Medicare Program Integrity Manual
Chapter 2 – Data Analysis

Table of Contents
(Rev. 313, 11-20-09)

<u>**Transmittals for Chapter 2**</u>

2.1 – Identifying Potential Errors - Introduction
(Rev. 313; Issued: 11-20-09; Effective/Implementation Date: 12-21-09)

A. Contractors To Which This Section Applies

This section applies to ACs and MACs.

B. General

This chapter specifies resources and procedures *ACs and MACs shall* use to identify and verify potential errors to produce the greatest protection to the Medicare program. *ACs and MACs* 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. *ACs and MACs should also archive the error including supporting rationale for selection.* (See Reliable *Information* in Pub. 100-08, Exhibits, Exhibit 4.)

C. Review of Data

Data analysis is an essential first step in determining whether patterns of claims submission and payment indicate potential problems. Such data analysis *should* include simple identification of aberrancies in billing patterns within a homogeneous group, or much more sophisticated detection of patterns within claims or groups of claims that might suggest improper billing or payment.

Data analysis itself *shall* be undertaken as part of general surveillance and review of submitted claims, or *shall* be conducted in response to information about specific problems stemming from complaints, provider or beneficiary input, *f*raud *a*lerts, reports from CMS, other *ACs, MACs*, or independent government and nongovernmental agencies.

2.2 – Data Analysis
(Rev. 313; Issued: 11-20-09; Effective/Implementation Date: 12-21-09)

A. Contractors To Which This Section Applies

This section applies to ACs, MACs, PSCs, and ZPICs. This section does not apply to the RACs. RACs should follow the data analysis instructions listed in their Statement of Work.

B. General

Data analysis is a tool for identifying *actual or* potential claim payment errors. Data analysis compares claim information and other related data 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 *benefit integrity (BI)* activity.

The *ACs', MACs', PSCs', and ZPICs'* ability to make use of available data and apply innovative analytical methodologies is critical to the success of the MR and BI programs. *They* should use research and experience in the field to develop new approaches and techniques of data analysis. *ACs, MACs, PSCs, and ZPICs should have o*ngoing communication with other government organizations (e.g., QIOs and the State Medicaid agencies) concerning new methods and techniques.

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 *recognition of* unusual trends, changes in utilization over time, or schemes to inappropriately maximize reimbursement;

- Identify where there is a need for *an LCD*;

- *Identify where there is a need for targeted education efforts;*

- 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;

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

- *Determine if major findings identified by RACs, CERT, and CMS represent significant problem areas in the AC's or MAC's jurisdiction.*

This data analysis program *shall* 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 data analysis program are to identify provider billing practices and services that pose the greatest financial risk to the Medicare program.

The ACs, MACs, PSCs, and ZPICs shall document the processes used to implement their data analysis program and provide the documentation upon request.

In order to implement a data analysis program, the *ACs, MACs, PSCs, and ZPICs* shall:

- Collect data from sources such as:

    o   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 *ACs and MACs*, Medicaid; and

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

- Conduct data analysis to identify potential errors;

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

The shared system maintainer shall allow the ACs and MACs the ability to select claims using the NPI or the legacy number (OSCAR or UPIN) as a criterion for medical review.

C. *Resources Needed for Data Analysis*

The ACs, MACs, PSCs, and ZPICs shall have available sufficient hardware, software, and personnel with analytical skills to meet requirements for identifying problems efficiently and developing and implementing corrective actions. If *ACs and MACs* are unable to employ staff with the qualifications/expertise to aid in an effective analysis, they *shall* 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, *evaluation, and reporting*.

1. 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, *ACs, MACs, PSCs, and ZPICs shall* have telecommunication capabilities to interact with the CMS Data Center.

2. Data Processing Software

The CMS provides *ACs, MACs, PSCs, and ZPICs* with software to allow communication with the CMS Data Center. At their discretion, *ACs, MACs, PSCs, and ZPICs that* wish to develop or acquire additional software that allows for analysis of internal data or other data obtained from the CMS Data Center *may do so*. *ACs, MACs, PSCs, and ZPICs* should have internal software to support the analyses of data to meet program goals.

3. Personnel

The ACs, MACs, PSCs, and ZPICs shall 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 *ACs, MACs, PSCs, and ZPICs* to have staff with clinical expertise (e.g., registered nurses) and a mix of skills in programming, statistics, and data *mining* analysis (e.g., trending and profiling of providers/codes).

The ACs, MACs, PSCs, and ZPICs shall also employ *a* staff that has training in developing analytical and sampling strategies for overpayment projections.

D. Frequency of Analysis

The ACs and MACs shall have a minimum of 18 months of data but are encouraged to have 36 months. The *ACs, and MACs shall*, 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.

E. Determine Indicators to Identify Norms and Deviations

The ACs, MACs, PSCs, and ZPICs shall 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 *billing activity, payment* charges*, and* number of visits/services from one period to another.

F. Document Data Strategy

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

2.3 – Sources of Data for PSCs and ZPICs
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A. Contractors To Which This Section Applies

This section applies to PSCs and ZPICs.

B. General

The PSC*s' and the ZPICs*' approach for combining claims data (*AC data, MAC data, RAC data from the RAC data warehouse)* 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 *or the ZPIC* 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 *or the ZPIC* shall be responsible for obtaining data for all beneficiaries for whom the AC(s) or MAC(s) paid the claims.

The PSCs *and ZPICs* are required to store at a minimum the most recent 36 months worth of data (including Part A, Part B, *DME, home health & hospice*) for the jurisdiction *or zone* defined in their task order.

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

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

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

The PSCs *and the ZPICs* will not be able to tap data from the Common Working File (CWF).

The PSCs *and the ZPICs should, at their discretion*, if agreement and cooperation of the AC(s) or MAC(s) are obtained, use data directly from the claims processing system of the AC(s) or MAC(s), and then supplement the other data using NCH.

In developing this plan the PSCs *and the ZPICs* shall address the above requirements and, at a minimum, establish read-only access to the AC's or MAC'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 *and the ZPIC* shall obtain denial data *either through PIMR or the ACs and MACs and document the process for obtaining this data from the AC(s) or MAC(s) in the Joint Operating Agreement*. At a minimum, the denial data shall include data for edits that were requested and/or recommended by the PSC *or the ZPIC*.

The PSC *and the ZPIC shall* have the ability to receive, load, and manipulate CMS data. The data *shall* 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 *and ZPICs* 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 *contract officer's technical representative (COTR*) and PSC *and ZPIC* 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 *and the ZPIC.*

- 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 *and the ZPIC* will access.

- DESY system application form. (This is provided to the PSC *and the ZPIC* post-award.)

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

2.4 – Sources of Data for ACs, MACs, PSCs and ZPICs
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A. Contractors To Which This Section Applies

This section applies to ACs, MACs, ZPICs and PSCs. The sources of data for CERT and RACs are specified in their SOWs.

B. General

The data sources that *ACs, MACs, PSCs and ZPICs* use will depend upon the issue(s) being addressed and the availability of existing data. Some of the provider information that *should* be used includes:

- 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 *PSC or ZPIC*;

- 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 *ACs, MACs, PSCs and ZPICs* to have in place the hardware and software capability to profile providers in aggregate, by provider type, by common specialties among providers, or individually.

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

C. Primary Source of Data

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

- National Claims Data – *ACs, MACs, PSCs and ZPICs* should utilize the reports accessible from Health Care Customer Information System (HCIS). *ACs, MACs, PSCs and ZPICs* utilize the CMS Data Center's *Part B Analytics System*, which show comparative utilization ratios by code, *AC or MAC*, and specialty. *ACs, MACs, PSCs and ZPICs shall* 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.

D. Secondary Sources of Data

The ACs, MACs, PSCs and ZPICs should consider other sources of data in determining areas for further analysis. These include:

- OIG and General Accounting Office (GAO) reports;

- Fraud *A*lerts;

- Beneficiary, *physician* 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) *and MACs*;

- Enrollment data;

- *Overpayment data;*

- Common Working File (CWF);

- Referrals from other internal and/or external sources (e.g., *PDAC, AC or MAC* audit staff, audit staff or, *AC or MAC* quality assurance (QA) staff);

- *Pricing, data analysis, and coding (PDAC) data*; and

- Any other referrals.

While the *AC, MAC, RAC, PSC, and ZPIC* should investigate reports from the GAO, congressional committees, Office of Inspector General Office of Audit Services (OIG OAS), OIG OI, 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.

Transmittals Issued for this Chapter

Rev #	Issue Date	Subject	Impl Date	CR#
R313PI	11/20/2009	Program Integrity Manual (PIM) Reorganization Chapters 1, 2, and 7	12/21/2009	6546
R279PI	12/19/2008	Zone Program Integrity Contractor (ZPIC) Updates	01/26/2009	6171
R231PI	01/04/2008	NPI Number for Medical Review	04/07/2008	5761
R180PI	12/22/2006	Sources of Data for PSCs	01/22/2007	5412
R101PI	01/28/2005	Benefit Integrity (BI) PIM Revisions	02/28/2005	3579
R071PI	04/09/2004	Rewrite of Program Integrity Manual (except Chapter 10) to Apply to PSCs	05/10/2004	3030
R047PI	07/25/2003	Data Analysis	08/08/2003	2517
R032PI	10/25/2002	Fraud Alerts	10/25/2002	2333
R016PIM	11/28/2001	Adds Various Program Memoranda for BI Requests for Information, Organizational Requirements, Unsolicited Voluntary Refund Checks, Anti-Kickback Statute Implications	11/28/2001	1732
R003PIM	11/22/2000	Complete Replacement of PIM Revision 1.	NA	1292
R001PIM	06/2000	Initial Release of Manual	NA	931

Back to top of chapter