

Billing and Coding Education and Knowledge Among Military Orthopaedic Surgeons

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Objectives: The purpose of this study is to evaluate the current level of billing and coding knowledge among resident and staff military orthopaedic surgeons.

Design: Prospective survey, training, and assessment.

Setting: Academic Military Level 1 Trauma Center.

Intervention: Voluntary, anonymous survey relating to practice setting, billing, and coding practices, type of residency training and prior education on the subject. A quiz consisting of 23 questions to assess billing and coding knowledge.

Main outcome measurement: Survey results and quiz scores.

Results and conclusions: We had 68 responses comprised of 23 residents and 45 staff orthopaedic surgeons. Among residents, 86.14% (20/23) reported that they code encounters yet only 17.39% (4/23) responded that they have had formal training on billing and coding. 91.30% (21/23) felt that this topic should be taught in residency training. Among staff surgeons, 93.33% (42/45) code their own encounters and 42.22% (19/45) reported formal training on billing and coding. 93.33% (42/45) of staff felt that billing and coding should be taught in residency. The average quiz scores among residents and staff were 43.48% and 58.36%, respectively ($p < 0.0001$). Scores among those with prior training in billing and coding were significantly higher overall ($p = 0.033$). Among staff there was no significant differences in scores related to years of experience, residency type, working with residents, years remaining in the military or participation in off-duty employment.

Conclusion: There remains a paucity of formal training on billing and coding among military orthopaedic surgeons and this problem is not unique to military orthopaedic residency training programs. Those with formal training in billing and coding performed significantly better than those without, indicating that formal billing and coding training as part of graduate medical education may be effective in improving billing and coding knowledge among military orthopaedic surgeons.

Level of Evidence: IV; survey

Keywords: Billing, Coding, Medical education, Practice management.

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INTRODUCTION

Practice management, including billing and coding knowledge, is an important aspect to running an efficient and sustainable orthopaedic practice¹. Incorrect billing and coding can affect not only the financial sustainability of a practice in the case of under-coding; but also contribute to rising healthcare costs as well as have legal ramifications in the case of over-coding^{2,3}. In the Military Health System, where there is less focus on reimbursement, inaccurate billing and coding can affect the perceived productivity of a surgeon, and the department as a whole, which can impact clinic staffing and ancillary support.

The Accreditation Council for Graduate Medical Education (ACGME) has developed 6 core competencies⁴ for graduate medical education. One of these competencies is systems-based practice, which consists of physician interactions within the healthcare system and includes practice management. The General Orthopaedic Competency Task Force (GOCTF) also developed competencies for a general orthopaedic surgeon, one of which includes accurate and complete documentation⁶. The American Academy of Orthopaedic Surgeons (AAOS) has also recognized the importance of the billing and coding knowledge as evident in its inclusion on Orthopaedic In-Training Exams⁵.

Despite the importance of billing and coding knowledge, it is an often-overlooked aspect of orthopaedic graduate medical education. A 2006 survey of graduating orthopaedic residents found that >90% of responding residents felt that formal training in coding and billing was essential and thought their training would be more complete if these concepts were taught during residency⁷. Additionally, only 13% said they were confident in their coding skills if they started their practice tomorrow. Another study found that 98.45% of orthopaedic residents and fellows would like to be taught billing and coding during their training but only 37.98% had some formal training and 35.66% had no training at all⁸. Only 65.18% of attending surgeons in the study reported formal training and 92.86% stated billing and coding should be taught in residency.

The purpose of our study is to evaluate the current level of education and knowledge of billing and coding among resident and staff military orthopaedic surgeons. We hypothesize that formal billing and coding training is not widely incorporated into resident education. Our aim is to use this data to assess a need for more formal education on this topic and establish a baseline for future improvement after implementation of a formal curriculum at our institution.

METHODS

To assess the current knowledge of billing and coding, as well as the level of formal training among military resident and staff orthopaedic surgeons, we created a voluntary, anonymous survey consisting of two parts. First, de-identified demographic information was collected including years of training or practice, current coding and billing practices, practice environment, prior education on this subject, if it should be taught in residency training, time left in the military and exposure to civilian practice. Second, a quiz consisting of 20 questions derived from a previously published civilian study to assess billing and coding knowledge⁸ and 3 additional questions specific to billing and coding practices in the military (Appendix 1). The military-specific questions were written by the senior author in conjunction with the coders at our institution.

Surveys were prepared using a commercially available web-based survey tool (SurveyMonkey.com) and distributed to program directors for Army, Air Force and Navy residency programs who were asked to distribute the survey to their residents and staff. We also sent an email to all active-duty Army and Air Force staff surgeons. We did not have an available list of all active Navy surgeons to include in the email. In the email with the study link we explained the anonymous and voluntary nature of the study as well as its purpose. The demographic data was analyzed using the Survey Monkey software. Quiz scores were recorded and analyzed. Categorical demographic variables were reported in percentages and Chi-Squared test was used to compare variables. Mean quiz scores were calculated using Excel and compared using a 2-sample T-test. Scores between multiple variables were analyzed using Wilcoxon's test. Alpha was set to 0.05.

Table 1. Summary of survey and quiz results

		Code	Residency	Avg.	
	<i>n</i>	Encounters	Have Formal Training	Quiz Score	
			Should Include Training		
Residents	23	86% (20/23)	17% (4/23)	91% (21/23)	43.48%
Staff	45	93% (42/45)	42% (19/45)	93% (42/45)	58.36%

p<0.0001

RESULTS

Overall, we had 69 respondents to the survey; however, one respondent skipped all but the initial demographic question (level of experience) leaving 68 respondents for analysis. Residents made up 33.82% (23/68) of respondents, all of which were in military residency programs. Among residents, only 17.39% (4/23) responded that they have had formal training on billing and coding and

91.30% (21/23) felt that this topic should be taught in residency training. Despite the large number of residents who reported no formal billing and coding training, 86.14% (20/23) reported that they code patient encounters (Table 1). Among the residents who code their encounters, 18/20 (90%) do so manually rather than using the built-in tool to determine level of service.

Among staff surgeons, which made up 66.17% (45/68) of respondents, 37.78% (17/45) have been staff for 0-4 years, 40% (18/45) 4-10 years, and 22.22% (10/45) greater than 10 years. 68.89% (31/45) completed a military residency while the remaining 31.11% completed a civilian residency prior to starting their active-duty service. 51.11% (23/45) of staff respondents practice in a hospital with residents and 44.44% (20/45) participate in off-duty employment in civilian settings. Regarding time left remaining in the military health system, 22.22% (10/45) of staff surgeons had 0-2 years, 28.89% (13/45) had 2-4 years, and 48.89% (22/45) had 5 or more years remaining. Overall, 42.22% (19/45) of staff reported formal training on billing and coding. When stratified by type of residency completed, 35.48% (11/31) who completed a military residency had formal training compared to 57.14% (8/14) among staff trained in a civilian residency which was not statistically significant ($p=0.17$). 93.33% (42/45) of staff felt that billing and coding should be taught in residency. Among staff, 93.33% (42/45) code their own encounters, and 85.71% (36/42) do so manually rather than using the built-in tool to determine level of service.

Overall, the average score on the quiz portion of the survey among all respondents was 53.32%. The average score among residents was 43.48% and the average among staff surgeons was 58.36% ($p<0.0001$). Overall scores among those with prior training in billing and coding were significantly higher than those without (57.79% vs. 50.89%, $p=0.033$); however, scores for military specific questions were not significantly different ($p=0.52$). Among staff there was no significant differences in scores related to years of experience, residency type, working with residents, years remaining in the military or participation in off-duty employment.

DISCUSSION

Despite the recent interest in practice management from the AAOS and ACGME, there remains a paucity of formal training on billing and coding among military orthopaedic surgeons. Over 90% of resident and staff surgeons in our study think that this should be incorporated into residency education, yet overall, only roughly 17% of residents and 42% of staff have had formal training on this subject. This problem is not unique to military orthopaedic residency training programs, with only 57% of staff in this study that completed a civilian residency reporting prior training in this subject. Our results are similar to previous studies in the civilian population.

Gill et al⁷ surveyed all senior graduating orthopaedic residents in one year. They found that 90% of graduating residents felt that formal training in billing and coding is essential during residency training and they felt their training would be more complete if these concepts were taught during residency. Wiley et al⁸ similarly surveyed orthopaedic residents and found that 37.98% had formal training in billing and coding at their institution and 98.45% felt that this topic should be taught in residency. In another study of 32 orthopaedic residents, none had any prior training on billing and coding⁹.

The lack of billing and coding education in post-graduate medical education is also not limited to orthopaedics. A 2005 survey of general surgery program directors found that 87% felt that residents should be trained in business principles and practice management and only 8% felt their residents were adequately trained¹⁰. Interestingly, the survey also found that only 28% of the program directors had any formal training on these topics themselves. Another study of general surgery residents found that 33% had not received any training on billing and coding and 92% of residents felt it would make a significant difference in their future practice¹¹. In a study looking at the cost of miscoding in a resident run pediatric clinic, they found that none of the residents had training in billing and coding, and coding inaccuracies led to loss of \$43,676 in funds that could have been collected¹².

Whether billing and coding is taught during residency training or after, there is significant room for improvement among staff and residents in their overall knowledge in this subject matter as evident in the overall average scores of 58.36% and 43.48%, respectively. These results are similar to previously published civilian studies. The study by Wiley et al⁸ which used the same set of non-military related questions in our study found average scores of 62.1% and 54.1% among staff and residents, respectively, which were both significantly lower than scores among professional coders. Fakhry et al¹¹ distributed 25 questions to general surgery residents and staff and reported scores of 77% and 54% among staff and residents, respectively. Both our study and the Wiley et al⁸ study found significantly better scores among those that have had formal billing and coding training compared to those that did not. These findings suggests that implementation of formal education on this topic could be effective in improving billing and coding knowledge and several studies have shown this to be the case.

A study by Varacallo et al⁹ administered a written assessment to residents with no prior billing and coding training. They found significantly improved scores after a 45-minute lecture by an orthopaedic faculty member. Another study of otolaryngology residents with no prior billing and coding training found statistically significant improvement in written assessment after a 90-minute educational session¹³. Ghaderi et al¹⁴ implemented several interventions including an

electronic billing template and visual aids in the clinic, three 20-minute didactic sessions, and ongoing feedback to residents on coding from staff during clinic. They found these interventions led to significantly improved coding and higher E&M levels among their residents. Jones et al¹⁵ reported coding accuracy among surgical residents and the program director after implementing a practice management curriculum that included a series of 1-hour lectures given by hospital administrative staff, a series of 1-hour meetings with residents and coders, which included didactic sessions and chart reviews, and active participation in the clinic setting with residents and coding personnel. They found coding accuracy improvement from 36% prior to the education program to 88% over the 12 months after implementation. Interestingly, the program director that also participated in the education program improved his accuracy from 50% to 90%.

At our institution, we had previously not had a formal billing and coding curriculum built into our didactic sessions. We have recognized that this is an important topic in our overall graduate medical education and have implemented 1-hour didactic lectures with our orthopaedic coders. Additionally, we have obtained licenses for a coding application (Code-X) to assist residents and staff with coding. It is our hope that these interventions will improve billing and coding knowledge among our resident and staff surgeons, and hope to re-assess this with a follow up assessment in the future.

Our study has a few limitations. Given its voluntary nature and distribution through email, we only had 68 respondents, which is far from the total number of military orthopaedic surgeons. Perhaps increasing our respondents would have teased out further factors that affect billing and coding knowledge at baseline. Additionally, there is the potential for recall bias regarding whether participants have received formal training in billing and coding. Nonetheless, our study did give us an idea about the current billing and coding knowledge among military orthopaedic surgeons and our results were similar to several other studies published in the literature.

CONCLUSION

Both resident and staff military orthopaedic surgeons feel that billing and coding knowledge is important to overall orthopaedic education and practice. There is significant room for improvement among staff and residents in the overall knowledge in this subject matter. Those with formal training in billing and coding performed significantly better in our study than those without. Incorporation of formal billing and coding training into residency academic curriculum and providing formal post-residency education for staff surgeons may be effective in improving billing and coding knowledge among military orthopaedic surgeons.

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Appendix 1. Survey and Quiz

Please list your level of experience

Resident

Staff 0-4 years

Staff 4-10 years

Staff >10 years

What type of residency did you do?

Military

Civilian

For staff surgeons, do you practice in a hospital with orthopaedic surgery residents?

Yes

No

Have you received formal training on billing and coding?

Yes

No

Do you think billing and coding should be taught in residency training?

Yes

No

If staff, how many years do you plan to remain in the military health system?

0-2 years

2-4 years

5 or more years

If staff, do you participate in off duty employment?

Yes

No

When coding AHLTA notes, do you:

Use the tool with individual component E&M levels to calculate total E&M level in the disposition tab for the encounter

Manually select the E&M level as a whole

I do not personally code my encounters

CPT stands for?

Common Procedural Terminology

Common Procedures and Tests

Current Procedural Terminology

Current Procedures and Tests

ICD: How often is the International Classification of Disease system revised?

Around every 10 years

Every year

When necessary

Which code can be used for annual screening or for identifying a risk factor?

A CPT code

HCPCS code

Z Code

-25 Modifier

ICD-9 Diagnosis code

Healthcare Common Procedure Coding System (HCPCS) is used to bill for additional services that physicians perform

True

False

All of the following are required to bill a consultation E&M code EXCEPT

A request for the consultation must be present in writing

The referring service must ask the consulting service to render an opinion regarding care

The consultant must provide written communication back to the referring physician

The consultant must arrange follow-up for management of care based on their opinion

You see a patient in the ER and decide the patient has a non-emergent surgical injury and can send him home. You operate on the patient the next day. How will you bill this patient?

ER visit as a consult only

ER visit as a consult, operative care as a surgical procedure

Operative care as a procedure only

An established patient returns to clinic after 4 years. You did his left knee replacement 7 years ago. He is here to have his right knee evaluated and potentially replaced. The patient is considered a New Patient in regards to your coding for that day?

True

False

Your group opens a satellite location 55 miles from your main location. This new location had to go through its own credentialing process (i.e. new address and tax ID) and by all your insurance carriers and Medicare is considered to be a separate facility. An established patient seen in this facility for the first time is considered a New Patient in regards to coding practices.

True

False

A patient is seen in clinic the day before a scheduled surgery. Questions and concerns are addressed as well as a history and physical performed as part of the pre-operative paperwork. The physician can bill for this visit.

True

False

A patient is seen in clinic and receives a local injection of steroid (i.e., intra-articular injection). The global period for these procedures is usually

0-10 days

0-90 days

An evaluation and management encounter comprises which of the following components?

History, physical exam, counseling, coordination of care

History, physical exam, decision making

Counseling, coordination of care, nature of presenting problem, time

History, physical exam, decision making, counseling, coordination of care, nature of presenting problem, time

When billing multiple CPT codes

The order does not matter, since reimbursement is averaged

The order does matter, since the reimbursement is determined by the order

The order does matter, but the reimbursement is not determined by the order, it is averaged

You are part of a subspecialty orthopaedic group and your spine partner refers a patient to your clinic. You happen to be a hand surgeon, and the patient has carpal tunnel syndrome. You have never seen the patient before, therefore had to do a new patient work up, yet bill the patient as an established patient. Is that correct?

Yes

No

A large hospital system hired you to work as an employee of the system. You will work 40 hours/week and take call when scheduled. You will be compensated for that time, and any time over the contract you will receive additional reimbursement. The system will code and bill for your services that you provide. In this process, you have transferred the liability for proper coding to the hospital system

True

False

What is the major justification of medical necessity?

CPT code

HCPCS code

ICD-10 code

Modifiers

V code

When billing an outpatient encounter for an established patient, the level of the code (i.e., 99213 or 99214) is determined by 2 of the 3 key components

True

False

When billing an outpatient encounter for an established patient, the level of the code (i.e., 99213 or 99214) is determined by the lowest of the 3 key components.

True

False

Your group hires a Physical Therapist for ancillary revenue. According to Medicare, you can send all of your Medicare patients to your therapist.

True

False

Your group purchased an MRI 3 months ago, and at your quarterly business meeting you notice that your sports partner is exclusively using the groups' MRI. You are worried that the group has committed a Stark Law violation according to Medicare and Medicaid Rules. Has your group committed a violation?

Yes

No

A patient is seen in clinic for an acute inflammatory process (i.e., rotator cuff impingement, trochanteric bursitis, or trigger finger). The patient is evaluated and an appropriate E&M code is billed. The surgeon documents in his note that if the patient does not get better after a trial of physical therapy, an injection will be tried. The patient returns 2 weeks later with no improvement. The visit should be billed as

An established E&M code + injection code

No charge

Injection code only

An established E&M code only

As of 2018, the benchmark for annual individual productivity in work relative value units for a full-time equivalent (FTE) Active Duty Military Orthopedic Surgeon is

25% of the Medical Group Management Association (MGMA) standard = 1011 work RVUs

50% of the MGMA standard = 4044 work RVUs

80% of the MGMA standard = 4044 work RVUs

100% of the MGMA standard = 8088 work RVUs

“Global surgery package” is a civilian coding concept originated to simplify billing and decrease the number of claims. There are issues related to surgical bundling in the Military Health System (MHS) because the MHS data collection system attempts to provide credit to each provider for each encounter. As a result, a provider may code 99024 “Post-Operative Visit, Without Charge” during the global billing period after surgery. While there is no reimbursable rate for this code, it generates .65 work RVUs per post-operative visit.

True

False

A major component of a Military provider's productivity is his/her FTE value. Which of the following is the least correct?

FTE values are influenced by administrative responsibilities

The lower the FTE value for a provider, the more efficient that provider is.

FTE values are directly influenced by Defense Medical Human Resources System internet (DMHRSi) input

The FTE system is specific to the Military only.