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Resident Awareness of Documentation Requirements and Reimbursement: A Multi-institutional Survey

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Abstract

Background: The current economic environment necessitates efforts to prevent avoidable losses in clinical revenue in academic cardiothoracic surgery programs. Inadequate documentation frequently results in delayed, denied, or reduced reimbursement. With the recent increase in integrated residency programs, documentation and compliance are becoming increasingly dependent on junior residents; however, their understanding of reimbursement and documentation guidelines is currently unknown.

Methods: An electronically distributed, multi-institutional survey of six general and subspecialty surgery programs was conducted consisting of open-ended numerical estimation of Medicare reimbursement for various levels of patient encounters. Closed-ended questions were used to assess resident knowledge of documentation requirements, accompanied by self-estimated compliance with those requirements.

Results: Thirty-seven percent (n=106) of residents completed the survey. Most residents (77%) believe they play the primary role in documentation; however, knowledge of and compliance with higher level documentation practices range from 19-78% and 41-76%, respectively. On average, residents overestimate Medicare reimbursement of lower level encounters by as much as 77% and

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underestimate higher level encounters by as much as 38%. In many cases, the standard deviation of residents' estimates approaches the actual reimbursement value.

Conclusions: Residents have a limited knowledge of documentation requirements. Self-reported compliance, even when guidelines are known, is low. Estimation of financial reimbursement is extremely variable. Residents overestimate reimbursement of lower level encounters and underappreciate reimbursement at higher levels. Ensuring appropriate reimbursement for services rendered will require formal cardiothoracic resident education and ongoing quality control.

Keywords

Health provider (arrangements, delivery/reimbursements); Education (includes all levels methods, trainees, subjects); Health policy (includes government regulation or advocacy)

Introduction

The current economic environment necessitates efforts to prevent avoidable losses in clinical revenue in academic cardiothoracic surgery programs.^{1,2} Although surgical subspecialties traditionally rely on surgical operations as a principal source of clinical revenue, an often underappreciated revenue stream is derived from appropriate billing for patient-physician encounters, such as office visits and hospital consultations, whose reimbursement relies on adequate documentation to justify billing.³ Clinicians designate *Current Procedural Terminology* (CPT) visit codes to bill Medicare and other payers for services involving the evaluation and management of patients.⁴ Under the current Medicare fee schedule, payment is based on a combination of factors, including the patient type (established or new), the setting (inpatient or outpatient), and various other items documented in the medical record (*e.g.*, body systems reviewed, physical examination maneuvers, diagnoses, management options, and time spent counseling).⁵

Inadequate documentation frequently results in delayed, denied, or reduced reimbursement, creating either under- or overbilling, both of which have significant financial repercussions.⁶ A recent study of outpatient internal medicine resident continuity clinics suggested that poor documentation and coding contributed to an annual forfeiture of approximately \$500,000 in a department with 48 residents.⁷ Moreover, such cost analyses fail to account for other potential costs, such as fraud. The Centers for Medicare and Medicaid Services (CMS) have recently increased their scrutiny of documentation and coding at academic institutions after a recent review suggested that 89% of patient encounters in Washington, D.C., were billed incorrectly, with most errors attributed to incomplete documentation relative to the level of service coded.^{8,9} Insufficient documentation can result in substantial penalties and repayments. Even more difficult to quantify are the potential medical-legal costs of inadequate documentation, especially in cardiothoracic surgery, whose specialty incurs the second highest proportion of physicians facing malpractice claims.¹⁰

When examined cumulatively, these factors lend support to a recent internal audit at one of the host institutions of the present study, which suggested that inadequate documentation resulted in an annual \$4 million forfeiture within its internal medicine department alone. Given surgical residents' time constraints and priorities, conventional wisdom would hold that surgical residents' documentation in many settings is often less than their internal medicine counterparts'.¹¹ Further complicating the issue is the prevailing false perception in surgical specialties that the global surgery period encompasses all documentation within 90 days of major surgery.¹² For example, new inpatient or outpatient encounters during which a decision is made regarding whether to recommend surgery are billed separately from the global period, whereas a subsequent pre-operative clearance encounter is not.

The importance of developing proficiency in this arena is implied by the Accreditation Council for Graduate Medical Education's (ACGME) inclusion of "systems-based practice" and "professionalism" in its six core competencies.¹³ However, studies on documentation within surgical residencies have been limited mostly to single institutions' assessments of residents' operative reports, which have revealed significant deficiencies that improved only modestly with increased post-graduate year (PGY) level.⁶ With the advent of both electronic medical records and integrated residency programs in cardiothoracic surgery, documentation and compliance are becoming increasingly dependent on junior residents; however, their understanding of reimbursement and documentation guidelines is currently unknown.

Material and Methods

Design

We conducted a multi-institutional survey at six ACGME-accredited academic surgery programs between January 1 and March 1, 2012. The six centers (University of Virginia, University of Michigan, Vanderbilt University, Columbia University, Emory University, and Stanford University) were selected to provide diversity with respect to both rural versus urban locations and private versus public institutions. These centers also rely almost exclusively on electronic medical records at both inpatient and outpatient facilities. Five of the programs have integrated cardiothoracic surgery residencies. However, the survey was open to all general surgery and subspecialty surgery residents because their knowledge and behavior on these subjects was assumed to be equivalent; moreover, many of these residents rotated through cardiothoracic surgery.

Residents were contacted through their program by having the program director and a pre-designated surgery resident at each institution forward the electronic survey invitation, which included a link to the online survey, to all of their residents.¹⁴ Two follow-up reminders were sent to each program during the two-month survey.

Participation was voluntary and anonymous, with assurances that all responses would be reported only in the aggregate. A completed response was considered as consent to participate. No incentives were provided for survey completion. All participants agreed not to use outside resources during the survey. Furthermore, the website was designed to block repeated attempts or backward navigation by identical Internal Protocol (IP) addresses.

Instrument

The resident authors in conjunction with three coding and documentation specialists from the University of Virginia developed the initial survey instrument, and its content was reviewed by the surgical faculty at two involved institutions. A pilot survey was then conducted with 10 participants, who abstained from the final survey. To minimize the length of the questionnaire, we excluded questions to which the responses varied little during preliminary testing. The final instrument was then converted to an electronic form after a two-week period of review by all authors.

Demographic data were collected regarding post-graduate year (PGY) level, institution, billing experience, moonlighting experience, and the beliefs of the residents regarding the importance of billing.

Open-ended ("free text") numerical estimation of Medicare reimbursement for various levels of patient encounters was used to assess resident knowledge of financial reimbursement.

Outpatient encounters were divided into new (CPT 99201-5) and established patients (CPT 99211-5). The last digit reflected the level of the encounter, with 1 being a simple visit and 5 being a complex visit (*e.g.*, justified by the decision of whether to recommend a major cardiothoracic surgery). Inpatient consultations were divided into admission history and physicals (CPT 99221-3) and consultations (CPT 99231-3). Similar to outpatient encounters, the last digit reflected the visit's level of complexity.

There was considerable discussion among the authors during the survey design regarding whether residents should instead be given multiple-choice answers from which to select an appropriate reimbursement value. However, the prevailing sentiment was that such ranges could bias responses, and moreover, that there was intrinsic utility in assessing how wide that range could be.

Closed-ended questions were used to assess resident knowledge of documentation requirements. After completing these questions, participants were forwarded to a webpage that compared their responses to actual CMS documentation guidelines. Residents were then asked to estimate how often they complied with these requirements. Of note, the online survey prevented participants from navigating backward to edit their original responses.

Data Analysis

Responses were collated and electronically transferred into a computerized database (Microsoft Excel, Redmond, WA). Survey questions involving residents' demographics and knowledge of documentation guidelines were translated into frequency distributions for categorical variables. Descriptive statistics for continuous variables (mean, median, standard deviation, and percentiles) were examined to summarize valid responses and identify basic distribution patterns. The principal continuous variables consisted of the residents' estimates of reimbursement, which were compared to the mean Medicare reimbursement (as opposed to charges) as of January 1, 2012, for the corresponding CPT codes.¹⁵ Because of the decision to use free text numerical estimation of Medicare reimbursement, the authors agreed *a priori* to these descriptive statistics for the comparison among the continuous variables instead of parametric comparative statistics, especially given the anticipated wide variance and likely non-normal distribution of the responses.

Results

The resident responses are summarized under each statement as abstracted from the survey instrument.

Demographics

Characteristics of the survey's respondents are presented in Table 1. The survey was attempted by 117 users; however, the data were cleaned to eliminate incomplete response sets. Ultimately, 37% of residents completed the survey, generating 106 unique responses.

The number of responses are similar between public and private institutions (49% *vs.* 51%, respectively) and moderately biased toward nonurban versus urban centers (62% *vs.* 38%). The majority of respondents (52%) are PGY-2 or less.

Resident Beliefs Regarding Documentation

Most residents (77%) believe they play the primary role in documentation of patient encounters. Respondents believe that the two major parties responsible for proper documentation should be the surgical attending (89%) and the junior surgical resident (88%). Fewer residents feel that this responsibility should fall on physician extenders (79%)

or senior residents (77%). There is considerable agreement that medical students should not bear the responsibility for ensuring adequate documentation in their notes, with a minority (22.6%) indicating that medical students should have any responsibility at all.

Almost all residents (95.3%) believe that their surgical department or division should try to maximize the level of an encounter, assuming that the care documented has actually been provided. Furthermore, almost no residents (1.9%) admit to underdocumenting encounters intentionally to avoid overcharging patients.

Resident Experience With Documentation

Fewer than half of the residents (41%) have ever coded a patient encounter. Only 31.1% of respondents indicate that their residency program has educated them regarding the differences between levels of encounters. Meanwhile, 20.8% of respondents indicate that their residency program has communicated the financial ramifications of poor documentation. Only a minority (17%) moonlight.

Resident Knowledge of and Compliance with Documentation Guidelines

Most residents (72.6%) know that billing for a Level 4 or 5 encounter requires including all of the following history and physical (H&P) components in their note: the chief complaint, history of present illness (HPI), social history, family history, review of systems (ROS), physical exam (PE), assessment, and plan. There was no appreciable difference in knowledge among junior residents (73.2%) versus senior residents (72.0%). On average, residents estimate that 75.5% of their notes for appropriate encounters contain all of these elements ($\pm 26.2\%$).

Additionally, most residents (78.3%) know that billing for a Level 4 or 5 encounter requires including the chief complaint's characteristics, location, duration, severity, associated signs and symptoms, and modifying factors in the HPI. There was no appreciable difference in knowledge among junior residents (82.1%) versus senior residents (80%). On average, residents estimate that 78.3% of their notes for appropriate encounters contain all of these elements ($\pm 26.0\%$).

However, only 18.9% of residents know that proper documentation for a Level 4 or 5 encounter requires documenting 10 systems in the ROS and 8 organ (not body) systems in the PE. Junior residents responded correctly (26.8%) more often than senior residents (10.0%). On average, residents estimate that 41.7% of their notes for appropriate encounters contain all of these elements ($\pm 29.2\%$).

Every (100%) resident understands that documenting that they have reviewed the appropriate diagnostic labs and imaging with the attending is required for a Level 4 or 5 encounter. Nevertheless, residents estimate that only 68.7% of their notes for appropriate encounters contain their impression of imaging or laboratory results ($\pm 33.0\%$).

A majority (82.1%) of residents know that billing for any consultation requires listing the attending physician requesting the consultation, the date of the consultation request, and the stated reason for the consultation. Senior residents responded correctly (88.0%) more often than junior residents (76.8%). Despite this knowledge, all residents estimate that 56.2% of their consultations contain these items ($\pm 38.1\%$).

A visual summary of these statistics is provided in Figure 1, along with accompanying 25th and 75th percentile ranges for residents' estimated compliance with higher level documentation practices when appropriate.

Resident Estimation of Actual Medicare Reimbursement for Patient Encounters.

Figure 2 shows residents' estimation of Medicare reimbursement compared to actual Medicare payment for various encounters in 2011. The error bars denote the 20th and 80th percentiles of responses. The standard deviation is noted for each set of estimates.

Residents overestimate new outpatient Level 1 and Level 2 visits by 45% and 6%, respectively. However, they underestimate Levels 3, 4, and 5 visits by 12%, 29%, and 31%. For established outpatients, residents overestimate Level 1 and 2 encounters by 90% and 14%. However, they underestimate Level 3, 4, and 5 encounters by 16%, 29%, and 36%.

Residents underestimate the reimbursement of inpatient admission H&P's at all levels, an error that is more pronounced at higher level encounters: 26% for Level 1, 35% for Level 2, and 38% for Level 3. Residents overestimate the reimbursement of inpatient consultations, but the overestimation is less pronounced for higher level encounters: 77% for Level 1, 24% for Level 2, and 9% for Level 3.

Comment

In the current health care environment, competence in documentation and coding is becoming increasingly important for developing a successful clinical practice.¹⁶ However, these survey results document a widespread lack of knowledge in documentation guidelines and financial reimbursement at the resident level. While the non-normal distribution and sample size preclude demonstrating statistical significance, the descriptive statistics reveal several obvious trends. Residents appear to have no intuitive sense of cost or scale in estimating the value of their patient encounters. Responses are so varied that, in many cases, the standard deviation of residents' estimates approaches the actual reimbursement value. Moreover, residents make the precise error one would hope to avoid: they overestimate the reimbursement of lower level encounters and underappreciate reimbursement of higher level encounters. In our study, residents overestimate Medicare reimbursement by as much as 77% and underestimate higher level encounters by as much as 28%.

Evidence exists that such thinking is translated into clinical practice, as prior studies have shown that residents routinely down-code acute care visits to Level 2 or 3 when documentation merits a higher level.¹⁷ The fact that almost all residents in our study believe in capturing full reimbursement underscores the fact that such lapses are not intentional. Our results instead demonstrate that residents' knowledge of documentation guidelines, with few exceptions, is low. Moreover, even when guidelines are known, self-reported compliance is lower.

These results may not be surprising, as reimbursement is ultimately influenced by a number of variables well beyond the scope of a resident's daily clinical practice. However, these findings indicate a significant problem within surgical resident training, as most frontline employees in other service industries have a basic understanding of the price, or intrinsic value, of the work they perform. The lack of financial transparency illustrated by these results has been implicated as a major contributor to the U.S. health care system's current insolvency.¹⁸

The survey responses also identify a serious deficiency in residents' preparation for future practice. Our study found no appreciable improvement in knowledge of compliance guidelines between junior and senior residents. However, this is not entirely surprising as less than a third of residents in our study indicate that their residency program includes any structured education on these subjects. Furthermore, there is little reason to believe these findings would be different at other institutions. A 1991 survey of academic surgery programs found that 78% of the faculty believed a formal program in practice management

should be offered to residents while only 4% of programs did so.¹⁹ In 2004, a national survey found that 89% of emergency medicine residents rated their ability to document and code patient encounters as “minimal” or “not at all.”²⁰ A follow-up audit revealed that residents’ charts were more likely to be downcoded than physician assistants’, resulting in an average difference of \$3.21 per patient.²¹ A more recent analysis from 2009 found that residents desired more training in documentation and billing.²² Our study highlights that despite these beliefs among residents, this educational deficit remains.

Proposed methods for improvement in other fields have included formal lectures by coding specialists, written feedback regarding down-coded charts, real-time attending feedback during clinic or rounds, and financial incentives for documentation and coding compliance.¹⁹ Interestingly, in response to spontaneous resident feedback by those who completed the questionnaire, several of the residencies surveyed have initiated efforts to standardize electronic documentation and offer a formal education by coding specialists. One institution is actively studying the intervention, by comparing the results of pre- and post-education chart audits, along with an analysis of the program’s financial impact.

This study possesses the usual limitations inherent in convenience surveys conducted at a limited number of institutions. First, while the survey is multi-institutional, the approximately 37% response rate at the participating institutions tempers the conclusions to be drawn. Second, a selection bias may be present in those responding, with residents either more interested or curious about financial reimbursement being more likely to complete the survey. Additionally, although the demographic analysis reveals a heavy concentration of junior residents, such a bias is likely appropriate given the prevailing perception that they are responsible for more documentation than senior residents. Future surveys could be included on in-service training exams for a more thorough assessment of resident knowledge on these matters, which would address both the low response rate and the selection bias. Third, in measuring compliance, we did not audit actual resident performance, which would have provided greater accuracy, but we feel there is utility in simultaneously juxtaposing knowledge of documentation requirements with self-estimated compliance. Finally, while comparisons between the continuous variables are made based on descriptive statistics rather than statistical significance, this decision facilitates a better characterization of the wide variance of unbiased estimates, the extent of which has not been previously described. Despite these limitations, our findings are generally consistent with many previous studies from a variety of training environments,^{6-7,16-17,19-22} and they are significant in documenting not only a lack of knowledge regarding documentation among residents surveyed but also the influence of that educational deficit on residents’ understanding of financial reimbursement.

In exploring the timely yet controversial subject of pay-for-performance compliance for trainees, our purpose is not to suggest that documentation guidelines should play a role in physician reimbursement. That topic has been debated at great length elsewhere, and regardless of documentation’s relevance in determining patient outcomes, its importance is a fact of modern day practice.²³ Rather, the motivation of the present study is to illustrate the substantial deficiencies present in current residency programs in an effort to promote changes in education that will prepare the next generation of surgeons to operate in an increasingly complex health care system. Ultimately, ensuring appropriate reimbursement will require formal resident education, longitudinal follow-up, and ongoing quality control. Such opportunities may be afforded by longer and more focused residency models, such as the evolving six-year integrated cardiothoracic surgery programs.

Discussion

108. SURGICAL RESIDENT AWARENESS OF FINANCIAL REIMBURSEMENT AND DOCUMENTATION REQUIREMENTS: RESULTS OF A MULTI-INSTITUTIONAL SURVEY. Paper presented by Kenan Yount, MD, Charlottesville, VA. E-mail: kenan@virginia.edu

Discussion by John Calhoon, MD, San Antonio, TX. E-mail: calhoon@uthscsa.edu

Dr. J. Calhoon (San Antonio, TX): Dr. Yount, that was a really pretty presentation, enjoyed it very much. One question would be: Did you get a chance to look at the leveling of codes based on time and did you examine that at all for E&M codes based on time?

108. SURGICAL RESIDENT AWARENESS OF FINANCIAL REIMBURSEMENT AND DOCUMENTATION REQUIREMENTS: RESULTS OF A MULTI-INSTITUTIONAL SURVEY. Response by Kenan Yount, MD, Charlottesville, VA.

Dr. Yount: We did not look at time as a component of billing. In retrospect we should have, as it can affect coding. However, for the most part at our institution, the attending is responsible for documenting time spent caring for and counseling the patient.

Dr. Calhoon: Thanks. It was a very nice presentation.

108. SURGICAL RESIDENT AWARENESS OF FINANCIAL REIMBURSEMENT AND DOCUMENTATION REQUIREMENTS: RESULTS OF A MULTI-INSTITUTIONAL SURVEY. Paper presented by Kenan Yount, MD, Charlottesville, VA.

Discussion by Ara Vaporciyan, MD, Houston, TX. E-mail: avaporci@mdanderson.org

Dr. Vaporciyan (Houston, TX): Do you know what the rates are of knowledge and compliance by faculty?

108. SURGICAL RESIDENT AWARENESS OF FINANCIAL REIMBURSEMENT AND DOCUMENTATION REQUIREMENTS: RESULTS OF A MULTI-INSTITUTIONAL SURVEY. Response by Kenan Yount, MD, Charlottesville, VA.

Dr. Yount: When our faculty authors looked at our survey, they were embarrassed by their own lack of knowledge. Although we did not assess faculty knowledge in the present study, we have considered doing so in a future study. I presume that there is a deficit of knowledge at the faculty level that likely contributes not insignificantly to the deficit at the resident level.

Dr. Vaporciyan: I would think you'd be very surprised.

108. SURGICAL RESIDENT AWARENESS OF FINANCIAL REIMBURSEMENT AND DOCUMENTATION REQUIREMENTS: RESULTS OF A MULTI-INSTITUTIONAL SURVEY. Paper presented by Kenan Yount, MD, Charlottesville, VA.

Discussion by Richard Shemin, MD, Los Angeles, CA. E mail: rshemin@mednet.ucla.edu

Dr. R. Shemin (Los Angeles, CA): Did you survey what type of electronic medical record they were using for documentation and whether or not there was prompts in those records that helped them understand the appropriate documentation necessary?

108. SURGICAL RESIDENT AWARENESS OF FINANCIAL REIMBURSEMENT AND DOCUMENTATION REQUIREMENTS: RESULTS OF A MULTI-INSTITUTIONAL SURVEY. Response by Kenan Yount, MD, Charlottesville, VA.

Dr. Yount: We did not inquire each resident about electronic medical record systems in the survey itself. However, each institution involved in the study had a contact person in charge of administering the survey, and that person informed of us of the details of their electronic medical record system. Most institutions were comparable, with Epic being the most common system. All but one institution had a capability for electronic prompts, but no departments at the time of the survey had preset mandatory prompts in place for their surgical department. I do think that the use of these prompts would help address the problem. However, the prompts themselves can be fairly easy to work around if you are in a hurry for time.

Dr. Shemin: And were these PGY 1 and 2s mostly in I 6 programs or in general surgery?

Dr. Yount: They were in general surgery and surgical subspecialties. Approximately 50% were PGY-1 and 2 with the other 50% being PGY-3 and above. All but one of the programs in the study has an i6 program and several of the respondents were i6 residents. We chose not to limit the study to i6 residents because we did not feel the survey pool would be large enough. Also, we believed that there was likely no inherent discrepancy between i6 residents' knowledge and performance on these subjects compared to other general surgery and subspecialty surgery residents'.

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Figure 1.

The red bar indicates the proportion of residents who could correctly identify the critical components necessary for a Level 5 patient encounter. The blue bar indicates the mean percentage of encounters during which residents believe they actually document all of these components when appropriate. The error bars denote the 25th and 75th percentiles of these reported compliance rates.

Figure 2.

The red bar indicates the published mean Medicare reimbursement for a given encounter in 2012. The blue bar indicates the mean resident estimate for the given encounter. Error bars reflect the 20th and 80th percentile ranges for resident responses. The standard deviation is listed for each set of estimates. Figure 2A refers to new outpatient visits. Figure 2B refers to established outpatient visits. Figure 2C refers to inpatient admission H&P's. Figure 2D refers to inpatient consultations.

Table 1

Demographics and Beliefs of Resident Respondents (n=106).

Responses by Program			
Program	Responses	Proportion in the Survey	Response Rate
UVA	24	22.6%	69%
Michigan	28	26.4%	44%
Vanderbilt	17	16.0%	40%
Columbia	15	14.2%	24%
Stanford	10	9.4%	24%
Emory	12	11.3%	22%

Responses by PGY Level		
PGY-Level	Responses	Proportion in the Survey
1	38	35.8%
2	18	17.0%
3	25	23.6%
4	13	12.3%
5	12	11.3%

Moonlighting Activities	
Frequency	Percentage
Never	83.0%
1-5x/year	6.6%
1-2x/month	3.8%
1-2x/week	6.6%

Beliefs About Documentation	
Statement	Percentage
Residents who believe adequate documentation is their responsibility:	77.4%
Residents who believe their department should try to maximize the level of an encounter assuming the care documented has been provided:	95.3%
Residents who intentionally underdocument to avoid overcharging patients:	1.9%
Residents whose program has explained the financial impact of being downgraded a level for poor documentation:	20.8%
Residents has coded a patient encounter him/herself:	41.0%
Residents whose program has explained the differences between various types and levels of encounters:	31.1%

Residents Believe the Following Should Play a Major Role in Ensuring Adequate Documentation:	
Attending Physician	88.7%
Senior Residents	77.4%

Residents Believe the Following Should Play a Major Role in Ensuring Adequate Documentation:	
Junior Residents	87.7%
Physician Assistant or Nurse Practitioner	79.2%
Medical Students	22.6%