

# Assessing the Validity of Statistical Samples in Medicare Audits

## Key Items for Auditors and Providers to Consider

In February, federal agents arrested dozens of suspects believed to have bilked the Medicare program of hundreds of millions of dollars in recent years. Called the largest sting in the history of the program, the arrests brought renewed attention to the problem of Medicare fraud, which is estimated to have cost the U.S. government and taxpayers at least \$24 billion in 2009 alone. Budget hawks in Congress are focusing more attention on the problem, and the Obama administration has stepped up funding for Medicare anti-fraud initiatives in an effort to combat the most egregious fraudulent activities such as those targeted through the February raid.

Against this backdrop the typical audit of the average service provider might appear mundane. Instead of billions or millions of dollars associated with clearly criminal acts, the typical provider might be responsible for tens or hundreds of thousands of dollars in Medicare “overpayments” and may be guilty of nothing worse than sloppy recordkeeping and mistake-prone billing practices. To the individual provider, however, those tens or hundreds of thousands of dollars are significant, as is the investment of time and additional resources devoted to an audit and its possible associated legal actions.

These risks can be mitigated by a thorough understanding of both the auditing process and the key items to consider in assessing the validity of a sample. Armed with this knowledge, providers and their legal counsel can make smarter choices when deciding whether to pay charges or to contest audit results.

### HOW AN AUDIT WORKS

Service providers can be flagged for an audit when their billing practices stand out in some way relative to an auditor’s expected norm. Once flagged, an auditor, work-



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ing on behalf of Medicare, follows several basic steps:

1. The auditor will furnish the provider with a date range covered by the audit and request that the provider generate a list of all patients treated during that period.
2. From this list the auditor will select a sample of patient files to review. Ideally, this sample will be representative of the larger population of patient files, within acceptable bounds of precision.
3. Based upon this review, the auditor will identify any “exceptions” in the patient file. These are cases in which the payments made by Medicare are believed to have exceeded what was required for the services actually rendered, based on the available documentation.
4. Next, the value of these Medicare “overpayments” is totaled for the sample and then extrapolated to all patient files for the audit period, including those not directly reviewed in the sample. Unless the provider contests the auditor’s findings, he is expected to pay back the extrapolated overpayment amount.

When a provider chooses instead to contest an auditor’s findings, it is often because he (or his legal counsel) is concerned with the adequacy of the selected sample and hence the extrapolation of overpayments from the specific sample to the universe of patient files at issue during the audit period. In our experience evaluating the sampling methodology applied in these matters, auditors may take an overly mechanical approach without considering the specific attributes of the population from which they are drawing the sample. The sample results may be flawed as a result, and any extrapolation based upon a flawed sample would itself be unreliable.

### **KEY ITEMS FOR AUDITORS AND PROVIDERS TO CONSIDER**

Three items stand out as especially important for auditors to consider to ensure their audit findings are valid and defensible.

Likewise, the same three items should be considered by providers and their counsel in deciding whether to contest the sample used for — and ultimately the extrapolation and results of — an audit.

#### **1. Is the sample drawn randomly?**

Simply put, for a sample to be representative, it must be drawn at random from the population of patient files. An audit based upon a non-random sample is only informative as to the sample drawn and should not be extrapolated to the larger population of patient files throughout the audit period. The reasons why should be clear — if an auditor selects only the patients with the most expensive procedures, or those procedures more likely to be improperly billed, his or her sample systematically will overestimate the potential overpayments at issue. Any other non-random manner of selection also might be prone to bias, and by using this non-random sample, the auditor cannot be sure how and to what extent the resulting estimate is affected.

For example, consider an auditor who chose a number of patient files by going to the physical files and taking every 10<sup>th</sup> file until he reached the number he thought constituted a sufficient sample size. While not the ideal method of randomizing, this approach likely returned a random sample within the range of files he selected. As it worked out, since the files were in alphabetical order, the auditor had a reasonably random sample for patients with last names beginning with A through D. As such, the audit could not be extrapolated to the rest of the patient population (*i.e.*, patients with names beginning with E-Z).

#### **2. Is the sample size sufficient?**

A common misperception in sampling is that the necessary size of a sample can be determined simply through considering the size of the population from which the sample is drawn. This is not the case. A far more important consideration is the degree of variation present in the data. For example, a provider specializing in a fairly narrow area might have relatively fewer procedures to

offer relative to a provider offering services across a number of different specialties.

If all procedures are the same, or the amounts billed to Medicare are all the same, very little variation will exist in the data, and the sample size required will be smaller as a result. On the other hand, if patient files differ dramatically in the procedures performed and indicate substantially different associated payments, a relatively larger sample will be required.

In one matter, an auditor determined that 15 was the appropriate sample size for a patient population of about 570. Most sample analysts would be surprised that 15 patient files were sufficient, but, as was just mentioned, if the data were homogenous, it is possible that 15 would be enough. Through an analysis of the audit data, however, it was shown that the patient population was not homogenous. In fact, the degree of variation present in the data required a sample size of approximately 60, a sample size four times larger than what was used by the auditor. Since the sample estimate was not reliable, the proposed extrapolation from the sample to the population was unreliable as well, and the extrapolation was rejected.

### **3. Can the sample results be validated or invalidated through external checks?**

While not always possible, it is important to consider whether the results of the sample line up with common sense expectations drawn from information sources outside of the sampling effort. As an example, a provider might be surprised to find a large share of the sampled files included a particular kind of procedure if the provider rarely offers that service. Remember that the point of the sample is to represent the larger population of patient files, within acceptable bounds of precision. Seeing too many or too few instances of a particular procedure might indicate that the sample was flawed in some way.

For example, consider an audit of a practice owner who employed multiple doctors of medicine (MDs) in several locations. Of the patient files reviewed, about 20 percent showed exceptions identified by the auditor for services rendered by unenrolled providers. Based on information external to the sample (the employment records for the practice), we learned that the unenrolled providers only worked in about 5 percent of the days covered by the audit period.

Taken together these numbers are puzzling. A patient had a one in 20 chance of seeing an unenrolled provider but a four in 20 chance of having his file flagged for the unenrolled provider exception. If the survey were representative, something closer to 5 percent of the patient files should have shown exceptions for unenrolled providers, not the 20 percent shown in the sample.

### **WHAT DOES THIS MEAN FOR PROVIDERS AND AUDITORS?**

As efforts to confront Medicare fraud increase, it is incumbent upon providers and those who audit them to ensure that the approach taken in sampling patient records is statistically appropriate. If a sample is deemed to be unreliable, no accurate extrapolation of the sample results can occur. It is necessary to ensure that the sample is random and sufficient in size and to externally validate the sample; while necessary, however, these measures alone may not always be sufficient.

Some audits may involve other sample and extrapolation-related issues, such as when it might be appropriate to stratify or how a lower bound approach to extrapolation might affect the results of a sample audit. Both the provider and the auditor should take care to be informed and make prudent choices in undertaking a sample project and evaluating the efficacy of the resulting data.

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