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Athletic Training Student Clinical Education Practice Analysis

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Context: Even before the onset of educational reform, clinical experience, whether through formal clinical education or internship experiences, shaped the academic preparation of future athletic training professionals. As education has evolved, emphasis has shifted to more formal classroom instruction enhanced with clinical experiences. **Objective:** To evaluate student perceptions about the importance of clinical education in their academic preparation and to evaluate students' perceived frequency of tasks described in the *Role Delineation Study/Practice Analysis 6th Edition* (RDS) during their clinical experiences. **Design:** Cross-sectional. **Setting:** Web-based survey. **Participants:** We recruited athletic training students and recent athletic training graduates (n=581; age=22.22±2.36y; males=172 males, females=409; professional-baccalaureate program=512, professional-masters program=69) through NATA e-mails, program director recruitment, and social media posts on Facebook® and Twitter®. We excluded participants who had less than three semesters of clinical education and those who had graduated longer than 6 months prior to participation. A majority of students who began the survey, completed the survey (582/608, 95.7%). **Interventions:** We asked students to indicate the percent of total professional preparation from clinical experiences. We also asked students to reflect on the frequency that they completed the 28 tasks defined by the RDS during clinical education. **Main Outcome Measures:** We used a sliding 100 point scale to measure percent of total professional preparation attributed to clinical experiences. We mimicked the traditional practice analysis methods using a 4 point Likert scale (Infrequently=1, Sometimes=2, Often=3, Very Often=4) for each task item. We analyzed the data for characteristics of central tendency. **Results:** Students reported that 69.5%±15.8% of their total professional preparation is attributed to their clinical experiences. Students revealed that they were performing tasks within the RDS often or very often: clinical evaluation and diagnosis (3.54±0.53), treatment and rehabilitation (3.23±0.48), organizational and professional health and wellness (2.92±0.68), injury/illness prevention (2.86±0.56) and wellness protection, and immediate and emergency care (2.88±0.65 N=527). To ensure that there were no subgroup differences, we completed separate one-way analyses of variance on the number of semesters of clinical experience and type of degree program on both main outcome measures and found no significant differences. **Conclusions:** Among our respondents, it appears that students attribute a large majority of their professional preparation to clinical experiences (69.45%). This is different than past research, conducted prior to the transition to curriculum programs, that indicated students and recent graduates attributed only 53.0% (n=129) to clinical experiences. Although we understand these are student perceptions, the data indicate that educational programs should focus on effective and evidence-based outcomes assessment in clinical education, quality encounters in clinical learning environments, and continued competence of preceptors. Thus, a team-based approach to develop clinical education amongst educators and preceptors is encouraged to maintain quality or strengthen and refine these experiences. **Key Words:** clinical education, patient encounters, role delineation.

Athletic Training Students' Lack Knowledge of HIPAA Regulations in Social Media

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Context: Social media accounts and healthcare continue to grow simultaneously, yet there is limited knowledge of practice habits within athletic training students (ATS). **Objective:** To explore social media usage within ATS and to determine the knowledge of HIPAA laws and regulations within social media. **Design:** Cross-sectional analysis. **Setting:** Web-based educational assessment. **Participants:** Professional athletic training program directors listed on the CAATE website (n=365) were asked to distribute the website link to all current ATS in their programs. Additionally, we utilized e-mail recruitment from the NATA database to 5,000 current student members. Participants were excluded if they were BOC certified or enrolled in a post-professional program. A total of 773 ATS responded to the survey with 652 responses were included in the analysis. Interventions: A knowledge assessment of thirteen items based on the governance and utilization of HIPAA laws in healthcare based within clinical education for ATS. **Main Outcome Measurements:** An instrument of 28 questions, including 16 participant demographics, clinical site demographics, social media usage and

general questions, and a 13-item knowledge assessment tool were developed. Validity of the instrument was determined through a Delphi panel of experts in athletic training, healthcare lawyers and information technologist. **Results:** ATS (age = 21.96±8.47 years old, clinical education per week 16.91±27.45 hrs) reported having previous education regarding HIPAA (92.2%, n=587) typically through the classroom and clinical setting. Additionally, ATS mostly stated (32.2%, n=205) they were unsure if their professional athletic training program had a social media policy. In regard to social media, the majority of ATS (69.8%, n=455) self-reported to have six or more active social media accounts. Facebook® (93.4%, n=609), Snapchat® (85.3%, n=556), Instagram® (n=524, 80.4%) and Twitter® (68.4%, n=446) were the most common social media accounts for ATS, yet 37.7% (n=212) of ATS reported social media accounts directly related to athletic training did not enhance or hinder their athletic training education. Finally, we identified a lack of knowledge regarding potential HIPAA breaches and utilization of health privacy knowledge in ATS. Athletic training students scored a total average of 4.9±1.7 out of 13 (37.7±13.1%)on the knowledge assessment. ATS scored poorly on appropriate communication methods (correct - 28.0%, n=183), law governance (correct - 28.5%, n=186), and identifying HIPAA violations on a sample Twitter post (correct – 35.4%, n=231). Total knowledge scores were significantly different (df=541, p = .008) for ATS with previous HIPAA education (mean knowledge assessment score=4.98±1.69) to those ATS without HIPAA education (mean knowledge assessment score=4.26±2.0). **Conclusions:** ATS lacked knowledge of HIPAA laws and utilization of HIPAA laws to identify potential breaches within social media. ATS have a high social media usage, and we suggest that professional athletic training programs ensure their program and affiliated clinical sites have a social media policy in place. Additionally, our findings suggest that athletic training education should seek out instructional strategies and adapt the curriculum of organization and administration courses to reflect the current culture of technology and social media usage in our millennial students. **Key Words:** actual knowledge, healthcare privacy, ethics.

Effectiveness of Using Patient Simulators to Teach Cardiac and Respiratory Auscultation Skills to Athletic Training Students

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Context: The use of patient simulators has become more common in athletic training education over the last decade. The clinical applications and uses of patient simulators in educating athletic training students is limitless. While the educational benefits associated with using patient simulators is touted by numerous health professions, little research exists regarding the impact of such educational sessions involving athletic training students. **Objective:** The objective of this study was to compare the use of two different learning environments on athletic training students' comfort and knowledge regarding cardiac and respiratory auscultation assessment skills. **Design:** The experimental design of this study involved a quasi-experimental, within-subject analysis of pre and post-test scores. **Setting:** The study was conducted in a University laboratory. **Subjects / Participants:** Subjects in this study included twenty senior athletic training students enrolled in a pathophysiology course during their final semester of undergraduate education. **Interventions:** Students were educated in completing both cardiac and respiratory auscultation using two different educational sessions. The first session involved students completing a lecture / lab session in which auscultation skills were taught, demonstrated and practiced using student models. The second session involved students completing a lecture / lab session in which auscultation skills were taught, demonstrated and practiced using patient simulators. Students were asked to score their comfort in completing a cardiac and respiratory auscultation assessment and their comfort level in accurately identifying abnormal findings during a cardiac and respiratory auscultation assessment, using a five-point Likert-scale. Students were also asked four questions each to assess their knowledge of cardiac and respiratory auscultation techniques. The order of educational sessions was not randomized due to scheduling conflicts with accessing the simulation lab. **Main Outcome Measures:** Subjects scores regarding comfort and knowledge were compared following each of the two learning experiences. T-tests were utilized to examine differences between subject's level of comfort and knowledge of auscultation procedures following each education session. **Results:** Findings of this study demonstrate that student's comfort in completing a cardiac assessment and comfort in accurately identifying pathology during a cardiac assessment both significantly increased following the patient simulator session ($p < 0.001$). Student's comfort level with conducting a respiratory assessment improved following the patient simulator session ($p = 0.055$). Student's comfort in accurately identifying pathology during a respiratory assessment significantly increased following the patient simulator sessions ($p < 0.001$). Finally, student's knowledge significantly increased for cardiac auscultation ($p = 0.021$) but not for respiratory auscultation ($p = 0.204$) following the patient simulator session. **Conclusions:** The findings of this study demonstrate the value of utilizing patient simulators in order to increase student's confidence in completing cardiac and respiratory auscultation skills. The findings of this study may have been impacted by the failure to randomize educational sessions. **Key Words:** patient simulators, high fidelity, auscultation.

Utilization Strategies for Standardized Patients in Athletic Training Education

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Context: Standardized patients (SPs) are formally trained individuals who are utilized within athletic training (AT) education to portray the symptoms and attributes of an injury or illness in a consistent or standardized manner to students. SPs are being integrated into AT curricula for teaching and evaluation in order to prepare students for autonomous clinical practice. **Objective:** To present the utilization and associated barriers of an emerging clinical education strategy which fosters clinical and communication skills of AT students in structured simulated environments. **Background:** SPs were developed by medical educators in the 1960s to allow exposure to pathologies not commonly encountered in clinical practice. Since then, SPs have been steadily integrated into other healthcare disciplines

including nursing, physical therapy, pharmacy, and AT. **Description:** AT educators have incorporated both individual and group SP encounters into their curricula in order to provide structured simulated experiences which can supplement real life encounters. Although some SP encounters include patients with common musculoskeletal conditions such as fractures and ligamentous injuries, other encounters prepare students to evaluate and treat patients with medical conditions such as appendicitis and hernias, which are not seen as frequently in AT clinics. Emergency care procedures such as oxygen administration and spine boarding can be practiced with SPs to provide additional preparation in order to be able to respond efficiently and appropriately in emergency situations. Additionally, communication skills necessary for effective patient interviewing can be enhanced through the use of SPs. SPs can be utilized for teaching purposes at the end of a learning objective to demonstrate proficiency of skills in order to facilitate knowledge transfer from the classroom to autonomous clinical practice. As an evaluative strategy, SPs are often used for comprehensive assessments. SP encounters are also being utilized for interprofessional education in which students from other healthcare programs interact with a SP together or discuss a patient case following a SP encounter. Regardless of the structure or purpose of the SP encounter, students receive valuable feedback from the SP, other students, and faculty. Often, encounters are video-taped so faculty and students have the opportunity to review them, and students can engage in self-reflection regarding their performance. There are several barriers to successful implementation of SPs, including faculty time, funding, and access to SPs. However, there are a variety of means to overcome these barriers. Some programs utilize already developed simulation and SP facilities on campus. Even with a smaller budget and more limited resources, small scale SP encounters can be integrated by seeking volunteers from other healthcare programs, theatre groups, or members of the community. **Clinical Advantage(s):** SPs are beneficial for teaching and evaluating clinical and communication skills. AT students have noted improved clinical decision making and confidence after participating in SP encounters. **Conclusion(s):** SP implementation in AT education has paralleled that of other healthcare professions in terms of proposed benefits. SPs, implemented in a variety of ways, are a beneficial strategy which can help to fill a gap in clinical education by providing students with structured patient encounters. **Key Words:** Simulations, Simulated Patients, Clinical Preparation, Clinical Education.

Measurement of Student Knowledge, Attitudes, and Use of Evidence Based Practice Throughout a CAATE Accredited Athletic Training Program

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Context: The Evidenced Based Concepts: Knowledge, Attitudes, and Use (EBCKAU) survey has been used previously in literature to show pre and post results following an approximately 4 week evidence based teaching model. The EBCKAU survey was found to be a valid (K20 value = .250) and reliable tool (Cronbach's alpha .70 or higher) to measure student's knowledge, familiarity, confidence in use, interest, and importance of evidence based concepts. However, in some professional programs, EBP modules may be embedded throughout a two year accredited athletic training curriculum. If EBP is embedded throughout a program will student's knowledge, attitudes, and use of EBP also change? **Objective:** The purpose of the study was to evaluate student knowledge, attitudes, and use of EBP from the beginning to completion of a 2 year CAATE accredited athletic training program. **Design:** Repeated measures. **Setting:** CAATE accredited professional athletic training program. Participants: Seventeen students enrolled at the same institution (16 undergraduate and 1 entry level masters) completed the study. Data Collection and Analysis: The EBCKAU survey was administered at four time points throughout a 2 year (4 semester) professional athletic training program. First, at the beginning of the professional program, prior to course instruction, at the beginning of the second semester, at the end of the second semester, and finally at the end of the fourth semester, or completion of the program. Scores for each survey were calculated and recorded. A repeated measures ANOVA was used to determine difference in scores between the four administration points. Post-hoc comparisons were performed using Tukey's HSD at α=.05. Data analysis was conducted using STATA release 12 (StataCorp LP, College Station, TX). **Results:** Students significantly increased their knowledge, confidence of knowledge, familiarity with, and confidence in use from the start of the professional program to the beginning of the third semester or start of the second professional year. From the beginning of the professional program to the start of the third semester change scores for knowledge were 2.65±1.32; confidence of knowledge 5.71±3.02; familiarity 5.31±3.24; confidence in use 4.375±3.40. Students significantly increased their importance of EBP from the beginning to the end of the professional program, change score 1.88±2.12. There was no significant change in interest from the beginning to the end of the professional program. **Conclusions:** EBP modules embedded across a two year curriculum were effective in improving student knowledge, confidence in knowledge, familiarity, and confidence in use. As students were getting ready to graduate and complete their degree, their understanding of the importance of EBP concepts was the highest. Interest in EBP concepts remained unchanged from beginning to the end of the professional program. However, as students were taking their highest credit load, their interest level related to EBP concepts was the lowest. Incorporating EBP modules throughout a curriculum is an effective teaching method. **Key Words:** evidence based practice, athletic training curriculum.

Focusing on "Soft Skills" in a First-Year Athletic Training Course

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Context: Success as an athletic trainer (AT) and athletic training student (ATS) is dependent on several factors. The instructors of the highlighted course sought to induct first year ATSs into athletic training by focusing on the most key characteristics of successful ATs. **Objective:** The aim of this presentation is to describe how a first year athletic training course was used to promote the awareness and development of characteristics associated with being a successful student and health care professional. **Background:** Previous researchers have found several common factors among ATs including: knowledge, skills/abilities, interpersonal communication,

trustworthiness, honesty, high ethical standards, dependability, adaptability, and communication. As educators in athletic training, we continually look for ways to best introduce and retain students who embrace and pursue the characteristics of a successful AT. Introductory AT classes coupled with observation hours are a common method of socialization in athletic training. The course described in this abstract was designed to focus on the personal attributes and interpersonal abilities that are complementary to the clinical skills required to be successful in athletic training, but that are also broadly applicable to academics and any future career they may choose. **Description:** Qualities and factors of strong ATs identified in the research were used as benchmarks to plan the course. In the course design, there was a clear weekly focus, using each of the defined qualities. Students understood well the aim of the course by seeing each of the qualities described and outlined in the course sequence. Each quality was accompanied by an in class activity and a guided reflection. Activities included guest speakers, in class group work, attendance at the Greater Cincinnati Athletic Trainers' Association quarterly meeting, and other educational opportunities through various offices in the University. The course culminated in interviews with upper class ATSs, and reflective presentations in class. **Clinical Advantages:** The current approach allowed educators to guide the students through the many soft skills that contribute to success in academics and athletic training. This approach also provided students with the opportunity to practice incorporating these skills with focused activities and to reflect on their learning each week. **Conclusions:** While "soft skills" are often perceived as a vital component of induction to professional education and practice, they can be overlooked. Use of such qualities to guide the construction of a first-year course can serve as a valuable method of introducing students to a professional discipline. **Key Words:** Athletic Training, Education, Soft Skills, Professionalism, Foundations, Induction, Retention.

Implementation of Cultural Competence Education into Athletic Training Education Programs: A Qualitative Report

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Context: Cultural competence education is a foundational behavior of professional practice that Athletic Training Programs (ATPs) have been tasked to incorporate into their curriculums. While cultural competence education has been deemed a necessity, limited research exists on cultural competence education and curriculum implementation. **Objective:** This project sought to determine the current methods of educating a student population with limited diversity to provide culturally competent care to patients of all racial/ethnic backgrounds. **Design:** A qualitative approach was selected to allow for rich, quality discussions. **Setting:** Private interviews were conducted by members of the research team by individual phone interview throughout the summer and early fall of 2012. Descriptive data and informed consent was collected prior to the start of each interview session. **Participants:** Participants included 10 ATP faculty (4 male, 6 female), representing a varied range of institution types (public, private, HBCU) and NATA districts. **Data Collection and Analysis:** Each interview initially discussed the purpose and intent of the study, and then shifted to a pre-determined set of questions. Interviews were conducted in a controlled environment and were video/audio recorded. Data were transcribed and coded by a team of three experts. Main themes were identified, data were categorized, and conclusions were formed using the constant comparative analysis method. Peer debriefing and member checks were used to ensure trustworthiness. **Results:** Four major themes were identified in the data: 1) Lack of consistency in self perceived ability of those implementing cultural competence curriculums. 2) Disagreement on definition of cultural competence. 3) Academic implementation barriers and strategies. 4) Clinical implementation barriers and strategies. Overarching barriers to both academic and clinical implementation were identified as lack of diversity within the staff, institution, or surrounding population, and as ignorance as to how to incorporate cultural competence education. Academic specific barriers include subthemes such as: educator ignorance on ways to implement material, and discomfort in addressing the topic due to lack of perceived abilities. Academic specific implementation strategies include subthemes such as: weaving cultural competence education throughout the current curricula, varying in class examples to include a wider range of cultural backgrounds, and addressing cultural issues in specific discussions to create a rich dialog. Clinical education specific barriers include specific subthemes such as: lack of diversity in treated population, lack of diversity in clinical staff, lack of focus on cultural competence education as a goal. Clinical education specific implementation strategies include subthemes such as: varying the clinical rotation location to include different cultural areas and having open and respectful discussions with patients from differing backgrounds. **Conclusions:** Barriers to cultural competence education are many and varied. Further research is necessary to determine the effectiveness of specific implementation strategies.

Transforming Pre-Professional Athletic Training Courses to Engage the Millennial Student

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Context: Human anatomy and medical terminology often serve as prerequisite courses for admission into athletic training education programs. However, the traditional teacher-centered approach used in these courses often lacks the rigor, instructional technique, and innovation to enhance student-learning experiences. In an effort to engage modern students, the instructional design of these courses must be elevated to incorporate innovative instructional methods that keep students actively engaged in the learning process, teach them to apply course content, and develop problem-solving skills that can be applied in advanced coursework and clinical practice. **Objective:** To describe the instructional design and curricular planning process to redesign pre-professional athletic training courses in medical terminology and human anatomy. **Background:** Two undergraduate courses at a medium size, public Midwest University were assessed and redesigned. Medical terminology is a distance-education course with approximately 150 students enrolled across three separate sections per semester. The primary course objective is to help students effectively communicate with other healthcare

professionals. Historically, this course relied exclusively on textbook-created learning platforms, which provided students minimal opportunity to engage with classmates or practice speaking the medical language. Human anatomy is a more traditional, face-to-face learning experience with approximately 450 students enrolled per semester. Anatomy serves as a foundational-level course to a variety of professional and pre-professional degree programs on campus. Traditionally, anatomy has been a teacher-centered, lecture-based format, resulting in minimal student engagement or the ability to translate knowledge into application. This resulted in a passive learning experience and several high-stakes exams to measure knowledge retention. While medical terminology has historically had a high success rate, students often reflect on the lack of engagement and instructor interaction in the distance education course. Contrastingly, human anatomy has a drop/fail/withdrawal rate of nearly 30% over the past 5 years and an average attendance rate of less than 70%. **Description:** A needs assessments was performed for each course to identify areas for improvement. Both course redesigns emphasized a shift to learner-centered instruction. Medical terminology was redesigned to develop an online-learning community that better utilizes technology to actively engage students in conversations and collaborative-learning activities. The use of a textbook-created learning platform was eliminated, decreasing student costs. These changes resulted in higher student satisfaction on course evaluations. Human anatomy was redesigned using a flipped-classroom approach. This allowed for better use of classroom time to incorporate collaborative and problem-based learning experiences for students. More in-class and out-of-class homework was implemented to provide students with ample opportunity to apply course content and receive instructor feedback. We anticipate these changes to result in higher pass rates, lower drop/fail/withdrawal rates, and increased attendance and student engagement. **Clinical Advantages:** The use of active, learner-centered instruction increases the level of student engagement, enhances application of knowledge, and encourages the development of problem-solving skills. **Conclusions:** Active-learning enhances student experiences by providing them an opportunity to demonstrate application of course content to a variety of real-world scenarios. By incorporating active, collaborative-learning opportunities students appear more perceptive to course content and are more actively engaged in the learning community. **Key Words:** course redesign, pedagogy, innovation, distance education.

A "Special" Education for Everyone

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Context: In AT education, variability is the rule rather than the exception. Students learn in different ways and at different rates. Students studying AT bring a variety of ethnicities, languages, ages, genders, academic preparation, previous knowledge, learning styles, disabilities, abilities, interests, and needs to the learning environment. As such, it is critical for AT educators to create learning environments that take into account the wide variability of learners. **Objective:** To present an educational framework that guides the design of learning goals, materials, methods, and assessments to respond to individual learner differences and enhance student achievement. **Background:** Universal Design for Learning (UDL) is an instructional framework that facilitates an equal opportunity for every student to learn. Specifically, UDL is an instructional design blueprint for creating an inclusive learning environment for all students equally. **Description:** UDL is an inclusive pedagogy process to design instruction to address individual student differences. Students differ in the ways they are motivated, engaged, and challenged; perceive and comprehend information; and in the ways they plan, perform tasks, and express themselves. To enhance student achievement, AT educators should provide multiple means of engagement, represent concepts and information through a variety of methods and materials, and provide students the opportunity to demonstrate their learning through various assessment types and formats. To create motivated and purposeful learners, inctructors need to recruit interest, sustain effort and persistence, and facilitate self-regulation. To stimulate interest, educators should provide individual choice and autonony by increasing options for participation. For example, provide choices on how to participate, varry levels of challenges, tie classwork to real-world situations, promote differentiated goals, facilitate self-assessment and reflection, and implement positive classroom behavioral interventions and support. To ensure that information is equally perceptible to all learners, instructors should provide the same information through different visual, verbal, and kinesthetic modalities that allow adjustability by the students. For example, in addition to providing lectures, PowerPoints, videos, or class discussions, provide the option of customizing displays and offer auditory and visual alternatives such as text-tospeech capabilities into course materials. To ensure that all students are able to demonstrate their knowledge, AT educators should provide students with multimple means for demonstrating what they know. For example, in addition to written and practical examiantions, incporrate assesements such as oral presentations, written essays, journals, portfolios, and video projects. **Clinical Advantages:** UDL allows instructors to maintain high academic expectations while reducing barriers to student success, valuing classroom diversity through an intentionally designed course, and enhancing student achievement. **Conclusions:** Educators are teaching in classrooms with diverse student needs and should teach to the ways students learn. Faculty should purposefully design instruction to help all students succeed. Learning outcomes, instructional methods, and assessments are traditionally inflexible; however, they should be individualized by many customized means to reach students with diverse interests, learning styles, and needs to allow students to demonstrate their learning. By increasing options for access, participation, and demonstrating learning, faculty will see improved outcomes and higher retention, persistence, and graduation rates. **Key Words:** engagement, representation, and expression.

Attributes of Effective Mentoring Relationships for Novice Faculty Members: Perspectives of Mentor and Mentee

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Context: There has been a recent interest in ensuring future athletic training educators are prepared to succeed

as a faculty member. Although doctoral education provides ample opportunities for skill development the transitioning athletic training faculty member may still require further support and guidance. Mentorship is often the mechanism whereby continued encouragement and assistance can be provided during role transition. Mentoring can manifest in a formal capacity, or more organically yet there is a limited understanding of the mentoring relationships developed between a new and an experienced faculty member in athletic training. **Objective:** Understand the attributes of mentoring relationships from the perspectives of new and experienced faculty members who have engaged in such relationships. **Design:** Qualitiative study. **Setting:** Institutions accredited by the Commission on Accreditation of Athletic Training Education. **Patients or Other Participants:** We recruited 28 novice and experienced faculty in two groups. From the National Athletic Training Association (NATA) Research and Education Foundation (REF) Research Mentor program we successfully recruited 7 mentors (5 male, 2 female) and 7 mentees (2 male, 5 female). These 14 participants had completed the structured formal mentoring program. We additionally recruited 7 mentors (5 male, 2 female) and 7 mentees (2 male, 5 female) who had not completed the NATA REF Research Mentor program but had self-reportedly engaged in mentoring relationships. **Data Collection and Analysis:** We completed semi-structured telephone interviews following an interview script. Interviews were digitally recorded and transcribed. Data collection ceased once saturation was obtained. Analysis was grounded by the general inductive approach. Peer review and multiple researcher triagulation were completed for trustworthiness of the findings. **Results:** No differences were found between the perspectives of mentors and mentees who had completed the REF mentor program and those who had not. Two major themes emerged: 1.) Positive mentoring relationships and 2.) Challenges. Positive mentoring relationships were characterized by three primary attributes: 1.) Active engagement, 2.) Communication and 3.) Similar Interests. Active engagement is needed from the mentor and mentee and included reciprocity, motivation, and availability. Communication must be open and honest and shared interests allow alignment of goals and expectations. The mentee's resistance to mentoring and mentor's time constraints, both of which resulted in discordant relationships, illustrated the second theme, challenges. **Conclusions:** The relationship between faculty mentor and mentee is similar to the advisor advisee relationship, which is critical in success of students. Thus, such success can be continued as doctoral students transition to faculty positions with the support and tutelage of an experienced mentor. Mentoring relationships develop when there is shared interest, ongoing communication, and an investment made by both mentee and mentor. Open communication in conjunction with identifying areas of commonality will enhance the mentor mentee relationship. New faculty members may be resistent to mentoring due to struggles receiving feedback, while experienced faculty may have competing time restraints that limit availability. The use of mentorship for promising faculty members can positively affect faculty success, and as a result possibly student learning outcomes, and patient care. **Key Words:** education, post-professional preparation, socialization.

Addressing the Education of Patient-Reported Outcomes Measures in Athletic Training Education Through a 2 Year Curricular Model

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Context: Insufficent education on patient-reported outcomes measures (PROMs) prevents students from being able to fully understand and implement evidence-based practice (EBP). Intergrated instruction in PROMS over the course of an athletic training curriculum prepares students to utilize EBP in treatment decisions and contribute to outcomes research as practicing professionals. **Objective:** Investigate how frequently athletic training programs are instructing their students on PROMs. Examine educational practices regarding instruction on PROMs, and provide a model practice for incorporation of PROMs and EBP in athletic training programs. **Design:** Cross-sectional study. **Setting:** CAATE accredited professional bachelors and masters athletic training programs through the distribution of surveys. **Participants:** Email addresses were obtained via the CAATE website (n=363). Of the 363 program directors, 8 emails failed, therefore 355 program directors were invited to participate. A total of 73 program directors responded and completed the study. **Data Collection and Analysis:** Program directors were presented with a series of questions regarding their program's instruction, perceptions, preparation, and perceived student confidence in the use of PROMs. Based on these frequencies, a model practice for athletic training programs was created. The program director survey was piloted to establish content validity prior to data collection and statistical frequencies were generated. The survey was created using Qualtrics software. Dependent variables in this study were the perceived competence of PROMs in athletic training programs and the independent variable in this study was the instruction of PROMs. How and when PROMs were taught, perceived importance of PROMs, and perceived competence of PROMs were examined in this study and analyzed using SPSS (Version 22.0, PASW Inc. Chicago, IL). **Results:** 23.3% of responding programs reported they do not incorporate PROMs into their curriculum. 100% of masters programs reported some instruction and 27% of bachelors programs reported no instruction. Only 60% of programs required students to practice using PROMs and 50% reported they require specific assignments in the clinical setting. A moderately positive correlation was found using a Pearson Chi-Square test that examined how important program directors feel PROMs are for the future of AT and whether or not they encourage preceptors to use PROMs in clinical practice (Pearson Chi Square $x^1=14.275;p= .001$). A moderate positive correlation was found using Cramer's V when examining whether program degree level affects whether or not PROMs are used (Cramer's v $x^1=.232;p= .047$). **Conclusions:** The amount of education students were receiving on PROMs was lacking as a whole in professional education. To address this, a practice model for education of PROMs and EBP was developed. This model incorporated PROMs across the curriculum in a variety of courses over a 2 year professional education program. **Key Words:** Patient-Reported Outcomes Measures, Educational Model, Evidence-Based Practice, Athletic Training Education.

Pedagogical Guidelines and Best Practices for Developing an Effective Online or Hybrid Athletic Training Course

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Context: As athletic training education begins the transition to the entry-level master's (ELM) degree, developing courses that include technology-supported instruction will make the courses more the learner-centered for graduate students. Online and hybrid courses provide greater flexibility, mobility, and self-guided learning which would accommodate multiple student learning styles. With both didactic instruction and clinical experiences in a program, the development of an online or hybrid athletic training course would support the creation of an asynchronous learning environment for graduate education. Currently, many allied health professions including physical therapy, occupational therapy, and nursing utilize online and hybrid education models to implement their curricula, where limited published literature is available in athletic training education. **Objective:** The purpose of this presentation is to provide a theoretical framework, pedagogical guidelines, and best practices to develop effective online and hybrid athletic training courses. **Background:** Athletic training faculty utilize Learning Management Systems (LMS), such as Blackboard, to help deliver content online. LMS tools like Blackboard may be used predominantly to assist faculty in the delivery of instruction, posting of assignments and giving quizzes. Developing online and hybrid courses in athletic training education would create a pedagogical and andragogic shift for graduate education similar to other allied health professions. In order for athletic training faculty to be effective in their development of online or hybrid courses, they must first receive appropriate training on online and hybrid pedagogy and andragogy relevant to graduate students. Using currently established models of online or hybrid allied health education programs such as physical therapy, occupational therapy, and nursing, athletic training educators will gain insight into the specific course objectives, assessment strategies, and measurable outcomes that are required for effective teaching and learning in an online environment. **Description:** This presentation will clarify the differences between pedagogy and andragogy, provide guidelines for graduate course development, highlight best practices for online/hybrid education, and showcase Blackboard tools specific to various athletic training courses (ie. Orthopedic Evaluation, Therapeutic Exercise, General Medicine). Providing examples from other allied health education programs will demonstrate these guidelines in practice. **Clinical Advantage:** With changing academic standards for the ELM, developing online and hybrid coursework would support the delivery of immersive clinical experiences. Hybrid athletic training education programs would increase flexibility of scheduling and provide more time for enhanced clinical experiences. This shift to online and hybrid education would also better preparing graduates of the ELM to succeed. **Conclusion:** With the ELM transition, online and hybrid courses will become vital and this presentation offers theories and best practices for the implementation of such pedagogies. **Key Words:** pedagogy, online, hybrid, Blackboard.

Creation and Implementation of Standardized Patient Cases within Athletic Training

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Context: Standardized patients (SPs) are being utilized by athletic training (AT) faculty to expose students to a variety of clinical situations. It is unclear how standardized patient cases are created and subsequent training of standardized patients occurs. This knowledge could assist in the efficiency of standardized patient use within athletic training programming. **Objective:** To present the standardized patient training strategies and case creation methods utilized by AT faculty. **Background:** Ideally standardized patient cases are created from real patient cases collaboratively with program staff and the healthcare provider (e.g., physician, nurse, physical therapist). The standardized patients are trained in the cases by program staff for anywhere from two to 10 hours depending on the depth and complexity of the case. **Description:** Case development typically involves patient encounters that faculty or preceptors have themselves encountered or conditions found in literature of published case studies. The process of case creation requires faculty to pre-identify characteristics the SP will portray as well as mannerisms and the emotional state of the patient to be portrayed. Depending on the objective of an SP encounter, faculty may choose to incorporate SP use into the classroom prior to an evaluative SP encounter. Faculty may choose to implement multiple cases within the classroom environment ensuring students have exposure and practice with a variety of case scenarios. When utilizing SPs in the classroom, the use of the "time-out" method may be implemented to help students work through a case. Time-outs can be called by the student or faculty when questions arise, a student is unsure as to how to proceed or if the encounter has strayed from the intended objective. The formative feedback provided during encounters to students are valuable experiences but the process may take time to refine depending on how the faculty utilize the SPs. Longer training sessions occur when faculty are instructing the SP on specific feedback techniques to utilize. When determining which cases to have SPs portray, faculty often examine what is most commonly seen in AT clinical settings to ensure students are able to confidently evaluate conditions most often seen. Additionally, students are exposed to less common conditions that require efficient and accurate clinical decision making in order to effectively manage a situation. For evaluative encounters, faculty may choose to standardize one case for all students to receive. Standardization enables faculty to objectively and uniformly evaluate all students on a given objective. **Clinical Advantage(s):** Providing training to faculty on how to properly integrate SPs into an existing AT program can help ensure AT students are being exposed to real world encounters in a realistic manner. Additional training on case creation for faculty can help to facilitate the realistic nature of case portrayals and offer guidance to the SP when they are being trained on specific cases. **Conclusion(s):** Implementation strategies and case creation methods in AT education align with other healthcare professional programs. Faculty can tailor cases to meet the needs of their classroom and clinical learning objectives. **Key Words:** Simulated Patients, Faculty Development, Case Development.

Newly Credentialed Athletic Trainers' Perceptions of Preceptor Characteristics that Facilitate Learning and Transition to Practice

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Context: Preceptors serve an essential role in preparing newly credentialed athletic trainers for their transition to practice. Understanding preceptor characteristics that prepare students for this transition will inform preceptor professional development programs. **Objective:** Determine what preceptor characteristics enhanced learning during professional preparation and facilitated transition to practice. **Design:** Cross sectional. **Setting:** Online survey. **Patients or Other Participants:** 326 of 1931 newly credentialed athletic trainers (17%), certified and employed between January and October 2015, completed the survey (129 males, 197 females; age 23.57±2.5 years; professional program type: bachelors: 276 (84.7%), masters: 50 (15.3%); employment setting: secondary school: 125 (38.3%), college/university: 122 (37.4%), clinic: 45 (13.8%), other: 34 (10.4%). **Data Collection and Analysis:** Participants completed an online survey via Qualtrics. The survey consisted of demographic questions (e.g., gender, type of professional program, and current employment setting) and 48 statements regarding preceptor characteristics divided into five categories: 1) communication (e.g., clearly communicated expectations); 2) instruction (e.g., created learning experiences); 3) evaluation and assessment (e.g., provided feedback on performance); 4) professional behavior (e.g., provided evidence-based patient care); and 5) professional development (e.g., encouraged lifelong professional development activities). Using a 4-point Likert scale (1=not important, 4= very important), participants rated the perceived importance of preceptor characteristics for learning and transition to practice. The survey was developed from a review of athletic training and related healthcare literature and a focus group discussing helpful preceptor characteristics. A panel of experts established content validity of the survey. Reliability of the survey was established by Chronbach's alpha (0.861). Descriptive statistics (mean ± standard deviation) were calculated on each preceptor characteristic statement and each category (calculated by combining statement scores in the category). Mann-Whitney U and Kruskall Wallis were used to determine differences between demographic characteristics and importance of categories of preceptor characteristics (alpha $P<0.05$). A Bonferroni correction was used to account for multiple comparisons. **Results:** Characteristics in the *communication* (3.57±0.13) and *professional behavior* (3.51±0.28) categories were rated the most important, while *professional development* (3.15±0.10) was rated as least important category. The most important preceptor characteristics were *encouraging students to perform clinical skills* (3.77±0.48), *listening to questions or concerns* (3.72±0.52) and *encouraging students to make patient care decisions* (3.69±0.56). The least important characteristics were *assisting in setting goals and planning strategies for development* (3.00±0.82), *directing students towards evidence-based literature in athletic training* (2.88±0.85), and *discussing information from textbooks and journals* (2.78±0.80). Of the 48 characteristics, 46 were rated as important (3/4) or higher, while 19 were rated above 3.5/4. There were no differences in perceived importance on any categories of preceptor characteristics and participant demographics ($P>0.05$). **Conclusion(s):** There are many characteristics newly credentialed athletic trainers felt impacted their learning and transition to practice, especially those related to communication and professional behavior. To further enhance learning in the clinical setting, preceptors should encourage students to have an active role in clinical education; including performing skills and making patient care decisions. Preceptors should listen to questions and concerns, communicate expectations, and engage in dialogue with students. **Key Words:** clinical education, preceptorship.

Minority Enrollment and Retention in Athletic Training Programs

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Context: Minorities are underrepresented in the health professions. Presently, research regarding race and ethnicity, student enrollment, and retention in athletic training programs is unknown. **Objective:** To explore the demographic composition of accredited entry-level undergraduate athletic training programs (AT programs) and to examine the factors affecting minority student enrollment, retention, and academic success in AT programs. **Design:** An exploratory mixed methods study. **Setting:** Undergraduate AT programs from all ten NATA districts accredited by the Commission on Accreditation of Athletic Training Education (CAATE). **Participants:** Seventy-three full-time appointed athletic training program directors (PDs) from accredited undergraduate AT programs and twenty senior level minority athletic training students (ATSs) volunteered for participation in this study. **Data Collection and Analysis:** Part I of the study was conducted through electronic surveys to PDs and ATSs to explore the demographic composition of undergraduate AT programs and the factors affecting minority enrollment and retention in AT programs. Part II of this study utilized videoconferencing (Skype) for the face to face interview of the single qualitative study ATS participant. SPSS was utilized for quantitative data analysis. Qualitative data was transcribed by Rev Audio and Video Transcription Services. Qualitative data will be utilized for a follow up study. **Results:** Ninety percent of PDs self-reported as White/Caucasian. Seventy-eight percent of PDs and 65.8% of PDs reported having no full-time minority faculty and no part-time minority faculty in their AT programs respectively. Less than 20% of enrolled students in AT programs are minority students. The most prevalent student factors reported by PDs that contribute to the lack of racial/ethnic diversity in AT programs included geographic location, lack of current minority student representation in programs, lack of academic preparation, and financial barriers. Approximately, 50% of the minority students felt a strong support system within the athletic training program and the academic institution contributed to their ability to persist through the program. **Conclusion:** Minorities have been consistently underrepresented in the health professions and health professions education including athletic training. Recruitment and retention strategies should be developed and implemented to increase racial and ethnic diversity in athletic training education and the athletic training profession. **Key Words:** underrepresented minority, academic success, racial/ethnic diversity.

Problem Based Learning Model Used to Improve General Medical Decision Making

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Context: The increasing focus and level of competency in general medical condition diagnosis and intervention among the changing athletic training curricular requirements has forced many educators to reassess how the content is taught. The instructor in this general medical course utilized a Problem Based Learning (PBL) Model to structure patient case studies/scenarios to improve student clinical decision-making. **Objective:** The aim of this presentation is to describe a method of using an evidence-based PBL teaching model to improve student clinical decision-making through diagnostic case studies and scenarios. **Background:** PBL is a structure used in didactic coursework that engages students in practical, applicable, evidence-based practice. PBL as a teaching model has been well researched and utilized as a method of guided discovery in solving specific problems. In athletic training, educators commonly use similar teaching styles through the use of partnered work, or case study/scenario work. As the content load increases in athletic training curricula, varying methods and structures of student interaction with content becomes ever more vital. **Description:** The use of PBL in a general medical condition course included paired work through patient case studies/scenarios, which culminated in peer presentations of the cases studies/scenarios. The student pair collaborated to designate a Chair and Scribe for organizational purposes. In compliance with the PBL model, each pair had a tutor, a role fulfilled by the course instructor. At the beginning of each body system module, the student pair was given a brief history of a patient case study/scenario within that system. The students worked together to progress through each case study/scenario in the following phases: patient history; clinical exam (including inspection, palpation, and clinical tests); diagnosis and differential diagnoses; referral and additional testing; intervention and plan. For each of the phases, students used the PBL eight-step process of defining unfamiliar terms, defining problems, discussing problems, constructing possible solutions, formulating learning objectives, studying/researching individually, sharing individual research within the pair, and creating a final presentation of the case study/scenario to their peers. **Advantages:** The implementation of PBL in a general medical conditions course increased opportunities for the students to interact with course content outside of traditional didactic contact. Guiding students through case studies/scenarios in the PBL model allowed for increased opportunities to respond. Students used and developed critical thinking while working through PBL scenarios. PBL allowed the instructor to guide students more directly through case studies/scenarios than may be available in a traditional classroom/laboratory setting. **Conclusions:** General medical concerns in athletic training is an exceptionally broad content area, and provides many challenges to educators who engage students in this content. The implementation of the PBL model in general medical condition courses can provide opportunities for students to receive individualized feedback on the evaluative process and augment the traditional paired case study/scenario evaluative work done in the didactic setting. **Key Words:** Athletic Training, Critical Thinking, Clinical Decision Making, Case Study, Case Scenario, Opportunities to Respond.

Students' Perspectives Before and After an Introductory Interprofessional Project

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Context: Interprofessional education (IPE) is encouraged in health care education with the expectation it will improve care quality and delivery through improved interprofessional communication. In 2013, we reported that an interprofessional (IP) multi-course project increased athletic training, health administrative, and nursing students' knowledge of health care disciplines and their appreciation for practicing communication between disciplines. We have expanded the IP project to include all introductory sections of athletic training, health administration, nursing, occupational therapy, social work, and radiological technology students at the University. **Objective:** To determine if an expanded multi-course IP project impacts students' attitudes towards IPE and if the impact on students' knowledge regarding other health care professions could be replicated. **Design:** Cross-sectional survey design. **Setting:** Thirteen university classrooms. **Patients or Other Participants:** Two-hundred and thirty-eight undergraduate students (men: 32; women: 206) from courses in six health profession (six sections of nursing; two sections each of both athletic training, and occupational therapy; single sections of radiological technology, health administration, and social work) participated in two surveys and an IP project. **Data Collection and Analysis:** Participants completed a modified electronic version of the Readiness for Interprofessional Learning Scale (RIPLS) Questionnaire during the second week of a 16-week academic semester. The faculty assigned students to an interprofessional (IP) group with representation from at least three different disciplines and instructed them to produce a 5-minute video presentation on an assigned health care profession. Presentations included a description of the profession; how and when the professional communicated with other health care professionals; and comments from an interview with a current professional. During the 14th week of the semester and after completing the project, students completed the same modified RIPLS questionnaire. Means and frequency were calculated. Quantitative data were analyzed with ANOVA followed by Tukey post-hoc testing when appropriate. *A priori* was set at 0.05. **Results:** Following the IP project, students from all disciplines were more likely to report that patients benefit from health care disciplines working together (Strongly Agree Pre:34%,Post:53%; $F_{1,5}$=8.62; P=.003); teamwork skills are vital for health care students to learn (Strongly Agree Pre:60%, Post:62%; $F_{1,5}$=8.17; P=.04); and clinical problem solving is most effective when working with others (Strongly Agree Pre:14%, Post:44%; $F_{1,5}$=15.07; P<.001). In addition, students reported increased knowledge regarding all participating health care disciplines (P<0.01). Students also had a better understanding of which health care professionals they would likely work with in the future (Strongly Agree Pre:14%,Post:44%; $F_{1,5}$=58.35; P<.001) and how their profession related to other health care professions (Strongly Agree Pre:13%,Post:42% $F_{1,5}$=55.37; P<.001). Participating in the IP project did not impact this group's appreciation for practicing communication between health care disciplines. **Conclusion:** This study demonstrate how a IP, multi-course project can impact student's attitudes toward IP learning, especially related to patient benefits, importance of team work, and clinical problem solving. In addition, the project improved students' knowledge of all

health care disciplines. Future studies should assess the impact of these attitude changes during more advance IP interactions, including patient care. **Key Words:** Multidisciplinary, Pedagogy, Interprofessional Education.

Preceptors' Perceived Learning Needs Regarding Their Development

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Context: Athletic training programs now develop their own content and mechanisms for developing preceptors. Ideally preceptor development sessions should meet both the needs of the educational program and the preceptor; however, there is a gap in the existing literature regarding athletic training preceptors' perceived learning needs. **Objective:** To examine preceptors' perceived learning needs regarding their development as a preceptor and determine if differences in perceived learning needs occur based on demographic characteristics. **Design:** Cross-sectional. **Setting:** College and university setting. **Patients or Other Participants:** 79 preceptors (31.66±8.63 years, male=32, female=47, 9.46±8.27 years certified, 6.08±5.88 years as a preceptor) affiliated with professional programs in NATA District 4. **Data Collection and Analysis:** The Preceptor Needs Assessment was completed online (Qualtrics) and included a demographic section (e.g., clinical setting, years of experience) and 46 total statements divided into 5 sections: 1) teaching and learning in the clinical setting, 2) evaluating students, 3) communication, 4) student development, and 5) mentorship). Preceptors used a 3-point Likert scale (1=not helpful, 2=somewhat helpful, 3=very helpful) to rate how helpful the content or topic in each statement would be for a preceptor development session. Content validity was established by an expert panel, and internal consistency (Cronbach's α) of the sections ranged from .720 to .932. Differences in perceived helpfulness of each section based on demographic characteristics were assessed with a Chi-square (X^2) analysis. Descriptive statistics (mean ± standard deviation) were used to understand the level of helpfulness of each section and the individual statements. Statistical significance was set a priori at $P \leq 0.05$. **Results:** No significant differences were found between any statements and participant characteristics including number of years of preceptor experience, gender, clinical setting, educational background, and average number of students supervised at one time. The average perceived level of helpfulness for each section indicated that preceptors perceived all topics as "somewhat helpful". Average scores for each section were: teaching and learning in the clinical setting (2.38 ± 0.41), evaluating students (2.39 ± 0.47), communication (2.23 ± 0.53), student development (2.30 ± 0.49), and mentorship (2.13 ± 0.59). Overall, the two topics rated most helpful, both from the teaching and learning in the clinical setting section of the survey, included "developing students' critical thinking skills" (2.67 ± 0.52) and "teaching clinical decision making" (2.67 ± 0.55). The two topics rated least helpful, both from the mentorship section of the survey included "finding a mentor to assist you as a preceptor" (1.97 ± 0.71) and "understanding your personality type" (2.01 ± 0.76). **Conclusions:** Preceptors' learning needs do not appear to be based on years of experience, clinical setting, or educational background. Athletic training programs should aim to offer preceptor development related to teaching and learning in the clinical setting while specifically providing guidance on developing students' critical thinking skills and teaching clinical decision making. Because preceptors play a vital role in developing students, it is critical that their needs are understood to provide the best development possible. **Key Words:** clinical education, athletic training education, preceptorship.

The Modified Learner-Centeredness Scale: A Valid and Reliable Instrument for Use in Athletic Training Clinical Education

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Context: Although there is still much unknown regarding best practices in athletic training clinical education, learner-centeredness (LC) has been explored by other healthcare professions as a means of effective clinical teaching. The Learner-Centeredness Scale, originally developed and validated to assess long-term outcomes of a faculty development program for physician-teachers, is a 6-question scale designed to assess the LC of a physician educator. This scale was modified, with permission, by rewording items to allow learners to assess the LC of clinical education experiences. This new instrument is the Modified Learner-Centeredness Scale (MLCS). It is important to assess the psychometric properties of this new scale for its potential use in measuring LC in athletic training clinical education. **Objective:** To assess the construct validity and internal consistency of the MLCS. **Design:** Cross-sectional survey design. **Setting:** Population based, web-based survey. **Participants:** The NATA provided email addresses for the population of athletic trainers who were BOC certified for 12 months or less, totaling 2,650 across all ten districts, 2,602 which were valid. Four hundred ninety-three participants responded (19% response rate), although 79 were deemed ineligible and 171 did not complete the entire survey and therefore responses were removed from the data set. A total of 243 participants were used in the data set (months practicing = 7.95+1.61; 28.8% male, 71.3% female). **Data Collection and Analysis:** Participants were sent a web-based link to the online survey during a 1 month sampling frame, and follow-up emails were sent approximately 2 and 3 weeks following initial contact. The MLCS is scored between 0 and 24 with a higher score representing greater perceptions of learner centered clinical education experiences. Participants completed the instrument twice: once while considering the clinical experience they felt best prepared them to practice independently as a clinician and once while considering the clinical experience they felt least prepared them for independent clinical practice. A principal component analysis (PCA) was conducted to examine construct validity of the MLCS and to confirm a 1 factor structure while a Cronbach's alpha was used to establish internal consistency of the MLCS items. **Results:** The first component's eigenvalue was 5.16 and accounted for 85.94% of the variance. All other component eigenvalues were .28, .19, .18, .14, and .05 respectively. This data confirmed the one factor structure. Visual assessment of a scree plot, Velicer's Minimum Average Partial (MAP) and parallel analysis also indicated a one factor structure.

Reliability analysis of the MCLS indicated a Cronbach's alpha of .97, indicating internal consistency of the data. **Conclusions:** Results of this study indicate that the MLCS has acceptable construct validity and internal consistency. The MLCS shows promise as an assessment instrument for learner-centeredness in athletic training clinical education. Future research should assess other psychometric properties of the instrument. In addition, the MLCS can be used to identify characteristics of clinical education and preceptors that influence student's perceptions of LC. **Key Words:** Clinical education, learner-centered, Cronbach's alpha, factor analysis, construct validity, internal consistency.

The Comparison of Educators', Preceptors', and Professional Athletic Training Students' Perceptions of Student Preparation Within the Six Healthcare Competency Areas

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Context: While the National Academy of Medicine has identified several areas that all healthcare professionals, regardless of discipline, should be competent in, only a few of these areas are currently required in professional athletic training programs (ATPs). Therefore, it is unclear whether students are being prepared in these healthcare competency areas. **Objective:** To compare perceived student preparation levels within the healthcare competency areas among educators, preceptors, and final-term athletic training students enrolled in professional Commission on Accreditation of Athletic Training Education (CAATE) ATPs. **Design:** Cross-sectional. **Setting:** Self-reported paper survey. **Patients of Other Participants:** 1842 participants (126 educators, 215 preceptors, 1501 students) from a convenience sample of the educators, preceptors, and final-term athletic training students (84.2% response rate) from 167 participating ATPs. **Data Collection and Analysis:** The survey consisted of a section for each competency: quality improvement (QI), professionalism (PROF), healthcare informatics (HI), interprofessional education and collaborative practice (IPECP), evidence-based practice (EBP), and patient-centered care (PCC). Each section included concept statements (range: 8-18) that related to the definition of the respective competency. All participants rated their perception of how well the ATP prepared students for the concepts of each competency on a 4-point Likert scale of not prepared (1), minimally prepared (2), moderately prepared (3), and fully prepared (4). Prior to data collection, reliability of the preparation scale was established and deemed extremely high (α=.971). Composite preparation scores were calculated by adding all values and then averaging the scores back to the Likert scale. Higher scores indicated participants' perceived higher levels of preparation in each competency area. The independent variable was ATP role (educator, preceptor, student) and dependent variables were participants' responses. Descriptive statistics were used to describe overall perceptions while Kruskal-Wallis H tests ($P<.05$) and Mann Whitney U tests with a Bonferroni adjustment ($P<.0167$) were used to determine group differences. **Results:** Overall, participants perceived students were moderately prepared in QI (3.36/4.0±.44), PROF (3.43/4.0±.42), IPECP (3.24/4.0±.54), EBP (3.37/4.0±.46), and PCC (3.39/4.0±.48), but only minimally-to-moderately prepared in HI (2.91/4.0±.55). Perceptions of student preparation differed among groups for all six healthcare competencies. Students reported the highest perceived preparation levels for all six competencies (QI=3.40/4.0±.42, $P<.001$; PROF=3.47/4.0±.40, $P<.001$; HI=3.03/4.0±.55, $P<.001$; IPECP=3.27/4.0±.54, $P<.001$; EBP=3.41/4.0±.44, $P<.001$; PCC=3.35/4.0±.46, $P<.001$). Educators reported higher perceived student preparation levels than preceptors for QI (educators=3.22/4.0±.44, preceptors=3.12/4.0±.53), PROF (educators=3.36/4.0±.40, preceptors=3.19/4.0±.54), and EBP (educators=3.20/4.0±.50, preceptors=3.12/4.0±.56). However, preceptors reported higher perceived student preparation levels for HI (preceptors=2.81/4.0±.65, educators=2.75/4.0±.54), IPECP (preceptors=3.06/4.0±.62, educators=3.03/4.0±.52), and PCC (preceptors=3.05/4.0±.54, educators=2.96/4.0±.48). **Conclusions:** The high perceived perceptions levels among students is unsurprising; literature supports students' overestimation of their knowledge, skills, and abilities. However, results from this study suggest that educators and preceptors may also overestimate students' preparation in competency areas they do not routinely assess. These findings highlight the need to prepare students in the healthcare competency areas using effective assessment and feedback mechanisms via a 360-degree evaluation approach. Future research should examine relationships between student preparation perceptions and actual skill levels. **Key Words:** student evaluation, healthcare informatics, 360-degree student evaluation. *Funded by the National Athletic Trainers' Association Research and Education Foundation.*

Effects of Mandatory Peer Assessment/Feedback After Training on Psychomotor Skill Performance

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Context: Peer assessment/feedback (PAF) is a pedagogic technique that falls under the peer assisted learning umbrella. Peer assessment is defined as students judging the level or quality of a fellow student's understanding or work and peer feedback involves providing information on what was performed correct and incorrect in order to improve understanding. Documented benefits of PAF include enhanced learning, improved critical thinking, self-assessment, increased reflective thinking and collaboration. **Objective:** Examine the effects of mandatory PAF after training on psychomotor skill performance. **Design:** Prospective cohort study. **Setting:** Undergraduate athletic training program in a mid-sized public university in the southeast. **Subjects/Participants:** Fifty-seven sophomore athletic training students enrolled in a lower extremity orthopedic evaluation course over two years participated in the intervention and completed all required parts of the study. A control group consisted of 53 students that took the course during the previous two years; the course was constructed the same, with the exception of no PAF training and no mandatory PAF. **Intervention:** Participants in the intervention group completed a 2 hour workshop that covered proper mechanisms to assess, provide feedback, and receive feedback. Training also included analysis of videotaped scenarios and practice scenarios. Participants were also required to complete PAF of the skills prior to the practical exams. **Main Outcome Measures:** The critical

dependent variable was participation in the PAF training and mandatory PAF prior to practical exams. Scores of 4 practical exams were compared through 4 separate independent samples t-test using SPSS. **Results:** The control group performed better on all four 60 point practical exams. The differences were statistically significant for exams 1 and 3. Exam 1 covered neurological and ankle [$t(108)=4.95$, $p=0.00$, means: experimental 52.80 ± 5.24, control 47.85 ± 5.25]. Exam 3 covered the hip [$t(108)=2.27$, $p=0.03$, means: experimental 51.40 ± 5.00, control 49.02 ± 6.75]. There were no statistical significant differences for exams 2 and 4. Exam 2 covered knee and patellofemoral joint [$t(108)=1.87$, $p=0.07$, means: experimental 52.35 ± 5.00, control 50.66 ± 4.46]. Exam 4 was a cumulative practical exam [$t(108)=4.95$, $p=0.08$, means: experimental 51.77 ± 6.25, control 51.36 ± 5.58]. **Conclusions:** PAF training and mandatory PAF improved practical exam grades for 2 of the 4 exams; PAF did not hinder student learning. PAF can be a helpful tool to increase the amount that a student practices skill, and increase the amount of feedback students receive. This can be especially with helpful with large classes. **Key Words:** peer assessment, peer feedback, peer assisted learning.

Developing a Peer-to-Peer Mentorship Model for Athletic Training Clinical Preceptors

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Context: The demands placed on athletic training clinical preceptors includes multiple areas of focus including clinician, educator, supervisor and mentor. These preceptors may commonly experience role-strain, burnout, and other challenges to their own professional success. Creating dialogue between preceptors and encouraging professional socialization may improve interactions between students, educators, preceptors and patients. Athletic training education programs provide continuing education experiences and preceptor workshops but these may not promote continued year-round mentorship to support professional growth. **Objective:** This presentation will highlight the benefits of peer-to-peer mentorship model for athletic training clinical preceptors that will support professional growth and development. **Background:** Challenges of serving as a preceptor in allied health professions such as nursing include role-strain and inadequate preparation to provide supervision of students. These challenges are not isolated to novice versus experienced preceptors, and the newer standards for athletic training education at the masters level precipitate the need for a more formalized mentorship model. Traditional annual preceptor training may be less effective to provide mentorship to a large group of preceptors from multiple clinical settings. A structured peer-to-peer mentorship model may better support the learning objectives for preceptor training. Although several conceptual models exist in nursing education, no published research exists on formalized peer-to-peer mentorship programs in athletic training education specific to preceptor education. **Description:** This presentation will outline the advantages and disadvantages of current traditional preceptor mentorship and provide examples of how to develop peer-to-peer training activities. The role of the mentor and mentee specifically outline the framework for development of a formal mentorship model. Suggested areas to focus mentor guidance are in research, academic writing for publication, academic writing for presentation and facilitating community engagement. Educators can strengthen and build the mentorship program by supporting a platform for open dialogue, directing focused interactions and facilitating reflective assessment opportunities. Specific implementation of hybrid, face to face, and online formats will be further demonstrated. **Clinical Advantage:** Through collegial interaction and reflection positive behavior change and professional growth benefits the delivery of high quality clinical instruction and clinicians with quality professional growth they are able to sustain and demonstrate. Improved motivation, improved program adherence as well as improved outcomes in student learning and professional growth can be obtained through formalized mentorship programs in preceptor development supporting clinical education. Building a sustainable and structured mentorship model for preceptors further supports the development of guidance for clinical teaching strategies. **Conclusions:** Athletic training education programs choosing to consider the development of a formalized mentorship model for preceptors can benefit from improved clinical outcomes when implemented with thoughtful integration. Formalizing mentorship as a part of preceptor development affords AT programs the opportunity to diversify preceptor training and supports overall program development in a collegial atmosphere. **Key Words:** Preceptor, mentorship, peer-to-peer, clinical education.

Sport-Related Concussion Assessment and Management Teaching Trends in Athletic Training Education Programs

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Context: Clinical healthcare guidelines emphasize that a multifaceted approach should be used to manage sport-related concussions (SRC). In order to uphold these guidelines it is imperative that athletic training (AT) students are exposed to multiple SRC management tools within their AT education program. **Objective:** To identify which SRC resources and management tools are being used to teach and prepare AT students to clinically evaluate and manage concussive injuries. **Design:** Cross-sectional. **Setting:** Web-based survey. **Patients or Other Participants:** 102 AT educators (81 program directors, 7 clinical education coordinators, 10 professors, 4 preceptors) from Commission on Accreditation of Athletic Training Education (CAATE) accredited AT education programs. **Data Collection and Analysis:** Athletic training educators were emailed a web-based survey to complete. The survey included demographic questions on the respondent's education level, years of certification, years of clinical practice, and role within their AT education program. The survey also collected information about what resources and management tools are used to teach students about SRCs. AT educators were asked which SRC position statements were taught in class, SRC assessment tools, and return-to-play guidelines use when evaluating and managing SRCs. All data were analyzed using descriptive statistics in SPSS. **Results:** The National Athletic Trainers' Association (NATA) position statement was reported as the most widely used resource to educate AT students about

SRCs (99.0%) compared to the Concussion in Sport Consensus Statement (Zurich Recommendations) (81.4%). Concussion grading scales are still being taught in approximately 8% of accredited AT education programs despite recommendations to cease using grading scales for concussion diagnosis and management. The clinical examination is the most frequently taught assessment measure to manage SRCs (92.2%) and make a return-to-play decision (88.2%). The majority of AT students are gaining hands-on experience with computerized neurocognitive testing (82.4%), the BESS test (87.3%), and the SCAT3 (84.3%), however, AT students are not being taught the vestibular ocular motor screening (VOMS) test (77.5%) or the King-Devick (KD) test (68.6%). Moreover, despite gaining hands-experience with computerized neurocognitive testing, only 53.9% are being taught how to read and interpret results. Lastly, 73.5% of AT students are being taught to individualize SRC care based upon clinical presentation. Overall, 83.3% of AT educators in this study were confident that their newly certified AT students are capable of diagnosing and managing a SRC. **Conclusion(s):** The majority of AT educators are using a multifaceted approach to teach AT students how to evaluate and manage SRCs. However, few AT students are being exposed to newer concussion management tools such as the VOMS and KD. Contemporary empirical evidence has suggested that tools such as the VOMS and KD should be incorporated into the multifaceted approach. Concussive injuries are heterogeneous, and it is recommended that AT educators emphasize an individualized approach to care when teaching SRC management. **Key Words:** concussion assessment tools, athletic training education, practice guidelines.

Progression of Goniometric Skill in Student Raters: An Examination of Intrarater Reliability

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Context: Psychomotor skills, such as measuring ROM with a goniometer, are commonly performed in athletic training. There is substantial literature describing goniometric reliability in novice and experienced clinicians, however, little is known about how student raters skill level progresses as they become novice clinicians. Athletic training educators may benefit from better understanding how this skill is acquired and integrated to help improve educational methods. **Objective:** The purpose of this study was two-fold: 1) To determine the progression of intrarater reliability in undergraduate athletic training students, and 2) to determine if level of student influences skill integration and precision by comparing undergraduate and graduate students. **Design:** Prospective, cross-sectional, test-retest. **Setting:** One small, private institution with a CAATE accredited undergraduate athletic training program, CAPTE accredited graduate physical therapy program, and ACOTE accredited graduate occupational therapy program. **Subjects/Participants:** Thirty-five undergraduate athletic training students (20.2 $\pm$ 2.1 years old) and twenty-seven graduate physical and occupational therapy students (25.3 $\pm$ 2.1 years old) were recruited for the study. **Intervention(s):** Knee (athletic training and physical therapy students) or elbow (occupational therapy students) flexion was measured with a standard goniometer using accepted, published measurement protocols. Goniometers were blinded to the student and a data collector was present to record all measurements. **Main Outcome Measures(s):** Three student measurements were averaged and an Interclass Correlation Coefficient (ICC) (3,k) was used to calculate intrarater reliability. Data sets for graduate physical and occupational therapy students were pooled. ICCs were averaged by year in school and plotted to demonstrate skill improvement over time. **Results:** Undergraduate athletic training students demonstrated fair to excellent reliability depending on year in program. Freshmen students average intrarater reliability was 0.73, sophomores scored 0.87, junior level students improved to 0.97, and senior level students demonstrated a decrease to 0.82. Intrarater reliability for graduate students was excellent across the length of the academic programs with first year graduate students demonstrating reliability of 0.95 and third year students averaging 0.93. **Conclusions:** The current research highlights progression of student skill in undergraduate athletic training and graduate physical and occupational therapy students taking goniometric measurements. There was clear improvement in skill seen in undergraduate athletic training students, although a decrease in reliability was observed in the last year of the program. Skill decay may have occurred in this group of students no longer focused on the skill in the classroom and rarely using it in their clinical education. This student group may benefit from improved modeling and utilization of the skill clinically. Graduate students demonstrated excellent intrarater reliability at the beginning and end of their academic programs. The consistency observed in the graduate student's reliability may be due to increased utilization in the clinical setting and/or greater emphasis in their clinical education. There appears to be a difference between undergraduate and graduate students' precision and skill with this psychomotor skill. **Key Words:** Intrarater reliability, goniometry, skill development.

Integrating Simulations and Standardized Patients into a Medical and Pharmacological Aspects of Athletic Training Course

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Context: There is little published on best practices regarding teaching students to treat patients with non-orthopedic medical conditions (e.g., influenza, conjunctivitis). During clinical education students are not often exposed to such patients, but simulations and standardized patient experiences can help fill the educational gap. **Objective:** To present how simulations and standardized patient encounters were integrated into a Medical and Pharmacological Aspects of Athletic Training course to provide students additional patient encounters. **Background:** Athletic trainers are often the first point of contact for patients with non-orthopedic conditions and pharmacological needs. While athletic trainers may not be solely responsible for treating these conditions, they must be able to identify them and determine if further care and/or referral to another healthcare professional is necessary. However, in athletic training these conditions do not occur as frequently as musculoskeletal injuries, so students have fewer learning opportunities. Simulations and standardized patients promote student engagement and are frequently

used in healthcare education to supplement classroom and clinical education. **Description:** We implemented thirteen simulations and two standardized patient experiences during one semester. These experiences were conditions students may see frequently (e.g., influenza, allergies) or those that are rarely seen but are critical and require referral (e.g., exertional rhabdomyolysis, ovarian cyst, testicular torsion). The simulations were grouped by body system (e.g., digestive, cardiovascular) with 2-3 simulations per system, and the standardized patient encounters were influenza and urinary tract infection. During all experiences the time-in, time-out approach was used where students, in groups of 3-4, interacted with the patient but could call time-out to seek feedback and support then continue or restart the encounter. Athletic training faculty and preceptors created the simulations and standardized patient encounters. Students in the course portrayed the patients during the simulations, and theater students portrayed the standardized patients. Debriefing occurred following all encounters to provide students the opportunity to express their feelings, discuss the differential diagnoses, and reflect on their communication and patient care. All of the students in the course and the standardized patients participated in the debriefing. **Clinical Advantages:** The use of simulations and standardized patient encounters to complement clinical education helps students gain confidence and practice decision-making skills. These encounters provide an opportunity for students to act as clinicians, similar to clinical education experiences which play a significant role in student preparation. Debriefing also plays a crucial role in promoting reflection regarding patient care decisions and allows students to talk through their decisions and receive feedback from faculty, peers, and the standardized patients. **Conclusions:** These two different educational approaches were used in combination to create an environment where students engaged in active learning and practiced their clinical and communication skills. Students applied knowledge and skills similar to how they would during clinical education. Students reflected on the thought process and communication skills utilized during the encounters. They practiced differential diagnoses and decision-making skills and gained confidence in their abilities. **Key Words:** decision-making, reflection, simulated patients.