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SPECIAL ISSUE: POSTER ABSTRACTS 2013 ATHLETIC TRAINING EDUCATORS' CONFERENCE

January 11-13 Dallas, TX

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Disclaimer: The abstracts on these pages were prepared by the authors and are printed here without correction. The accuracy, nomenclature, form, and style all remain the responsibility of the authors.

Dear Athletic Training Educators,

We are pleased to present this special issue of the Athletic Training Education Journal. The NATA Continuing Education Committee is excited to again partner with the Journal to publish the abstracts presented at the 2013 NATA Athletic Training Educators' Conference (ATEC).

The ATEC Committee is very excited that the theme of this year's ATEC is Athletic Training Education: Model Practice and Future Directions. This conference is occurring during an exciting time in athletic training education as we have new accreditation standards, new educational competencies, and 14 recommendations in the <u>Future Directions in Athletic Training document</u> from the Executive Committee for Education. With this theme, we wanted to encourage educators who are engaging their students in an innovative manner and pushing the practice of athletic training education forward to submit for presentation. We encourage you to attend the general sessions and many of the twelve breakout sessions dedicated to this very important topic.

The poster sessions presented at this ATEC include broad issues related to athletic training education. We continually aspire to improve and make the peer-review process transparent. Andy Winterstein, PhD, ATC lead the peer-review process along with 10 other reviewers. Each abstract underwent peer-review to ensure we maintain the high level of scholarship readers expect of the *Athletic Training Education Journal*. We appreciate the feedback we have received from authors, and suggestions are always welcomed on how to further improve the review process. I would like to acknowledge and thank Andy for his leadership as well as the following reviewers for their long hours and attention to detail during this review process:

Robert C. Sipes, EdD, ATC, CSCS	Sarah Manspeaker, PhD, ATC
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Stephanie Mazerolle, PhD, ATC	Kirk Armstrong, EdD, ATC
Blaine Long, PhD, ATC	Ashley Thrasher, MS, ATC, CSCS

I would also like to take this opportunity to extend a special thanks to Anita James, Knowledge Initiatives Manager for the NATA, and other members of the Meetings Department whose attention to detail and dedication has made coordinating this event an absolute pleasure. The members of the ATEC subcommittee, Mary Barnum, EdD, ATC; David Berry, PhD, ATC; Andy Winterstein, PhD, ATC; and Ray Castle, PhD, ATC, deserve a significant amount of credit for reviewing plenary, breakout session, and model practice proposals, and determining the overall content of the conference. Lastly, I wish to thank William Pitney, EdD, ATC, FNATA along with the editorial office of the *Athletic Training Education Journal* for making this issue possible.

Stacy Walker, PhD, ATC Continuing Education Committtee Chair, Athletic Training Educators' Conference Subcommittee

Scholarship of Discovery

Students Perceptions of Peer Video Assignment

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Context: In current pedogological practices it is important to include technology as a means of incorporating practical applications for enhancing and developing clinical practice into the curriculum.

Objective: To determine student's perceptions of a peer video assignment and how time on task differed between a video assignment and a traditional written assignment. Design: Students in three courses that utilized a peer video assignment were asked nine questions regarding group work, enhanced learning, time on task, and were then asked to compare these assignments with traditional written assignments.

Setting: Students in Athletic Training and Health classes compared a traditional written assignment of writing out answers to scenarios to video taping mock scenarios for clinical practice.

Patients or other Participants: 85 students (18-47 mean 21.78+ 3.91) whose average enrollment was in their third year of school participated in this study. Males accounted for 27% of the participants (23).

Data Collection and Analysis: Participants answered questions on a Likert scale 1-7 with 1-3 indicating disagreement (D), 4 indicating neutrality (N), and 5-7 indicating agreement (A). A t-test for time on task and a one-way ANOVA for gender differences were utilized.

Results: A t-test comparing time on task revealed a significant difference (p<.001) between the peer video assignment and a traditional written assignment (Video Assignment 50.05+ 28.76 and traditional 43.75+ 30.78 minutes on task). A one way ANOVA revealed that males significantly (p=.040) spent more time on the video assignment than traditional assignment (Video Assignment 58.9 + 26.6 and Traditional 39.13+ 25.96 minutes on task). The overall consensus was that 69.4%(N=18.8%, D=11.8%) liked group work, 77.6%(N=18.8%, D=3.5%) enjoyed demonstrating a practice scenario via video rather than activity performance in front of the class, 55.3% (N=28.2%,D=16.5%) felt the video assignment enhanced their learning, 62.4%(N=23.5%, D=14.1%) revealed students learned by viewing other's video assignment and 63.4%(N=17.6%, D=19%) would like additional similar assignments. Learning styles questions indicated that 75.1% (N=10.6%, D=14.3%) suggested that students learn best by hands on activities compared to 19.3%(N=22.4%, D=58.3%) who specified that they learned best by reading and writing assignments. Overall 74.1% (N=17.6%, D=8.3%) wanted the peer video assignment to continue in future courses. Mode for the assignment was 24.1% utilized a traditional video camera, 19.3% utilized a student's personal Smartphone, 37.3% used a Flip© camera and 19.3% used another source of video camera (often a camera with video capabilities).

Conclusions: Students spend more time on task with a peer video assignment and overall perceived the assignment positively. Males specifically spent more time on the video assignment compared to traditional written assignments.

Clinical Instructional Methods Employed by Approved Clinical Instructors in the Clinical Setting

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Context: Clinical education is critical in the professional development of the athletic training student. Instructional style can vary between clinical instructors and little information is available regarding popular methods used by the athletic trainer serving as an approved clinical instructor (ACI).

Objective: To uncover the common instructional styles used by the athletic trainer supervising an athletic training student in the clinical setting.

Design: Qualitative study.

Setting: Athletic Training Education Programs.

Patients or Other Participants: Twenty-four ACIs with an average age of 32 ± 7 (11 male, 13 female) volunteered for the study. On average the ACIs had $9 \pm$ 6 years of clinical experience and served an average of 5 ± 3 years as an ACI. The ACIs were employed at the collegiate setting (12) and secondary school setting (12). Of the 24 ACIs, one held a PhD, 16 had Master's degrees, and 7 possessed Bachelor's degrees and were working towards their master's degree.

Data Collection and Analysis: We completed a general inductive study using online, asynchronous in-depth interviewing via Question Pro[™]. Credibility was secured by using a peer review, intercoder agreement, and member checks. We analyzed data inductively to uncover the dominant themes and recruitment was guided by data redundancy.

Results: Three dominant themes emerged from the data. ACIs engaged athletic training students through discussions and questioning to facilitate learning and critical application. Our participants were concerned with stimulating higher-level thinking, and did so by regularly engaging the student in discussions regarding patient care and providing critical feedback to the student. Providing the athletic training student with the independence and autonomy to develop their own clinical style and abilities by providing an authentic experience also occurs. This was accomplished by allowing for realtime integration of student clinical skills via hands-on learning. We also found ACIs foster a learning environment that allows the Mathletic training student to feel as though their ACI is approachable. Creating a supportive learning environment was viewed as important to help develop competence, due to ease with skill implementation. ACIs also welcomed informal feedback from students in order to enhance interactions.

Conclusions: Approved clinical instructors promote learning by mentoring students through a professional relationship and by creating an authentic learning experience that challenges the student to think, apply their knowledge, and gain confidence by being an active learner. Our ACIs demonstrated a preference of a personal model of instruction as well as delegator model, which encourages independent work by the student to allow them to develop competence. The results of our study help to illustrate that ACIs are knowledgeable in some instructional techniques that align with prominent, proven strategies for instruction. Programs should continue to use ACI training and re-training sessions to educate their ACIs and clinical instructors on the methods discussed by our participants, which includes the use of clinical questioning, feedback for skill improvement, and the freedom to engage in patient care.

Key Words: pedagogy, clinical education, learning.

Self-Perceived Educational Preparedness of Entry-Level Athletic Trainers Regarding Preventing Sudden Death in Sport

Pagnotta KD, Mazerolle SM, Yabor TM, Salvatore AC, Casa DJ

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Context: Sudden death is a constant concern in sport, especially since in many cases the death is preventable. Athletic trainers (ATs) are often the first medical professional on-scene when such a condition occurs; therefore need to be well versed in recognizing and managing these conditions. Recent evidence regarding exertional heat stroke (EHS), a cause of sudden death, indicates a lack of educational training as a factor contributing to implementation of best practices.

Objective: Understand how athletic training education programs (ATEPs) prepare the athletic training student (ATS) to be competent in emergency care procedures. **Design:** An inductive qualitative study utilizing phone interviewing.

Setting: Athletic Training Education Programs.

Patients or Other Participants: Thirteen participants volunteered for the study (7 males, 6 females). In order to gain a holistic view, participants were either first-year entry-level AT or recent ATS graduate prior to employment. The average participant age was 23 ± 2 years.

Data Collection and Analysis: One-on-one phone interviews following a semi-structured format were conducted with all participants. Interviews were transcribed verbatim and shared with participants prior to analysis. The data was analyzed inductively borrowing from the principles of a grounded theory approach and open coding. Multiple analyst triangulation and peer review were included as steps to establish data credibility. Results: One dominant theme emerged from the data to explain how ATEPs prepare their students to be competent regarding emergency care procedures: compartmentalized. The theme reflects the participants' reflections that while they received the cognitive knowledge regarding sudden death in sport, they had minimal hands on practice of those specific skills associated with those conditions. The ATS revealed that educators utilized traditional teaching methods such as lecture and discourse to relay the cognitive knowledge regarding sudden death in sport and laboratory time to provide practice time with basic skills, such as spineboarding and first aid, although the time was limited. The ATS perceived a focus on situations or cases athletic training educators had encountered versus the broader scope of conditions that may cause sudden death. When evaluating the ATS's ability to critically apply their knowledge and psychomotor skills, little reallife integration was used but rather more contrived, discussion based instructional methods. This limited their self-perceived development of critical thinking and self-efficacy with implementing proper and efficient emergency care procedures.

Conclusions: Beyond providing the ATS with the necessary knowledge didactically and hands on practice time through structured laboratory sessions, educators must also provide the chance for critical application of this knowledge and skills. Although case studies and simulations are important for initiation of application, the ATS still must be forced to apply the skills as learned to be appropriate to demonstrate competency and critical thinking. In other words, if the simulation requires spineboarding, the ATS, must not only acknowledge it but also execute it.

An Examinatoin of Approved Clinical Instructor-Student Dyads in Athletic Training Clinical Education

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Context: Current literature has found that student learning (including feedback and_active learning time) in the athletic training clinical education setting differs between settings and clinical instructors. However, more information is needed about the intricacies of ACI-student relationships and their influence on student learning.

Objective: The purpose of this study was to investigate the interactions that occur between one-on-one Approved Clinical Instructor (ACI) and athletic training student dyads in multiple athletic training clinical settings. **Design:** This exploratory, multi-case qualitative study drew from case study and grounded theory approaches to research.

Setting: Data was collected in one intercollegiate athletic training facility and one outpatient rehabilitation clinic that were clinical rotation sites for one CAATE-accredited entry-level master's Athletic Training Education Program (ATEP).

Patients or Other Participants: Four ACIs and four second-year athletic training students were purposefully selected based on their clinical rotation sites and year in the ATEP. ACI participants included three females and one male with various years of experience as a

clinician (14.8 ± 9.6) and ACI (5.3 ± 3.0) . Student participants included three males and one female, all in their fourth semester of a five-semester educational program.

Data Collection and Analysis: Participants were observed, audiotaped, and interviewed over a sevenweek period during the fall semester. Interviews and feedback statements from the audiotapes were transcribed verbatim. Data was analyzed using the constant comparative process of coding, in addition to coding categories used in the literature. Peer debriefing, participant quotations, member checking, and triangulation of methods, sources, and sites were used to improve trustworthiness of the data.

Results: Results demonstrated that while some components of ACI-student interactions are similar, each ACI-student dyad has unique interactions. ACIs had similar approaches to teaching their students, and both students and ACIs described that personality, setting, time, presence of the patient, and other factors influence their interactions. Three distinctive themes also emerged from each ACI-student dyad. One dyad focused on extensive discussion, often led by the student, whereas another dyad had a more traditional, instructor-led interaction that relied on formal documentation and less input from the student. One ACI-student pair had difficulty with communication, professionalism, and confidence, which negatively impacted the delivery of feedback and interaction between the pair. Another ACI and student both prioritized learning and advanced clinical reasoning, which they believed improved the student's clinical experience.

Conclusions: Results of this study suggest that each ACI-student interaction is unique. This has implications for the training and evaluation of ACIs, and the pairing of ACIs and students for clinical education experiences. Future research should explore these unique factors in more depth across several athletic training education programs. In the meantime, clinical education coordinators should consider how student learning experiences may differ between ACI-student dyads in their own ATEP.

Key Words: Feedback, Supervision.

Perceived Outcomes of Online Modules Designed to Enhance Athletic Trainers' Knowledge of Evidence-Based Practice

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Context: The release of evidence-based practice (EBP) online learning modules to the athletic training membership has provided athletic trainers the opportunity to enhance their knowledge of the various EBP concepts. However, while increasing the knowledge of EBP among athletic trainers is important, it is also crucial to assess whether this new found knowledge is being translated into clinical practice and didactic education. Understanding the knowledge translation patterns of athletic trainers will help to further identify which strategies are effective in assisting athletic trainers to implement EBP within daily practice.

Objective: To explore athletic training educators' and clinicians' perspectives of whether the implementation of the EBP online modules initiated immediate changes on didactic instruction patterns and clinical practice behaviors.

Design: The emergent study design of this qualitative investigation was modeled after the consensual qualitative research approach. Participants were athletic trainers who had participated in the experimental group of a previous investigation assessing EBP knowledge levels prior to and following the implementation of the EBP online learning modules.

Setting: Individual phone interviews were conducted with all participants.

Participants: Twenty-five athletic trainers (12 educators and 13 clinicians) were interviewed. Participants had an average of 16.00 ± 9.41 years experience as an athletic trainer.

Data Collection and Analysis: One individual phone interview was conducted with each participant. Following transcription, the data were analyzed and coded into common themes and categories. Triangulation of the data occurred via the use of multiple researchers and member checking to confirm the accuracy of the data. **Results:** Athletic trainers perceived the EBP modules to produce numerous outcomes regarding education and clinical practice. Perceived knowledge gain and an increase in the importance and scope of EBP were two of the main outcomes reported by participants. Athletic training educators indicated the EBP online modules had a positive impact on their didactic instruction patterns

as well as an enhanced ability to instill the value and practice of EBP among students. Athletic training clinicians reported the EBP online modules enriched their ability to implement EBP within clinical practice, however some clinicians indicated the online modules had no current impact on clinical practice behaviors.

Conclusions: Although the EBP online modules were successful in enhancing knowledge among athletic trainers, EBP knowledge translation into clinical practice remains limited. As athletic training continues to shift towards becoming an evidence-based profession, significant focus needs to be given to diminishing the knowledge to practice gap. Therefore, while it is a step in the right direction to have a mechanism (i.e., online learning modules) to increase knowledge of EBP within athletic training, the ultimate goal is to change clinical practice in a manner that enhances patient outcomes. Future research should aim to identify effective strategies to help athletic trainers implement EBP concepts into didactic education and clinical practice. Research should also assess which educational approaches are effective for increasing knowledge translation into practice.

Key Words: Knowledge translation, educational intervention, evidence-based practice, qualitative research

Future Directions of Evidence-Based Practice in Athletic Training: Perceived Strategies to Enhance the Utilization of EBP

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Context: The shift to a culture of evidence-based practice (EBP) in athletic training is a necessary step in both optimizing patient care as well as advancing athletic trainers as healthcare professionals. While athletic trainers have positive attitudes towards EBP, believe it is necessary for the profession, and have been able to gain knowledge on the fundamental concepts involved in the process, they may be having difficulty incorporating the information within their immediate practice. Exploring perceived strategies for enhanced utilization of EBP will help in determining the best ways to educate athletic trainers. Additionally, it is important to identify approaches to apply EBP knowledge in clinical practice to improve patient care.

Objective: To explore the experiences and theories athletic trainers have toward beneficial strategies to

promote successful implementation of EBP within athletic training education and clinical practice.

Design: Consensual qualitative research was used as the primary approach to of this inquiry to explore athletic trainers' experiences and perceptions towards EBP implementation strategies. Stratified purposeful and criterion sampling were utilized to recruit participants for the study.

Setting: Individual phone interviews

Patients or Other Participants: Twenty-five athletic trainers (14 females, 11 males; athletic training experience = 16 ± 9.41 years) who were participant in the experimental group of a previous investigation were interviewed. These participants represented athletic training educators (n=13) and clinicians (n=12).

Data Collection and Analysis: Each participant was interviewed once via telephone. Once the interviews were transcribed, the data were coded for themes and categories. Final themes and categories were determined via consensus of a four-person research team. Each research team member independently coded a portion of the data and created a preliminary codebook. The research team then met as a group to discuss and finalize a consensus codebook that richly captured the data. To decrease researcher bias, triangulation occurred through member checking, the inclusion of multiple researchers, as well as the inclusions of internal and external auditors.

Results: Athletic trainers identified several components they perceived as essential for enhancing the use of EBP within the athletic training profession. The components included the need for more EBP resources, more processed information, focused workshops, and opportunities for peer discussion and mentorship. They also described the importance of repetition and being constantly exposed to the concepts involved in EBP. Finally, participants indicated that athletic trainers need to accept their professional responsibility to foster EBP in their daily practices.

Conclusions: The proper shift to a culture of EBP in athletic training is going to take both time and a persistent commitment by athletic trainers to create strategies that will enhance the implementation of EBP across the profession. Future research should focus on continuing to identify effective educational interventions for athletic trainers as well as to determine successful strategies to implement EBP into didactic curricula and clinical practice. Additional focus should be given to which strategies most effectively produce changes in clinical practice.

Key Words: Professional responsibility, mentorship, evidence-based practice, qualitative research

Board of Certification Approved Provider Category A Course Offerings: Results of a Cross-Sectional Observational Study.

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Context: Delivering superior, competitive, and appropriate educational programming to athletic trainers (ATs) falls to the provider(s) of the continuing education (CE) activity. The Approved Provider (AP) program regulated by the Board of Certification (BOC) evaluates the CE providers by monitoring the quality of their educational activities and providing ATs with an extensive network of providers. However, there is a paucity of literature examining the specific characteristics of CE activities offered by APs.

Objective: To determine, among the APs, what proportion of Category Aactivities (excluding home study courses) are related to ATs' practice domains, what proportion are offered in various formats, and whether ATs are provided with adequate information to select CE activities for meaningful learning.

Design: Random sample, cross-sectional, observational study.

Setting: Electronic database collection

Other Participants: Board of Certification APs submitting CE promotional brochures under category A for live events.

Data Collection and Analysis: The BOC requested promotional brochures for all CE activities offered during a single year from a random sample (25%) of the 1,052 Category A providers. A data collection tool and guidelines for coding the AP brochures was developed. The brochures were coded (CK) to obtain type of activity (ie., conference, seminar/symposium, workshop, lecture, journal club), dates, days of the week, number of CE days, programming cost, CEUs awarded, contact minutes, time by presentation format (ie., lecture/paper/ poster session, audio-visual presentation, discussion/ seminar, hands-on activities), and time by role delineation domain.

Results: Prior to coding, the coder and three researchers engaged in several training sessions to ensure coding reliability. Overall inter-rater reliability was 0.92 based on a review of seven brochures with 53

individual sessions. 2,480 CE promotional brochures from 263 of 1,052 APs were coded. About half of the brochures underwent an in-depth coding of presentation format and role-delineation domain. Of the 2,480 coded brochures, workshops accounted for over half of the CE activities. The majority of activities (82%) lasted one or two days. Cost of CE activities ranged from free-to-\$3,200 per activity; average cost was \$307. When free activities were excluded, the average cost of a CE activity was \$376. Again, excluding free activities, the average cost per CEU earned was \$23. Within CE activities, lecture/paper/poster sessions accounted for threefourths of all session time overall with the most time educational time spent in Domain IV, Treatment, Rehabilitation, and Reconditioning. The highest handson activities occurred in workshops (32%).

Conclusions: Approved providers are offering a variety of educational programming throughout the country; however, there is a lack of offerings within role delineation Domains III, (Immediate Care), V (Organization and Administration), and VI (Professional Development). The CE promotional brochures may lack adequate information such as presentation format, specific agendas with content by timeline, professional domain and available CEU credits for said programming. The lack of adequate descriptive programming information provided on CE brochures and the lack of offerings across all professional domains limits the ability of some ATs to plan and select meaningful learning activities in a purposeful way.

Key Words: continuing education, professional development, pedagogy.

An Examination of the Reliability of Athletic Trainers' Self-Assessment of Learning Needs Using Step-One of the Professional Leaning Plan

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Context: Many healthcare professions have introduced portfolios to guide continuing education (CE) based on self-identified learning needs. The Professional Learning Plan (PLP), a 5-step self-reflective instrument, was designed to guide athletic trainers (ATs) in identifying a CE learning plan using the Role Delineation (RD) Study (5th ed.) performance domain task statements.

Objective: Determine the reliability of ATs' selfassessment of individual learning needs using the PLP. Design: Cross-sectional reliability analysis.

Setting: AT practice settings.

Participants: BOC exam candidates and experienced ATs completed the PLP. 472 of 1,967 BOC candidates from an April examination date (24%) completed the PLP, and 105 of a random sample of 1,196 experienced ATs (9%) completed the PLP. The PLP was also completed by two different convenience samples of experienced ATs; 20 of 50 (40%) and 25 of 36 (69%). Interventions: Participants completed either an electronic or paper version of the PLP. Participants rated their need for CE using a 1-5 Likert-type scale (1=substantial need, 5=no need) on the RD performance domain tasks/ skills used to create the PLP. BOC candidates selected a faculty member to complete the PLP regarding said candidate. Experienced ATs rated the same tasks/skills for importance (1=not important, 5=very important) in their particular setting. We also collected candidate BOC exam scores. Experienced ATs completed a 75-question self-assessment exam prepared by Castle Worldwide (Morrisville, NC).

Main Outcome Measures: Descriptive statistics were computed for dependent variables of PLP overall mean and domain sub-scores and for the April BOC exam and self-assessment exam. Correlations determined relationships between BOC candidates and faculty PLP ratings, PLP ratings and BOC exam scores and experienced ATs PLP knowledge ratings and the selfassessment exam. Paired t-tests were used to compare PLP scores for pass/fail BOC candidates.

Results: Correlations between BOC candidates and faculty on the overall PLP and the six domains were low-to-moderate (ranged from r = 0.13-0.40). Correlations between student PLP ratings and the certification exam were extremely low (r = -0.02 to 0.10). Correlations between faculty PLP ratings and certification exam scores were higher (r = 0.06-0.36). The *t*-test revealed significance regarding faculty PLP ratings for BOC exam candidates, t(76) = -3.10, p = 0.003. Faculty rated students who passed the exam higher (4.12 ± 0.49) than students who did not pass the exam (3.75 ± 0.56) . Correlations between the experienced ATs PLP knowledge ratings and scores on the self-assessment exam were low (r = -0.22 to 0.29). Conclusions: This preliminary investigation was divided into two phases: (1) an assessment of the reliability of graduating AT students on Step One of the PLP, and (2) an assessment of the reliability of experienced ATs on Step One of the PLP. Neither BOC exam candidates, nor experienced ATs demonstrated accurate selfreflection on the PLP based on a comparison with their exam scores. Therefore, it appears as a self-reflective instrument, the PLP was not effective in adequately identifying ATs learning needs.

Key Words: Professional Learning Plan, Continuing Education, Professional Development

Post-Professional Athletic Training Students' Perspectives on Implementing Educational Competencies into Daily Clinical Practice: A Pilot Study

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Context: As post-professional athletic training education (PPATEP) continues to evolve, there will be a need to evaluate knowledge, skills, and abilities related to the six education competencies. These competencies are already being utilized by programs seeking athletic training residency accreditation, and will be instrumental in formulating the path for advancing athletic training practice.

Objective: To evaluate post-professional athletic training students' perceptions regarding the importance of post-professional educational competencies and their ability to implement these competencies into daily clinical practice.

Design: Cross-sectional survey design.

Setting: Self-reported paper survey.

Participants: Twenty-four post-professional athletic training students (13 first year and 11 second year students, age=24.00±2.27yrs, average hours per week completed at clinical site=30.21±4.54) completed the survey.

Data Collection and Analysis: Participants completed the survey instrument at the conclusion of the 2011-2012 academic year. The survey instrument consisted of two sections for each of the six identified educational quality competencies: improvement (QI). professionalism (PROF), healthcare informatics (HCI), interdisciplinary collaboration (IDC), evidence-based practice (EBP), and patient-centered care (PCC). The first section asked participants to rate their ability to incorporate concepts within clinical practice and the second section asked participants to identify how important they perceived each concept to be for implementation within their clinical practice. All questions consisted of Likert-scale items (range 1-4) and the number of questions ranged from 8 to 18 for each competency. Composite ability ("strongly disagree" to "strongly agree") and importance ("not important" to "extremely important") Likert-scale scores were achieved by tabulating all values and then averaging the scores back to the Likert scale (total divided by four). Higher scores indicated that participants perceived themselves to have greater ability and that the concepts were more important for implementation into their clinical practice. Descriptive statistics (e.g. means, standard deviations, percentages) were reported using SPSS 20.0.

Results: PPATEP students perceived the concepts involved in the QI (3.6/4.0), PROF (3.8/4.0), HCI (3.4/4.0), IDC (3.6/4.0), EBP (3.6/4.0), and PCC (3.5/4.0) competencies to be "moderately (3.6/4.0), and PCC (3.5/4.0) competencies to be "moderately important" to "extremely important" for implementation in their clinical practice. Participants also agreed" they were able to implement the concepts involved in the competencies within their clinical practice (QI=3.2/4.0, PROF=3.4/4.0, HCI=2.9/4.0, IDC=2.9/4.0, EBP=3.3/4.0, and PCC=3.0/4.0).

Conclusions: The documentation and monitoring of students' knowledge, skills, and abilities within the competencies will assist us with defining post-professional educational programming as well as provide outcomes assessment. Future research should aim to determine how much students' professional educational program prepared them in these competency areas. Assessing students' preparedness could help educators and clinical preceptors formulate individualized clinical goals for each student.

Key Words: post-professional program, educational competencies, athletic training education

Problem-Based Learning to Cultivate Competent Athletic Training Clinicians

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Context: Athletic training education is continuing to grow and change as different instructional methods are studied and implemented. Problem-based learning is one instructional method that has been implemented in varying degrees in athletic training education programs but its effectiveness has not been studied extensively. Problem-based learning has been used in medical education for several decades and has been shown to be a successful teaching strategy and instructional method.

Objective: The aim of this study was to examine if problem-based learning in one athletic training education program had an influence on Board of Certification (BOC) exam scores.

Design: To determine this, one athletic training program that implemented problem-based learning into its curriculum in 2002 was examined. Five years of graduates from both the traditional curriculum and problem-based learning curriculum were studied. In addition to examining BOC exam scores, additional data including high school GPA, college graduating GPA, and SAT score were analyzed to determine if a relationship exists between BOC exam scores and academic achievement.

Setting: The setting for this study was one athletic training education program which implemented a problem-based learning curriculum in 2002.

Subjects/Participants: Participants included graduates, between the years of 2000 and 2009, of the studied athletic training education program. The traditional curriculum group included the graduated from 2000 – 2004, and the problem-based learning group included the graduates from 2005 – 2009.

Intervention: A problem-based learning curriculum was implemented into the athletic training education program curriculum in 2002.

Main Outcome Measure: Results on the Board of Certification Examination. Additionally, high school GPA, college graduating GPA, and SAT score were analyzed to determine if a relationship exists between BOC exam scores and academic achievement.

Results: The data was analyzed with a correlation analysis and a Kruskal-Wallis test. The correlations for high school GPA, graduating GPA and SAT scores were .119, .344, and .282, respectively. This shows a very slight association between the covariates; the highest correlation was graduating GPA. The Kruskal-Wallis Test

showed a significance of p = .266, indicating no significant difference in examination scores at a significance level of p < .05.

Conclusions: Although no significant differences were found, caution should be used in making any definitive conclusions about the use of problem-based learning in athletic training education. This study had a small sample size and examined only one athletic training education program. Future studies should be conducted with a larger sample size, such as an entry-level graduate program or using a different outcome measure.

Key Words: problem-based learning, athletic training education, Board of Certification Examination.

Standardized Patients Provide a Reliable Assessment of Athletic Training Students Clinical Skills

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Context: Standardized patient (SP) encounters present an opportunity for students to receive immediate feedback regarding his or her performance during a real-time clinical evaluation (e.g., obtaining a patient history, interpersonal and clinical skills). This prompt formative feedback is a major benefit of SP encounters compared to other clinical evaluation methods. Since each SP is trained to provide a consistent portrayal of the case (e.g., concussion, knee injury), multiple students can be assessed consistently with the same clinical encounter.

Objective: To determine if SPs provide a reliable means of assessing an athletic training student's clinical performance with regards to obtaining a patient history and completing a physical examination.

Design: Reliability study

Setting: Athletic Training Laboratory, Simulation Lab Participants: SPs and two athletic training faculty at a public liberals arts institution in the Southeast evaluated AT students after an SP encounter. AT students completed SP encounters relevant to their progression through the curriculum. Junior AT students (n=15) completed the knee encounter, while senior AT students (n=16) completed the concussion encounter.

Intervention: After each SP encounter, the AT faculty and the SP completed a clinical performance checklist. The checklist included items related to obtaining a patient history (knee = 10 items, concussion = 15 items) and completing a physical examination (concussion = 8 items, knee = 10 items). The clinical performance checklist items were yes/no response evaluating the student's performance. **Main Outcome Measures(s)**: For each SP encounter, composite scores were computed for both history (H) and physical examination (PE) for each of the AT faculty and the SP. Interclass correlation coefficients (ICC) were obtained to determine interrater reliability for H and PE items between AT faculty and SP. ICC coefficients were also determined between AT faculty for H and PE for each encounter.

Results: The reliability of the SPs accuracy at assessing the AT student's successful achievement of a patient history was high for the concussion (ICC = 0.764, P = .004) and knee (ICC = 0.696, P = .003) encounters. The SP was reliable at assessing student's PE of the concussion encounter (ICC = 0.792, P > .001), but not the knee encounter (ICC = -0.163, P = .562). Additionally, reliability between AT faculty was high for both H and PE for each SP encounter (Concussion H ICC = 0.838, P = .001; Knee H ICC = 0.742, P > .001; Concussion PE ICC 0.578, P = .003; Knee PE ICC = .704, P = .019).

Conclusions: Overall, the SPs provided a reliable assessment of the AT student's clinical performance with regards to obtaining a patient history and completing a physical examination. High between faculty ICC measures provide additional reliability of the SPs assessment of student performance. Since ICC measures between instructors and SPs were not as high as between faculty instructors, we suggest that additional time be taken during initial and follow-up SP training on the checklists. Devoting additional time during SP training should increase the ICC measures between instructors and SPs.

Key Words: Inter-rater reliability, reliability, Clinical education, Clinical assessment, Outcomes

The Benefits of Serving as an Athletic Training Clinical Preceptor

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Context: Previous research has shown that role strain can develop in athletic training clinical preceptors making it difficult for them to meet the standards of supervising athletic training students (ATSs). Exploring the benefits to serving as a preceptor is important in order to secure appropriate professional role models for ATSs.

Objective: To determine the benefits of serving as an athletic training clinical preceptor.

Design: Qualitative study.

Setting: Athletic Training Education Programs (ATEPs). Patients or Other Participants: Twenty-four preceptors (average age = 32 ± 7 years; 11 male, 13 female; average clinical experience = 9 ± 6 years; average preceptor experience = 5 ± 3 years) volunteered to participate in our study. Participants represented 7 Commission on Accreditation of Athletic Training Education accredited ATEPs from the east coast and found employment in intercollegiate athletics (N = 12) or in secondary schools (N = 12).

Data Collection and Analysis: We asked participants to journal responses to open-ended questions through Question Pro[™] online survey management. We analyzed data using a general inductive approach and secured credibility by utilizing consistency and stakeholder checks and through a peer review.

Results: Three main themes emerged from the data. Preceptors enjoy the personal relationships they build with ATSs. We believe positive interactions between ATSs and preceptors can help socialize ATSs into the professional roles and responsibilities of an athletic trainer. Moreover, preceptors viewed the personal relationships they developed with ATSs as rewarding. The reciprocal learning which occurred while supervising ATSs allowed the preceptors to embrace the opportunity to gain new knowledge to improve patient care. The preceptors felt that ATSs helped them keep their minds and skills fresh by engaging in clinical questioning, discourse, and providing feedback. Several participants also noted that supervision advanced their clinical practice because of the new skills and knowledge required of ATSs and the methods which have evolved since the preceptors were educationally trained. The two-way exchange of knowledge helped the preceptors engage in lifelong learning and advanced the care their patients received. Finally, our participants enjoyed

teaching and mentoring the future members of the athletic training profession. The enjoyment our participants found from supervising ATSs is noteworthy as early integration into the clinical site can help give ATSs a sense of belonging and positively influence persistence. Enjoyment in teaching and mentoring also helped our preceptors manage role strain, a common challenge associated with the responsibilities of serving as a preceptor.

Conclusions: Identifying, training, and retaining skilled preceptors is important for ATEPs in order to properly socialize ATSs to their future professional roles. Program directors should explain the benefits of supervising ATSs to prospective preceptors as a means to recruit and retain appropriate professional role models. Finding unique and attractive benefits for those serving as preceptors may help keep morale high and aid in providing a positive environment to foster student learning. Future investigations should continue to investigate the experiences of preceptors in order to keep them invested in mentoring ATSs.

Key Words: Clinical instructor, mentor, clinical education

Student Perceptions of an Athletic Training Residential Living Community

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Context: Many college and universities are implementing new initiatives to retain students based on both academic and social components. Student retention is important to athletic training education programs (ATEPs) as students have more programs from which to choose. One initiative used to improve student retention is a residential living community (RLC) devoted to a certain content area. To date, limited data exists on the use of a RLC in athletic training education.

Objective: To understand the perceptions of athletic training students involved in a residential living community.

Design: Qualitative study

Setting: Athletic training education program at a liberal arts institution. Students complete one semester of coursework and clinical observation during the pre-professional phase before applying to the professional phase of the ATEP during the spring semester of the first year. The RLC was composed of first semester students interested in applying to the ATEP who all lived in one floor of a residence hall. The resident assistant for the hall was a third-year athletic training student.

Patients or Other Participants: Ten students (8 females, 2 males; average age = 19.50 ± 0.97 years) who participated in the RLC during their first semester in college volunteered to participate. All of the participants gained admittance into the ATEP during the subsequent spring semester.

Data Collection and Analysis: We used Question Pro[™] to complete in-depth online interviews by having the participants journal their responses to open-ended questions. We used grounded theory to uncover the dominant themes utilizing open, axial, and selective coding. We negotiated over the coding scheme, completed member checks, and performed a peer review to establish trustworthiness of the results.

Results: The overall theme of our data pertained to the supportive nature of the RLC allowing for early socialization of students interested in applying to the ATEP. Specifically, we uncovered three sub-themes explaining the effects of the RLC. The participants found study opportunities common due to the fact that they lived in close proximity to peers in the same classes. The interactions our participants had with their peers assisted in their integration into the institution and ATEP both academically and socially. Our participants felt that the RLC provided a supportive environment by fostering a network with classmates going through similar challenges. Students also enjoyed early socialization by having a resident assistant who was a third-year athletic training student. The final theme emerged from the unintended consequences of the RLC. Finding a quiet area in which to study became difficult and students often had trouble making personal connections outside of athletic training.

Conclusions: The RLC helped first year preprofessional athletic training students find success by fostering relationships and providing early socialization to the demands of the ATEP. Our participants found success in the ATEP due to the relationships they built with their classmates. Some negative aspects did occur; however, these can be remedied by having quiet study spaces available and providing students with sufficient time outside of athletic training to pursue extracurricular endeavors. **Key Words:** Socialization, life-balance, student integration.

Standardized Patient Encounters Improve Student Confidence toward Clinical Evaluations

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Context: Researchers in athletic training (AT) have reported that interacting with standardized patients (SPs) are a worthwhile and realistic experience for students. These encounters enhance student's interviewing skills, overall confidence as a future clinician, clinical skill development, and interpersonal communication. As educators, we strive to provide learning opportunities that foster knowledge acquisition and skill development. Written examinations and clinical evaluations do not always mimic the patient care environment, therefore students are unlikely to gain confidence for patient interactions.

Objective: To determine if two SP encounters (concussion evaluation, knee evaluation) improve student's confidence in performing future clinical evaluations.

Design: Pre-Test, Post-Test Survey Design.

Setting: Athletic Training Laboratory Setting, Simulation Lab.

Patients of Other Participants: 31 students from the junior (n=15) and senior (n=16) AT cohorts from a public liberal arts institution in the Southeast completed SP encounters relevant to their progression through the curriculum, knee injury and concussion respectively.

Data Collection & Analysis: Each student completed a 17 item Likert scale (1=Strongly Disagree; 5=Strongly Agree) confidence rating immediately prior to and following the SP encounter. The confidence rating was used to asses student's confidence with regards to how the SP encounter impacted confidence for completing future patient evaluations (e.g., identifying history questions, selecting appropriate special tests, interpreting results of special tests, formulating a treatment plan). Descriptive statistics were computed for all survey items, and Mann-Whitney U tests were computed to determine differences in pre-encounter and post-encounter confidence ratings for each of the survey items.

Results: Overall, students from both cohorts reported that the SP encounter improved their confidence in completing future clinical evaluations. A Mann-Whitney U determined that junior students reported that the knee encounter improved confidence in future evaluations most with regards to generating follow-up questions to the patient's response (U = 105.0, P = 0.15) and providing appropriate patient education (U = 65.5, P =

0.32). In addition, a Mann-Whitney U revealed that senior students reported that the concussion encounter improved their confidence in future evaluations most with regards to identifying what questions to ask to obtain a patient history (U = 77.5, P = .03) and evaluating the patient holistically (U = 74.5, P = .029).

Conclusions: The authenticity and fidelity of the SP provided a real-time clinical evaluation in a nonthreatening environment. Students reported that their confidence improved after each encounter, of most importance were the ability to generate follow-up questions and evaluating the patient holistically. By providing these educational experiences, students can become comfortable interacting with patients in future clinical evaluations.

Key Words: Confidence, clinical education, didactic education, Outcomes

Evaluating Critical Thinking and Learner Generated Content in Online Discussions

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Context: Online discussion tools are commonly used as adjuncts to classroom and clinical learning in athletic training education programs. Online discussions allow for asynchronous peer to peer interactions that let students reflect on clinical experiences, share ideas, and problem solve. Use of these tools has outpaced our understanding of best practices for how they can promote higher order thinking. Recent research has focused on the effectiveness of online discussions and their influence on learning; little research is available on the use of these tools in the health sciences. Garrison's fourstage critical thinking model has identified critical thinking skills specific to online discussions. The model includes four cognitive processes: triggering (posing a problem), exploration (searching for information), integration (application), and solutions (critical assessment of a resolution).

Objective: The purpose of this study was to evaluate critical thinking in a series of online discussions generated by athletic training students.

Design: Observational content analysis.

Setting: Two capstone clinical courses within a CAATE accredited entrylevel athletic training education program. **Participants:** 33 athletic training students (22 female and 11 males).

Data Collection: Students were required to post three cases from their field experiences (intercollegiate and

secondary school settings) and participate in a threaded online discussion based on the responses of their classmates. All names and clinical identifiers were removed in preparation for analysis.

Analysis: 70 online discussions comprising 643 total postings over a four semester period were classified by discussion type and coded using established indicators and examples of the Garrison fourstage model. The coding was done by two members of the research team. Any disagreement on coding was reviewed by the principal investigator and a consensus reached. Coding was completed by identifying units of meaning rather than attempting to classify an entire post; individual postings could be coded with multiple indicators and examples. Frequencies for each stage of the critical thinking model were calculated for the entire data set. A 2 x 4 Chi squared analysis was performed to explore differences between the intercollegiate and secondary school settings. Results: A total of 1098 indicators were coded from 643 individual postings. Exploration accounted for 44.2% of the analysis (n=485). 23.9% (n=262) of the items coded were triggering processes, 21.5% (n=236) of the total coding represented integration processes, and 10.5% (n=115) of the items coded were solution recommendations. Chi square analysis comparing the secondary school setting (n=435) to the intercollegiate setting (n=663) showed greater amounts of integration in the high school discussions (X²= 21.7, d.f.=3. P<0.001).

Conclusions: The increased amount of integration for students in the secondary school setting may reflect a more comfortable clinical environment where students are allowed greater supervised independence compared to intercollegiate settings. The lower percentage of solutions to posted case studies may indicate that students need more time for reflection in the online environment. The high percentage of exploration indicators reinforces the thought provoking nature of real world cases as learning tools. This study suggests that student generated peer to peer online discussions can meet criteria for critical thinking.

Improving Preceptor Behaviors Through Structured Observation and Pre/Post Clinical Conferencing

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Context: Clinical Instructor Educators (CIEs) are granted institutional autonomy to determine how to best prepare athletic trainers (ATs) to serve as preceptors. Structured observation of performance followed by postencounter conferencing is a well-established method of improving pre-service teachers' instructional practices that may prove effective for training preceptors.

Objective: The purpose of our study was to explore the impact of a systematic preceptor training program that included pre-observation conferencing and goal setting, structured videotaped observation of preceptors's clinical teaching encounters, and post-observation conferencing on the frequency of effective clinical instructor behaviors. **Design:** Quasi-experimental pre-post design using a systematic observational tool for measuring effective preceptor behaviors.

Setting: Two collegiate athletic training facilities affiliated with an undergraduate athletic training education program (ATEP).

Participants: Three full-time faculty members with dual positions of teaching and serving as ATs and preceptors (2 males, 1 female) with 1-12 (5.7 ± 5.5) years of experience supervising students.

Intervention: We adapted the Acheson and Gall Clinical Supervision Model used in teacher education for ongoing preceptor training that included a CIEpreceptro pre-observation conference, a video-recorded observation session that was coded using an Observational Record of Clinical Educator Behavior (ORCEB) Coding Form, and a CIE-preceptor postobservation conference conducted over a 4 week period of time for each participant. Each pre/post-conference included goal setting and focused on improving a different category of behavior measured by the ORCEB. Main Outcome Measures: The previously validated ORCEB was used to count the frequency of four categories of preceptor behaviors (giving information; evaluating students; promoting problem solving and critical thinking; and behaviors that do not promote student engagement) demonstrated every 5 seconds during a 30 minute video-recorded clinical education session that occurred during pre-practice patient preparation. Frequency counts of each category of behaviors and percentage of change pre-post intervention were calculated.

Results: Aggregate mean frequency counts for the giving information category increased by 272.8% pre (41.7±27.5) to post (155.3±62) intervention, behaviors focused on evaluating students increased 185.7% pre (4.7±8.1) to post (13.3±11.1) and behaviors that promote problem solving/critical thinking increased 257.9% pre (6.3±2.3) to post (22.7±13.4). Behaviors that do not promote student engagement decreased 45.1% pre (307.3±33.3) to post (168.7±55.8).

Conclusions: This pilot study suggests that a systematic training program that utilizes goal setting, observation of behaviors, and structured conferencing between a CIE and preceptor can lead to favorable outcomes for increasing effective clinical instructor behaviors while decreasing the frequency of those behaviors that do not actively engage students. These findings emphasize the benefits of continuous preceptor development rather than a one-time training session. However, limitations of this study include a small sample size, and inclusion of only one ATEP, and the snapshot approach of only videotaping 30 minutes during pre-practice treatments.

Scholarship of Teaching and Learning

The Effect of a Year-Long Post-Professional Curriculum on Evidence-Based Practice and Healthcare Outcomes Knowledge, Comfort, and Perceived Importance

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Context: Employing evidence-based practice (EBP) and applying quality improvement through the use of patient-report outcomes are two of the five core competencies proposed by the Institute of Medicine for all healthcare professionals. Furthermore, patient-centered care, EBP, and quality improvement are proposed competencies for accredited post-professional athletic training education programs (PPATEP). However, there have been few investigations determining whether specific education in these topics is learned and retained in post-professional athletic training students (PPATS).

Objective: To evaluate PPATS' EBP and outcomes knowledge levels prior to and following the implementation of a year-long curriculum. Comfort and importance levels of specific EBP concepts were also assessed.

Design: Survey design.

Setting: Self-reported online survey.

Participants: Eighteen PPATS (8 males and 10 females, $age=23.56\pm1.9yrs$, years of athletic training experience=0.46 \pm 0.82).

Data Collection and Analysis: All participants completed the survey at matriculation and again at completion of the first year of a two-year PPATEP. In between, participants completed the following courses as part of their program of study: Introduction to Clinical Outcomes, Evidence-Based Practice, Healthcare Outcomes, and Patient-Oriented Assessment. The concepts taught in these courses were also integrated into the clinical education program. The survey instrument consisted of 20 multiple-choice EBP knowledge guestions, 18 multiple-choice outcomes knowledge guestions, and 22 Likert scale items (range 1-4) assessing participants' comfort (11) and perceived importance (11) regarding EBP concepts. Knowledge scores were calculated by awarded 1 point for the correct response and 0 points for an incorrect response. Composite knowledge scores were tabulated and normalized to percentages. Composite comfort and importance Likert scale scores were attained by calculating the sum and then averaging the score back to the Likert scale (total divided by four). Higher scores indicated greater comfort with, and perceived importance for, the EBP concepts. Significant differences (P<.05) were calculated (SPSS 20.0) using paired T-tests and Wilcoxson signed-rank tests.

Results: Pre-curricular EBP knowledge was $52.2\%\pm2.36$, while post-curricular EBP knowledge increased to $81.1\%\pm1.40$ (P<0.001). Pre-curricular outcomes knowledge was $48.44\%\pm2.32$, while post-curricular outcomes knowledge increased to $62.67\%\pm1.53$ (P=0.002). Student's comfort increased (P<0.01) from 1.80/4.0 ("uncomfortable") to 3.10/4.0 ("comfortable"). Importance levels did not change as students perceived the EBP concepts to be "very important" for curricular implementation (3.58/4.0) at matriculation.

Conclusions: PPATEP students' knowledge of EBP and healthcare outcomes increased following the implementation of a series of PPATEP courses. Along with increased knowledge levels, students became more comfortable with these concepts. Interestingly, while precurricular knowledge and comfort levels were low, students still perceived EBP concepts to be important for implementation, which indicates they understood these concepts to be very important. Future studies should assess EBP and healthcare outcomes knowledge and comfort levels following the completion of a PPATEP program (approximately 2 years). Additionally, it is important to determine whether PPATEP graduates implement EBP and healthcare outcome concepts into their clinical practice to enhance their clinical decisionmaking for improved patient care.

Key Words: evidence-based practice, healthcare outcomes, curricular implementation, athletic training education.

No More Pencils... No More Books...

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Context: Athletic Training programs offer courses in which students study comprehensive medical services in five domains of clinical practice. Historically, didactic course instruction has been taught using teacher-centered approaches where knowledge is transmitted from teacher to students. This approach discourages peer interaction and has created a culture of unmotivated students who are unable to solve problems and apply knowledge. To improve achievement, motivation, and foster higher order thinking faculty should consider flipping the classroom.

Objective: To inform Athletic Training educators about the benefits and process of flipping the classroom to humanize education.

Background: Athletic Training faculty traditionally incorporate directed instruction methodologies where students acquire competencies in a passive manner, failing to appreciate the interconnectedness of what they are learning. Learning the principles are essential; however, the rote memorization required by students and the time spent by instructors lecturing and grading minimizes opportunities for instructors to be next to students actively engaged with each other. To create creating meaningful faculty to student interaction, flip the classroom.

Description: Assign students to watch digital media (e.g. YouTube, pod cast, etc.) as homework to learn a concept. Then students come to class and participate in an activity to practice and apply the concept; thus fewer lectures and more interaction. What was traditionally thought of as classwork is done at home and what use to be thought of as homework is now done in class.

Clinical Advantages: Millennial students enjoy the integration of technology and an open interactive learning environment where they are enabled, questioned, and accommodated. Students are not fans of textbooks. Incorporating videos can be beneficial because the platform gains and keeps their attention and students can watch in the intimacy of their own environment. When a student does not understand, s/ he can rewind and repeat a video as many times as necessary without feeling that the teacher's and/or classmates' time is being wasted. Student embarrassment of asking the instructor, clinical supervisor or peer about a concept they do not

understand and/or something they should have learned last semester is reduced. Flipping the classroom minimizes student anxiety by reducing the awkwardness of teachers asking if students understand a concept in front of other classmates and allows every student to work at their own pace to master concepts before moving on. Applying this instructional strategy, faculty can use instructional time more effectively to target specific students, address explicit needs, and allow other students to move on and complete various activities.

Conclusions: Education penalizes failure and the sequence of lecture, homework, and examination does not encourage mastery. Regardless of an examination score, instructors move on and build on previous information without mastery and future clinicians are left with knowledge gaps. Flipping the classroom removes the one-size-fits-all lecture and improves ownership, fosters critical thinking, and creates meaningful student-to-teacher interaction. Taking the passivity out of the classroom, faculty have more flexibility to sit next to students, work with them, and play the role of mentor rather than transmitter of knowledge.

Key Words: classroom flipping and mastery learning.

Utilizing Simulations to Teach Acute Care of Injuries and Illnesses

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Context: Due to their educational benefit, simulations have been utilized in nursing and medical education to provide lifelike educational experiences for decades. Simulations provide safe practice of patient care skills learned during didactic education. Many acute care injuries/illnesses are life-threatening (e.g., suspected cervical spine injury, sudden death) and rarely occur during clinical education.

Objective: To describe how simulations can be used to provide formative acute care injuries/illnesses experiences.

Background: A simulation engages learners in a lifelike experience, with varying levels of fidelity or authenticity to mimic real clinical encounters. Research in nursing and medical education has demonstrated simulations increase clinical performance, critical thinking, motivation, and confidence. Devices such as partialtask trainers (e.g., rectal trainer) and/or simulators (e.g., SimMan[™], iStan[™]) which emulate real patients (e.g., heart, lung, and bowel sounds, vital signs) are utilized during simulations in place of real patients. Following a simulation, immediate feedback is provided, which gives simulation an advantage over other teaching methods. It has been reported the types of injuries/illnesses occurring during clinical education do not always correlate with progression through courses. Simulations can provide practice of patient care skills, which allows blending of didactic and clinical education that may not happen otherwise.

Description: For the last six years, our senior athletic training students in the General Medical course participate in four different simulations: heat stroke, sudden death, shock, and pneumothorax. Students are randomly separated into four groups with three to four students per group with the following roles: one group voices the patient though the simulator (SimMan[™]), one group provides patient care, one group acts as Emergency Medical Services, and one group observes. Students engage in all four roles of the simulation over the course of the semester. An instructor observes and provides verbal confirmation of information when needed (e.g., temperature of patient) The simulation can be paused by the students or instructor if patient care is compromised as would happen in a real life situation, or if students have questions, which what would not be possible with an actual patient. Following each simulation,

all students participate in a debriefing session to discuss their feelings, thought process, and reflect back on successes, challenges, and future patient care behaviors.

Advantage: Simulation provides students the opportunity to practice essential communication, physical examination and clinical decision-making skills any time during their didactic and clinical development. Simulations are driven by the learning needs of the student and can provide deliberate patient care encounters for all students. This method provides students an opportunity to practice as close to real life situations as possible before they enter the workforce. Many students may not have experience in managing certain acute care injuries/illnesses, which may not occur often but are critical to patient survival.

Conclusion: Though simulations are not widely used in athletic training, nursing and medical education have demonstrated their educational value. By engaging in simulations, students are provided with a safe, realistic experience and can receive immediate feedback, thus increasing confidence and enhancing learning. Key words: deliberate practice, emergency care

Professional Development Units- A Method to Increase Student Engagement and Foster Life-Long Learning

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Context: ATEP's must assess metrics that reflect the specific program, department, or college. The mission of our college includes helping its students attain their full potential as persons, to develop in them capacity and passion for lifelong learning, and to prepare them for fulfilling lives of leadership and service in society.

Objective: To illustrate the use of a professional development unit assignment that was designed to meet the college mission and provide an assessment tool.

Background: In preparation for a CAATE self-study program faculty realized that we did not have an assessment tool for the educational objectives of developing a commitment to community and professional service or developing a capacity and passion for lifelong learning and professional growth. Program faculty also expressed concern that students did not seem to be traveling to professional conferences as much as they used to.

Description: The Professional Development Units assignment was developed to mimic the BOC CEU

format in order to familiarize students with what they would experience once they became certified. We then blended BOC, CAATE, and our college mission to create the categories of Evidence Based Practice Application, Continuing Education Opportunities, Service to Community, Service to Profession, Community Education, and other. We then added items under each category that would further emphasize our program objectives and college mission, such as attending journal club, attending a professional conference, volunteer work, and presenting at a conference. End of the year assessment included questions specifically directed towards the PDU assignment.

Clinical Advantages: Initial feedback from students indicates that at least 70% of students agree or strongly agree that the PDU assignment increased the metrics utilized to study this assignment, such as "made me more likely to attend continuing education opportunities in the future".

Conclusion: The addition of a professional development units assignment to our curriculum has increased our ability to meet our outcome measures and it has increased student interest in various learning opportunities and has been responsible for encouraging more students to take advantage of learning opportunities.

Key Words: Professional Development, Outcomes Measures, Curriculum Assessment.

Instructional Design Strategies to Manage Extraneous Cognitive Load

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Context: Athletic training education program curriculums are growing in depth and breadth of subject matter content. Also, an emphasis is being placed on the student's ability to analyze and apply this knowledge. In addition, there is an expanding number of media sources in which this material is being presented to students. Unfortunately, it has been suggested that a learner's working memory system (short term) has a very limited capacity to store and process this information.

Objective: To introduce supported instructional strategies that minimize extraneous cognitive load in the working memory system to ensure an optimal student learning environment.

Background: Various traditional methods of instruction are implemented in the classroom that impose a heavy cognitive load in the working memory system that is

unnecessary. For an educator to be effective, it is critical to implement instructional strategies that have demonstrated the ability to minimize placing elements of unnecessary information that do not support learning objectives into the working memory system.

Description: I recommend three categories of strategies for instructional design which include source of information, scaffolding of information, and fading assistance to be utilized in the classroom setting to optimize student learning.

Clinical Advantages: Using these simple strategies will assist in the efficiency of student learning and provide adaptation to an individual student's background and abilities.

Conclusions: Providing efficient and supported instructional strategies for students who are presented an abundance of complex information is critical to learning, as the working memory of the mind is very limited in storage capacity.

Key Words: instructional strategies, extraneous cognitive load, working memory

Using the Clifton StrengthsQuest to enhance firstyear students' academic skills

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Context: The Clifton StrengthsFinder® is a survey used to find an individual's top five talents from a possible 34 defined talents. The purpose of the StrengthsQuest program is to teach students how to use their talents, as defined by the StrengthsFinder®, to be more successful in their academic pursuits.

Objective: The aim of this presentation is to describe how the Clifton StrengthsQuest was used to introduce first year athletic training students to general academic skills, i.e. time management, note taking, and test taking skills.

Background: The StrengthsQuest program is a tool for self-awareness. It is rooted in positive psychology, with the philosophy that individuals will be more successful if they capitalize on their talents rather than trying to improve their weaknesses. Within the strengths-based philosophical approach, weaknesses are not ignored but rather managed by using one's greatest talents (Clifton & Nelson, 1992). Research has shown that students who are aware of their talents show improved confidence, motivation, and compassion towards others. Research has further shown that students can improve their academic performance by building on their existing talents (Braskamp, 2006); therefore many universities

Description: The Clifton StregnthQuest program will be described along with how it was used to improve first-year athletic training students' academic skills.

Advantage(s): The StrengthsQuest program is very positive in nature, and focuses on identifying and improving upon what is good at rather than focusing on deficiencies. This can be empowering for students. Conclusion(s): Clifton StrenghtsQuest can be used as a means to improve students' academic skills. Keywords: Gallup Press, StrenghtsFinder®, Talents

A Pedagogical Strategy to Assess and Enhance Athletic Training Student Confidence in Task Areas of the BOC Role Delineation Study

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Context: Researchers have indicated the critical role that confidence fills in enhancing athletic training students' knowledge and clinical practice. Model practices designed to assess and enhance student confidence relative to the BOC Role Delineation task areas remain obscure and inconsistently described in the literature.

Objective: To assess athletic training students' confidence and determine perceived deficiencies related to the BOC Role Delineation task areas. Student confidence levels were used for capstone course development and program assessment.

Background: In the broad spectrum of healthcare, confidence plays a foundational role in students' development of knowledge, skills, and clinical practice abilities. Researchers in the chiropractic field have indicated that developing student confidence is a critical objective of chiropractic education.1 Other research has indicated that a lack of confidence serves as a barrier to physicians providing exercise counseling to their patients.² In the field of athletic training, students' confidence in their knowledge, skills, and abilities to engage in clinical practice can be limited. Carr's recent work indicated confidence as one of several thematic deficiencies in new athletic graduates.³ Confidence has been researched through several lenses including in relation to evidence-based practice⁴ and the understanding and use of psychological skills.⁵

Researchers have indicated that various teaching and learning practices such as reflection, facilitative questioning with clinical instructors, and peer-learning can enhance athletic training students' confidence in their knowledge, skills, and abilities.^{6,7} In order to evolve

as effective practitioners, students must possess the confidence to practice in all task areas indicated in the BOC Role Delineation Study. In light of this research, it is imperative that educators design and facilitate effective teaching and learning practices aimed at improving athletic training student confidence across all domains and task areas of practice in athletic training.

Description: At the start of their senior seminar capstone course during their final semester in the ATEP, all students completed a Role Delineation Confidence Survey. The most frequently cited "Not Confident" task areas were identified and assigned to pairs of students for subsequent presentation over the course of the semester. These "Pair-Share" presentations required students to provide background information and learning resources on their assigned task area as well as an active learning activity to engage their classmates. Classmates were then expected to provide feedback to the presenters through completion of an instructor-designed evaluation tool.

Clinical Advantages: Post-course interviews with each individual student indicated strong anecdotal support for continuation of the Pair-Share presentation project as a means of bolstering students' confidence in the BOC Role Delineation task areas. Furthermore, several years worth of data from the Role Delineation Confidence Survey have served as a means of program assessment and have assisted the ATEP in curriculum development. **Conclusions:** The results of this study suggest that formal assessment and focused teaching and learning pedagogy aimed at addressing task area deficiencies can improve students' confidence in the BOC Role Delineation task areas.

Key Words: Role Delineation, program assessment, confidence, pedagogy, model practice

Involving Athletic Training Students in the Critical Appraisal of Best Clinical Practice

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Context: Fundamental to excellent patient care and student learning are critical analysis and reflection of clinical decision-making. Although many athletic training departments review, debrief, and/or discuss emergency action plan (EAP) activations, complicated patient cases, and less than desirable patient outcomes, few perform consistent and repeatable reviews. Critical reviews (CR) of EAP activations and morbidity & mortality conferences (M&M) are methods to formally review these events. Literature in the surgical community suggests that interactive M&Ms improve education and can enhance confidence. Discussion of minor patient complications during M&Ms can also improve care. To promote critical thinking and reflection of decision-making, athletic training students should be included in CRs and M&Ms. Objective: To describe how incorporating athletic training students into critical appraisals of patient cases can enhance critical thinking and foster learning through reflection.

Background: The importance of evidence-based practice (EBP) in advancement of athletic training is well-documented. More significant is the need for EBP to lead to best clinical practice. Promotion of EBP in athletic training can be achieved through modeling evidence-based behavior to students. Students benefit from witnessing clinicians reflect on decision-making. Questioning decision-making to seek best practices is a cornerstone of EBP and demonstrating that to students can ensure its continued presence in the profession.

Description: Over the past four years, our athletic training department has performed approximately forty CRs and ten M&M conferences. A CR committee is formed following EAP activations. Committees consist of at least one full-time athletic trainer, one graduate assistant athletic trainer, and one athletic training student not involved in the event. Using a consistent format, the committee interviews all involved including athletic trainers, students, physicians, coaches, and/or administrators. Using information gathered during interviews, the committee assesses and reports adherence to and deviations from the EAP, challenges to patient care, and recommendations for changes. For M&Ms, clinicians request or are notified a case will be reviewed due to a less than desirable patient outcome. In these, clinicians present the patient case, describe their decision-making and reflect on outcomes. They then are questioned by members of the athletic training department including students. A form is used to document characteristics of the clinician's decisionmaking, knowledge, communication, etc. This form is used to remediate errs in the clinician's skills and recommend any relevant departmental changes.

Clinical Advantage(s): Reviews allow students to reflect on decision-making, their own and other clinicians', prior to discussion. Contrary to discussions during clinical education which often require immediate response, student participation in CRs and M&Ms permits ample time for critical appraisal and reflection prior to discussion. Prior to discussion, students are able to discuss with peers, review literature, and compare to other cases.

Conclusion(s): Incorporating CRs and M&Ms into athletic training is imperative to promoting best clinical practice. Exposing athletic training students to these reviews helps ensure continued advancement of EBM in the profession.

Key Words: best clinical practice, critical thinking, reflection

Performance Accuracy of Cardiopulmonary Resuscitation Techniques during Simulated Cardiac Arrest

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Context: Sudden cardiac death is an extraordinary scenario for the healthcare practitioner. Timely engagement is essential when performing potentially lifesaving cardiopulmonary resuscitation (CPR). For the Certified Athletic Trainer (ATC), the addition of protective football equipment (i.e., helmet/facemask and chest protector/shoulder pads) presents a unique challenge. **Objective:** The purpose of this study was to investigate CPR accuracy during simulated cardiac arrest of a football player. A second objective was to investigate if protective football equipment impedes the performance measures consistent with effective CPR techniques.

Design: Randomized crossover study.

Setting: A clinical simulation laboratory at a medical school located in the northeastern United States was used for data collection. Subjects performed CPR sequences on a Laerdal SimMan® 3G interactive manikin simulator.

Participants: This exploratory study included 10 BOC® certified athletic trainers (6 male, 4 female) with an average of 4.8 years of experience (SD=1.54). The average age of the participants was 23.6 years

(SD=2.91; range 22-31). Evidence of professional level rescuer CPR training within six months prior to data collection was required. This study received institutional review board approval and all subjects provided their consent to participate.

Interventions: Each subject was given a standardized rescuer scenario and asked to perform three sequences of CPR for two minute cycles under various test conditions. Baseline data was captured on each subject during a 2-minute repeated cycle CPR sequence. The experimental conditions were randomized and included 2-minute sequences of CPR performed both over protective football shoulder pads and under the unlaced pads, respectively. Subjects were required to adhere to the 2010 American Heart Association guidelines for performing CPR (initiation of thirty chest compressions at a rate of 100/minute to a 51 millimeter [2-inch] depth). Main Outcome Measures: The dependent variables included average compression depth (mm), average compression rate (per minute), percentage of time chest wall appropriately recoiled and percentage for handson contact during cardiac compressions.

Results: The following means were reported: 37.99 mm (SD=7.81) compression depth achieved; 114.8 compressions per minute (SD=12.68) performed; 97.63% (SD=7.35) of time appropriate chest recoil was attained; and 99.16% (SD=1.62) of time on-chest contact was made throughout compression sequence.

Conclusions: These findings revealed that the participants allowed for proper chest recoil while maintaining appropriate hand position throughout each trial sequence. Subjects did not achieve the recommended depth (51mm) for adequate chest compressions and were observed to perform such compressions at a rate faster than the prescribed guidelines. Even though adequate chest recoil was accomplished, shallow compression depths would have a negative effect on cardiac output. Research suggests significant CPR skill degradation is inevitable. Alternate CPR training methods utilizing various instructional modalities could improve skill retention for out-of-hospital providers performing such lifesaving techniques.

Using Q-Methodology to Evaluate Students' Perceptions of Their Clinical Education Experience

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Context. The Commission on Accreditation of Athletic Training Education (CAATE) requires entry-level athletic training education programs (ATEPs) to develop and implement an assessment plan to evaluate all aspects of these undergraduate and graduate programs. This includes continual assessment of the clinical education portion of these programs, which may include, but is not limited to, evaluation of preceptors, clinical sites and clinical competencies. This evaluation process most commonly incorporates Likert scale surveys that students complete during their clinical education experience throughout the ATEP. However, Q methodology has the potential to be a more comprehensive tool in that it would enable program administrators to identify various views, consensus, patterns of subjectivity and students' preferences regarding their clinical experience.

Objective. To present the benefits of using Q methodology in athletic training education research. In this context, to explain the potential for Q methodology to contribute to overall ATEP assessment by determining various views and consensus of athletic training students in regards to their clinical education experience.

Background. Q methodology is mixed methods approach that involves the systematic study of human subjectivity to provide a means to determine a population's subjective viewpoint(s). A Q study involves participants ranking a set of statements regarding a particular topic according to their own point of view. It then utilizes factor analysis and correlation to determine consensus and differences of that population's opinions, beliefs, and/or attitudes.

Description. The results of a Q-study will be discussed to illustrate the value of Q methodology in determining students' subjective perspectives regarding their clinical education experience as part of an overall assessment of an ATEP.

Clinical Advantage(s). Q methodology has the potential to provide valuable, more subjective data to program administrators compared to traditional Likert scale surveys. Results from Q studies can allow faculty of ATEPs to gain greater insight about students' views of these programs and, in turn, enable these faculty to improve the clinical education aspect of their programs. Specifically, it may assist faculty in making decisions regarding preceptor training, clinical site decisions, student placement and curriculum development.

Conclusion(s). Q methodology can be used as an assessment tool for ATEP program administrators to evaluate the clinical education component of ATEPs. **Key Words.** Q methodology, curriculum assessment, clinical education, student evaluation

Using Evidence Based Practice Methods in a Team Classroom Approach

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Context: Educators seek innovative pedagogical strategies to teach evidence based practice (EBP) competencies. Objective: To describe a team based approach to implementing EBP skills to answer a therapeutic modalities question determined by students taking the course.

Background: Students are taught how to use PICO questions and advanced search techniques in previous coursework. Once these skills are developed, students in a therapeutic modalities course are divided into small groups. Students work as a class to answer their own clinical question throughout the semester.

Description: The entire class begins to ask clinical questions that pertain to their previous clinical experiences and current modalities course. Questions are narrowed so that each group obtains 2-3 questions that they research using EBP methods including appraisal of the available literature using PEDro scales. After a few weeks for each group to adequately research their topics and the quality of available literature, the groups present their findings to the class. Based on the group presentations, the class votes on one of the questions to become their class EBP topic. Groups continue to working to determine if any literature remains that should be added to answer the question. Each group presents any additional information they find and the class determines all of the literature they will use to answer their clinical question and posts PDF copies of the articles on an educational website. Groups continue working together to discuss the quality of the research using PEDro scales and to discuss the general research results in order to develop constructs on how the summary of this research should be applied. At this point, each student writes an individual EBP paper that includes discussion of the research findings, guality of this research. and their personal clinical recommendation. Students analyze the strength of this recommendation based on how it makes sense to them clinically, how sound the research is, and how practical it may be. Students are required to turn in a first draft about 6 weeks before the final version is due giving the instructor a chance to provide feedback prior to their final draft.

Clinical Advantages: Working through a team-based approach to develop an understanding of how to ask good clinical questions, how to appraise it, and how to begin evaluating it gives students confidence as they master these skills. Subsequently, students still individually develop their writing and critical thinking skills as they write their own paper. A major advantage is that the educator knows exactly which research articles the class has chosen and can do their own in-depth review of them providing a greater ability to guide the student's EBP skills and writing development. Class discussions can also be held as student's struggle to synthesize information. When the educator has read the same research articles as the students, these discussions become much richer and impactful.

Conclusion: This classroom activity fosters teamwork, critical thinking, and in-depth writing skills while students' gain EBP knowledge and application skills.

Key Words: team-based learning, writing skills, PICO questions, PEDro scales

Developing Communication and Clinical Skills Via Simulations Integrated Throughout the Curriculum

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Context: Clinical skills and reasoning are emphasized greatly in most athletic training programs, but communication skills, which are vital for health care professionals, may not be given the focus that is necessary. Upon entering the workforce, athletic trainers must be able to communicate with many health care professionals, as well as coaches and parents, regarding patient care. Often, educators rely on opportunities in clinical education experiences to develop communication skills, but those opportunities may be limited in some clinical settings. In addition to clinical skills, simulations can develop students' communication with other health care professionals, as well as their communication skills in difficult situations. However, the appropriate use of simulations requires strategic planning, and educators need to acquire the knowledge and skills necessary to use this education strategy. Objective: The objective of this poster is to disseminate how simulations can be utilized and integrated throughout an athletic training curriculum to develop students'

communication skills with patients, health care providers,

and others as well as develop their clinical skills.

Background: Simulation is defined as learners engaging in a lifelike experience with varying levels of fidelity to mimic a real clinical encounter. The use of simulation is common in medical and nursing education. A recent meta-analysis reported that simulation-based education is superior to traditional didactic and clinical education to enhance knowledge, clinical skill performance, confidence, and critical thinking. In medicine and nursing, simulation that focused on improving communication skills was shown to significantly improve the communication skills of students.

Description: We have implemented simulations within the curriculum to systematically develop students' communication and clinical skills. This communication ranges from simple to more complex discussions, such as conflict resolution, patient presentation to a health care provider, and change in lifestyle discussions. Each semester, students engage in two or three simulations to develop their communication and clinical skills related to the course content. This poster will describe our integration plan as well as the successes and challenges of using simulations.

Clinical Advantage: The development of communication and clinical skills requires practice and opportunities for feedback, which simulations can provide. Due to the unpredictable nature of clinical education experiences, students may not have regular opportunities to practice and refine their communication skills with health care professionals, coaches, or parents. Rather than leaving the development of communication skills to chance, a deliberate plan will develop these skills in a progressive fashion.

Conclusions: The development of communication and clinical skills is important to emphasize throughout the athletic training program in order to produce competent health care professionals who can communicate effectively. Simulations can provide students with safe opportunities to develop these communication skills, along with the appropriate clinical skills. With countless scenarios, simulations can be performed in a multitude of classes, with communication and clinical skills building upon one another. A simulation which develops communication and clinical skills could easily be integrated in a variety of ways in order to meet the needs of students.

Key Words: professional attributes, clinical skill acquisition, athletic training student.

The Impact of Lesson Study on Faculty Development in Post-Secondary Education

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Context: The collaborative practice of lesson study emerged in Japan as a method for educators to continually improve teaching and enrich the experience provided to the students. Since the introduction of lesson study to the United States in 1999, it has shown to have effectiveness in the K-12 settings but little research has been done on the utilization of lesson study in postsecondary setting.

Objective: Utilizing a case study design, this study explored the use of lesson study as an effective tool in the faculty development practices of higher education faculty including faculty and clinical instructors within an ATEP.

Background: The need for exploration of effective faculty development practices is necessary in higher education since it is common practice for faculty to be hired based on expertise in the content matter or research experience rather than teaching experience. Although individuals may be skilled in the subject matter, it does not necessarily mean the information will be effectively transferred to the classroom or clinical setting. Thus, lesson study was explored as a possible tool to enhance faculty development through an active, collaborative process.

Description: Qualitative data from individual surveys and focus group interviews revealed that lesson study is an effective tool for faculty development. The subjects cited the collaborative nature and active participation as the characteristics which support the use of lesson study for faculty development over other developmental practices they had participated in. In addition, the student-centered approach and definitive outcomes also enhance the process.

Clinical Advantages: The collaborative nature of lesson study can be an effective way to involve multiple people in enhancing the teaching and learning process in the ATEP. It can incorporate discussion and ideas from ATEP faculty, academic staff, clinical preceptors, students. The final report of lesson study also gives the staff tangible ideas and lessons to use in the classroom or clinical setting.

Conclusions: Lesson study can be an effective means to help those who are knowledgeable in a certain subject matter become more experienced in pedagogy and teaching practices to enhance learning within the ATEP. It is an effective means of faculty development because it encourages collaboration, active participation, discussion, reflection, and implementation of a new idea. **Key Words:** Lesson study, faculty development, collaboration, teaching and learning, higher education.

Simulation-based Learning: Is this the future of athletic training education?

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Context: Human patient simulation (HPS) has become an emerging education intervention for many health care professions including medicine, nursing, physical therapy, and athletic training because it allows for repeated instruction and practice without risk to actual patients and does so in a manner that can be made to replicate the real world setting.

Objective: To develop simulation learning activities that mimic patient cases, particularly high risk and/or low frequency cases that students may not encounter in the clinical setting.

Background: The repetition of patient care experiences in a real world setting through simulation is a direct application of Kolb's Experiential Learning Theory (knowledge is created through experience) and Lave's Situated Learning Theory (learning transfers from the training setting to the performance setting best, the more closely the two are aligned with one another). The work of Erickson suggests that the principle component in developing expertise in any discipline is the opportunity for deliberate repetitive practice with directed feedback. Unlike clinical experience alone, simulation allows for endless replications of clinical scenarios – especially critical but less frequent patient events.

Description: Effective simulation incorporates two key components: the simulation scenario and debriefing of the learner's engagement in the simulation. Simulation learning activities are constructed to mimic patient cases, conditions, and/or complications that occur in clinical practice and may be designed for individuals or teams. Although task trainers, standardized patients, and/or high-fidelity manikins are often used to create an active, experiential student learning opportunity, simulation-based learning can be achieved without costly equipment. Simulation provides the student with a safe environment to apply his/her knowledge and skills and learn from mistakes but without harm to patients. Following the simulated learning activity, the student reflects on his/her performance in a debriefing session

facilitated by the instructor. Debriefing may be conducted in a number of ways, including class discussion and video analysis. The debriefing session allows the student to evaluate his/her clinical performance to recognize areas of strength and areas in need of improvement.

Clinical Advantage(s): HPS has become increasingly popular because it allows for repeated instruction and real world practice without the risk of harming actual patients. The effectiveness of HPS lies in its ability to replicate real world experiences in a controlled, fully interactive environment. The most critical issue in any type of learning environment is how well learning is transferred from the education setting to clinical practice. Conclusion(s): A growing body of research suggests that simulation is an effective tool for educating health care professionals. Simulation is an appropriate, and necessary, education intervention for athletic training. Key Words: simulation, experiential learning, situated learning.

A Model for Developing Scholarly Advanced Practice Athletic Trainers in Post-Professional Education Programs

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Context: The Institute of Medicine has called for global improvement of healthcare delivery and educational programs for healthcare practitioners. The ongoing healthcare crisis and current economic challenges necessitate innovative educational approaches for advanced practice post-professional education.

Objective: The purpose of this poster presentation is to present a unique framework for post-professional doctoral programs that develop advanced scholarly practitioners.

Background: Until recently, post-professional athletic training education programs have utilized a primarily academic model with unstructured and unrelated clinical experiences.

Description: The model was constructed as a 50-50 hybrid (traditional academic and traditional residency), which provides opportunities for immediate application of advanced practice knowledge and behaviors within the framework of scholarly clinical research. Early in the program, students develop a Plan of Advanced Practice (PoAP) to guide their studies.

Clinical Advantage: This Plan is a theory-driven actionresearch model wherein students focus on a specific area of interest to gain advanced practice expertise. Students evaluate their current strengths and weaknesses, and design a plan to add depth to their knowledge and skills. The PoAP specifically evaluates evidence-based practice, interdisciplinary collaboration, quality improvement, and professionalism and is dynamically developed throughout the program culminating in the Final Residency Findings report. The PoAP provides structure for an individualized program of study and builds the foundation for a Dissertation of Clinical Practice Improvement (DCPI). The DCPI incorporates a portfolio of advanced practice, which provides evidence of student achievement in gaining advanced practice expertise in their chosen focus area. Components of the DCPI include: original applied clinical research manuscript, individual clinical outcomes data, formal reflective practice of patient care (journals), PoAP, faculty/attending clinician (mentor) evaluation, resident self-evaluation, final residency findings, and impact on the residency site. The original applied clinical research project provides students the opportunity to examine their practice within the context of changes they observe in their patients. Research project evaluation criteria include outcomes measures for: patient centered care, evidence-based practice, quality improvement, use of healthcare informatics and, professionalism. These outcomes measures provide quantifiable data for quality professional practices and structure for student's reflective practice journals.

Conclusion: This visionary model provides a dynamic framework for advanced practice and clinical research that fosters partnerships with other health professionals for greater collaboration and visibility that facilitates advancement of the profession through the development of scholarly advanced practice athletic trainers.

Key Words: Advanced Practice, Plan, Dissertation of Clinical Practice Improvement

Assessing Critical Thinking in the Didactic Setting: Applying the Holistic Critical Thinking Scoring Rubric to Athletic Training Education

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Context: The Holistic Critical Thinking Scoring Rubric (HCTSR) is an instrument that may be used to measure critical thinking within athletic training education. **Objective:** To discuss the supporting evidence and methods of incorporation of the HCTSR.

Background: Investigation of critical thinking and clinical reasoning has emerged within athletic training literature. Strategies used to enhance critical thinking in higher education have included problem-based learning, questioning tactics, concept mapping, writing, and reflection. Although anecdotal evidence is beneficial in describing teaching strategies, it is imperative for educators to have quantitative forms of assessment to measure critical thinking. The purpose of the abstract is to introduce the HCTSR as a means to evaluate critical thinking in Athletic Training Education Programs. The basis of the HCTSR is rooted in the definition of critical thinking proposed by the American Philosophical Association. The HCTSR may be used to analyze individual or group thinking in a variety of mediums (video, presentation, writing, etc..). A need exists for athletic training educators to possess the tools to measure critical thinking in the didactic setting. The HCTSR is one means of exploring the impact of specific teaching strategies in athletic training education.

Description: As critical thinking and clinical reasoning become an objective within athletic training education, appropriate methods of evaluation must be implemented to measure learning outcomes. The HCTSR is a founded on a 1-4 scale used to evaluate critical thinking within a variety of contexts. Educators may use the rubric to specifically assess the problem solving process. The purpose of the HCTSR is not to evaluate technical skill or content knowledge, rather the reasoning behind a decision regarding ones beliefs or actions. The rater is encouraged to concentrate only on the critical thinking when utilizing the rubric. Authors of the HCTSR encourage training sessions and practice prior to implementing the evaluation tool. In the case of multiple raters scores should not be averaged. Raters should convene with one another to discuss the evidence to reach a single score.

Clinical Advantages: Critical thinking and clinical reasoning skills are fundamental in the transition from student athletic trainer to young professional. As educators continue to develop and refine curriculum to

support schema development, evidence must exist to corroborate the success of teaching strategies. Consequently, effective teaching of problem solving and judicious reasoning within the ATEP will ideally translate to better decision making in the clinical setting.

Conclusion: To best understand effective methods of teaching critical thinking, athletic training educators must quantitatively evaluate this professional objective. Specifically, the integration of rubrics such as the HCTSR can provide valuable information regarding how students are solving clinical problems.

Key Words: Critical thinking, rubric, athletic training education.

Scholarship of Application

Athletic Training Research as Translational Science: Transferring Research to Practice

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Context: To improve patient care, scientific discoveries, devices and best practice in medicine must be translated into practical clinical applications. One way to accomplish this is to implement educational strategies, such as simulation, where students learn to practice with these new techniques/devices. Interventions in athletic training education have the ability to translate into advancements in the development of athletic trainers (ATs), as well as care given to individuals and populations. **Objective:** To introduce the concept of athletic training education research as translational science and provide an example of its application.

Background: Performance Domain III of Board of Certification (BOC) Role Delineation Study/Practice Analysis, 6th Edition outlines the knowledge and skills needed by ATs to provide care in emergent situations, independent of one's practice setting. Included within this emergent plan of care is the implementation of appropriate techniques and procedures designed to provide the patient with optimal outcomes. However, evidence-based practices are not always implemented by ATs, particularly in emergency care. For example, AT's have reported a hesitancy to comply with the practices of rectal thermometers or rapid whole-body cooling when responding to exertional heat stroke. It is important that educational strategies translate into improved attitudes toward implementing evidence-based practice related to emergency care, and improved patient care and outcomes. This is accomplished by applying a translational science approach to athletic training education research.

Description: Athletic training education research can be considered translational science as long as it meets certain criteria. Research showing an effect on the development of ATs knowledge, skills, or professionalism is termed T1 translational science. Educational strategies that develop skills and favorable attitudes in practicing ATs toward taking rectal temperature as part of evidencebased care of exertional heat stroke is an examples of this. T2 translational science occurs when educational outcomes transfer to clinical practice. Examples include educational practices that lead to more practicing ATs preparing for and taking rectal temperatures when treating exertional heat stroke, and more ATs being prepared to rapidly cool athletes. T3 translational science describes research findings that improve the health of patients. This area includes health care delivery and policies that show improvements in the health of individuals or populations. In order for athletic training education to fit into this category, research needs to directly link educational practices to improved patient outcomes.

Clinical Advantage(s): Emergency medical care of athletic injuries and illnesses is a vital component of the athletic trainers' repertoire of skills when providing prehospital emergency care in an emergency. Educational practices that enhance ATs' skills, improve patient care and outcomes can be considered translational science. This is important because the National Institutes of Health (NIH) and other funding sources will provide grants for translational research.

Conclusion(s): Educational research and practices have the ability to improve the development of athletic trainers, the quality of patient care practices, and patient

Addressing the Health Related Needs of College-Aged Music Performance Students

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Context: The area of music performance is recognized as an emerging practice setting for Athletic Trainers. Indeed, the concept of the "musical athlete" is well documented as musicians suffer overuse injuries typically associated withathletes. In response, the National Athletic Trainers' Association has identified certain knowledge and skills athletic trainers who work with musicians should have. However, student musicians are rarely educated the prevention, recognition and management of injuries incurred as a result of playing a musical instrument. Furthermore, topics such as the psychological impact injury has on а performer; recognizing, and understanding, the consequences of eating disorders;knowing the physical demands certain musical activities place on the human body; and appreciating the concept of "hearing health", are also novel to this population.

Objective: This presentation describes how students enrolled in the University of Southern Maine's (USM) School of Music (SOM) are educated about musician health care issues.

Background: The National Association of Schools of Music (NASM) accreditation standards require that "...students in music programs be fully apprised of health

issues inherent in practice and performance..." and that music program policies "...reflect attention to injury prevention and to the relationships among musicians' health... ". Accreditation guidelines also state that "...institutions must assist students to acquire knowledge from qualified professionalsregarding the maintenance of professional health and the prevention of performance injuries." To meet these requirements, faculty from USM's SOM and Athletic Training Education Program (ATEP) collaborated to develop an academic course entitled"EYE 118, Musician's Health: A Path to Peak Performance."

Description:EYE 118 is a required freshman level course for SOM majors. It is also included in USM's General Education Curriculum. The goals of the course include 1) teaching about preventing, treating and managing common musculoskeletal and neurological injuries which occur to musicians 2) informingabout eating disorders; 3) educating about the physical demands certain musical activities, such as participating in a marching band, place on the human body; 4) introducing hearing health concepts, focusing on strategies used to protect the hearing of the performing musician. Other topics, such as basic nutrition conceptsand how to manage episodes of "stage fright", are also discussed.

Clinical Advantage(s):To apply didactic knowledge, students participate in a series of laboratory activities throughout the course. Furthermore, much like the mandatory completion of clinical hours by athletic training students, student musicians participate in required practice sessions under the auspices of a private instructor. During these practice sessions the private instructor is charged with addressing health related issues, such as modifying a student's posture or correcting hand positioning, while playing. Students are also required to implement health intervention strategies during performances.

Conclusion(s): Athletic Training Educators (ATEs) can provide a valuable service to music majors. Thus, ATEs should consider collaborating with music faculty and administratorsto help address the health needs of these students. Indeed, those in music education should welcome such collaborationas doing so helps to address current NASM accreditation standards.

Key Words: injury; health; musician; prevention

Gaining Nutritional Counseling Skills through Peer Interaction with Nutrition Dietetics Students

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Context: The purpose of this poster is to present an innovative interdisciplinary approach to teaching nutritional counseling strategies to athletic training students by pairing them with dietetics students enrolled at the institution.

Objective: Participants reading this poster will be able to 1) Identify resources for nutritional peer counseling at their institution and 2) Plan a peer assisted intervention strategy for nutritional counseling for students in their athletic training program.

Background: The most recent edition of the educational competencies requires students to be able to apply various nutritional counseling strategies to help athletes manage weight, maintain or obtain nutritional goals, and identify essential components of food labels and appropriate nutritional intake. The purpose of this poster is to describe an innovative approach currently being used at Radford University to help students understand the strategies and methods used in nutritional counseling and food related behavior change. At the university, athletic training students enrolled in a junior level practicum are paired with senior level nutrition and dietetics students enrolled in an advanced nutritional counseling course. The nutritional counseling students, through peer education, model best practice in nutrition care using evidence based cognitive and behavioral change models, interpersonal communication skills, goal setting strategies and nutrient analysis and recommendations.

Data Sources: Data sources for this presentation include faculty and student review of taped sessions, written documentation of the nutrition care process including assessment and intervention, and athletic training student journal entries about the process.

Data Synthesis: Data analysis shows that students in both disciplines find the process beneficial. Athletic training students made progress toward personal nutrition related goals, gained insight toward factors impacting food and nutrition related behavior and learned practical strategies to achieve nutrient requirements. Nutrition and Dietetics students gained valuable experience applying their skills in a peer to peer context. Furthermore, students in each discipline gained exposure to a related field which may increase the chance for professional

collaboration in the future.

Integrative Conclusions: Accredited programs in Nutrition and Dietetics (Accreditation Council for Education in Nutrition and Dietetics) are required to teach evidence based nutrition counseling techniques and food related behavior change strategies. These skills, which are also beneficial for athletic training students, are often overlooked in ATEP programs in deference to other educational requirements. Pairing athletic training students with nutrition and dietetics students has several advantages including a personal insight into nutritional counseling methods and strategies.

Key Words: Nutritional Counseling, Peer-Assisted Learning.