



*MGMA Connexion*, Vol. 5, Issue 1, January 2005

## **Hitting the mark ... sometimes**

### **Improve the accuracy of CPT code distribution**

By Margie C. Andreae, MD, associate director for clinical services, Division of General Pediatrics, Child Health Evaluation and Research Unit, University of Michigan, Ann Arbor, [andreae@med.umich.edu](mailto:andreae@med.umich.edu); Gary L. Freed, MD, MPH, director, Division of General Pediatrics, Child Health Evaluation and Research Unit, University of Michigan, Ann Arbor and Max Fawley, consultant, Financial Office, Faculty Group Practice, University of Michigan Health System, Ann Arbor

Scrutiny of physician billing and coding practices has increased steadily over the past several years. The federal government has led this initiative to reduce improper payments for Medicare-related services.<sup>1</sup> Private insurance carriers soon followed, with heightened investigation of health care billing and coding practices at the state and local levels. Health care providers worry about the implications of this increased oversight.

Changes in billing regulations in the past decade have simplified monitoring and comparison of medical claims.<sup>2</sup> In 1992, in response to the need for standardized medical terminology and procedures, all payers began requiring current procedural terminology (CPT) billing codes for payment of reported services.<sup>3</sup> That same year, the American Medical Association and the Centers for Medicare & Medicaid Services (CMS) jointly developed CPT guidelines for coding evaluation and management (E&M) services. CMS intended these guidelines to standardize claims for different levels of E&M service. The agency revised the guidelines in 1994-95 and again in 1997; both versions are currently in use.<sup>4</sup>

Despite revisions, many health care providers believe that the CPT E&M coding guidelines are clinically irrelevant and overly complex.<sup>5</sup> Physicians tend to have little understanding of the coding guidelines, and many find it difficult to apply them to clinical practice.<sup>6</sup> This lack of understanding results in a high rate of coding inaccuracy.<sup>7</sup>

Physicians risk much by improper coding. Penalties may include loss of revenue, financial sanctions, disciplinary action and exclusion from participation in government programs.<sup>8</sup> To avoid these penalties, practices must invest significant resources in compliance management:<sup>9</sup> employing professional staff to monitor billing practices, buying software to enhance accuracy and training physicians to understand the guidelines for assigning the appropriate visit code.

Physicians learn that proper code selection is critical to avoid coding patterns that may violate compliance regulations.<sup>10</sup> Even if applied properly, use of more lower-level codes (undercoding) or higher-level codes (overcoding) than the accepted norm for a particular specialty may trigger an audit. Based on a review of Medicare claims, a bell-curve distribution of CPT E&M codes has long been regarded as the norm for primary care specialties, including pediatrics.<sup>11,12</sup> Although modeling a bell-curve distribution in clinical practice may provide a sense of security against audits, the dogma of the bell curve has never been tested for coding accuracy.

We examined the CPT E&M code distribution for a sample pediatric practice before and after applying corrections for the inaccuracy of code assignment to actual CPT E&M claims.

## **Methods**

We collected data from a university health system practice with 28 general pediatricians. The practice has eight primary care health centers located in suburban and rural communities in the Midwest. The clinicians see their own patients four days a week and supervise residents and medical students one day a week in their clinic. The physicians are compensated under a productivity-based program using the relative value unit as the measure of clinical productivity.<sup>13</sup> Compensation is independent of collection rate or payer mix.

To analyze the annual frequency distribution of CPT E&M code use for the practice as a whole, we collected claims data for all E&M established patient visits (CPT codes 99211-99215) for the

practice from Jan. 1-Dec. 31, 2001. We excluded resident encounters.

The institution's Professional Fee Audit and Education Division of the Compliance Office conducted its own review of the accuracy of CPT E&M code assignment for a subsample of practice claims over a five-month period (January-May) in 2001. The division did this as part of its annual compliance review of each clinical department. The coding analysts — two registered nurses with experience in medical records review and coding — reviewed the documentation of four to five E&M established patient visit claims for every general pediatrician and determined the number of claims that had been originally assigned the correct CPT E&M code, as well as the appropriate code for claims initially assigned incorrect codes.

Using the information from the compliance review, we calculated the proportion of claims in each CPT E&M category that were under- or overcoded, and the degree of coding error (e.g., undercoded by one level, two levels). We calculated these proportions for each originally assigned CPT E&M code, indicating the fraction that would have been more appropriate to code as 99211, 99212, 99213, 99214 and 99215, respectively. By applying these proportions to the larger number of claims originally assigned to each CPT E&M level in our general pediatric practice sample, we estimated the corrected number of claims for each of the five CPT E&M established patient visit codes.

## **Results**

We collected 72,857 E&M established patient visit claims for the practice, which represented 95 percent of the total E&M visits; the other 5 percent were new patient visits. We excluded 6,479 of these visit claims from the data set because a resident had seen the patient.

The coding analysts reviewed 125 E&M established patient visit claims for the practice (0.5 percent of all E&M established patient visits during that period). The ratio of claims for each CPT E&M code reviewed by the coding analysts (i.e., the number of 99211 vs. the number of 99212) was similar to the actual ratio of the pediatric practice claims, with 99213 representing the highest proportion in both data sets. Using the 1994/95 CPT E&M guidelines, the analysts found that 56 (45 percent) of the E&M established patient visits were improperly coded. Of these, 55 (44 percent)

were undercoded by one or more levels and one (1 percent) was overcoded.

The **(table)** shows the proportion of claims for each CPT E&M code that were under-, over- or accurately coded based on the information available from the independent review. This subsample analysis demonstrated, for example, that a large proportion of the 99212 claims (56 percent) should have been coded as 99213 and a smaller proportion should have been coded as 99214 (11 percent). After applying these proportions for each CPT E&M code to the claims in the general pediatric practice sample, we developed a corrected number of claims for each code.

The uncorrected CPT E&M code distribution for the practice demonstrated a bell curve, with the predominance of claims at the mid-level (99213) for established patient visits. Application of the proportion of error based on the subsample analysis to the practice claims resulted in a shift in the configuration of the CPT E&M code distribution (see **graph**). The bell-shaped curve with its peak at the midline in the uncorrected sample was replaced with one that demonstrated a more equal distribution of mid- (99213) and upper-level (99214) codes.

## **Commentary**

We found that the CPT E&M code distribution differed dramatically after the practice claims were corrected for coding errors identified by analysts. The corrected distribution may more accurately represent the level of complexity of services provided in general pediatric practices.

Though the pediatric literature contains no data on coding accuracy, the rate of coding error in the independent compliance review in this study resembles that in the family medicine literature on larger sample sizes of both academic and private practices. In one study from the Department of Family Medicine at Northwestern University Medical School, Chicago, surveys went to 600 family physicians in both private and academic practice asking them to assign a CPT code for six different clinical scenarios.<sup>7</sup> Physician responses agreed with expert CPT E&M code assignment for 52 percent of the established patient visits. Undercoding was the most common error, identified in 33 percent of cases.

In another study, research nurses reviewed 4,000 claims from 138 family physicians.<sup>14</sup> Fifty-five percent of the CPT codes generated by medical record review corresponded with the codes

assigned by physicians. Undercoding overcoding occurred at frequencies of 21 percent and 24 percent, respectively. Both studies attributed the high level of coding inaccuracy to the complexity of the CPT guidelines.

A poor understanding of the complex and inconsistent coding guidelines may explain the difference in the distribution of CPT E&M code use for the uncorrected and corrected claims in our study. The difference may also reflect the regulatory pressure on physicians under the current system. The limited variation in code use with a sharp peak at the 99213 level for the uncorrected practice data suggests that general pediatricians consider this a comfort area, safe from increased scrutiny and costly audits.

Even with better understanding of the coding guidelines, physicians will probably not change their coding patterns until payers and regulatory agencies accept a higher coding distribution as an accurate reflection of physician effort and intensity of service delivery. Regulatory authorities may perceive any increase in use of higher-level codes as upcoding rather than a correction in coding behavior.

Some practices may choose to err on the side of undercoding rather than deviate from the accepted notion of the bell-curve distribution and risk being audited. The practice in our study had a reimbursement rate for a 99214 visit from \$14 to \$35 more than a 99213 visit, depending on the carrier. Looking only at the frequency of undercoding of the 99213 visits, the estimated annual loss in potential revenue ranged from \$12,000 to \$30,500 per physician.

## **Limitations**

We did not assess inter-rater reliability of the coding analysts. The number of claims reviewed by the Compliance Office limited the size of our subsample analysis of accuracy of CPT E&M code assignment.

The study was limited to one multisite practice and may not represent practices in other settings. However, since the CPT E&M coding guidelines are universal for the entire country and the regulatory pressure to adhere to accepted coding norms is the same across regions, our findings may apply to other general pediatric practices.

Correcting for coding errors may dramatically alter the CPT E&M code distribution for a general pediatric practice. Larger studies should be conducted in conjunction with an assessment of the accuracy of code assignment to determine the correct CPT E&M code distribution norm for general pediatrics and other specialties.

#### **notes**

1. U.S. Department of Health and Human Services. Audit shows sustained drop in improper Medicare payments. HHS News. March 6, 2003. Available at: [www.hhs.gov/news/press/20010306.html](http://www.hhs.gov/news/press/20010306.html). Accessed Feb. 6, 2003
2. Sgammato J. HCFA answers questions about its new documentation guidelines. *Fam Pract Manag.* 1995;2(1):60-67.
3. American Medical Association. *CPT Process*. Chicago: American Medical Association; 1997.
4. Moss MM, Schexnayder SM. Coding and billing in the pediatric intensive care unit. *Pediatr Clin North Am.* 2001;48(3):783-793.
5. Lasker RD, Marquis MS. The intensity of physicians' work in patient visits — implications for the coding of patient evaluation and management services. *N Engl J Med.* 29 1999;341(5):337-341.
6. Martin S. Indefinite delay on E&M. *American Medical News.* May 11, 1998:1,7.
7. King MS, Sharp L, Lipsky MS. Accuracy of CPT evaluation and management coding by family physicians. *J Am Board Fam Pract.* 2001;14(3):184-192.
8. Adams DL, Norman H, Burroughs VJ. Addressing medical coding and billing part II: A strategy for achieving compliance. A risk management approach for reducing coding and billing errors. *J Natl Med Assoc.* 2002;94(6):430-447.
9. Hospital Billings on Behalf of Physicians (Resolution 820,1-97). Council on Medical Service [committee report]. December. Available at: [www.ama-assn.org/ama/upload/mm/372/i98cms6.rtf](http://www.ama-assn.org/ama/upload/mm/372/i98cms6.rtf). Accessed Nov. 26, 2003
10. Statz KL. Protecting your practice against coding inaccuracies. SVA Consulting, Inc. [newsletter article]. Available at: [www.sva.com/articles/coding\\_accuracies.pdf](http://www.sva.com/articles/coding_accuracies.pdf). Accessed Nov. 26, 2003.
11. Navsaria D. Coding and documentation: a brief guide. Medscape Med Students.

2001;3(2):1-7. Available at [www.medscape.com/viewarticle/414681](http://www.medscape.com/viewarticle/414681). Accessed Sept. 25, 2001

12. E&M Curve Data Book: 2000 Edition. Rockville: Part B News; 2000.
13. Andreae MC, Freed GL. A new paradigm in academic health centers: Productivity-based physician compensation. *Med Group Manage J.* 2001;48(3):44-50, 52, 54.
14. Chao J, Gillanders WG, Flocke SA, Goodwin MA, Kikano GE, Stange KC. Billing for physician services: a comparison of actual billing with CPT codes assigned by direct observation. *J Fam Pract.* 1998;47(1):28-32.

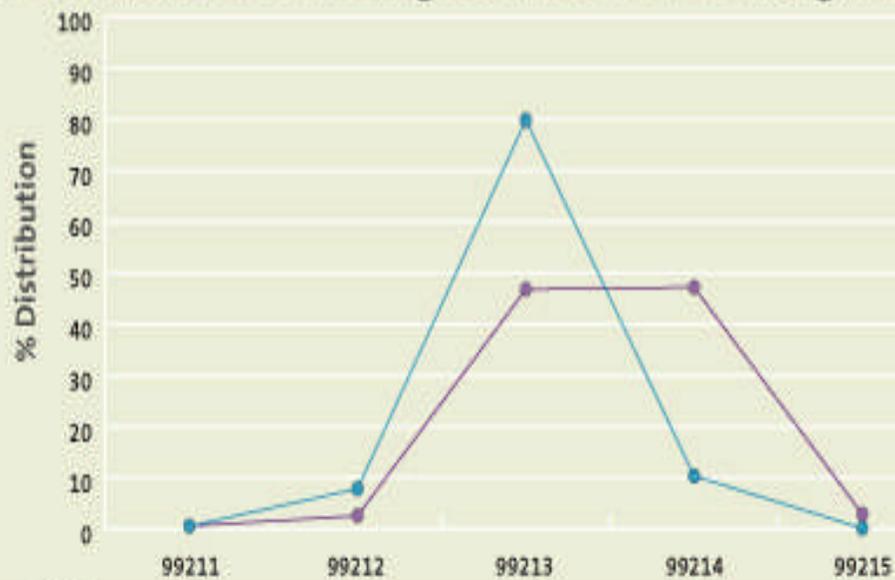
## Accuracy of CPT E&M code assignment

Originally assigned code	Records reviewed	Corrected code proportions				
		99211	99212	99213	99214	99215
99211	0	-	-	-	-	-
99212	9	0%	33%	56%	11%	0%
99213	100	0%	0%	53%	46%	1%
99214	14	0%	0%	0%	86%	14%
99215	2	0%	0%	0%	50%	50%
	<b>125</b>					

# Corrected CPT and E&M code assignment

Originally assigned code	Practice claims	Corrected code distribution				
		99211	99212	99213	99214	99215
99211	365	365	-	-	-	-
99212	5219	-	1,722	2,923	574	-
99213	53,048	-	-	28,116	24,402	530
99214	6863	-	-	-	5,902	961
99215	883	-	-	-	441	442
<b>Total</b>	<b>66,378</b>	<b>365</b>	<b>1,722</b>	<b>31,039</b>	<b>31,319</b>	<b>1,933</b>

Distribution of CPT E&M established patient visit codes before and after correcting for errors in code assignment



● Uncorrected claims  
● Corrected claims