Online Journal of Interprofessional Health Promotion

Volume 1
Issue 1 *Inaugural Issue for the Online Journal of Interprofessional Health Promotion*

Article 9

October 2019

Mentorship and Evidence Based Practice with Athletic Trainer Preceptors: An Overview

John Roberts Jr
Concord University, Athens, WV, jcroberts@warhawks.ulm.edu

Jessica R. Dolecheck Dr
University of Louisiana at Monroe, dolecheck@ulm.edu

Mentorship and Evidence-based Practice with Athletic Trainer Preceptors: An Overview

Authors: John C. Roberts, Jr., MSEd, ATC; Jessica Dolecheck, PhD

Affiliation: Department of Health Studies, College of Health Sciences, University of Louisiana Monroe (ULM), 700 University Avenue, Monroe, LA 71209, United States.

Corresponding Author: John C. Roberts, Jr., MSEd, ATC; Athletic Training Program, Director; 1000 Vermillion St., Campus Box 77, Concord University, Athens, WV 24712.
J.R., the lead author, is a doctoral student at the ULM in the Curriculum and Instruction Program and is responsible for carrying out the research and writing the manuscript. J.D, the senior author, is the dissertation chair for J.R. and provided intellectual input, design and reviewed the manuscript for editing purposes.

Abstract

Evidence-based practice is often acknowledged as important and has an understood value by health professional students and practitioners. The Commission for Accreditation of Athletic Training Education (CAATE) adopted and integrated five core competencies into the new 2020 accreditation standards for Athletic Training education programs which strongly advocate for the inclusion of EBP. Hence, athletic training educators should work to embed EBP into curricula and clinical experiences through strategic planning and assessment to ensure educational goals and patient outcomes support the vision put forth by the CAATE. Furthermore, training preceptors to provide appropriate mentorship to athletic training students related to EBP is vital to improve the quality of EBP implementation during patient care. Recent evidence suggests while athletic trainers hold positive beliefs and attitudes towards evidence-based practice, there is still no evidence of wide-spread professional change. The disconnection comes when individuals return to clinical practice and do not engage in the process (Hankemeier & VanLunen, 2013; Keeley, Walker, Hankemeier, Martin, & Cappaert, 2016; Manspeaker & VanLunen, 2011; McCarty et al., 2013). Evidence indicates the most effective manner to teach EPB is early introduction followed by a progressive inclusion of skills over time and include a mentor-mentee relationship. Mentorship training for preceptors should include workshops that provide discussion about EBP, the process for carrying out EBP during patient care, and educational and rehearsal strategies for students and mentors to develop EBP skills and implement them into clinical practice. This integrated review provides a context for a forthcoming empirical study by this doctoral student at ULM.

Keywords: evidence-based practice, mentorship, athletic trainers, preceptors

Mentorship and Evidence-based Practice with Athletic Trainer Preceptors: An Overview

Training preceptors to provide appropriate mentorship to athletic training students related to evidence-based practice (EBP) is vital to improve the rate and quality of clinical EBP implementation during patient care. EBP encourages health care professionals to improve patient outcomes by building upon their personal knowledge and experience through the incorporation of recent and relevant research, while placing emphasis on patient values. The professional behaviors and attitudes individuals develop as students are the foundation for how they behave upon entering the professional workforce after graduation (Keeley et al., 2016; Manspeaker & VanLunen, 2011; McCarty et al., 2013).

Entry-level athletic trainers (ATs), a multi-skilled healthcare professional, attribute over half of their educational development and clinical behaviors to what was modeled by their preceptors during clinical experiences (Weidner & Henning, 2002). Manspeaker and VanLunen's (2011) statement of "Today's students are tomorrow's clinicians," reinforces the value of instilling a critical sense of EBP concepts and research interest into entry-level athletic training education. The purpose of athletic training education is to instill ethical and professional behaviors and attitudes, not just knowledge. Preceptors supervising athletic training students during clinical learning experiences should be role models for how to appropriately transition classroom knowledge into clinical application (Raab, & Craig, 2016). The mentorship provided by preceptors can play a significant role in the development of professional behaviors of athletic training students (Benes, Mazerolle, & Bowman, 2014; Weidner & Henning 2002). However,

current research indicates there is a lack of EBP mentorship provided by preceptors to athletic training students (Hankemeier et al., 2013; Keeley, et al., 2016; Welch, VanLunen, & Hankemeier, 2014b).

Athletic training educators are responsible for training preceptors how to provide mentorship in EBP (Bomar & Mulvihill, 2016; Nottingham, Barrett, Mazerolle, & Eason, 2016). Since most athletic training educators and preceptors do not have formal education on how to teach mentorship, athletic training faculty must develop strategies and methods of teaching preceptors how to mentor their clinical students (Carr, Volberding, & Timson, 2015). Learning to implement EBP into regular clinical practice of athletic training takes time and rehearsal to incrementally improve and master its components (Burns & Foley, 2005; Jutte & Walker, 2010; Lusardi, Levangie, & Fein, 2002; Welch et al., 2014b). An early introduction of EBP knowledge and concepts followed by a progressive increase in the implementation of EBP skills over time, along with the development of mentor-mentee relationship, may be the most effective way to instill EBP values in athletic training students (Burns & Foley, 2005; Ciliska, 2005; Jutte & Walker, 2010; Lusardi et al., 2002). Mentorship training for preceptors should include the teaching of EBP, rehearsal strategies to develop athletic training students' EBP skills and the process for incorporating it into clinical practice and patient care (Hankemeier et al., 2013; Keeley et al., 2016, Welch et al., 2014b).

EBP Knowledge and Implementation in Athletic Training

Research has demonstrated levels of EBP knowledge and implementation rates among ATs is not consistent with their high level of belief in and appreciation for the effect EBP has on patient outcomes. Hankemeier et al. (2013) and McCarty et al. (2013)

collectively found inconsistencies among ATs' attitudes, perceived importance, level of knowledge, perceived barriers, and confidence related to EBP. These researchers noted that while ATs have positive attitudes towards EBP and perceived it to be an important component of clinical practice, they did not make the effort to learn more about it. Furthermore, these studies noted that ATs reported having high access to several resources to assist them with EBP but that those resources were not frequently used. The result was a lack of EBP knowledge, confidence, and implementation. These results are not reflective of behaviors consistent with best health care practices and warrant investigation regarding methods to correct this concern.

Keeley et al. (2016) investigated EBP beliefs and implementation rates by ATs similar to studies by Hankemeier et al. (2013) and McCarty et al. (2013) regarding importance, knowledge, confidence, attitudes, and barriers for EBP. The results from Keeley et al. (2016) are consistent with Hankemeier et al. (2013) and McCarty et al. (2013) findings noting that a lack of consistency between AT beliefs and implementation rates among all demographics including student, clinical and faculty roles. In Keeley's study, ATs indicated they had a neutral belief in EBP, and they almost never implemented it in clinical practice. Even though ATs with doctoral degrees had the highest implementation score and were significantly higher than other roles, their results were within range of zero implementations in eight weeks, so no demographic groups utilized EBP regardless of their beliefs. These results over time demonstrate that time and educational methods have not been sufficient in correcting EBP low knowledge or implementation across the AT profession (Hankemeier et al., 2013). A later study by

Keeley (2016) reported a trend in lower levels of the belief in EBP implying the state of EBP in athletic training may be trending negatively.

Current State of AT Preceptors

Research studies in the AT field have concluded that athletic training students demonstrate more belief in and knowledge of EBP than AT preceptors and clinicians (Hankemeier et al., 2013; Keeley et al., 2016; McCarty et al., 2013; Welch et al., 2014b). In Hankemeier et al. (2013) qualitative study regarding barriers to EBP incorporation among ATs, he concluded that the participants had low knowledge and mild to moderate confidence in EBP and raised concerns between the students' and preceptors' knowledge levels of EBP. The conclusion of this study noted that post-professional athletic training students reported the highest perceived EBP knowledge scores while clinicians reported the overall lowest scores (Hankemeier et al., 2013). Overall, this study indicated that preceptors who are supervising students do not regularly reinforce, or even include EBP during clinical experiences (Hankemeier & VanLunen, 2013). The lack of EBP role modeling for athletic training students during clinical experiences has been identified as a common barrier hindering EBP implementation after transitioning to professional practice.

Hankemeier and VanLunen (2013) and Keeley et al. (2016) recommend collaborative efforts between athletic training educators and preceptors to improve the mentorship of EBP implementation for athletic training students by integrating classroom learning with clinical experiences and for student-preceptor EBP interactions to be included as part of the educational delivery method. Keeley et al. (2016) suggested this educator-preceptor collaboration was a means to improve the EBP implementation for

preceptors, not students, suggesting students were not the cause for its lack of clinical usage. If a mentoring preceptor does not view or practice EBP as an integral component of patient care, the mentee student is likely to mimic the behavior (Benes et al., 2014; Cavallario, VanLunen, Hoch. J., Hoch. M., Manspeaker & Pribesh, 2018; Weidner & Henning, 2002). The result is an unwillingness of students to learn about applying EBP to clinical practice because their role model is not implementing it.

Regardless of what students are taught in the classroom, content and skills are either enhanced or hindered by what is practiced under the clinical supervision of preceptors (Benes et al., 2014; Weidner & Henning, 2002). Weidner and Henning (2002) found entry-level professionals perceived approximately 53 percent of their professional development and clinical behaviors derived from the modelled behaviors of their preceptors during clinical experiences. If the mentoring clinician does not practice EBP as an integral component of the clinical process, the mentee student is likely to mimic this behavior. All levels of clinicians must practice EBP to consistently and continuously improve upon the body of knowledge in athletic training and health care (Manspeaker & VanLunen, 2011; Mazerolle, Eason, Nottingham, & Barrett, 2016; Welch et al., 2014a).

EBP Barriers in Athletic Training

An immediate concern and obstacle for EBP to overcome is the current workforce of ATs who are serving as preceptors. A common trend in discussing barriers to the regular incorporation of EBP is a lack of knowledge or misunderstanding about the process, its resources, and time commitment (Manspeaker & VanLunen, 2011; Hankemeier & VanLunen, 2013; Welch et al., 2014a). Manspeaker and VanLunen (2011) identified lack of time, strain on job role and other duties, lack of knowledge, and the

perceived gap between what is taught in the classroom and practiced clinically as primary barriers to EBP. The result is an unwillingness for the experienced clinician to learn about or use EBP (Welch et al., 2014b). Manspeaker et al. (2011) conducted earlier research related to EBP in athletic training education and found while educators valued the importance of EBP, many did not go beyond a two to three-day introduction of basic skills and concepts. This timeframe does not offer enough time to reach sufficient depth of skills to instill a sense of ethical responsibility (Manspeaker et al., 2011).

McCarty et al. (2013) reported inconsistencies in the results that may reveal further underlying issues of EBP knowledge and understanding. Since 98.5 percent of all respondents claimed access to websites, that same percentage should claim access to PubMed, MEDLINE, NATA position statements, refereed journals, Cochrane databases, and NATA Think Tanks as most of these sources have free access; yet there were varying responses to each of these with rating usage as low as 18.2 percent (Hankemeier, & VanLunen, 2013; McCarty et al., 2013). This lack of use of readily available sources highlights a lack of understanding and reveals dramatic inconsistencies in responses demonstrating the actual personal skills for some of these groups may be much lower.

The Current State of Athletic Training Education

The National Athletic Trainers' Association (NATA) describes athletic training as a health care profession encompassing the prevention, examination, diagnosis, treatment and rehabilitation of emergent, acute or chronic injuries and medical conditions for patients who are physically active. To become an AT, a student must be enrolled in and complete an undergraduate or graduate level ATP accredited by the Commission on Accreditation of Athletic Training Education (CAATE). To obtain and maintain

accreditation ATPs must provide evidence of success in achieving the minimum standards as set forth by the CAATE (CAATE, 2012; CAATE, 2018). Athletic training education encourages a competency-based approach to learning in the classroom, lab, and clinical settings. Athletic training students are taught comprehensive patient care within five professional domains: 1) prevention, 2) clinical evaluation and diagnosis, 3) immediate and emergency care, 4) treatment and rehabilitation, and 5) organization and professional health and well-being. Knowledge, skills, and attitudes from the five domains are divided among eight content areas for which the program must provide evidence of successful teaching and student must provide proof of proficiency. The content areas include: 1) Evidence-Based Practice, 2) Prevention and Health Promotion; Clinical Examination and Diagnosis, 4) Acute Care of Injury and Illness, 5) Therapeutic Interventions, 6) Psychosocial Strategies and Referral, 7) Healthcare Administration, and 8) Professional Development and Responsibility (Walusz, & Green, 2018, October).

The current minimum degree required to be eligible for the national Board of Certification (BOC) exam to become certified as an AT is a bachelor's degree; however, all undergraduate ATPs must make a nationally mandated transition to at least a master's degree by 2020 or cease to exist (Athletic Training Strategic Alliance, 2015). The transition is not intended to simply be a degree inflation. It is meant to improve the education for athletic training students, the quality of care for patients, and the reputation and status of the profession (Athletic Training Strategic Alliance, 2015). The current *NATA Educational Competencies* (NATA, 2011) and the *CAATE Professional Program Standards* (CAATE, 2012) have been combined, revised, and updated into the *2020 Standards for Accreditation of Professional Athletic Training Programs: Master's*

Degree Programs (CAATE, 2018). This new document which reflects the five IOM core competencies which include 1) provide patient-centered care, 2) work in interdisciplinary teams, 3) employ evidence-based practice, 4) apply quality improvement, and 5) utilize informatics will be held as the new minimum standards describing best practices for professional education expectations and accreditation of ATPs offering a master's degree beginning in 2020. To address *NATA's Educational Competencies* and *CAATE's Standards*, many athletic training programs began placing emphasis on EBP in educational and clinical settings to improve alignment with these recommendations.

Patient values should be at the center of all health care and management decisions including those made by regulatory and advocacy organizations at local, regional, and national levels. The inclusion of EBP in patient-centered care and decision-making is vital to the advancement of athletic training education, clinical practice to improve patient outcomes, and professional advancement (Sauers, 2009; Steeves & Hootman, 2004; Welch et al., 2014a). Athletic training education, like other fields in health professions education, should work to embed the core competencies into curricula and clinical experiences through strategic planning and assessment to ensure their intended outcomes and professional patient outcomes embrace the vision put forth by accrediting agencies (Buchanan, Jelsma, & Siegfried, 2015; Al-Sawai, 2013).

Incorporating a Concept Driven Practice

A concept-driven practice supports EBP teaching and learning, empowering individuals for a lifetime of learning, independently and in collaboration with others (Melnyk & Fineout-Overholt, 2015). A qualitative study by Neibert (2009) identified ten

constructs centering on one emergent core category of novice to expert practice that suggests early and consistent mentoring is essential for higher-order thinking. The constructs included fostering theoretical understanding through critical thinking, critical thinking during challenging situations, gaining proficiency in research, diverse perspectives represented in learning environments, an orientation of service in professional life, subject matter mastery through clinical decision-making, professionalism during interactions, learning in low-pressure/low-consequences environments, practical career applications, and opportunities for specialization (Neibert, 2009). The constructs related to diverse perspectives, research proficiency, decision-making and critical thinking create a similar process to EBP steps of searching for evidence, appraising the evidence, and assessing the outcomes. The constructs identified that low-pressure and low-consequences learning environments reinforce the belief that EBP learning should be fostered early in student development with proper supervision and mentorship over time so the student can see the professional applications and benefits (Burns & Foley, 2005; Ciliska, 2005; Jutte & Walker, 2010; Lusardi et al., 2002). This type of contextual learning environment regarding mentorship beyond the classroom is a major area lacking for EBP in athletic training (Manspeaker & VanLunen, 2011; Hankemeier & VanLunen, 2013; Welch et al., 2014a). Without requirements for preceptor role modeling of EBP during patient care, students may not be provided with enough exposure to EBP to develop appropriate clinical behaviors.

Competency-based Models

Implementing EBP requires a strategic and considerate approach based on the current culture in the AT profession. In Fisher, Cusack, Cox, Feigenbaum, and Wallen's

(2016) study, these authors described a competency-based strategic plan to map and measure the development of EBP concepts into clinical nursing interventions. This competency-based strategic plan utilizes a framework that supports novice to expert capabilities encouraging nurses to take their own journey integrating EBP into daily practice. In the first "orientation" level, the nursing student or practitioner demonstrates an understanding of scholarly practice philosophies and asks relevant questions related to daily practice or patient care. The learner is introduced to EBP and in their specialty practice area with a preceptor. The second level of "beginner" witnesses a demonstration of increased clinical inquiry and the ability to search for information independently. Level three is an "intermediate" stage where the developing EBP practitioner can perform an efficient and focused search of literature based for a relevant PICOT question. The fourth "advanced" level is reached when the practitioner develops the ability to appraise the validity, reliability, and applicability of the evidence. The final "champion" level involves the individual sharing and disseminating how clinical practice was affected (Fisher et al., 2016). The competency-based development model allowed the nurses to begin the learning process and to validate their new knowledge and skills as related to EBP. This competency-based approach provides an innovative process that provides a framework supporting the development of EBP with clinicians that is adaptable to athletic training and other health care professions.

There are also models and programs to educate professionals and student mentors including the *Advancing Research and Clinical Practice through Close Collaboration* (ARCC) by Melnyk et al. (2004) and the *Clinical Scholar Models* by Schultz (2005). The *ARCC* model provides a framework for establishing EBP mentors to advance EBP in a

system. The model provides a strategic plan for assessing and establishing an EBP culture that includes EBP mentors placed in educational and clinical settings. The EBP mentors work directly with point-of-care educational and clinical staff to foster EBP knowledge, beliefs and skills in evidence-based care. The *Clinical Scholar Model* provides an outline for how to engage frontline clinicians to incorporate EBP into their clinical practice. This model focuses on the importance of mentorship by providing support to clinicians in the form of education and practice improvements (English, 2015). Both models offer frameworks to guide system-wide implementation and sustainability of EBP by providing methods for developing a cadre of EBP mentors, implementing EBP and assessing the organizational culture and readiness of EBP.

Development of Mentee-Mentor Relationship

The preceptor-student dyad is a valuable relationship to foster and develop in athletic training and health care education (Kashiwagi, Varkey, & Cook, 2013; Thrasher, Walker, Hankemeier, & Mulvihill, 2016). A mentor is a trusted teacher, coach, or individual with experience in a desired field who provides guidance for, develops a relationship with, and instills self-confidence and values in a mentee (Melnyk, & Fineout-Overholt, 2015). The mentor may assume varying degrees and combinations of several roles including teacher, sponsor, coach, advisor, role model, and confidante (Melnyk, & Fineout-Overholt, 2015). The mentor-mentee relationship is often enhanced or more easily established among a dyad with similar backgrounds (Johnson & Gandhi, 2015). Often the common backgrounds that receive attention and study are gender and ethnicity, but field of study, specialties, common interests, or desired goals are also issues that may affect or help to serve as a foundation for the relationship. Mentoring is perceived as

advantageous for improving professional socialization and behaviors in athletic training students (Mazerolle, Eason, Nottingham, & Barrett, 2016).

Mentorship is a key component in the development of EBP skills and clinical implementation (Melnyk & Fineout-Overholt, 2015). Athletic training educators are responsible for training preceptors how to provide mentorship in EBP and should consider that it may be difficult for preceptors to mentor EBP if students have higher levels of EBP appreciation and knowledge (Bomar & Mulvihill, 2016; Hankemeier et al., 2013; Keeley et al., 2016; McCarty et al., 2013; Welch et al., 2014b). Preceptors should be trained by AT faculty to establish clear and consistent goals and behavioral expectations. Athletic training faculty should provide preceptors with specific strategies and methods for mentoring their clinical students. Effectively incorporating EBP into the regular clinical practice takes time and rehearsal to master (Burns & Foley, 2005; Jutte & Walker, 2010; Lusardi et al., 2002, Welch et al., 2014b). Introducing and reinforcing EBP knowledge and skills early is important in the professional develop for health care students (Burns & Foley, 2005; Ciliska, 2005; Jutte & Walker, 2010; Lusardi et al., 2002).

Consistency between students' classroom and clinical settings should be encouraged for the development of appropriate professional behaviors. Preceptor training should be comprehensive and aimed at ensuring minimal knowledge, describing professional and behavioral expectations, and providing educational and mentorship strategies (Benes, Mazerolle, & Bowman, 2014; Vos & Trewet, 2012). Mentorship training for preceptors related to EBP should include the definition of EBP, the process for carrying out EBP during patient care, and educational and rehearsal strategies for

preceptors and students to develop EBP skills and implement them into clinical practice. Athletic training educators should consider the developmental strategies and pedagogical designs for preceptors as they do for students (Bomar & Mulvihill, 2016; Fater, K. H. 2013). Preceptors may need a progressive development of EBP skills over time as well. Providing preceptors with EBP mentors may also help them to develop their EBP skills and improve their implementation rates so they may in turn provide better EBP mentorship for the athletic training students during clinical experiences (Ledlow and Stephens, 2018; Nottingham et al., 2016).

Recommendations for AT Preceptor Preparation

Developing and implementing a preceptor workshop for AT mentors has the potential to impact AT educational curriculums, clinical practice and social change within the practice of ATs as it relates to the implementation of EBP. An effective EBP preceptor workshop could include strategies such as

a. roundtables between students, preceptors and faculty to discuss and share experiences to enhance understanding of preceptor-student responsibilities as related to EBP.
b. change champions with senior leaders of EBP to encourage and teach peers about transforming practice.
c. structured preparatory learning activities and interactive education that include web-based learning, group work, problem-based learning such as mini-research projects or analysis of health needs.
d. facilitating critical reflection of one's practice, characteristics of the student learner and the context of care delivery.

e. development of computer literacy and data base searches.
f. implementation of theoretical modules (ARCC, Clinical Scholar Model, Competency-based approach) that support EBP principles and develops preceptors who practice EBP.

Conclusion

Common barriers to EBP implementation are a lack of mentorship provided to students and a lack of transition from didactic knowledge to clinical practice. Most undergraduate and graduate athletic training students, educators, and clinicians have a moderate to high belief in the value of EBP for improving patient outcomes, but contrarily they have low levels of EBP knowledge and implementation rates, especially among preceptors and clinicians. Despite this discrepancy, little effect has been demonstrated that ATs are willing to change their practice to include more EBP even after education has improved one's preparedness and abilities. As with any educational topic, effective strategies exist to improve EBP knowledge in athletic training students, clinicians, and educators. Research has explored and recommended some methods to improve EBP education for students and professionals such as the application of relevant models in educational and clinical settings with a focus in mentorship.

1. A lack of EBP mentorship is a consistent obstacle for transitioning didactic EBP knowledge and skills into clinical patient care. Since students model most clinical behaviors they witness from their preceptors, addressing this lack of mentorship early in one's education and career may be vital to changing the professional mindset. A related concern is athletic training students have demonstrated more appreciation and knowledge

than preceptors. Preceptors have an obligation to provide the appropriate mentorship to students, and educators have the obligation to ensure preceptors are prepared to instruct and supervise students clinically. Changing the mindset and rate of implementation for EBP will advance the health care delivered by ATs and enhance patient outcomes. The profession has an ethical responsibility to advance this practice to improve patient care. Further strategies to encourage use of EBP with preceptors should be studied.

In summary, increasing preceptor's knowledge and implementation of EBP requires thoughtful contemplation and action steps that are a complex process. Future research should explore additional methods for educating and assessing preceptors' implementation of EBP with their student mentees. The lead author is currently examining the effect of an EBP mentorship training intervention for preceptors on the perceptions AT students have on the EBP mentorship they receive during clinical experiences. This research study will demonstrate the effectiveness of mentorship training for preceptors on EBP implementation rates with AT students. Improving mentorship, in all healthcare professions, will hopefully improve students' ability to transition classroom knowledge into clinical practice and instill such values as they enter the workforce.

References

Al-Sawai A. (2013). Leadership of Healthcare Professionals: Where Do We Stand? *Oman Medical Journal*. 28(4):285-287. doi:10.5001/omj.2013.79.

Athletic Training Strategic Alliance. (2015). *Official statement: Transition to the Masters.* Retrieved from http://atstrategicalliance.org/strategic-alliance-degree-statement.

Benes, S. S., Mazerolle, S. M., & Bowman, T. G. (2014). The impact of clinical experiences from the athletic training student and preceptor perspective. *Athletic Training Education Journal, 9*(4), 156-165. Doi: 10.4085/0904156.

Board of Certification [BOC]. (n.d.). Athletic trainers: Continuing education – EBP Category. Retrieved from http://www.bocatc.org/athletic-trainers.

Bomar, R. E., & Mulvihill, T. (2016). Educating educators: Perceptions of preceptors and clinical education coordinators regarding training at a Division II athletic training program. *Athletic Training Education Journal, 11*(1), 10-17. Doi: 10.4085/110110.

Buchanan, H., Jelsma, J., & Siegfried, N. (2015). Measuring Evidence-based practice knowledge and skills in occupational therapy: A brief instrument. *BMC Medical Education, 15*(191). Doi: 10.1186/s12909-015-0475-2.

Carr, W. D., Volberding, J. L., & Timson, B. (2015). Preceptor understanding, comfort, and use related to evidence-based practice competencies. *Athletic Training Education Journal, 10*(3), 236-243. Doi:10.4085/1003236.

Cavallario, J. M., VanLunen, B. L., Hoch, J. M., Hoch, M., Manspeaker, S A., & Pribesh, S. L. (2018). Athletic training student core competency implementation during patient encounters. *Journal of Athletic Training, 53*(3), 282-291. Doi: 10.4085/1062-6050-314-16.

Ciliska, D. (2005). Education for evidence-based practice. *Journal of Professional Nursing, 21*(6), 345-350.

Commission for the Accreditation of Athletic Training Education [CAATE]. (2012). *Standards for the accreditation of professional athletic training programs.* [PDF]. Retrieved from https://caate.net/wp-content/uploads/2018/02/2012-Professional-Standards_.pdf.

Commission for the Accreditation of Athletic Training Education [CAATE]. (2018). *2020 standards for accreditation of professional athletic training programs: Master's degree programs.* [PDF]. https://caate.net/wp-content/uploads/2018/09/2020-Standards-for-Professional-Programs-copyedited-clean.pdf

Denegar, C. R. (2008). Advancing patient care: Everyone wins. *Journal of Athletic Training, 43*(4), 341.

Fater, K. H. (2013). Gap analysis: A method to assess core competency development in the curriculum. *Nursing Education Perspectives, 34*(2), 101-105.

aFineout-Overholt, E., Melnyk, B., & Schultz, A. (2005). Transforming health care from the inside out: Advancing evidence-based practice in the 21st century. *Journal of Professional Nursing, 21(6),* 335-344.

Fisher, C. Cusack, G., Cox, K., Feigenbaum, K., & Wallen, G. R. (2016). Developing competency to sustain evidence-based practice. *Journal of Nursing Administration, 46*(11). 581-585. Doi: 10.1097/NNA.0000000000000408.

Hankemeier, D. A., & VanLunen, B. L. (2013). Perception of approved clinical instructors: Barriers in the implementation of evidence-based practice. *Journal of Athletic Training, 48*(3), 382-393. Doi:10.4085/1062-6050-48.1.18.

Johnson, M. O., & Gandhi, M. P. H. (2015). A mentor program improves mentoring competency for researchers working with early-career-investigators from underrepresented backgrounds. *Advances in Health Sciences Education: Theory and Practice, 20*(3), 683-689. Doi: 10.1007/s10459-9555-z.

Jutte, L. S., & Walker, S. E. (2010). Incorporating foundational evidence-based practice concepts and skills across an athletic training education program. *Athletic Training Education Journal, 5*(3), 119-125.

Kashiwagi, D. T., Varkey, P., & Cook, D. A. (2013). Mentoring programs for physicians in academic medicine: A systematic review. *Academic Medicine. 88*(7). 1029-1037. Doi: 10.1097/ACM.0b013e318294f368.

Keeley, K., Walker, S. E., Hankemeier, D. A., Martin, M., & Cappaert, T. A. (2016). Athletic trainers' beliefs about and implementation of evidence-based practice. *Journal of Athletic Training, 51*(1), 35-46. Doi: 10.4085/1062-6050-51.2.11.

Ledlow, G. R., & Stephens, J. H. (2018). *Leadership for health professionals: Theory, skills and applications*. (3rd ed.). Burlington, MA; Jones & Bartlett Learning.

Lusardi, M. M., Levangie, P., & Fein, B. D. (2002). A problem-based learning approach to facilitate evidence-based practice in entry-level health professional education. *Journal of Prosthetics and Orthotics, 14*(2), 40-50.

Mazerolle, S. M., Eason, C. M., Nottingham, A., & Barrett, J. L. (2016). Athletic training students' perceptions of mentorship in clinical education. *Athletic Training Education Journal, 11*(2), 72-81. Doi: 10.4085/110272.

Melnyk, B. M. & Fineout-Overholt, E. (2015). *Evidence-based practice in nursing and healthcare: A guide to best practice.* (3rd ed.). Philadelphia, PA: Lippincott, Williams, & Wilkins.

Morris, T. L., & Hancock, D. R. (2013). Institute of medicine core competencies as a foundation for nursing program evaluation. *Nursing Education Perspectives, 34*(1), 29-33.

National Athletic Trainers' Association [NATA]. 2005. *NATA Code of Ethics*, Revised 2018. Retrieved from https://www.nata.org/membership/about-membership/member-resources/code-of-ethics.

National Athletic Trainers' Association [NATA]. (2011). *Athletic training education competencies* (5th ed.). [PDF]. Retrieved from https://www.nata.org/sites/default/files/competencies_5th_edition.pdf.

Neibert, P. J. (2009). Novice to expert practice via postprofessional athletic training education: A grounded theory. *Journal of Athletic Training, 44*(4), 378-390.

Noteboom, J.T., Allison, S.C., Cleland, J.A., & Whitman, J.M. (2008). A primer on selected aspects of evidence-based practice relating to questions of treatment, part 2: Interpreting results, application to clinical practice, and self-evaluation. *Journal of Orthopaedic & Sports Physical Therapy, 38*(8), 485-501.

Nottingham, S., Barrett, J. L., Mazerolle, S. M., & Eason, C. M. (2016). Examining the role mentorship plays in the development of athletic training preceptors. *Athletic Training Education Journal, 11*(3), 127-137. Doi: 10.4085/1103127.

Raab, S. & Craig, D. I. (2016). *Evidence-based practice in athletic training.* Champaign, IL: Human Kinetics.

Saucier, D., Pare, L., Cote, L., & Bailargeon, L. (2012). How core competencies are taught during clinical supervision: Participatory action research in family medicine. *Medical Education Journal, 46*(12), 1194-1205. Doi: 10.1111/medu.12017.

Sauers, E. (2005). Health professions recommendations: Considerations for athletic training education and practice. *NATANews*, Dec., 40-41.

Sauers, E. L. (2009). Establishing an evidence-based practice culture: Our patients deserve it. *Athletic Training and Sports Health Care, 1*(6), 244-247. Doi: 10.3928/19425864-20091019-01.

Schultz, A. (2005). Clinical scholars at the bedside: An EBP mentorship model for today. *Online Journal of Excellence in Nursing Knowledge*. Retrieved from www.nursingknowledge.org.

Thrasher, A. B., Walker, S. E., Hankemeier, D. A., & Mulvihill, T. (2016), Graduate-assistant athletic trainers' perceptions of the supervisor's role in professional socialization: Part II. *Journal of Athletic Training, 51*(10), 771-779. Doi: 10.4085/1062-6050-51.11.10.

Valovich-McLeod, T. C., Snyder, A. R., Parsons, J. T., Bay, R. C., Michnener, L. A., & Sauers, E. L. (2008) Using disablement models and clinical outcomes assessment to enable evidence-based athletic training practice, part II: Clinical outcomes assessment. *Journal of Athletic Training, 43*(4), 437-445.

VanLunen, B. L., Hankemeier, D. A., & Welch, C. E. (2015). *Evidence-guided practice: A framework for clinical decision making in athletic training.* Thorofare, NJ: SLACK Inc.

Vos, S. S., & Trewet, C. B. (2012). A comprehensive approach to preceptor development. *American Journal of Pharmaceutical Education, 76*(3), Article 47, 1-7.

Walusz, H., & Green, K. (2018, October). *Core competencies: Patient centered care.* Panel & group discussion presented at the CAATE Accreditation Conference, Tampa, FL.

Weidner, T. G., & Henning, J. M. (2002). Historical perspectives of athletic training clinical education. *Journal of Athletic Training, 37*(4), S-222 – S-228.

Welch, C. E., Hankemeier, D. A., Wyant, A. L., Hays, D. G., Pitney, W. A., & VanLunen, B. L. (2014a). Future directions of evidence-based practice in athletic training: Perceived strategies to enhance the use of evidence-based practice. *Journal of Athletic Training,* 49(2), 234-244.

Welch, C. E., VanLunen, B. L., & Hankemeier, D. A. (2014b). An evidence-based practice educational intervention for athletic trainers: A randomized controlled trial. *Journal of Athletic Training, 49*(2), 210-219. doi:10.4085/1062-6050-49.2.13. Doi: 10.4085/1062-6050-49.2.15.

Welch, C. E., VanLunen, B. L., Hankemeier, D. A., Wyant, A. L., Mutchler, J. M., Pitney, W. A., & Hays, D. G. (2014c). Perceived outcomes of web-based modules designed to enhance athletic trainers' knowledge of evidence-based practice. *Journal of Athletic Training, 49*(2), 220-233. Doi:10.4085/1062-6050-49.2.14.