Examining the Relationship Between Physician and Facility Level-of-Service Coding in Outpatient Wound Centers: Results of a Multicenter Study

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Abstract
The evaluation and management (E/M) services for the physician and the hospital-based outpatient center (“facility”) are calculated using different federal regulations. In addition, patients visiting outpatient wound care centers require different levels of care from the physician than from the facility. The purpose of this study was to analyze and compare physician and facility E/M level-of-service coding using the electronic wound registry records from three geographically diverse, hospital-based outpatient wound centers. De-identified data on 9,985 patient visit level-of-service codes were prospectively collected using an electronic health record (EHR) system that internally and automatically audits the chart and calculates the physician and the facility E/M level of service based on the documentation present in the chart. Correlations were calculated using Kendall’s tau b/Goodman-Kruskal gamma statistics. Correlations were weak between facility and physician E/M level-of-service codes, varying from 0.084 to 0.179 for follow-up and from 0.066 to 0.354 for initial visits. Although facility E/M levels of service followed a normal distribution, physician E/M visits were heavily skewed toward higher levels of care (3 to 5). These findings confirm that, especially during the initial visit, patients presenting at outpatient wound centers require different levels of care from the physician than from the facility. The finding that initial physician level of service coding was higher than facility E/M levels of service for both initial and follow-up visits is not unexpected, considering the high number of comorbidities in many wound patients and the general risk of their presenting problems.

Keywords: outpatients, wounds, prospective study, Medicare, clinical coding, wound care-specific EHR


Potential Conflicts of Interest: Dr. Fife is Chief Medical Officer and a major shareholder; Mr. Walker is the President and a major shareholder; Ms. Wall is Director of Business Services; Mr. Thomson is Chief Information Officer; and Dr. Carter is a paid consultant to Intellicure, Inc, The Woodlands, TX.

In 1999, when hospital-based outpatient clinics were created, the Centers for Medicare and Medicaid Services (CMS) recognized they did not have a mechanism to quantify the work performed in the outpatient setting. Physicians provide patient care in these hospital-based outpatient clinics, but hospitals employ staff and contribute resources to support physician services. In order to create a compensation system for all hospital-based outpatient services, reimbursement for Medicare beneficiaries is defined by the CMS in the Hospital Outpatient Prospective Payment System (HOPPS).1 When the original regulations were published, the CMS repurposed the physician Evaluation and Management (E/M) Codes and instructed all hospital outpatient departments, including wound centers, to bill using these codes for the nursing and other hospital resources used in support of the physicians (see Table 1).

It has long been a source of confusion to the medical community that the “facility” E/M codes were the same ones developed by the American Medical Association (AMA) to describe physician services. The CMS repurposed these E/M codes for facility billing, despite the fact that the work performed by the facility is not specifically that of “evaluating and managing” a patient. Although the AMA provides physicians with volumes of instructions regarding the calculation of their E/M codes, no similar guidance existed for facilities. In 2000, the Federal Register2 stated that each facility was expected to “develop a system for mapping the provided services furnished to the different levels of effort

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20
represented by the [E/M] codes." Provided that the services were medically necessary and properly documented, and that the facility was following its own developed system, the CMS would assume the facility was in compliance with the reporting requirements.

In 2007, Fife et al. validated a method of calculating E/M services for the wound center facility using acuity scoring as measure of staff work. More than 200 different elements of staff work contribute to a measure of resource utilization for facility E/M visits. This remains the only system validated to produce a normal distribution of visit charges for the outpatient wound center.3

However, physician reimbursement is determined by either the 1995 or the 1997 Medicare Documentation Guidelines for physician documentation. In the Federal Register, Medicare made it clear physician E/M level of service and facility E/M level of service were not expected to correlate because the focus of the care provided by these entities is different, stating, "We realize that while these HCPCS codes appropriately represent different levels of physician effort, they do not adequately describe non-physician resources.... Therefore, we would not expect to see a high degree of correlation between the code reported by the physician and that reported by the facility." Nevertheless, because both the physician and facility use the same E/M codes, many clinicians assume the E/M service level billed by the facility should mirror that billed by the physician.

Physician payment for the E/M codes is associated with different degrees of care complexity.5 An outpatient visit may be billed at one of 5 levels of complexity. Complexity is reported by using three key components: 1) history (patient medical, family, and social history); 2) the physical examination; and 3) the physician’s medical decision making. In order to bill any care provided during an initial visit, all three key components must be provided by the physician and documented in the patient’s record. For subsequent visits, only two of the three key components have to be documented. Each key component contains four levels of difficulty. For initial visits, all three key components must support at least the minimum level, and higher levels require support from all three key components. Each of the three previously indicated sections (history, physical examination, and medical decision making), has three to four elements of documentation. For follow-ups, the E/M levels of service are determined by the most detailed documentation in two of the three categories. With regard to medical decision making, points are possible for "cognitive effort" based on the number and complexity of active and chronic diagnoses (problems), number of labs interpreted, drugs prescribed, tests ordered, and so forth.

In contrast to the 1995 E/M Documentation Guidelines, which list body areas to be examined, the 1997 E/M Guidelines detail what information is needed at a much more granular level. A 54-page book specifies the documentation requirements necessary to justify a given E/M level of service. Physical examination is divided into a general multisystem examination and 11 separatesingle-organ system examinations (e.g., skin is the organ system most relevant to wound care). For a detailed examination, 12 or more “bullet points” must be recorded; for an expanded problem-focused examination, six or more bullets are needed; and for a problem-focused examination, one to five bullets must be documented. The American College of Physicians noted that an internist using the 1997 Medicare Guidelines would have 11 decision points in various categories before selecting an E/M code. That results in 42 choices a physician must consider before selecting

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### Key Points

- Patients visiting outpatient wound care centers often present with multiple comorbidities requiring extensive care.
- Using an electronic medical records system for hospital-based outpatient wound care centers, the researchers prospectively examined level-of-service coding for 9,985 patient visits.
- Physician level-of-service codes were higher than hospital-level codes, especially for the initial visit.
- The authors conclude that no correlation between facility and physician E/M service level should be expected in the care of patients seen in hospital-based outpatient wound centers.

### Table 1. The Evaluation and Management (E/M) Codes wound care centers have been instructed to use

<table>
<thead>
<tr>
<th>I-Fast Acuity total score</th>
<th>Level of service</th>
<th>E/M code new visit</th>
<th>E/M established visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 35</td>
<td>Level 1</td>
<td>99201</td>
<td>99211</td>
</tr>
<tr>
<td>36 – 65</td>
<td>Level 2</td>
<td>99202</td>
<td>99212</td>
</tr>
<tr>
<td>66 – 125</td>
<td>Level 3</td>
<td>99203</td>
<td>99213</td>
</tr>
<tr>
<td>126 – 155</td>
<td>Level 4</td>
<td>99204</td>
<td>99214</td>
</tr>
<tr>
<td>156 – 200</td>
<td>Level 5</td>
<td>99205</td>
<td>99215</td>
</tr>
</tbody>
</table>

*The I-Fast Acuity Scoring Tool® remains the only validated method of facility billing. More than 200 different elements of staff work contribute to a measure of resource utilization which track to the five levels of E/M visits. The break points in the scores were established to ensure a normal distribution of levels of service.
the proper level of E/M service. Thus, there are 6,144 possible combinations representing the number of ways an office visit for a new patient can evolve and be classified.6

The impossibility of physicians correctly navigating this morass was demonstrated by a study7 in which 600 randomly selected active members of the Illinois Academy of Family Physicians were sent six hypothetical progress notes of office visits. The physicians were asked to assign billing codes to each progress note. Five expert coders also were assigned codes to each of the cases. The accuracy of the codes assigned by the physicians and coders were compared. For new patient progress notes, family physicians agreed with the experts only 17% of the time, the predominant error being overcoding by physicians. Undercoding by physicians was common in follow-up visits, occurring in 52% of those visits.

The development of electronic health records (EHR) has helped physicians considerably in managing this complex billing logic. The 1997 Guidelines lend themselves to automated calculations due to the bullet point system used for the physical examination. Algorithms can be created that allow EHRs to audit the components of history, physical examination, and decision making, and thus compute the type of encounter documented. In this way, the EHR internally and automatically calculates the physician E/M level of service after performing a computer audit in the same way humans previously performed by hand audits, only with greater reliability and accuracy. Separately but simultaneously, the facility E/M level of service is calculated based on the 200-point validated acuity scoring system.3

The capability of EHRs to perform automated chart audits and then internally and automatically calculate charges is not novel. The Health Information Management Systems Society (HIMSS) states that with a properly functioning EHR, at the conclusion of the visit, healthcare providers should perform no additional work in order to determine the billed level of service. Therefore, the EHR should inform the clinician of the billed level of service based on the documentation provided. It should be emphasized again that although the physician E/M level of service and the facility E/M level of service are both internally calculated by the EHR, the programming that determines these calculations is based on completely different rule sets as determined by Medicare coverage policy.

The CMS has indicated that, over time, it expects to see a “normal” distribution of charges for facility billing.2 Whether a relationship exists between coding of physician and facility E/M level of service in outpatient wound centers is not known.

The purpose of this prospective study was to analyze and compare billed physician and facility E/M levels of service using a wound registry derived from EHRs.

Methods

Software. Hospital-based outpatient wound centers using an EHR specifically designed for wound care documentation (Intelicure Inc, The Woodlands, TX) agree to participate in the US Wound Registry. De-identified EHR data are pooled so facilities can receive benchmarking and quality reporting against aggregate data. The EMR internally and in real time audits the chart and assigns the appropriate E/M code for the physician (based on the 1997 Medicare Guidelines) and for the facility (based on the I-Fast Acuity Scoring System). Thus, the appropriate charge code is determined by the EMR at the conclusion of the visit based on the documentation present in the chart when the clinicians sign off. Clinicians perform no additional work to determine the charge at the conclusion of the visit.

Figure 1. Distribution of E/M facility-level visit codes (N = 9,950). Code ranges from 1 = lowest level of complexity to 5 = highest level of complexity.

Figure 2. Distribution of E/M physician-level visit codes (N = 9,985). Code ranges from 1 = lowest level of complexity to 5 = highest level of complexity.
To simplify the study process of comparing physician and facility E/M codes, for this study, only data from facilities whose physician full-time equivalent (FTE) number was equal to one was used. Billed E/M data were collected for all patients seen at three wound care centers in New York (NY), Texas (TX), and South Carolina (SC) from January 4 through December 31, 2010 (SC: July 1 through December 31). Facility E/M level-of-service codes also were collected for this time period. Computers are present in every room, allowing point-of-care documentation of all aspects of the patient’s care. To simplify the study model, visits with procedures were excluded from retrospective analysis. Medicare rules allow E/M charges to be billed for separately identifiable services when a procedure is performed. However, the automated abstraction within the EHR removes from the E/M visit the acuity points inherent in the procedure in order to prevent “double dipping” of acuity points. This is because some elements of staff work that accrue points for resource utilization are also inherently part of the procedure (eg, staff might take vital signs or perform contact isolation for both the procedure and the E/M visit).

Statistical analysis. Descriptive statistics were analyzed using Predictive Analytics Software (PASW) 19 (SPSS, Inc, Chicago, IL, USA). Physician and facility level-of-service codes were treated as ordinal variables; correlations were analyzed using Kendall’s tau b and the Goodman-Kruskal gamma statistic. In this instance, ordinal variables are those variables that have several values on a scale but do not have enough to be judged as continuous variables (levels of service have five possible values). Several methods can be used to calculate the correlation of two ordinal variables. Different statistical procedures handle “ties” differently according to the number of ties. Therefore, for the two variables in the analysis that each has five values, a 5 x 5 table or matrix was constructed first. For example, a tie shows up in the diagonal part of the matrix when values of 1 for the physician E/M level of service code are found with values of 1 for the facility level of service. The number of ties can be summed by adding the values of the five cells that form the diagonal of the matrix. Generally, the gamma statistic is more appropriate when a large number of ties is present in the square matrix, but correlation coefficients can become inflated as the number of ties increases. As such, these results should be interpreted with caution.

Results
A total of 9,985 patient visits occurred in the three wound clinics, comprising 661 initial consultations and 9,324 follow-up visits. Two physicians worked part-time as one FTE at the NY and TX wound care centers. Seven physicians worked part time as one FTE in the SC wound care center. The patient-to-physician ratios based on FTEs were 476 (NY) (2,834 visits), 456 (TX) (2,327 distinct visits), and 365 (SC) (4,824 visits). Although facility E/M level-of-service codes followed an approximate normal distribution (see Figure 1), physician E/M level-of-service codes did not and were skewed toward higher levels of service for both the initial and the follow-up visits (see Figure 2). For example, 13.3% of facility E/M level-of-service codes, as compared to 47.4% of physician E/M level-of-service codes, were complex (4 or 5). Physician involvement was noted in 99.7% of all visits, but because all services provided in the outpatient clinic are “incident to” the physician, the physician still had to be present in the clinic to supervise the nurse in order for the physician charges to be dropped.

In all instances, the correlation coefficients between visit level codes were below 0.4, with five out of six below 0.3 (see Table 2). A correlation below 0.3 is generally considered weak. In each case, selection of the most appropriate correlation coefficient — ie, the most accurate correlation coefficient from the two methods used to calculate it — was based on the number of calculated ties in the square matrix formed by the two ordinal variables, with gamma used when the number of ties was large. Physician coding, especially for initial visits, was at a higher level of complexity (level 4 or 5) compared to facility-level coding (84.8% of visits versus 29.5%; see Figure 3). The same trend was

Table 2. Correlation between physician and facility level of service coding for three facilities

<table>
<thead>
<tr>
<th></th>
<th>NY</th>
<th>TX</th>
<th>SC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Visit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kendall’s tau b (p)</td>
<td>0.157 (.004)</td>
<td>0.066 (.169)</td>
<td>0.261 (3.7 x 10^-5)</td>
</tr>
<tr>
<td>Goodman-Kruskal gamma (p)</td>
<td><strong>0.354</strong> (.004)</td>
<td>0.185 (.169)</td>
<td>0.438 (3.7 x 10^-5)</td>
</tr>
<tr>
<td>N</td>
<td>350</td>
<td>337</td>
<td>200</td>
</tr>
<tr>
<td><strong>Follow-up visit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kendall’s tau b (p)</td>
<td><strong>0.179</strong> (&lt;1 x 10^-5)</td>
<td>0.061 (.004)</td>
<td>0.084 (.001)</td>
</tr>
<tr>
<td>Goodman-Kruskal gamma (p)</td>
<td>0.391 (&lt;1 x 10^-5)</td>
<td><strong>0.179</strong> (.004)</td>
<td>0.150 (.001)</td>
</tr>
<tr>
<td>N</td>
<td>2,477</td>
<td>1,990</td>
<td>1,408</td>
</tr>
</tbody>
</table>

*Note: Bolded figures represent most precise values.*
these complex conditions may be considerable. The average wound center patient has at least 12 comorbid conditions and on average, two wounds or ulcers. Thus, physician work/effort to diagnose and manage these complex conditions may be considerable. This study did not utilize professional human coders to audit charts, but instead used the increasingly common and much more consistent method of automated internal chart auditing by an EHR. Given the number of comorbid conditions present in these patients, it is not surprising to see billed physician E/M codes skewed to the right for initial visits. The sample size was large and the higher level of severity coding for initial visits was consistent across all three facilities, which may confirm previous observations about the complex conditions with which many wound care patients present.

By contrast, facility E/M levels of service are based on the resources needed to take care of the patient’s physical problems and may or may not vary across time for a given patient. However, in the aggregate, patients appear to be distributed such that a few patients require a great deal of staff work, a few require limited staff work, and most are in the middle — hence, the normal distribution of facility E/M coding. Thus, physician and facility E/M level of service do not (and should not) have any mathematical correlation among patients seen in hospital-based outpatient wound centers. The physician level of service is determined by the 1997 CMS physician billing guidelines, whereas the facility E/M is determined by the Acuity Scoring System. These two separate and distinct systems are designed to account for the different services provided by these entities.

Two case scenarios illustrate the different types of “work” performed by the physician and the facility in the care of patients with a chronic ulcer and why the CMS has created two entirely different rule sets for these E/M services. These scenarios do not represent actual patients within the database but are representative of common situations.

Patient A is a 64-year-old obese male with a 12-year history of adult-onset diabetes, coronary artery disease (status post myocardial infarction), hypertension, and tobacco abuse. He has a 1-year history of a first metatarsal head lesion measuring 2 cm x 2 cm. Patient B is a 39-year-old obese female, status post total abdominal hysterectomy for irregular bleeding. She has no significant past medical history. She had a dehiscence of an abdominal incision due to seroma formation that measures 10 cm x 4 cm x 4.5 cm deep, with lateral undermining, although the fascia is intact. Both patients will require the usual nursing assessments needed in the outpatient setting. Patient A has a relatively small wound that takes only a few minutes to dress. However, the wound care required for Patient B includes extensive packing, perhaps pain medication administration, and detailed patient education. Should negative pressure wound therapy be placed, a time-consuming dressing will be provided, with further patient education. Although the staff time required to evaluate and treat Patient B is extensive, the physician activities of history-taking, physical examination, and decision making in this otherwise healthy patient are all very straightforward. On the other hand, Patient A is a highly challenging patient. His complex medical history

Figure 3. Distribution of E/M physician and facility level initial visit codes. Code ranges from 1 = lowest level of complexity to 5 = highest level of complexity.

Figure 4. Distribution of E/M physician and facility level patient follow-up visit codes. Code ranges from 1 = lowest level of complexity to 5 = highest level of complexity.

Discussion

The results of this study confirm the CMS prediction that the correlation between physician and facility E/M billing is weak. Using the described EHR system, which automates billing calculations by performing an internal chart audit, most correlation coefficients between physician and facility E/M level coding (and subsequent billing) were <0.4.

The physicians’ E/M level-of-service coding is derived from their cognitive efforts to diagnose and establish a plan of care for the patient’s underlying contributing conditions. The risk of the presenting problems is almost always classified as “high” among wound care patients — eg, it could be defined as, “one or more chronic illness with an exacerbation or side effect.” The average wound center patient has at least 12 comorbid conditions and on average, two wounds or ulcers. Thus, physician work/effort to diagnose and manage these complex conditions may be considerable. This study did not utilize professional human coders to audit charts, but instead used the increasingly common and much more consistent method of automated internal chart auditing by an EHR. Given the number of comorbid conditions present in these patients, it is not surprising to see billed physician E/M codes skewed to the right for initial visits. The sample size was large and the higher level of severity coding for initial visits was consistent across all three facilities, which may confirm previous observations about the complex conditions with which many wound care patients present.

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Figure 4. Distribution of E/M physician and facility level patient follow-up visit codes. Code ranges from 1 = lowest level of complexity to 5 = highest level of complexity.
places him at risk for undiagnosed problems such as peripheral vascular disease and chronic osteomyelitis. Review of prior records and coordination with other physicians is needed; advanced testing (eg, vascular screening and X-rays) likely will be required. Thus, while the staff work involved in the care of Patient A may be minimal, the physician work involved in the care of Patient A with regard to history-taking, physical examination, and cognitive effort is considerable. Thus, depending on the patient, the demand for physician and facility staff work may differ significantly.

It is possible that different results would have been obtained if a different facility mapping system for calculating E/M visits was used, but the system used has been validated for wound center billing. The normal distribution of billed facility E/M codes reported in this much larger study further validates the IFast acuity scoring tool for calculating facility E/M services. However, it must be emphasized that to maintain a normal distribution, the “breakpoints” must be used as depicted in Table 1. For example, allowing a score of 100 to track to a level 4 E/M will skew charges to higher levels of service and invalidate the tool (see Figure 1). Since the CMS allowed hospitals to develop their own methods for calculating E/M visits, automated methods to bill facility E/M levels of service for wound centers are available only as customized EHR products. Using the automated system within this particular EHR, the majority of wound center patients are billed at the mid-range for facility E/M level of service. This is important because the CMS expects to see this normal distribution.

Although facility E/M billing can be accomplished with paper, all 200 of the elements within the IFast tool cannot be realistically performed by hand and an electronic checklist will not ensure compliance with documentation. With an internally automated audit system, points only accrue, for example, for checking a blood glucose if a value for the blood glucose actually has been entered into the EHR. None of the 200 acuity points within this system accrued unless the documentation was actually present in the chart, ensuring billing compliance. Without internal automation, human compliance officers will still be required to ensure that proper facility documentation has occurred.

Also, the observed difference between facility and physician level E/M coding may be a reflection of the ability of this EHR system to thoroughly and fairly depict the actual work performed by both the physician and the facility.
staff. In daily practice and when using paper-based systems, clinicians may fail to depict the extent of the work they performed in the care of the patient because of the time required to complete the paperwork.

In addition to meeting documentation needs, correctly designed EHRs are capable of performing internal, real time chart audits and calculating the appropriate level of service based on the documentation present in the EHR. This capability provides reliable and reproducible E/M coding, in comparison to the demonstrably inaccurate method of allowing clinicians to make their best guess.

Conclusion

Although both the physician and the facility utilize the same E/M codes, the level-of-service calculations are based on entirely different rule sets, as mandated by the CMS. As a result, physician and facility E/M level of service do not and should not have any mathematical correlation among patients seen in hospital-based outpatient wound centers. The results of this prospective study comprising 9,985 patient visits at three different hospital-based outpatient wound clinics showed a weak correlation between physician and hospital E/M levels of service. The finding that initial visit physician level of service coding was higher than both hospital E/M levels of service and follow-up visit levels of service is not unexpected, considering the high number of comorbidities in many wound patients and general risk of their presenting problems. In addition to documentation needs, capturing accurate service level codes and automated E/M coding within a wound care specific EHR can ensure compliant and accurate billing practices for both the hospital and the facility even though the rule sets for each are different.

References