PROJECTION OF FINANCIAL IMPACT OF E/M CODING VARIANCES ON FAMILY PHYSICIANS

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Abstract

A study was performed by a trio of researchers from the Department of Family Medicine, Northwestern University Medical School in Chicago, IL[1] comparing the E/M coding patterns of approximately 205 family physicians with that of a group of designated expert coders. They found that, for the most part, the sample physicians tended to over code on new office visits and under code on established office visits. This study used the information from the Northwestern study to quantify the financial impact such coding variances would have when applied to the Medicare database of all office visits by family physicians nationwide. This study used the CY 1999 Medicare claims database made available by CMS and the new and established office visits were extracted, filtered for appropriateness and the absolute utilization numbers calculated to develop a distribution model. The Medicare fee amount was weighted for distribution of facility and non-facility charges and relational models were established. The results indicated that it was the family physicians, not the payers, who suffered a financial burden. In this study, the physicians showed an overall under payment of approximately $50 million when extrapolated for the national family practice physician database published by Medicare. Further studies such as this are needed for more specialties in order to get a better picture on the impact such coding errors can have and should motivate physicians to seek out and invest in education and training for E/M coding to increase accuracy and assist them in optimizing their revenue through proper coding.

[1] Accuracy of CPT Evaluation and Management Coding by Family Physicians, Mitchell S. King, MD, Lisa Sharp, PhD and Martin S. Lipsky, MD Department of Family Medicine, Northwestern University Medical School, Chicago, IL [J Am Board Fam Pract 14(3):184-192, 2001

Introduction

Since the introduction of the new Evaluation and Management codes in 1992, there has been a great deal of interest and scrutiny by both commercial and government payers with respect to the potential financial impact such codes would create. In 1995, CMS released a set of official guidelines that were designed to eliminate much of the elasticity and interpretation involved in coding for an E/M visit. Prior to 1992, time and perceived effort were the primary determinants of what procedure code the physicians would select. The motivation for development of this new methodology was to allow for a more scientific approach for the assignment of a quantitative value under the new physician payment system, called the Resource Based Relative Value Scale, or RBRVS.

Since the release of the 1995 guidelines, there have been many different proposals designed to make the process of coding for E/M services more efficient, more user friendly and more consistent with respect to potential errors. This resulted in the 1997 guidelines being released, surrounded by a great deal of controversy, with the primary difference between the two being the physical exam component. Currently, there are several other proposals under consideration that will further modify the guidelines and it is unclear when a final version will be released. The Northwestern study cites several other studies that have been performed with respect to the coding accuracy of physicians and each study, to one degree or another, demonstrated a significant variance between what the "expert" coders opinions were compared to those of the physicians sampled.

In this study, I used the results of the data from the Northwestern study to determine the potential financial impact that such a coding variance would produce and to identify who the beneficiaries would be from such coding inaccuracies and errors. CMS, Medicare carriers and the OIG have been very vocal over their concern of potentially fraudulent and abusive practices with respect to physicians over coding E/M series and in their opinion, resulting in billions of dollars in over payments to individual physicians and medical practices. On the other side, physicians and their associations have complained vigorously about the clinical irrelevance and unnecessary complexity of the guidelines, whether the 1995, 1997 or the new proposed guidelines. But while medical organizations have opposed the complexity of these guidelines, none to my knowledge have disputed the government's claims of over payment due to physician over coding. It is very important to know whether it is the physicians or the payers that suffer or benefit from these coding variances. This study is designed to do just that.

There are some problems associated with the Northwestern study that should be pointed out here. First of all, the study only provided for three vignettes for new office visits and three vignettes for established visits.

Further, the distribution of the vignettes for each category was different. For example, in the established office visit category, there was one vignette each for procedure codes 99212, 99213 and 99214. This allowed for a potential under coding error rate of 40% and a potential over coding rate of 40%, equal on both sides of the mean. In the new office visit category, however, the vignettes were distributed so there was one for 99201 and two for 99202. In this case, the potential for over coding was 60% while the potential for under coding errors was only 20%. In the case of the 99201, there was no possibility to under code at all.

Another problem with using the data from this study results from a question of which guidelines were used. According to the authors, there were no instructions given with respect to this issue, thereby leaving the decision of whether to use the 1995 or 1997 guidelines up to the physician. There are significant differences between the two guidelines with respect to the physical examination components and these differences could have a significant affect upon the code selected without necessarily indicating that the code was selected incorrectly. Neither was there any indication as to the set of guidelines used by the so-called expert coders that the Northwestern team used to develop the "correct" codes that were used in the comparison.

Finally, it was necessary to decide on which practice expense component was to be used. Prior to 1999, the practice expense component value was cost-based. Congress required that CMS develop a resource based practice expense component so that the RBRVS would be a true resource based model. This was accomplished in 1998; however, the implementation of this new model into the RBRVS was to be done gradually, using a linear transitional methodology to take place over four years. Therefore, in 1999 the practice expense component consisted of a weighted value of 75% of the 1998 base practice expense RVU and the new resource based practice expense RVU. In 2000, the ratio was 50% of the base and 50% of the resource-based value. In 2001 it is 25% of the base and 75% of the resource based with the full resource based value to be fully implemented in CY 2002. While the implementation schedule was centered on political and financial considerations, it is still the value that is being used for this year. Therefore, I chose to use the CY 2001 transitional practice expense component.

Methods

The financial analysis was based on the *1999 Procedure Code Utilization By Specialty Used in Creating the 2001 Practice Expense Relative Value Units* published by CMS . This file identifies the 1999 Medicare allowed services for each procedure code for each specialty that performed it. Due to the Privacy Act, the file does not contain services performed less than 10 times by a specialty. From this file, I extracted only those E/M codes involved in the study, namely the new (99201 – 99205) and established (99211 – 99215) office codes. Family Practice is identified as specialty number 8 under the CMS specialty designation system and as such, only the aforementioned codes for that specialty were used. In order to develop a national utilization ratio, it was necessary to filter the file for modifiers reported in combination with some of the E/M codes within the database. There were two modifiers that resulted in the removal of the associated utilization data when combined with that particular procedure code. They were:

-52 Reduced Services: Under certain circumstances a service or procedure is partially reduced or eliminated at the physician's discretion. Under these circumstances, the service provided can be identified by its usual procedure number and the addition of the modifier '-52', signifying that the service is reduced. This provides a means of reporting reduced services without disturbing the identification of the basic service. The use of this modifier may alter both the logic related to coding for the specific procedure and the fee charged for the procedure and therefore was not used in the study.

-22 Unusual Procedural Services: When the service(s) provided is greater than that usually required for the listed procedure, it may be identified by adding modifier '-22' to the usual procedure number or by use of the separate five digit modifier code 09922. The use of this modifier may alter both the logic related to coding for the specific procedure and the fee charged for the procedure and therefore was not used in the study.

Another issue considered was the use of both facility and non-facility based charges for these codes. The differentiation between facility and non-facility is based on the location where the service was delivered and is reported in the appropriate box in the HCFA 1500 form. The value of the practice expense component in the RBRVS will vary depending upon the location selected, with the reimbursement for a facility designation being less than that for a non-facility designation. While there is a slight difference in the fee schedule amount between the two, the logic for selecting the actual procedure code itself does not change and hence both facility and non-facility utlization amounts were maintained as part of the study sample. In order to maintain consistency with respect to the financial analysis, I weighted the Medicare fee based upon the distribution of the facility and non-facility utilization amounts.

Both the facility and non-facility Medicare fee schedule amounts were calculated for each E/M procedure code. These were calculated by multiplying the non-geographically adjusted (mean) year 2001 transitional total RVU values by the CY 2001 Medicare conversion factor of 38.2581. The fees were not adjusted for the specific geographic adjustment factors (GAF) for the location of the study group because the extrapolation was to be applied nationwide. Since the GAF values are based upon a variance from the mean factor of one, using a non-adjusted value was the same as adjusting for a national-based sample using that mean of one. Then each fee was weighted based on the distribution of facility and non-facility frequencies for each code within each category. For example, the mean non-facility fee for procedure code 99213 is $50.50. The mean facility fee for the same procedure is $35.58. Non-facility utilization is 18,177,142 (97.05%) and facility utilization is 553,284 (2.95%). Therefore, we use 97.05% of the facility fee added to 2.95% of the non-facility fee to obtain a weighted fee of $50.06. Tables 1 and 2 illustrates the data used to calculate these values while tables 3 and 4 show the results of the calculations

Table 1 - Utilization by Location Characteristic for New Office Visits

Code	NonFacility	Facility	Total	% NonFacility	% Facility
99201	65,381	3,948	69,329	94.3054%	5.6946%
99202	308,297	1,490	309,787	99.5190%	0.4810%
99203	439,839	18,749	458,588	95.9116%	4.0884%
99204	230,361	9,496	239,857	96.0410%	3.9590%
99205	85,851	4,028	89,879	95.5184%	4.4816%

Table 2 - Utilization by Location Characteristic for Established Office Visits

Code	NonFacility	Facility	Total	% NonFacility	% Facility
99211	1,103,466	25,585	1,129,051	97.7339%	2.2661%
99212	5,369,630	213,398	5,583,028	96.1777%	3.8223%
99213	18,177,142	553,284	18,730,426	97.0461%	2.9539%
99214	4,796,781	134,334	4,931,115	97.2758%	2.7242%
99215	806,121	18,076	824,197	97.8068%	2.1932%

Table 3 – Location-based RVU and fee values for New Office Visits

Code	TPY	RVU-NF	RVU-F	RVU-W	MFS - NF	MSF - F	MSF - W	TotalMFS
99201	69,371	0.930	0.640	0.913	$35.58	$24.49	$34.95	$2,468,222
99202	323,357	1.620	1.240	1.618	$61.98	$47.44	$61.91	$20,041,060
99203	458,655	2.390	1.870	2.369	$91.44	$71.54	$90.62	$41,937,973
99204	239,932	3.470	2.760	3.442	$132.76	$105.59	$131.68	$31,852,318
99205	89,879	4.380	3.630	4.346	$167.57	$138.88	$166.28	$15,061,067
Total NOV	1,181,194							$111,360,640

Table 4 – Location-based RVU and fee values for Established Office Visits

Code	TPY	RVU-NF	RVU-F	RVU-W	MFS - NF	MSF - F	MSF - W	TotalMFS
99211	1,137,565	0.520	0.250	0.514	$19.89	$9.56	$19.66	$22,364,681
99212	5,583,714	0.940	0.640	0.929	$35.96	$24.49	$35.52	$198,355,390
99213	18,731,072	1.320	0.930	1.308	$50.50	$35.58	$50.06	$937,676,451
99214	4,933,200	2.060	1.510	2.045	$78.81	$57.77	$78.24	$385,965,964
99215	824,780	3.060	2.430	3.046	$117.07	$92.97	$116.54	$96,120,831
Totals EOV	31,210,331							$1,640,483,318

Using the database as described above, I then applied the variance distribution results from the Northwestern study. For each procedure code within the category for that specific vignette, I divided the number of results into the total number of samples analyzed to calculate the percent distribution for each possible procedure code. Then I subtracted the weighted Medicare fee for the "correct" code from the current code to obtain fee variance between the two. I then multiplied the percent distribution for that code by the total utilization from the CMS database for the "correct" code. The result was then multiplied by the fee variance, resulting in the total fee variance for that procedure code. I then calculated the sum of those products to get the total financial impact for that vignette. This was repeated for each of the six vignettes presented.

The financial impacts for each of the vignettes was then added together by subcategory (new vs. established office visit) and those two subcategories were then added together to obtain the grand total financial impact for the entire category (all office visits).

Results

The Northwestern study supported a significant variation from the 'correct' code with both the new and established office codes. For the new office codes, the physicians agreed with the experts in only 17% of the cases, with 82% over coding and only 1% under coding. Again, however, it should be pointed out that the opportunity to under code was severely limited due to the codes that were represented by the vignettes. In the established office visit cases, the physicians agreed with the experts in 52% of the cases with over coding occurring in 16% of the cases and under coding occurring in 33% of the cases. It is interesting to note that while the over coding seemed to have a dominant affect with respect to the variance of the code level, it did not have the same dominant affect on the overall financial analysis, as the raw numbers of the new office visit codes were significantly lower than the number of established office visit codes reported nationally. Of the 32,365,257 office visits reported in the CMS database, 3.6% were new office visits and 96.4% were established office visits. Therefore, any over coding variances within the new office visit cases as reported by the Northwestern study would have an insignificant affect on the total result.

Established Office Visits

Vignette number one was coded by the experts as 99214. 26.83% of the physicians agreed with this code, with 71.7% under coding and only 1.46% over coding. As shown in Table 5, the result was a net financial impact to the physicians of -$102,925,833. This means that based on the results of this vignette, physicians would have been underpaid by this amount from the carrier. The impact is expected since under coding occurred 49 times more than did over coding.

Table 5 – Financial Impact Analysis for procedure code 99214

Code 1	MFS	Sample	99211	99212	99213	99214	99215	Totals
99214	$78.24	205	2	13	132	55	3	205
% Dist			0.98%	6.34%	64.39%	26.83%	1.46%	100%
Fee Variance			-$58.58	-$42.71	-$28.18	$0.00	$38.30	
Distribution		4,933,200	48,129	312,837	3,176,500	1,323,541	72,193	4,933,200
Actual Impact			$946,218	$11,113,198	$159,015,394	$103,551,844	$8,413,477	$283,040,131
Variance			-$2,819,303	-$13,362,692	-$89,509,032	$0	$2,765,195	-$102,925,833

Vignette number two was coded by the experts as a 99213. Here, the physicians agreed with the experts 66.83% of the time with 20.98% under coding and 12.2% over coding. As shown in Table 6, the result was a net financial impact to the physicians of $4,357,120. This means that based upon the results of this vignette, physicians would have been overpaid by this amount from the carrier. In this case, even though over coding occurred less frequently than under coding, the fee variance between the "correct" code and the over coded code (99214) was

almost double the fee variance between the "correct" code and the next code down (99212) and the variance for the second code down (99211) was nearly equal to that of the difference between the 99213 and 99214 procedures.

Table 6 – Financial Impact Analysis for procedure code 99213

Code 2	MFS	Sample	99211	99212	99213	99214	99215	Totals
99213	$50.06	205	2	41	137	25	0	205
% Dist			0.98%	20.00%	66.83%	12.20%	0.00%	100%
Fee Variance			-$30.40	-$14.54	$0.00	$28.18	$66.48	
Distribution		18,731,072	182,742	3,746,214	12,517,838	2,284,277	0	18,731,072
Actual Impact			$3,592,736	$133,080,207	$626,642,311	$178,718,317	$0	$942,033,572
Variance			-$5,555,327	-$54,455,083	$0	$64,367,531	$0	$4,357,120

Vignette number three was coded by the experts as a 99212. In this case, the physicians agreed with the experts 61.27% of the time with 5.39% under coding and 33.33% over coding. As shown in Table 7, the result was a net financial impact to the physicians of $24,592,536. This means that based upon the results of this vignette, physicians would have been overpaid by this amount from the carrier.

Table 7 – Financial Impact Analysis for procedure code 99212

Code 3	MFS	Sample	99211	99212	99213	99214	99215	Totals
99212	$35.52	204	11	125	65	3	0	204
% Dist			5.39%	61.27%	31.86%	1.47%	0.00%	100%
Fee Variance			-$15.86	$0.00	$14.54	$42.71	$81.02	
Distribution		5,583,714	301,083	3,421,393	1,779,125	82,113	0	5,583,714
Actual Impact			$5,919,325	$121,541,293	$89,062,879	$6,424,429	$0	
Variance			-$4,776,309	$0	$25,861,407	$3,507,438	$0	$24,592,536

The total net impact for the established office visits was -$73,976,176, meaning that had this been a real case situation, it would have resulted in an underpayment of this amount to the physicians from their respective Medicare carriers.

New Office Visits

Vignette number four was coded by the experts as a 99202. In this case, the physicians agreed with the experts 19.02% of the time with 1.46% under coding and 79.52% over coding. As shown in Table 8, the result was a net financial impact to the physicians of $10,756,146. This means that based upon the results of this vignette, physicians would have been overpaid by this amount from the carrier.

Table 8 – Financial Impact Analysis for procedure code 99202

Code 4	MFS	Sample	99201	99202	99203	99204	99205	Totals
99202	$61.91	205	3	39	114	43	6	205
% Dist			1.46%	19.02%	55.61%	20.98%	2.93%	100%
Fee Variance			-$26.96	$0.00	$28.72	$69.77	$104.38	
Distribution		323357	4,732	61,517	179,818	67,826	9,464	323,357
Actual Impact			165,377	3,808,388	16,295,740	8,931,355	1,573,735	
Variance			-$127,576	$0	$5,163,529	$4,732,363	$987,829	$10,756,146

Vignette number five was coded by the experts as a 99201. In this case, the physicians agreed with the experts 8.82% of the time with 0% under coding and 91.18% over coding. As shown in Table 9, the result was a net financial impact to the physicians of $2,341,382. This means that based upon the results of this vignette, physicians would have been overpaid by this amount from the carrier. Note that in this particular instance, there was no opportunity to under code as the code selected was the lowest level for this subcategory.

Table 9 – Financial Impact Analysis for procedure code 99201

Code 5	MFS	Sample	99201	99202	99203	99204	99205	Totals
99201	$34.95	204	18	128	53	5	0	204
% Dist			8.82%	62.75%	25.98%	2.45%	0.00%	100%
Fee Variance			$0.00	$26.96	$55.68	$96.73	$131.34	
Distribution		69371	6,121	43,527	18,023	1,700	0	69,371
Actual Impact			213,917	2,694,672	1,633,294	223,892	0	
Variance			$0	$1,173,484	$1,003,428	$164,470	$0	$2,341,382

Vignette number six was coded by the experts as a 99202. In this case, the physicians agreed with the experts 24.26% of the time with 1.98% under coding and 73.76% over coding. As shown in Table 10, the result was a net financial impact to the physicians of $8,864,219. This means that based upon the results of this vignette, physicians would have been overpaid by this amount from the carrier.

Table 10 – Financial Impact Analysis for procedure code 99201

Code 6	MFS	Sample	99201	99202	99203	99204	99205	Totals
99202	$61.91	202	4	49	119	30	0	202
% Dist			1.98%	24.26%	58.91%	14.85%	0.00%	100%
Fee Variance			-$26.33	$0.07	$29.53	$70.85	$105.66	
Distribution		323357	6,403	78,438	190,492	48,023	0	323,357
Actual Impact			223,777	4,855,960	17,263,096	6,323,720	0	
Variance			-$168,582	$5,485	$5,624,988	$3,402,328	$0	$8,864,219

The total net impact for the new office visits was $21,961,746, meaning that had this been a real case situation, it would have resulted in an overpayment of this amount to the physicians from their respective Medicare carriers. For the entire study, representing both established and new office visits, the total net financial impact extrapolated for a national sample of all established and new office visits reported would be -$52,014,430, meaning that had this been a real case situation, it would have resulted in a underpayment of this amount to the physicians.

Discussion

While much is made of the over coding problem among physicians, not much has been said about the potential financial affect of the E/M coding problem from the defense of the physician side. The data from this study suggests that the overall impact of improper coding among family physicians benefits the payer-based system. Considering that the average level for the established visits was a 3 and the average level for a new office visit was a 1.67, the potential to over code the new office visits in this study was significantly more than was the opportunity to under code the established office visits. Based upon this discrepancy, we could assume that the results of this study represent a worst-case scenario with respect to the over coding problem and therefore should not considered exemplary of the typical utilization model. Another consideration is that, while over coding was shown to be more prevalent with new visit codes, the actual number of new office visits conducted is less than established office visits. With respect to family practice physicians, the national ratio of established to new office visits is 26 to 1. Therefore, the financial impact to the payer for over coding new office visits would be substantially less than the financial impact would be to the provider for under coding established office visits, consistent with the relationships in the Northwestern study. Considering only those physicians who responded to the Northwestern study, the overall financial impact would be an underpayment to those physicians of $2,645. While initially appearing insignificant, remember that applied to all family physicians, this number calculates into an underpayment of over $52 million. In fact, considering that fully 93.50% of the nearly 170 million procedure codes were new and established office visits as reported by CMS for 1999 for all included specialties, we would expect the negative impact to all physicians to be substantially higher yet.

In considering the total effect of this study, it is clear that it is the physician community and not the payer community that is paying for the gaps in physicians' knowledge of coding and their apparent inability to select the proper codes. Again, this assumes that the codes selected here were the most appropriate for the vignettes. The real benefit, if any, that is realized by the government is the ability to recover treble damages (three times the actual variance in the claim between the fee for the proper code and the actual code) and the ability to fine the practice between $5,000 and $10,000 for each occurrence if the physician is found guilty under the Federal False Claims Act. In my experience, when an audit has been conducted by the carrier or OIG, the physician, when found to be under coding, has not been automatically paid the difference between the under coded code and the proper code by the payer. In effect, it is only the overpayment amounts that are noted without the balance of the under paid amounts being recognized or reported. This may be a reason why CMS and OIG have made such claims that over coding of E/M codes among physicians has resulted in a net over payment to those physicians.

In order to understand the full impact of this problem, it would be necessary to conduct a similar study amongst all physician specialties. These future studies should include a vignette for each level of procedure code for both new and established office visits in order to better assess the potential for over and under coding. In addition, it would be important to obtain a larger sample of "expert" coders to determine the level of variance between their selections of the "correct" code. That sample should also include coders from the CMS, individual carriers and OIG representatives. This would be important to understand any potential bias in coding logic and practices between the provider, government and the payer sides.

Most important, it would seem that the physician organizations, such as the AMA, state medical societies and specialty physician organizations would leap at the opportunity to participate in such a national study to assess the potential negative impact coding is having on their constituents. This would also be important to debunk the myth that E/M over coding is a serious financial threat to the Medicare system and to stimulate the need for more training and education among physicians. E/M coding guidelines continue to be complicated in both methodology and organization and it is unlikely this will change. The new proposed guidelines, while looking more like the 1995 than the 1997 guidelines, are still far more complex than they need to be. In order for physicians to fully optimize their revenue for the work they do, they must become more familiar with these guidelines and subject themselves to regular internal audits, educational programs and individual training.