Medicare Program Integrity Manual
Chapter 2 – Data Analysis

2.1 – Identifying Potential Errors - Introduction

(Rev. 71, 04-09-04)

This chapter specifies resources and procedures contractors must use to identify and verify potential errors to produce the greatest protection to the Medicare program. Contractors should objectively evaluate potential errors and not take administrative action unless they have verified the error and determined that the error is a high enough priority to justify the action. (See Reliable Evidence in *PIM* Exhibit 4.)

2.2 – Data Analysis

(Rev. 71, 04-09-04)

Data analysis is a tool for identifying potential claim payment errors. Data analysis compares claim information and other related data (e.g., the provider registry) to identify potential errors and/ or potential fraud by claim characteristics (e.g., diagnoses, procedures, providers, or beneficiaries) individually or in the aggregate. Data analysis is an integrated, on-going component of MR and BI activity.

The contractor's ability to make use of available data and apply innovative analytical methodologies is critical to the success of the MR and BI programs. Contractors should use research and experience in the field to develop new approaches and techniques of data analysis. Ongoing communication with other government organizations (e.g., QIOs,

the State Medicaid agencies, fiscal intermediaries, carriers and the DMERCS) concerning new methods and techniques should occur.

Analysis of data should:

- Identify those areas of potential errors (e.g., services which may be non-covered or not correctly coded) that pose the greatest risk;

- Establish baseline data to enable the contractor to recognize unusual trends, changes in utilization over time, or schemes to inappropriately maximize reimbursement;

- Identify where there is a need for LMRP;

- Identify claim review strategies that efficiently prevent or address potential errors (e.g., prepayment edit specifications or parameters);

- Produce innovative views of utilization or billing patterns that illuminate potential errors;

- Identify high volume or high cost services that are being widely overutilized. This is important because these services do not appear as an outlier and may be overlooked when, in fact, they pose the greatest financial risk; and

- *Identify program areas and/or specific providers for possible fraud investigations.*

This data analysis program must involve an analysis of national data furnished by *CMS* as well as review of internal billing utilization and payment data to identify potential errors.

The goals of the contractors' data analysis program are to identify provider billing practices and services that pose the greatest financial risk to the Medicare program.

Contractors must document the processes use*d* to implement their data analysis program and provide the documentation upon request.

In order to implement a data analysis program, the contractor must:

- Collect data from sources such as:

  - Historical data, e.g., review experience, denial data, provider billing problems, provider cost report data, Provider Statistical and Reimbursement (PS&R) data, billing data, Common working File (CWF), data from other Federal sources, i.e., QIO, other carriers and fiscal intermediaries (FIs), Medicaid; and

  - Referrals from internal or external sources (e.g., provider audit, *BI* unit, beneficiary, or other complaints);

- Conduct data analysis to identify potential errors;

- Institute ongoing monitoring and modification of data analysis program components through the QIP.

2.2.1 – Data Analysis to Detect Potential Errors or Potential Fraud
(Rev. 71, 04-09-04)

The data sources that contractors use will depend upon the issue(s) being addressed and the availability of existing data. Some of the more obvious provider information that may be used include:

- Types of providers;

- Volume of business;

- Volume (or percentage) of Medicare/Medicaid patients;

- Prevalent types of services;

- Location;

- Relationships to other organizations;

- Types of ownership;

- Previous investigations by the fraud unit;

- Size and composition of staff;

- Administrative costs;

- Claims history; and

- Other information needed to explain and/or clarify the issue(s) in question.

Systematic data analysis requires contractors to have in place the hardware and software capability to profile providers in aggregate, by provider type, by common specialties among providers, or individually. Specific requirements are described in PIM Chapter 2 §2.2.4.2 – Document Data Strategy.

Where possible, the selection of providers should show a representative grouping, in order to accurately reflect the extent of program losses.

2.2.1.1 – Resources Needed for Data Analysis
(Rev. 71, 04-09-04)

Contractors must have available sufficient hardware, software, and personnel with analytical skills to meet requirements for identifying problems efficiently and developing and implementing corrective actions. If carriers and intermediaries are unable to employ staff with the qualifications/expertise to aid in an effective analysis, they may use other entities (e.g., universities, consultants, other contractors) who can provide the technical

expertise needed. The following are minimum resource requirements for conducting data analysis.

A – Data Processing Hardware

Adequate equipment for data analysis includes facilities to process data (i.e., mainframes and personal computers) and to store data (i.e., tape drive, disk drives, etc.). Upgrading current resources (i.e., mainframe computers, shared systems, etc.) or the purchase of new capabilities (i.e., microcomputer workstations or subcontracts for computer services) may provide additional processing capabilities. In addition, contractors must have telecommunication capabilities to interact with the *CMS* Data Center.

B – Data Processing Software

CMS provides contractors with software to allow communication with the *CMS* Data Center. Contractors may wish to develop or acquire additional software that allows for analysis of internal data or other data obtained from the *CMS* Data Center. Contractors should have internal software to support the analyses of data to meet program goals.

C – Personnel

Contractors must have staff with appropriate training, expertise and skills to support the application of software and conduct systematic analyses and clinical evaluation of claims data. *CMS* strongly encourages contractors to have staff with clinical expertise (e.g., registered nurses) and a mix of skills in programming, statistics, and data analysis (e.g., trending and profiling of providers/codes).

Contractors must also employ staff that have training *in* develop*ing* analytical and sampling strategies for overpayment projections.

*2.*2.2 – Frequency of Analysis
(Rev. 71, 04-09-04)

Contractors must have at least 18 months of data to track patterns and trends. The contractors must, at a minimum, compare the current 6-month period to the previous 6-month period to detect changes in providers' current billing patterns and to identify trends in new services. Summary data or valid samples can be used when dealing with very large volumes of data.

*2.*2.3 – Sources of Data

(Rev. 71, 04-09-04)

A – Primary Source of Data

Claims data is the primary source of information to target abuse activities. Sources of claims data are:

- National Claims Data – Contractors should utilize the reports accessible from *Health Care* Customer Information System (HCIS). Carriers utilize the *CMS* Data Center's Part B Extract Summary System (BESS), especially the Focused Medical Review (FMR) reports, which show comparative utilization ratios by code, carrier, and specialty. Intermediaries must use national data where available. National data for services billed by *Skilled Nursing Facilities* (SNFs) and home health agencies (HHAs) is available at the *CMS* Data Center; and

- Contractor Local Claims Data – Local data should be compiled in a way to identify which providers in the contractor's area may be driving any unusual utilization patterns.

B – Secondary Sources of Data

Contractors should consider other sources of data in determining areas for further analysis. These include:

- OIG and *General Accounting Office* (GAO) reports;

- Fraud alerts;

- Beneficiary and provider complaints;

- Referrals from the *QIO*, other contractors, *CMS* components, Medicaid fraud control units, Office of the U.S. Attorney; or other federal programs;

- Suggestions provided directly or implicit in various reports and other materials produced in the course of evaluation and audit activities, e.g., contractor evaluations, State assessment, *CMS*-directed surveys, contractor or State audits of providers;

- Referrals from medical licensing boards;

- Referrals from the CAC;

- Information on new technologies and new or clarified benefits;

- Provider cost reports (Intermediaries);

- Provider Statistical and Reimbursement (PS&R) System data (Intermediaries);

- Enrollment data;

- Common Working File (CWF);

- Referrals from other internal and/or external sources (e.g., statistical analysis DMERC, MR, intermediary audit staff or, carrier quality assurance (QA) staff); and

- Any other referrals.

While the contractor should investigate reports from the GAO, congressional committees, Office of Inspector General Office of Audit Services (OIG OAS), OIG OI, the *Medicare Fraud Information Specialist* (MFIS)*/PSC network*, newspaper and magazine articles, as well as local and national television and radio programs, highlighting areas of possible abuse, these types of leads should not be used as a main source for leads on fraud cases.

*2.*2.4 – Steps in the Analysis Process
(Rev. 71, 04-09-04)

*2.*2.4.1 – Determine Indicators to Identify Norms and Deviations
(Rev. 71, 04-09-04)

Contractors should develop indicators *that will be* used to identify norms, abnormalities, and individual variables that describe statistically significant time-series trends and the most significant abnormalities or trends. Examples of indicators or variables are:

- Standard deviations from the mean;

- Percent above the mean or median;

- Percent increase in charges, number of visits/services from one period to another.

*2.*2.4.2 – Document Data Strategy
(Rev. 71, 04-09-04)

While *CMS* is deliberately not prescriptive in terms of the technical details of how contractors reach data analysis goals, contractors are expected to develop the most sophisticated and effective methods and procedures to meet these goals and will be held accountable for effective reports, procedures, and outcomes.

2.3 – Sources of Data for PSCs
(Rev. 71, 04-09-04)

Medicare contractor BI units must follow PIM Chapter 2, §2.2. The following instructions in this section apply to PSCs only.

The PSCs' approach for combining claims data (Fiscal Intermediary, Regional Home Health Intermediary, Carrier, and Durable Medical Equipment Regional Carrier data) and other data to create a platform for conducting complex data analysis shall be documented in their Information Technology Systems Plan. By combining data from various sources, the PSC will present an entire picture of a beneficiary's claim history regardless of where the claim was processed. The primary source of this data will be the

CMS National Claims History (NCH). The PSC shall be responsible for obtaining data for all beneficiaries for whom the AC(s) paid the claims.

PSCs are required to store at a minimum the most recent 36 months worth of data (including Part A, Part B, and DMERC) for the jurisdiction defined in their task order.

If the jurisdiction of the AC(s) is not defined geographically, the PSC shall obtain a complete beneficiary claims history for each unique beneficiary for whom the AC(s) paid a claim.

Example #1: The AC(s) jurisdiction being competed covers Maryland but includes a hospital chain with facilities in Montana. The PSC would request claims history from NCH for all claims paid by the AC(s).

Example #2: The AC(s) jurisdiction being competed covers Maryland, a beneficiary lives in Pennsylvania, and the beneficiary saw a doctor in Maryland. The PSC would request claims history from NCH for all claims paid by the AC(s).

PSCs will not be able to tap data from the Common Working File (CWF). The CMS Office of Information Services (OIS) has advised that this methodology for obtaining data will not be allowed.

PSCs may, if agreement and cooperation of the AC(s) are obtained, use data directly from the claims processing system of the AC(s), and then supplement the other data using NCH.

In developing this plan the PSCs shall address the above requirements and, at a minimum, establish read-only access to the AC's shared claims processing system(s) and access to the Part A, B, and D data available through the NCH for the jurisdictional area defined in the Task Order. The PSC shall also work with the AC(s) to obtain denial data and document the process for obtaining this data from the AC(s) in the Joint Operating Agreement.

The PSC must have the ability to receive, load, and manipulate CMS data. The data must also be maintained in accordance with CMS and Federal privacy laws and regulations as described in the CMS Data Use Agreement. For planning purposes, the PSCs should assume that there are 30 claims per HIC per year, on average. A claim record is about 1000 bytes. To calculate the storage space necessary, use the following formula:

#HICs X 30 claims X #years X 1000 = #bytes

The CMS Government Task Leaders (GTL) and PSC will need to complete:

- Data Use Agreement to give permission to receive privacy protected data.
- Data Request form to specify all data required by the PSC.
- HDC Application for HDC access and/or CMS systems' access to get access to the

data center and/or to specify which CMS systems the PSC will access.
- DESY system application form. (This is provided to the PSC post-award.)

Information on data files, including file layouts and data dictionaries, is available at http://cms.hhs.gov/data/purchase/default.asp.