Journal of Athletic Training 2019;54(7):822–830
doi: 10.4085/1062-6050-230-18
© by the National Athletic Trainers' Association, Inc
www.natajournals.org

Athletic Trainers' Practice Patterns Regarding Medical Documentation

Lindsey E. Eberman, PhD, LAT, ATC*; Elizabeth R. Neil, PhD, LAT, ATC*; Sara L. Nottingham, EdD, ATC†; Tricia M. Kasamatsu, PhD, ATC‡; Cailee E. Welch Bacon, PhD, ATC§

*Neuromechanics, Interventions, and Continuing Education Research (NICER) Laboratory, Indiana State University, Terre Haute; †Department of Health, Exercise and Sports Sciences, University of New Mexico, Albuquerque; ‡Department of Kinesiology, California State University, Fullerton; §Department of Interdisciplinary Health Sciences, A.T. Still University, Mesa, AZ

Context: Medical documentation is a required component of patient care in all health care professions.

Objective: To evaluate athletic trainers' perceived behaviors toward, barriers to, and confidence in their medical documentation.

Design: Cross-sectional study.

Setting: Web-based survey.

Patients or Other Participants: We purchased a list of randomly selected e-mails from the National Athletic Trainers' Association. Of the 9578 participants, 1150 accessed our questionnaire (12.0% access rate), 1053 completed at least 1 portion, and 904 completed the questionnaire in its entirety (85.8% completion rate). Of the participants, 60.1% (n = 569/947) were female, 66.6% (n = 632/949) held a master's degree, 39.3% (n = 414/1053) worked in a collegiate or university setting, and 36.1% (n = 381/1053) worked in a secondary school setting.

Main Outcome Measure(s): We used a 31-item questionnaire with demographics (12 items), medical documentation behaviors (16 items), barriers (2 items), and perceptions (1 multipart item) sections. The questionnaire explored athletic trainers' behaviors as well as confidence in, comfort with, and concerns about their documentation practices (Cronbach $\alpha = 0.887$). We used descriptive statistics to identify characteristics of central tendency (mean, standard deviation, mode, frequency).

Results: Participants always (45.7%, n = 478/1046) or very frequently (39.0%, n = 408/1046) used a double documentation system consisting of electronic and paper records (50.4%, n = 523/1038). They most often documented to provide legal protection (86.8%, n = 914/1053), because it is a legal obligation (79.1%, n = 833/1053), or to track patient progress (83.9%, n = 883/1053). The most frequently cited barriers to medical documentation were time (76.5%, n = 806/1053), managing too many patients (51.9%, n = 547/1053), technological concerns (17.2%, n = 181/1053), and software limitations (17.2%, n = 181/1053). Respondents believed they were competent, comfortable, and confident in their documentation practices.

Conclusions: We were able to evaluate the generalizability of previous research while adding to the understanding of the behaviors toward, barriers to, and perceptions about medical documentation. We confirmed that time and patient load affected the ability to perform high-quality medical documentation.

Key Words: medical documentation behaviors, documentation barriers, medical record keeping

Key Points

- Slightly more than 10% of athletic trainers in our study occasionally, rarely, very rarely, or never documented their patient care.
- Participants documented patient care to provide legal protection, because it is a legal obligation, or to track patient progress.
- Respondents indicated that time, managing too many patients, technological concerns, and software limitations were the most commonly cited barriers to medical documentation.
- Even though many participants reported behaviors that were inconsistent with best practices, they largely agreed that they were competent, comfortable, and confident in their documentation practices.

Previous research[1] regarding medical documentation in the secondary school setting has revealed that athletic trainers (ATs) document to enhance communication, monitor patient care, and address potential legal implications. The reasons for medical documentation are consistent with those of other health care professionals, including pharmacists, physicians, and nurses, all of whom have indicated that effective documentation helps to improve communication among providers and ensure continuity of care.[2–4] Most traditional athletic training settings are tangential to typical health care systems, resulting in unique characteristics for medical documentation. Specifically, in the secondary school setting, ATs have stated that substantial variability exists in the location and

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-06-18 via free access

time of day when they document patient care.[1] Noting the criteria they used to determine the need to document an injury or illness, these secondary school ATs reported that they documented injuries and illnesses that required follow-up, more severe injuries, and time-loss or referred injuries.[1] These ATs indicated that a lack of quality, lack of professional or employer accountability, and perceptions that documentation is a lesser priority influenced their documentation practices.[5] Furthermore, they described inadequate facilities and a lack of time, adequate personnel, and accountability as primary barriers to producing high-quality patient care documentation.[5]

The perceptions that time and unclear expectations are barriers to medical documentation are not exclusive to athletic training.[3] Caregivers and clinicians employed in hospitals have reported spending more than 3 hours per day documenting patient care.[2] Physician residents and fellows have also reported that medical documentation requirements have a negative effect on the time spent with patients and the care they provide.[3] Moreover, facility and personnel shortcomings are commonly reported in athletic training as barriers to a number of responsibilities, including simply providing access to patient care or delivering consistent care based on staffing.[6,7]

In addition to medical documentation being a required component of clinical practice in athletic training,[8] routine, high-quality documentation is necessary to legally record patient encounters, track patient progress, and evaluate the effectiveness of treatment interventions. Medical documentation can also yield valuable information regarding the athletic training services provided and the value of hiring an AT to provide patient care. Previous investigators[1,5,9–11] in athletic training have provided robust qualitative analyses of practices in the secondary school setting, but little is known about medical documentation in other athletic training settings. Many of the reports from the Athletic Training Practice-Based Research Network have indicated a need for better medical documentation to facilitate analyses of practice behaviors, yet most of these were in the secondary school setting. Based on the available analyses conducted in the secondary school setting, we were able to develop a study to evaluate ATs' perceived behaviors toward, barriers to, and confidence in medical documentation in various clinical practice settings.

METHODS

Design

We used a cross-sectional research design to evaluate the behaviors, perceived barriers, and perceived confidence of ATs in various settings using variable medical documentation systems. This investigation was deemed exempt research by the Indiana State University Institutional Review Board.

Participants

We recruited ATs who were members in good standing with the National Athletic Trainers' Association (NATA). Using the national membership directory, we purchased a list of randomly selected e-mail addresses of ATs who were certified, were US based, and worked in all types of settings. From the random sample of ATs, we sent 9578 e-mails to potential participants. Of the 1150 participants who accessed our questionnaire (12.0% access rate), 1053 completed at least 1 portion and 904 completed the questionnaire in its entirety (85.8% completion rate). Recruits provided informed consent by clicking "I agree to participate" and then navigated through the remainder of the questionnaire; they could withdraw or skip questions at any time.

Instruments

We used the results from previous qualitative studies[1,5,9] to develop a 31-item Web-based questionnaire (Qualtrics, Provo, UT). The questionnaire addressed demographics (12 items), medical documentation behaviors (16 items), perceived barriers (2 items), and perceptions regarding medical documentation (1 multipart item). To gain insight into the participants' perceptions, we asked them to rate their level of agreement with 7 statements about their, comfort, concerns, and confidence related to their medical documentation practices. These items were rated on a 5-point Likert scale: *strongly disagree* (1), *disagree* (2), *neither agree nor disagree* (3), *agree* (4), and *strongly agree* (5).

To validate the survey, we called on a panel of experts (n = 4; 3 women and 1 man) who have served as researchers and clinicians with expertise in medical documentation and survey development. The experts had 14 ± 4 years of clinical experience, and 2 of the panelists had 11 ± 1 years of survey research experience. Each expert completed a content-analysis rubric, which asked them to select whether each item needed revision or was sufficient as written. The experts provided comments to modify items that needed revision. We synthesized the feedback and changed the questionnaire where appropriate. After content validation, we conducted a pilot analysis with practicing ATs (n = 25) to determine the internal consistency of the questionnaire, specifically regarding the perception items, and found it to be highly reliable (Cronbach $\alpha = 0.887$). The pilot sample consisted of ATs (age = 29 ± 7 years; 5 ± 6 years of experience) from various work settings (college or university = 11 [44.0%], secondary school = 10 [40.0%], emerging settings = 4 [16.0%]) and with various levels of educational preparation (bachelor's degree = 12 [48.0%], master's degree = 13 [52.0%]).

Procedures

We sent an initial e-mail on a Wednesday at 7:30 AM EDT to potential participants and then sent 4 reminders, each on a Wednesday at 7:30 AM EDT, to those who had not yet responded. Data collection remained open for 5 weeks during March and April 2017, closing 1 week and 2 days after the last reminder at 11:59 PM EDT. At the end of the data-collection period, we sent an e-mail to thank respondents who completed the questionnaire. The questionnaire took approximately 15 to 20 minutes to complete, and all data were stored in Qualtrics.

Statistical Analysis

We used descriptive statistics to identify characteristics of central tendency (mean, standard deviation, mode, frequency). It is common in survey research for participants

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-06-18 via free access

Table 1. Participant Demographics

Characteristic	Mean ± SD
Age, y	34 ± 10
Years of experience	11 ± 10
Years at current place of employment	7 ± 8
No. of full-time athletic trainers at place of employment	4 ± 5
No. of patients cared for per day	22 ± 40
Hours worked per week	42 ± 17
Hours spent documenting patient care per week	6 ± 6

to decide not to respond to specific items or to stop responding. This voluntary research involvement is a principle of the Belmont Report and is their right as participants.[12] However, partial data analysis is then required; because the missing data are not random, management techniques for missing data are not appropriate.[13] Partial data-analysis techniques are consistently used throughout the athletic training literature.[6,14]

RESULTS

Participants were predominantly female (60.1%, n = 569/947). Most held a master's degree (66.6%, n = 632/949); and a large majority worked in traditional athletic training settings (college/university = 39.3%, n = 414/1053; secondary school = 36.1%, n = 381/1053). Additional demographic data are presented in Tables 1 and 2. More than half of the participants had completed a professional bachelor's program (58.8%, n = 619/1053), compared with those who had completed a professional master's program (14.4%, n = 152/1053) or achieved certification through an internship experience (18.3%, n = 193/1053). Few respondents stated that their postprofessional degree came from an accredited program (master's = 11.0%, 116/1053) or a related field (15.4%, n = 162/1053). Many participants were overseen administratively by an athletic director (31.4%, n = 294/936) or supervising AT (31.3%, n = 293/936). Respondents indicated that their clinical performance was commonly evaluated by a supervising AT (32.8%, n = 309/941), medical doctor or doctor of osteopathic medicine (18.8%, n = 177/941), or athletic director (14.9%, n = 140/941).

Behaviors

Participants indicated that they always (45.7%, n = 478/1046) or very frequently (39.0%, n = 408/1046) documented their patient care. However, many ATs stated that they occasionally (10.8%, n = 113/1046), rarely (1.9%, n = 20/1046), very rarely (1.5%, n = 16/1046), or never (1.1%, n = 11/1046) documented their patient care. Half of the respondents used a combination of electronic and paper documentation (50.4%, n = 523/1038), followed by electronic documentation (36.6%, n = 380/1038). The most common tools for documenting were a computer (81.2%, n = 855/1053), paper or pen (69.7%, n = 734/1053), and scanned paperwork (41.2%, n = 434/1053; Figure 1). Many participants did not know the annual cost to support their medical documentation system (38.2%, n = 385/1008), whereas others commented that it was $0 (12.8%, n = 129/1008), $1 to $250 (11.3%, n = 114/1008), or $501 to $1000 (11.3%, n = 114/1008).

Table 2. Practice Settings

Characteristic	n (%)
College/university	414 (39.3)
Secondary school	381 (36.2)
Health care administration/rehabilitation	72 (6.8)
Clinic or clinic/outreach	41 (3.9)
Professional sports	24 (2.3)
Other	22 (2.1)
Emerging settings	99 (9.4)
Military	14 (14.1)
Occupational health/industrial	23 (23.2)
Performing arts	11 (11.1)
Physician practice	40 (40.4)
Other	10 (10.1)
Missing data	1 (1.0)

Respondents reported that they primarily documented patient care at the end of the day (28.7%, n = 275/957) or after each patient encounter (27.7%, n = 265/957). However, a sizable portion reported that they documented their patient encounters from the previous day at the beginning of the next day (6.3%, n = 60/957) or only a few times a week (16.7%, n = 160/957). Participants predominantly documented in the athletic training facility (43.4%, n = 415/956) or in a secure office (41.9%, n = 401/956).

Participants indicated that they documented for a variety of reasons, most frequently to provide legal protection (86.8%, n = 914/1053), because it is a legal obligation (79.1%, n = 833/1053), or to track patient progress (83.9%, n = 883/1053; Figure 2). In contrast, they less frequently documented to demonstrate their value to stakeholders (32.1%, n = 338/1053), communicate with parents (20.7%, n = 218/1053), or bill for care or reimbursement (3.1%, n = 33/1053). Respondents also observed that they documented injuries for a governing body (ie, National Collegiate Athletic Association, Major League Baseball, Occupational Safety and Health Administration) and to aid in team-based health care through written communication with students and other ATs in their facilities. When asked which aspects

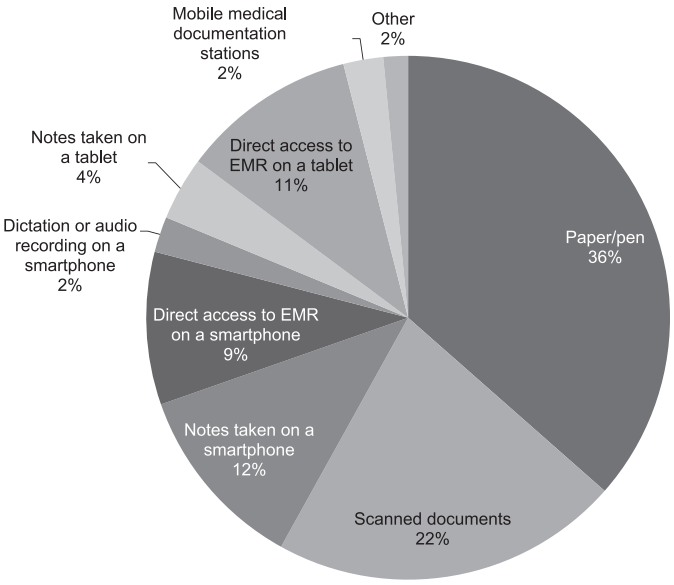

Figure 1. Tools used for medical documentation. Abbreviation: EMR, electronic medical record.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-06-18 via free access

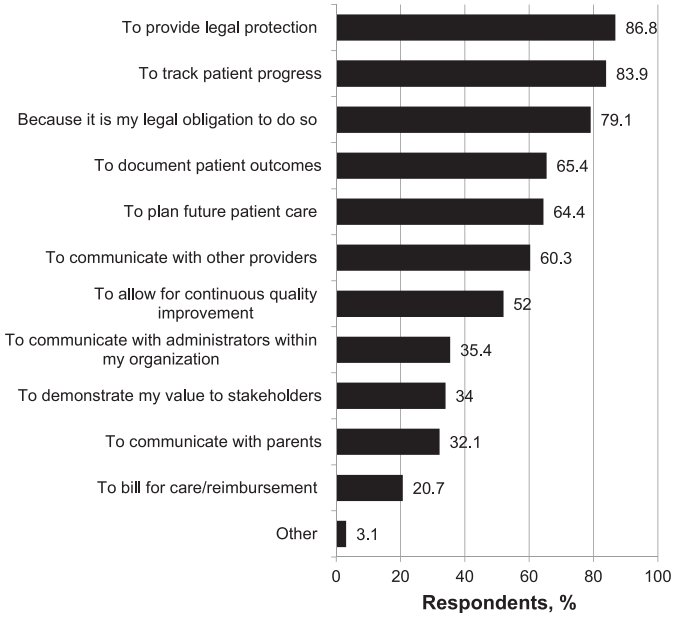

Figure 2. Participants' reasons for documenting patient injuries/illnesses.

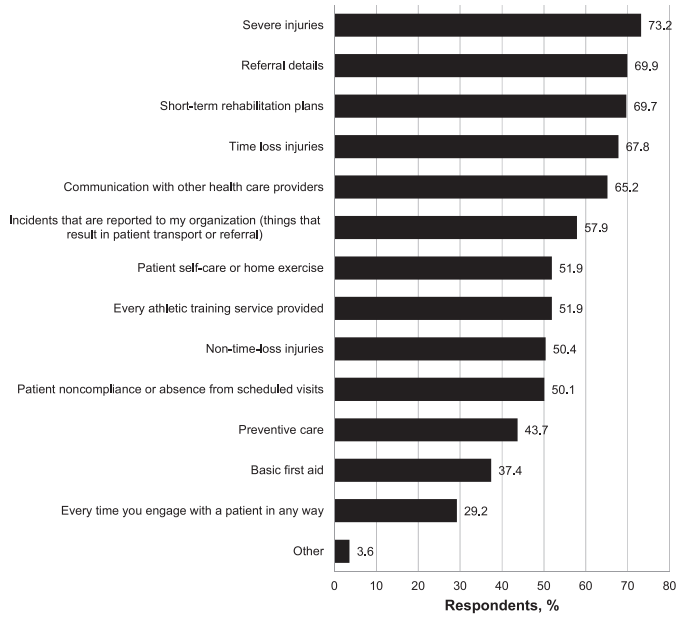

Figure 3. Documented patient care activities.

of patient care they chose to document, participants cited time loss (67.8%, n = 714/1053), severe injuries (73.2%, n = 771/1053), short-term (69.7%, n = 734/1053) and long-term (72.0%, n = 758/1053) rehabilitation plans, referrals (69.6%, n = 733/1053), incidents that needed to be reported to their organization (57.9%, n = 610/1053), and communications with other providers (65.2%, n = 687/1053; Figure 3). Fewer participants documented every time they engaged with a patient in any way (29.2%, n = 307/1053), supplied basic first aid (37.4%, n = 394/1053), or provided preventive care (43.7%, n = 460/1053). When given specific examples of injuries, illnesses, and interventions they would document, participants most often selected concussion (88.8%, n = 935/1053), glenohumeral dislocation (85.7%, n = 902/1053), and rehabilitation exercises (85.0%, n = 895/1053). They were less likely to document general soreness (22.7%, n = 239/1053), prepractice stretching (28.8%, n = 303/1053), or a postpractice ice bath (34.1%, n = 359/1053; Figure 4).

We asked participants to choose the aspects of an initial evaluation, progress note, and discharge note they typically included in their medical documentation. A majority of participants reported the history of the present injury or illness (88.9%, n = 936/1053), the tests and measures used during the examination (84.6%, n = 891/1053), the diagnosis (80.7%, n = 850/1053), and the patient's functional limitations (81.8%, n = 861/1053; Figure 5). They did not often document evidence of clinician-rated (16.1%, n = 170/1053) or patient-rated (15.7%, n = 165/1053) outcomes. Some participants commented that they documented in a typical subjective, objective, assessment, plan (SOAP) note format and not following the example we offered, in which we used language for describing function, disability, and overall health (in alignment with the disablement model endorsed by the Strategic Alliance).[15] Others specified that ATs were not permitted to make a diagnosis but could give an impression in their documentation. In a progress or daily note, respondents described the interventions applied (82.2%, n = 866/1053), any changes to the impairments or limitations and changes in participation status (77.6%, n = 817/1053), and the future plan of care (73.9%, n = 778/1053). They typically included responses to interventions (67.5%, n = 711/1053) and communication with other health care providers (64.7%, n = 681/1053) but were less likely to cite the factors influencing the frequency or intensity of the interventions applied (44.3%, n = 467/1053). Again, they did not report documenting clinician-rated (26.0%, n = 274) or patient-rated (32.6%, n = 343/1053) outcomes frequently but did so more often in progress or daily notes than in the initial evaluation. Almost half of participants did not write a formal discharge note when patient care ceased (47.7%, n = 502/1053). For those who did write a discharge note, a statement of all the goals met (38.7%, n = 408/1053) and further treatment recommendations (48.4%, n = 510/1053) were provided. Fewer participants said they would include the interventions applied and the patient's responses to those treatments (32.9%, n = 346/1053) as well as any impairments that might continue to limit the patient after discharge and the rationale as to why they still existed (31.6%, n = 333/1053).

To protect patient health information, participants most often reported using password-protected computers (83.6%, n = 880/1053), computer or software encryption (56.1%, n = 591/1053), locked offices (72.9%, n = 768/1053), and locked file cabinets (59.9%, n = 631/1053). They did not typically use password protection on computer files or documents (21.3%, n = 224/1053), locking mechanisms for medical documentation stations or computers (17.2%, n = 181/1053), or virtual privacy networks to privately communicate with other providers (15.4%, n = 162/1053). Some respondents used an in-house paper shredder (47.2%, n = 497/1053), whereas others used an off-site paper shredder or a shredder operated by an external vendor (25.8%, n = 272/1053). Although most participants indicated that their medical documentation was well protected, some said people without a right to know about

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-06-18 via free access

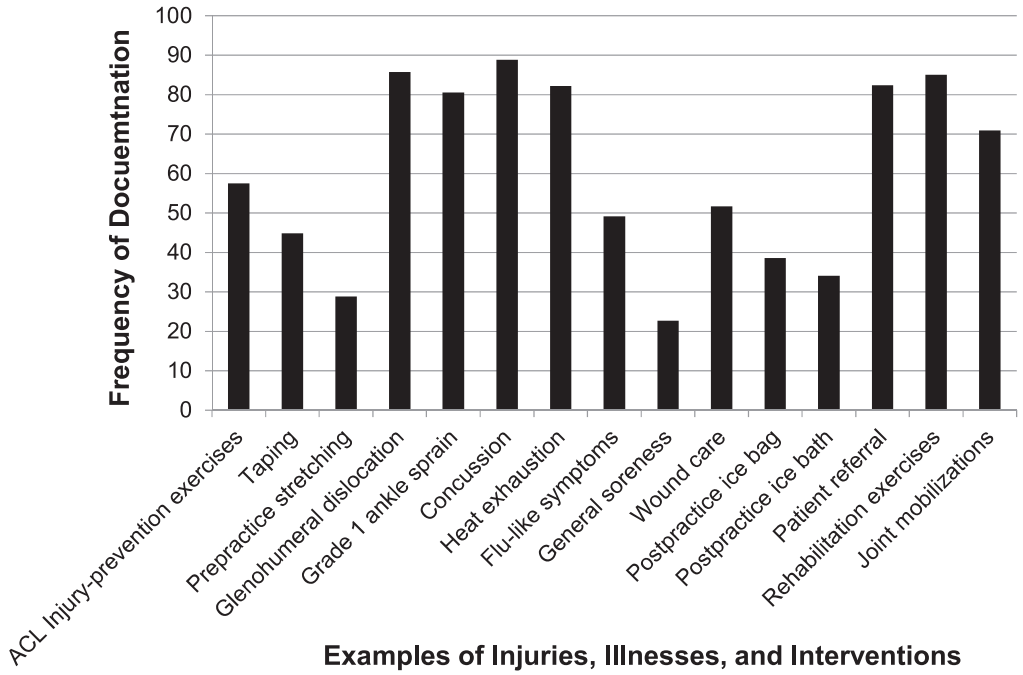

Figure 4. Examples of documentation practices for injuries, illnesses, and interventions. Abbreviation: ACL, anterior cruciate ligament.

patient health information, such as athletic directors (18.0%, n = 190/1053), facilities personnel (eg, custodial services, groundskeepers; 7.8%, n = 82/1053), and others (8.5%, n = 89/1053), had access to their offices or documentation. In the open-ended response, participants noted that coaches, school office officials, or administrative assistants also had access to their medical documentation.

Barriers

The most frequently cited perceived barriers to medical documentation were time (76.5%, n = 806/1053), managing too many patients (51.9%, n = 547/1053), technological concerns (17.2%, n = 181/1053), and software limitations (17.2%, n = 181/1053; Figure 6). Respondents also said that patient compliance, Internet access, and other duties often interfered with their ability to document patient care (open-ended item). Considering all the job priorities of an AT, many ranked medical documentation as a top 10% (25.2%, n = 242/960), top 25% (28.8%, n = 276/960), or top 50% (27.8%, n = 267/960) priority in their duties.

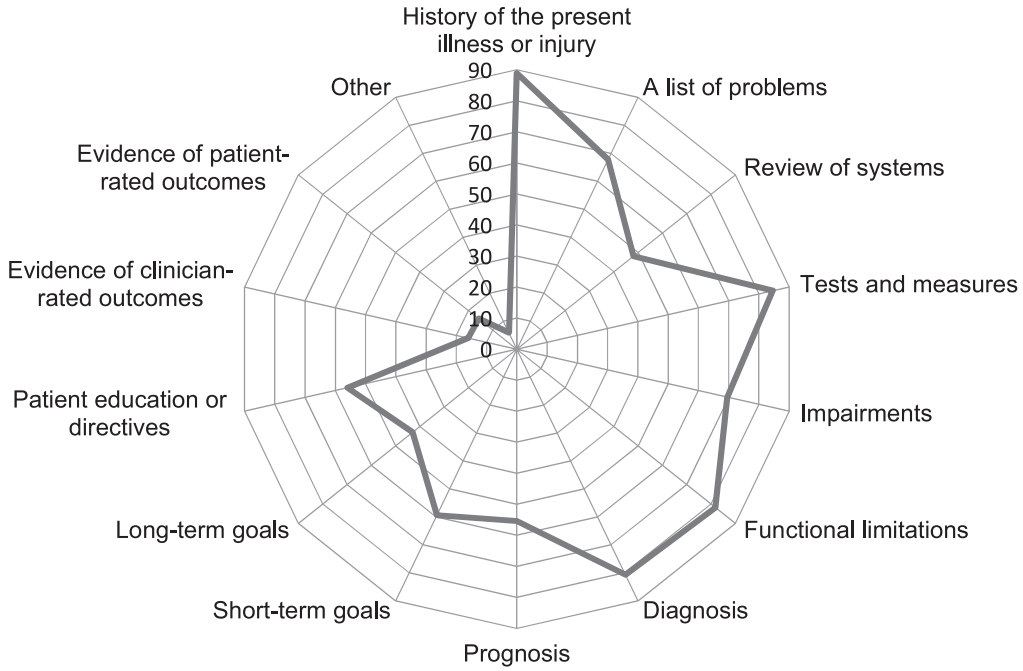

Figure 5. Items documented in an initial evaluation.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-06-18 via free access

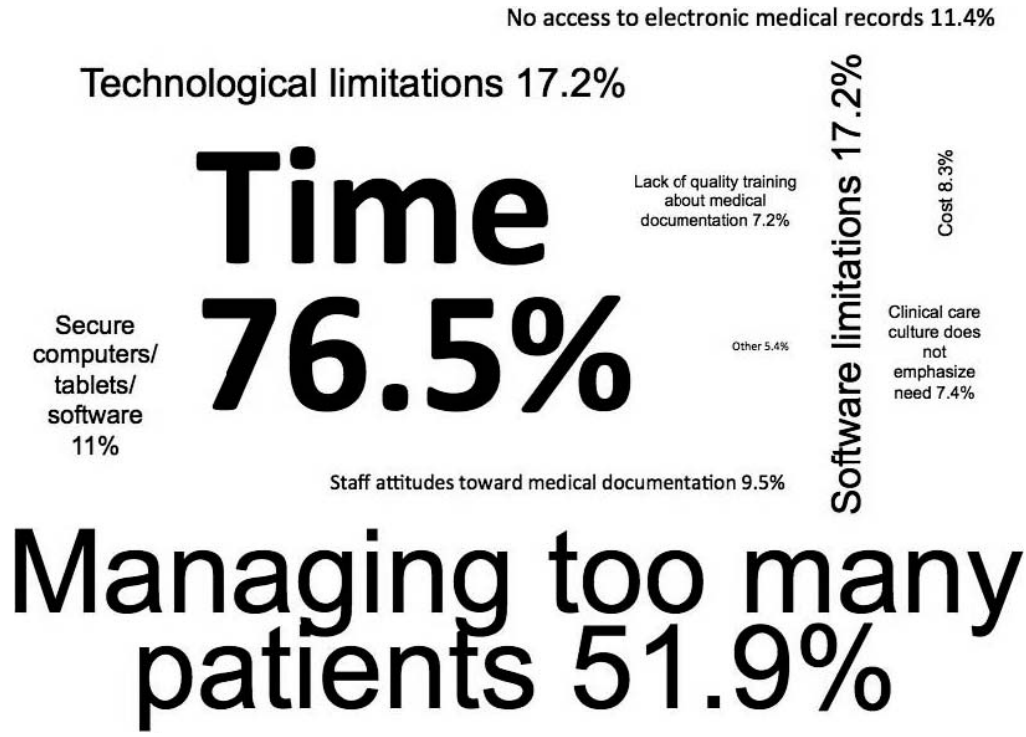

Figure 6. Word cloud illustrating perceived barriers preventing athletic trainers from effectively documenting patient care.

Perceptions

Participants largely agreed that they were competent, comfortable, and confident in their documentation practices. Furthermore, they had minimal concerns about the veracity of their medical documentation (Table 3).

DISCUSSION

Behaviors

Although previous research regarding athletic training documentation was limited, our findings were consistent with those of qualitative studies[1,5] examining secondary school ATs' perceptions of their patient care documentation. Similar to Nottingham et al,[1] our participants described documenting in several locations at different times of day and had similar reasons for documenting patient care, specifically providing legal protection and tracking patient progress. These findings suggest that ATs in different clinical settings exhibited similar documentation behaviors with respect to patient care.

Our respondents indicated that they rarely documented clinician- and patient-rated outcomes, which may be detrimental to quality patient care. Objective outcomes are important when justifying clinical decision making for treatment interventions, measuring treatment effectiveness, and ultimately, determining the quality of the care being provided.[16] Also, patient-rated outcomes are important to ensure patient perspectives on their health-related quality of life, functional ability, and recovery are taken into consideration.[17] Snyder Valier et al[18] examined ATs' benefits of and barriers to recording patient-rated outcomes during clinical practice and found that ATs perceived patient-rated outcomes as time consuming and difficult to complete.[18] Because most of our respondents reported that they did not record patient-rated outcomes, it appears that ATs may still be experiencing difficulty overcoming the perceived barriers to successfully implementing patient-rated outcomes in their practice.

Medical documentation should involve electronic methods.[19,20] The American Recovery and Reinvestment Act incentivized the transition to electronic medical record keeping, part of which was designed to enforce best practices and laws for billing patient care.[20] Although ATs were not included in this legislation because we are not recognized by the Centers for Medicare & Medicaid Services as able to bill for patient care, the federal government requires electronic medical records in the medical community. Our participants indicated that they blended paper or pen and electronic documentation systems; only a third exclusively used an electronic medical record system. This suggests that ATs may not be up to date with contemporary documentation strategies or may lack adequate resources to use an electronic medical record system alone. As we transition to electronic medical record keeping, ATs need to improve data-security practices, specifically regarding health information technology, to protect ourselves and our patients.

Previous authors[10] who aimed to analyze daily encounters of ATs in the secondary school setting identified preventive care as the most common service provided but only for activities such as ankle taping or the application of a cold or hot pack. In our study, fewer than half of the participants commented that they would document preventive care. The earlier researchers[10] suggested that many preventive activities may not be directly related to documented patient care (eg, equipment fitting, field safety, practice modifications for environmental risks). However, other work[21] clearly showed that these are common practices among secondary school ATs.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-06-18 via free access

Table 3. Participants' Perceptions About Medical Documentation Practices[a]

Statement	Mean ± SD	Mode	n (%)					
			Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Missing Data
I am competent at medical documentation.	4.3 ± 0.7	4	11 (1.0)	13 (1.2)	44 (4.2)	530 (50.3)	352 (33.4)	103 (9.8)
I am comfortable documenting patient care.	4.4 ± 0.7	4	9 (0.9)	3 (0.3)	28 (2.7)	484 (45.9)	425 (40.4)	104 (9.9)
I am confident that I use commonly accepted abbreviations and terminology so that another provider could interpret my medical documentation.	4.1 ± 0.8	4	12 (1.1)	32 (3.0)	101 (9.6)	499 (47.4)	305 (29.0)	104 (9.9)
I am confident that another provider could interpret my medical documentation so that they could provide care in my absence.	4.3 ± 0.7	4	11 (1.0)	12 (1.1)	35 (3.3)	513 (48.7)	376 (35.7)	106 (10.1)
I have concerns that my medical documentation would not protect me in a court of law.	2.6 ± 1.0	2	122 (11.6)	373 (35.4)	273 (25.9)	147 (14.0)	31 (2.9)	107 (10.2)
I am confident that I am protecting my patients' personal health information.	4.2 ± 0.8	4	8 (0.8)	38 (3.6)	87 (8.3)	489 (46.4)	328 (31.1)	103 (9.8)
I am confident that I am protecting my patients' electronic personal health information.	4.2 ± 0.8	4	8 (0.8)	18 (1.7)	107 (10.2)	447 (42.5)	365 (34.7)	108 (10.3)
I am confident that my data security practices are FERPA, HIPAA, and HITECH compliant.	4.1 ± 0.9	4	9 (0.9)	42 (4.0)	127 (12.0)	429 (40.7)	343 (32.6)	103 (9.8)

Abbreviations: FERPA, Family Educational Rights and Privacy Act; HIPAA, Health Insurance Portability and Accountability Act; HITECH, Health Information Technology for Economic and Clinical Health Act.

[a] Participants were asked to rate their level of agreement with each statement using a 5-point Likert scale: *strongly disagree* = 1, *disagree* = 2, *neither agree nor disagree* = 3, *agree* = 4, and *strongly agree* = 5.

Only about 50% of respondents stated that they documented non–time-loss injuries, yet previous investigators[10,22] found that ATs spent substantial time treating patients with non–time-loss injuries. The reason may relate to the severity of the injury, whereby most daily encounters occurred for injuries that were not documented in the medical record.[10] Cumulatively, these findings suggest that we need to document both time-loss and non–time-loss injuries to better demonstrate our daily workload and value of the profession.

In terms of formatting medical documentation, many participants reported that they typically wrote patient records in the SOAP note format, which does not encapsulate principles of the disablement model or follow the "Best Practice Guidelines for Athletic Training Documentation."[23] The World Health Organization International Classification of Functioning[16] asked ATs to consider not just the health condition itself but also to characterize the injury in terms of the body function and structures affected, the level of activity the patient is capable of performing, and any limitations to participation while taking into account environmental and personal factors that may affect the return to activity and function. Although it is certainly possible that a SOAP note can contain characteristics of the disablement model, the respondents seemed unfamiliar with the concepts of the latter.

Barriers

Similar to previous results[2,3,5] in athletic training and other medical professions, our participants reported that time was a barrier to medical documentation. In studying ATs employed in the secondary school setting, Welch Bacon et al[5] determined that time and patient volume affected their ability to produce high-quality medical documentation. We found these were among the 2 most commonly cited barriers to medical documentation, regardless of setting, but they were also complicated by technology and software limitations. In addition, respondents described patient compliance as a barrier to medical documentation. The reference to patient compliance is interesting because ATs are obligated to document when patients have a change in status,[23] which should include when patients willingly discontinue care or are discharged from care. Instead of being a barrier to medical documentation, it is more likely a barrier that prevents ATs from providing high-quality patient care.

Participants were inconsistent in prioritizing medical documentation; no consensus existed regarding prioritization among their duties. However, among the approximately 40 hours of work dedicated to their jobs each week, respondents described spending an average of 6 hours documenting patient care. This equates to approximately 15% of time dedicated to medical documentation, which differs from the amount described by physicians (25%) and ATs working exclusively in the secondary school setting (10%–50%).[1,2,24] Presumably, the use of electronic medical documentation systems could improve efficiency. Almost half of the participants used both pen and paper and electronic medical documentation systems, creating redundancy, inefficiency, and potential security concerns. Considering these findings, it would be useful to explore

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-06-18 via free access

ATs' rationale for using both formats to help streamline future documentation practices.

Perceptions

Our participants perceived themselves as competent, comfortable, and confident in their medical documentation practices. This result was different from that of the previous qualitative inquiry[5]: ATs in the secondary school setting suggested that the lack of relevant guidelines in athletic training led to uncertainty regarding what to document. Although the NATA recently released the "Best Practice Guidelines for Athletic Training Documentation"[23] (after our data collection), these guidelines do not provide specific expectations about what should be documented depending on the type of patient encounter, such as that provided in physical therapy guidelines.[25] Without specific guidance until recently, participants may not have known what was expected; therefore, they held high opinions of and appeared to be overestimating the quality of their documentation practices based solely on their professional preparation and socialization. For example, more than a quarter of participants stated that they failed to document severe injuries. It is not uncommon to overestimate knowledge in athletic training, thereby demonstrating a gap between perceptions and actual knowledge.[26–29] In this case, respondents had a high rating of perceived competence but reported behaviors that fell short of best practice.

More than 15% of participants agreed or strongly agreed that they had concerns that their medical documentation would not protect them in a court of law. This finding, in relation to the specific reported behaviors, is interesting. For example, only half of the participants stated that they would document non–time-loss injuries and just under 90% of participants would document a concussion. When legal statutes guarantee the primacy of the AT in protecting patients, particularly in concussion laws,[30] it behooves ATs to characterize patient care by documenting their work. The level of concern for legally defensible medical documentation is incongruous with actual practice behaviors.

Clinical Implications

Athletic trainers need to understand the importance of medical documentation for both delivering quality patient care and complying with the law. Our findings suggest that although the ATs felt confident in their documentation practices, most were not recording clinician- and patient-rated outcomes, and many injuries and conditions were not documented at all. Additionally, many respondents' electronic documentation did not appear to be adequately protected according to their stated protected health information practices (eg, lack of locking mechanisms, individuals without a need to know having access to records). In a previous study,[9] ATs indicated they would like more continuing education opportunities on patient care documentation. Our results further suggest that ATs may benefit from additional training on what and how to document as well as why it is important to track patient progress in order to improve patient care. In particular, approved providers of continuing education should develop workshops with specific strategies for documenting different aspects of patient care in various environments and supply examples of quality documentation that can be used to enhance clinical practice. Offering examples of good documentation that would hold up in a court of law may also be useful to encourage high-quality medical documentation.[9]

Beyond legal compliance, inconsistent medical documentation makes it difficult to characterize the athletic training services provided and impossible to determine the value and worth of ATs' clinical practice. Failing to document preventive services (eg, taping, stretching) or services related to non–time-loss injuries means that the time spent and unique services ATs provide during clinical practice are not captured.[10,11] Documenting each patient encounter can provide ATs with objective data that can be used to clearly outline the cost of the services provided and the savings for patients treated in the athletic training facility. The NATA's position improvement guides (value models) demonstrate how ATs can use these data to advocate for practice enhancements such as increased budgets, improved facilities, and additional athletic training staff.[31–33]

LIMITATIONS AND FUTURE DIRECTIONS

As with all survey research, self-selection bias is likely to occur.[34] As such, it is possible that our sample was more interested in the topic of medical documentation compared with nonresponders, thus influencing our results. Our participants demonstrated a slight sampling bias within the collegiate or university and secondary school settings. Clinic and clinic outreach ATs were not well represented in our sample.

Future researchers should evaluate the awareness of ATs regarding the NATA "Best Practice Guidelines for Athletic Training Documentation"[23] and compare their practices with those outlined in these guidelines. Intervention research aimed at educating practicing clinicians and programs aimed at reducing barriers and standardizing documentation platforms should also be evaluated.

CONCLUSIONS

We found that some medical conditions were more commonly documented (eg, concussion, patient referrals, heat exhaustion, glenohumeral dislocation, and grade 1 ankle sprain) and that practitioners believed that not all patient encounters rose to the level of requiring medical documentation. Most of our participants engaged in user-level security practices to protect personal health information, but many of these protections were not system wide. Half of the participants indicated that the computers they worked on did not have encryption, which raises concern that medical documentation could be easily breached in today's cyber climate. We confirmed that time and patient load affected the ability to perform high-quality medical documentation. In this study, we found that respondents felt competent, comfortable, and confident in their medical documentation practices, contrasting with the results of previous researchers who noted that uncertainty and a lack of education were common themes. Athletic trainers need more exposure to best-practice guidelines and to continuing education and professional development opportunities to meet the expectations and performance of other health care providers.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-06-18 via free access

REFERENCES

1. Nottingham SL, Lam KC, Kasamatsu TM, Eppelheimer BL, Welch Bacon CE. Athletic trainers' reasons for and mechanics of documenting patient care: a report from the Athletic Training Practice-Based Research Network. *J Athl Train*. 2017;52(7):656–666.
2. Penoyer DA, Cortelyou-Ward K, Cortelyou-Ward K, Noblin AM. Use of electronic health record documentation by healthcare workers in an acute care hospital system. *J Healthc Manag*. 2014;59(2):130–144.
3. Christino MA, Matson AP, Fischer SA, Reinert SE, Digiovanni CW, Fadale P. Paperwork versus patient care: a nationwide survey of residents' perceptions of clinical documentation requirements and patient care. *J Grad Med Educ*. 2013;5(4):600–604.
4. Zierler-Brown S, Brown TR, Chen D, Blackburn RW. Clinical documentation for patient care: models, concepts, and liability considerations for pharmacists. *Am J Health Syst Pharm*. 2007;64(17):1851–1858.
5. Welch Bacon CE, Eppelheimer BL, Kasamatsu TM, Lam KC, Nottingham SL. Athletic trainers' perceptions of and barriers to patient care documentation: a report from the Athletic Training Practice-Based Research Network. *J Athl Train*. 2017;52(7):667–675.
6. Winkelmann ZK, Eberman LE. Characteristics of secondary school athletic trainers: salary, job satisfaction, and perceived percentage of daily practice. *Athl Train Sports Health Care*. 2017;9(3):124–132.
7. Aparicio S, Welch Bacon CE, Parsons JT, et al. Staffing levels at National Collegiate Athletic Association Football Bowl Subdivision-Level institutions. *J Athl Train*. 2015;50(12):1277–1285.
8. Board of Certification, Inc. *BOC Standards of Professional Practice*. Omaha, NE: Board of Certification, Inc; 2017.
9. Welch Bacon CE, Kasamatsu TM, Lam KC, Nottingham SL. Future strategies to enhance patient care documentation among athletic trainers: a report from the Athletic Training Practice-Based Research Network. *J Athl Train*. 2018;53(6):619–626.
10. Lam KC, Snyder Valier AR, Anderson BE, Valovich McLeod TC. Athletic training services during daily patient encounters: a report from the Athletic Training Practice-Based Research Network. *J Athl Train*. 2016;51(6):435–441.
11. Valovich McLeod TC, Lam KC, Bay RC, Sauers EL, Snyder Valier AR; Athletic Training Practice-Based Research Network. Practice-based research networks, part II: a descriptive analysis of the Athletic Training Practice-Based Research Network in the secondary school setting. *J Athl Train*. 2012;47(5):557–566.
12. The Belmont Report. Department of Health, Education, and Welfare Web site. https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/index.html. Accessed June 2, 2018.
13. Buhi ER, Goodson P, Neilands TB. Out of sight, not out of mind: strategies for handling missing data. *Am J Health Behav*. 2008;32(1):83–92.
14. Winkelmann ZK, Neil ER, Eberman LE. Athletic training students' knowledge of ethical and legal practice with technology and social media. *Athl Train Educ J*. 2018;13(1):3–11.
15. Nottingam S, Meyer C, Blackstone B. The ICF model: a framework for athletic training clinical practice. *NATA News*. 2016;28(4):19–20.
16. Snyder Valier AR, Parsons JT, Valovich McLeod TC, Bay RC, Michener LA, Sauers EL. Using disablement models and clinical outcomes assessment to enable evidence-based athletic training practice, part I: disablement models. *J Athl Train*. 2008;43(4):428–436.
17. Valovich McLeod TC, Snyder AR, Parsons JT, Bay RC, Michener LA, Sauers EL. Using disablement models and clinical outcomes assessment to enable evidence-based athletic training practice, part II: clinical outcomes assessment. *J Athl Train*. 2008;43(4):437–445.
18. Snyder Valier AR, Jennings AL, Parsons JT, Vela LI. Benefits of and barriers to using patient-rated outcome measures in athletic training. *J Athl Train*. 2014;49(5):674–683.
19. Brugge A. Electronic records: what you need to know. National Athletic Trainers' Association Web site. https://www.nata.org/sites/default/files/electronic_medical_records.pdf. Accessed April 1, 2018.
20. Brugge A. Health Informatics: the AT as a knowledge worker. Paper presented at: Great Lakes Athletic Trainers Association 50th Annual Meeting & Symposium; March 15, 2018; Wheeling, IL.
21. Guindon CC, Winkelmann ZK, Eberman LE, Games KE. Practice of and barriers to prevention by secondary school athletic trainers. *Internet J Allied Health Sci Pract*. 2018;16(4):article 4.
22. Kerr ZY, Wilkerson GB, Caswell SV, et al. The first decade of web-based sports injury surveillance: descriptive epidemiology of injuries in United States high school football (2005–2006 through 2013–2014) and National Collegiate Athletic Association football (2004–2005 through 2013–2014). *J Athl Train*. 2018;53(8):738–751.
23. Thompson C, Muscatell A, Buffum P, et al. Best practice guidelines for athletic training documentation. National Athletic Trainers' Association Web site. https://www.nata.org/sites/default/files/best-practice-guidelines-for-athletic-training-documentation.pdf. Accessed April 1, 2018.
24. Mathewson C. Documentation: what, why, and how. *NATA News*. 2011;23(11):22–23.
25. Guidelines: physical therapy documentation of patient/client management. American Physical Therapy Association Web site. http://www.apta.org/uploadedFiles/APTAorg/About_Us/Policies/Practice/DocumentationPatientClientManagement.pdf. Accessed June 2, 2018.
26. Eberman LE, Tripp BL. Effect of performance feedback on perceived knowledge and likelihood to pursue continuing education. *Athl Train Educ J*. 2011;6(2):69–75.
27. Edler JR, Eberman LE, Kahanov L, Roman C, Mata HL. Athletic trainers' knowledge regarding airway adjuncts. *Athl Train Educ J*. 2015;10(2):164–169.
28. Neil E. *Health Care Knowledge and Behavior Regarding Spine-Boarding* [master's thesis]. Terre Haute: Indiana State University; 2015.
29. Neil ER, Winkelmann ZK, Eberman LE. Athletic trainers' knowledge of legal practice within information technology and social media. *J Sports Med Allied Health Sci*. 2017;3(2):article 1.
30. Ciccolella ME, Ludwig C, Van Ness M, Sailor S, Pond C. Concussion policy and law: primacy or subservience for the athletic trainer? *Athl Train Sports Health Care*. 2017;9(4):149–153.
31. College and university value model. National Athletic Trainers' Association Web site. https://www.nata.org/sites/default/files/college-value-model.pdf. Accessed August 30, 2018.
32. Physician practice value model. National Athletic Trainers' Association Web site. https://www.nata.org/sites/default/files/physician-practice-value-model.pdf. Accessed August 30, 2018.
33. Secondary school value model. National Athletic Trainers' Association Web site. https://www.nata.org/sites/default/files/ssvm_-_final_version_7.11.2016.pdf. Accessed August 30, 2018.
34. Dillman DA, Smyth JD, Melani Christian L. *Internet, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. Hoboken, NJ: John Wiley & Sons; 2009.

Address correspondence to Lindsey E. Eberman, PhD, LAT, ATC, Neuromechanics, Interventions, and Continuing Education Research (NICER) Laboratory, Indiana State University, 567 North 5th Street, Terre Haute, IN 47809. Address e-mail to lindsey.eberman@indstate.edu.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-06-18 via free access