

Athletic Training Students' Academic Preparation in Healthcare Documentation

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Amy Marie Brugge

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Dr. Frank Guldbrandsen, Advisor

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ABSTRACT

Documentation is fundamental to all patient encounters across health professions, including athletic trainers. The athletic training education competencies delineate five competencies and one clinical integration proficiency specific to documentation knowledge, skills, and abilities. There is little research regarding athletic training students' preparation in performing patient documentation and suggestion that recent graduates and employers have identified the domain of healthcare administration as a perceived deficit in professional preparation. A descriptive study was undertaken to ascertain students' reports of their preparation in healthcare documentation in didactic, laboratory, and clinical education. The purpose of this study was to examine the ways in which final-year athletic training students report having received instruction, having rehearsed, and having been assessed on the documentation-related competencies in athletic training.

An electronic survey was sent to final-year athletic training students across the United States currently enrolled in professional programs accredited by the Commission on Accreditation of Athletic Training Education (CAATE). A 16.9% response rate was obtained via 185 survey participants. These participants were from all ten districts of the National Athletic Trainers' Association.

Findings suggest that final-year students report appropriate levels of instruction, rehearsal, and assessment of their knowledge and skills in medical terminology and the security, privacy, and confidentiality of medical records, but that foundational knowledge in the use of procedural and diagnostic coding and performance of third party

reimbursement activities may be lacking. Only 7% of final-year students reported having used their documentation to communicate with insurers and bill for services.

Additionally, students enrolled in professional programs at the post-baccalaureate degree level reported the inclusion of academic electronic health records in didactic coursework at statistically significant greater level than their baccalaureate degree peers.

Athletic training educators should consider the timing and placement of documentation-related competencies in program curricula in order to allow for adequate instruction, rehearsal reinforced through clinical education experiences, and appropriate assessment of documentation knowledge, skills, and abilities prior to graduation. The future of the athletic training profession is dependent upon a workforce that excels in documentation in order to support outcomes-based clinical research and successfully obtain payment for services rendered.

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CHAPTER 1

INTRODUCTION

As in all other allied health professions, both competence and professional confidence in technical, interpersonal, decision-making, and administrative skills are essential to clinical practice in athletic training. In recent decades, the professional education of athletic trainers has evolved from a bachelor's degree internship model to that of accredited professional education programs at both the baccalaureate and post-baccalaureate level, consisting of didactic, laboratory, and clinical education. This professional education is structured by accreditation standards and educational competencies. One skill in particular, the ability to properly document in the patient's medical record, is foundational to all patient encounters. Documentation skills are vital to effective professional communication and the creation and maintenance of the medico-legal record. Proper documentation is an essential element of all health care providers' professional practice and is a primary expectation of all athletic trainers, as delineated in the Board of Certification's (BOC) Professional Practice Standards (BOC, 2006).

Athletic trainers are allied health providers, who collaborate with physicians in providing services for the prevention, emergency care, clinical diagnosis, therapeutic intervention and rehabilitation of injuries and medical conditions (NATA, 2014a). According to the *Role Delineation Study/Practice Analysis for the Entry-Level Certified Athletic Trainer, 6th Edition* (BOC, 2010), the performance domains of athletic training consist of: injury/illness prevention and wellness protection, clinical evaluation and diagnosis, immediate and emergency care, treatment and rehabilitation, and organization

and professional health and well-being. From this role delineation study and practice analysis (RD/PA) the BOC develops the credentialing examination, directly correlating examination items and the number of items to each of the performance domains from RD/PA. Subsequently, the Commission on Accreditation of Athletic Training Education (CAATE) constructs the profession's educational competencies to reflect current practice in the profession as described by the current BOC RD/PA. These educational competencies are to be the "minimum requirements for a student's professional education" (NATA, 2011, p. 4).

The Athletic Training Education Competencies, 5th Edition is comprised of seven foundational behaviors of professional practice, eight content areas, and nine clinical integration proficiencies (NATA, 2011). Clinical integration proficiencies (CIP) encompass these content areas' real-world application to patients. The five competencies specifically relating to medical documentation are components of the Healthcare Administration content area (Appendix A). The competencies are:

- Identify the components that comprise a comprehensive medical record.
- Identify and explain the statutes that regulate the privacy and security of medical records.
- Use contemporary documentation strategies to effectively communicate with patients, physicians, insurers, colleagues, administrators, and parents or family members.
- Use a comprehensive patient-file management system for appropriate chart documentation, risk management, outcomes, and billing.

- Understand the role of and use diagnostic and procedural codes when documenting patient care (NATA, 2011, p. 28-29).

In addition to these competencies, the ninth clinical integration proficiency defines a student's ability to document patient encounters, stating that students will:

Utilize documentation strategies to effectively communicate with patients, physicians, insurers, colleagues, administration, and parents or family members while using appropriate terminology and complying with statutes that regulate privacy of medical records. This includes using a comprehensive patient-file management system (including diagnostic and procedural codes) for appropriate chart documentation, risk management, outcomes, and billing (NATA, 2011, p. 32).

The administration of athletic training education is assessed by the CAATE, serving to accredit professional, post-professional, and residency education programs. This agency is responsible for ensuring that minimum professional education standards are met and that all education competencies are instructed and evaluated by the accredited program. As accredited professional programs prepare students in didactic and laboratory settings in the profession's body of knowledge, they also structure clinical learning experiences with patients. This takes place under the supervision of preceptors and is intended to progress athletic training students from proficient practice to competent entry-level practice upon graduation. The CAATE *Standards for the Accreditation of Professional Athletic Training Programs* defines clinical education as "the application of athletic training knowledge, skills, and clinical abilities on an actual patient base that is

evaluated and feedback provided by a preceptor” (CAATE, 2012, p. 13). These clinical learning experiences are widely considered to be the crucial element in an athletic trainer’s professional development (Lauber, Toth, Leary, Martin, & Killian, 2009; Laurent & Weidner, 2002; Radtke, 2008; Shinew, 2011) and is generally the education setting in which athletic training students practice their documentation skills in a formal patient care context.

Documentation is an element pervasive to all patient encounters. Standard Seven of the *BOC Standards of Professional Practice* asserts that documentation of patient care is an essential practice expectation of athletic trainers (BOC, 2006). It states, “all services are documented in writing by the Athletic Trainer and are part of the patient’s permanent records. The Athletic Trainer accepts responsibility for recording details of the patient’s health status” (BOC, 2006, p. 3).

Bowman and Reynolds (2013) contend that healthcare documentation functions to facilitate the on-going care and treatment of patients, protect the legal rights of the clinician, patient, and treating facility, and supports clinical decision-making and communication across providers. Further, the medical record serves a role in evaluating quality and efficacy of care, are data sets for clinical outcomes research, and documents services provided in support of reimbursement (Bowman & Reynolds, 2013). The medical record may exist in a paper format, an electronic health record (EHR), or as a hybrid, with functional components existing in both paper and electronic formats. It is the goal of the Health Information Technology for Economic and Clinical Health

(HITECH) Act of 2009 to progress the adoption of EHRs in healthcare facilities across the United States (H.R. 1-113, 2009).

The HITECH Act of 2009 also addresses the importance of documentation skills and seeks to ensure that the healthcare workforce “is properly trained and equipped to be meaningful users of certified Electronic Health Records” (H.R. 1-113, 2009). The Institute of Medicine (2003) has identified the use of health informatics as one of the five core competencies necessary among all healthcare providers. Yet little is known regarding the documentation practices of athletic trainers, nor students’ preparation to perform documentation tasks.

Laurent and Weidner (2002) found that among employed entry-level athletic trainers, survey respondents reported that clinical education was responsible for 53% of their professional development. Other investigations into athletic trainers’ perceived preparation has occurred under previous versions of athletic training education competencies (Dicus, 2012; Donahue, 2009; Shiness, 2011; Whitman, 2008) and has shown that athletic trainers feel less adequately prepared in certain content areas. These content areas include pharmacology, general medical conditions and disabilities, nutritional aspects of illness and injury, professional development, and healthcare administration (Dicus, 2012; Donahue, 2009). This perceived inadequacy in healthcare administration content has been confirmed by BOC certification examination results over recent years, with the performance domain of Organizational and Professional Health and Well-Being being the one of the lowest scoring section of the examination (BOC, 2012, 2013b).

Athletic trainers who have been certified for less than two years feel less confident about their practice in the area of healthcare administration, with 75.1% of survey respondents in a previous study reporting confidence in this content area (Shinew, 2011). Although this was not as low as perceived confidence in emergency care, in which 70.8% of respondents felt confident to practice, it is far less than perceived confidence in clinical evaluation and diagnosis, in which 91.3% of respondents asserted they are confident in their practice (Shinew, 2011). When asked if clinical education had adequately prepared them for professional practice, 10.5% of respondents identified that it had not prepared them adequately in healthcare administration tasks (Shinew, 2011). This indicated lack of preparation through clinical education was greater among athletic trainers practicing in clinic (21.4%) and physician extender (25.5%) settings (Shinew, 2011).

Carr and Volberding (2011) examined the perceived preparation of newly certified athletic trainers through their eyes and their employers', and found that employees cited administrative tasks as being a common area of perceived weakness, with comments in this category making up 15% of all deficit comments by employees in the study. A 2009 investigation into employers' perceptions of newly certified athletic trainers determined that although 90% of employers felt new hires were prepared academically and clinically, competence in organizational and administrative tasks was the lowest of all performance domains (Massie, Strang, & Ward, 2009). Employers specifically identified communication and procedural business skills as weaknesses, in which documentation knowledge and skills play a central role (Massie et al., 2009).

Thus healthcare administration is a perceived deficiency among newly credentialed athletic trainers from their perspective and their employers' viewpoint, and is confirmed by recent BOC examination scores. Central to the healthcare administration content area in *The Athletic Training Education Competencies, 5th Edition* are the five documentation competencies and the sole healthcare administration CIP. Deficits in this area are peculiar given that these documentation-related competencies have remained relatively unchanged across the three most recent versions of the athletic training education competencies (Appendix A, Appendix B, Appendix C) effective since 1999 (NATA, 1999, 2005, 2011). Due to the lack of research in the instruction and assessment of this foundational skill set, it is not clear when, how, and in what format athletic training students are taught, able to practice, and assessed in their documentation knowledge and skills while completing a professional program.

Problem Statement

Little is known on how athletic training students receive instruction, rehearse, and are assessed on the knowledge, skills, and clinical abilities defined by the athletic training education competencies and clinical integration proficiency related to healthcare documentation. Evidence suggests that healthcare administration is a content area deficit among athletic trainers (BOC, 2012, 2013b), that athletic trainers perceive a lack of preparation in healthcare administration skills, including documentation, prior to entering the workplace across various work settings (Dicus, 2012; Donahue, 2009; NATA, 2014b; Shinew, 2011; Whitman, 2008), and that employers perceive deficiency in these skills among recent graduates (Carr & Volberding, 2011; Massie et al., 2009). This

professional practice inconsistency among athletic trainers suggest that an improvement in the learning activities used to instruct, practice, and assess healthcare documentation knowledge, skills, and clinical abilities may be warranted. However, it is necessary to first identify and describe current instructional, rehearsal, and assessment practices in healthcare documentation knowledge, skills, and clinical abilities in professional athletic training programs in order to address a gap in the literature.

Purpose Statement

The purpose of this study was to identify and describe the instructional, rehearsal, and assessment activities used in the teaching and learning of documentation knowledge, skills, and clinical abilities in athletic training didactic, laboratory, and clinical education. This descriptive study surveyed final-year athletic training students in professional programs across the United States to report the occurrence, frequency, and ways in which learning activities in healthcare documentation occur in professional athletic training programs as reported by students. By examining learning activities related to healthcare documentation in professional athletic training programs, a greater understanding of educational practices in athletic training curricula and evidence on athletic trainers' preparation in healthcare documentation has been provided to address a gap in the current literature.

Research Questions

1. In what ways do final-year athletic training students report having received instruction during their professional education in the documentation-related competencies in athletic training?
2. In what ways do final-year athletic training students report having practiced healthcare documentation in didactic, laboratory, and clinical education in professional athletic training programs?
3. In what ways do final-year athletic training students report having been assessed during their professional education in the athletic training competencies and clinical integration proficiency related to documentation?

Significance of the Study

Presently, much of the literature on athletic training students' perceptions of academic preparation and professional competence is from the perspective of recent graduates, those who have successfully completed the BOC examination, and often are gainfully employed. Answering the aforementioned research questions aids in identifying students' accounts of the teaching and learning activities related to the documentation component of healthcare administration, a perceived weakness identified among athletic trainers. Results from this investigation may assist athletic training educators in curricular and clinical education sequencing to better prepare future professionals in this realm. Further, the study's results may encourage employers of novice athletic trainers in the development of documentation-specific training, resources, and support for new employees as they transition to clinical practice.

Operational Definitions of Key Terms

The following are operational definitions of terms used in this study:

Academic Electronic Health Record (AEHR) – A secure computerized electronic records system used in academic settings that functions and has the capabilities of electronic health records used in clinical practice, but does not contain patient data for a particular healthcare organization (Johnson & Bushey, 2011).

Athletic Training Student – An individual currently enrolled in a CAATE-accredited professional athletic training program.

Board of Certification (BOC) - The only National Commission for Credentialing Agencies (NCCA) accredited certification program for athletic trainers in the United States. The BOC establishes and regularly reviews both standards for the practice of athletic training and the continuing education requirements for BOC certified athletic trainers (BOC, 2014a).

Athletic Trainer – A health care professional who collaborates with physicians and provides services comprised of prevention, emergency care, clinical diagnosis, therapeutic intervention and rehabilitation of injuries and medical conditions. Certified athletic trainers have met eligibility requirements for and successfully passed the Board of Certification examination, and continue to maintain the credential through adherence to the Board of Certification's Standards of Professional Practice and complying with current continuing education requirements (BOC, 2014b).

Clinical Integration Proficiency (CIP) – Competencies that represent the synthesis and integration of knowledge, skills, and clinical decision-making in actual patient/client care that should be assessed when the student is engaged in patient care, possibly over multiple interactions (NATA, 2011).

Clinical Education Experience – The application of athletic training knowledge, skills, and clinical abilities on an actual patient base that is evaluated and feedback provided by a preceptor (CAATE, 2012).

Clinical Education Site – The physical area or facility where clinical education occurs (CAATE, 2012).

Commission on Accreditation of Athletic Training Education (CAATE) – The accreditation agency whose purpose is to develop, maintain, and promote appropriate minimum education standards of quality athletic training programs at the professional, post-professional, and residency levels (CAATE, 2013).

Documentation – The contribution to and maintenance of a patient’s permanent medical record both for legal record and professional communication purposes across various audiences for every patient encounter in paper, hybrid, or electronic formats.

Electronic Health Record (EHR) – A computerized/electronic record of health-related patient information that conforms to nationally recognized standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one healthcare organization (LaTour, Eichenwald Maki, & Oachs, 2013).

National Athletic Trainers' Association (NATA) – The professional membership association for athletic trainers and others who support the athletic training profession (NATA, 2014a).

Preceptor – A certified/licensed professional who teaches and evaluates students in a clinical setting using an actual patient base (CAATE, 2012).

Professional Degree in Athletic Training – A baccalaureate or post-baccalaureate degree from a CAATE-accredited professional athletic training program that prepares a student for entry-level practice as an athletic trainer.

Role Delineation/Practice Analysis (RD/PA) – The athletic training profession's method for identifying and prioritizing the critical tasks and essential competencies of the profession that is used to establish a defined set of performance domains, tasks, and associated knowledge and/or skills necessary to carry out the responsibilities of the job to the standards required for certification. The sixth edition of the RD/PA went into effect on in April 2011. (BOC, 2010).

Assumptions

The researcher assumed the following during the undertaking of this study:

1. Each participant understood and followed the directions of the survey instrument.
2. The participants were honest in their self-report on the survey instrument.
3. The participants were accurate in their self-report on the survey instrument.

Delimitations

The study was delimited to final-year athletic training students currently enrolled in a CAATE-accredited professional program during the fall of 2014 who would be eligible for the BOC examination in the following twelve-month time period.

Limitations

Although limitations existed for this study, every effort was made to minimize their influence on the outcomes of the research. However, there were constraints beyond the control of the study. The limitations of the study were as follows:

1. This study only included final-year athletic training students enrolled in a professional athletic training program during the fall of 2014 whose program director opted to pass the survey on to them.
2. This study only examined the perceived experiences of athletic training students who opted to respond to the survey issued.
3. Each participant responded to the survey as honestly and objectively as humanly possible.
4. Data collection from final-year athletic training students occurred in October 2014. Therefore respondents had not fully completed the curricular sequence, nor graduated from, their respective professional programs.

Nature of the Study

After obtaining approval from the University of Minnesota Institutional Review Board (IRB) via exemption, this non-experimental descriptive study was undertaken. Data collection occurred through a survey questionnaire issued in October 2014.

Responses were sought regarding athletic training students' experiences with instructional, rehearsal, and assessment activities related to documentation in didactic, laboratory, and clinical education. Respondent demographic information was collected in addition to descriptive data on documentation activities in professional athletic training programs. Analysis was undertaken to determine descriptive statistics for all items and significant relationships between survey items.

Organization of the Remainder of the Study

This study sought to ascertain and describe final-year athletic training students' reports of the instructional, rehearsal, and assessment activities related to healthcare documentation. As the intent of this study has been overviewed and the research questions, definitions, assumptions, delimitations, and limitations have been put forth in Chapter 1, Chapter 2 will review pertinent literature related to the research question. Chapter 3 serves to describe the research methods employed during the investigation and Chapter 4 details the results of the study. Finally, Chapter 5 presents discussion of the study's results, provides recommendations given the study's outcomes, and offers suggestions for future research.

CHAPTER 2

REVIEW OF THE LITERATURE

An athletic training student's journey from novice to allied health professional is a complex process demarcated by the progressive acquisition of professional knowledge, skills, and clinical abilities practiced on patients with increasing autonomy. The curricular organization, minimum accreditation standards, and educational competencies delineate professional education in athletic training, and has undergone continuous revision, always with the intent of improving future generations' professional competence and enhancing patient care. In order to understand the need for research on athletic training students' documentation experiences in didactic, laboratory, and clinical education, relevant literature will be reviewed.

First, a brief overview of athletic training education and its competencies is provided. The role of healthcare documentation in the U.S. healthcare system will be summarized, including specifics on documentation expectations and practices in athletic training. Then an analysis of the current and previous athletic training education competencies related to healthcare documentation will be put forth. Finally, a comparison of education processes and concerns related to documentation is given for athletic training and other health professions.

Athletic Training Education

Despite roots in ancient times, the profession of athletic training officially formalized in the United States in 1950 with the creation of the National Athletic Trainers' Association (NATA), and has undergone considerable alteration in its academic

preparation of future professionals in the past sixty-five years. Given that the history of the profession has been well-chronicled by Delforge & Behnke (1999), Grace (1999), and Weidner and Henning (2002), it is pertinent to review only the current education model used for the professional preparation of athletic trainers.

Today two types of accredited professional programs exist, the more numerous bachelor's degree option and the post-baccalaureate degree, with graduation from either degree level leading to BOC examination eligibility. As of March 1, 2015, there were 367 CAATE-accredited professional athletic training programs in existence, with 331 as bachelor's degrees and 36 as post-baccalaureate degrees (CAATE, 2015). The CAATE also accredits post-professional and residency programs that provide advanced education to athletic trainers who have obtained BOC certification (CAATE, 2013).

Since transitioning from an internship route to an accredited program as the only pathway to BOC certification in 2004, research specific to athletic training education has markedly increased. In the late 1990s and first decade of the 2000s considerable efforts were undertaken to better formalize accreditation standards in regards to clinical education, particularly in reference to preceptors, clinical education sites, student supervision, student assessment, and evaluation of clinical education experiences by the program (Armstrong, Weidner, & Walker, 2009; Berry, Miller, & Berry, 2004; Curtis, Helion, & Domsohn, 1998; Lauber, Toth, Leary, Martin, & Clyde, 2003; Laurent & Weidner, 2002; Miller & Berry, 2002; Sexton et al., 2009; Weidner & Henning, 2004; Weidner & Laurent, 2001; Weidner & Pipkin, 2002; Willeford et al., 2009). Today professional education in athletic training is held to the minimum criteria defined by the

2012 CAATE *Standards for the Accreditation of Professional Athletic Training Programs*. As athletic training education standards have transformed in previous decades, so too have athletic training education competencies.

Athletic Training Education Competencies

The 1983 *Competencies in Athletic Training* were the first formal description of the knowledge, skills, and attitudes needed for professional competence as an athletic trainer, and were tied to the profession's role delineation study from their inception (Delforge & Behnke, 1999). The competencies in the six content areas were revised in 1992, and in 1999 the third edition expanded the competencies to include twelve content areas to better match the current BOC RD/PA (Weidner & Henning, 2002). Proficiencies were also added at this time to assess clinical skills in addition to professional knowledge (NATA, 1999; Weidner & Henning, 2002). Both the third edition competencies in 1999 and the fourth edition in 2005 continued with these twelve content areas and the use of competencies and clinical proficiencies (NATA, 1999, 2005). The fourth edition included the revision of affective items to create the Foundational Behaviors of Professional Practice (NATA, 2005).

Today *The Athletic Training Education Competencies, 5th Edition* define the knowledge, skills, and foundational behaviors acquired through athletic training education. They are comprised of seven foundational behaviors, eight content areas, and nine clinical integration proficiencies (CIP), and correlate with the RD/PA6. The eight content areas of *The Athletic Training Education Competencies, 5th Edition* are:

- Evidence-Based Practice;

- Prevention and Health Promotion;
- Clinical Examination and Diagnosis;
- Acute Care of Injury and Illness;
- Therapeutic Interventions;
- Psychosocial Strategies and Referral;
- Healthcare Administration;
- Professional Development and Responsibility (NATA, 2011).

Clinical integration proficiencies (CIP) encompass each of these content areas' application to clinical care and are to be assessed through actual patient encounters. As Schilling (2012) notes, the CIPs in the fifth edition competencies require the highest level of competence, demonstrating an integration of multiple competencies with actual patients. Interestingly, the competencies and proficiencies related to athletic training students' understanding and performance of documentation skills have remained relatively static since the third edition competencies were published in 1999.

Documentation

Documentation of the patient-provider encounter is foundational to all aspects of patient care. It serves as the medico-legal record of the patient's health status and includes the patient's medical history, pertinent information regarding the patient's current medical issue, the suspected medical problems and/or diagnosis, and current and previous care plans (Friedman, Sainte, & Fallar, 2010). Not only does the patient medical record provide the legal record of patient encounters, but it is thought to provide

insight into a provider's decision-making and thought processes by detailing differential diagnoses and treatment decisions (Friedman et al., 2010).

Bowman and Reynolds (2013) contend that healthcare documentation functions to facilitate the on-going care and treatment of patients, protect the legal rights of the clinician, patient, and treating facility, and supports clinical decision-making and communication across providers. Further, the medical record serves a role in evaluating quality and efficacy of care, may be used as data sets in clinical outcomes research, and documents services provided in support of reimbursement (Bowman & Reynolds, 2013). Kettenbach (2009) also asserts that documentation can educate others about the services a profession provides.

Federal Involvement in Healthcare Documentation

The Health Insurance Portability and Accountability Act of 1996 (HIPAA), subjects the patient medical record to federal regulation, as it contains protected and private health information (Pub. L. No. 104-191). The Office of Civil Rights oversees enforcement of the privacy and security rules embedded in the law (U.S. Department of Health & Human Services, n.d.). Both Current Procedural Terminology (CPT) codes, which are developed and maintained by the American Medical Association (AMA), and International Classification of Disease (ICD) diagnostic codes, as defined by the World Health Organization (WHO), should be used to clearly communicate in the U.S. healthcare system. On October 1, 2015, ICD-10-CM/PCS codes must be used in all healthcare practices in accordance with the mandatory transition from ICD-9-CM/PCS for all HIPAA-covered entities (H.R. 4302, 2014). This transition was scheduled to take

place on October 1, 2014, but on April 1, 2014 H.R. 4302 was signed into law, delaying the original implementation date by one year (CDC, 2014; H.R. 4302, 2014). ICD-10-CM/PCS code modifications related to athletic training include requiring laterality (right, left, or bilateral) of the injury or condition, greater specificity related to the type of injury, inclusion of fracture classification systems, and revised terminology (Contexco Media, 2012).

Significant change in the data management of medical records has occurred in the previous two decades due to advancing technology. Adoption of electronic health records (EHRs) is revolutionizing the healthcare industry's use of informatics, as the sector has been pushed into such practices by a variety of economic, social, political, and legal factors. Four federal government actions have been key to the adoption of EHRs and use of health informatics in medical records (Sandefer & Seidl, 2013). First, in 2004 the Department of Health and Human Services (DHHS) Secretary, Tommy Thompson, declared a "Decade of Health Information Technology", and President George W. Bush issued an executive order creating the Office of the National Coordinator for Health Information Technology (ONC) in the DHHS (Executive Order No. 13,332, 2004; Levinson, 2008; Sandefer & Seidl, 2013; Shen & Ginn, 2012; Vreeman, Taggard, Rhine, & Worrell, 2006). Next, the ONC authored the Federal Health Information Technology Strategic Plan in 2008 (Sandefer & Seidl, 2013). Then under President Barack Obama's administration, the American Recovery and Reinvestment Act of 2009 (ARRA) created the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009, which provides incentives for the adoption, implementation, and meaningful use of

EHR technology by health professionals and healthcare organizations (H.R. 1-113, 2009). Finally, the emphasis on increased access, efficiency, cost-reduction, and quality assurance through the Patient Protection and Affordable Care Act (2010) serves as a motivating force for the healthcare industry's continued optimization of the medical records system via health informatics (Fuller, 2010; Kroth, 2014).

Electronic Health Records (EHRs) and Health Informatics

In 1991 the Institute of Medicine (IOM) defined EHRs as a record “that resides in a system specifically designed to support users by providing accessibility to complete and accurate data, alerts, reminders, clinical decisions support systems, links to medical knowledge, and other aids” (IOM, 1997/1991, p. 11). This definition is broader than that of a traditional medical record, as it encompasses the ability to enhance patient care through technology, as opposed to only recording and tracking patient care. EHRs are distinguished from electronic medical records (EMRs) by their functionality. EHRs are interoperable across multiple health organizations and their providers, allowing for health information exchange, and permit patient access through web-based patient portals; EMRs are systems specific to only one healthcare organization and its authorized clinicians and staff (Amatayakul, 2013). Under the HITECH Act of 2009, the federal government developed meaningful use and certification criteria for EHRs in order to assure quality and interoperability. Both the 2011 and 2014 editions of the Certified Health IT Product List, authored and maintained by the ONC, are publicly available on the HealthIT.gov website (ONC, 2015).

The rate of EHR adoption in healthcare organizations has risen from 9.2% in 2008 to 44.4% in 2012 (Charles, King, Patel, & Furukawa, 2013). This adoption rate will likely continue to rise in advance of the 2015 commencement of disincentive Medicare payments through the HITECH Act of 2009. Advantages of EHR use include, but are not limited to: eliminating errors due to illegible penmanship, automated alerts of red flags and treatment contraindications, reduced medication errors, simultaneous access to the full medical record by multiple providers and healthcare organizations, forced completion of required data fields to minimize incomplete records, clinical decision support that enhances patient care, improved workflow, and greater efficiency in dictation, transcription, coding, and billing (LaTour, Eichenwald Maki, & Oachs, 2013).

The 2011 Physician Workflow Study showed that 79% of office-based physicians in the U.S. using EHRs reported enhanced patient care and 81% reported the EHR had increased their remote access to patient records (King, Patel, Jamoom, & Furkawa, 2014). Specifically, 65% of responding physicians reported that the EHR had alerted them to a potential medication error, 62% reported being alerted to a critical lab value by the EHR, and 37% reported needing to order fewer lab tests due to the EHR (King et al., 2014). However, there are concerns surrounding increased EHR adoption and implementation.

The security, confidentiality, and privacy of medical records became a federal government priority under the HIPAA Act of 1996 and remain a concern today with EHR adoption, as medical identity thefts have increased in the U.S. from 1.42 million victims in 2010 to 1.85 million victims in 2012 (Medical Identity Fraud Alliance, 2013). Data security is essential to the success of EHRs, as is appropriate planning for data storage,

retrieval, and disaster recovery (Brinda & Wapola, 2013). These concerns are not unique to EHRs, as paper and hybrid systems are also susceptible to security, storage, retrieval, and disaster recovery issues (Bowman & Reynolds, 2013; Brinda & Wapola, 2013). Yet, planning for such issues differ when medical records are maintained in an electronic-only format.

Documentation quality concerns have also been raised with the adoption of EHRs, as there is the potential for increased “copy-and-paste” documentation by providers, which may result in fraudulent billing for services not actually rendered. The Office of Inspector General (OIG) in the DHHS recently issued a report on “copy-and-paste” documentation in EHRs which found only 24% of hospitals studied had formal policies on “copy-and-paste” documentation practices and that 44% of hospital audit logs actually recorded the method of data entry (copy-and-paste, direct text-entry, dictation/voice speech recognition) in the EHR (OIG, 2013). Copy-and-paste functionality has implications in the development of documentation skills among health professional students, as it may reduce the quality and patient-specific uniqueness of documentation from the initial onset of instruction and practice in the student’s academic career, as well as lead students to overlook and limit synthesis of critical clinical information (Peled, Sagher, Morrow, & Dobbie, 2009; Yudkowsky, Galanter, & Jackson, 2010).

The Institute of Medicine (2003) identifies the use of health informatics as one of the five core competencies necessary for all healthcare providers. Health informatics is the application of technology in all aspects of health data and information management (Sandefur & Seidl, 2013). This necessitates that the health professional be a competent

user of information technology and its application in the clinical environment. The HITECH Act of 2009 addresses the importance of documentation skills in current technologies, seeking to ensure that the healthcare workforce “is properly trained and equipped to be meaningful users of certified Electronic Health Records (EHRs)” (H.R. 1-113, 2009). Thus accurate healthcare documentation, particularly in EHRs, is a skill set central to all current and future health providers. This is reflected in many professional organizations’ education competencies and professional standards, such as in the Federation of State Boards of Physical Therapy *Standards of Competence* and the *Competencies for the Physician Assistant Profession* (Federation of States Boards of Physical Therapy, 2006; National Commission on Certification of Physician Assistants, 2012). There will continue to be a strong need for competence in EHR use and health informatics among all health professionals, including athletic trainers.

Documentation in Athletic Training

As with other allied health professions, the act of documenting patient encounters is an element pervasive to all work settings for athletic trainers. The *BOC Standards of Professional Practice* identifies athletic trainers’ professional responsibilities and ethical code. Standard Seven of the *BOC Standards of Professional Practice* asserts that documentation is an essential practice expectation of athletic trainers (BOC, 2006). It states, “all services are documented in writing by the Athletic Trainer and are part of the patient’s permanent records. The Athletic Trainer accepts responsibility for recording details of the patient’s health status” (BOC, 2006, p. 3). The NATA’s *Documentation and Coding Guidelines for Athletic Trainers* describes documentation as an important

element for providing quality care, ensuring a complete and accurate depiction of a patient, facilitating continuity of care, and is necessary for legal purposes, as well as third-party billing and reimbursement (NATA, 2010).

Given that athletic trainers work across diverse patient care settings, they are likely to encounter a variety of medical record information management systems. Athletic trainers in clinic and physician extender settings generally function in their healthcare organization's EHR, while those employed in professional sports, secondary schools, and the college/university settings are positioned to potentially influence, if not decide, what form of medical record information management system the institution uses for its patient care. The National Collegiate Athletic Association (NCAA) states in the *2014-15 NCAA Sports Medicine Handbook* that "of utmost importance is the daily documentation of these service [healthcare] through an adequate medical record keeping system for any person (including current, prospective, and visiting team student-athletes) with whom the athletics health care team is in contact (NCAA, 2014, p. 12-13). The NCAA further specifies all required components of this medical record keeping system in Guideline 1C of the *2014-15 NCAA Sports Medicine Handbook* and delineates member institutions' need to comply with all state and federal regulations related to medical documentation (Appendix D).

Secondary school athletic trainers should comply with the documentation standards defined by the National Federation of State High School Association (NFHS) in its sports medicine handbook, the state's high school association, their employer's requirements, and state and federal law. Athletic trainers working in professional sports

are subject to state/federal law, the employer's and the professional sports league's expectations regarding documentation, as well as standards delineated by the Occupational Safety and Health Administration (OSHA) for workplace injuries. Ultimately, all athletic trainers should fulfill the documentation requirements put forth by all state and federal laws and the *BOC Standards of Professional Practice*.

In addition to the emphasis on medical record-keeping in the *BOC Standards of Professional Practice*, the BOC also provides athletic trainers at secondary and post-secondary schools with the *BOC Facility Principles* to “self-assess their policies, procedures and facilities to ensure the safe, effective and legal provision of athletic healthcare services” (BOC, 2013a, p. 2). This document asserts the importance of medical record-keeping and outlines that “all interactions between patients/athletes and ATs or other healthcare providers are documented in the health records of each patient/athlete and securely maintained” and that “electronic and paper copies of health information are protected and accessible/transferred only to authorized individuals (ie. FERPA, HIPAA, and HITECH)” (BOC, 2013a, p. 4).

Athletic trainers' usage of EHRs is dependent upon their employers' adoption and implementation of EHRs. Athletic trainers employed in healthcare facilities billing for patient services are more likely to have experience with EHRs given the increasing EHR implementation rate in clinics and hospitals. However, the January 2015 NATA membership statistics reveal that 39.4% of NATA members are employed in the “traditional” work settings of colleges and universities, secondary schools, and professional sports, where direct billing and third-party reimbursement are less likely to

occur due different revenue models (NATA, 2015). Athletic trainers employed in these “traditional” settings outside of healthcare organizations likely are not subject to the same types of documentation compliance audits because their documentation is not reviewed by health information management professionals and might not be used to support a revenue cycle for the organization. Presently, the types of EHRs adopted in athletic training facilities at colleges and universities, secondary schools, and professional sports is not described in the literature and their implementation rate is unknown. Research on athletic trainers’ documentation practices in these settings, regardless of affiliation as a clinical site with academic programs, is warranted.

ICD-9 diagnostic codes are currently used to identify the clinician’s diagnosis, while CPT codes distinguish the various services, procedures, and treatments provided by clinician. There are two CPT codes specific to athletic trainers’ patient assessment; 97005 Athletic Training Evaluation and 97006 Athletic Training Re-Evaluation. In addition to these evaluation CPT codes, athletic trainers may document services rendered through a variety of CPT codes in the Physical Medicine & Rehabilitation, Neuro-Cognitive Assessments/Tests, and Application of Cast and Strapping code series in the current CPT list (NATA, 2010, 2014c). CPT codes commonly used by athletic trainers in clinical practice are provided in Table 1.

Table 1

CPT Codes Commonly Used by Athletic Trainers

Evaluation Codes
97005 Athletic Training Evaluation
97006 Athletic Training Re-Evaluation
Physical Medicine & Rehabilitation Codes (PM&R)
97018 Paraffin bath therapy
97022 Whirlpool therapy
97024 Diathermy
97028 Ultraviolet therapy
97032 Electrical stimulation, manual, each 15 minutes
97034 Contrast bath therapy, each 15 minutes
97035 Ultrasound therapy
97036 Hydrotherapy, each 15 minutes
97112 Therapeutic exercises, each 15 minutes
97118 Neuromuscular reeducation, each 15 minutes
97116 Gait training therapy, each 15 minutes
97140 Manual therapy, 1/> regions, each 15 minutes
97530 Therapeutic activities, each 15 minutes
97545 Work hardening/conditioning, initial 2 hours
97750 Physical performance test/measurement, with written report, each 15 minutes
97760 Orthotic management and training, each 15 minutes
Neuro-Cognitive Assessments/Test Codes
96119 Neuropsychological testing administered by technician, per hour of tech time
96120 Neuropsychological testing administered by a computer
Application of Casts and Strapping Codes
29530 Strapping; knee
29540 Strapping; ankle and/or foot
29582 Compression system; thigh and leg, including ankle and foot
29583 Compression system; upper arm and forearm
29584 Compression system; upper arm, forearm, hand, and fingers
<i>Note.</i> Adapted from “CPT Codes Most Often Used by Athletic Trainers billing for services provided in Clinical Practice,” by the National Athletic Trainers’ Association (NATA, 2014c)

Athletic Training Competencies in Documentation

There are five competencies specific to documentation in the content area of Healthcare Administration in *The Athletic Training Education Competencies, 5th Edition* (Appendix A). The competencies are:

HA-9. Identify the components that comprise a comprehensive medical record.

HA-10. Identify and explain the statutes that regulate the privacy and security of medical records.

HA-11. Use contemporary documentation strategies to effectively communicate with patients, physicians, insurers, colleagues, administrators, and parents or family members.

HA-12. Use a comprehensive patient-file management system for appropriate chart documentation, risk management, outcomes, and billing.

HA-28. Understand the role of and use diagnostic and procedural codes when documenting patient care (NATA, 2011, p. 28-29).

In addition to these competencies, the ninth clinical integration proficiency defines a student's ability to document patient encounters in a cohesive holistic manner, stating that students will:

Utilize documentation strategies to effectively communicate with patients, physicians, insurers, colleagues, administration, and parents or family members while using appropriate terminology and complying with statutes that regulate

privacy of medical records. This includes using a comprehensive patient-file management system (including diagnostic and procedural codes) for appropriate chart documentation, risk management, outcomes, and billing (NATA, 2011, p. 32).

These five competencies and the clinical integration proficiency are relatively similar to the three competencies and four proficiencies articulated in the *Athletic Training Education Competencies, 4th Edition* (Appendix B). Between editions minor rewording occurred, with the only content expansion being the inclusion of students' use of comprehensive file-management systems for "outcomes" in addition to documentation, risk management, and billing (NATA, 2005, 2011). The assessment of clinical outcomes is pivotal to the advancement of evidence-based practice in healthcare; both of which are often cited as weaknesses of the athletic training profession (Denegar & Hertel, 2002; Hankemeier & Van Lunen, 2013; Hertel, 2005; Kirkland, 2006; Parsons, Valovich McLeod, Snyder, & Sauers, 2008; Snyder, Valovich McLeod, & Sauers, 2007; Steves & Hootman, 2004). The capacity to assess clinical outcomes depends upon quality documentation using standardized terminology in a medical record system with data fields capable of being mined to answer clinical questions (Konin, Kaltenborn, & Frederick Thompson, 2011; Manns & Darrah, 2006; Niland & Rouse, 2006).

Minor differences exist between the third and fourth edition of the athletic training education competencies in regards to documentation. Both editions used twelve content areas for organizing the profession's knowledge, skills and abilities, with the documentation competencies falling under the Healthcare Administration content area in

both editions. Several of the third edition competencies in documentation (Appendix C) were combined in the creation of the fourth edition, yet the content remained the same (NATA 1999, 2005). Two competencies from the third edition, AD-C5 and AD-C10, were virtually eliminated during the transition from the third to the fourth edition, due to redundancy with the revised wording of other fourth edition competencies (NATA, 1999, 2005). Table 2 compares the reorganization of the athletic training competencies in documentation across the third, fourth, and fifth editions by first listing the current competency and then identifying its equivalencies from previous editions. The full wording of each edition's documentation competencies is available in Appendices A, B, and C.

Table 2

Organization of Documentation Competencies Across the 3rd, 4th, & 5th Editions

5 th Edition (2012)	4 th Edition (2005)	3 rd Edition (1999)
HA-9	AD-C2	AD-C2
HA-10	AD-C2	AD-C3
HA-11	AD-P4, AD-P5, & AD-P6	AD-P4 & AD-C14
HA-12	AD-C3, AD-P7	AD-C4, AD-P5, & AD-P6
HA-28	AD-C11	AD-C12
CIP-9	AD-P4, AD-P5, AD-P6, & AD-P7	AD-P5, AD-P6, & AD-CP3

Note. AD-C5 and AD-C10 from the 3rd Edition were eliminated due to redundancy.

Athletic training education has essentially had the same minimum expectations for documentation knowledge, skills and clinical abilities, including the appropriate use of procedural and diagnostic codes for documentation and billing, since 1999, as

competencies across editions have been condensed into fewer competencies and one comprehensive CIP.

Instructional Practices in Documentation

One method for increasing student competence in documentation is employing an academic electronic health record across a curriculum. Academic electronic health records (AEHRs) are secure computerized electronic documentation systems used in an academic setting that functions and has the capabilities of EHRs used in clinical practice (Johnson & Bushey, 2011). AEHR use allows for student practice in an electronic health records system in didactic coursework. Clinical use of EHRs in professional education involves student documentation in a live electronic records system in a clinical education experience; that is, documentation of actual patient encounters in the patient's existing medico-legal record. AEHRs are implemented by the education program and its faculty for simulated patient cases in didactic and laboratory courses, whereas EHRs in clinical education are the actual medical record-keeping system at a particular healthcare organization for its patients. AEHRs expose students to technology usage, standardized terminology, evidence-based practice, and informatics competencies (Meyer, Sternberger, & Toscos, 2011). Yet, AEHR adoption by education programs has been slow across health profession education.

Many barriers to AEHR adoption exist, including faculty being unfamiliar with AEHR use, faculty discomfort with technology use, limited funding and AEHR cost, implementation time associated with curricular revision, and training (Donahue & Thiede, 2008; Friedman et al., 2010; Gardner & Jones, 2012; Johnson & Bushey, 2011;

Lucas, 2010). Health profession education programs that have not adopted AEHRs often rely on student exposure to EHRs through students' clinical education at a healthcare facility. Individual clinical education sites' policies may create challenges to the inclusion of health professional students in the patient's medico-legal record in an EHR (Friedman et al., 2010).

Teaching and Learning of Documentation Skills

Proper documentation skills require foundational knowledge in medical terminology, standardized medical abbreviations, administrative policy, and written communication (Kettenbach, 2009; Konin et al., 2011). Learning activities in documentation practices across health professions may occur through course lectures, student assignments in paper or electronic formats, via simulated or standardized patient experiences in laboratory courses, or through the integration of clinical information in a live records system during patient encounters in clinical education experiences.

In athletic training education, students may receive instruction and have documentation assessed in a variety of contexts through many types of learning activities. Information on what constitutes a comprehensive medical record and the security, privacy, and confidentiality regulations on medical records may be presented in course lectures and assigned readings. Patient assessment and therapeutic intervention courses may include practice in the use of medical abbreviations and composition of patient notes in a consistent and organized format through course assignments or case studies. Application of these documentation skills then may occur in a controlled environment by having students practice documenting mock patient cases through scenarios, simulated

patient experiences, standardized patients, or objective structured clinical examinations (OCSE).

Prior to beginning clinical experiences, athletic training students should receive formal orientation to the clinical site's documentation policies, procedures, and records system. Integration of documentation knowledge, skills, and clinical abilities occur when the student is able to accurately document and effectively communicate their patient encounters in a live records system in clinical education experiences. Evaluative feedback should be provided at all levels in the learning process by faculty and preceptors, and learning activities should be structured sequentially across didactic, laboratory, and clinical education to ensure prerequisite knowledge, application, and practice occur prior to synthesis during patient encounters (CAATE, 2012). Curricular sequencing is a consideration for educators in order to ensure proper rehearsal prior to increasingly autonomous practice, as is student inclusion in patient documentation at clinical education sites for on-going practice and feedback on documentation activities. This study sought to describe these learning activities in existing athletic training curricula, and may assist athletic training educators in curricular development and revision regarding documentation knowledge, skills, and abilities.

Documentation Concerns in Other Health Professions' Curricula

Friedman, Sainte, & Faller (2010) surveyed medical school deans on restrictions placed on student documentation in clinical learning and their opinions on such restrictions. Over 90% of medical school deans felt student documentation notes should be included in the patient's medical record, yet only 42% had a policy regarding this

practice (Friedman et al., 2010). Fifty-six percent of respondents felt that failure to include student documentation notes would have a negative impact on patient care, and 92% reported that lack of student documentation would negatively impact student education (Friedman et al., 2010). However, only 40% of the clinics and hospitals that had adopted EHRs and were used for clinical education by these medical schools allowed full EHR access for students (Friedman et al., 2010). Reasons for restricting student access in EHRs included concerns for billing, needing co-signatures for patient notes, liability and privacy concerns, and incorrect charting by students (Friedman et al., 2010). Despite not having full EHR access at clinical sites, 68% of medical school deans reported that the medical school had formal didactic curriculum to teach students how to document patient encounters (Friedman et al., 2010). Friedman et al. (2010) state that medical schools with clinical education sites that do not allow for full EHR access for students are unlikely to challenge the status quo due to fear of risking disaffiliation with the clinical site (Friedman et al., 2010). Such disaffiliation risks may also be a concern in athletic training education.

A similar study by Baillie, Chadwick, Mann, and Brooke-Read (2013) was undertaken in the United Kingdom from the student perspective. Nursing and midwifery students were surveyed regarding their perceived preparation to document and the documentation experiences that occurred during clinical education. Sixty-four percent of participants reported feeling adequately prepared to document in a paper-based record system prior to their first clinical placement, while only 16% felt prepared for EHR documentation (Baillie et al., 2013). Twenty-seven percent of first-year students reported

having access to EHR use in their clinical placements, while 63% of third-year students reported having EHR experience in clinical education (Baillie et al., 2013). Forty-one percent of all students reported needing direct supervision in order to access the EHR system (Baillie et al., 2013). Students reported that the legitimacy of their patient records were questioned by clinical supervisors and that the necessary co-signatures were more difficult to obtain in EHRs than with paper-based documentation (Baillie et al., 2013). Adequate numbers of computers in the clinical environment was cited as a barrier to EHR use by students and the lack of student access to EHRs was a frustration for students (Baillie et al., 2013).

Although medicine and nursing have had a longer history of implementing health informatics competencies, other allied health professions are now beginning to express the need for health informatics competencies in their professional education. Physical therapy is one profession recognizing this need. The current American Physical Therapy Association (APTA) Strategic Plan identifies technology usage and EHR use as future professional trends, but the profession has not yet adequately embedded these elements into its professional education (Wilkinson, Chevan, & Vreeman, 2010). Wilkinson, Chevan, & Vreeman (2010) advocate for strengthening health informatics in physical therapy education through the development and integration of core informatics competencies, partnering with health informatics professionals in evaluating the efficacy of physical therapy interventions, and APTA adoption of health informatics as a foundational domain in physical therapy education.

Similar actions to adopt the IOM's five core competencies, including health informatics, are being pursued in athletic training (Parsons, Valovich, Snyder, & Sauers, 2008). Yet, this has primarily occurred in the advanced preparation of athletic trainers through post-professional programs. Both the *Standards for Accreditation of Post-Professional Athletic Training Degree Programs* and the *Standards for the Accreditation of Post-Professional Athletic Training Residency Programs*, authored and enforced by the CAATE, assert that competence in the use of healthcare informatics includes the athletic trainer's ability to:

1. Search, retrieve, and utilize information derived from online databases and/or internal databases for clinical decision support.
2. Properly protect the security of personal health information in a manner that is consistent with legal and ethical considerations for use of such data, including control of data access, utilization of patient identity coding, deidentification of aggregated data, and encryption of electronically transmitted data.
3. Guide patients to online sources of reliable health-related information.
4. Utilize word processing, presentation, and data analysis software.
5. Communicate through email, text messaging, listserves, and emerging modes of interactive electronic information transfer (CAATE, 2014a, p. 5, 2014b, p. 4-5).

Yet, entry-level clinicians will also be affected by the increasing EHR adoption rates and the need to assess clinical outcomes in aggregate means through electronic records, as this is not unique to advanced practitioners in the discipline. The CAATE

asserts that “clinicians must increasingly use information technology to manage clinical data and access the most recent evidence pertaining to optimum patient care” yet this emphasis on health informatics currently resides solely in the post-professional degree and residency standards (CAATE, 2014a, p. 5, CAATE, 2014b).

Athletic Trainers’ Preparation in Healthcare Administration

Recent graduates and employers have identified the content area of healthcare administration as a perceived deficit in professional preparation (Carr & Volberding, 2011; Dicus, 2012, Donahue, 2009; Massie et al., 2009; Shinew, 2011). Although documentation skills are not the only competencies associated with healthcare administration, these competencies do comprise the sole clinical integration proficiency in the Healthcare Administration content area of the current athletic training education competencies. A detailed review of athletic trainers’ healthcare administration preparedness is provided.

Perceptions of Recent Graduates

Athletic trainers who have been certified for less than two years feel less confident about their practice in the area of healthcare administration, with 75.1% of survey respondents reporting confidence in this content area (Shinew, 2011). Although this is not as low as perceived confidence in emergency care, in which 70.8% of respondents felt confident to practice, it is considerable lower than the perceived confidence in clinical evaluation and diagnosis, in which 91.3% of respondents stated they are confident in their practice (Shinew, 2011). This corresponds with an assertion

by Massie et al. (2009) regarding employers' perceptions of differences between technical and administrative skills in recent graduates. Massie et al. (2009) state:

Employers perceived entry-level ATs technical skills in all domains of AT as 'good' to 'excellent', but when asked explicitly about perceived deficiencies in entry-level ATs, common responses were most often directed at a lack of interpersonal communication and procedural business skills (p. 73).

When asked if entry-level clinical education had adequately prepared them for professional practice, 10.5% of recent graduates identified that it had not prepared them adequately in healthcare administration tasks (Shinew, 2011). This reported lack of preparation through clinical education was greater among athletic trainers practicing in clinic (21.4%) and physician extender (25.0%) settings (Shinew, 2011); practice settings where documentation may be held to higher standards as part of institutional compliance with healthcare industry regulations. It is necessary to note that these previous studies sought the perceptions of credentialed athletic trainers, included graduates of various education models, and the studies' measurements were based on previous versions of the athletic training education competencies.

Employers' Perceptions

Carr and Volberding (2011) examined the perceived preparation of newly certified athletic trainers through their eyes and their employers', and found that employees cited administrative tasks as being a common area of perceived deficiency, with comments in this category making up 15% of all deficit comments by employees included in the study (Carr & Volberding, 2011). An example is given from their

qualitative research, in which one interview subject stated, "...somebody came up for an insurance form two months after an injury and I was like whoa I was supposed to fill that out? That was a great experience for that learning curve" (Carr & Volberding, 2011, p. 58). The authors suggest that their results demonstrate recent graduates' desire for mentoring in the administrative realm beyond what their entry-level education provided them (Carr & Volberding, 2011, p. 59).

Performance on Board of Certification Examination

Students also perceive their healthcare administration preparation lower than other skills, along with preparation in pharmacology, psychosocial interventions, and nutrition. (Whitman, 2008). It has been shown that students who perceived their preparation to be lower in these areas were less likely to pass the BOC examination at a statistically significant level (Whitman, 2008). BOC examination results during previous testing cycles indicate that the performance domain of Organizational and Professional Health and Well-Being has been the lowest scoring section of the examination (BOC, 2012; 2013b). The Organizational and Professional Health and Well-Being performance domain contains the examination items related to both the Healthcare Administration and Professional Development content areas of the education competences, and therefore includes, but is not limited to, documentation-related examination items. The BOC examination results for two of the previous testing cycles since transitioning to the correlation with RD/PA6, are available in Table 3.

Table 3

BOC Examination Results in the Organizational and Professional Health and Well-Being Performance Domain

Testing Cycle Year	2011-2012	2012-13
% of total exam items	12%	12%
# of exam items in domain	15	15
Score range in domain	1.8 – 15.0	2.1 – 14.0
Highest mean score across all exam forms offered during testing cycle	9.1 ± 2.11	9.1 ± 1.95
Domain's results across all exam forms expressed as % correct	60.67%	60.67%
Next lowest domain's results expressed as % correct	70.54% ^a	70.90% ^b
National first attempt pass rate on exam	82.3%	80.8%

Note. A complete breakdown of scores by performance domain was not publicly available for the 2013-2014 testing cycle.

^aTreatment & Rehabilitation performance domain.

^bTie for next lowest performance domain between Clinical Evaluation & Diagnosis and Treatment & Rehabilitation.

Practice Setting Concerns

Inadequate documentation skills among entry-level athletic trainers appears to be revealing itself in emerging clinical practice settings. The NATA Committee on Practice Advancement has identified advanced skills and knowledge related to emerging work settings, and oddly, many of these “advanced knowledge and skills” pertain to documentation, despite its definition as an entry-level competency. As of April 1, 2015 this committee’s webpage references nine recommendations related to documentation in its identified advanced knowledge and skills for athletic trainers employed in hospital

settings, occupational health, the military, physician extender settings, the performing arts, and public safety (NATA, 2014b). These include the ability to document the information needed to satisfy third-party payment, complying with appropriate guidelines in patient records that require coding, understanding the basics of the worker compensation systems and its relationship to third-party payers, communicating with worker compensation representatives, collecting and analyzing injury data for a given military training cycle, documenting specific tests to evaluate the physical status of performing artists, and documenting for reimbursement of durable medical equipment (NATA, 2014b). Yet, documenting for the appropriate diagnostic and procedural codes for billing and third-party reimbursement, as well as using documentation systems to assess injury data and clinical outcomes, are all defined as entry-level competencies in the athletic training profession.

There may be a level of dissonance occurring in regards to professional education competencies and post-professional degree standards. Perhaps athletic trainers are not demonstrating competence in these documentation skills in the workplace. This may also be due to the minimal amount of experience athletic training students have in emerging practice settings during their education, as athletic training education has historically been coupled with the institution's athletic department for clinical education placements (Roiger & Card, 2012). Regardless of cause, it is clear that competency in healthcare documentation is a concern in the profession of athletic training from the perspectives of students, recent graduates, and employers.

Summary

Healthcare administration is a perceived deficiency among newly certified athletic trainers from both their perspective and their employers', as well as a self-perceived weakness of athletic training students, with the performance domain relating to healthcare administration producing the lowest percentage correct among the BOC examination domains during recent testing cycles. Experts in clinical and emerging practice settings in athletic training are also expressing a need in advanced skills and knowledge in healthcare documentation among athletic trainers, and post-professional and residency programs emphasize the importance of health informatics for future professionals.

Central to the healthcare administration content area of *The Athletic Training Education Competencies, 5th Edition* are the five documentation competencies and the ninth clinical integration proficiency. Deficits in this content area are peculiar given that these documentation-related competencies have remained relatively unchanged across the three most recent versions of the athletic training education competencies dating back to 1999 (NATA, 1999, 2005, 2011). Healthcare documentation, particularly in EHRs, is a foundational skill for all providers, and health informatics competence has been cited as an essential skill for all future health professionals in order to promote evidence-based practice and assess clinical outcomes. Strong documentation skills are necessary for accurate billing and subsequent third-party reimbursement, both of which are vital to a health profession's value model. As healthcare facilities in U.S. increase their EHR implementation rates, health informatics competency will be an expectation for all entry-level athletic trainers' professional practice.

What are the instructional and assessment practices in the teaching and learning of documentation knowledge, skills, and abilities in athletic training professional education and how are these skills practiced or rehearsed? To date, no research has been conducted on athletic training students' experiences with these learning activities in professional athletic training programs, nor described the ways in which they occur in didactic, laboratory, and clinical education. This study aimed to identify and describe the instructional, rehearsal, and assessment practices in documentation in professional athletic training programs as reported by students.

CHAPTER 3

METHODOLOGY

Presently there is little to no literature specific to athletic training students' academic preparation in healthcare documentation knowledge, skills, and abilities. This descriptive study aimed to identify final-year professional athletic training students' academic preparation in the documentation knowledge, skills, and abilities defined by the current athletic training education competencies. Survey research was conducted to obtain students' reports of the instructional, rehearsal, and assessment activities related to documentation knowledge, skills, and abilities across didactic, laboratory, and clinical education in professional athletic training programs.

Overview of Methods

This chapter provides a description of the research methodology employed during this study. The chapter includes a description of the participants, an overview of the survey instrument, identifies the procedures used while conducting the study, and describes the process for analysis of the results. A web-based survey instrument was sent to CAATE-accredited professional athletic training programs in the United States and the results have been used to answer the research questions. Quantitative data was analyzed in Statistical Package for Social Sciences (SPSS) software and included descriptive, correlational, and inferential statistics. Open-ended responses were categorized as neutral, positive, or negative and analyzed for any recurrent topics.

Setting and Participants

Final-year athletic training students currently enrolled in a CAATE-accredited professional athletic training program were the target population. Final-year athletic training students are defined as students who will graduate in the current academic year and therefore are eligible to attempt the BOC examination during the corresponding exam cycle. At the time of data collection in October 2014, there were 362 CAATE-accredited professional athletic training programs in the United States. The total number of possible participants was unknown. The range in the number of graduates per year from professional degree programs is 1-29 and the median number of graduates per year per program is 8 (NATA ECE, 2011). The 2013-14 BOC examination cycle had 3,680 first-time test takers, which is the highest number of any testing cycle to date (BOC, 2014c). It was estimated that the range of participants available to respond could be 3,000 to 5,000 individuals. The recruitment process is further described in the Procedure section of this chapter and resulted in 1,094 final-year students receiving a link for the web-based survey. Survey participation was voluntary and 185 final-year athletic training students consented to participate.

Instrumentation

The survey instrument was developed by the researcher and designed to correlate with *The Athletic Training Competencies, 5th Edition*. The instrument was examined for content validity by experts and was refined through a pilot study prior to data collection. Both of these procedures are further described under the Validity of Measures section of this chapter. A web-based survey tool, Qualtrics, was used to deliver the survey

instrument and collect data. Qualtrics permits for a web address to be distributed for accessing the survey instrument and allowed for various response types. Electronic surveys are an efficient means to complete data collection across a large population (Creswell, 2009; Gall, Gall, & Borg, 2007; Vaske, 2008).

The survey instrument consisted of three sections for a total of 43 items; seven demographic items, fifteen items related to instruction, rehearsal, and assessment activities in didactic and laboratory education, nineteen items pertaining to documentation experiences in clinical education, and two open-end question about the student's overall experiences with documentation-related activities. Demographic information collected included sex, age, ethnicity, BOC examination eligibility, degree level, NATA district of institution attended, and the length of the athletic training education program.

The first section, containing fifteen survey items, aimed to identify the student-reported instructional, rehearsal, and assessment activities employed in the teaching and learning of documentation knowledge and skills in professional athletic training programs. Participants were asked questions related to each of the documentation-related competencies from *The Athletic Training Education Competencies, 5th Edition* (NATA, 2011). These included items such as the usage of medical terminology and medical abbreviations, the statutes that regulate the security, privacy, and confidentiality of medical records, and understanding of the role of and use of diagnostic and procedural codes. Participants were also asked if the athletic training education program they are enrolled in employs an AEHR to formally instruct patient documentation skills.

Nineteen survey items gathered information regarding students' experiences with patient documentation in various types of clinical education settings. The clinical education settings included were college/university, secondary schools, professional sports, clinic/hospital, and industrial/occupational settings. Participants were asked if they had performed the various components of the ninth clinical integration from *The Athletic Training Education Competencies, 5th Edition* (NATA, 2011), including communicating through patient documentation with patients, physicians, insurers, colleagues, administrators, and the patient's family member(s), and using documentation to perform risk management, assess clinical outcomes, and bill for medical services. Participants were also asked to estimate the percentage of their patient documentation that has occurred in a paper format and in an electronic health record. A Microsoft Word version of the web-based survey instrument is available in Appendix E.

Procedure

An Institutional Review Board application for an exempt review was submitted July 14, 2014 and approved by the University of Minnesota Institutional Review Board (IRB) on August 7, 2014. Notification of IRB approval of the exempt study is available in Appendix F. Contact information for each professional athletic training program director was obtained through the CAATE website in August 2014. All program directors were contacted via email to request participation of students enrolled in the institution's program. On October 1, 2014 program directors were sent information regarding the study and a link for the web-based survey, which contained the consent form and the survey instrument. All program directors were asked to forward the email

on to all final-year students enrolled in their athletic training program. A copy of the information sent to program directors to seek participants is available in Appendix G.

The program directors who agreed to assist in the participant recruitment process forwarded the study information and web address to final-year students enrolled in their program via email. They were also asked to reply to the investigator's email with confirmation of how many students the survey web address was forwarded to in order to obtain a count of potential participants to determine the survey's response rate. Upon receipt of the forwarded email, students had the choice to participate or not participate. When accessing the web-based survey, students were provided a copy of the consent form. Once a student consented to participation, the actual survey instrument was delivered on-screen. A copy of the consent form is provided in Appendix H. Data collection took place for four weeks in October 2014. Program directors received follow-up emails regarding the study, both at the halfway point of the data collection period and one week prior to the closing of the web-based survey, which are available in Appendix G. All data was collected and stored in Qualtrics, a password-protected web-based survey tool available to University of Minnesota faculty and students.

Data Processing and Analysis

The raw data was collected in Qualtrics and then transferred to SPSS (v.20) for analysis. Descriptive, correlational, and inferential statistics were employed in SPSS to analyze the quantitative data obtained. Measures of frequency and central tendency were obtained for all survey items. Pearson Chi-Square test was used to compare reports of AEHR use between respondents enrolled in baccalaureate and post-baccalaureate

professional programs. A one-way analysis of variance (ANOVA) was used to investigate the relationship between the reported time spent documenting in paper and electronic formats among baccalaureate and post-baccalaureate respondents. All test of significance were carried out at an alpha level of $p \leq .05$.

The open-ended responses were categorized as neutral, positive, or negative in response to the question posed by the researcher and assessed for trends related to ways in which students articulated their documentation experiences. The trends elicited from these open-ended responses may aid in understanding students' perception of how documentation knowledge and skills are and are not being addressed in professional programs. However, a true qualitative approach and framework (Creswell, 2013) was not employed to code and analyze emergent themes from these open-ended responses, as there were a limited number of responses and most were brief in nature. Further qualitative inquiry would be needed to derive students' perceptions of documentation-related activities in professional programs at an appropriate depth level.

Anonymity was provided through the use of Qualtrics. Participants were asked to identify the NATA district that their institution is located in, but individual programs were not identified by participants. Anonymity and confidentiality have been maintained during the reporting of the results.

Validity of Measures

Content validity of the survey was determined by the relationship of the questions to the documentation-related competencies and clinical integration proficiency defined by *The Athletic Training Education Competencies, 5th Edition* (NATA, 2011). Survey items

were reviewed for content validity by three athletic training education experts. Face validity was performed with a panel of 14 final-year athletic training students at a professional athletic training program in April 2014. Survey items were revised following this face validity check to further improve the wording and clarity of specific items for student-level comprehension. A pilot survey was undertaken with 40 final-year athletic training students across four professional degree programs; two in Wisconsin and two in Minnesota. This pilot study was used to assess for potential relationships between survey items, as well as to assess internal consistency of survey items.

Summary

In order to describe the instructional, rehearsal, and assessment practices used in the teaching and learning of the documentation-related competencies in athletic training education, final-year students in professional athletic training programs were asked to participate in a web-based survey. All program directors of CAATE-accredited professional athletic training programs were contacted in October 2014 to aid in the recruitment of participants. Students enrolled in their final year of a professional athletic training program were invited by these program directors to respond to an online Qualtrics survey. Descriptive, correlational, and inferential statistics were used to analyze the data obtained in order to answer the research questions and describe current educational practices related to healthcare documentation occurring at professional athletic training programs.

CHAPTER 4

RESULTS

The purpose of this study was to examine the methods by which final-year athletic training students enrolled in accredited professional programs report having received instruction, having rehearsed, and having been assessed on the documentation-related competencies in athletic training. In this chapter the data and results obtained through a national survey are presented.

Survey Population and Sample

A link to the electronic survey was emailed to the 360 program directors of the 362 CAATE-accredited professional programs in existence on October 1, 2014. Eighty-nine of the 360 program directors (24.7%) agreed to forward the survey on to final-year athletic training students enrolled in their professional program. These program directors reported distributing the survey to 1,094 final-year students. A total of 185 students consented to participate in the survey for a response rate of 16.9%, with 146 participants completing all survey items. There were no forced response items included in the survey and therefore total numbers in the following statistics are not necessarily equal to 185. It is for this reason that the *n* values and percentages are provided throughout the presentation of the results.

Demographic Data

A total of 146 of the 185 respondents (78.9%) opted to complete the survey's demographic items. Demographic items were included at the end of the survey

instrument after open-ended questions, which likely lowered the response rate in this section of the survey. Of the 185 participants, 39 individuals (21.1%) opted to not complete the demographic section of the survey instrument; 109 participants identified as females (58.9%), and 37 were males (20.0%). Seventy-five participants (40.5%) reported being between 20-21 years old and 30.8% of participants ($n = 57$) reported being between 22-23 years of age. The participants' age distribution is displayed in Table 4. Participants were asked their ethnicity and 72.4% of participants self-identified as being Caucasian/White. Self-reported ethnicity for all participants is depicted in Table 5.

Table 4

Age of Participants

Years	<i>n</i>	Percent
19 or less	0	0%
20-21	75	40.5%
22-23	57	30.8%
24-25	7	3.8%
26-27	3	1.6%
28 or older	4	2.2%
Did not respond	39	21.1%
Total	185	100%

Table 5

Participants' Self-Reported Ethnicity

	<i>n</i>	Percent
African American/Black	2	1.1%
Asian American/Pacific Islander	3	1.6%
Caucasian/White	134	72.4%
Hispanic/Latino	4	2.2%
Native American/American Indian	1	0.5%
Other	2	1.1%
Did not respond	39	21.1%
Total	185	100%

Participants were from all ten of the National Athletic Trainers' Association districts, with the largest percentage (29.2%) of participants attending university in District 4 (Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin). When data collection occurred in October 2014, District 4 had the highest concentration of professional programs, with 88 of the 362 accredited professional programs (24.3%) being located in District 4 states. Of the 185 participants, 29.2% were from District 4, 21.1% did not identify their NATA district, and 9.2% were from District 5 (Iowa, Kansas, Missouri, Nebraska, North Dakota, Oklahoma, and South Dakota), which had 57 professional programs (15.7%) at the time of data collection. There were 5 or less respondents from District 7 (Arizona, Colorado, New Mexico, Utah, and Wyoming), District 8 (California, Hawaii, and Nevada), and District 10 (Alaska, Idaho, Montana, Oregon, and Washington). The distribution of participants by NATA district is displayed in Figure 1.

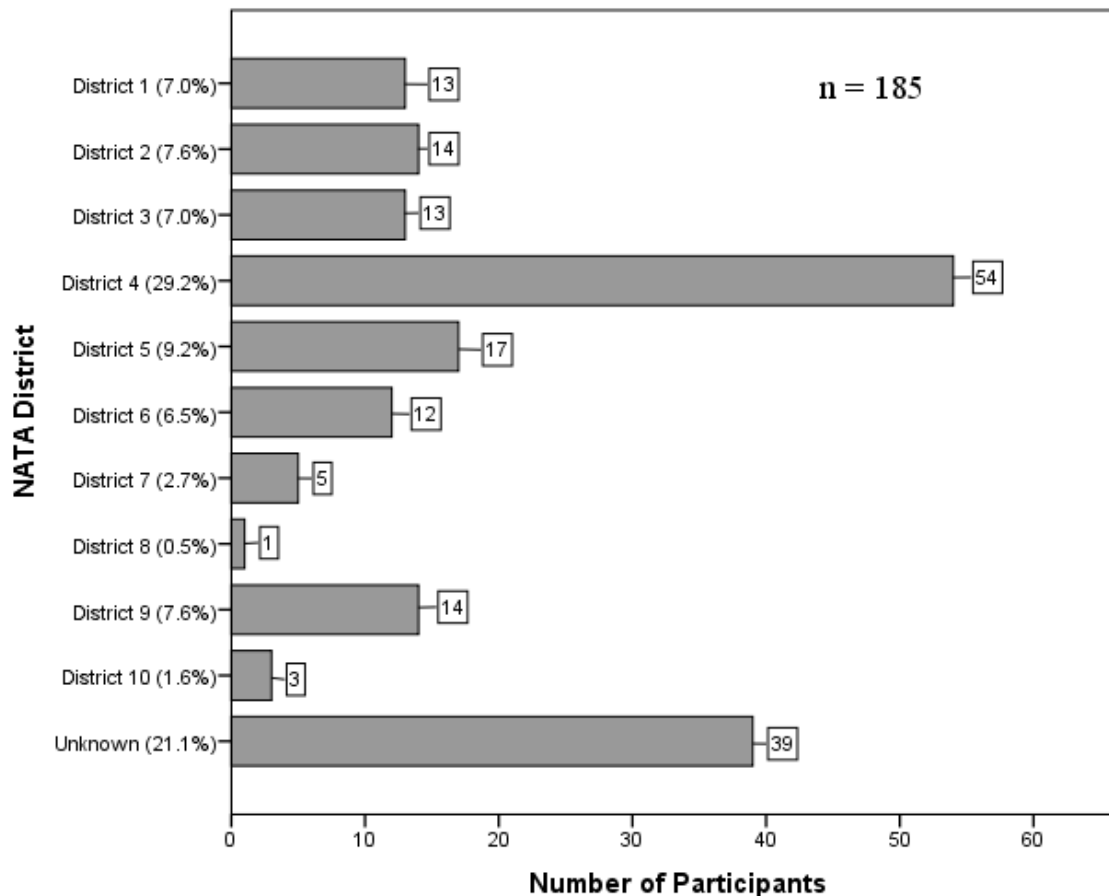


Figure 1. *Participants by NATA District.* The largest percentage of respondents were from District 4 (29.2%) and there were the 39 participants (21.1%) who did not respond to this demographic item; their NATA district is therefore unknown.

Participants were asked if they were on-track to graduate from their professional program and would thus be eligible for the Board of Certification (BOC) examination in the upcoming testing cycle occurring from April 2015 through February 2016. The vast majority (96.6%) of respondents ($n = 141$) affirmed their eligibility for the BOC examination. Given the two degree levels of professional programs accredited by the CAATE, participants were also asked to identify whether they were completing a baccalaureate degree or post-baccalaureate degree. One hundred and twenty-five

participants (67.6%) identified being enrolled in a baccalaureate degree program, 21 participants (11.3%) reported enrollment in a post-baccalaureate degree program, and 39 individuals (21.1%) opted to not respond regarding degree level. At the time of survey distribution, 31 professional programs were at the post-baccalaureate level (8.6%) and 331 accredited professional programs were at the baccalaureate level (91.4%).

Program length was also included among the demographic items and of the 146 participants that identified their degree level, 63 respondents (43.2%) reported enrollment in a three-year athletic training education program, while 38 respondents (26.0%) were enrolled in a two-year program. Among post-baccalaureate students, 90.5% reported the duration of their professional program being less than three years, while 70.4% of baccalaureate students reported being enrolled a professional program that is three or more years in length. Students' report of program duration is displayed in Table 6.

Table 6

Athletic Training Program Length

Years	<i>n</i>	Percent	% of Baccalaureate	% of Post-Baccalaureate
2	38	26.0%	17.6	76.2
2.5	18	12.3%	12.0	14.3
3	63	43.2%	48.8	9.5
3.5	8	5.5%	6.4	0
4 or more	19	13.0%	15.2	0
Total	146	100%	100%	100%

Findings

Research Question One: To What Extent Are Documentation-related Competencies Instructed?

Research question one sought to describe the ways in which final-year athletic training students report having received instruction in the documentation competencies during their professional education. Survey questions number 1, 2, 3, 6, 12, 15, 17 and 18 addressed this research question by asking respondents to identify courses in which documentation-related learning activities occurred, whether or not academic electronic health records (AEHRs) were used in the curriculum, if electronic health records (EHRs) were being used at clinical sites and if the student had received an orientation to the EHRs in use, the documentation topics instructed, and specific instructional techniques used to address the topics of medical abbreviations and medical terminology, security, privacy, and confidentiality, and CPT and ICD codes.

Curriculum. Respondents were asked to identify all classroom and laboratory courses in which they had participated in documentation-related learning activities and to identify which documentation-related topics had been addressed in professional program courses. A total of 157 participants responded to this survey item. Courses in injury/illness assessment and evaluation yielded the most responses ($n = 120$), with 76.4% of respondents reporting they had completed documentation-related activities in such coursework. Courses on therapeutic interventions was the second most frequently cited item, with 65.6% of respondents ($n = 103$) identifying it as a course in which they

had completed documentation-related activities, and courses on injury prevention and courses on organization and administration both yielded 85 responses (54.1%).

A total of 63 respondents (40.1%) identified having a healthcare documentation course in their program's curriculum that contains documentation-related activities, and 31 respondents (19.7%) reported those activities being included in a healthcare information technology course in their professional program. The incorporation of a healthcare documentation course is associated with program degree type a statistically significant level $\chi^2(1, n = 146) = 10.811, p = .001$, Cramer's $V = .272$, with post-baccalaureate students reporting documentation-related activities in a healthcare documentation course at a greater frequency (71.4%) than baccalaureate students (33.6%). A Pearson Chi Square analysis revealed a statistically significant association $\chi^2(1, n = 146) = 11.871, p = .001$, Cramer's $V = .285$ between respondents' reports of documentation-related activities in a healthcare information technology course and program degree level, with post-baccalaureate students reporting documentation-related activities in a healthcare information technology course at a greater frequency (47.6%) than baccalaureate students (15.2%). A detailed listing of courses identified by students as containing documentation-related activities is available in Table 7.

All participants ($n = 185$) responded to the survey item addressing whether or not AEHRs are used in their professional program for the instruction of healthcare documentation. Of the 185 respondents, 31.9% affirmed that AEHRs were used in the curriculum ($n = 59$), 53.0% denied the use of AEHR in their education ($n = 98$), and 15.1% responded stated they were not sure ($n = 28$) if AEHRs had been used to instruct

healthcare documentation in their professional program. The use of AEHRs in a professional program is associated with program degree type at a statistically significant level, $\chi^2(1, n = 146) = 13.144, p < .001$, Cramer's $V = .300$, with post-baccalaureate students (61.9%) reporting AEHR use in their program at a greater frequency than baccalaureate students (23.2%).

Table 7

Students' Report of Courses Containing Documentation-Related Activities

	<i>n</i> = 185	Percent
Injury/Illness Assessment/Evaluation	120	76.4
Therapeutic Interventions	103	65.6
Injury Prevention	85	54.1
Organization & Administration	85	54.1
Emergency Care	68	43.3
Healthcare Documentation	63	40.1
Medical Terminology	60	38.2
Healthcare Information Technology	31	19.7
Strength & Conditioning	25	15.9
Other	7	4.5
Has not occurred	3	1.9

In regards to clinical education experiences, survey questions 17 and 18 sought to identify the frequency of orientations to health records systems occurring at clinical education sites and if the clinical sites utilized EHRs. A total of 155 responses were obtained for each of these survey questions. Thirty-six percent of respondents ($n = 56$) identified having received an orientation to the health records system at “all” clinical sites, 35.5% ($n = 56$) reported having received an orientation at “most” clinical sites, 21.3% ($n = 33$) stated they had received an orientation at a “few” clinical sites, and 7.1%

($n = 11$) reported never having received an orientation to the health records systems at any clinical education site. When specifically asked about the use EHRs at clinical sites, 9.7% of respondents ($n = 15$) reported never having documented in an EHR, while 21.9% of respondents ($n = 34$) reported having documented in an EHR, but could not recall the name of the EHR product used. The remaining 68.4% of respondents ($n = 106$) recalled documenting in an EHR and provided the name of the system used.

Students' reports of which EHR products had been used in their clinical education were analyzed and compared to the 2011 and 2014 editions of the Certified Health IT Product List from the Office of the National Coordinator for Health Information Technology (ONC, 2015). A total of 106 respondents identified the EHRs they had previously used in clinical education. Of these documentation products, 16 respondents (15.1%) named a total of three products that are certified EHRs (various Epic products, OpenChart by Point and Click Solutions, and Workflow EHR by workflow.com®) and 90 respondents (84.9%) had used EHR products that have not undergone government certification. Of the 84.9% who named products not certified by a government recognized agency as of January 1, 2015, Athletic Trainer System® (ATS), Sportsware by CSMi, Sports Injury Management (SIMS), NExXT Solutions, and Presagia were most commonly identified as being used in clinical education experiences.

All participants ($n = 185$) responded to the survey item addressing which documentation topics had been instructed in their professional program courses. The topics of SOAP notes (99.5%), medical terminology (95.1%), and medical abbreviations (90.8%) elicited the highest levels of positive responses, while the HITECH Act of 2009

(8.1%), performing dictations (32.4%), ICD codes (38.4%), and CPT codes (41.4%) were the topics addressed with the lowest frequency. A complete results list for instructional topics is available in Table 8.

Table 8

Students' Reports of Documentation Topics Instructed

	<i>n</i> = 185					
	Yes		No		Not Sure	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
HIPAA	184	99.5	1	0.5	0	0.0
SOAP Notes	184	99.5	1	0.5	0	0.0
Medical Terminology	176	95.1	7	3.8	2	1.1
Medical Abbreviations	168	90.8	17	9.2	0	0.0
Components of a Medical Record	162	87.6	12	6.5	11	5.9
FERPA	153	82.7	12	6.5	20	10.8
Developing Medical Forms	96	51.9	57	30.8	32	17.3
CPT Codes	76	41.4	71	38.4	28	20.5
ICD Codes	71	38.4	73	39.5	41	22.2
Performing Dictations	60	32.4	91	49.2	34	18.4
HITECH Act of 2009	15	8.1	105	56.8	65	35.1

Medical Terminology and Abbreviations. Survey item number 3 specifically sought to describe the instructional techniques employed in the teaching of medical terminology and medical abbreviations. Participants were asked to select all of the ways in which the topic of medical terminology and medical abbreviations had been instructed in their professional program and 169 participants responded to the survey item. The use of homework assignments and worksheets (82.8%) and lectures (80.5%) were reported as

the most frequently employed techniques, and only 2.4% of respondents reported that the instruction of medical terminology and medical abbreviations had not yet been addressed in their professional program. A complete listing of survey results regarding instructional methods for medical terminology and medical abbreviations is displayed in Table 9. Students' reports of the ways medical terminology and medical abbreviations are practiced and rehearsed in professional programs will be detailed in the medical terminology and medical abbreviations component of the Research Question Two section and the results on assessment of this topic will be describe in the Research Question Three section of this chapter.

Security, Privacy, and Confidentiality of Medical Records. Survey question number 6 parallels the tenth healthcare administration competency (HA-10) in the athletic training education competencies and sought to determine the ways in which the security, privacy, and confidentiality of medical records is instructed in athletic training curricula. According to respondents ($n = 163$), the most common methods used in the instruction of the security, privacy, and confidentiality of medical records were lectures (93.3%), orientation to clinical experiences (71.8%), and assigned readings (62.0%). Nearly half of respondents reported that an orientation to paper records system (48.7%) and orientation to an electronic records system (49.7%) were used to instruct the concepts of security, privacy, and confidentiality of patients' medical records. Table 10 displays all results pertaining to survey question 6 regarding the instruction of the HA-10 competency. The results on the assessment of this topic will be described in the Research Question Three section of this chapter.

Table 9

Students' Reports of Teaching and Learning Methods Employed for Medical Terminology & Medical Abbreviations

	<i>n</i> = 169		
	Instruct %	Practice %	Assess %
Practice SOAP notes in class/lab		95.3	83.4
Homework assignments/worksheets	82.8		
Lectures	80.5		
Exams/quiz questions			76.3
Using paper health records system	41.4	71.6	42.0
Simulated/standardized patients in class/lab		65.7	42.6
Using an EHR system	40.8	65.1	45.0
Verbal feedback from preceptors			60.4
Documenting practical exams patients in class/lab		58.0	39.6
Assigned readings	57.4		
Case scenarios	48.5		
Written feedback from faculty/classroom instructors			48.5
Verbal feedback from faculty/classroom instructors			48.5
Orientation to clinical experiences	42.0		
Student presentations		38.5	24.9
Written feedback from preceptors			38.5
Orientation to paper health records system	32.5		
Orientation to EHR system	29.0		
Performing dictations		18.3	
Webinars/online tutorials	18.3		
Other	5.3	1.2	0.0
Has not been addressed yet	2.4	1.8	5.3

Note. This table combines multiple survey questions and not all response items were options for all survey questions. For example, assigned readings was not a response option for the practicing of, nor the assessment of medical terminology and medical abbreviations. Therefore blank cells represent no data collection for the given response option in each column.

Table 10

Students' Reports of Teaching and Learning Methods Employed for Security, Privacy, and Confidentiality

	<i>n</i> = 163	
	Instructed %	Assessed %
Lectures	93.3	
Exams/quiz questions		77.2
Orientation to clinical experiences	71.8	
Assigned readings	62.0	
Homework assignments/worksheets	58.3	55.6
Verbal feedback from preceptors		55.6
Orientation to EHR system	49.7	
Orientation to paper health records system	48.7	
Using an EHR system		46.9
Using paper health records system		46.3
Verbal feedback from faculty/classroom instructors		46.3
Case scenarios	42.3	
Written feedback from preceptors		33.3
Documenting practical exams patients in class/lab		32.7
Simulated/standardized patients in class/lab		32.7
Written feedback from faculty/classroom instructors		30.9
Webinars/online tutorials	23.3	
Student presentations	19.0	16.7
Has not been addressed yet	1.2	4.9
Other	1.2	0.6

Note. This table combines multiple survey questions and not all response items were options for all survey questions. For example, exams/quiz questions was not a response option for the instruction of security, privacy, and confidentiality. Therefore blank cells represent no data collection for the given response option in each column.

CPT and ICD Codes. Survey item number 12 corresponded with the athletic training education competency Healthcare Administration-28 (HA-28) on understanding the role and use of diagnostic and procedural codes. Participants were asked to identify all of the methods employed to instruct CPT and ICD codes in the professional program, with 159 participants responding to the question. Eighty-six respondents (54.1%) stated that the instruction of CPT and ICD codes had not yet been addressed in their professional program, which was the highest response item. Of those who indicated that CPT and ICD codes had been instructed in their professional program, lectures (37.1%), assigned readings (19.5%), homework assignments/worksheets (19.5%), and practice SOAP notes in class/laboratory (13.8%) were cited as the most commonly employed techniques. Students' reports on instruction of the use of CPT and ICD codes through an electronic health records system (8.2%) and a paper health records system (3.8%) were minimal. Table 11 displays the results related to HA-28, including the results of survey question 12 regarding CPT and ICD code instruction. Students' reports on the ways CPT and ICD codes are practiced and assessed in professional programs is- detailed in the corresponding components of the Research Question Two and Research Question Three sections of this chapter.

Table 11

Students' Reports of Teaching and Learning Methods Employed for CPT and ICD Codes

	<i>n</i> = 159		
	Instruct %	Practice %	Assess %
Has not been addressed yet	54.1	76.1	74.8
Lectures	37.1		
Assigned readings	19.5		
Homework assignments/worksheets	19.5	13.2	17.0
Practice SOAP notes in class/lab	13.8	11.3	
Exams/quiz questions			13.2
Using an EHR system	8.2	10.1	3.8
Simulated/standardized patients in class/lab		9.4	5.7
Orientation to EHR system	8.2		
Case scenarios	7.5		
Written feedback from faculty/classroom instructors			6.3
Orientation to clinical experiences	4.4		
Verbal feedback from faculty/classroom instructors			4.4
Webinars/online tutorials	4.4		
Written feedback from preceptors			4.4
Documenting practical exams patients in class/lab		3.1	3.8
Using paper health records system	3.8	3.8	3.1
Verbal feedback from preceptors			3.8
Orientation to paper health records system	3.1		
Performing dictations	1.3	1.9	
Student presentations	1.9		0.6
Other	1.9	0.6	0.6

Note. This table combines multiple survey questions and not all response items were options for all survey questions. For example, lectures was not a response option for the practicing of, nor the assessment of CPT and ICD codes. Therefore blank cells represent no data collection for the given response option in each column.

Research Question Two: To What Extent Is Documentation Rehearsed?

Research question two aimed to describe the ways in which final-year athletic training students report having practiced healthcare documentation in didactic, laboratory, and clinical education in their professional program. Survey questions number 4, 13, 16, and 18-25 elicited supporting data for research question two by addressing the ways in which respondents recalled rehearsing medical terminology and abbreviations, practicing the use of CPT and ICD codes, and investigating the documentation experiences that occur in clinical education.

Medical Terminology and Abbreviations. Survey item number 4 addressed the ways in which students report having practiced using appropriate medical terminology and medical abbreviations and had 169 respondents. The most cited teaching and learning methods used by final-year athletic training students in the rehearsal of medical terminology and medical abbreviations included practice SOAP notes in coursework (95.3%), using a paper health records system (71.6%), documenting simulated/standardized patients in class and laboratory activities (65.7%), and using an electronic health record system (65.1%). Performing dictations was reported with the lowest frequency, with 18.3% of respondents citing it as a mechanism for practicing medical terminology and medical abbreviations. A complete listing of results for question number 4 delineating the rehearsal methods students reported using to practice medical terminology and medical abbreviations is included in Table 9.

CPT and ICD Codes. The rehearsal methods employed in practicing the use of CPT and ICD codes was the objective of survey question 13, and 159 participants opted

to respond. The most common response was that students had not practiced the use of CPT and ICD codes, with 76.1% stating that it had not yet occurred in their program. The most common methods respondents reported using to practice CPT and ICD codes were completing homework assignments/worksheets (13.2%), performing practice SOAP notes in class and laboratory activities (11.3%), and using an electronic health records system (10.1%). Using a paper health records system to practice using CPT and ICD codes was reported by 3.8% of respondents. All results for survey question 13 depicting the ways in which students reported practicing their use of CPT and ICD codes are displayed in Table 11.

Clinical Education Experiences. Survey questions number 16 and 18-25 examined the ways in which students report having practiced their documentation skills during clinical experiences in both paper and electronic formats. Survey item number 16 asked whether or not students had ever completed healthcare documentation for a patient encounter in a clinical experience and 155 individuals responded. Four respondents (2.6%) reported never having documented a patient encounter during a clinical experience. Twenty-four respondents (15.5%) reported having completed healthcare documentation only in a paper-based format, while 8.4% ($n = 13$) reported having completed healthcare documentation only in an electronic format. The majority, 73.5% of respondents ($n = 114$), indicated they had documented patient encounters in both a paper-based format and in an EHR.

Survey questions 19 and 20 asked respondents to quantify the estimated amount of time spent documenting patient care in a paper format and an electronic format. A

slider scale ranging from 0 to 100 was used to assess the perceived percentage of time spent with each documentation format. One hundred and fifty-three respondents indicated the perceived amount time spent using a paper format with a mean and standard deviation of $52.19\% \pm 35.01\%$ and 151 respondents specified the percentage of time spent using an electronic format with a mean and standard deviation of $59.11\% \pm 33.80\%$.

A one-way ANOVA was used to determine if there was a difference in time reported using each of the two formats for patient documentation between baccalaureate and post-baccalaureate students. There was a statistically significant difference between groups ($F(1,142) = 4.737, p = .031$) in the reported percentage of time spent documenting patient care in a paper format, with post-baccalaureate students ($M = 66.95, SD = 32.31, 95\% CI [52.25, 81.66]$) reporting a greater percentage of time spent using a paper format than baccalaureate students ($M = 49.26, SD = 34.76, 95\% CI [43.06, 55.46]$). There was also a statistically significant difference between groups ($F(1,140) = 6.411, p = .012$) in the reported percentage of time spent documenting patient care in an electronic format, with baccalaureate students ($M = 63.44, SD = 31.77, 95\% CI [57.72, 69.15]$) reporting a greater percentage of time spent using an electronic format than post-baccalaureate students ($M = 44.10, SD = 35.43, 95\% CI [27.97, 60.22]$).

Documentation experience in clinical education was further investigated to examine students' reports of documentation activities by clinical experience setting via questions number 21-25. Results for these survey items is displayed in Table 12 and Table 13. Nearly all respondents (99.3%) reported having had clinical experiences in a

college or university setting, 82.3% of respondents had completed clinical experiences in a secondary school setting, and 58.6% of respondents had been in a clinic or hospital setting. Far fewer respondents indicated they had completed clinical education experiences in industrial/occupational and professional sports settings, 12.0% and 6.9% respectively.

Of the 135 respondents who identified having a clinical experience in a collegiate or university setting and answered whether or not they had documented during those experiences, 96.4% reported having documented patient encounters with 82.2% reporting it occurred in a paper format (78.7% of all respondents) and 84.4% reporting having done so in an EHR (80.9% of all respondents). Of the 115 respondents who identified having a clinical experiences in a secondary school setting and answered whether or not they had documented during those experiences, 73.0% attested to having documented patient encounters. Eighty-four respondents opted to answer whether or not this patient documentation had occurred in a paper format, with 90.5% answering in the affirmative (59.3% of all respondents), while 83 respondents answered the same question for patient documentation in an EHR in a secondary school setting. Of these 83 respondents, 38.6% stated they had documented patient encounters in a secondary school setting in an EHR (23.2% of all respondents).

Of the 82 respondents who indicated they had completed clinical experiences in a clinic/hospital setting and answered whether or not they had documented patient encounters during these experiences, 36.6% reported having documented their patient care (22.1% of all respondents). Of the 30 respondents who had completed clinical

experiences in a clinic/hospital setting and reported having documented their patient care, 66.7% reporting having done so in an EHR (14.7% of all respondents) and 50% indicated they had documented in a paper format (10.4% of all respondents). Fifteen respondents indicated they had completed clinical experiences in an industrial/occupational setting and answered whether or not they had documented patient care during these experiences. Of these respondents, 46.7% indicated they had documented their patient care while in an industrial/occupational setting, but of the seven respondents who had documented patient care in this setting, 71.4% reported having done so in an EHR (3.8% of all respondents), while 28.6% reported doing so in a paper format (1.5% of all respondents). Professional sports was the least common experience setting (6.9% of respondents) and half of all students who had completed clinical experiences in professional sports reported having documented their patient care, with documentation occurring in a paper format and EHRs at an equal rate of 66.7%. All results for survey questions 21-25 are displayed in Table 12 and Table 13 with *n* values, relative percentages, and percentages of all valid responses.

Table 12

Students' Reports of Clinical Education Setting and Documentation Opportunities

	Clinical Experience in Setting			Documented Patient Encounters			
	<i>n</i>	Yes (%)	No (%)	<i>n</i>	Yes (%)	No (%)	N/A (%)
Clinic/Hospital	145	58.6	41.4	82	36.6	57.3	3.7
Of all valid respondents				136	22.1	34.6	0.0
College/University	148	99.3	0.7	135	96.4	2.9	0.7
Of all valid respondents				141	96.4	2.9	0.7
Industrial/Occupational	142	12.0	88.0	15	46.7	33.3	20.0
Of all valid respondents				130	5.4	3.9	2.3
Professional Sports	144	6.9	93.1	8	50.0	50.0	0.0
Of all valid respondents				133	3.0	3.0	0.0
Secondary Schools	147	82.3	17.7	115	73.0	25.2	1.7
Of all valid respondents				140	60.0	20.7	1.4

Table 13

Students' Reports of Documentation Formats Used by Clinical Education Setting

Reported documenting in:	Paper Format				EHR			
	<i>n</i>	Yes (%)	No (%)	N/A (%)	<i>n</i>	Yes (%)	No (%)	N/A (%)
Clinic/Hospital	30	50.0	50.0	0.0	30	66.7	33.3	0.0
Of all valid respondents	136	10.4	10.4	0.0	136	14.7	7.4	0/0
College/University	135	82.2	17.8	0.0	135	84.4	13.3	2.2
Of all valid respondents	141	78.7	17.0	0.0	141	80.9	12.8	2.1
Industrial/Occupational	7	28.6	71.4	0.0	7	71.4	28.6	0.0
Of all valid respondents	129	1.5	3.9	0.0	130	3.8	1.5	0.0
Professional Sports	3	66.7	33.3	0.0	3	66.7	33.3	0.0
Of all valid respondents	133	1.5	0.8	0.0	131	1.5	0.8	0.0
Secondary Schools	84	90.5	8.3	1.2	83	38.6	60.2	1.2
Of all valid respondents	140	59.3	5.0	0.7	138	23.2	36.2	0.7

Thus the greatest amount of student experience with documenting patient care is occurring in the collegiate setting with more than 75% of respondents having completed their patient documentation in both paper and electronic records systems (Table 12 and 13). Secondary schools provide the second highest level of student documentation of patient care, but is far more reliant on paper documentation (90.5%) than EHR use (38.6%). Of those who have documented in an industrial/occupational setting or a clinic/hospital setting, documentation in an EHR is predominant at 71.4% and 66.7% respectively. However, because these settings are less commonly used for students' clinical education, 12.0% and 58.6% respectively, far fewer students are granted these documentation opportunities in their clinical education, as only 3.8% of all respondents had completed patient documentation in an EHR in an industrial/occupational setting and 14.7% of all respondents had done so in a clinic/hospital setting.

Open-Ended Survey Items. Two open-ended survey items were provided for respondents to further share their thoughts about the teaching and learning of documentation in their professional education. Of the 185 respondents, 118 opted to respond to question number 35 which asked participants to describe the most valuable learning experience they had related to documentation. The most frequent responses were the importance of repeatedly practicing documentation of patient encounters in clinical education experiences ($n = 24$), experience using EHRs ($n = 24$), and patient documentation serving as a legal record of patient care ($n = 22$). Respondents who described EHR use noted how variety better prepared them by stating "learning how to use these systems will benefit me in any setting, even if it's not the same system or the

setting uses only paper” and “learning how to navigate and use a couple different electronic systems was valuable”. Those that spoke to liability concerns often cited “covering” and “protecting” themselves from lawsuits, with one respondent stating “our certifieds were accused of something, but it was dismissed in court because they had documentation”. Another respondent said “we thought a parent was going to sue the school and we had to pull the records to show proper care”. Eleven respondents specifically described the value of preceptor feedback in the improvement of their documentation skills and six respondents described classroom experiences as being most valuable. An example of a positive classroom experience included “submitting written SOAP notes and dictations for minimal points so it is stress-free, but still receiving great feedback from the instructor on how to improve”.

The second open-ended question asked if there was anything related to the teaching and learning of documentation skills that the student would like to share with the researcher and 33 responses were elicited. Of these, 12 responses were positive in nature and most often cited clinical education as the primary source for teaching and learning of documentation. The role of preceptor feedback in learning documentation ($n = 5$), EHR experience in clinical education ($n = 3$), and repeated practice with paper SOAP notes in clinical education ($n = 3$) were identified as sources for their documentation confidence. Examples of this included “we then have a preceptor look over our evaluation and make changes”, while another respondent stated “SOAP notes are taught in class and then are critiqued . . . all of our electronic documentation must undergo revision by the supervising ATC/physician before entering into our system”.

Eighteen responses could be classified as more negative in nature, with respondents reporting deficits in their documentation experiences. Concerns about the complete lack of instruction of CPT and ICD codes ($n = 3$), documentation not being addressed enough in academic coursework ($n = 8$), and instruction occurring too late in the program were most frequently cited by respondents ($n = 2$). One respondent stated “additional documentation incorporated into all classes would help with proficiency”, while another indicated “if our field continues trending toward increased documentation, as it should, it also needs to be taught within AT education programs”. Concern for the timing of experience opportunities was identified by the response “I did not get electronic documentation experience until my last semester in the AT program. It’s unfortunate because I only have experience with one type of software and I wish I would have been able to experience different types.” The variance in documentation expectations was exemplified with “there is a drastic difference in the amount of documentation depending upon the clinical site”. Finally, access was noted as an issue with the statement “it is hard to practice electronic documentation . . . as the documents are password protected and only accessible by ATCs”.

Research Question Three: To What Extent is Documentation Assessed?

Research question three sought to describe the ways in which final-year athletic training students report having been assessed during their professional education in the athletic training competencies and clinical integration proficiency related to documentation. Survey questions number 5, 7, 14, and 26-34 investigated if respondents had been assessed in the athletic training documentation competencies and the ways in

which they reported having been assessed or provided feedback, while survey questions number 8-11 actually assessed respondents' knowledge in documentation terminology commonly employed when participating in a third party reimbursement system.

Medical Terminology and Abbreviations. Survey item number 5 inquired about the assessment of and feedback provided to students in their use of medical terminology and medical abbreviations. A total of 169 respondents answered question number 5 and practice SOAP notes in class and laboratory activities (83.4%), exam/quiz questions (76.3%), and verbal feedback from preceptors (60.4%) were the most often cited assessment and feedback methods used in the teaching and learning of medical terminology and medical abbreviations. All results for survey item number 5 on the assessment and feedback techniques used with medical terminology and medical abbreviations are provided in Table 9.

Security, Privacy, and Confidentiality of Medical Records. The assessment and feedback methods employed in the teaching and learning of HA-10 of the athletic training competencies were investigated through survey question number 7 and elicited 162 responses. Students reported that their understanding of the security, privacy, and confidentiality of medical records was most commonly assessed or provided feedback through exam/quiz questions (77.2%), homework assignments/worksheets (55.6%), and through verbal feedback from preceptors (55.6%). Class and laboratory activities such as documenting simulated/standardized patients and documenting practical exam patients were less frequently employed, each being cited by 32.7% of respondents, and 4.9% of respondents reported never having been assessed or provided feedback in relation to HA-

10 during their education thus far. All results for survey question number 7 are summarized in Table 10.

CPT and ICD Codes. Respondents were asked to identify the ways in which they had been assessed or provided feedback on their use of CPT and ICD codes during the professional education via survey question number 14. This survey question corresponds to the athletic training competency Healthcare Administration 28 (HA-28) and yielded 159 responses. The majority, 74.8% of respondents ($n = 119$) reported not having been assessed or provided feedback on their use of CPT and ICD codes thus far in their education. Those who indicated they had been assessed or provided feedback on their use of CPT and ICD codes reported the use of homework assignments/worksheets (17.0%) and exam/quiz questions (13.2%) as the most frequently employed methods. All clinical education methods for assessing and providing feedback (using paper health records or EHRs and preceptor feedback) were reported by less than 5.0% of all respondents. Results for survey question number 14 are included in Table 11 detailing the teaching and learning of CPT and ICD codes.

In addition to investigating the ways in which students' use of CPT and ICD codes have been assessed during their education, the survey included items to assess commonly employed terminology related to healthcare documentation in a third party reimbursement system in relation to HA-28. Participants were asked if they could define the abbreviations CPT, ICD, and NPI, which stands for National Provider Identifier, and to identify the CPT code for performing an athletic training evaluation, all of which are standard abbreviations employed in the healthcare documentation process. The

abbreviation for current procedural terminology (CPT) was correctly defined by 28.3% of respondents ($n = 45$), yet only 8.8% of respondents ($n = 14$) correctly identified the CPT code used to document a clinical examination completed by an athletic trainer (97005 or 97006), the most commonly rendered medical service by athletic trainers. Nearly a quarter (24.5%) of respondents correctly defined the abbreviation for the International Classification of Diseases (ICD). Lastly, 18.2% of respondents ($n = 29$) correctly defined the abbreviation for the National Provider Identifier (NPI), the government issued identification number required of all medical providers seeking to bill for services rendered. All results for survey questions number 8-11 are provided in Table 14.

Table 14

Students' Ability to Define Commonly Employed Third Party Reimbursement Terms

	$n = 159$			
	Correct		Incorrect	
	n	%	n	%
CPT (Current Procedural Terminology)	45	28.3	114	71.7
CPT Code for Athletic Training Evaluation	14	8.8	145	91.2
ICD (International Classification of Diseases)	39	24.5	120	75.5
NPI (National Provider Identifier)	29	18.2	130	81.8

HA-11 & HA-12. Students' reports of completion of the eleventh and twelfth Healthcare Administration competencies (HA-11 & HA-12) were examined in survey questions 26-34. HA-11 delineates that students will use their documentation to communicate with patients, physicians, insurers, colleagues, administrators, and a

patient's family member. HA-12 dictates that students will use their documentation to perform risk management, assess patient outcomes, and bill for medical services provided. Each are major components of the documentation-related clinical integration proficiency in athletic training education. Of the 148 respondents who completed survey questions 26-34, most reported having used their documentation to communicate with colleagues (91.9%), patients (89.5%), and physicians (73.0%), perform risk management (89.5%) and to assess patient outcomes (73.0%). However, only 7.4% of respondents indicated they had used their documentation to communicate with insurers and had billed for medical services provided. Results for survey items related to HA-11 and HA-12 are displayed in Table 15.

Table 15

Students' Reports of Competencies Performed in Clinical Education Experiences

Competency	<i>n</i> = 148		
<u>HA-11 (Communication)</u>	Yes (%)	No (%)	Not Sure (%)
Colleagues	91.9	5.4	2.7
Patients	89.5	4.7	5.4
Physicians	73.0	23.0	4.1
Administrators	52.0	38.5	9.5
Patient's family member	39.2	53.4	7.4
Insurers	7.4	83.8	8.8
<u>HA-12</u>	Yes (%)	No (%)	Not Sure (%)
Performed risk management	89.5	4.7	5.4
Assessed patient outcomes	73.0	23.0	4.1
Billed for services provided	7.4	83.8	8.8

Summary

This chapter presented the results from the data analysis of an online survey of final-year athletic training students executed during the 2014-2015 fall semester on the teaching and learning of documentation knowledge, skills, and abilities. The purpose of this study was to describe the ways in which final-year athletic training students report having been instructed, having rehearsed, and having been assessed on the documentation-related competencies in athletic training.

Survey items related to research question one suggest that athletic training students report that teaching and learning of the documentation-related competencies are occurring with the greatest frequency in injury/illness assessment and evaluation courses (76.4% of respondents) and that inclusion of both a course specific to healthcare documentation and healthcare information technology are associated at a statistically significant level with post-baccalaureate degree programs. Analysis also revealed that 39.1% of respondents had used AEHRs in their professional program, and that AEHR use is associated with enrollment in a post-baccalaureate degree program at a statistically significant level. The documentation topics most often addressed were SOAP notes (99.5%), medical terminology (95.1%), and medical abbreviations (90.8%), while the HITECH Act of 2009 (8.1%), performing dictations (32.4%), ICD codes (38.4%), and CPT codes (41.4%) were the topics addressed with the lowest frequency. The use of homework assignments and worksheets (82.8%) and lectures (80.5%) were reported as the most common instructional methods in the teaching of medical terminology and medical abbreviations, while the most common methods used in the instruction of the

security, privacy, and confidentiality of medical records were lectures (93.3%), orientation to clinical experiences (71.8%), and assigned readings (62.0%). The most common response regarding the instruction of CPT and ICD codes was that the topic had not yet been addressed (54.1%) in the professional program.

Research question two sought to describe the ways in which students report having practiced their documentation skills. It was found that the use of practice SOAP notes in class and laboratory activities was the most common method for rehearsing medical terminology and medical abbreviation use (95.3%), and that 76.1% of respondents reported having not yet practiced the use of CPT and ICD codes in their professional programs. The majority of respondents, 73.5%, indicated they had completed documentation of patient encounters in both a paper and an electronic format, but there was a statistically significant difference in the estimated time spent using a paper format and an electronic format by degree level, with baccalaureate students reporting a higher percentage of documentation time in an EHR and post-baccalaureate students reporting a higher percentage of documentation time in a paper format in clinical education experiences. Across clinical experience settings, post-secondary and secondary school settings provide the greatest opportunities to complete patient documentation, but use of a paper format is predominant in secondary school settings. Of the respondents who had been granted the opportunity to document patient care while completing clinical education experiences in an industrial/occupational setting or a clinic/hospital setting, use of EHRs was more prevalent than a paper records format. However, these opportunities are limited due to a lower frequency of clinical placements

in these practice settings. Open-ended survey items revealed that respondents report their most valuable documentation-related experiences occur in the clinical education, included the use of EHRs, and that respondents recognized the legal value of documentation. Respondents expressed appreciation for preceptor feedback on their patient documentation and expressed concern for deficits they perceive in their educational experiences related to documentation, particularly in regards to a lack of emphasis or experiences occurring late in the program's duration.

Survey item results related to research question three demonstrated that practice SOAP notes in class and laboratory activities (83.4%) was the most commonly reported method for assessing medical terminology and medical abbreviation knowledge, that exam/quiz questions was the most common technique for assessing student understanding of security, privacy, and confidentiality of medical records, and that 74.8% of respondents reported not yet having been assessed on CPT and ICD codes. When asked to define key terms related to third party reimbursement, 28.3% of respondents correctly defined the abbreviation CPT, 8.8% of respondents correctly identified the CPT code for an athletic training evaluation, 24.5% of respondents correctly defined the abbreviation ICD, and 18.2% of respondents correctly defined the abbreviation NPI. Finally, 7.4% of respondents reported experience with the subcomponent of HA-11 related to communicating with insurers and 7.4% of respondents reported experience with the billing for medical services component of HA-12.

The results of this descriptive study have been presented in this chapter. The key findings for each of the three research questions will be further discussed in Chapter 5, as

well as implications for athletic training curricula and future research related to the teaching and learning of documentation knowledge, skills, and abilities in athletic training professional education.

CHAPTER 5

DISCUSSION AND CONCLUSION

Overview of the Study

Documentation is fundamental to all patient encounters across health professions, including athletic trainers. The athletic training education competencies delineate five competencies and one clinical integration proficiency specific to the instruction and assessment of documentation knowledge, skills, and abilities. Given that there is little research regarding athletic training students' preparation in performing patient documentation, and the suggestion that recent graduates and employers have identified the domain of healthcare administration as a perceived deficit in professional preparation (Carr & Volberding, 2011; Dicus, 2012, Donahue, 2009; Massie et al., 2009; Shinew, 2011), a descriptive study was undertaken to ascertain students' reports of their preparation in healthcare documentation. The purpose of this study was to examine the methods by which final-year athletic training students report having received instruction, having rehearsed, and having been assessed on the documentation-related competencies in athletic training.

The research questions were:

1. In what ways do final-year athletic training students report having received instruction during their professional education in the documentation-related competencies in athletic training?

2. In what ways do final-year athletic training students report having practiced healthcare documentation in didactic, laboratory, and clinical education in professional athletic training programs?
3. In what ways do final-year athletic training students report having been assessed during their professional education in the athletic training competencies and clinical integration proficiency related to documentation?

An electronic survey link was sent via email to 360 program directors at the 362 CAATE-accredited professional programs in existence on October 1, 2014, with the request that the survey be forwarded to all final-year athletic training students currently enrolled in the institution's professional program(s). Of 1,094 final-year students to whom the survey was distributed, a total of 185 (16.9%) individuals from across the United States consented to participate in the electronic survey and were representative of all ten National Athletic Trainers' Association districts. The survey instrument consisted of three sections for a total of 43 items; seven demographic items, fifteen items related to instruction, rehearsal, and assessment activities in didactic and laboratory education, nineteen items pertaining to documentation experiences in clinical education, and two open-end questions about the student's overall experiences with documentation-related activities. Participants were not forced to complete any of the questions, therefore the total numbers in the statistics is not necessarily equal to 185.

This chapter summarizes the outcomes of this research study and is divided into a discussion of the findings, implications of the research, recommendations, and a conclusion.

Discussion of Findings

The study's 16.9% response rate ($n = 185$) among the sample of 1,094 final-year athletic training students across all ten NATA districts in the United States meets the minimum response rate to allow for sound population validity as a type of external validity (Bartlett, Kotrlik, & Higgins, 2001), thus permitting for generalizing the findings of this research on final-year students in professional athletic training programs. However, given the geographic distribution of survey respondents, it may not be appropriate to generalize findings to professional programs located in District 7, 8, and 10 due to a low number of respondents from these regions (Figure 1). These findings are most applicable to professional programs located in District 4, as 29.2% of participants attend institutions located in Indiana, Illinois, Michigan, Minnesota, Ohio, and Wisconsin, the states that comprise District 4. It is thought that the higher response rate from final-year athletic training students in District 4 is due to the concentration of professional programs in these six states, as 24.3% of all professional programs in existence at the time of data collection were located in District 4.

The results are further limited by the timing of the data collection, which occurred in October 2014. For most respondents, the timing of this data collection corresponded with the middle of the fall semester during their final year as an athletic training student. Therefore, content coverage was not yet completed for the current semester, nor had students completed any required spring semester courses, if graduating in the spring of 2015. Given some of the commonalities to course sequencing across professional programs, there is potential that some of the documentation-related competencies

investigated may not yet have been addressed, or perhaps not fully addressed, in the curriculum. This limitation may have affected students' responses to survey items and influenced the results. Course sequencing and integration of the documentation-related competencies and one clinical integration proficiency will be addressed in the Recommendations section of this chapter.

Research Question One: To What Extent Are Documentation-related Competencies Instructed?

Research question one sought to describe the methods by which the documentation-related competencies are instructed in professional programs. Across didactic coursework, final-year athletic training students report that teaching and learning activities related to documentation are occurring with the greatest frequency in injury/illness assessment and evaluation courses (76.4%), and therapeutic intervention courses (65.6%).

Less than half of final-year athletic training students (40.1%) report the use of a healthcare documentation course for the instruction of documentation topics in their professional program, and less than one-fifth report the use of a healthcare information technology course in their professional program for documentation instruction. Use of both of these types of didactic courses for the instruction of documentation topics is associated with post-baccalaureate degree programs at a statistically significant level. Previously Friedman et al. (2010) found that 68% of medical school deans reported having formal didactic curriculum on documentation of patient encounters. One of the key findings in the white paper *Professional Education in Athletic Training: An*

Examination of the Professional Degree Level is that transitioning to post-baccalaureate degree programs “facilitates the continued evolution in the professional competency requirements to better reflect the clinical practice requirements . . . in a changing healthcare environment” (NATA ECE, 2013, p. 5) and the potential for greater inclusion of the Institute of Medicine’s five core competencies for all health professionals, which includes healthcare informatics. These findings suggest that post-baccalaureate degree programs may be addressing documentation activities directly in a didactic course targeting documentation-related competencies.

The vast majority of final-year athletic training students report having been instructed on the items associated with the Healthcare Administration-9 (HA-9) and Healthcare Administration-10 (HA-10) competencies prior to their final year of professional preparation. The documentation topics most often addressed are SOAP notes (99.5%), medical terminology (95.1%) and medical abbreviations (90.8%). Homework assignments and worksheets (82.5%) and lectures (80.5%) were reported as the most commonly used methods to instruct medical terminology and medical abbreviations. Among respondents, 87.6% reported having been instructed on the components of a medical record, 99.5% reported having received instruction on HIPAA, and 82.7% of respondents reported having received instruction on the Family Educational Rights and Privacy Act (FERPA). The most common instructional methods used to address security, privacy, and confidentiality of medical records are lectures (93.3%), orientation to clinical experiences (71.8%), and assigned readings (62.0%). Instruction of

foundational items such as medical terminology and abbreviations and security, privacy, and confidentiality of medical records is occurring across professional programs.

Yet, over half of final-year athletic training students report not having received instruction on the Healthcare Administration-28 (HA-28) competency prior to their final year of professional preparation. When specifically questioned on the instruction of CPT and ICD codes in their professional program, the most common student response (54.1%) was that the topic had not yet been addressed. Among respondents, 37.1% reported that CPT and ICD codes had been included in lectures and 19.5% reported having an assigned reading on CPT and ICD codes. This corresponds with the findings of Whitman (2008), which asserted students perceive their healthcare administration preparation lower than other skills and may contribute to the previous finding that 75.1% of recent graduates report being confident in healthcare administration knowledge, skills, and abilities, which is lower than all other practice domains except for emergency care (Shinew, 2011). This is not asserting that these documentation-related competencies are not instructed in professional programs, but establishing that it may not be occurring until late in the curricular sequence or that teaching strategies employed may not necessarily equate to student learning and comprehension of the material.

Open-ended responses attested to the value of using EHRs during professional preparation and cited logon access to EHR systems in clinical education as an impediment. Other healthcare professions have encountered similar difficulties with students accessing healthcare facilities' EHRs in their professional preparation (Baillie et al., 2013; Friedman et al., 2010). Curricular use of academic electronic health records

(AEHRs) in the professional program was reported by 39.1% of respondents and was associated with enrollment in post-baccalaureate degree programs at a statistically significant level. One possible explanation for this finding is that post-baccalaureate degree programs are aligned in academic units with peer health profession programs at a greater frequency than baccalaureate degree programs (NATA ECE, 2013), possibly creating greater access and/or cost-sharing for AEHR use in the curriculum. However, further investigation into the effects of academic unit alignment on AEHR adoption in professional programs would need to be carried out to truly determine if this is occurring. Other barriers to AEHR adoption previously cited in the literature include faculty being unfamiliar with AEHR use, faculty discomfort with technology use, and implementation time associated with curricular revision (Donahue & Thiede, 2008; Friedman et al., 2010; Gardner & Jones, 2012; Johnson & Bushey, 2011; Lucas, 2010). It has previously been established that AEHR use exposes students to technology usage, standardized terminology, evidence-based practice, and informatics competencies (Meyer et al., 2011).

Research Question Two: To What Extent Is Documentation Rehearsed?

Research question two aimed to describe the ways in which patient documentation is practiced and rehearsed across didactic, laboratory, and clinical education in professional programs. Given that the instruction of medical terminology and medical abbreviations was reported at a high level, it is not surprising that 95.3% of final-year students reported SOAP notes in class and laboratory activities as the most common method for practicing terminology and abbreviation use. However, over three-fourths of students reported not having practiced the use of diagnostic and procedural

codes prior to the final year of professional preparation. This correlates with the findings for research question one and research question three in the area diagnostic and procedural coding instruction and assessment. Only 10.1% of respondents reported having the opportunity to practice the use of CPT and ICD codes in an EHR. Shinew (2011) previously found that recent graduates employed in clinic and physician extender settings reported a lack of preparation in the healthcare administration domain. This insufficient level of documentation rehearsal opportunities with procedural and diagnostic coding may contribute to the perceived lack of preparation among those employed in practice settings involved in third party reimbursement. Again, the researcher does not contend that the rehearsal of procedural and diagnostic coding does not occur in professional programs, but the results demonstrate that it may not be occurring until late in the curricular sequence.

Nearly three-fourths of final-year athletic training students report having gained experience using both a paper and electronic records system during clinical experiences; yet 9.7% of students reported never having used an EHR and 15.5% reported never having documented patient care in an EHR during a clinical education experience. There is a statistically significant difference in final-year students' estimation of documentation time in EHRs and paper systems by program degree level, with baccalaureate students estimating a higher percentage of their documentation time has occurred in EHRs and post-baccalaureate students estimating a higher percentage of their documentation time had occurred in a paper format during their clinical education experiences. This is an

intriguing finding that warrants further inquiry in order to determine a possible explanation.

Investigation of documentation rehearsal based upon clinical education settings revealed that the majority of student-reported documentation experience in clinical education occurs at college and university and secondary school settings, which coincides with these being the most common types of clinical placement sites. However, student reports indicate that use of paper records systems (90.5%) are far more predominant at the secondary school setting. Less than one-fourth of all final-year students report having documented patient encounters while completing a clinical education experience in a clinic/hospital setting, but among those, documentation of patient encounters is reported to occur in an EHR two-thirds of the time. Given the low frequency clinical placements at clinic/hospital settings across professional programs, these students constituted 14.7% of survey respondents. Student documentation experiences across clinical placement settings should be considered when planning clinical education across a curriculum.

The majority of final-year athletic training students reported that EHR documentation in clinical education experiences occurs in products that do not meet industry standards and are not certified by the government for use by healthcare organizations, which may indicate that students' EHR documentation in clinical education experiences may not be on par with other allied health profession students. When asked to identify the EHR systems each had gained experience documenting in, 84.9% of responses were electronic record systems that are not included on either the 2011 or 2014 editions of the Certified Health IT Product List from the Office of the

National Coordinator for Health Information Technology as of January 1, 2015; meaning these are not government recognized certified EHRs and therefore do not comply with industry standards for health information exchange and meaningful use standards for healthcare organizations (ONC, 2015). The non-certified products most commonly identified by students were a variety of athletic injury tracking software products used in conjunction with the National Collegiate Athletics Association (NCAA) Injury Surveillance Program, which are products not used by other health professionals. This calls into question the EHR adoption rate among athletic training facilities, particularly in the post-secondary setting. Nationally, the median adoption rate of EHRs in ambulatory care settings is 41%, with the lowest state median EHR adoption rate existing in New Jersey at 27% and the highest state median EHR adoption rate occurring in Minnesota at 67% (King, Furukawa, & Buntin, 2013). Athletic trainers at secondary and post-secondary institutions, who act as preceptors for athletic training students, may not be adopting and implementing electronic systems that meet the healthcare industry's standards.

Ultimately, open-ended questions revealed that students report clinical education as the primary source for documentation rehearsal and often cited an appreciation for preceptor feedback on their documentation of patient encounters. However, students report a far greater amount of verbal feedback from preceptors in regards to medical terminology and medical abbreviations (60.4%) and issues concerning the security, privacy, and confidentiality of medical records (55.6%) than in relation to the use of procedural and diagnostic codes (3.8%). Clinical education experiences are relied upon

by professional programs to provide documentation opportunities. Student reports indicate that preceptor feedback on documentation is valued by students, which corresponds with the existing literature on students' perceptions of clinical education in athletic training (Laurent & Weidner, 2001; Nottingham & Henning, 2014a, 2014b; Weidner & Henning, 2010). The lack of student-reported feedback from preceptors on the use of diagnostic and procedural coding may be indicative of an absence of student performance of these clinical skills and abilities, which corresponds with the findings related to research question three of this study.

Research Question Three: To What Extent Is Documentation Assessed?

Research question three sought to describe the ways in which the documentation-related competencies and single clinical integration proficiency are assessed in professional programs. The overwhelming majority of final-year athletic training students report having been assessed on their use of medical terminology and abbreviations and on the Healthcare Administration-10 (HA-10) competency prior to their final year of professional preparation. Only 5.3% of respondents reported that assessment of their use of medical terminology and abbreviations had not occurred, and only 4.9% of respondents reported that their understanding of security, privacy, and confidentiality of medical records had not yet been assessed. Practice SOAP notes in class and laboratory activities (83.4%) was the most commonly reported method for assessment of medical terminology and abbreviations, and the use of exam/quiz questions (77.2%) was the most common technique for assessing HA-10.

Nearly three-fourths of athletic training students report not having been assessed on the Healthcare Administration-28 (HA-28) competency prior to their final year of professional preparation. Less than 9% of final-year athletic training students could identify that 97005 and 97006 are the CPT codes used to represent an athletic training evaluation in a third party reimbursement system. When asked to define key terms related to third party reimbursement, 28.3% of respondents correctly defined the abbreviation CPT, 24.5% of respondents correctly defined the abbreviation ICD, and 18.2% of respondents correctly defined the abbreviation NPI. The inclusion of CPT and ICD codes as a required component in athletic training education is not new under the most current version of athletic training competencies and dates back as far as 1999 (NATA, 1999, 2005, 2011). Again, the combination of the timing of data collection and curricular sequence likely influenced these results, but the findings do demonstrate how little curricular and clinical education time athletic training students may have with any substantial comprehension of foundational elements in third party reimbursement processes.

Deficits exist in students' performance of the third party reimbursement components of the Healthcare Administration-11 (HA-11) and Healthcare Administration-12 (HA-12) competencies. Investigation into the assessment of each of the subcomponents of the Healthcare Administration-11 (HA-11) and Healthcare Administration-12 (HA-12) competencies revealed considerable disparity between the types of audiences students report having communicated with via their patient documentation and the administrative functions they report having used their patient

documentation for during their professional preparation. In regards to communication, the majority of students reported having used their documentation to communicate with colleagues (91.9%), patients (89.5%), and physicians (73.0%). Documentation had been used by 52.0% of students to communicate with administrators and by 39.2% of students to communicate with a patient's family member. However, only 7.4% of students reported having used their patient documentation to communicate with insurers as outlined in HA-11, which corresponds with 7.4% of respondents reporting that they had used documentation to bill for services provided as delineated in HA-12. Most students reported having completed the other components of HA-12, by using their documentation to perform risk management (89.5%) and for assessing patient outcomes (73.0%). However, the insufficient performance of the third party reimbursement activities outlined in HA-11 and HA-12, combined with the overall lack of understanding surrounding diagnostic and procedural coding delineated in HA-28 gives credence to the Massie et al. (2009) study, which found that employers perceive entry-level athletic trainers as lacking in procedural business skills.

Summary

This study demonstrates that according to final-year athletic training students the HA-9 and HA-10 competencies are instructed and assessed in athletic training professional programs. There are considerable deficits in the student-reported performance of the third party reimbursement components of the HA-11 and HA-12 competencies in professional programs. Final-year athletic training students report the occurrence of the instruction and assessment of the HA-28 competency in professional

programs at insufficient levels. Given the student-reported deficits in the third party reimbursement components of HA-11 and HA-12, and the low levels of the student-reported occurrence of HA-28, it is difficult to comprehend how professional programs are truly evaluating the more global clinical integration proficiency on healthcare documentation, which incorporates elements of each of these competencies, prior to degree completion.

Implications of Results

As outlined in Chapter 2, the documentation-related competencies in athletic training education have remained relatively stable since 1999. Thus it was concerning to find that student-reported instruction and assessment of HA-28 and of the third party reimbursement components of HA-11 and HA-12 competencies were so low. Given that data collection occurred in October 2014, it is possible that curricular sequencing in professional programs influenced final-year students' reports of these healthcare administration competencies. It is not unusual for professional programs to address these education competencies in the final semester(s) of a course sequence. Respondents may have been currently enrolled in, or would later enroll in, athletic training courses that include these particular competencies.

This does raise the following three concerns regarding curricular sequencing in regards to the documentation competencies and sole clinical integration proficiency. First, do students have ample to time to receive instruction, rehearse skills in actual patient encounters, and be assessed prior to transitioning to professional practice if procedural and diagnostic codes and third party reimbursement activities are not

addressed until the final year of the athletic training curriculum? Would these documentation competencies be better suited earlier in the curriculum to ensure their use when documenting patient encounters across students' experiences in the professional program? It is imperative that athletic training faculty consider the course sequencing and curricular placement of each of these documentation-related competencies in order to demonstrate student performance of the documentation clinical integration proficiency prior to graduation.

Secondly, if student rehearsal of EHR-based patient documentation varies based on the clinical education setting, should professional programs seek to include didactic coursework specific to healthcare documentation or healthcare information technology and adopt AEHRs to supplement disparities across clinical education experiences? Post-baccalaureate students reported a greater percentage of documentation time occurring in a paper record format in clinical education than baccalaureate students at a statistically significant level, yet post-baccalaureate students also reported the inclusion of a didactic course specific to documentation and the curricular inclusion of AEHRs at a statistically significant greater level than their baccalaureate degree program peers. This may indicate an effort among post-baccalaureate professional programs to incorporate these documentation-related competencies in didactic education or it may be reflective of how academic alignment with peer health profession programs influence curricular models and AEHR access; further inquiry is needed.

Finally, the greatest level of student experience with patient documentation occurs in clinical education experiences at college and university settings and secondary school

settings, both of which traditionally do not participate in third party reimbursement. This may be influencing student preparation for clinical practice in employment settings that seek third party reimbursement. The results demonstrate that students report secondary school settings are overwhelmingly reliant on paper record systems and 84.9% of student-reported EHR products were not government certified EHR products used and accepted among other health professionals, but instead were electronic athletic injury tracking systems that do not meet EHR industry standards. Instruction, rehearsal, and assessment of coding, billing, and communication with insurers is difficult to execute if professional programs are reliant on clinical education experiences that do not possess EHR systems that meet industry standards and are with preceptors who do not document for third party reimbursement in their employment setting. Replication of coding, billing, and communication with insurers ought to occur in didactic and laboratory activities, preferably in AEHRs, if they cannot be attained in clinical education experiences.

Recommendations

Recommendations for Athletic Training Education

The findings of this research study suggest that final-year athletic training students report low levels of preparation in regards to the HA-28 competency and the third party reimbursement components of HA-11 and HA-12. Given this and other results of the study, the following recommendations are suggested for the improvement of athletic training students' academic preparation in healthcare documentation.

1. Program directors should review program assessment plans to determine the level to which documentation knowledge, skills, and abilities are demonstrated by athletic training students enrolled in the institution's professional program.
2. If program assessment reveals deficits in documentation knowledge, skills, and abilities, program faculty should consider curricular revision to integrate documentation competencies earlier in curricular sequencing or develop a course specific to healthcare documentation, and should incorporate didactic and laboratory activities on patient documentation across the curriculum to reinforce documentation rehearsal.
3. Professional programs should adopt academic electronic health records in the didactic curriculum to ensure replication of billing, coding, and communication with insurers.
4. Baccalaureate programs contemplating a transition to a post-baccalaureate degree should investigate curricular models and academic electronic health record use among peer health profession programs at the institution when undergoing the curricular revision required during the substantive change process for the Commission on Accreditation of Athletic Training Education (CAATE).
5. Clinical education coordinators should examine the documentation practices at clinical education sites and advocate for preceptors to incorporate student documentation opportunities into learning plans and encourage preceptor feedback on students' patient documentation. Deficits in a clinical education

site's documentation practices may render them unsuitable for the professional preparation of athletic training students.

Recommendations for Future Research

To date there has been little research specific to athletic training students' preparation in healthcare documentation, nor considerable research into documentation practices among athletic trainers. This, combined with the results of this study, contribute to the following recommendations for future research.

This study should be repeated using the same survey instrument at the end of the traditional academic year in order to investigate the level of change among final-year students' reports between the month of October and the end of the traditional academic year. This would serve to evaluate students' reports of the documentation-related competencies and clinical integration proficiency upon completion of all athletic training courses and demonstrate the level to which these items occur during a student's final year in a professional program.

This study described student reports of the documentation-related competencies, but athletic training faculty may report the instruction, rehearsal, and assessment of these items differently. Athletic training faculty, specifically program directors and clinical education coordinators, should be surveyed regarding the ways in which documentation knowledge, skills, and abilities are instructed, rehearsed, and assessed in professional program curricula. Additional investigation should be made into the perceived importance and perceived value of the documentation-related competencies and clinical

integration proficiency across athletic training faculty and preceptors at professional programs.

An investigation into the documentation practices of credentialed athletic trainers should also be undertaken. Such a study should seek to determine the type of record systems employed by athletic trainers by clinical practice setting, the types of EHR products adopted, and the level to which practicing athletic trainers are performing third party reimbursement activities. It is recommended that an investigation of this nature be executed on a national scale to identify potential geographic and practice setting differences.

Conclusion

Patient documentation serves as the medico-legal record of the healthcare services provided and is “an essential practice expectation of athletic trainers” outlined in Standard Seven of the *BOC Standards of Professional* (BOC, 2006). It is necessary for athletic training students to be adequately prepared in healthcare documentation in order to record information gained during patient examinations and detail therapeutic interventions provided during patient encounters, to communicate with other health professionals, successfully obtain third party reimbursement, assess patient outcomes, further clinical outcomes research, and protect oneself in the event of a malpractice lawsuit. Documentation is a foundational element across all patient encounters.

This study described the current state of the instruction, rehearsal, and assessment of documentation-related competencies and sole clinical integration proficiency in professional programs through the reports of final-year athletic training students.

Although students report some of the documentation-related competencies are being instructed and assessed in professional programs at an adequate level, it is difficult to assert that HA-11, HA-12, HA-28, and the ninth clinical integration proficiency of *The Athletic Training Education Competencies, 5th Edition* are being fully performed by final-year athletic training students given the student-reported deficits related to third party reimbursement activities and diagnostic and procedural coding. Recommendations for educational practices to improve athletic training students' preparation in healthcare documentation have been provided, as well as suggestions for future research. The future of the athletic training profession is highly dependent upon a workforce that excels in documentation in order to support outcomes-based clinical research and successfully obtain payment for services rendered.

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APPENDIX A**ATHLETIC TRAINING EDUCATION COMPETENCIES, 5th EDITION
Documentation-Related Competencies & Proficiency
(NATA, 2011)**

Healthcare Administration (HA) – Athletic trainers function within the content of a complex healthcare system. Integral to this function is an understanding of risk management, healthcare delivery mechanisms, insurance, reimbursement, documentation, patient privacy, and facility management.

Competencies

HA-9. Identify the components that comprise a comprehensive medical record.

HA-10. Identify and explain the statutes that regulate the privacy and security of medical records.

HA-11. Use contemporary documentation strategies to effectively communicate with patients, physicians, insurers, colleagues, administrators, and parents or family members.

HA-12. Use a comprehensive patient-file management system for appropriate chart documentation, risk management, outcomes, and billing.

HA-28. Understand the role of and use diagnostic and procedural codes when documenting patient care.

Clinical Integration Proficiency

CIP-9. Utilize documentation strategies to effectively communicate with patients, physicians, insurers, colleagues, administration, and parents or family members while using appropriate terminology and complying with statutes that regulate privacy of medical records. This includes using a comprehensive patient-file management system (including diagnostic and procedural codes) for appropriate chart documentation, risk management, outcomes, and billing.

APPENDIX B**ATHLETIC TRAINING EDUCATION COMPETENCIES, 4th EDITION
Documentation-Related Competencies & Proficiencies
(NATA, 2005)**

Competencies

AD-C2. Identify components of a medical record (e.g., emergency information, treatment documentation, epidemiology, release of medical information, etc.) common medical record-keeping techniques and strategies, and strengths and weakness of each approach and the associated implications of privacy statutes (Health Insurance Portability and Accountability Act [HIPAA] and Federal Educational Rights Privacy Act [FERPA]).

AD-C3. Identify current injury/illness surveillance and reporting systems.

AD-C11. Describe the concepts and procedures for third-party insurance reimbursement including the use of diagnostic (ICD-9-CM) and procedural (CPT) coding.

Proficiencies

AD-P4. Demonstrate the ability to access medical and health care information through electronic media.

AD-P5. Use appropriate terminology and medical documentation to record injuries and illness (e.g., history and examination findings, progress notes, and others).

AD-P6. Use appropriate terminology to effectively communicate both verbally and in writing with patients, physicians, colleagues, administrators, and parents or family members.

AD-P7. Use a comprehensive patient-file management system that incorporates both paper and electronic media for purposes of insurance records, billing, and risk management.

APPENDIX C**ATHLETIC TRAINING EDUCATION COMPETENCIES, 3rd EDITION
Documentation-Related Competencies & Proficiencies
(NATA, 1999)**

Competencies

Cognitive Domain

- AD-C2. List the components of a medical record, such as permission to treat, emergency information, treatment documentation, and release of medical information.
- AD-C3. Identifies the advantages and disadvantages associated medical record keeping, including the issues of paperwork, electronic data, security, record keeping systems, and confidentiality.
- AD-C4. Lists the current injury/illness surveillance and reporting systems such as, but not limited to, National Electronic Injury Surveillance System (NEISS), National Athletic Head and Neck Injury Registry, and the National Collegiate Athletic Association (NCAA).
- AD-C5. List the various methods for recording patient information, and compares the strengths and weaknesses of each approach.
- AD-C10. Explains the advantages and disadvantages of the various commercial software programs and technologies used by a certified athletic trainer (statistical, educational, injury record keeping).

AD-C12. Describe the various types of insurance policies (health maintenance organization [HMO], personal provider organization [PPO], fee-for-service), and the procedures for filing health care insurance claims.

AD-C14. Uses accepted medical terminology and abbreviations (SOAP, CPT, and HCFA coding).

Psychomotor Domain

AD-P4. Demonstrates the ability to access medical and health care information through electronic media.

AD-P5. Uses appropriate medical documentation to record injuries and illnesses (client encounters, history, progress notes, discharge summary, physician letters, treatment encounters).

AD-P6. Demonstrates the ability to organize a comprehensive patient-file management system that uses both paper and electronic media.

Clinical Proficiencies

3. The student will demonstrate the ability to perform record keeping skills with sensitivity to patient confidentiality. The student will:

- a. use standardized record keeping methods (e.g., SOAP, HIPS, HOPS)
- b. select and use injury, rehabilitation, referral, and insurance documentation

c. use progress notes

d. organize patient files to allow systematic storage and retrieval

APPENDIX D**2014-2015 NCAA SPORTS MEDICINE HANDBOOK GUIDELINE 1C
Medical Evaluations, Immunizations, and Records
(NCAA, 2014, pp. 12-13)**

Student-athletes have a responsibility to truthfully and fully disclose their medical history and to report any changes in their health to the team's health care provider. Medical records should be maintained during the student-athlete's collegiate career and should include:

1. A record of injuries, illnesses, new medications or allergies, pregnancies and operations, whether sustained during the competitive season or offseason;
2. Referrals for and feedback from consultation, treatment, or rehabilitation;
3. Subsequent care and clearances;
4. A comprehensive entry-year health-status questionnaire and an updated health-status questionnaire each year thereafter. Components of the questionnaire should consider recommendations from the American Heart Association (see reference Nos. 3 and 4) and the 4th Edition Preparticipation Physical Evaluation (see reference No. 6);
5. Immunizations. It is recommended that student-athletes be immunized and up to date for the following:
 - a. Measles, mumps, rubella (MMR);
 - b. Hepatitis B;
 - c. Diphtheria, tetanus (and boosters when appropriate);

d. Meningitis; and Seasonal Influenza (flu).

6. Written permission, signed annually by the student-athlete, which authorizes the release of medical information to others. Such permission should specify all people to whom the student-athlete authorizes the information to be released. The consent form also should specify which information may be released and to whom.

Note: Records maintained in the athletic training facility are medical records, and therefore subject to state and federal laws with regard to confidentiality and content. Each institution should obtain from appropriate legal counsel an opinion regarding the confidentiality and content of such records in its state.

Medical records and information they contain should be created, maintained, and released in accordance with clear written guidelines based on this opinion. All personnel who have access to a student-athlete's medical records should be familiar with such guidelines and informed of their role in maintaining the student-athlete's right to privacy.

Institutions should consider state statutes for medical records retention (e.g. seven years, 10 years); institutional policy (e.g. insurance long-term retention policy); and professional liability statute of limitations.

APPENDIX E

QUALTRICS WEB-BASED SURVEY QUESTIONNAIRE

NOTE: Formatting of the online survey may present slightly differently to participants.

Part I: Preparation in Healthcare Documentation

Q1. Which of the following have you received instruction on while enrolled in an athletic training program?

	1	2	3
Medical Terminology	Yes	No	Not Sure
Medical Abbreviations	Yes	No	Not Sure
Components of a Medical Record	Yes	No	Not Sure
HIPAA	Yes	No	Not Sure
FERPA	Yes	No	Not Sure
HITECH Act of 2009	Yes	No	Not Sure
SOAP Notes	Yes	No	Not Sure
Performing Dictations	Yes	No	Not Sure
Developing Medical Forms	Yes	No	Not Sure
CPT Codes	Yes	No	Not Sure
ICD Codes	Yes	No	Not Sure

An academic electronic health record (AEHR) is a secure computerized system that health profession students simulate patient documentation in during their academic coursework (ie. not “real” patient documentation, just case studies).

Q2. Does your athletic training education program use an academic electronic health record (AEHR) for the instruction of patient documentation skills in any of its courses?

- Yes
- No
- Not sure

Q3. How has medical terminology and the use of medical abbreviations been instructed in your athletic training program experience? (Check all that apply)

- Has not been addressed yet
- Lectures
- Assigned readings
- Homework assignments/Worksheets
- Webinars/online tutorials
- Case scenarios
- Student presentations
- Orientation to clinical experience(s)
- Orientation to paper health records system
- Using paper health records system
- Orientation to electronic health records system
- Using an electronic health records system
- Other – please specify

Q4. How have you practiced your use of medical terminology and medical abbreviations during your athletic training program experience? (Check all that apply)

- I have not practiced using medical terms and abbreviations yet
- Practice SOAP notes in class/lab
- Practicing dictations
- Student presentations
- Documenting simulated or standardized patients in class/lab
- Documenting practical exam patients in class/lab
- Documenting actual patient encounters using a paper records system
- Documenting actual patient encounters using an electronic health records system
- Other – please specify

Q5. How has your use of medical terminology and medical abbreviations been assessed and/or been provided feedback in your athletic training program experience? (Check all that apply)

- My use of medical terms and abbreviations has not been assessed yet
- Exam/quiz questions
- SOAP note homework assignments
- Student presentations
- Documenting simulated or standardized patients in class/lab
- Documenting practical exam patients in class/lab
- Documenting actual patient encounters using a paper records system
- Documenting actual patient encounters using an electronic health records system
- Written feedback from faculty/classroom instructors
- Verbal feedback from faculty/classroom instructors
- Written feedback from preceptors/clinical instructors
- Verbal feedback from preceptors/clinical instructors
- Other (please specify)

Q6. How has the security, privacy, and confidentiality regulations on health records been instructed in your athletic training program experience? (Check all that apply)

- Has not been addressed yet
- Lectures
- Assigned readings
- Homework assignments/Worksheets
- Webinars/online tutorials
- Case scenarios
- Student presentations
- Orientation to clinical experience(s)
- Orientation to paper health records system
- Orientation to electronic health records system
- Other – please specify

Q7. How has your understanding of the security, privacy, and confidentiality regulations on health records been assessed and/or provided feedback in your athletic training program experience? (Check all that apply)

- My understanding of security, privacy, and confidentiality has not been assessed yet
- Written exam/quiz questions
- Homework assignments on health records regulations
- Student presentations
- Documenting simulated or standardized patients in class/lab
- Practical exams
- Documenting actual patient encounters using a paper records system
- Documenting actual patient encounters using an electronic health records system
- Written feedback by faculty/classroom instructors
- Verbal feedback by faculty/classroom instructors
- Written feedback by preceptors/clinical instructors
- Verbal feedback by preceptors/clinical instructors
- Other (please specify)

Q8. Do you know what the abbreviation CPT stands for?

- Yes – Please define
- No

Q9. Do you know what the CPT code is for an athletic training evaluation?

- Yes – Please identify
- No

Q10. Do you know what the abbreviation ICD stands for?

- Yes – Please define
- No

Q11. Do you know what the abbreviation NPI stands for?

- Yes – Please define
- No

Q12. How has the use of CPT and ICD codes been instructed in your athletic training program experience? (Check all that apply)

- Has not been addressed yet
- Lectures
- Assigned readings
- Homework assignments/worksheets
- Webinars/online tutorials
- Case scenarios
- Practice SOAP notes
- Practice dictations
- Student presentations
- Orientation to clinical experience(s)
- Orientation to paper health records system
- Using paper health records system
- Orientation to electronic health records system
- Using an electronic health records system
- Other (please specify)

Q13. How have you practiced using CPT and ICD codes in your athletic training program experience? (check all that apply)

- I have not practiced using CPT and ICD codes yet
- Homework assignments
- Practice SOAP notes in class/lab
- Practicing dictations
- Documenting simulated or standardized patients in class/lab
- Documenting practical exams patients in class/lab
- Documenting actual patient encounters using a paper records system
- Documenting actual patient encounters using an electronic health records system
- Other – please specify

Q14. How has your use of CPT and ICD codes been assessed and/or provided feedback in your athletic training program experience? (Check all that apply)

- My use of CPT and ICD codes has not been assessed yet
- Written exam/quiz questions
- Homework assignments
- Student presentations
- Documenting simulated or standardized patients in class/lab
- Documenting practical exam patients in class/lab
- Documenting actual patient encounters using a paper records system
- Documenting actual patient encounters using an electronic health records system
- Written feedback from faculty/classroom instructors
- Verbal feedback from faculty/classroom instructors
- Written feedback from preceptors/clinical instructors
- Verbal feedback from preceptors/clinical instructors
- Other (please specify)

Q15. In which classroom/lab courses have you participated in documentation-related learning activities? (Select all that apply)

- Has not occurred in classroom/lab courses yet
- Medical terminology
- Course specific to health care documentation
- Injury prevention
- Injury/illness assessment or evaluation
- Emergency care
- Strength & conditioning
- Therapeutic interventions (modalities/rehab)
- Healthcare information technology
- Organization/administration
- Other (please specify)

Part II: Documentation Experience Specific to Clinical Education

Q16. Have you completed patient documentation for actual patient encounters in your clinical education experiences?

- Yes, in a paper-based format only
- Yes, in an electronic health record only
- Yes, in both a paper format and an electronic health record
- No

Q17. Did you receive an orientation to the health records system used at your clinical education site(s) from a staff member?

- Yes – at all clinical sites
- Yes – at most clinical sites
- Yes – at a few clinical sites
- No orientation received at any site

Q18. What are the names of the electronic health record systems you have used in your clinical experiences?

- I have not documented in an electronic health record
- I have documented in an electronic health record, but cannot identify the product by name
- I have documented in _____ (Fill-in)

Please estimate what percentage of your patient documentation has occurred in the following formats.

Q19. Paper Format _____
Slider Scale (0-100)

Q20. Electronic Format _____
Slider Scale (0-100)

Please identify your documentation experience(s) in clinical education by completing the following:

	Had clinical experiences in this setting	Was able to document your patient encounters in this setting	Documented those patient encounters in a paper record system	Documented those patient encounters in an electronic health record
Q21. Clinic/Hospital	Y N	Y N N/A	Y N N/A	Y N N/A
Q22. College/University	Y N	Y N N/A	Y N N/A	Y N N/A
Q23. Industrial/Occupational	Y N	Y N N/A	Y N N/A	Y N N/A
Q24. Professional Sports	Y N	Y N N/A	Y N N/A	Y N N/A
Q25. Secondary Schools	Y N	Y N N/A	Y N N/A	Y N N/A

While participating in a clinical education experience as an athletic training student, identify which of the following audiences you have communicated with through your patient documentation.

	1	2	3
Q26. Patients	Yes	No	Not Sure
Q27. Physicians	Yes	No	Not Sure
Q28. Insurers	Yes	No	Not Sure
Q29. Colleagues	Yes	No	Not Sure
Q30. Administrators	Yes	No	Not Sure
Q31. Patient's family member	Yes	No	Not Sure

Have you ever used your patient documentation to do the following in your clinical education experiences as an athletic training student?

	1	2	3
Q32. Performed risk management for a particular patient population	Yes	No	Not Sure
Q33. Assessed outcomes for care provided to particular patient population	Yes	No	Not Sure
Q34. Billed for medical services provided	Yes	No	Not Sure

Q35. Please describe the most valuable learning experience you have had related to your patient documentation while acting as an athletic training student.

Q36. Is there anything else related to the teaching and learning of documentation skills at your athletic training education program that you would like to tell the researcher about?

Part III: Demographics

Q37. Gender

- Female
- Male

Q38. Age

- < 19
- 20-21
- 22-23
- 24-25
- 26-27
- > 28

Q39. Ethnicity

- African American/Black
- Asian American/Pacific Islander
- Caucasian/White
- Hispanic/Latino
- Native American/American Indian
- Other (please specify)

Q40. Are you on-track to graduate from a CAATE-accredited entry-level degree program this academic year (including Summer 2015) and therefore eligible for the BOC certification exam?

- Yes, eligible for the BOC certification examination
- No, not eligible for the BOC certification examination

Q41. What type of entry-level degree program are you enrolled in?

- Bachelor's Degree
- Master's Degree

Q42. Which NATA district is your college/university located?

- District 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, or Vermont)
- District 2 (Delaware, New Jersey, New York, or Pennsylvania)
- District 3 (District of Columbia, Maryland, North Carolina, South Carolina, Virginia, or West Virginia)
- District 4 (Illinois, Indiana, Michigan, Minnesota, Ohio, or Wisconsin)
- District 5 (Iowa, Kansas, Missouri, Nebraska, North Dakota, Oklahoma, or South Dakota)
- District 6 (Arkansas or Texas)
- District 7 (Arizona, Colorado, New Mexico, Utah, or Wyoming)
- District 8 (California, Hawaii, or Nevada)
- District 9 (Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, or Tennessee)
- District 10 (Alaska, Idaho, Montana, Oregon, or Washington)

Q43. How many years does it take to finish your athletic training education program once formally admitted to the major/degree?

- 2 years
- 2.5 years
- 3 years
- 3.5 years
- 4 years or more

APPENDIX F**UNIVERSITY OF MINNESOTA IRB APPROVAL**

The IRB: Human Subjects Committee determined that the referenced study is exempt from review under federal guidelines 45 CFR Part 46.101(b) category #2 SURVEYS/INTERVIEWS; STANDARDIZED EDUCATIONAL TESTS; OBSERVATION OF PUBLIC BEHAVIOR.

Study Number: 1407E52365

Principal Investigator: Amy Brugge

Title: Athletic Training Students' Academic Preparation in Healthcare Documentation

APPENDIX G

RECRUITMENT INFORMATION SENT TO PROGRAM DIRECTORS (Sent via email to all CAATE-accredited professional programs)

First Email

Dear Athletic Training Program Director:

As program director, you are likely contacted regarding research participation requests on a regular basis. This is another such request, but I feel that it is worthy of five minutes of your time. I am interested in furthering **research on students' academic preparation in healthcare documentation**. The purpose of this study is to describe the instructional, rehearsal, and assessment practices employed in professional athletic training programs in the teaching and learning of documentation knowledge and skills from a student perspective.

This project has received IRB approval from the University of Minnesota prior to release of this survey.

To assist with the project, I am asking that you do two things:

1. Send the message and URL below to **all final-year students** currently enrolled in your professional program.
2. Reply to this email with the **total number of final-year students** you have forwarded this message on to.

If you would like a MS Word version of this survey for your review, please email me and I will send you a copy.

I greatly appreciate your assistance with contacting potential participants for this research project.

Thank you for your time and consideration!

Sincerely,

Amy Brugge, MS, ATC, ATR
Ed.D. Student
University of Minnesota-Duluth

MESSAGE TO FINAL-YEAR ATHLETIC TRAINING STUDENTS - COPY & PASTE

ATHLETIC TRAINING STUDENTS' ACADEMIC PREPARATION IN HEALTHCARE DOCUMENTATION

Dear Athletic Training Student:

My name is Amy Brugge and I am a doctoral student at the University of Minnesota - Duluth. Under the supervision of Dr. Frank Guldbrandsen, I am completing a research project intended to identify and describe athletic training students' academic preparation in healthcare documentation across their academic experiences in an accredited program.

I would like to invite you to participate in a survey as part of this research project. If you decide to participate, the link below will take you to an online survey that will require less than 15 minutes to complete. Your participation in this survey is completely voluntary.

Survey Link:

https://duluthedu.az1.qualtrics.com/SE/?SID=SV_5yTWRmUCnxtdTt5

This link will expire on October 31, 2014.

Thank you for your time!

Amy Brugge, MS, ATC, ATR
Ed.D. Student
University of Minnesota-Duluth

Second Email

Dear Athletic Training Program Director:

At the beginning of the month I contacted you regarding a research study I am completing on **students' academic preparation in healthcare documentation**. The purpose of this study is to describe the instructional, rehearsal, and assessment practices employed in professional athletic training programs in the teaching and learning of documentation knowledge and skills from a student perspective.

I understand how valuable your time is, but I am hopeful that you may be willing to provide assistance in my recruitment of participants by taking five minutes to:

1. Send the message and URL below to **all final-year athletic training students** currently enrolled in your professional program.
2. Reply to this email with the **total number of final-year athletic training students** you have forwarded this message on to.

This project has received IRB approval from the University of Minnesota prior to the release of this survey.

If you would like a MS Word version of the survey for your review, please email me and I will send you a copy.

I greatly appreciate your assistance with contacting potential participants for this research project.

Thank you for your time and consideration!

Sincerely,

Amy Brugge, MS, ATC, ATR
Ed.D. Student
University of Minnesota – Duluth

MESSAGE TO FINAL-YEAR ATHLETIC TRAINING STUDENTS - COPY & PASTE

ATHLETIC TRAINING STUDENTS' ACADEMIC PREPARATION IN HEALTHCARE DOCUMENTATION

Dear Athletic Training Student:

My name is Amy Brugge and I am a doctoral student at the University of Minnesota - Duluth. Under the supervision of Dr. Frank Guldbrandsen, I am completing a research project intended to identify and describe athletic training students' academic preparation in healthcare documentation across their academic experiences in an accredited program.

I would like to invite you to participate in a survey as part of this research project. If you decide to participate, the link below will take you to an online survey that will require less than 15 minutes to complete. Your participation in this survey is completely voluntary.

Survey Link:

https://duluthedu.az1.qualtrics.com/SE/?SID=SV_5yTWRmUCnxtdT5

This link will expire on October 31, 2014.

Thank you for your time!

Amy Brugge, MS, ATC, ATR
Ed.D Student
University of Minnesota-Duluth

APPENDIX H

CONSENT FORM

Athletic Training Students' Academic Preparation in Healthcare Documentation

You are invited to be a participant in a research study on final-year athletic training students' academic preparation in healthcare documentation. You were selected as a possible participant because of your status as a final-year athletic training student enrolled in a CAATE-accredited professional athletic training program. Please read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Amy Brugge, MS, ATC, ATR – Doctor of Education student at the University of Minnesota-Duluth. If you have any questions, please do not hesitate to contact me directly at hild0084@d.umn.edu or (218) 723-6002.

Background Information

The purpose of this study is to describe current instructional and assessment practices of the documentation-related athletic training education competencies and clinical integration proficiency through student reports of their experiences in classroom, lab, and clinical education across the duration of their athletic training education program.

Procedures:

If you agree to be in this study, please complete the online survey, which should take less than 15 minutes.

Risks and Benefits of being in the Study

Risk: There are no risks to participating in this study and you, nor your athletic training program, will be identified through your participation.

Benefit: There are no direct benefits to you other than knowing that your participation may have a benefit to improving the delivery of education in athletic training.

Compensation:

This study does not include any direct or indirect compensation.

Confidentiality:

The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. Study data will be encrypted according to current University policy for protection of confidentiality.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting this relationship.

Contacts and Questions:

The researcher conducting this study is: Amy Brugge. You may sign out of the survey and email or call me with your questions and resume the survey later. If you have questions later, you are encouraged to contact me at 1122 Chester Park Dr., Duluth, MN 55812, at (218) 723-6002, or via email at hild0084@d.umn.edu. You may also contact my adviser, Dr. Frank Guldbrandsen, at fguldbra@d.umn.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

I CONSENT TO PARTICIPATE IN THIS STUDY

○