Medicare Data Study Spotlights Coding Errors

by Carl Cottrell

Coding quality for Medicare claims is an area of constant concern. Coding errors can have far-reaching effects in the healthcare universe, and coders are experiencing increased scrutiny from both regulators and hospitals looking to control costs. As a follow-up to results of a Medicare coding claims study first reported at the 1999 AHIMA National Convention, we took a closer look at the number and types of coding errors found in approximately 12 million Medicare claims.

What Constitutes a Coding Error?

To begin, let's agree that perfect coding would exactly reflect the true conditions and clinical experience of a patient. The next best level of coding would exactly reflect the contents of the patient record. Unfortunately, determining these levels of quality is next to impossible without examining the patients themselves or their medical records. As a result, our designation of coding quality is based on whether the codes in a record agree with one another and are consistent with coding rules. Thus in our definition, an error occurs when the diagnoses and procedures coded in a record violate one of the includes, excludes, or code-also rules in the ICD-9-CM tabular list or when the combination of codes violates coding rules specified in Coding Clinic.

Our study focused on six key questions:

- What percentage of fiscal year 1997-98 inpatient Medicare claims have coding errors?
- What are the most common errors?
- Which parts of the country have the highest and lowest error rates?
- Does the size of the hospital affect coding quality?
- Does the location of the hospital (urban or rural) affect coding quality?
- Do hospitals with encoders code more accurately?

Working the Data

Our data came from the Modified Medpar Dataset from HCFA, which contains coded information on every Medicare inpatient discharged between October 1, 1997, and September 30, 1998, and consists of about 11.9 million records. The dataset makes it impossible to ascertain an individual patient's identity but does let us identify the hospital. As a result, we were able to analyze coding quality differences in hospitals based on geography or bed size with high reliability.

We examined the records for errors with software developed to apply 161 of the 521 coding edits that were developed at the California Office of State Health Planning and Development (OSHPD) by Ginger Cox, RHIT, CCS. We did not apply OB and newborn edits or edits that used OSHPD-required data elements that were not present in the national Medicare data. We also eliminated E-code errors because not all hospitals are required to submit them. The program evaluated the relationships between codes based on rules derived from the includes/excludes/code-also notes in ICD-9-CM and *Coding Clinic*. For example:

When congestive heart failure is present with rheumatic mitral and aortic valve conditions, ICD-9-CM classifies the congestive heart failure as rheumatic.[1] A record with 428.0 (congestive health failure) and 394.1 (rheumatic mitral insufficiency) would be classified as containing a coding error. Although under certain convoluted circumstances this might not be an error, let's agree that with few exceptions, this would be an error.

Ten Errors Dominate Findings

Top 10 Errors in 1997-98 Medicare Data

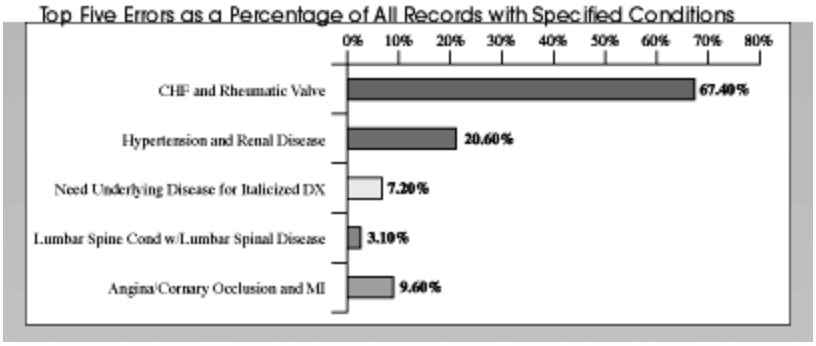
Error Description	%
CHF and Rheumatic Valve	19.8
Hypertension and Renal Disease	17.7
Need Underlying Disease for Italicized DX	7.7
Angina/Coronary Occlusion and MI	5.4
Lumbar Spine Cond w/Lumbar Spinal Disease	5.3
Hypertensive Heart Disease w/Heart DX	5.0
Unspecified vs. Specified Circulatory DX	4.6
COPD w/Other Respiratory Conditions	2.5
Hypertension w/Other Hypertensive DX	2.5
ODX-Unspecified Adverse Effect	2.3
Total	**72.8**

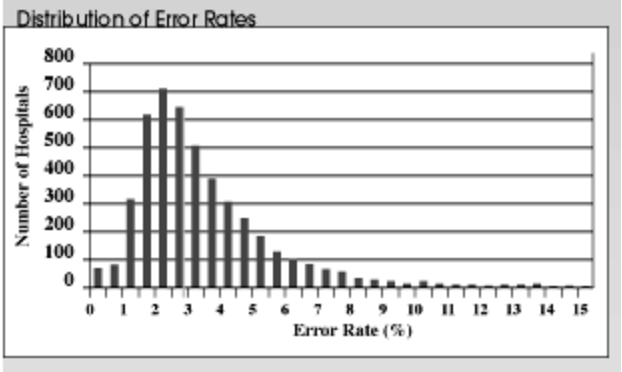
We found that only 10 errors were responsible for 70 percent of the quality problems we discovered. (See "Top 10 Errors in 1997-98 Medicare Data".) Without these 10 errors, the overall error rate would have been less than one-tenth of one percent. With this knowledge, we have the opportunity to reduce the error rate by 70 percent by changing only 10 practices. Conversely, if the errors were more evenly spread across all of the potential causes, significantly reducing errors would be much harder because we would have to focus on so many rules.

Following are the results:

- 2.7 percent of all Medicare bills had coding errors as we define them
- miscoding of congestive heart failure with rheumatic valve disorders is the most common error (20 percent of all errors)
- the Northeastern part of the US has the highest error rate (3.1 percent) and the Far West has the lowest (2.2 percent)
- smaller hospitals (51 to 200 beds) have a 3.4 percent error rate, while larger hospitals (201 beds or more) have an error rate of 2.5 percent. The very smallest hospitals (fewer than 51 beds) have only 1 percent higher error rates than the very largest hospitals
- rural hospitals (outside HFCA's "Large Urban" or "Other Urban" designations) have a 3.0 percent error rate, while urban hospitals have a 2.6 percent error rate
- hospitals with encoders have only slightly lower error rates than those without encoders (2.5 percent compared to 2.9 percent). Of 6,253 hospitals contacted, 1,601 reported that they had an encoder, which does not necessarily mean it is in use

Although fewer than 3 percent of Medicare claims data have errors, a look at how often some conditions are coded incorrectly can be sobering. (See "Top Five Errors as a Percentage of All Records with Specified Conditions," below). Congestive heart failure with rheumatic valve disorders is coded incorrectly almost 70 percent of the time, while hypertension and renal disease are coded incorrectly more than 20 percent of the time. While it is possible to have a rare case where hypertension and renal disease are unrelated, it would be unlikely to occur in 20 percent of such cases. Regardless, no one can defend the failure to code underlying conditions for bracketed/italicized diagnoses, which were missing more than seven percent of the time.





If we take a look at the distribution of error rates by hospital below, we can see that 50 percent of the hospitals have error rates of fewer than 2.7 percent, which is marked by a vertical line on the graph (the mean). The most frequently occurring error rate was 2 percent, with more than 700 hospitals experiencing this error rate. There are about 90 hospitals with no errors at all and about the same number with an error rate of 6.5 percent. About 62 percent of the hospitals have error rates between these two values (hospitals with error rates within one standard deviation from the mean).

Clearly, internal coding consistency is quite good, and with a little effort, it could be fantastic. Now that we've located the problematic areas, coders have a shortcut to increasing accuracy and a glimpse into coding issues nationwide.

If you would like an analysis of the errors for your hospital, please e-mail a request to CodingStudy@CodeXpress.net. Please include your hospital's Medicare provider number and I will e-mail you a report.

Note

1. American Hospital Association. *Coding Clinic for ICD-9-CM* 17, no. 1. Chicago, IL: American Hospital Association, 1995.

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