

# **Variation in Coding of Evaluation and Management (E&M) Services by Hospital Emergency Departments**

**A study by:**

**Paul Shoemaker, CHE  
President and CEO  
American Hospital Directory, Inc.  
[www.ahd.com](http://www.ahd.com)**

**Lois M. Yoder  
President  
The enVision Group, Inc.  
[www.the-envision-group.com](http://www.the-envision-group.com)**

**January 8, 2004**

# Variation in Coding of Evaluation and Management (E&M) Services by Hospital Emergency Departments

## Summary

More than a year after implementation of the Medicare Outpatient Prospective Payment System there are unexpected variances in the assignment of E&M codes on emergency department claims. Hospital outpatient PPS claims were used to define normal Medicare payment levels and distributions of patients among various levels of E&M codes for calendar year 2002. Data for some hospitals indicate that there may be systematic undercoding or overcoding of emergency department encounters. Undercoding can result in lower levels of reimbursement. Overcoding can be a compliance problem requiring immediate intervention and correction. The findings of this study should be useful in helping a hospital to determine whether its E&M coding is within expected ranges.

## Background

Medicare implemented an Outpatient Prospective Payment System (OPPS) for hospital outpatient services in 2000. Under this system a hospital is paid fixed rates for various Ambulatory Payment Classifications (APCs). The procedures detailed on a Medicare patient's bill are grouped into these APCs in order to determine payment. Complete and accurate coding of procedures is therefore important in order to ensure that a hospital receives accurate payment.

This study focuses on the assignment of Evaluation and Management services (E&M codes) since they are used frequently and can be problematic. These codes reflect the extent of clinical staff (i.e. physician, technician, nurse, etc.) involvement with a patient and define APC payments ranging from \$63 to \$408 for the medical component of a hospital-based outpatient visit. However, coding guidelines for E&M codes are somewhat ambiguous for hospital use, and incorrect coding can result. This study assesses the potential prevalence of such errors by hospital Emergency Departments.

## Sources and Limitations of Data

This study is based on Medicare PPS claims for hospital emergency department (ED) visits during calendar year 2002, as billed through 12/31/2002. Claims data were obtained from the Centers for Medicare and Medicaid Services (CMS) in two files:

- Hospital Outpatient Prospective Payment System (OPPS) Limited Data Set (LDS) for the nine months ending 12/31/2002 (Proposed 2004)
- Hospital Outpatient Prospective Payment System (OPPS) Select File for the twelve months ending 3/31/2002 (Final 2003)

These two files contain fee-for-service claims data for Medicare hospital outpatient bills. They were combined in order to cover the most recent twelve month period for which data are available. Note that all data obtained from CMS and used in this analysis are consistent with CMS Data Release Policies.

When reviewing this analysis and its findings, it is important to note that Medicare patients who are admitted to a hospital through its Emergency Department are not included in outpatient claims data. (Medicare does not allow hospitals to bill separately for outpatient services provided prior to an admission.) Therefore, admitted patients are excluded from this analysis. Furthermore, patients covered by a Medicare managed care plan also are excluded, since the CMS outpatient data include only fee-for-service claims. Thus, this analysis does not represent the entire population of Medicare ED patients.

### Evaluation and Management Codes

Criteria for coding Evaluation and Management services are based on factors such as the detail of patient history, extent of patient examination, complexity of medical decision making, and whether the patient is critically ill or injured. Since E&M codes were originally designed for physician or professional services reporting, it is difficult to assign these codes in the hospital setting.

E&M services are grouped into four APC categories representing a range of resource consumption. The fiscal year 2002 definitions and national payment rates<sup>1</sup> for these APCs are:

Table 1 – APC Definitions and Payment Rates

APC 610	Low level emergency visits	\$62.61
APC 611	Mid level emergency visits	\$109.95
APC 612	High level emergency visits	\$177.65
APC 620	Critical care	\$427.59

Though criteria for the assignment of E&M codes in the hospital setting are currently ambiguous, CMS has announced intentions to publish more specific criteria early in 2004. (Physicians will be excluded from using the new criteria for their professional E&M coding.)

### Hospital Categories

The acuity of patients (and their APC mix) may differ across hospital emergency departments according to factors such as:

- the characteristics of the population served
- the range and complexity of services offered
- hospital size and specialties
- referral relationships among hospitals in an area
- regional influences on healthcare

Therefore, to more accurately identify the typical distributions of ED patients by APC, hospitals were categorized according to their annual emergency department claims volume (i.e. the total number of claims with APCs 610, 611, 612, or 620). Hospitals with fewer than 500 claims during calendar year 2002 were excluded. It was felt that hospitals with fewer than 500 claims had only minor ED operations (i.e. fewer than two Medicare patients on average per day) and did not have sufficient volumes for analysis. The remaining hospitals are shown in Table 2.

Table 2 – Distribution of Hospitals According to ED Volumes

Annual Emergency Dept Claims	Number Hospitals in Range	Total Number Claims	Average Number Claims
500 - 1,000	181	133,603	738
1,001 - 4,000	1,093	2,882,777	2,637
4,001 - 7,000	1,043	5,656,606	5,423
7,001 - 10,000	641	5,346,714	8,341
>10,000	760	11,226,936	14,772
TOTALS	3,718	25,246,636	6,790

For each volume category, the distribution of claims among the four APCs was examined:

Table 3 – Distribution of E&M Claims According to Hospital Volume

Annual Emergency Dept Claims	APC 610 (low)	APC 611 (mid)	APC 612 (high)	APC 620 (critical)
500-1,000	35.8%	46.8%	15.3%	2.1%
1,001 - 4,000	32.9%	48.7%	16.8%	1.7%
4,001 - 7,000	28.7%	50.5%	19.1%	1.7%
7,001 - 10,000	25.9%	52.6%	20.3%	1.2%
>10,000	23.0%	53.8%	21.9%	1.3%
Average	26.1%	52.2%	20.3%	1.4%

As might be expected, smaller emergency departments provided a higher proportion of lower intensity services (i.e. those hospitals with lower numbers of annual ED claims had a higher proportion of patients with APC 610 - the lowest level of physician evaluation and management). Conversely, larger emergency departments provided higher proportions of higher intensity services (i.e. APC 611 and APC 612).

It would seem logical to expect larger emergency departments to also provide higher proportions of critical services (i.e. APC 620). However, the data seem to indicate just the opposite. The reason for this is that critical patients are more often admitted in larger hospitals, and therefore do not appear in the outpatient data. On the other hand, critical patients are often transferred from smaller hospitals to larger ones (instead of being

admitted to the smaller hospital). Consequently, such transferred patients do appear in the outpatient data for the smaller hospitals.

### Using Average Reimbursement as an Index of Patient Mix

Medicare pays a fixed rate for each APC according to national payment rates that are updated periodically. Because these rates are based on relative costs, they are a good proxy for relative intensity of service among APCs. For payment purposes this rate is normally adjusted to account for wage differences among hospitals in different geographic areas. (Actual payment amounts for E&M procedures might also be reduced when bundled with other procedures performed.) For this study, however, we used unadjusted national rates to calculate and compare average payment among hospitals. This average payment based on national rates serves as an acuity index that reflects the distribution of patients among the various APCs.

Table 4 – Average E&M Payment (based on national payment rates)

Annual Emergency Dept Claims	Average Payment (national rate)
500-1,000	\$110
1,001 - 4,000	\$111
4,001 - 7,000	\$115
7,001 - 10,000	\$115
>10,000	\$118
Average	\$117

As might be expected, higher volume emergency departments treat more high-acuity patients and therefore have a higher average payment. A hospital can compute its own index by counting the number of its patients in each APC and multiplying the total in each APC by the national payment rates shown in Table 1. The total of the computed payment amounts for all four APCs divided by the total number of patients gives a case-weighted average payment amount for comparison.

### Variations Among Individual Hospitals

Within each group of emergency departments, the distribution of APC percentages and average payments are approximately normal, with some hospitals considerably higher or lower than average for each measure. Extreme variations can result from erroneous coding practices (e.g. using the same E&M code for most patients regardless of the services actually provided). Table 5 shows ranges for 90% of hospitals in each category, excluding the highest 5% and the lowest 5%.

Table 5 – Ranges for 90% of hospitals

Annual Emergency Dept Claims	APC 610 (low)	APC 611 (mid)	APC 612 (high)	APC 620 (critical)	Average Payment (nat rate)
500-1,000	7-73%	20-72%	3-5%	0-7%	\$82-144
1,001 - 4,000	5-74%	16-78%	2-43%	0-9%	\$85-148
4,001 - 7,000	7-59%	29-74%	4-42%	0-6%	\$88-143
7,001 - 10,000	5-54%	32-74%	4-43%	0-4%	\$93-139
>10,000	5-47%	33-74%	5-43%	0-5%	\$96-143
Average	6-59%	28-73%	4-40%	0-6%	\$89-141

Hospitals outside these ranges deserve further investigation. For example, there were eight hospitals with more than 90% of their patients classified to APC 610, the lowest level of evaluation and maintenance. While there could be operational reasons for such a low intensity, a hospital falling outside normal ranges should make certain that valid reasons exist. If patients are being routinely classified to the lowest APC regardless of actual circumstances, a hospital would be underreimbursed.

Conversely, there were nineteen hospitals with fewer than 2% of their patients classified to APC 610. Again, it is important to understand the reasons. If patients are being erroneously classified to a higher range there could be a compliance problem related to overreimbursement.

Actual case studies conducted by The enVision Group, Inc. show similar trends in their outcomes reporting. enVision concurs that hospitals should conduct periodic validation studies to ensure proper coding, charging and reporting of outpatient services to reduce both risk and liability in addition to proper payments

Appendix A provides a table that further delineates the ranges for each APC. Hospitals were ranked from low to high in each category with the lowest value shown in the table as “minimum.” The ranked hospitals were then divided into five quintiles with the highest value shown for each quintile. This table enables an individual hospital to compare its own experience with national experience. For example, if a hospital with 5,000 annual ED claims has an average national payment amount of \$125 it would be in the fourth quintile representing the experience rate of 80% of the nation’s hospitals.

### Conclusion

This analysis of Evaluation and Maintenance coding shows that some hospitals may be overcoding or undercoding emergency department physician services. Claims data are useful in identifying potential problems, but do not consider operational circumstances that may cause variances. Hospitals should regularly review their own claims data in relation to the ranges in this study in order to determine whether there are situations that should be investigated. Systemic undercoding can lead to underreimbursement. Systemic overcoding can be a compliance problem requiring immediate intervention and correction.

## Endnotes

---

<sup>1</sup> Final Rule: Medicare Program; Changes to the Hospital Outpatient Prospective Payment System for Calendar Year 2002 (CMS-1159-F2), Addendum A.

Appendix A - Quintile Ranges for the Distribution of E&M Claims According to Hospital Volume

Quintile Points	Percent of Claims																							
	APC 610 (low)						APC 611 (mid)						APC 612 (high)						APC 620 (critical)					
	Min	1	2	3	4	Max	Min	1	2	3	4	Max	Min	1	2	3	4	Max	Min	1	2	3	4	Max
Annual ER Dept Claims																								
500-1,000	0	19	29	40	53	100	0	32	44	51	60	86	0	7	10	15	22	100	0	0	0	2	4	22
1,001 - 4,000	0	17	26	37	48	97	0	37	45	53	61	93	0	7	12	17	24	76	0	0	1	1	3	26
4,001 - 7,000	0	14	22	31	43	94	0	38	46	54	63	88	0	9	14	20	27	79	0	0	1	1	2	30
7,001 - 10,000	0	12	19	28	39	96	0	41	49	56	64	94	0	9	16	22	30	78	0	0	0	1	2	14
>10,000	0	11	18	25	35	93	0	42	50	58	64	91	0	11	18	24	31	69	0	0	0	1	2	26
All Hospitals	0	14	22	31	43	100	0	38	47	55	63	94	0	8	14	20	28	100	0	0	1	1	2	30

Quintile Points	Average Payment (national rate)					
	Min	1	2	3	4	Max
Annual ER Dept Claims						
500-1,000	63	95	103	112	122	185
1,001 - 4,000	63	96	106	114	123	207
4,001 - 7,000	63	100	109	118	127	195
7,001 - 10,000	65	102	111	119	128	164
>10,000	66	105	113	121	129	237
All Hospitals	63	100	109	118	127	237