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

Methodology Report 2009 Data Collection

Deliverable 36.2
Version 1.0
April 2012

Prepared for

Agency for Healthcare Research and Quality
Marie Stagnitti
AHRQ Project Officer
AHRQ, Center for Financing, Access & Cost Trends
540 Gaither Road
Rockville, MD 20850

Prepared by

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

RTI Project Number 0211755.001
AHRQ Contract Number HHSA290200810009C

APPROVED BY

Name	Title	Signature	Date
John Loft	Project Director		
Marie Stagnitti	AHRQ Project Officer		

Revision History

Version	Author/Title	Date	Comments
0.1	John Loft	July 2011	Submitted to Team for input.
0.2	John Loft	February 2012	Added results of SD Data Collection
0.3	John Loft	April 2012	Incorporate Input from Team.
1.0	John Loft	Submitted Draft to AHRS	

Table of Contents

1 Introduction

The Medical Expenditure Panel Survey (MEPS) has been conducted by the Agency for Healthcare Research and Quality (AHRQ) 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 2009 MEPS Medical Provider Component (MPC). The MEPS MPC collects data from all hospitals, emergency rooms, home health care agencies, outpatient departments, long term health care facilities and pharmacies reported by MEPS Household Component (HC) respondents as well as all physicians who provide services for patients in hospitals but bill separately from the hospital.

Providers for the MPC sample each year are identified in three rounds of HC data collection for two HC panels. The panel design of the survey, which features five core rounds of interviewing, covers two full calendar years. The MEPS 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).

During the household interviews, the MEPS HC collects 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.

Two important features of the 2009 MEPS MPC should be noted. First, AHRQ awarded a contract to RTI International (RTI) and Social & Scientific Systems, Inc. (SSS). RTI was responsible for overall project management, instrumentation and systems development, sample maintenance, data collection, and matching MPC records and HC records. SSS assisted with instrument design and shared in the data collection task and, in particular, completed the Pharmacy Component. Westat, Inc. was the contractor for the Household Component of MEPS.

Second, for the 2009 MPC, a computer-assisted system was developed for both interviewing and record abstraction. This Integrated Data Collection System (IDCS) supported the effort to recruit providers by telephone and to interview medical records and billing staffs of medical facilities. For providers that preferred send hard copy records, the same application was used to abstract information from medical records and patient accounts.

In this report, preparations for the 2009 MPC are discussed in Chapter 2, including the 2009 MPC sample, a description of data collection instruments and features of the IDCS, and recruiting and training activities. Data collection activities and outcomes are presented in Chapter 3.

2 Preparations for the 2009 MPC

This chapter describes the 2009 MPC provider sample, preparations for data collection, and procedures followed to update the sample with additional providers who might have been missed in the HC and update locating information. The chapter also discusses data collection instruments, including features of the IDCS and recruiting and training of data collection staff.

2.1 Sample Preparations

The basic sample unit in the MPC is a person-provider pair where the person 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, that is, an office visit, a hospital stay, a prescription for medicine, or other health care event. Respondents in the HC are asked to identify all medical providers associated with health care services received by each member of the household. Household members are asked to sign an Authorization Form (AF) indicating their agreement to allow providers to release 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 Household Component, medical providers include any type of practitioner contacted by the household for what the household considers to be health care—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 an MD or DO. Services provided by dentists, optometrists, psychologists, podiatrists, chiropractors, and other kinds of health care practitioners who do not provide care under the supervision of an MD or DO are excluded from the MPC. 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 the final group of MPC respondents.

In summary the provider types included in the MPC are:

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

Institutions—Long-term care providers

Pharmacies—Pharmacies where household respondents obtained or purchased prescriptions medicines

Office Based Doctors (OBDs)—Physicians (MDs and DOs) associated with non-hospital care.

Home Care Agencies—Providers associated with care provided in the home of the

household respondent, including either health care (Health Agencies) or other services excluding health care (Non-Health Agencies)

Separately Billing Doctors (SBDs)—Providers added to the sample of providers obtained from the HC from the medical 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.

2.1.1 Sample files in the 2009 MPC

Westat prepared person-provider pair data from the computer assisted personal interview (CAPI) survey instrument used in the HC. The file includes pairs with eligible dates of utilization (that is, 2009) and signed AFs. Westat unduplicated the provider data exported from CAPI within the HC Reporting Unit (RU), subsampled OBDs at the RU level, and delivered the extracted MPC sample files to RTI. The OBD subsampling rate in the 2009 MPC was 50%.

Table 2-1 is adapted and updated from a similar table in the methodology report for 2008. Office-based providers (OBDs) were subsampled following household data collection in each of the years shown.

Table 2-1. Summary of Design Factors in the Household Component , 2007—2009

	2007		2008		2009	
	Panel 11, Year 2	Panel 12, Year 1	Panel 11, Year 2	Panel 12, Year 1	Panel 12, Year 2	Panel 13, Year 1
No. of PSUs for household sample	195	183	183	183	183	183
No. of household interviews	6,781	5,383	5,182	7,648,	7,461	6,980
Subsampling of office-based providers in CAPI	No	No	No	No	No	No
Subsampling of office-based providers after CAPI	Yes	Yes	Yes	Yes	Yes	Yes

Sources: MEPS Medical Provider Component Annual Methodology Report (May 15, 2010), Table 2.1 and MEPS Household Component Annual Methodology Report (March 15, 2011), Table 1.1 and Table 4.3

The input to the MPC included several distinct files.

Records in the **main sample file** were identified at the patient-provider 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 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, person-provider pair level, and provider level. During the matching process, the data collected during the MPC was linked back to the person-provider pairs from this original HC sample file.

The **person file** contained identifying information for every household member associated with a person-provider pair in the main sample file. The file can be merged with the main sample using the person ID (PERSID).

The **master provider directory** was a listing of providers and along with a corresponding Provider ID (PDDIRID) for each provider record. It included all of the providers reported by HC respondents since 1995. The file can be merged with the main sample file using PDDIRID so that the name and contact information of the provider can be loaded as part of the MPC case.

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.

2.1.2 Schedule of Delivery from Household Component

For the 2009 MPC, Westat extracted the sample files used for inclusion in the MPC sample in two waves for the non-pharmacy (hospitals, office-based providers, home health providers, and institutional care providers) and four waves for the pharmacy sample.

The schedule for 2009 MPC sample was:

- January, 2010
  - 1st Provider Wave: Panel 13, Rounds 3 & 4; Panel 14, Rounds 1 & 2
  - 1st Pharmacy Wave: Panel 14, Round 2
- April, 2010
  - 2nd Pharmacy Wave: Panel 13, Round 5 (1st cut)
- July, 2010
  - 2nd Provider Wave: Panel 13, Round 5; Panel 14, Round 3
  - 3rd Pharmacy Wave: Panel 14, Round 3
  - 4th Pharmacy Wave: Panel 13, Round 5 (final cut)

The following data elements were included in the MPC sample in order to identify each0020person-provider 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 person-provider 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 person-provider pair, a key data collection unit of the MPC. The extracted file records were sorted so that all person-provider 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 *Specifications for Sample Preparation – 2009 MEPS*.)

2.2 Sample Maintenance

Westat assigned Provider IDs either during the CAPI interview or in a post-data collection process where clerks looked up providers in an historical master provider directory. Providers that could not be located in this master directory were assigned a new provider ID. 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). In the formation of contact groups, original Provider IDs and other HC detailed information 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 billing records.

2.2.1 Contact Groups

Providers at the same location (e.g., physicians working in the same group practice or hospital) were sorted into contact groups using two processes. First, provider lists were reviewed for similarities in name and locating information (e.g., telephone numbers). Second, RTI used Westat's historical grouping database that indicates Provider IDs have been grouped together in prior years of the MPC.

All Veterans Administration cases were grouped together because of their common organizational structure that makes them significantly different from the other providers in the sample. In addition, identified HMO providers were grouped together because they may prefer that contact be made with their common corporate office rather than with the individual providers.

2.2.2 Fielding the 2009 MPC Sample

In the 2009 MPC, the non-pharmacy sample was fielded in three waves. The second and third wave of MPC cases were reviewed at the provider and person levels to identify overlap or duplication with the prior wave. As each wave was processed, all persons associated with a Provider ID were grouped together and the providers are unduplicated within the wave by the HC contractor using the same procedures as the first sample wave.

Given the HC data collection procedures, it is possible for a person-provider pair to be included in more than one wave of the MPC sample. Before fielded the second and third wave, each was reviewed to identify pairs that had been included in an earlier wave. When a person-provider pair in the new wave matched a person-provider pair from an earlier wave and the same event types were reported in both (or all three) waves, the person-provider pair is not be fielded in the later wave. If different event types are reported, the case is reviewed to determine whether additional data collection is necessary.

2.2.3 Provider Type Classification

Provider type was important operationally in the MPC for several reasons. Because hospital events were likely to be associated with high expenditures, it was important to track participation by provider type to assure that hospital providers are responsive to the survey. Hospitals can be complex environments and data collection instruments were 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 billing and payment information. Also because of this complexity, more experienced staff were assigned to hospital data collection.

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.

However, it is possible that household respondents may not accurately report the provider type. For example, a visit to a hospital outpatient department may be reported by the household respondent as an office-based doctor visit. Several measures were employed in the MPC to help assure the provider type was accurately identified for data collection.

Westat compared the household designation of provider type with historical information available in the master provider directory. If there was an inconsistency, provider type was changed to be consistent with the directory data. If the information was consistent or the provider could be identified in the historical directory, the provider type was left as reported by the household.

In addition, following the sorting of provider pairs into contact groups, RTI reviewed the composition of contact to see if provider classification at the pair level was consistent within contact group. Inconsistencies were resolved by giving priority to hospital pairs; that is, if any pair within a contact group was classified as a hospital pair, the provider type for the contact group was also classified as hospital.

Finally, if the data collection staff discovered that the provider type was incorrect during the initial contact with the provider the provider type was updated so that the appropriate event booklet could be administered.

2.2.4 Priority Codes

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 through the use of 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 meets one or more of the following criteria:

- Had a hospital stay or home health event
- Was deceased
- Was institutionalized in a health care facility

- Had an outpatient or office visit surgery.

2.3 Integrated Data Collection System

The Integrated Data Collection System IDCS supported the data collection and tracking requirements of the MPC. Its main purposes were to:

- Manage and update the provider information
- Collect updated information via telephone, or hardcopy form into one central database
- Produce reports for project staff as well as AHRQ
- 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: a Web component in ASP.Net in which the MEPS-MPC forms (Contact Guides and Event Forms) were programmed for either data entry either during telephone calls or record abstraction a Case Management System (CMS) that managed the medical providers and associated forms for call scheduling, contact information, appointment times, and event/status information.

2.3.1 Objectives of moving from paper to computer assisted system

The IDCS was designed to support the complex tracking requirements of the MPC, providing reports on completion for providers and patient-provider pairs. Regardless of the type of event form or mode of data collection (telephone or abstraction), all data were entered directly into a central database, eliminating separate steps for keying and merging of data from multiple sources.

The IDCS user interface was designed so that data can be entered in whatever order they appear in the provider records. A series of menu options allowed data collection staff to easily access different sections of data collection instruments to accommodate to a variety of situations that might occur in collecting data from many types of providers. Onscreen data collection forms included edit checks to improve the accuracy of data.

2.3.2 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 call center 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 record abstraction as well as by telephone.

Contact Guide

Contact Guides were programmed for each of the major provider types as an aid to recruiting providers. Contract Guides were 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 Guides 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. The Guides interacted with the CMS to prompt follow-up contacts with providers after an appropriate time (24 hours for faxed material; 5 days for mailed material).

Event Forms

Event Forms were modeled on the booklets used previously in the MPC and were programmed for each provider type. Event Forms were used for collecting information either during telephone calls with providers or by abstracting hardcopy medical or billing records. In contrast with a traditional linear questionnaire, the Event Forms were adaptable to the particular format of medical and billing records. The Event Forms featured edit checks on individual items and were also programmed to alert users to inconsistencies that may 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 Guides, 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 faxed or mailed to providers (including AFs). 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 workloads among staff. Results of all previous call attempts or entered data were accessible to the new user.

Automated Fax/Mail

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

- Fax/mail cover sheet
- Cover letter providing general information about the study from the U.S.

Department of Health and Human Services

- 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
- Fax/mail return form used by the respondent when they preferred to fax or mail their medical and billing records for hardcopy abstraction. The fax return cover sheet contained pre-printed information for faxing records. The mail return form includes a pre-printed mailing label for the provider to send via mail.

2.4 Enhanced Security Network

All files containing personally identifiable information (PII) or personal health information (PHI) were stored and managed within the Enhanced Security Network (ESN), a network developed by RTI to meet the security requirements of NIST SP 800-53, Rev. 2, *Recommended Security Controls for Federal Information Systems*. A key IDCS security feature provided access to the Web interface based on the login attributes assigned to individual users.

2.5 Training

Data collection specialists (DCSs) were the "front-line" staff charged with recruiting medical providers and abstracting medical event level from medical and payment records. Abstracting this information could be completed either over the telephone in interviews with provider staff or by abstracting hard-copy medical records sent in by providers. Separate training modules were administered to emphasis the different skills necessary 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 hard-copy abstraction methods.

RTI-SSS prepared a core training team to accommodate training sessions at both call centers. The core training team was responsible for the overall success of each training session to ensure that all trainees, regardless of data collection site, received the same training.

A series of training sessions was conducted beginning with initial training sessions followed by as-needed attrition training sessions. Initial training sessions began in February 2010. Together the DCS and the abstractor training sessions covered four important components:

- Study content and procedures
- Interviewing
- Abstraction Practice
- MEPS-MPC project certification.

3 Data Collection

In the 2009 MPC, the RTI-SSS team followed a core protocol for collecting information from the provider types. The protocol was customized 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 above, the patient-provider 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.

In the initial contact with each group, the DCS identified appropriate individuals as Points of Contact (POCs) to complete data collection. The outcome of each contact attempt was recorded in the Contact Guide. The history of contacts with each provider group was readily available for review prior to subsequent contact and by supervisors and project staff for review. DCSs were assigned a set of provider contact groups so that they can establish a rapport with contacts in each provider group. If any cooperation or staffing issues arise, cases were reassigned to refusal converters.

During initial contacts, DCSs performed several tasks:

- introduce the study
- confirm the provider groupings in the initial assignment
- identify the provider staff who can fulfill our requests
- obtain fax numbers or addresses for sending project materials
- negotiate the manner in which data collection proceeds
- determine whether the facility charges 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 in the provider organization.

3.1 Provider Recruitment and Data Collection Procedures

While overall data collection procedures were similar for each provider type, each also offered unique features and holds specific provider type procedures that must be followed. The following sections describe the MEPS-MPC data collection protocols and the procedural variations for each provider type.

3.1.1 Hospitals

Because the organization of hospitals varies, data collection procedures were flexible in adapting to particular situations while maintaining consistency in the data obtained.

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 to offer two methods for submitting data: sending the medical records by fax or mail for abstraction or by having the DCS

collect and enter the data by telephone.

Four key pieces of information are obtained from the hospital medical records:

- Date(s) of service
- Event type (ER, outpatient, inpatient)
- Diagnoses (ICD-9 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).

After obtaining this information, the DCS contacted the patient accounts (billing) department to collect the services provided, charges, and sources and amounts of payment for each event identified. Finally, the DCS contacted the hospital's administrative offices to obtain the billing status of each health professional identified by the medical records and contact information for confirmed SBDs.

3.1.2 Institutions

The procedures for institutional care settings are similar to that for hospitals. The institutional sample consists of the long-term health care facilities, such as skilled nursing or rehabilitation facilities.

3.1.3 Office Based Doctors (OBDs)

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.

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 new Medicare Home Health Prospective Payment System. The system allowed the option of collecting payment data in 2-month or 1-month time frame as appropriate.

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 was 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 was reviewed for each chain to develop a contact approach. A 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 pharmacy preferred the data request to be handled with a regional or central contact, the negotiator facilitated the most efficient method for data collection.

3.1.6 Separately Billing Doctors (SBDs)

The second part of the MEPS-MPC sample consists of physicians (reported by hospitals) who provide services during a hospital-based event. These events often result in charges from physicians who may or may not have direct patient contact (e.g., pathologists or radiologists) and whose fees may or may not be included in the hospital charge. These charges are a key part of hospital event costs, and this information can only be obtained from the MEPS-MPC.

To identify potential SBDs and confirm their MEPS-MPC operational status, DCSs contacted the hospital medical records department. Either working with medical records personnel by telephone or from hardcopy records, the DCS recorded each physician 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 between the hospital provider, patient, event type, event date, and SBD.

All SBDs were assigned the appropriate provider ID using the master MEPS provider directory during the SBD coding process. The SBD-person pair is compared to the MEPS-MPC sample pairs already fielded. If the pair had already been fielded and all data collected as part of the OBD sample, there was no need to contact the SBD. If the SBD-person pair was not already in the MEPS-MPC sample, the practice was contacted following procedures described above.

3.2 Data Abstraction

Once the provider acknowledged receipt of the authorization forms, the DCS either collected information over the telephone through electronic event forms specific to each provider type or made arrangements to receive hardcopy medical records and patient account information.

Table 3.1 displays the proportion of participating hospital, OBD, and SBD contact groups that elected to participate by sending in medical records and patient account information for abstracting. As expected, the majority of participating hospital contact groups[1] sent in

[1] 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 health

records for abstraction (79.5% sent medical records and 73.4% provided billing records). A little more than half (57.1%) of participating OBD contact group provided records and a little more than a quarter (26.9%) of SBD contact groups provided records.

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

Provider Type	Participating Contact Groups	Contact Groups that Provided Records	
		Number	Percent
Hospital—Medical Records	3,792	3,017	79.5%
Hospital—Patient Accounts	3,792	2,745	73.4%
Office-Based Doctors	6,460	3,689	57.1%
Separately Billing Doctors	9,405	2,516	26.9%

Pair level metrics are consistent with the contact group level. Among completed hospital pairs, medical records were obtained for 76.8% and billing records were obtained for 77.2%; billing records were obtained for 58.4% of OBD pairs and 24.2% for SBD pairs.

3.3 Coding Text Fields Collected in the 2009 MPC

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

- sources of payment
- separately billing doctors
- medical conditions,
- procedures,
- supplies, and
- prescribed medicines.

Sources of payment and separately billing doctor information were be coded by RTI staff using coding schemes developed in previous rounds of the MPC. Coding for conditions (ICD-9-CM), 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 the NDC-9 coding of prescribed drugs.

3.4 Data Collection Schedule

Table 3-2 summarizes the schedule for 2009 MPC data collection. Because the entire staff of DCSs were new to the project, relatively less complicated OBD cases were

care system that may contain several hospitals. Note as well that contact group is a different metric than the concept of "provider wave" reported in previous rounds of the MPC. In a provider wave, a provider is counted one for each wave of the sample in which it is represented. Table 3.1 reports the percentage of contact groups that provided medical and billing records.

fielded early in the field period and more difficult hospital and pharmacy data collection was postponed until staff had developed skill and confidence. An additional factor for pharmacy data collection was a delay in the introduction of the system component related to Pharmacy Contact Guides and Event Forms. The sequence carried some risk because data collection in hospitals and pharmacies typically has a longer cycle than other providers because the decision to participate may involve more actors and because the requested information may reside in several departments. With the end of the field period fixed, the approach truncated the period of data collection for those providers that required the most time and effort.

Table 3-2. 2009 MPC Data Collection Schedule

Provider Type	Start of first MPC wave	Start of last MPC Wave	End of MPC data collection	Number of Waves	Total Weeks
Hospital					
Small	03/15/2010	07/29/2010	11/30/2010	2	37
Medium/Large	06/14/2010	07/29/2010	11/30/2010	2	24
Office-Based Doctors	03/01/2010	07/29/2010	11/30/2010	2	39
Institution	09/17/2010	09/17/2010	11/30/2010	2	11
Home Health Agencies	09/17/2010	09/17/2010	11/30/2010	2	11
Pharmacies	07/29/2010	07/29/2010	12/17/2010	4	20
SBDs	12/08/2010	01/15/2011	04/30/2011	2	20

3.5 Post Data Collection Editing and Reabstraction

Following the end of data collection, the data collected in the 2009 MPC were intensively reviewed by staff at AHRQ, RTI, and SSS. A number of data quality problems were uncovered, particularly in the data collected about hospital events. Although a wide range of errors were identified, especially problematic were a high number of missing values for amounts of payments by source and a high number of hospital events missing lists of separately billing doctors. These data elements are essential for the expenditure estimates and, in order to ensure the quality of these data, it was necessary to review and re-abstract records for 3,479 pairs, as indicated in Table 3-3. Home health agency and institution events were also reviewed (56 home health agency pairs accounting for 362 events and 4 institution pairs accounting for 4 events).

The re-abstraction task began March 7 and continued through May 4 of 2011. The re-abstraction resulted in identifying additional sources of payment and amounts paid and in listing additional SBDs that had not been abstracted in the initial data collection.

The scope and timing of this activity resulted in significant delays in the 2009 MPC schedule. Delivery of final files was delayed by several months from April to June 2011 with subsequent delays in the availability of expenditure estimates from MEPS.

Although SBD data collection coincided with this task, many of the SBD's identified in the re-abstraction could not be contacted within the SBD field period. This resulted in a large number of SBDs and SBD nodes where eligibility for the survey could not be determined. In the tables reporting response rates, these undetermined cases are included in counts of eligible cases.

Table 3-3. Pairs and Events Selected for Review

	Pairs	Events
Hospital inpatient events where payment was "0" or "Missing"	2,472	11,477
Samples of other events where payment was "0" or "Missing"		
OBD events with adjustment/discount mentioned in one or more events (random selection of 100 pairs)	100	584
OBD events with no mention of adjustment/discount in one or more events (random selection of 100 pairs)	100	400
Hospital events not reviewed for another reasons (random selection of 100 pairs)	100	334
Outpatient or OBD events where charges were greater than $7,500	707	3,563
Total	3,479	16,358

3.6 Data Collection Results

3.6.1 Response Rates

Response rates for all providers are lower than those achieved in earlier cycles of the MPC and especially for hospitals and pharmacies. Table 3-4 displays the provider-level results and Table 3-5 the pair-level results for the 2009 MPC compared with the 2008 MPC. No HMO providers participated in the 2009 MPC.

Although response rates for providers in the 2009 MPC are lower than in the 2008 MPC, refusal rates are also generally lower in the 2009 MPC. This suggests that more providers may have participated had the schedule allowed for additional follow-up efforts.

Table 3-4. Provider-Level Response Rates, MPC 2008 and 2009

Provider	Initial sample after subsampling	Final eligible sample	Response rate	Refusal rate	Other nonresponse rate
		2008			
Hospitals	5,126	4,776	0.946	0.022	0.035
Office-based providers	10,762	9,533	0.891	0.067	0.054
HMOs	243	198	0.970	-	0.031
Home care providers	498	446	0.901	0.077	0.032
Institutions	77	72	0.944	0.097	0.066
SBDs	19,262	11,364	0.860	0.097	0.066
Pharmacies	7,799	7,026	0.756	0.271	0.050
Total	43,767	33,415			
		2009			
Hospitals	7,391	6,440	0.890	0.012	0.098
Office-based providers	10,234	9,150	0.801	0.003	0.227
HMOs	NA	NA	-	-	-
Home care providers	664	603	0.861	0.053	0.086
Institutions	105	101	0.921	0.030	0.050
SBDs	24,208	19,874	0.683	0.081	0.236
Pharmacies	8,935	7,949	0.689	0.050	0.262
Total	52,747	45,327			

Table 3-5. Pair-level response rates, MPC 2008 and 2009

Patient-provider pair	Initial sample after subsampling	Final eligible sample	Response rate	Refusal rate	Other nonresponse rate
		2008			
Hospitals	10,672	9,600	0.943	0.026	.0340
Office-based providers	13,917	12,281	0.884	0.077	0.054
HMOs	572	449	0.958	0.002	0.042
Home care providers	564	502	0.902	0.077	0.031
Institutions	80	75	0.947	0.042	0.014
SBDs	27,498	16,144	0.846	0.133	0.049
Pharmacies	19,678	17,038	0.706	0.356	0.060
Total	72,981	56,089			
		2009			
Hospitals	14,199	12,276	0.877	0.014	0.109
Office-based providers	13,386	11,956	0.798	0.055	0.136
HMOs	601	601	-	-	-
Home care providers	728	656	0.854	0.055	0.087
Institutions	113	109	0.927	0.028	0.046
SBDs	27,480	22,417	0.683	0.084	0.233
Pharmacies	22,587	19,683	0.632	0.260	0.108
Total	78,493	67,097			

Finally, Table 3-6 displays the node-level response rates among SBDs. A "node" in the SBD data collection refers to the unique combination of hospital provider, patient, event type, event date, and SBD. As compared with provider and pair level response rates, the node response rate is a more granular way to measure the amount of information collected about expenditures related to SBD services.

The 2009 SBD data collection resulted in a much lower eligibility rate than in the 2008 MPC. This is very likely due to the reabstraction effort which is described in the previous section.

Table 3-6. SBD Node-Level Response Rate

	2008	2009
Total nodes	62,903	58,200
Out-of-scope	34,332	18,266
Net eligible	28,571	39,934
Complete	22,441	21,265
Nonresponse	6,130	2,099
Eligibility rate	0.454	0.686
Completion rate	0.785	0.533

3.6.2 Refusal Conversion

Table 3-7 provides additional information about refusal conversion. The analytic unit in this table is contact group. Each contact group may include multiple providers. The final column in this table displays the percent of initial refusals that were converted to a complete or partially complete group. Over three quarters (75.9%) of hospital contact groups were converted from initial refusal to complete; the conversion rate for OBD groups is 41.3%; Home health groups is 44.4%; Pharmacy (corporate and non-corporate) is 35.4%; and 29.4% for SBD contact group.

3.6.3 Components of MPC Data Collection

Figures 3-1 through 3-4 summarize major components of the MEPS MPC data collection for the history of the survey for hospitals, OBDs, SBDs, and pharmacies (corporate and non-corporate). Following the practice of earlier years, these graphs present data at the provider level. Each graph displays:

- Sample size, as a proportion of the sample field in 2002
- Sample eligibility rate,
- Final completion rate, and
- Final refusal.

Table 3-7. Refusal Conversion Outcomes: Final Disposition of Contact Groups Initially Coded as Refusal, 2009 MPC

Contact Group Provider Type	Initial Sample[1]	Final Disposition of Ever Coded Refusal									
		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
Hospital	4,298	299	7.0%	100.0%	6	2.0%	41	13.7%	25	8.4%	227	75.9%
Office-based	8,635	876	10.1%	100.0%	20	2.3%	323	36.9%	171	19.5%	362	41.3%
Home Health	624	36	5.8%	100.0%	1	2.8%	16	44.4%	3	8.3%	16	44.4%
Pharmacy	2,783	161	5.8%	100.0%	9	5.6%	64	39.8%	31	19.3%	57	35.4%
SBDs	16,718	1423	8.5%	100.0%	91	6.4%	634	44.6%	280	19.7%	418	29.4%

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

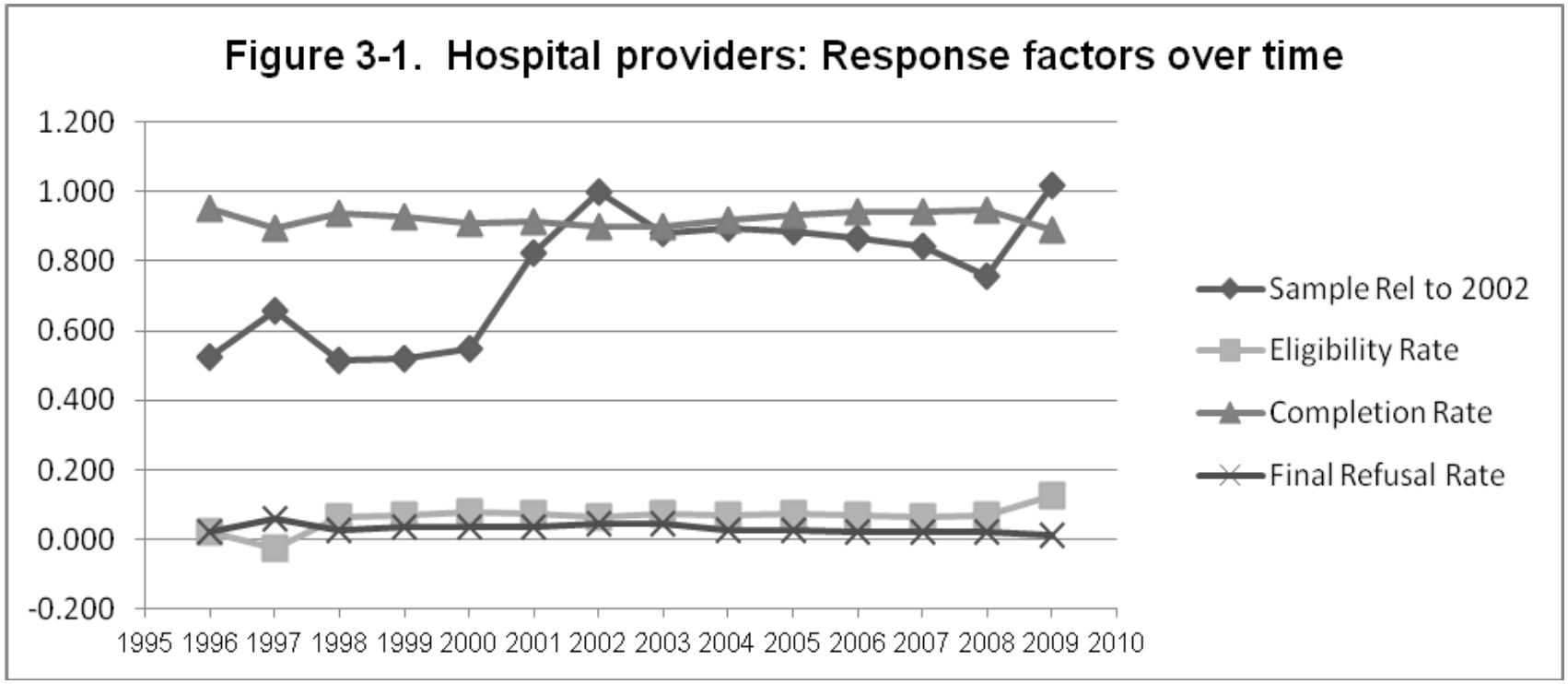
Figure 3-1. Hospital providers: Response factors over time
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Sample Rel to 2002
Eligibility Rate
Completion Rate
Final Refusal Rate

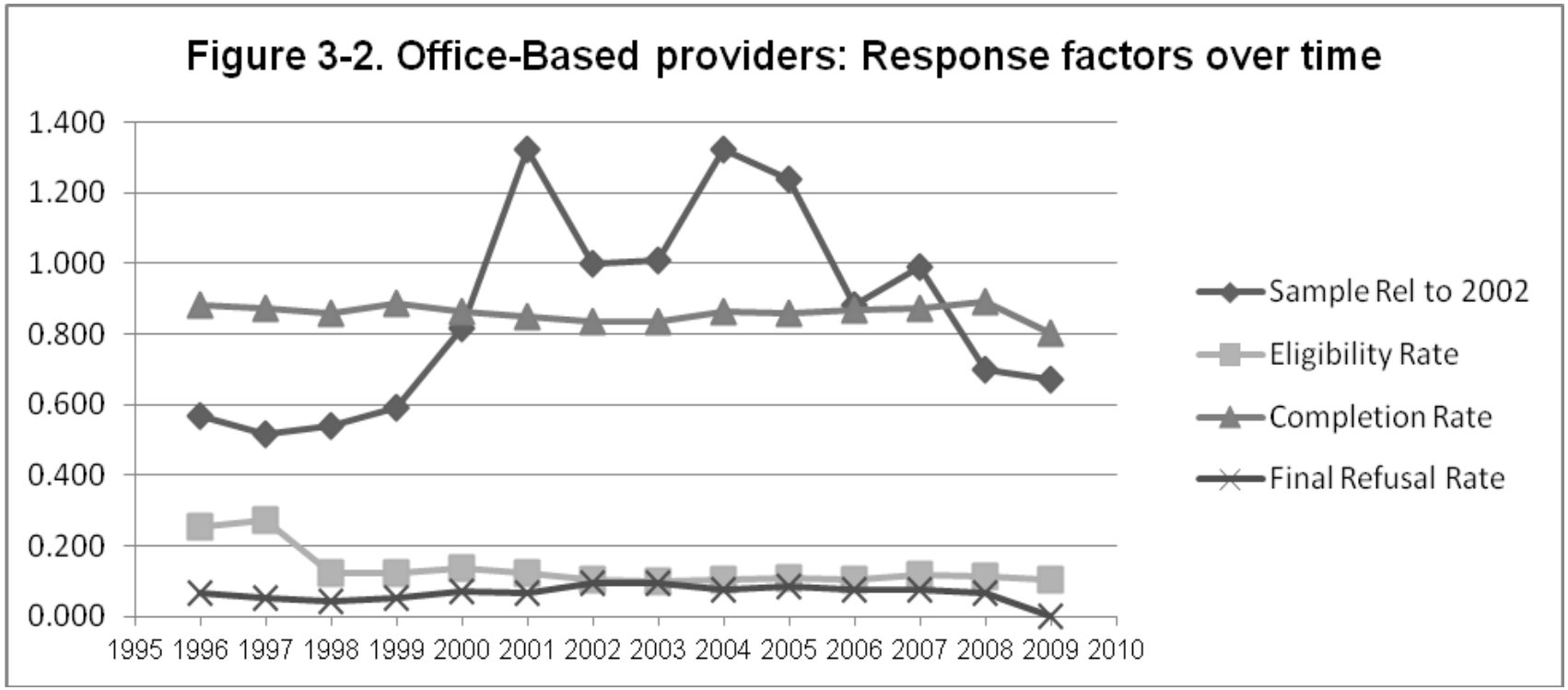
Figure 3-2. Office-Based providers: Response factors over time
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Sample Rel to 2002
Eligibility Rate
Completion Rate
Final Refusal Rate

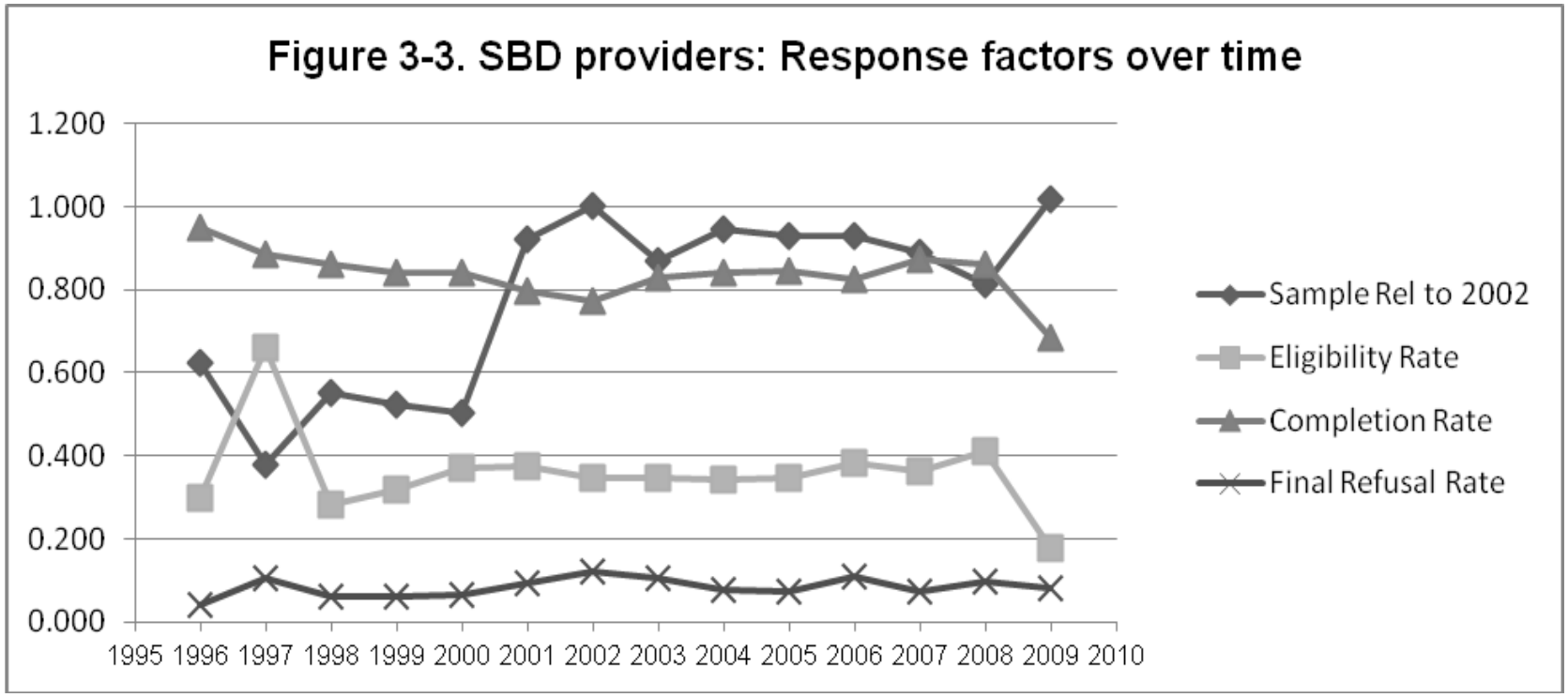
Figure 3-3. SBD providers: Response factors over time
1.200
1.000
0.800
0.600
0.400
0.200
0.000
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Sample Rel to 2002
Eligibility Rate
Completion Rate
Final Refusal Rate

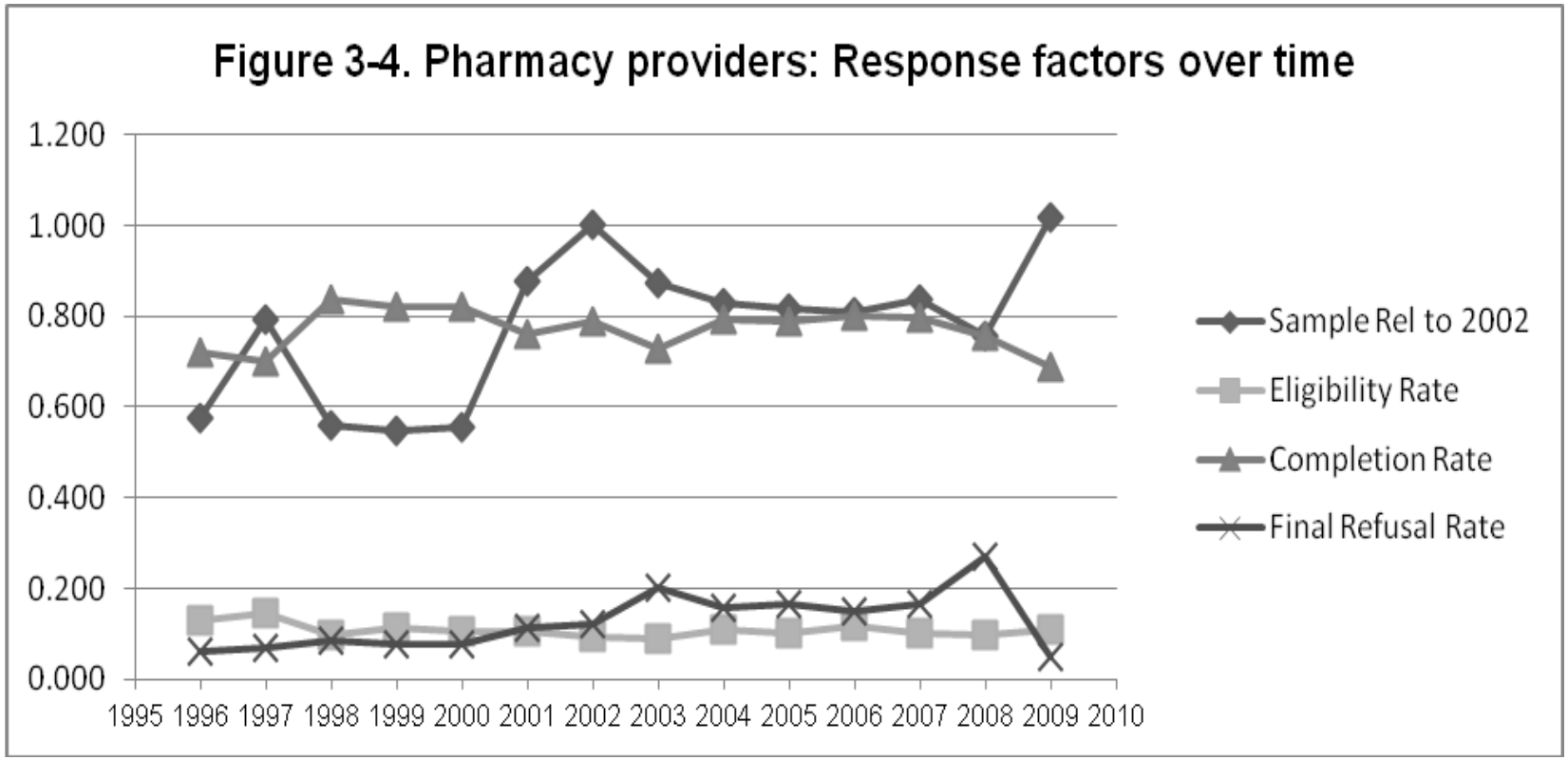
Figure 3-4. Pharmacy providers: Response factors over time
1.200
1.000
0.800
0.600
0.400
0.200
0.000
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Sample Rel to 2002
Eligibility Rate
Completion Rate
Final Refusal Rate

These figures indicate that the sample size for these providers is large relative to recent years of the MPC. The eligibility rate for hospitals, OBDs, and pharmacies is consistent with recent years, however the eligibility rate for SBD is lower. As noted above, the completion rate for all provider types is lower than recent years of the MPC.

3.6.4 Timing

Hours per completed pair is displayed in Table 3-8. These figures include both telephone and hard copy record abstraction as well as recruiting efforts.

Table 3-8. Hours per Completed Pair, 2006—2009 MPC

	Provider Type				
Year	**Hospital**	**Office-Based**	**Home Health**	**Pharmacy**	**SBD**
2006	8.41	3.33	6.53	0.56	3.56
2007	8.01	3.08	6.80	0.51	3.33
2008	8.84	3.77	6.84	0.49	3.24
2009	7.07	4.38	6.39	0.40	2.27

Compared with earlier years, hours per pair in 2009 are lower for hospital and pharmacy pairs and SBD pairs, but higher for Office-Based Doctors.

Appendix A: Acronyms and Definitions

AF:	Authorization Form
AHRQ:	Agency for Healthcare Research and Quality
CMS:	Case Management System
Contact Guide:	Forms used to collect and manage information about contacts at provider facilities
CS:	Control System
DCS:	Data Collection Specialist
ESN:	Enhanced Security Network, developed my RTI to meet requirements of NIST Moderate Security
Event Forms:	Forms used to record information about medical events identified in the HC
HC:	Household Component of the MEPS
HIPAA:	Health Insurance Portability and Accountability Act
IDCS:	Integrated Data Collection System
MEPS:	Medical Expenditure Panel Survey
MPC:	Medical Provider Component of the MEPS
PHI:	Personal Health Information
PII:	Personally Identifiable Information
POC:	Point of Contact in the provider facility.

Appendix B: MPC Data Collection Summary Tables

TABLE B-1. MPC Sample Sizes, Provider Level, 1996—2009

	1996	1997	1998	1999	2000	2001	2002	2003	2004
Hospital									
Initial Sample	3,301	6,045	4,844	3,520	3,760	6,801	8,811	7,806	7,567
Sample after subsampling	n/a	4,065	3,468	n/a	3,760	5,616	6,780	6,023	6,094
Final in-scope sample	3,330	4,163	3,247	3,284	3,467	5,201	6,325	5,580	5,671
HMO									
Initial Sample	296	396	228	247	118	476	559	607	420
Sample after subsampling	n/a	350	171	n/a	118	334	290	280	300
Final in-scope sample	628	467	155	225	113	287	256	218	250
Institution									
Initial Sample	59	81	63	52	63	83	114	81	92
Sample after subsampling	n/a	80	69	n/a	63	82	110	81	92
Final in-scope sample	50	75	65	45	60	76	103	73	89
Homecare									
Initial Sample	415	674	456	393	319	520	631	588	568
Sample after subsampling	n/a	653	420	n/a	319	509	611	586	556
Final in-scope sample	375	579	384	293	281	436	537	527	509
Office-based physician									
Initial Sample	10,118	14,646	10,483	9,202	12,962	26,344	32,889	28,946	27,617
Sample after subsampling	n/a	9,663	8,403		12,962	20,651	15,222	15,361	20,212
Final in-scope sample	7,758	7,047	7,356	8,076	11,167	18,078	13,652	13,808	18,069
SBD									
Initial Sample	10,323	14,730	10,711	10,680	11,144	20,644	21,385	18,613	20,094
Sample after subsampling	n/a	7,365	10,711	n/a	11,144	20,644	21,385	18,613	20,094
Final in-scope sample	8,705	5,297	7,704	7,288	7,026	12,891	13,976	12,154	13,225
Pharmacy									
Initial Sample	6,109	8,547	5,734	5,703	5,762	9,118	10,200	8,882	8,608
Sample after subsampling	n/a	8,547	5,734	n/a	5,762	9,118	10,200	8,882	8,608
Final in-scope sample	5,321	7,335	5,168	5,058	5,152	8,141	9,268	8,101	7,663

TABLE B-1. MPC Sample Sizes, Provider Level, 1996—2009, (continued)

	2005	2006	2007	2008	2009
Hospital					
Initial Sample	7,461	7,447	7,110	6,470	n/a
Sample after subsampling	6,059	5,884	5,708	5,126	7,391
Final in-scope sample	5,600	5,484	5,328	4,776	6,436
HMO					
Initial Sample	422	333	501	517	n/a
Sample after subsampling	301	284	316	243	601
Final in-scope sample	241	238	247	198	601
Institution					
Initial Sample	121	80	76	81	n/a
Sample after subsampling	116	80	75	77	105
Final in-scope sample	108	78	72	72	101
Homecare					
Initial Sample	606	655	534	505	n/a
Sample after subsampling	593	648	516	498	664
Final in-scope sample	539	602	464	446	603
Office-based physician					
Initial Sample	26,972	27,620	25,052	25,537	n/a
Sample after subsampling	18,933	13,473	15,273	10,762	10,234
Final in-scope sample	16,898	12,062	13,492	9,533	9,148
SBD					
Initial Sample	19,810	21,126	19,435	19,262	24,208
Sample after subsampling	19,810	21,126	19,435	19,262	24,208
Final in-scope sample	12,971	13,013	12,410	11,364	19,874
Pharmacy					
Initial Sample	8,404	8,471	8,619	7,799	8,935
Sample after subsampling	8,404	8,471	8,619	7,799	8,935
Final in-scope sample	7,568	7,489	7,760	7,026	7,949

TABLE B-2. MPC Sample Sizes, Pair Level, 1996—2009

	1996	1997	1998	1999	2000	2001	2002	2003	2004
Hospital									
Initial Sample	6,729	11,694	7,922	6,712	7,849	11,798	16,481	13,876	13,175
Sample after subsampling	n/a	8,192	6,434	n/a	7,849	11,377	14,477	13,094	12,772
Final in-scope sample	6,570	7,938	5,825	6,163	7,016	10,155	12,805	11,532	11,589
HMO									
Initial Sample	534	809	436	555	382	965	1,134	939	791
Sample after subsampling	n/a	n/a	n/a	n/a	382	791	567	625	665
Final in-scope sample	924	911	346	472	324	637	477	466	514
Institution									
Initial Sample	63	85	64	53	66	86	116	86	94
Sample after subsampling	n/a	85	70	n/a	66	86	115	85	94
Final in-scope sample	53	80	70	45	63	79	107	77	90
Homecare									
Initial Sample	461	750	520	394	367	607	713	652	610
Sample after subsampling	n/a	750	491	n/a	367	601	682	641	610
Final in-scope sample	385	662	445	340	317	471	606	579	555
Office-based physician									
Initial Sample	13,681	19,157	12,641	11,974	17,407	33,518	42,327	36,804	34,611
Sample after subsampling	n/a	12,635	10,747	n/a	17,407	26,886	19,309	19,731	26,392
Final in-scope sample	10,251	9,632	9,334	10,409	14,935	23,376	17,198	17,692	23,446
SBD									
Initial Sample	12,488	17,394	13,658	14,906	15,955	28,905	30,780	26,965	29,271
Sample after subsampling	n/a	8,697	13,658	n/a	15,955	28,930	30,780	26,965	29,271
Final in-scope sample	9,187	6,301	9,691	10,100	9,893	17,529	19,977	17,566	18,694
Pharmacy									
Initial Sample	14,531	20,248	12,321	13,183	14,847	22,165	26,046	22,438	21,720
Sample after subsampling	n/a	n/a	n/a	n/a	14,847	22,165	26,046	22,438	21,720
Final in-scope sample	12,146	16,241	10,386	11,317	12,728	19,256	23,057	19,649	18,571

TABLE B-2. MPC Sample Sizes, Pair Level, 1996—2009 (continued)

	2005	2006	2007	2008	2009
Hospital					
Initial Sample	12,933	13,071	11,220	11,374	
Sample after subsampling	12,601	11,911	10,646	10,672	14,199
Final in-scope sample	11,279	10,830	9,611	9,600	12,262
HMO					
Initial Sample	804	694	852	968	
Sample after subsampling	685	594	621	572	601
Final in-scope sample	514	476	459	449	601
Institution					
Initial Sample	123	80	78	81	
Sample after subsampling	123	80	78	80	113
Final in-scope sample	113	78	75	75	109
Homecare					
Initial Sample	689	719	574	566	
Sample after subsampling	689	719	572	564	728
Final in-scope sample	619	661	513	502	656
Office-based physician					
Initial Sample	33,854	37,576	30,812	32,546	
Sample after subsampling	24,517	17,139	19,201	16,713	13,386
Final in-scope sample	21,821	15,274	16,713	12,281	11,954
SBD					
Initial Sample	28,930	31,058	26,407	27,496	27,480
Sample after subsampling	28,930	31,058	26,407	27,496	27,480
Final in-scope sample	18,720	18,699	16,660	16,144	22,417
Pharmacy					
Initial Sample	21,077	20,990	19,052	19,678	22,587
Sample after subsampling	21,077	20,990	19,052	19,678	22,587
Final in-scope sample	18,159	17,418	16,313	17,038	19,683

TABLE B-3. MPC Data Collection Results, Provider Level, 1996—2009

	Initial Sample	Sub-sample	Eligible Sample	Response 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			

TABLE B-3. MPC Data Collection Results, Provider Level, 1996—2009 (continued)

	Initial Sample	Sub-sample	Eligible Sample	Response Rate	Refusal Rate	Other Nonresponse Rate
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			

TABLE B-3. MPC Data Collection Results, Provider Level, 1996—2009 (continued)

	Initial Sample	Sub-sample	Eligible Sample	Response Rate	Refusal Rate	Other Nonresponse Rate
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			

TABLE B-3. MPC Data Collection Results, Provider Level, 1996—2009 (continued)

	Initial Sample	Sub-sample	Eligible Sample	Response Rate	Refusal Rate	Other Nonresponse Rate
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			

TABLE B-3. MPC Data Collection Results, Provider Level, 1996—2009 (continued)

	Initial Sample	Sub-sample	Eligible Sample	Response Rate	Refusal Rate	Other Nonresponse Rate
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	6,440	0.890	0.012	0.098
Office-based providers	n/a	10,234	9,150	0.801	0.003	0.227
HMOs	n/a	1,210	1,210	-	-	-
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	52,747	45,327			

TABLE B-4. MPC Data Collection Results, Pair Level, 1996—2009

	Initial Sample	Sub-sample	Eligible Sample	Response 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			

TABLE B-4. MPC Data Collection Results, Pair Level, 1996—2009 (continued)

	Initial Sample	Sub-sample	Eligible Sample	Response Rate	Refusal Rate	Other Nonresponse Rate
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			

TABLE B-4. MPC Data Collection Results, Pair Level, 1996—2009 (continued)

	Initial Sample	Sub-sample	Eligible Sample	Response Rate	Refusal Rate	Other Nonresponse Rate
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			

TABLE B-4. MPC Data Collection Results, Pair Level, 1996—2009 (continued)

	Initial Sample	Sub-sample	Eligible Sample	Response Rate	Refusal Rate	Other Nonresponse Rate
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			

TABLE B-4. MPC Data Collection Results, Pair Level, 1996—2009 (continued)

	Initial Sample	Sub-sample	Eligible Sample	Response Rate	Refusal Rate	Other Nonresponse Rate
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	12,276	0.877	0.014	0.109
Office-based providers	n/a	13,386	11,956	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	67,698			