting medical or patient account records. The Event Forms were designed to be adaptable to the particular format of medical and patient account records maintained by providers. The Event Forms featured edit checks on individual items and were also programmed to alert users to inconsistencies that may be resolved either with telephone respondents or by further investigation in hard copy records. As each Event Form was completed, it was checked for critical items and, if missing, the Form was flagged for follow-up.

Completion of Event Forms was tracked automatically in the CMS to record progress in completing information about medical events, patients, providers, and provider contact groups.

Control System

The Control System managed information flow among the CMS, Contact Guide, and Event Forms and triggered processes based on disposition codes. The Control System imported the provider sample files and arranged information about providers and patient into contact groups to facilitate provider recruiting efforts and data collection. Based on user-selected disposition codes or disposition codes generated automatically, the Control System updated the CMS with pending or final disposition codes. The Control System triggered the production of materials (including AFs) faxed, mailed, or sent via the webportal to providers. It notified data collection staff that these materials had been sent to providers and generated notices for follow-up.

Assignment Transfer

The Assignment Transfer System was used to re-assign cases among the data collection staff. Typically, this was used to reassign a reluctant provider to a more skilled negotiator on the data collection team or to balance and adjust workloads following staffing changes. Results of all previous call attempts or entered data were accessible to the new user.

Automated Fax/Email

Prior to data collection and using the contact information collected by the provider during initial contact, providers were sent (by fax, mail, or web portal) the following materials:

- Cover sheet
- Cover letter providing general information about the study from the U.S. Department of Health and Human Services and AHRQ
- Brochure that addresses commonly asked questions about the MEPS-MPC study
- Patient List of all MEPS-HC respondents who reported receiving services from the provider
- AF for each patient on the Patient List
- Return form used by the respondent when they preferred to fax, mail, or send via the webportal their medical and patient account records for abstraction. The fax and webportal return cover sheet contained pre-printed information for faxing/transmitting records. The mail return form includes a pre-printed mailing label for the provider to send via mail.

Return to Table of Contents

2.4 Enhanced Security Network

All files containing personally identifiable information (PII) or protected l health information (PHI) were stored and managed within the FIPS-Moderate Enhanced Security Network (ESN), a network developed by RTI to meet the security requirements of NIST SP 800-53, Rev.4, *Recommended Security Controls for Federal Information Systems and Organizations* at the Moderate level (http://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-53r4.pdf). A key IDCS security feature provided access to the MEPS MPC desktop based on the login attributes assigned to individual users.

Return to Table of Contents

2.5 Recruiting and Training

Data collection specialists (DCSs) were the “front-line” staff charged with recruiting medical providers and abstracting medical event data from medical and payment records. Abstracting this information could be completed either over the telephone in interviews with provider staff or by abstracting records sent in by providers. Separate training modules were administered to emphasize the different skills necessary to complete data collection in either mode. Although some DCSs developed expertise in either one or the other mode, many DCSs were cross-trained for either telephone or records abstraction methods.

Return to Table of Contents

3. Data Collection

In the 2019 MPC, the project team continued to follow a core protocol for collecting information from providers. The protocol was customized in the Event Forms to address the unique challenges of each provider type. Project procedures were designed to make data collection as efficient as possible for the providers and DCSs.

As noted in Section 2.1, the pairs in the sample files were sorted by provider. In addition, providers who appeared to work in the same practice were sorted into contact groups to minimize the number of contact attempts with individual providers.

As part of the initial communication with each contact group, the DCS identified appropriate individuals as points of contact (POCs) to facilitate data collection completion. The Contact Guide was designed to enable DCS staff to record the outcome of each contact attempt and to give supervisors and project staff the ability to review the provider group contact history prior to subsequent contact attempts. DCSs were assigned a set of provider contact groups so that they could establish rapport with contacts in each provider group. If any cooperation or staffing issues arose, cases were reassigned to refusal converters or another DCS. During initial contacts, DCSs performed several tasks:

- Introduced the study
- Confirmed the provider groupings in the initial assignment
- Identified the provider staff who could fulfill the requests
- Obtained fax numbers, addresses, or emails for sending project materials
- Negotiated the manner in which data collection would proceed
- Determined whether the facility charged a fee for providing records.

Depending on the size and complexity of the provider practice, these tasks may have been completed in a single call or over several calls with different points of contact.

Data collection experienced both external and internal delays in the 2019 cycle as a result of the COVID-19 pandemic. Upon transitioning to remote data collection, longer turnaround times for requested records and difficulty reaching POCs were obstacles that impacted the results of the data collection effort.

Return to Table of Contents

3.1 Provider Recruitment and Data Collection Procedures

While the MPC includes data collection procedures common to all the provider types, each provider type also included unique features and specific procedures DCS are required to follow. The sections below describe the MPC data collection protocols and procedures for each provider type.

Return to Table of Contents

3.1.1 Hospitals

Data collection procedures were designed to be flexible in adapting to particular situations in provider facilities while maintaining consistency in the data collected. DCSs typically contacted three Hospital departments: medical records, patient accounts, and the administrative office. After the Hospital received a provider information packet, the DCS re-contacted the medical records department. Because of the length and complexity of Hospital records and because Hospital providers were often associated with multiple pairs, sending records for abstraction by RTI was standard protocol. In a small percentage of cases (about 9% of medical records and 16% of patient accounts, see Table 3-1) was collected by telephone. This mode was also a preference so that records were available for quality assurance purposes.

Four key pieces of information were obtained from the Hospital medical records:

- Date(s) of service
- Event type (ER, outpatient, inpatient)
- Diagnoses (ICD-10 codes), and
- Names and specialties of any health professionals who saw the patient during the Hospital event and who charged for services separately from the Hospital's billing record (SBDs).

Concurrent with the request for this information, the DCS also contacted the patient accounts department to collect the services provided, charges, and sources and amounts of payment for each event identified. Finally, after records abstraction was completed, a DCS contacted the Hospital's administrative offices (AO) to obtain the billing status of each health professional identified by the medical records and contact information for confirmed SBDs.

The data collection period for the Hospital provider type was extended in the 2019 cycle (2/3/20-10/23/20) due to the COVID-19 challenges experienced during this timeframe, for a total of 38 weeks, one week longer than the 37 weeks that has been the norm in cycles prior to 2019. Detailed dates for the 2016-2019 data collection periods can be found in Table 3-2.

Return to Table of Contents

3.1.2 Institutions

The procedures for Institutional care settings were similar to that for Hospital. The Institution sample consisted of long-term healthcare facilities, such as skilled nursing or rehabilitation facilities. Non-profit organizations are excluded.

Return to Table of Contents

3.1.3 Office Based Doctors (OBDs)

Compared with Hospital providers, the information required from OBD practices was often less complicated. In addition, OBDs were typically associated with fewer pairs than Hospital providers. For both reasons, OBD data collection was more amenable to telephone data collection and DCSs encouraged OBD providers to give information during the telephone contact when they had few patient records or only a few events to report . The Contact Guide was designed to factor in OBDs who use off-site billing services. DCSs were trained to collect information from off-site billing services during their contacts.

Return to Table of Contents

3.1.4 Home Health Providers

Data collection for Home Health providers followed the same basic protocol as the OBD sample. In certain cases, the DCSs contacted social service agencies or corporate offices in order to locate the necessary records. The Home Health Event Form was programmed to conform to Medicare Home Health Prospective Payment System. The system allowed the option of collecting payment data in 2-month or 1-month time frames as appropriate.

Return to Table of Contents

3.1.5 Pharmacy

For small retail Pharmacies unassociated with a chain, and for Pharmacies associated with small chains, the DCS contacted the Pharmacy to explain the study's purpose and determine if patient profiles were available. If they were, the DCS verified that the profile contained required data elements. If patient profiles were not available or if the profiles did not contain all of the required data, the DCS collected the information by telephone or requested supplemental reports from the pharmacist. Pharmacy data were received in any format including hardcopy patient profiles, electronic files with patient profile data, and/or collecting or supplementing the profiles by telephone data collection.

For large retail Pharmacy chains, individual pharmacies were grouped by chain using a unique code. Historical contact information from earlier data collection years was reviewed for each chain to develop a contact approach. Specially trained negotiators followed up in one of two basic ways:

- If the corporate office preferred to collect data from the local stores, the data collection followed the small retail model. However, an endorsement from the corporate office was requested to be included with each contact packet.
- If the Corporate entity preferred the data request to be handled with a regional or central contact, the negotiator facilitated the most efficient method for data collection.

Return to Table of Contents

3.1.6 Separately Billing Doctors (SBDs)

Hospital, Institution, OBD, Home Health, and Pharmacy providers were all identified by household respondents during the HC. The balance of the MPC sample consisted of physicians (reported by Hospitals and Institutions) who provided services during a Hospital- or Institution-based event. These events often resulted in charges from providers who may or may not have direct patient contact (e.g., pathologists or radiologists) and whose fees may or may not have been included in the Hospital charge. These charges are a key

part of Hospital event costs, and this information can only be obtained from the MPC.

For all doctor names abstracted from the medical record, DCSs contacted the Hospital medical records or professional staffing department to confirm the SBD status. Either working with medical records personnel by telephone or from records, the DCS recorded each provider who provided any services and whose charge might not have been included in the Hospital charge. The DCS then contacted the Hospital's administrative office to verify that the SBD billed separately. If there was any possibility of a separate charge, the DCS obtained complete contact information and created a link within the IDCS to connect the Hospital provider, patient, event type, event date, and SBD. This link is referred to as a node, that is, a unique combination of Hospital, patient, event type, event date, and SBD provider.

Similar to prior MPC cycles, fielded SBD nodes were based on a priority status where higher priorities were expected to yield nodes more likely to be eligible and to be associated with higher charges. Physician's role, specialty, and location of service were used to define SBD fielding priority. In 2018 and earlier, three priority levels (High, Medium, and Low) were used. The priority was revised in 2019 and four levels (High, Medium, Low, and Extra Low) were assigned to the 2019 SBD nodes, as follows.

High priority was assigned when the physician's role was Active Physician/Providing Direct Care, Don't know, blank or missing, and the physician specialty and Hospital location of service was one of the following combinations:

- Anesthesiology or Surgery, with any location of service;
- General/Family Practice, Internal Medicine, Psychiatry, or missing specialty with Hospital Inpatient or Institution location of service; or
- OB/GYN or Pediatrics with Hospital Inpatient location of service

Medium priority was assigned when the physician's role was Active Physician/Providing Direct Care, Don't know, blank or missing and the physician specialty, location of service, and Hospital event CPT codes were one of the following combinations:

- OB/GYN or Pathology (excluding pathology with pathology CPT codes for the event only in the range 80000-84999), with Outpatient location of service;
- Other specialty with Emergency Room (ER), Hospital Inpatient, or Institution location of service;
- Pathology with Hospital Inpatient or Institution location of service,
- Pediatrics, Psychiatry, or missing specialty with ER location of service; or
- Radiology with any location of service;

Low priority was assigned when the physician's role was Active Physician/Providing Direct Care, Don't know, blank or missing and the physician specialty, location of service, and Hospital event CPT codes were one of the following combinations

- General/Family Practice or Internal Medicine, with ER or Outpatient location of service;
- Pediatrics, Psychiatry, Other specialty, missing specialty, or Pathology (with pathology CPT codes for the Hospital event in the range 80000-84999 only), with Outpatient location of service; or
- OB/GYN or Pathology with ER location of service

Low priority was also assigned for all other roles where the physician specialty was Surgery, Radiology, OB/GYN, or Anesthesiology.

Extra Low priority was assigned for all other roles and specialties (that is, the physician role was something other than Active Physician/Providing Direct Care, Don't know, blank or missing and the physician specialty was Pathologist, Internal Medicine, Psychiatry, Pediatrics, General/Family Practice, or Other).

These criteria for assigning priority status were applied to the 2019 MPC. However, due to the reduced number of completed Hospital pairs in the 2019 cycle, a smaller number of SBD nodes was fielded in 2019 compared to recent years. All High and Medium priority nodes and subsamples of the Low and Extra Low priority nodes were fielded. Low and Extra Low priority nodes were undersampled relative to the High and Medium priority nodes. The sample was constructed such that all nodes in a pair were fielded. Release of SBD pairs emphasized High priority nodes so that SBD providers and billing services would have ample time to respond. Three waves were used in the 2019 SBD cycle, though the timing of the first sample release was delayed, as was the start of the SBD production period, due to non-SBD data collection extensions. In the 2019 cycle, the SBD production period ran for 12 weeks (from 10/21/20 to 1/8/21), as opposed to the more typical range of 20-24 weeks, due to the COVID-19 challenges during the non-SBD data collection period. This primarily impacted SBD large provider work, which usually begins in late August to allow more lead time to obtain records from providers that have longer turnaround times for MPC requests. Detailed dates for the 2016-2019 data collection periods can be found in Table 3-2 of this deliverable..

Prior to SBD sample release and data collection a computer algorithm was used to identify instances of overlapping OBD and SBD providers. The OBD and SBD provider identification numbers were required to be the same in order to be considered a match by the computer algorithm. Four situations were considered (node counts are from the set of nodes selected for data collection, that is, those that were held from data collection because they were Low priority are not included in the counts reported in this section):

1. Direct node match—As in recent previous cycles, nodes were filled using the overlap pair with an S-code event (that is, an inpatient, ER, or outpatient event) on the same

date at the node. The following situations were also used to automatically link OBD and SBD nodes:

a. Events where the OBD location of service is a physician's office and the SBD location is outpatient, dates of service are the same, and charges and payments are not the same;
b. Events where the SBD location is an inpatient and the OBD date of service is within the range of the inpatient stay (excluding first and last day); and
c. Events where the SBD location of service is either outpatient or inpatient, the CPT4 codes for the OBD are associated with Hospital events and are not used in ambulatory settings, and the date of service is either the same for an outpatient event or within the date range of the inpatient event, including the first and last day of the stay.

In the 2019 Cycle, 68 nodes were identified as a direct node match.

2. Systematic coding of obvious disavowal nodes—For a large proportion of the nodes associated with an OBD pair with various types of specialty services with a date close to or the same as an OBD event, often the role of the SBD is Referring or copied doc. Some examples of this situation are an office visit with an OB/GYN followed closely by a mammogram; an office visit with an internist preceded by a blood panel; and an office visit with an orthopedist followed closely by an x-ray.

   The specifications used to identify the disavowal nodes were as follows:

   - If the OBD overlap pair does not have an S-code event within 2 weeks plus or minus of the SBD node, and
   - the node is either radiology or pathology (as defined by CPT4 codes that begin with a "7" or "8" or any BETOS code in categories 3-Imaging or 4-Tests), and
   - there is a regular OBD event (defined by CPT4 code that begins with a 99 or a BETOS code of M1A or M1B) within 2 weeks plus or minus of the SBD node (i.e., within 14 days before or 14 days after).

   The node was automatically coded as a referring/copied doc when all three of these conditions were met.

   If all OBD events have location of service as physician office, all OBD events have CPT 4 codes that are part of the evaluation/management series, and the SBD role is anything other than department head/follow-up, the SBD was coded as a referring/copied doc.

   If all OBD events have location of service as physician office, all OBD events have CPT 4 codes that are part of the evaluation/management series, and the SBD role is specified as department head/follow-up-doc, then the SBD node was coded as department head/follow-up doc. In the 2019 Cycle, 59 nodes were coded as disavowals.

3. If the overlap pair was a refusal during OBD data collection, the SBD node was automatically coded as a refusal. In the 2019 Cycle, 6 nodes were identified as refusals based on a match to a refusing OBD.
4. Nodes were also reviewed to determine if any were abstracted in error. The logic for identifying these was when the OBD location of service is physician's office, the SBD location is outpatient, the dates of services are the same, and the charges and payments are identical. In the 2019 Cycle, no nodes were identified as abstracted in error.

Remaining nodes where the SBDs and OBDs were associated with different provider IDs were reviewed by senior project staff to determine whether to field the node or not and, if not fielded, the code to describe the node's status. In the 2019 Cycle, 767 nodes were reviewed and, of these, 245 (31.9%) were not fielded and resolved as follows:

- Included in an OBD, that is, a direct match that was not identified in the automated process (113 nodes)
- Disavowal (126 nodes)
  - Type 2 Disavowal (0 nodes)
  - Referred or copied physician (121 nodes)
  - Department head or follow-up (5 nodes)
- Abstracted in error (3 nodes)
- Included in another SBD (3 nodes)
- Included in Hospital bill (0 nodes)
- Node is part of a global fee where charges were captured on another date, that is, node is a leaf. (0 nodes)

These procedures for identifying SBD-OBD overlap in the manual review were similar to those used for the automated review, except the manual review looked across the entire SBD contact group (instead of being restricted to OBD and SBD providers with the same provider identification number). In addition to these rules, the SBD was coded as abstracted in error if the SBD should not have been recorded during the Hospital stay because the specialty (such as "nurse") was included in the Hospital event charges.

As a step in the preparation of the SBD sample, we attempted to match all SBD providers to a National Provider Identifier (NPI) in order to assign an identification number. In many instances, the provider's NPI was included in the records and was abstracted into the Event Form. If the NPI was not in the record, DCSs looked up the number in the NPI Registry. SBD providers that could not be associated with an NPI were assigned a unique identifier in the same format as the NPI. The NPI Registry includes both individual and organizational providers.

Return to Table of Contents

3.2 Data Abstraction

Once the provider acknowledged receipt of the AFs, the DCS either collected information over the telephone through electronic Event Forms specific to each provider type or made arrangements to receive medical records and patient account information, either by hardcopy or electronically.

Prior to the pandemic when the abstractors worked on-site, hardcopy records were receipted, labeled, and assigned to abstractors. When the data collection staff transitioned to a remote work enviornment, the abstraction work was performed using electronic PDF files of the records. Two new tools were developed to accoomodate the abstraction of the electronic PDF records: one allowed abstractors to highlight the PDF files and another was an electronic Abstraction Notes Form (eANF) used for entering abstraction notes. Records that arrived via hardcopy were scanned and converted to PDF format to allow for remote abstraction. Abstractors were able to access the PDF records and highlight and save the abstracted version for future review. Once all data elements were successfully highlighted, the abstractor could proceed with keying the data elements into the newly developed eANF. The data abstracted into the ANF were automatically loaded into the Blaise Event Forms for manual review and verification by the abstractor.

Table 3-1 displays the proportion of participating Hospital, OBD, and SBD contact groups[2] that elected to participate by sending in medical records and patient account information for abstraction. Reflecting the preference for collecting Hospital records for abstraction, in the 2019 Cycle most Hospital contact groups, 91.1%, provided medical records for abstraction and 83.6% provided patient account records. In both OBD and SBD contact groups, protocols concerning collecting data by telephone were more flexible than in Hospitals. Close to half (46.1%) of OBD contact groups provided records and 28.2% of SBD contact groups provided records.

The distribution for the 2019 Cycle reflects emphasis on Hospital records abstraction, and on telephone data collection for OBDs. Because Hospital records tend to be lengthy and because of the number of patients involved in the record requests, Hospitals generally prefer to participate in the MPC by sending records rather than providing data over the telephone. This is also beneficial from a data quality perspective because the Hospital protocol can result in a great deal of information and availability of records for review is helpful to assure comprehensive and accurate abstraction. In the 2019 cycle, the data collection team had to exhibit more flexibility with regard to completing eligible Hospital pairs by phone, given the constraints some POCs faced with availability of data and access to systems when working remotely.

Information obtained from OBD and SBD contact groups is more straightforward and more amenable to telephone data collection which can be less burdensome to providers as well as a more efficient mode for uncomplicated billing situations.

Return to Table of Contents

Table 3-1. Percent of Participating Contact Groups that Provided Records 2016 - 2019

Provider Type	Participating Contact Groups	Groups Providing Records	Percent
2016			
Hospital—Medical Records	3,009	2,694	89.5%
Hospital—Patient Accounts	3,009	2,370	78.8%
Office-Based Doctors	8,824	3,929	44.5%
Separately Billing Doctors	5,100	1,736	34.0%
2017			
Hospital—Medical Records	3,548	3,287	92.6%
Hospital—Patient Accounts	3,548	2,856	80.5%
Office-Based Doctors	10,624	4,801	45.2%
Separately Billing Doctors	3,719	1,136	30.5%
2018			
Hospital—Medical Records	3,503	3,245	92.6%
Hospital—Patient Accounts	3,503	2,838	81.0%
Office-Based Doctors	9,256	4,374	47.3%
Separately Billing Doctors	3,634	1,126	31.0%
2019			

Hospital—Medical Records	2,296	2,092	91.1%
Hospital—Patient Accounts	2,296	1,920	83.6%
Office-Based Doctors	9,091	4,187	46.1%
Separately Billing Doctors	2,622	740	28.2%

Return to Table of Contents

3.3 Coding Text Fields Collected in the 2019 MPC

Standard coding systems supported the coding of free text for the following types data:

- Medical Conditions—verbatim text coded to the International Classification of Disease (ICD-10); additional classifications of these codes employed Clinical Software Coding (CCSMATCH) during final file preparations
- Medical Procedures and Supplies—verbatim text coded to Berenson-Eggers Type of Service (BETOS) codes
- Non-Pharmacy Sources of Payment—coded to AHRQ-supplied classification (SOP)
- Pharmacy Sources of Payment—coded to AHRQ-supplied classification (RxSOP)
- Prescribed Medicines—verbatim text coded to the General Product Identifier (GPI-9)
- Separately Billing Doctors—verbatim text recording name, practice, and location information was used to assign an identifier from the National Provider Identifier Registry (NPI)
- SBD Specialty—Specialties of SBD were coded to a specialty classification
- Location of Service—coded.

Sources of payment (SOP) and SBD information were coded by RTI staff using coding schemes developed and used in previous MPC cycles; sources of payment data (RxSOP) for Pharmacy was coded by SSS staff. RTI also completed location of service and CCSMATCH coding as part of file preparations prior to matching. Coding of text descriptions for conditions (ICD-10), and procedures and supplies (BETOS) was completed by Health Care Resolution Service (HCRS), a firm in Laurel, MD, with extensive medical coding experience. SSS was responsible for coding prescribed drugs. More detailed discussions may be found in *Deliverable OP3-30 2019 Coding Plan and Deliverable OP3-28 2019 MPC Plan for Matching MPC to HC Events.*

Return to Table of Contents

3.4 Data Collection Schedule

Table 3-2 summarizes the 2016-2019 MPC data collection schedules. Typically, the MPC sample is provided from the HC in three waves and fielded as such; a supplementary wave of primarily OBD sample was released in the 2019 cycle, for a total of four waves of sample that were released for MPC production. Since the 2013 MPC cycle the SBD sample, developed during MPC data collection, has been fielded in four waves. However, given the workflow of Hospital data collection during the 2019 cycle, only three SBD sample waves were fielded to ensure an adequate amount of sample available for processing at each wave and to correspond with the delayed timing of the SBD data collection cycle.

Table 3-2. MPC Data Collection Schedule 2016-2019

Provider Type	Start of first MPC wave	Start of last MPC Wave	End of MPC data collection	Number of Waves	Total Weeks
2016					
Hospital	02/01/2017	08/01/2017	10/13/2017	3	37
Office-Based Doctors	02/01/2017	08/01/2017	10/13/2017	3	37
Institution	03/08/2017	08/07/2017	10/13/2017	3	32
Home Health Agencies	03/08/2017	08/07/2017	10/13/2017	3	32
Pharmacies	02/01/2017	07/24/2017	11/03/2107	3	40
SBDs	08/01/2017	11/16/2017	01/12/2018	4	24

2017					
Hospital	02/01/2018	07/30/2018	10/12/2018	3	37
Office-Based Doctors	02/06/2018	07/30/2018	10/12/2018	3	36
Institution	03/08/2018	07/25/2018	10/12/2018	3	32
Home Health Agencies	03/02/2018	07/25/2018	10/12/2018	3	33
Pharmacies	01/29/2018	07/17/2018	10/24/2018	3	39
SBDs	08/27/2018	11/20/2018	01/11/2019	4	20
2018					
Hospital	02/01/2019	07/23/2019	10/11/2019	3	37
Office-Based Doctors	02/01/2019	07/23/2019	10/11/2019	3	36
Institution	03/04/2019	07/25/2019	10/11/2019	3	32
Home Health Agencies	2/27/2019	07/25/2019	10/11/2019	3	33
Pharmacies	01/28/2019	07/18/2019	10/23/2019	3	39
SBDs	08/22/2019	11/15/2019	01/10/2020	3	20
2019					
Hospital	02/03/2020	07/30/2020	10/23/2020	3	38
Office-Based Doctors	02/03/2020	07/30/2020	10/16/2020	4	37
Institution	03/04/2020	08/04/2020	10/16/2020	3	33
Home Health Agencies	03/05/2020	08/04/2020	10/16/2020	3	33
Pharmacies	01/29/2020	07/24/2020	10/30/2020	3	39
SBDs	10/21/2020	12/18/2020	01/08/2021	3	12

Following data collection, additional editing of the files preceded file preparation and matching tasks. These steps have been implemented to assure data quality and consistency in the data across survey years.

Return to Table of Contents

3.5 Data Collection Results

3.5.1 Completion Rates

The MPC applies the following criteria to assess or determine whether an event is complete or partially complete (see Appendix C for a full discussion of critical items). The final event level codes determine the final pair disposition.

Criteria for Non-Pharmacy Providers. In order for a pair to be considered partially complete, at least one event in that pair had to have a valid response for all critical items, that is, no critical item in that event could contain a don't know, refusal, or missing response entry. If one critical item in the event had a don't know, refusal, or missing entry, the event was assigned a new disposition code "final critical item missing." If all the events in a pair had this new disposition, the pair was considered a partial complete and became eligible for matching. As pairs roll up to the provider level, some providers that would have a final disposition of non-response under the former criteria would have a final disposition of partial complete under the revised criteria.

Criteria for Pharmacy Providers. As with other providers, for a pair to be considered partially completed, it must have included an event where critical items contained valid data. Three additional categories took account of response to three data elements: Patient Amount, Third Party Payment Source, and Third Party Payment Amount.

- If Patient Amount was missing but at least one of the other two variables was complete, the event was assigned to Partial Category A.
- If Patient Amount was complete, but either of the other two variables was missing, the event was assigned to Partial Category B.

- If both Patient Amount and Third Party Payment Source were complete but Third Party Payment Amount was missing, the event was assigned to Partial Category C.

The 2019 MPC cycle target completion rates were the same as the 2018 goals, with pair target completion rates of 88% for Hospital, 80% for OBD, 90% for HMO, Home Health, and Institution, and 85% for Pharmacy providers. The SBD completion rate goal was 60% of fielded SBD nodes, which was estimated at baseline to be 12,000 completed nodes. Table 3-3 displays the provider-level results and Table 3-4 the pair-level results for the 2016 through 2019 MPC cycles. Due to the unique circumstances presented by the COVID-19 pandemic, completion rates across all provider types declined in the 2019 cycle as compared to recent cycles. With many facilities in the U.S. transitioning to a remote work model in March-April 2020, COVID-19 impacts to data collection were significant, and took place relatively early in the cycle, making progress towards existing goals especially challenging. Additionally, eligibility rates were higher than projected, resulting in a need to produce more completes to reach the target completion rates. Eligibility rates increased largely as a result of POCs being difficult to reach for confirmation of eligibility or ineligibility.

The final pair completion rates are shown in Table 3-4. Deliverable *OP3-15 Evaluation of 2019 Data Collection Plans* addresses key factors that likely contributed to the actual 2019 cycle completion rates.

Return to Table of Contents

Table 3-3. Provider-Level Completion Rates, MPC 2016—2019

Provider	Initial sample after subsampling	Final eligible sample	Completion rate	Refusal rate	Other nonresponse rate[3]
2016					
Hospitals	6,609	6,170	0.861	0.024	0.116
Office-based providers	14,055	12,903	0.869	0.020	0.111
HMOs	375	323	0.833	0.000	0.167
Home care providers	908	763	0.847	0.007	0.147
Institutions	131	128	0.906	0.000	0.094
SBDs	34,627	22,573	0.549	0.036	0.415
Pharmacies	8,457	7,637	0.906	0.001	0.093
Total	65,162	50,497			
2017					
Hospitals	7,026	6,551	0.879	0.006	0.115
Office-based providers	16,839	15,105	0.824	0.007	0.168
HMOs	369	323	0.910	0.000	0.090
Home care providers	858	713	0.851	0.000	0.149
Institutions	168	161	0.913	0.000	0.087
SBDs	20,936	12,825	0.670	0.000	0.330
Pharmacies	10,531	9,324	0.541	0.000	0.128
Total	56,727	45,002			
2018					
Hospitals	7,970	7,321	0.881	0.005	0.114
Office-based providers	15,449	13,677	0.820	0.003	0.177
HMOs	331	299	0.890	0.000	0.110
Home care providers	952	838	0.850	0.001	0.149
Institutions	184	166	0.910	0.000	0.090

SBDs	20,002	11,827	0.682	0.001	0.317
Pharmacies	12,763	11,234	0.896	0.013	0.091
Total	57,651	45,362			
2019					
Hospitals	6,948	6,595	0.584	0.009	0.407
Office-based providers	17,537	16,000	0.658	0.004	0.339
HMOs	341	308	0.711	0.000	0.289
Home care providers	891	815	0.804	0.000	0.196
Institutions	142	131	0.824	0.000	0.176
SBDs	16,602	12,162	0.474	0.002	0.524
Pharmacies	8,969	7,998	0.810	0.007	0.184
Total	51,430	44,009			

3 “Other nonresponse” includes unlocatable, type 1 disavowal, and other nonresponse.

Return to Table of Contents

Table 3-4. Pair-level Completion Rates, MPC 2016—2019

Patient-provider pair	Initial sample after subsampling	Final eligible sample	Completion rate	Refusal rate	Other nonresponse rate[5]
2016					
Hospitals	11,088	10,162	0.851	0.081	0.068
Office-based providers	18,445	16,927	0.861	0.070	0.069
HMOs	905	790	0.766	-	0.234
Home care providers	984	817	0.841	0.111	0.048
Institutions	134	131	0.908	0.046	0.046
SBDs	42,951	27,490	0.539	0.050	0.412
Pharmacies	20,218	17,366	0.850	0.067	0.083
Total	94,725	73,683			
2017					
Hospitals	11,059	10,171	0.870	0.048	0.082
Office-based providers	19,382	17,370	0.820	0.036	0.144
HMOs	704	577	0.896	0.000	0.104
Home care providers	920	768	0.850	0.073	0.077
Institutions	173	166	0.916	0.018	0.066
SBDs	23,603	14,437	0.661	0.072	0.267
Pharmacies	19,262	16,735	0.858	0.025	0.117
Total	75,103	60,224			
2018					

Hospitals	12,979	11,689	0.877	0.028	0.095
Office-based providers	18,256	16,166	0.824	0.036	0.140
HMOs	576	490	0.855	0.043	0.102
Home care providers	1,032	906	0.849	0.044	0.107
Institutions	191	169	0.905	0.018	0.077
SBDs	22,775	13,313	0.680	0.050	0.270
Pharmacies	20,872	17,744	0.878	0.050	0.072
Total	76,681	60,477			
2019					
Hospitals	11,473	10,665	0.572	0.032	0.396
Office-based providers	21,458	19,527	0.653	0.024	0.323
HMOs	565	484	0.702	0.000	0.298
Home care providers	959	880	0.802	0.026	0.172
Institutions	144	133	0.820	0.053	0.128
SBDs	19,283	14,091	0.473	0.046	0.481
Pharmacies	18,263	15,917	0.771	0.062	0.167
Total	72,145	61,697			

5 “Other nonresponse” includes unlocatable, type 1 disavowal, and other nonresponse.

Table 3-5 presents SBD node-level results. A total of 25,793 nodes were released for data collection in the 2019 cycle. Of these,30.8% were confirmed as ineligible nodes (that is, no charges were recorded for that provider). Of the remaining 17,341 nodes (69.2% of the total), additional information was obtained for 7,544 nodes for a completion rate of 39.73%. Among eligible High priority nodes, the completion rate was 46.26% (n =1,907); among Medium priority nodes, the completion rate was 46.49% (n =4,975); among Low priority nodes, 29.07% (n =614); and among the Extra Low priority nodes, 12.66% (n=48).

Return to Table of Contents

Table 3-5. SBD Node-Level Completion Rate, MPC 2016 – 2019

	2016	**2017**	**2018**	**2019**
Total nodes	66,614	34,990	35,994	25,793
Ineligible nodes	30,386	16,641	18,531	8,452
Eligible nodes	36,228	18,349	17,463	17,341
Completed nodes	17,381	10,982	10,713	7,544
Nonresponse[7]	18,847	7,367	6,750	9,797
Eligibility rate	54.38%	52.44%	48.52%	69.20%
Completion rate	47.98%	59.85%	61.35%	39.73%

7 In the reports for previous cycles, nodes with a pending disposition at the close of data collection (empty nodes) were reported separately. In this table, nodes with final dispositions of "pending" and "refusal" are combined into the "Nonresponse" row.

Return to Table of Contents

3.5.2 Refusal Conversion

Table 3-6 provides additional information about refusal conversion for the 2016-2019 MPC cycles. The analytic unit in this table is contact group, an operational unit which may consist of several providers who share facilities for medicals records and billing (e.g., a medical group practice with several physicians or a healthcare system with several hospitals). The final column in this table displays the percent of initial refusals that were converted to a participating or partially participating contact group (i.e., provided all or some of the requested information). The 2019 MPC cycle refusal conversion rates by provider type were: 34.7% for Hospital, 30.4% for OBD, 6.7% for Pharmacy, 16.3% for Home Health, and 35.7% for SBD.

Return to Table of Contents

Table 3-6. Refusal Conversion Outcomes: MPC 2016 - 2019

Contact Group Provider Type	Initial Sample[8]	Ever coded Refusal			Ineligible		Final Refusal		Other Nonresponse		Complete	
	N	N	Pct of Initial Sample	Pct of Ever Coded Refusal	N	Pct of Ever Coded Refusal	N	Pct of Ever Coded Refusal	N	Pct of Ever Coded Refusal	N	Pct of Ever Coded Refusal
2016												
Hospital	3,446	421	12.2%	100.0%	9	2.1%	54	12.8%	83	19.7%	275	65.3%
Office-based	10,567	1019	9.6%	100.0%	36	3.5%	179	17.6%	363	35.6%	441	43.3%
Pharmacy	2,262	108	4.8%	100.0%	6	5.6%	1	0.9%	59	54.6%	42	38.9%
Home Health	10,567	960	9.1%	100.0%	61	6.4%	329	34.3%	357	37.2%	213	22.2%
SBDs	842	83	9.9%	100.0%	10	12.0%	2	2.4%	53	63.9%	18	21.7%
2017												
Hospital	4,085	377	9.2%	100%	11	2.9%	4	1.0%	106	28.1%	256	67.9%
Office-based	13,500	1009	7.4%	100%	26	2.6%	55	5.4%	612	60.6%	316	31.3%
Pharmacy	2,437	91	3.7%	100%	9	9.9%			61	67.0%	21	23.1%
Home Health	800	76	9.5%	100%	20	2.6%			39	51.3%	17	22.4%
SBDs	9,663	497	5.1%	100%	5	1.0%			369	74.2%	93	18.7%
2018												
Hospital	4,090	423	10.3%	100.0%	16	3.8%	3	0.7%	128	30.3%	276	65.2%
Office-based	12,331	970	7.9%	100.0%	80	8.2%	11	1.1%	554	57.1%	325	33.5%
Pharmacy	2,361	127	5.4%	100.0%	20	15.7%	41	32.3%	35	27.6%	31	24.4%
Home Health	10,258	524	5.1%	100.0%	42	8.0%	7	1.3%	334	63.7%	141	26.9%
SBDs	913	54	5.9%	100.0%	9	16.7%	0	0.0%	33	61.1%	12	22.2%
2019												
Hospital	3,951	300	7.6%	100.0%	6	2.0%	28	9.3%	162	54.0%	104	34.7%
Office-based	14,369	1028	7.2%	100.0%	31	3.0%	3	0.3%	682	66.3%	312	30.4%
Pharmacy	2,039	104	5.1%	100.0%	2	1.9%	31	29.8%	64	61.5%	7	6.7%
Home Health	7,760	546	7.0%	100.0%	48	8.8%	2	0.4%	407	74.5%	89	16.3%
SBDs	871	28	3.2%	100.0%	0	0.0%	0	0.0%	18	64.3%	10	35.7%

[8] Note counts in this table are of contact groups, not individual providers.

Return to Table of Contents

3.5.3 Components of MPC Data Collection

Figures 3-1 through 3-4 display historical MPC data collection information at the provider level for Hospitals, OBDs, SBDs, and Pharmacies (corporate and non-corporate). Each graph displays:

- Provider sample size (eligible providers), as a proportion of the eligible sample in 2002
- Provider ineligibility rate, expressed as the complement of the eligibility rate (1 – (Eligibility Rate)) for presentation purposes,
- Final provider completion rate, and
- Final provider refusal rate.

For Hospitals, (Figure 3-1), the sample size, completion rate, and the ineligibility rate decreased from the previous year, and the refusal rate increased slightly.

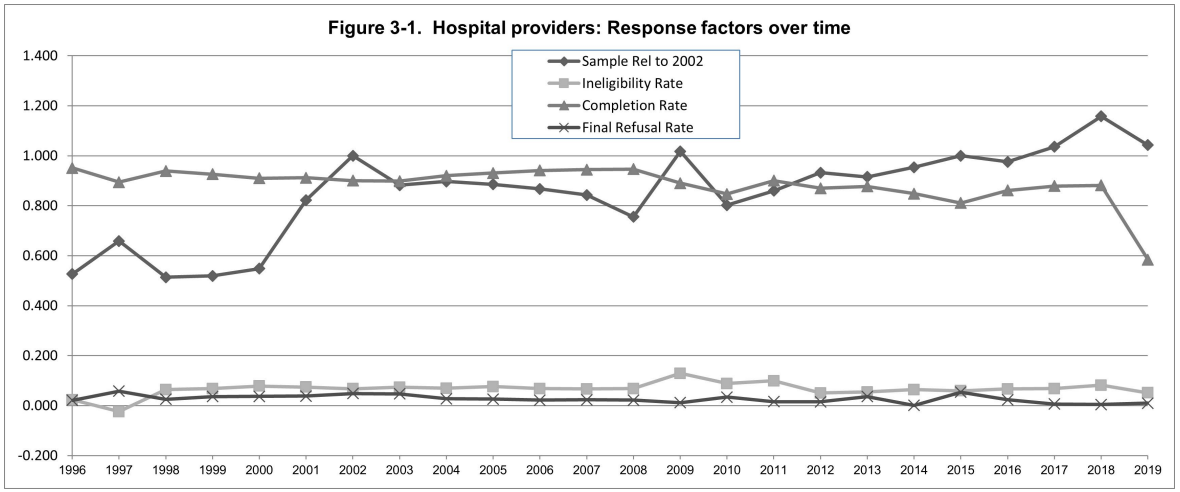
For Office-Based Doctors (Figure 3-2), the total sample increased from the previous year (due to the release of supplemental OBD sample replicates), the ineligibility rate and completion rate decreased, and the refusal rate increased slightly.

For Separately-Billing Doctors (Figure 3-3), even though the number of providers initially released smaller than the previous year, the sample size of eligible providers was slightly larger because the eligibility rate was much higher. The completion rate decreased, the ineligibility rate increased, and the refusal rate also increased slightly.

For Pharmacies (Figure 3-4), the sample size was smaller than the previous year and the ineligibility rate, completion rate, and refusal rate all decreased from the prior cycle.

Return to Table of Contents

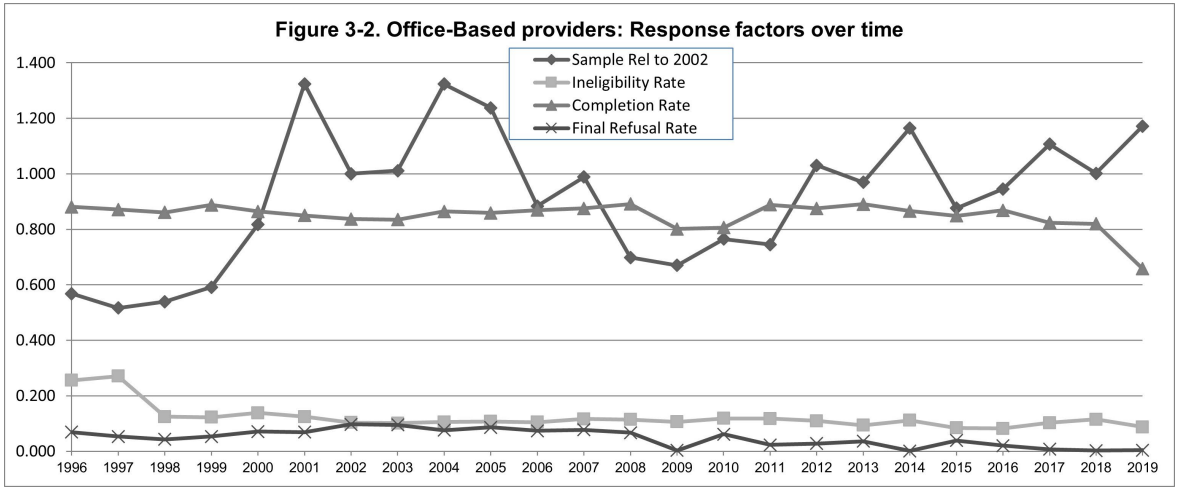
Figure 3-1: Hospital providers - Response factors over time



Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Sample Rel to 2002	0.526	0.658	0.513	0.519	0.548	0.822	1.000	0.882	0.897	0.885	0.867	0.842	0.755	1.018	0.802	0.859	0.932	0.915	0.954	1.000	0.975	1.035	1.157	1.043
Ineligibility Rate	0.023	-0.024	0.064	0.068	0.078	0.074	0.067	0.074	0.069	0.076	0.068	0.067	0.068	0.129	0.088	0.099	0.050	0.054	0.064	0.059	0.066	0.068	0.081	0.051
Completion Rate	0.951	0.894	0.939	0.926	0.910	0.912	0.900	0.898	0.920	0.931	0.941	0.944	0.946	0.890	0.846	0.900	0.870	0.877	0.848	0.811	0.861	0.878	0.881	0.584
Final Refusal Rate	0.021	0.058	0.025	0.036	0.037	0.038	0.048	0.047	0.027	0.026	0.022	0.023	0.022	0.012	0.034	0.016	0.015	0.036	0.001	0.053	0.024	0.006	0.005	0.009

Return to Table of Contents

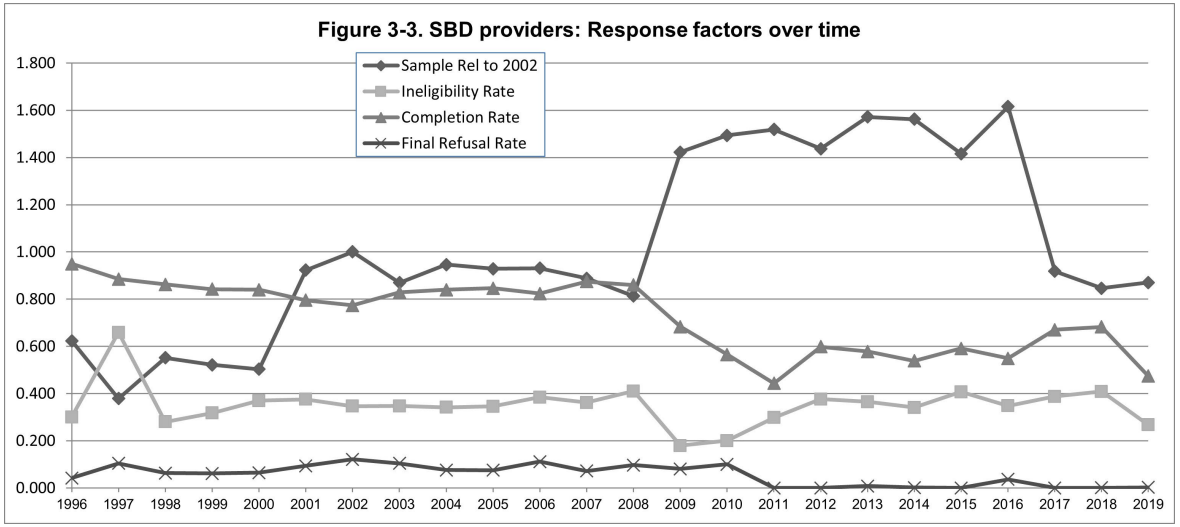
Figure 3-2: Office-Based providers - Response factors over time



Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Sample Rel to 2002	0.568	0.516	0.539	0.592	0.818	1.324	1.000	1.011	1.324	1.238	0.884	0.988	0.698	0.670	0.765	0.745	1.030	0.970	1.165	0.876	0.945	1.106	1.002	1.172
Ineligibility Rate	0.256	0.271	0.125	0.122	0.138	0.125	0.103	0.101	0.106	0.107	0.105	0.117	0.114	0.106	0.118	0.117	0.110	0.110	0.112	0.084	0.082	0.103	0.115	0.088
Completion Rate	0.881	0.871	0.861	0.888	0.864	0.850	0.837	0.835	0.864	0.859	0.869	0.875	0.891	0.801	0.806	0.889	0.876	0.890	0.865	0.849	0.869	0.824	0.820	0.658
Final Refusal Rate	0.069	0.053	0.043	0.053	0.071	0.069	0.097	0.095	0.076	0.086	0.074	0.077	0.067	0.003	0.062	0.023	0.028	0.036	0.001	0.039	0.020	0.007	0.00271	0.004

Return to Table of Contents

Figure 3-3: SBD providers - Response factors over time

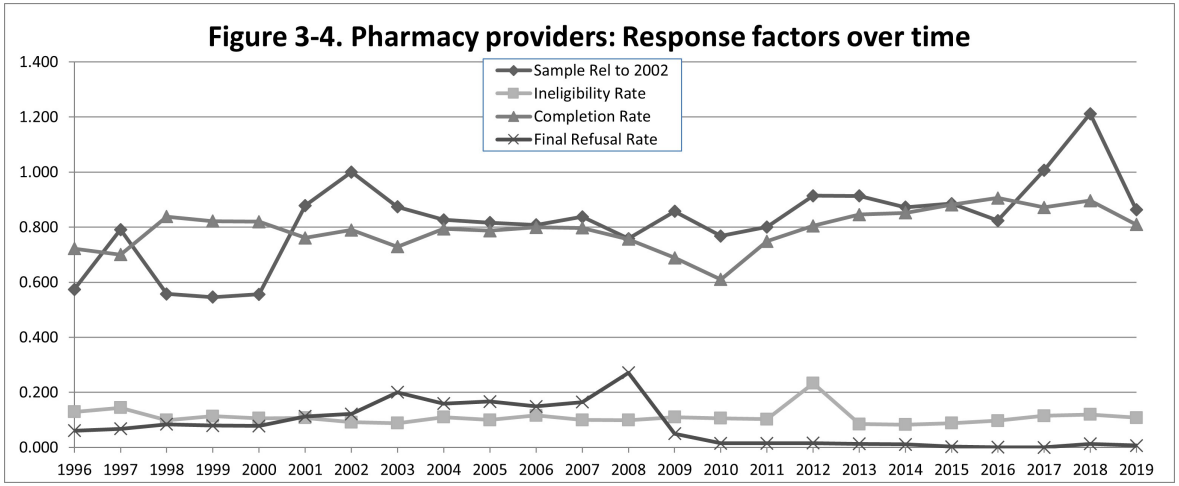


Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019

Sample Rel to 2002	0.623	0.379	0.551	0.521	0.503	0.922	1.000	0.870	0.946	0.928	0.931	0.888	0.813	1.422	1.493	1.518	1.437	1.572	1.562	1.416	1.615	0.917	0.846	0.870
Ineligibility Rate	0.300	0.659	0.280	0.318	0.370	0.376	0.346	0.347	0.342	0.345	0.384	0.361	0.410	0.179	0.200	0.298	0.376	0.365	0.340	0.407	0.348	0.387	0.409	0.267
Completion Rate	0.949	0.885	0.862	0.842	0.840	0.795	0.773	0.828	0.840	0.846	0.823	0.874	0.860	0.683	0.565	0.443	0.598	0.578	0.539	0.591	0.549	0.670	0.682	0.474
Final Refusal Rate	0.042	0.104	0.063	0.061	0.065	0.094	0.121	0.104	0.076	0.075	0.111	0.072	0.097	0.081	0.101	0.000	0.000	0.008	0.001	0.000	0.036	0.000	0.001	0.002

Return to Table of Contents

Figure 3-4: Pharmacy providers - Response factors over time



Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Sample Rel to 2002	0.574	0.791	0.558	0.546	0.556	0.878	1.000	0.874	0.827	0.817	0.808	0.837	0.758	0.858	0.768	0.801	0.914	0.913	0.872	0.885	0.943	1.006	1.212	0.863
Ineligibility Rate	0.129	0.145	0.099	0.113	0.106	0.107	0.091	0.088	0.110	0.099	0.116	0.100	0.099	0.110	0.106	0.103	0.233	0.085	0.083	0.088	0.097	0.115	0.120	0.108
Completion Rate	0.722	0.700	0.838	0.822	0.820	0.761	0.790	0.729	0.794	0.787	0.799	0.797	0.756	0.689	0.610	0.749	0.805	0.846	0.852	0.881	0.906	0.872	0.896	0.810
Final Refusal Rate	0.061	0.068	0.084	0.079	0.078	0.113	0.122	0.200	0.159	0.167	0.149	0.165	0.271	0.050	0.015	0.015	0.016	0.013	0.011	0.003	0.001	0.000	0.013	0.007

Return to Table of Contents

3.5.4 Timing

Table 3-7 presents the hours per completed pair by provider type for the 2016-2019 MPC cycles. These timings include telephone and record abstraction as well as recruiting efforts..

Table 3-7. Hours per Completed Pair/Node, 2016 - 2019 MPC

	Provider Type					
Year	**Hospital**	**Office-Based Doctor**	**Home Health**	**Institution**	**Pharmacy**	**Separately Billing Doctor (nodes)**
2016	8.5	3.4	4.1	3.9	0.8	2.9
2017	7.9	2.9	4.3	1.4	0.8	2.6
2018	7.4	3.3	3.3	2.9	0.8	2.2
2019	9.1	5.2	3.5	3.5	0.8	3.1

Return to Table of Contents

Appendix A: Acronyms and Definitions

AF:	Authorization Form
AHRQ:	Agency for Healthcare Research and Quality
BETOS:	Berenson-Eggers Type of Service Codes
CMS:	Case Management System
Contact Guide:	Forms used to collect and manage information about contacts at provider facilities
CS:	Control System
CPT:	Current Procedural Terminiology Codes
DCS:	Data Collection Specialist
ESN:	Enhanced Security Network, developed by RTI to meet requirements of NIST Moderate Security
Event Forms:	Forms used to record information about medical events identified in the HC
GPI:	General Product Identifier
HC:	Household Component of the MEPS
HIPAA:	Health Insurance Portability and Accountability Act
ICD:	International Classification of Diseases
IDCS:	Integrated Data Collection System
MEPS:	Medical Expenditure Panel Survey
MEPS-HC (HC):	Household Component of the MEPS
MEPS-MPC (MPC):	Medical Provider Component of the MEPS
NPI:	National Provider Identifier
OBD:	Office-Based Doctor
PHI:	Protected Health Information
PII:	Personally Identifiable Information
POC:	Point of Contact in the provider facility
RU:	Reporting Unit
SOP:	Source of Payment
SBD:	Separately-Billing Doctor

Return to Table of Contents

Appendix B: MPC Data Collection Summary Tables

Table B-1. MPC Sample Sizes, Provider Level, 1996-2019

	1996	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**

Hospital										
Initial Sample	3,301	6,045	4,844	3,520	3,760	6,801	8,811	7,806	7,567	7,461
Sample after subsampling	n/a	4,065	3,468	n/a	3,760	5,616	6,780	6,023	6,094	6,059
Final in-scope sample	3,330	4,163	3,247	3,284	3,467	5,201	6,325	5,580	5,671	5,600
HMO										
Initial Sample	296	396	228	247	118	476	559	607	420	422
Sample after subsampling	n/a	350	171	n/a	118	334	290	280	300	301
Final in-scope sample	628	467	155	225	113	287	256	218	250	241
Institution										
Initial Sample	59	81	63	52	63	83	114	81	92	121
Sample after subsampling	n/a	80	69	n/a	63	82	110	81	92	116
Final in-scope sample	50	75	65	45	60	76	103	73	89	108
Home Health										
Initial Sample	415	674	456	393	319	520	631	588	568	606
Sample after subsampling	n/a	653	420	n/a	319	509	611	586	556	593
Final in-scope sample	375	579	384	293	281	436	537	527	509	539
Office-based physician										
Initial Sample	10,118	14,646	10,483	9,202	12,962	26,344	32,889	28,946	27,617	26,972
Sample after subsampling	n/a	9,663	8,403		12,962	20,651	15,222	15,361	20,212	18,933
Final in-scope sample	7,758	7,047	7,356	8,076	11,167	18,078	13,652	13,808	18,069	16,898
SBD										
Initial Sample	10,323	14,730	10,711	10,680	11,144	20,644	21,385	18,613	20,094	19,810
Sample after subsampling	n/a	7,365	10,711	n/a	11,144	20,644	21,385	18,613	20,094	19,810
Final in-scope sample	8,705	5,297	7,704	7,288	7,026	12,891	13,976	12,154	13,225	12,971
Pharmacy										
Initial Sample	6,109	8,547	5,734	5,703	5,762	9,118	10,200	8,882	8,608	8,404
Sample after subsampling	n/a	8,547	5,734	n/a	5,762	9,118	10,200	8,882	8,608	8,404
Final in-scope sample	5,321	7,335	5,168	5,058	5,152	8,141	9,268	8,101	7,663	7,568

Return to Table of Contents

Table B-1. MPC Sample Sizes, Provider Level, 1996-2019 (continued)

	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Hospital										
Initial Sample	7,447	7,110	6,470	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sample after subsampling	5,884	5,708	5,126	7,391	5,564	6,034	6,207	6,119	6,442	6,719
Final in-scope sample	5,484	5,328	4,776	6,436	5,072	5,435	5,896	5,788	6,031	6,323
HMO										
Initial Sample	333	501	517	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Sample after subsampling	284	316	243	249	378	327	412	336	410	358
Final in-scope sample	238	247	198	249	309	275	380	300	366	343
Institution										
Initial Sample	80	76	81	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sample after subsampling	80	75	77	105	106	93	157	136	143	140
Final in-scope sample	78	72	72	101	92	88	151	128	132	129
Home Health										
Initial Sample	655	534	505	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sample after subsampling	648	516	498	664	511	568	655	760	794	890
Final in-scope sample	602	464	446	603	454	487	573	646	677	728
Office-based physician										
Initial Sample	27,620	25,052	25,537	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sample after subsampling	13,473	15,273	10,762	10,234	11,841	11,522	15,797	14,608	17,906	13,056
Final in-scope sample	12,062	13,492	9,533	9,148	10,441	10,169	14,065	13,236	15,904	11,957
SBD										
Initial Sample	21,126	19,435	19,262	24,208	26,093	30,235	42,756	34,590	33,092	33,351
Sample after subsampling	21,126	19,435	19,262	24,208	26,093	30,235	29,168	34,590	33,092	33,351
Final in-scope sample	13,013	12,410	11,364	19,874	20,868	21,222	20,080	21,968	21,829	19,786
Pharmacy										
Initial Sample	8,471	8,619	7,799	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sample after subsampling	8,471	8,619	7,799	8,935	7,960	8,270	9,250	9,246	8,812	9,001
Final in-scope sample	7,489	7,760	7,026	7,949	7,118	7,420	8,472	8,463	8,085	8,206

Return to Table of Contents

Table B-1. MPC Sample Sizes, Provider Level, 2016-2019 (continued)

	2016	2017	2018	2019
Hospital				
Initial Sample	6,609	n/a	n/a	n/a
Sample after subsampling	6,170	7,026	7,970	6,948
Final in-scope sample	n/a	6,551	7,321	6,595
HMO				
Initial Sample	n/a	n/a	n/a	n/a
Sample after subsampling	375	369	331	341
Final in-scope sample	323	323	299	308
Institution				
Initial Sample	n/a	n/a	n/a	n/a
Sample after subsampling	131	168	184	142
Final in-scope sample	128	161	166	131

Home Health				
Initial Sample	n/a	n/a	n/a	n/a
Sample after subsampling	908	858	952	891
Final in-scope sample	763	713	838	815
Office-based physician				
Initial Sample	n/a	n/a	n/a	n/a
Sample after subsampling	14,055	16,839	15,449	17,537
Final in-scope sample	12,903	15,105	13,677	16,000
SBD				
Initial Sample	n/a	n/a	n/a	n/a
Sample after subsampling	34,627	20,936	20,002	16,602
Final in-scope sample	22,573	12,825	11,827	12,162
Pharmacy				
Initial Sample	n/a	n/a	n/a	n/a
Sample after subsampling	8,457	10,531	12,763	8,969
Final in-scope sample	7,637	9,324	11,234	7,998

Return to Table of Contents

Table B-2. MPC Sample Sizes, Pair Level, 1996-2019

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Hospital										
Initial Sample	6,729	11,694	7,922	6,712	7,849	11,798	16,481	13,876	13,175	12,933
Sample after subsampling	n/a	8,192	6,434	n/a	7,849	11,377	14,477	13,094	12,772	12,601
Final in-scope sample	6,570	7,938	5,825	6,163	7,016	10,155	12,805	11,532	11,589	11,279
HMO										
Initial Sample	534	809	436	555	382	965	1,134	939	791	804
Sample after subsampling	n/a	n/a	n/a	n/a	382	791	567	625	665	685
Final in-scope sample	924	911	346	472	324	637	477	466	514	514
Institution										
Initial Sample	63	85	64	53	66	86	116	86	94	123
Sample after subsampling	n/a	85	70	n/a	66	86	115	85	94	123
Final in-scope sample	53	80	70	45	63	79	107	77	90	113
Homecare										
Initial Sample	461	750	520	394	367	607	713	652	610	689
Sample after subsampling	n/a	750	491	n/a	367	601	682	641	610	689
Final in-scope sample	385	662	445	340	317	471	606	579	555	619
Office-based physician										
Initial Sample	13,681	19,157	12,641	11,974	17,407	33,518	42,327	36,804	34,611	33,854

Sample after subsampling	n/a	12,635	10,747	n/a	17,407	26,886	19,309	19,731	26,392	24,517
Final in-scope sample	10,251	9,632	9,334	10,409	14,935	23,376	17,198	17,692	23,446	21,821
SBD										
Initial Sample	12,488	17,394	13,658	14,906	15,955	28,905	30,780	26,965	29,271	28,930
Sample after subsampling	n/a	8,697	13,658	n/a	15,955	28,930	30,780	26,965	29,271	28,930
Final in-scope sample	9,187	6,301	9,691	10,100	9,893	17,529	19,977	17,566	18,694	18,720
Pharmacy										
Initial Sample	14,531	20,248	12,321	13,183	14,847	22,165	26,046	22,438	21,720	21,077
Sample after subsampling	n/a	n/a	n/a	n/a	14,847	22,165	26,046	22,438	21,720	21,077
Final in-scope sample	12,146	16,241	10,386	11,317	12,728	19,256	23,057	19,649	18,571	18,159

Return to Table of Contents

Table B-2. MPC Sample Sizes, Pair Level, 1996-2019 (continued)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Hospital										
Initial Sample	13,071	11,220	11,374							
Sample after subsampling	11,911	10,646	10,672	14,199	9,960	10,404	11,361	11,017	10,909	11,225
Final in-scope sample	10,830	9,611	9,600	12,262	8,664	8,978	10,534	10,314	10,048	10,412
HMO										
Initial Sample	694	852	968							
Sample after subsampling	594	621	572	601	624	595	764	610	794	833
Final in-scope sample	476	459	449	601	478	458	702	541	667	752
Institution										
Initial Sample	80	78	81							
Sample after subsampling	80	78	80	113	108	95	159	140	148	147
Final in-scope sample	78	75	75	109	92	90	152	132	136	134
Home Health										
Initial Sample	719	574	566							
Sample after subsampling	719	572	564	728	512	609	712	820	842	957
Final in-scope sample	661	513	502	656	454	505	615	694	710	773
Office-based physician										
Initial Sample	37,576	30,812	32,546							
Sample after subsampling	17,139	19,201	16,713	13,386	14,256	14,583	19,945	16,921	21,280	16,727
Final in-scope sample	15,274	16,713	12,281	11,954	12,378	12,663	17,639	15,279	18,879	15,338
SBD										
Initial Sample	31,058	26,407	27,496	27,480	30,584	38,873	49,782	43,568	41,670	
Sample after subsampling	31,058	26,407	27,496	27,480	30,584	38,873	35,182	43,568	41,670	41,981
Final in-scope sample	18,699	16,660	16,144	22,417	23,958	26,802	23,406	27,346	27,064	24,610

Pharmacy										
Initial Sample	20,990	19,052	19,678	22,587	18,761	19,807	22,731			
Sample after subsampling	20,990	19,052	19,678	22,587	18,761	19,807	22,731	22,192	20,405	20,826
Final in-scope sample	17,418	16,313	17,038	19,683	16,261	17,414	20,510	20,028	18,424	18,415

Return to Table of Contents

Return to Table of Contents

Table B-2. MPC Sample Sizes, Pair Level, 1996-2019 (continued)

	2016	2017	2018	2019
Hospital				
Initial Sample	n/a	n/a	n/a	n/a
Sample after subsampling	11,088	11,059	12,979	11,473
Final in-scope sample	10,162	10,171	11,689	10,665
HMO				
Initial Sample	n/a	n/a	n/a	n/a
Sample after subsampling	905	704	576	565
Final in-scope sample	790	577	490	484
Institution				
Initial Sample	n/a	n/a	n/a	n/a
Sample after subsampling	134	173	191	144
Final in-scope sample	131	166	169	133
Home Health				
Initial Sample	n/a	n/a	n/a	n/a
Sample after subsampling	984	920	1,032	959
Final in-scope sample	817	768	906	880
Office-based physician				
Initial Sample	n/a	n/a	n/a	n/a
Sample after subsampling	18,445	19,382	18,256	21,458
Final in-scope sample	16,927	17,370	16,166	19,527
SBD				
Initial Sample	n/a	n/a	n/a	n/a
Sample after subsampling	42,951	23,603	22,775	91,283
Final in-scope sample	27,490	14,437	13,313	14,091
Pharmacy				
Initial Sample	n/a	n/a	n/a	
Sample after subsampling	20,218	19,262	20,872	18,263
Final in-scope sample	17,366	16,735	17,744	15,917

Table B-3. MPC Data Collection Results, Provider Level, 1996-2019

	Initial Sample	Sub-sample	Eligible Sample	Completion Rate	Refusal Rate	Other Nonresponse Rate
1996 Providers						
Hospitals	3,301	3,301	3,224	0.951	0.021	0.028
Office-based providers	10,118	10,118	7,530	0.881	0.069	0.051
HMOs	296	296	601	0.805	0.085	0.110
Home care providers	415	415	353	0.875	0.062	0.062
Institutions	59	59	50	0.960	0.040	-
SBDs	10,323	10,323	7,223	0.949	0.042	0.009
Pharmacies	6,109	6,109	5,321	0.722	0.061	0.217
Total	30,621	30,621	24,302			
1997 Providers						
Hospitals	4,768	4,065	4,163	0.894	0.058	0.048
Office-based providers	10,095	9,666	7,047	0.871	0.053	0.069
HMOs	350	350	467	0.717	0.090	0.193
Home care providers	653	653	579	0.834	0.090	0.076
Institutions	80	80	75	0.827	0.107	0.067
SBDs	14,730	14,730	5,026	0.885	0.104	0.012
Pharmacies	8,574	8,574	7,335	0.700	0.068	0.232
Total	39,250	38,118	24,692			
1998 Providers						
Hospitals	3,468	3,468	3,247	0.939	0.025	0.037
Office-based providers	10,483	8,403	7,356	0.861	0.043	0.096
HMOs	228	171	155	0.871	0.103	0.026
Home care providers	456	420	384	0.820	0.089	0.091
Institutions	63	69	65	0.754	0.169	0.077
SBDs	10,711	10,711	7,707	0.862	0.063	0.075
Pharmacies	5,734	5,734	5,167	0.838	0.084	0.079
Total	31,143	28,976	24,081			
1999 Providers						
Hospitals	3,520	3,520	3,282	0.926	0.036	0.037
Office-based providers	9,202	9,202	8,075	0.888	0.053	0.058
HMOs	247	247	225	0.876	0.080	0.044
Home care providers	338	338	293	0.840	0.082	0.078
Institutions	52	52	44	0.773	0.182	0.045
SBDs	10,680	10,680	7,289	0.842	0.061	0.097
Pharmacies	5,703	5,703	5,058	0.822	0.079	0.099
Total	29,742	29,742	24,266			

2000 Providers						
Hospitals	3,760	3,760	3,467	0.910	0.037	0.054
Office-based providers	12,962	12,962	11,167	0.864	0.071	0.065
HMOs	118	118	113	0.929	0.035	0.035
Home care providers	319	319	281	0.858	0.068	0.075
Institutions	63	63	60	0.850	0.067	0.083
SBDs	11,144	11,144	7,026	0.840	0.065	0.094
Pharmacies	5,762	5,762	5,152	0.820	0.078	0.102
Total	34,128	34,128	27,266			
2001 Providers						
Hospitals	6,801	5,616	5,201	0.912	0.038	0.050
Office-based providers	26,344	20,651	18,078	0.850	0.069	0.081
HMOs	476	334	287	0.899	0.021	0.066
Home care providers	520	509	436	0.851	0.060	0.046
Institutions	83	82	76	0.934	0.079	-
SBDs	20,644	20,644	12,891	0.795	0.094	0.111
Pharmacies	9,118	9,118	8,141	0.761	0.113	0.126
Total	63,986	56,954	45,110			
2002 Providers						
Hospitals	8,811	6,780	6,325	0.900	0.048	0.045
Office-based providers	32,889	15,222	13,652	0.837	0.097	0.066
HMOs	559	290	256	0.899	0.055	0.047
Home care providers	631	611	537	0.823	0.093	0.084
Institutions	114	110	103	0.913	0.058	0.029
SBDs	21,385	21,385	13,976	0.773	0.121	0.106
Pharmacies	10,200	10,200	9,268	0.790	0.122	0.088
Total	74,589	54,598	44,117			
2003 Providers						
Hospitals	7,806	6,023	5,580	0.898	0.047	0.055
Office-based providers	28,946	15,361	13,808	0.835	0.095	0.070
HMOs	506	280	218	0.876	0.032	0.092
Home care providers	607	586	527	0.850	0.068	0.082
Institutions	83	81	73	0.945	0.027	0.027
SBDs	18,613	18,613	12,154	0.828	0.104	0.068
Pharmacies	8,882	8,882	8,101	0.729	0.200	0.106
Total	65,443	49,826	40,461			
2004 Providers						
Hospitals	7,567	6,094	5,671	0.920	0.027	0.053
Office-based providers	27,617	20,202	18,069	0.864	0.076	0.060

HMOs	420	300	250	0.892	0.056	0.052
Home care providers	568	556	509	0.809	0.108	0.083
Institutions	93	92	89	0.910	0.056	0.034
SBDs	20,094	20,094	13,225	0.840	0.076	0.084
Pharmacies	8,608	8,608	7,663	0.794	0.159	0.047
Total	64,967	55,946	45,476			
2005 Providers						
Hospitals	7,461	6,059	5,600	0.931	0.026	0.043
Office-based providers	26,972	18,933	16,898	0.859	0.086	0.055
HMOs	422	301	241	0.963	0.012	0.025
Home care providers	606	593	539	0.810	0.111	0.080
Institutions	121	116	108	0.963	0.009	0.028
SBDs	19,810	19,810	12,971	0.846	0.075	0.077
Pharmacies	8,404	8,404	7,568	0.787	0.167	0.046
Total	63,796	54,216	43,925			
2006 Providers						
Hospitals	7,447	5,884	5,484	0.941	0.022	0.037
Office-based providers	27,620	13,473	12,062	0.869	0.074	0.057
HMOs	333	284	238	0.920	0.042	0.038
Home care providers	655	648	602	0.856	0.080	0.065
Institutions	80	80	78	0.808	0.115	0.077
SBDs	21,126	21,126	13,013	0.823	0.111	0.066
Pharmacies	8,471	8,471	7,489	0.799	0.149	0.052
Total	65,732	49,966	38,966			
2007 Providers						
Hospitals	7,110	5,708	5,328	0.944	0.023	0.033
Office-based providers	25,052	15,273	13,492	0.875	0.077	0.048
HMOs	501	316	247	0.923	0.036	0.041
Home care providers	534	516	464	0.883	0.060	0.057
Institutions	76	76	72	0.930	0.042	0.028
SBDs	19,435	19,435	12,410	0.874	0.072	0.054
Pharmacies	8,619	8,619	7,760	0.797	0.165	0.038
Total	61,327	49,943	39,773			
2008 Providers						
Hospitals	6,470	5,126	4,776	0.946	0.022	0.035
Office-based providers	25,537	10,762	9,533	0.891	0.067	0.054
HMOs	517	243	198	0.970	-	0.031
Home care providers	505	498	446	0.901	0.077	0.032
Institutions	81	77	72	0.944	0.044	0.015

SBDs	19,262	19,262	11,364	0.860	0.097	0.066
Pharmacies	7,799	7,799	7,026	0.756	0.271	0.050
Total	60,171	43,767	33,415			
2009 Providers						
Hospitals	n/a	7,391	6,436	0.890	0.012	0.098
Office-based providers	n/a	10,234	9,148	0.801	0.003	0.227
HMOs	n/a	249	249	-	-	-
Home care providers	n/a	664	603	0.861	0.053	0.086
Institutions	n/a	105	101	0.921	0.030	0.050
SBDs	n/a	24,208	19,874	0.683	0.081	0.236
Pharmacies	n/a	8,935	7,949	0.689	0.050	0.262
Total	n/a	51,786	44,366			
2010 Providers						
Hospitals	n/a	5,564	5,072	0.846	0.034	0.119
Office-based providers	n/a	11,841	10,441	0.806	0.062	0.132
HMOs	n/a	378	309	0.832	-	0.168
Home care providers	n/a	511	454	0.775	0.097	0.128
Institutions	n/a	106	92	0.880	0.054	0.065
SBDs	n/a	26,093	20,868	0.565	0.101	0.335
Pharmacies	n/a	7,960	7,118	0.610	0.015	0.283
Total	n/a	52,453	44,354			
2011 Providers						
Hospitals	n/a	6,034	5,435	0.919	0.016	0.065
Office-based providers	n/a	11,522	10,169	0.890	0.023	0.086
HMOs	n/a	327	275	0.869	-	0.131
Home care providers	n/a	568	487	0.893	0.035	0.072
Institutions	n/a	93	88	0.920	0.023	0.057
SBDs	n/a	30,235	21,222	0.447	0.000	0.553
Pharmacies	n/a	8,270	7,420	0.749	0.015	0.237
Total	n/a	57,049	45,096			
2012 Providers						
Hospitals	n/a	6,207	5,896	0.870	0.015	0.115
Office-based providers	n/a	15,797	14,065	0.876	0.028	0.096
HMOs	n/a	412	380	0.776	0.042	0.182
Home care providers	n/a	655	573	0.843	0.019	0.080
Institutions	n/a	157	151	0.894	0.053	0.053
SBDs	42,756	29,168	20,080	0.598	0.000	0.402
Pharmacies	n/a	9,250	8,472	0.805	0.016	0.230

Total	n/a	64,676	49,617			
2013 Providers						
Hospitals	n/a	6,119	5,788	0.877	0.036	0.087
Office-based providers	n/a	14,608	13,236	0.890	0.036	0.073
HMOs	n/a	336	300	0.687	-	0.313
Home care providers	n/a	760	646	0.862	0.025	0.113
Institutions	n/a	136	128	0.914	0.023	7.586
SBDs	n/a	34,590	21,968	0.578	0.008	0.414
Pharmacies	n/a	9,246	8,463	0.846	0.013	0.138
Total		65,795	50,529			
2014 Providers						
Hospitals	n/a	6,442	6,031	0.848	0.001	0.151
Office-based providers	n/a	17,906	15,904	0.865	0.001	0.134
HMOs	n/a	410	366	0.719	-	0.281
Home care providers	n/a	794	677	0.861	-	0.139
Institutions	n/a	143	132	0.924	-	0.076
SBDs	n/a	33,092	21,829	0.539	0.001	0.460
Pharmacies	n/a	8,812	8,085	0.852	0.011	0.137
Total		67,599	53,024			
2015 Providers						
Hospitals	n/a	6,719	6,323	0.811	0.053	0.136
Office-based providers	n/a	13,056	11,957	0.849	0.039	0.113
HMOs	n/a	358	343	0.813	-	0.187
Home care providers	n/a	890	728	0.794	0.008	0.198
Institutions	n/a	140	129	0.884	-	0.116
SBDs	n/a	33,351	19,786	0.591	0.000	0.408
Pharmacies	n/a	9,001	8,206	0.881	0.003	0.116
Total		63,515	47,472			
2016 Providers						
Hospitals	n/a	6,609	6,170	0.861	0.024	0.116
Office-based providers	n/a	14,055	12,903	0.869	0.020	0.111
HMOs	n/a	375	323	0.833	0.000	0.167
Home care providers	n/a	908	763	0.847	0.007	0.147
Institutions	n/a	131	128	0.906	0.000	0.094
SBDs	n/a	34,627	22,573	0.549	0.036	0.415
Pharmacies	n/a	8,457	7,637	0.906	0.001	0.093
Total		65,162	50,497			
2017 Providers						
Hospitals	n/a	7,026	6,551	0.879	0.006	0.115

Office-based providers	n/a	16,839	15,105	0.824	0.007	0.168
HMOs	n/a	369	323	0.910	0.000	0.090
Home care providers	n/a	858	713	0.851	0.000	0.149
Institutions	n/a	168	161	0.913	0.000	0.087
SBDs	n/a	20,936	12,825	0.670	0.000	0.330
Pharmacies	n/a	10,531	9,324	0.872	0.000	0.128
Total		56,727	45,002			
2018 Providers						
Hospitals	n/a	7,970	7,321	0.881	0.005	0.114
Office-based providers	n/a	15,449	13,677	0.820	0.003	0.177
HMOs	n/a	331	299	0.890	0.000	0.110
Home care providers	n/a	952	838	0.850	0.001	0.149
Institutions	n/a	184	166	0.910	0.000	0.090
SBDs	n/a	20,002	11,827	0.682	0.001	0.317
Pharmacies	n/a	12,763	11,234	0.896	0.013	0.091
Total	n/a	57,651	45,362			
2019 Providers						
Hospitals	n/a	6,948	6,595	0.584	0.009	0.407
Office-based providers	n/a	17,537	16,000	0.658	0.004	0.339
HMOs	n/a	341	308	0.711	0.000	0.289
Home care providers	n/a	891	815	0.804	0.000	0.196
Institutions	n/a	142	131	0.824	0.000	0.176
SBDs	n/a	16,602	12,162	0.474	0.002	0.524
Pharmacies	n/a	8,969	7,998	0.810	0.007	0.184
Total	n/a	51,430	44,009			

Return to Table of Contents

Table B-4. MPC Data Collection Results, Pair Level, 1996-2019

	Initial Sample	Sub-sample	Eligible Sample	Completion Rate	Refusal Rate	Other Nonresponse Rate
1996 Pairs						
Hospitals	6,729	6,729	6,570	0.932	0.038	0.030
Office-based providers	13,681	13,681	10,251	0.865	0.079	0.056
HMOs	534	534	924	0.803	0.105	0.092
Home care providers	461	461	385	0.875	0.057	0.068
Institutions	63	63	53	0.943	0.057	0.000
SBDs	12,488	12,488	8,689	0.937	0.056	0.007
Pharmacies	14,531	14,531	12,146	0.671		
Total	48,487	48,487	39,018			

1997 Pairs						
Hospitals	11,694	8,192	7,938	0.874	0.070	0.056
Office-based providers	19,157	12,635	10,062	0.862	0.062	0.076
HMOs	809	809	911	0.626	0.156	0.218
Home care providers	750	750	662	0.823	0.095	0.082
Institutions	85	85	80	0.825	0.113	0.063
SBDs	17,397	8,697	5,964	0.865	0.123	0.013
Pharmacies	20,248	20,248	16,241	0.672	0.075	0.253
Total	70,140	51,416	41,858			
1998 Pairs						
Hospitals	7,922	6,434	5,824	0.925	0.031	0.044
Office-based providers	12,641	10,747	9,334	0.852	0.050	0.098
HMOs	436	436	346	0.832	0.133	0.035
Home care providers	520	491	445	0.825	0.085	0.090
Institutions	64	70	65	0.754	0.169	0.077
SBDs	13,658	13,658	9,687	0.836	0.084	0.080
Pharmacies	12,321	12,321	10,388	0.793	0.116	0.091
Total	47,562	44,157	36,089			
1999 Pairs						
Hospitals	6,712	6,712	6,160	0.909	0.053	0.039
Office-based providers	11,974	11,974	10,409	0.879	0.061	0.060
HMOs	555	555	472	0.886	0.068	0.047
Home care providers	394	394	340	0.818	0.088	0.094
Institutions	53	53	45	0.756	0.200	0.044
SBDs	14,907	14,907	10,101	0.808	0.091	0.100
Pharmacies	13,183	13,183	11,317	0.788	0.099	0.113
Total	47,778	47,778	38,844			
2000 Pairs						
Hospitals	7,849	7,849	7,016	0.891	0.056	0.053
Office-based providers	17,407	17,407	14,935	0.854	0.079	0.067
HMOs	382	382	324	0.873	0.059	0.068
Home care providers	367	367	317	0.864	0.063	0.073
Institutions	66	66	63	0.825	0.095	0.079
SBDs	15,955	15,955	9,893	0.823	0.094	0.084
Pharmacies	14,847	14,847	12,728	0.768	0.105	0.127
Total	56,873	56,873	45,276			
2001 Pairs						
Hospitals	11,798	11,377	10,155	0.899	0.023	0.051
Office-based providers	33,518	26,886	23,376	0.843	0.077	0.081

HMOs	965	791	637	0.878	0.028	0.094
Home care providers	607	601	471	0.847	0.064	0.089
Institutions	86	86	79	0.937	0.051	0.013
SBDs	28,905	28,905	17,529	0.778	0.127	0.095
Pharmacies	22,165	22,165	19,256	0.703	0.144	0.153
Total	98,044	90,811	71,503			
2002 Pairs						
Hospitals	16,481	14,477	12,805	0.895	0.061	0.045
Office-based providers	42,327	19,309	17,198	0.832	0.104	0.065
HMOs	1,134	567	477	0.870	0.052	0.078
Home care providers	713	682	606	0.820	0.100	0.081
Institutions	116	115	107	0.907	0.056	0.037
SBDs	30,780	30,780	19,977	0.745	0.160	0.095
Pharmacies	26,046	26,046	23,057	0.734	0.156	0.110
Total	117,597	91,976	74,227			
2003 Pairs						
Hospitals	13,876	13,094	11,532	0.895	0.052	0.054
Office-based providers	36,804	19,731	17,692	0.828	0.103	0.070
HMOs	939	625	466	0.852	0.054	0.094
Home care providers	652	641	579	0.853	0.067	0.079
Institutions	86	85	77	0.948	0.026	0.026
SBDs	26,965	26,965	17,566	0.804	0.152	0.045
Pharmacies	22,438	22,438	19,649	0.671	0.251	0.078
Total	101,760	83,579	67,561			
2004 Pairs						
Hospitals	13,175	12,772	11,589	0.922	0.028	0.050
Office-based providers	34,611	26,392	23,446	0.858	0.084	0.058
HMOs	791	665	514	0.813	0.088	0.099
Home care providers	610	610	555	0.805	0.115	0.080
Institutions	94	94	90	0.911	0.056	0.033
SBDs	29,271	29,271	18,694	0.827	0.103	0.070
Pharmacies	21,720	21,720	18,571	0.715	0.214	0.071
Total	100,272	91,524	73,459			
2005 Pairs						
Hospitals	12,933	12,601	11,279	0.923	0.036	0.041
Office-based providers	33,854	24,517	21,821	0.852	0.094	0.054
HMOs	804	685	514	0.955	0.014	0.031
Home care providers	689	689	619	0.816	0.113	0.071
Institutions	123	123	113	0.965	0.009	0.027

SBDs	28,930	28,930	18,720	0.824	0.114	0.063
Pharmacies	21,077	21,077	18,159	0.711	0.214	0.075
Total	98,410	88,622	71,225			
2006 Pairs						
Hospitals	13,071	11,911	10,830	0.934	0.031	0.035
Office-based providers	37,576	17,139	15,274	0.861	0.082	0.056
HMOs	694	594	476	0.903	0.059	0.038
Home care providers	719	719	661	0.847	0.082	0.071
Institutions	80	80	78	0.808	0.115	0.077
SBDs	31,058	31,058	18,699	0.807	0.144	0.049
Pharmacies	20,990	20,990	17,418	0.734	0.196	0.070
Total	104,188	82,491	63,436			
2007 Pairs						
Hospitals	11,220	10,646	9,611	0.929	0.032	0.039
Office-based providers	30,812	19,021	16,713	0.870	0.083	0.047
HMOs	852	621	459	0.919	0.046	0.035
Home care providers	574	572	513	0.887	0.057	0.056
Institutions	78	78	75	0.933	0.040	0.027
SBDs	26,407	26,407	16,660	0.864	0.046	0.090
Pharmacies	19,052	19,052	16,313	0.737	0.217	0.046
Total	88,995	76,397	60,344			
2008 Pairs						
Hospitals	11,374	10,672	9,600	0.943	0.026	0.034
Office-based providers	32,546	13,917	12,281	0.884	0.077	0.054
HMOs	968	572	449	0.958	0.002	0.042
Home care providers	566	564	502	0.902	0.077	0.031
Institutions	81	80	75	0.947	0.042	0.014
SBDs	27,496	27,496	16,144	0.846	0.133	0.049
Pharmacies	19,678	19,678	17,038	0.706	0.356	0.060
Total	92,709	72,979	56,089			
2009 Pairs						
Hospitals	n/a	14,199	12,262	0.877	0.014	0.109
Office-based providers	n/a	13,386	11,954	0.798	0.055	0.136
HMOs	n/a	601	601	-	-	-
Home care providers	n/a	728	656	0.854	0.055	0.087
Institutions	n/a	113	109	0.927	0.028	0.046
SBDs	n/a	27,480	22,417	0.683	0.084	0.233
Pharmacies	n/a	22,587	19,683	0.632	0.260	0.108

Total	n/a	79,094	67,682			
2010 Pairs						
Hospitals	n/a	9,960	8,664	0.825	0.055	0.120
Office-based providers	n/a	14,256	12,378	0.801	0.073	0.126
HMOs	n/a	624	478	0.791	-	0.209
Home care providers	n/a	512	454	0.773	0.106	0.121
Institutions	n/a	108	92	0.880	0.054	0.065
SBDs	n/a	30,584	23,958	0.552	0.112	0.336
Pharmacies	n/a	18,761	16,261	0.661	0.020	0.319
Total	n/a	74,805	62,285			
2011 Pairs						
Hospitals	n/a	10,404	8,978	0.909	0.043	0.047
Office-based providers	n/a	14,583	12,663	0.887	0.057	0.056
HMOs	n/a	595	458	0.856	-	0.144
Home care providers	n/a	609	505	0.889	0.036	0.075
Institutions	n/a	95	90	0.900	0.056	0.044
SBDs	n/a	38,873	26,802	0.441	0.033	0.525
Pharmacies	n/a	19,807	17,414	0.730	0.022	0.248
Total	n/a	84,966	66,910			
2012 Pairs						
Hospitals	n/a	11,361	10,534	0.846	0.032	0.122
Office-based providers	n/a	19,945	17,639	0.868	0.056	0.076
HMOs	n/a	764	702	0.715	0.056	0.229
Home care providers	n/a	712	615	0.849	0.080	0.072
Institutions	n/a	159	152	0.895	0.053	0.053
SBDs	49,782	35,182	23,406	0.576	0.019	0.405
Pharmacies	n/a	22,731	20,510	0.743	0.030	0.226
Total	n/a	90,854	73,558			
2013 Pairs						
Hospitals	n/a	11,017	10,314	0.865	0.074	0.061
Office-based providers	n/a	16,921	15,279	0.886	0.060	0.054
HMOs	n/a	610	541	0.643	0.331	0.023
Home care providers	n/a	820	694	0.846	0.097	0.058
Institutions	n/a	140	132	0.902	0.045	0.053
SBDs	n/a	43,568	27,346	0.555	0.035	0.410
Pharmacies	n/a	22,192	20,028	0.763	0.072	0.165
Total		95,268	74,334			
2014 Pairs						
Hospitals	n/a	10,909	10,048	0.835	0.045	0.120

Office-based providers	n/a	21,280	18,879	0.863	0.051	0.000
HMOs	n/a	794	667	0.705	-	0.295
Home care providers	n/a	842	710	0.856	0.075	0.069
Institutions	n/a	148	136	0.919	0.037	0.044
SBDs	n/a	41,670	27,064	0.509	0.034	0.457
Pharmacies	n/a	20,405	18,424	0.792	0.029	0.179
Total		96,048	75,928			
2015 Pairs						
Hospitals	n/a	11,225	10,412	0.805	0.093	0.102
Office-based providers	n/a	16,727	15,338	0.845	0.082	0.073
HMOs	n/a	833	752	0.742	-	0.258
Home care providers	n/a	957	773	0.796	0.106	0.098
Institutions	n/a	147	134	0.888	0.052	0.060
SBDs	n/a	41,981	24,610	0.567	0.048	0.385
Pharmacies	n/a	20,826	18,415	0.832	0.023	0.145
Total		92,696	70,434			
2016 Pairs						
Hospitals	n/a	11,088	10,162	0.851	0.081	0.068
Office-based providers	n/a	18,445	16,927	0.861	0.070	0.069
HMOs	n/a	905	790	0.766	-	0.234
Home care providers	n/a	984	817	0.841	0.111	0.048
Institutions	n/a	134	131	0.908	0.046	0.046
SBDs	n/a	42,951	27,490	0.539	0.050	0.412
Pharmacies	n/a	20,218	17,366	0.850	0.067	0.083
Total	n/a	94,725	73,683			
2017 Pairs						
Hospitals	n/a	11,059	10,171	0.870	0.048	0.082
Office-based providers	n/a	19,382	17,370	0.820	0.036	0.144
HMOs	n/a	704	577	0.896	-	0.104
Home care providers	n/a	920	768	0.850	0.073	0.077
Institutions	n/a	173	166	0.916	0.018	0.066
SBDs	n/a	23,063	14,437	0.661	0.072	0.267
Pharmacies	n/a	19,262	16,735	0.858	0.025	0.117
Total	n/a	75,103	60,224			
2018 Pairs						
Hospitals	n/a	12,979	11,689	0.877	0.028	0.095
Office-based providers	n/a	18,256	16,166	0.824	0.036	0.140
HMOs	n/a	576	490	0.855	0.043	0.102
Home care providers	n/a	1,032	906	0.849	0.044	0.107

Institutions	n/a	191	169	0.905	0.018	0.077
SBDs	n/a	22,775	13,313	0.680	0.050	0.270
Pharmacies	n/a	20,872	17,744	0.878	0.050	0.072
Total	n/a	76,681	60,477			
2019 Pairs						
Hospitals	n/a	11,473	10,665	0.572	0.032	0.396
Office-based providers	n/a	21,458	19,527	0.653	0.024	0.323
HMOs	n/a	565	484	0.702	0.000	0.298
Home care providers	n/a	959	880	0.802	0.026	0.172
Institutions	n/a	144	133	0.820	0.053	0.128
SBDs	n/a	19,283	14,091	0.473	0.046	0.481
Pharmacies	n/a	18,263	15,917	0.771	0.062	0.167
Total	n/a	72,145	61,697			

Return to Table of Contents

1The 2019 MPC refers to the data collected about calendar year 2019 medical events which are matched with data from the 2019 Household Component (HC) of MEPS. Data collection for 2019 MPC began in February 2020 and continued through January, 2021 (see Section 3.4).

2 Note that these counts and percentages are based on participation at the contact group level, not individual providers. As noted in section 2, contact groups may consist of multiple providers as, for example, a group practice that employs a number of physicians or a healthcare system that may contain several Hospitals. Note as well that contact group is a different metric than the concept of "provider wave" reported in the MPC prior to 2009. In a provider wave, a provider is counted once for each wave of the sample in which it is represented. Table 3.1 reports the percentage of contact groups that provided medical and patient account records.

Appendix C: Critical Items

Event level

Answers are required for the following in order to be a full complete event:

- Event month and year for outpatient
- Event days, months, year for inpatient or “somewhere else”
- Global fee months and years
- At least one CPT code
- Surgical codes
- Was it FFS or Capitated
- If FFS- At least one payment ($0 counts as a payment, but should only be used when we are sure the SOP did not pay)
- If Capitated- insurance type

An event can still be a full complete if we have “don’t know” in any of the following:

- If outpatient event DK to the day part of the event date is ok
- Location of service (however, if we can’t determine location of service, we typically default to outpatient for hospital events)
- Diagnosis
- SBD info
- Global fee days (only month and year are required)
- Charges for each CPT
- FFS- Some payments can be “don’t know“ if we know at least one payment ($0 counts as a payment, but should only be used when we are sure the SOP did not pay)

- Reasons payments less than or greater than charges
- Expecting additional payments
- If capitated:
    - Copayment
    - Who paid copayment
    - Other payments

Pair-level

- If all events in the pair are full complete events, the pair is finalized as a completed pair
- If at least one event in the pair is full complete, the pair is finalized as a partial complete pair
- If all the events in a pair have some data but all are missing critical items, the pair is a special partial pair.
- If the pair contains no events that contain critical items
- We also created a new "special partial", which is an event that has any data at all. These special partials show up as final others in our main production report, but show up as partials in an alternate production report. We want to minimize the special partials during the field period, but this means that all pairs that have any records at all should at least be data entered a special partial (and not coded out as a refusal).

Critical Items

Table C-1. Critical Items

Item	Item is complete if:	Hospital	OBD	Home Health Agency HCH-Health HCN-Non-Health	Institution	SBD
1. Admit and discharge dates for inpatient stays	Valid dates Don't Know Refusal	A2a			A1	
2. Date of visit for outpatient visits	Valid date Don't Know Refusal	A2c	B1			
3. Dates of service	Valid dates Don't Know Refusal			E1 (HCH) D1 (HCN)		B2b
4. Diagnosis	Verbatim description or ICD-9 code Don't Know Refusal			E2		
5. Home health-care personnel type and hours: ◦ **Home health aide** ◦ **Homemaker** ◦ **IV/Infusion Therapist** ◦ **Nurse/Nurse Practitioner** ◦ **Nurse's aide** ◦ **Occupational therapist** ◦ **Personal care attendant** ◦ **Physical therapist** ◦ **Respiratory therapist** ◦ **Social worker** ◦ **Speech therapist**	Number of hours for each type (includes 0) Don't Know Refusal			E3(HCH) D2(HCN)		

Yard worker ◦ **Driver** ◦ **Babysitter** ◦ **Other**						
6. (IF GLOBAL FEE) Dates of other services covered by fee	Valid dates Don't Know Refusal	A5d	B2b			
7. Location of service ◦ **Physician office** ◦ **Hospital, Inpatient** ◦ **Hospital, Outpatient** ◦ **Hospital, Emergency Room** ◦ **Somewhere else**	(For each location) Yes No Don't Know Refusal		B3			
8. Services Provided	Description or CPT code Don't Know Refusal	A6a	B5a	E4		
9. DRG	Valid DRG None Don't Know Refusal	A8				
10. Surgical procedures	Description or CPT code Don't Know Refusal	A10a				B5a
11. Fee-For-Service or Capitated	Fee or capitated	C3	C3		Q5	C5
12. Total charge	Dollar value Don't Know Refusal				Q6	
13. Dollar payment by payer: ◦ **Patient or patient's family** ◦ **Medicare** ◦ **Medicaid** ◦ **Private insurance** ◦ **VA/CHAMPVA** ◦ **Tricare** ◦ **Worker's compensation**	(For each source) Dollar value (includes 0) Don't Know Refusal	C4	C4	C4a	Q7 Q11a Q13 Q16	C4
14. Other payment source and amount	Dollar value (includes 0) Don't Know Refusal	C4 Other Loop	C4 Other Loop	C4 Other Loop	C7, Q11a, Q13, Q16 Other Loop	C4 Other Loop
15. What kind of insurance plan covered the patient for (this visit/these visits/this stay)? ◦ **Medicare** ◦ **Medicaid** ◦ **Private insurance** ◦ **VA/CHAMPVA** ◦ **Tricare**	(For each source) Yes No Don't Know Refusal	C7a	C7a			

◦ **Worker's compensation**						
16. Payment source for ancillary charges ◦ **Patient or patient's family** ◦ **Medicare** ◦ **Medicaid** ◦ **Private insurance** ◦ **VA/CHAMPVA** ◦ **Tricare** ◦ **Worker's compensation**	Dollar value (includes 0) Don't Know Refusal				Q20	
17. Other payment source for ancillary charges	Dollar value (includes 0) Don't Know Refusal				Q20 Other Loop	
18. Who paid co-payment? ◦ **Patient or patient's family** ◦ **Medicare** ◦ **Medicaid** ◦ **Private insurance**	Yes No Don't Know Refusal				Q21f	

Non-Pharmacy Providers. For hospital, OBD, HMO, Home Health, Institution, and SBD providers, the definition of partially complete events was expanded. In the 2010 MPC data collection and earlier, for a pair to be considered partially complete at least one event had to have a valid response for all critical items (no "don't know," "refusal," or missing entries). At the event level, if one critical item has a "don't know," "refusal," or missing entry, the event is coded as "final critical item missing." Because of a modification in the procedures for matching MPC events to HC events in the 2010 MPC, events coded as "final critical item missing" are included as events that could be matched. For this reason, beginning with the 2011 data collection and in subsequent cycles, criteria for partially complete events were revised to include events with at least one critical item answered.

Pharmacy Critical Items

Item	Item is complete if:	Item Number
1. NDC or Drug Name	*NDC:* 11 DIGITS Don't Know Refusal *Drug Name*: Text Don't Know Refusal	Q2a / Q2b
2. *If Drug Name:* ◦ **Strength**	Numeric value Don't Know Refusal	Q2c / Q2c1
3. *If Drug Name:* ◦ **Strength Unit**	Range of Units & Other Specify Don't Know Refusal	Q2d / Q2d2
4. *If Drug Name:* ◦ **Dosage Form**	Range of Forms & Other Specify	Q2e
5. Quantity	Numeric value up to 3 decimal points Don't Know Refusal	Q3a

6. Patient Payment	Dollar Value $0 – $500 Don't Know Refusal	Q5
7. Third party payer type	Range of Types & Other Specify Don't Know Refusal	Q6
8. Third party payment	Dollar value $0 – $5000 Don't Know Refusal	Q7

Return to Table of Contents