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ORIGINAL RESEARCH

Perceptions of Emergency Management in Members of Reciprocal Organizations

Jaclyn B. Arduini, MS, ATC, CAT(C), NREMT; Jennifer L. Volberding, PhD, ATC, NREMT
Oklahoma State University Center for Health Sciences, Tulsa

Context: Reciprocal agreements allow members of both the Board of Certification and the Canadian Athletic Therapy Association to practice after passing the certification exams. For both, there is an initial baseline level of emergency management (EM) knowledge. A high level of decay among skills and knowledge occurs when not used or reviewed.

Objective: The purpose of this study was to identify a definition of EM as well as themes relating to perspectives on EM maintenance requirements in athletic trainers and athletic therapists, as these appear to be absent from the current research base.

Design: Qualitative study.

Setting: Individual interviews.

Patients or Other Participants: A purposeful sampling method recruited 10 participants (5 from Canada and 5 from the United States; 4 men and 6 women; 4 academics and 6 clinicians; 2 to 35 years of experience) with content expertise in EM.

Data Collection and Analysis: The primary investigator conducted interviews, which were recorded, transcribed, and checked for accuracy. Interviews were evaluated through consensual qualitative analysis for themes, subthemes, and quotes. Triangulation occurred, and data saturation was reached by the tenth interview.

Results: Four main themes emerged: (1) a definition of EM, (2) EM as a foundational skill, (3) efforts to gain and maintain knowledge and skills, and (4) perceptions regarding requiring a higher-level certification. We have identified a thematic definition of EM and established EM as a foundational skill set. Participants emphasized practice for gaining and maintaining proficiencies in EM; however, no consensus on higher-level certification was reached.

Conclusions: With the thematic definition of EM identified, the focus shifts to investigating effects of personal practice on knowledge and skill levels. This study found that recertification timelines exceed timelines for knowledge and skill decay. Clinicians and academics agree that frequent personal practice is preferred over formal continuing education for maintenance of best practice.

Key Words: Skill decay, knowledge decay, foundational knowledge

Jaclyn B. Arduini is currently a Graduate Teaching Assistant at Oklahoma State University Center for Health Sciences. Address correspondence to Jaclyn B. Arduini, MS, ATC, CAT(C), NREMT, Oklahoma State University Center for Health Sciences, 1111 West 17th Street, Tulsa, OK 74107. jaclyn.arduini@okstate.edu.

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Perceptions of Emergency Management in Members of Reciprocal Organizations

Jaclyn B. Arduini, MS, ATC, CAT(C), NREMT; Jennifer L. Volberding, PhD, ATC, NREMT

KEY POINTS

- Clinicians in both countries felt that emergency management is an essential skill to athletic training and therapy.
- Participants felt that practice was the most effective means to maintaining their skills and knowledge.
- No consensus was reached as to whether or not a higher-level emergency management certification is necessary for clinical practice.

INTRODUCTION

Athletic trainers and athletic therapists have a wide scope of practice following initial certification and are required to maintain this level of knowledge by completing continuing education (CE) as part of their professional development.[1,2] CE is aimed at remaining current with best practices and demonstrating continued competency.[1,2] A reciprocal agreement exists between the Board of Certification (BOC) in the United States and the Canadian Athletic Therapy Association (CATA) and the Canadian Board of Certification of Athletic Therapy in Canada, allowing members of either organization to gain reciprocal membership after passing the opposing organization's certification exam.[3,4] An area of emphasis for the BOC and the CATA is critical incident management and acute care, often referred to as emergency management (EM), as it is the only area of mandatory CE for both organizations.[1–4]

In the United States, the BOC requires ongoing certification in Emergency Cardiac Care (ECC); this is typically maintained through either the American Heart Association or the American Red Cross by way of a Basic Life Support (BLS) course.[5] This course is required to include adult, pediatric, and second rescuer cardiopulmonary resuscitation (CPR), use of an automatic external defibrillator (AED), airway obstructions, and use of barrier devices.[5] At this time, ECC is not required to include any other life-saving measures, skills, or techniques included in EM. In Canada, the CATA requires that members maintain a BLS certification as provided by the Canadian Red Cross.[2] This course includes CPR, AED, airway obstruction, and assisted ventilation device usage as well as glove removal, primary assessment, and special considerations, including second rescuer CPR.[6,7] However, to be eligible to sit for the CATA national certification exam, candidates must possess a First Responder (FR) certification.[2] Those athletic therapists certified after January 1, 2020, must also maintain this certification biannually to remain in good standing with the CATA. The Canadian Red Cross First Responder is a 40-hour first aid and CPR course that includes patient assessment, musculoskeletal injuries, hemorrhage and soft tissue injury, shock and environmental illness, head and spinal injuries including extrication, airway management and respiratory emergencies.[8] Course completion includes successful demonstration of required skills and completion of 2 scenarios in addition to a written exam.[8] The certification is valid for 3 years, after which a 20-hour recertification is required.[8]

Recently, the CATA updated its EM CE requirements from a biannual renewal to an annual renewal for all members beginning in 2025.[2] This is in addition to the FR certification required biannually for all those certified in 2020 and beyond.[2] The CATA discussed that these updates were put in place to address the decaying of skills that occurs within 6 to 12 months of training (CATA, personal communication, July 12, 2023). Skill decay is defined as "the loss or decay of trained or acquired skills (or knowledge) after periods of nonuse."[9] Although it is known that skill decay is present at 12 months, the reality is that decay often occurs much sooner.[10–14] Research has demonstrated that skill can decay as much as 92% after 1 year of nonuse or nonpractice.[9] Paramedics demonstrated a significant decrease in skill performance of airway management in 6 months regardless of the number of runs per shift.[11] Athletic training students demonstrated a similar decay in airway management skills and clinical knowledge over 6 months, and, although not statistically significant, knowledge and skill levels never reached initial post-training levels, even at 1 month after instruction in athletic training students.[10] A systematic review of Advanced Life Support knowledge and skills in healthcare providers indicated that skill and knowledge decay were present in nurses at 6 weeks after training.[12]

It is well documented that both skill and knowledge increase after instruction or review.[10–12,15] However, current EM recertification timelines within the BOC and CATA exceed most knowledge and skill decay timelines.[2,5,10–12,15] Additionally, the mandatory CE required by either organization covers the bare minimum of the EM knowledge athletic trainers and therapists are trained in to provide the highest level of emergency care.[2,5,16,17] The substantial change within the CATA on the additional EM certification required for athletic therapists in addition to the shorter recertification timelines for BLS indicate the drastic effects that knowledge decay may have on patient care. Additionally, the lack of a concrete definition of EM makes it challenging to identify and combat skill and knowledge decay. By investigating and comparing the perceptions of both athletic trainers and therapists surrounding EM, it may be possible to determine a common thematic definition used by members of both organizations. This thematic definition, when used in future research, may help to determine factors affecting knowledge decay and lead to a better understanding of CE timelines to help combat decay. Additionally, a discussion of the importance of EM as a foundational skillset acts to bolster the impact that athletic trainers and therapists have within EM at the forefront of patient care. Finally, discussing personal strategies to maintain EM knowledge and skills beyond that of mandatory CE may aid educators in emphasizing to students the importance of ongoing learning strategies once certified. Therefore, the purpose of this study is 4-fold: athletic trainer and therapist perceptions of (1) the definition of EM, (2) EM as a foundational skill

Table 1. Participant Demographics

Pseudonym	Age	Gender	Ethnicity	Years of Experience	Current Setting	Type of Certification	Route to Certification
Amy	50	Woman	White	25	Clinical	CATA	Undergraduate
Betsy	32	Woman	White	10	Academic	BOC	Undergraduate
Carol	51	Woman	White	22	Academic	CATA	Undergraduate/internship
Dennis	31	Man	White	2	Clinical	BOC	Graduate
Elaine	45	Woman	White	22	Academic	BOC	Undergraduate
Lesley	52	Woman	White	26	Academic	CATA	Undergraduate
Landon	57	Man	White	35	Clinical	BOC	Undergraduate
Richard	41	Man	Chinese	19	Clinical	CATA	Undergraduate/internship
Dean	52	Man	Black	30	Clinical	BOC	Undergraduate
Ashley	46	Woman	White	CATA 23 NATA 18	Clinical	Dual	Undergraduate/internship

Abbreviations: BOC, Board of Certification; CATA, Canadian Athletic Therapy Association; NATA, National Athletic Trainers' Association.

set, (3) a plan to maintain EM skills and knowledge, and (4) the need for higher-level certifications in EM.

METHODS

Critical theory design using a semistructured interview protocol was used to investigate the perception of importance, definition, and maintenance requirements and strategies within EM in both the United States and Canada. Institutional review board approval was obtained before conducting the interviews. Standards for Reporting Qualitative Research were followed.[18] Participants provided informed consent before their interview and responded to an email regarding demographic information. Interviews were audio recorded for accuracy in data transcription.

Participants

Participants were solicited using a purposeful sampling method, and all displayed content expertise in EM in either the academic or clinical setting.[19] Academic participants were identified and recruited for their expertise based on published research or position statements within the content area. Academic participants ($n = 4$) are employed at accredited institutions in the United States and Canada and were selected as they would be privy to the most up-to-date information regarding EM requirements in either country. All participants were given pseudonyms (Table 1). Canadian participants Lesley and Carol also serve as FR instructors in addition to their academic roles. Elaine and Betsy are both involved in EM instruction at their respective institutions within the United States. Clinical participants ($n = 6$) were recruited based on their involvement in EM research or EM CE courses or participation in high-performance events, such as professional sports or major games. Such participants were identified through promotional materials or social media posts related to their involvement in CE within EM. Canadian clinical participants Amy, Richard, and Ashley are all involved in high-performance sports medicine in addition to their regular clinical roles. United States clinicians Dean and Dennis instruct EM courses in addition to their clinical roles, whereas Landon has been involved in EM research. In total, 13 participants were contacted, with 3 individuals choosing not to participate in the study. Had data saturation not been reached, further participant recruitment would have occurred. Ten participants (5 Canadian individuals and 5 US individuals; 4 men and 6 women; experience = 21.5 ± 9.0 years) voluntarily participated in the study. Participant demographic information is included in Table 1. The potential for selection bias was high in a study of this sort and is addressed in the Limitations section. A saturation of responses was reached within the 10 participants.

Instrumentation

A semistructured interview protocol was developed (Table 2) regarding the definition and importance of EM knowledge as well as processes to gain and maintain EM knowledge and certification within the CATA and BOC. Questions 1 and 2 were used as ice breaker questions and to engage the participant in quality discussion from the outset of the interview. The follow-up question of participants' definitions of EM was intended to investigate if participants discussed academic references or their personal opinions. Questions 3 and 4 intended to gauge participants' knowledge levels of current processes of obtaining and maintaining mandatory EM certifications and CE. Question 6 acted as a survey of which skills or techniques participants felt were most important to athletic trainers' and therapists' expertise in EM. Question 8 served to investigate perceptions related to expanding mandatory CE past that of ECC/BLS. Questions 5, 7, and 9 were later discarded as data analysis indicated a repetitive nature of responses not directly related to the research objectives. The primary investigator (PI) designed the interview protocol after reviewing empirical evidence regarding consensual qualitative research.[20] The interview protocol was then reviewed by the secondary investigator, and modifications were made. The secondary investigators' areas of expertise include EM and qualitative research. The PI performed the interviews following the protocol and asked probing and thematic questions when appropriate as the protocol was semistructured in nature.

Procedures

Individuals were contacted via email based on their contact information listed at their institution, publicly available information, or information on a published manuscript. Individuals that were interested in participating were asked to reply to the PI, at which time a consent form was distributed and a Zoom interview was scheduled. Participants were asked to confirm their consent at the start of their interview, and a brief overview of the proceedings was explained. Each interview lasted approximately 30 to 45 minutes. Interviews were recorded via Zoom,

Table 2. Semistructured Interview Protocol

(1) What is your definition of emergency management?
   a. What is your definition based upon?
(2) Do you feel that emergency management is an essential component/foundational skill set of athletic training/therapy and why or why not?
(3) In your own words, explain the process with regards to emergency management skills required to obtain and maintain certification.
(4) Tell me what you know about the opposite country's requirements for emergency management at initial certification and beyond.
(5) What in your educational background and prior continuing education courses helps you to maintain or improve your emergency management skills?
   a. Have any of these been required by your association?
   b. Have any of these been required by your employer?
   c. Is there any course that you have always wanted to take and why?
(6) What are the top 3 emergency management skills/techniques that you feel every athletic trainer/therapist should be fluent in and why?
   a. In your understanding of the changing education requirements, do you feel that there are skills that you may lack that are now being taught in accredited programs? What is your plan to stay current with the ever-changing skill set?
(7) In a perfect world, what emergency management certification(s) would you want all athletic trainers/therapists to have and why?
   a. What do you feel are the main obstacles to this and why?
(8) Do you feel a higher-level certification beyond BLS is needed given the diverse arenas that athletic trainers/therapists now find themselves working in with vastly different skill application? Why?
   a. What do you feel are the main obstacles to this and why?
(9) Are you aware of the Emergency Medical Responder in the United States/First Responder Certification in Canada, what it involves, and how similar it is to our current scope of practice?
   a. Do you now feel that this certification would be more appropriate for athletic trainers/therapists to hold that BLS?

Abbreviation: BLS, basic life support.

with both audio and video, in a private room to ensure validity of transcription. The transcript function was activated to aid with later data cleaning. The PI observed topic saturation within the 10 interviews through repetition of common themes and responses. This was confirmed by the secondary investigator following transcript review. Had saturation not been evident, further participants would have been recruited.

Data Analysis

The PI reviewed and cleaned all Zoom transcriptions for accuracy and removed all identifying information. Inductive coding was used, and interviews were reviewed and evaluated through consensual qualitative analysis.[21] The investigators first read through the transcripts independently, then they met to discuss and identify themes. Once these were agreed upon, each investigator then coded each transcript independently before returning to discuss the interviews point by point. Any disagreements were referred to the third investigator to act as a tiebreaker. Investigator triangulation occurred, with investigators individually identifying themes within responses. This process was repeated for subthemes and quotes. Investigators' individual documents were then combined, and once common themes, subthemes, and quotes were agreed upon, a final codebook was maintained.[18,21] A third member reviewed all transcripts for theme and subtheme consistency and served as a tiebreaker for conflict resolution. Respondent validation occurred, with 1 randomly selected participant from each country selected to review their transcript for accuracy.[21] Neither member found any faults with the transcriptions. In an effort to focus on the manuscript's intended objectives, the authors elected to eliminate questions 5, 7, and 9 during analysis due to their perceived lack of direct relevance to the central purpose of the study.

RESULTS

Participants were asked several questions regarding themes within EM and were encouraged to expand and openly discuss their thoughts and opinions as they saw fit. The results of our analysis demonstrated several strong themes that aligned with the goals of the study. These included the development of a thematic definition of EM, agreement that EM is considered a foundational and essential skill set, the need for practice to maintain skills, and finally the idea that higher-level certifications may not be a solution to skill and knowledge decay. Additionally, the definition of EM presented a subtheme of mental health as an aspect of EM for the participating athletic trainer or therapist.

Definition of EM

Participants were asked for their definitions of EM, and, through analysis, several concepts were commonly highlighted. These concepts were used to help guide a thematic definition of EM in conjunction with the frequencies of the top 3 skills or techniques participants felt were the most important to EM (Table 3). We will discuss individual components before stating a thematic definition built from these elements. One of the most common concepts that was discussed included planning and prevention of emergencies. Richard, a clinical athletic therapist, discusses that when an

Table 3. Top 3 Emergency Management Skills or Techniques

Skill	Frequency
Cardiac management/CPR-AED for cardiac/cardiac arrest	8
Airway management/airways	5
Deadly bleeding/major bleeding/circulation	4
Spinal restriction/spine boarding/spinals	3
Vitals	2
Heat illness	2
Responder safety	1
Recognition and observation skill	1
Equipment removal	1
Teamwork and communication	1
Use of diagnostic tools	1
Splinting management	1

Abbreviations: AED, automatic external defibrillator; CPR, cardiopulmonary resuscitation.

emergency occurs, "there are plans in place to ensure the best outcome." Elaine, an instructor in an athletic training program, similarly states,

> *Emergency management is emergency [sic] management of the scene, the situation, and being prepared...It's athletic trainers, you know, predicting, planning, and preparing for potential emergencies.*

Emergency action plans are considered a cornerstone of athletic training and therapy preparation, so it is unsurprising that both athletic trainers and therapists agree on this concept.[22] Another concept discussed by multiple participants was that of recognition and management or response to an emergency. Elaine discusses this as she expands her definition, stating

> *We should plan, plan [sic], prepare, and then react. It's still preparing and planning and managing the scene, and all that encompassing what, no matter where. Emergencies can happen anywhere.*

Landon, who has experience in EM research, states,

> *So, the [sic] emergency management is the...actual recognition, management, operation [sic] to handle that chaos.*

Lesley, a FR instructor and instructor in an athletic therapy program, similarly states,

> *My definition would be first, able to recognize and second, able to, be able to control a situation, and by that I mean recognize when it's life-threatening versus non-life threatening.*

None of the participants included types of injuries within their definitions, nor did they include any specific skills or techniques. Instead, the thematic definition of EM seems to encompass an all-reaching aspect of being prepared for anything to occur. This includes managing the mental and emotional aspects of athletic trainers and therapists reacting to the emergency itself. When asked to rank their top 3 most important EM skills and techniques, mental health, critical incident stress, and debriefing after an incident were not 1 of the skills listed originally, although half of the participants ($n = 5$) added this skill as an afterthought. Participants discussed that taking care of the responder is as important as taking care of the patient. Betsy, an athletic training program instructor, states,

> *And so, I also like, always really think about like, the care to the patient, and then that care to the provider immediately following that incident that's happened.*

Carol, a FR instructor in addition to her role as an athletic therapy instructor, discusses the fact that "there's the critical incident stress" associated with EM, and Dean, a clinician, discusses

> *Basically, from A to Z, from preparation to post-incident, management, critical incident stress management, basically looking at every single aspect of of[sic] how you would, how you would manage that that[sic] incident.*

Top EM skills that participants cited as most important were cardiac management ($n = 8$), which included CPR and AED usage, airway management ($n = 5$), and bleeding emergencies or circulation ($n = 4$). Full results can be found in Table 3.

When merging participants' thoughts into an inclusive definition of EM, we arrive at a short-form definition in which EM can be defined as a response to any situation imposing harm to a patient. However, this brief definition requires more depth, so it is important to expand upon the term "response". The response includes doing the following to the best of one's ability within the most up-to-date practice guidelines: (1) the planning for and managing the scene of any emergent event, (2) the recognition, assessment, and treatment of the patient, and (3) the care of oneself both physically and mentally during and after the event.

Foundational Knowledge

When asked, all participants agreed that EM is both an essential component and foundational skill set of athletic training and therapy. Both the National Athletic Trainer's Association and CATA emphasize the importance of EM skills and knowledge, and previous research has also found that athletic trainers are regarded as experts in on-field emergency care.[23–25] Although discussion on the topic varied, the consensus was that our EM knowledge and skill are what set us apart. Betsy states,

> *The new [CAATE] standards do outline things really well, and I think do really help lead to putting us in establishing us as an expert.*

Ashley, a clinician working in the high-performance setting, agrees, stating

> *We are probably highly qualified, or at least more qualified than a typical fireman or EMT (emergency medical technician) that's never been, seen that settings [sic].*

Participants also discussed that, regardless of setting, being the first on the scene or a witness to an injury gives us an advantage over other health care professionals and only

emphasizes the need for EM as a foundational skill. Lesley states,

> *Absolutely, emphatically, yes, because these incidents, accidents, conditions, injuries it [sic], they can happen absolutely anywhere, and the notion of this stuff only happens on the field of play. We're kidding ourselves.*

This is reinforced by Dean, who further discusses the role athletic trainers and therapists have as the first first-responders on the scene.

> *Absolutely. You're gonna...if it's an athletic emergency, probably gonna be either the first person there, because you're the vulture on the perch on the sidelines that are just sitting waiting for something happening or if you aren't the first person there, you're probably gonna be the first person they call because you're the recognize medical person within any group.*

Athletic trainers and therapists agree that EM is a foundational component of the profession. Participants discuss that emergencies can occur anywhere under any circumstances, and therefore maintaining a high level of this knowledge and skill is essential to best practice. Additionally, participants agree that being the first on the scene is an integral part of what makes athletic trainers and therapists experts it the field.

Gain and Maintain

Participants were invited to discuss personal strategies to maintain their own level of EM skills and knowledge within their respective organizations with the goal of understanding how clinicians and academics maintain their level of EM knowledge and skill. Overall, a lack of knowledge existed with respect to what EM knowledge, skills, and certifications were required to become a certified athletic trainer or therapist within the participants' respective organizations. Understandably, these requirements do undergo change; however, several participants were incorrect in their assessment of their own organizational requirements to gain certification. Participants' knowledge of reciprocal organizations' requirements was almost none, despite the reciprocal agreement being in place for nearly 20 years.[26] With the continued advancement of athletic training and therapy and the introduction of more organizations into the international agreement, it is important for educators, academics, and clinicians alike to be aware of the expanding scope of practice and requirements to practice in reciprocal organizations.[26] The consensus among participants was that practice of learned skills was what was needed to maintain skill at a high level, regardless of additional CE courses or certifications. "They are skills that if you don't use, you lose," states Elaine, and "practice, practice, practice," states Ashley. Richard emphasized this by saying

> *I cannot repeat enough times. The value of just getting in there. Yeah, getting your hands dirty. Getting reps in. There is no better way to remember a manual skill than to actually practice the scenario with your bare hands.*

Maintaining the EM skills and knowledge required by each organization is what drew interesting commentary. Dean expressed his thoughts on the BOC's current requirements:

> *From a maintain standpoint, it's not that great. I mean, you have to have Emergency Cardiac Care or CPR every 2 years. But if you look at this, the instruction of CPR in this country, a lot of it is just a handshake and a wink.*

Amy expressed similar frustrations with the CATA's requirements, stating

> *Once the certification is acquired, there tends to be a bit of a blow off of any further skill management, practice, or other, because we sort of rely on that 3 year, whatever the timeline is, [renewal] of the certification.*

Current guidelines require BOC-certified athletic trainers to maintain their ECC and provide yearly documentation of it. The components of ECC are adult, pediatric, and second rescuer CPR, AED, airway obstruction, and the use of barrier devices and can be obtained through most BLS courses.[5] Canadian guidelines require certified athletic therapists to maintain a valid BLS certificate from the Canadian Red Cross or equivalent.[2] The Canadian Red Cross BLS components include glove removal, primary assessment, CPR, AED, airway obstruction, assisted ventilation, and special considerations, which cover pediatric and second rescuer CPR.[6] Participants discussed that personal practice was more important for the maintenance of this required knowledge and associated skill set than structured CE. Participants also indicated that CE for required ECC or BLS was not taken seriously and indicated that the timelines for recertification were longer than they would prefer to wait to review material.

Additional Certifications

The final theme examined the participants' views on the need for additional certifications in EM beyond the minimum requirements set forth by their respective organizations. A consensus on whether or not additional certifications are needed by athletic trainers and therapists was not achieved. On initial consideration, half of the participants suggested the need for additional certifications, citing Emergency Medical Responder, Emergency Medical Technician, Advanced Cardiac Life Support, FR, or Paramedic as potential certifications that would be appropriate for athletic trainers or therapists to carry. Initial considerations from participants included the following statements from Landon, "Now, is that enough? I don't think so," and from Amy, "I would like us to see it step up a level and do something like an advanced cardiac or advanced airway management."

However, upon further consideration, these participants tended to default back and agree with their organizations' minimum requirements and instead stated that maintenance of one's skills was what was needed most. Landon states, "I think BLS is sufficient," and Amy reflects, "I think having [sic] those certifications outside is actually a detriment." This change comes from reflection of both participants that requiring additional certifications may lessen the importance of being an athletic trainer or therapist and may give the impression that the profession needs bolstering when, in fact, the knowledge and scope of practice of athletic trainers and therapists on its own is sufficient for life-saving care.

Of the other 5 participants, 2 stated that no additional certifications were needed. Their reasons echoed the reflections of

Amy and Landon. Both participants are BOC certified and work in the academic setting.

Elaine states,

> *I don't think you should have anything besides your CPR. Why do we need another certification or training to do our own jobs? You are a[sic] certified athletic trainer. You're a health care provider. You have these skills, these management, and you should maintain those things.*

Betsy states,

> *We don't need to like, have some of these other certifications or components. It's just getting really good at what we do and have proper training and continuing to practice it.*

The final 3 participants stated that a higher level of certification, either FR or Emergency Medical Responder, should be required and agreed that the skills within BLS are not enough to support the scope of practice. All 3 participants are certified athletic therapists. Of the 3, 2 work in the clinical setting, and 1 of these participants is also dually certified with the BOC. Carol states,

> *So absolutely the the[sic] first responder. Because there is more to it than just doing CPR, right? Like, when you have CPR it's great, but it's still not enough right. I mean not everything falls under the the [sic]treatment category for BLS, right?*

Lesley states,

> *If we're gonna be professional responders in the field or in the clinic, we should all be taking courses under that arm of the agency, so First Responder. But there's always new science that happens within the rest of the skills of a First Responder course that goes beyond BLS that are not necessarily going to be included in in a BLS course but could actually augment one's ability with their BLS skills.*

Seven of 10 participants discussed that the accredited education needed to become certified as an athletic trainer or therapists is sufficient to provide life-saving care, indicating that further certification requirements could be seen as diluting the profession. The other 3 participants felt strongly that the additional skills offered by higher-level certifications outside that of ECC or BLS would only aid athletic trainers and therapists in their delivery of patient care. Two participants who initially advocated for additional certifications reversed their stance upon further consideration, implying that this issue deserves further discussion.

DISCUSSION

Athletic trainers and therapists are required to maintain their certification by taking various CE courses to ensure the development and maintenance of knowledge and skills.[2,5] One of the most important content areas athletic trainers and therapists must maintain is that of EM. In both the United States and Canada, the only mandatory CE is within EM.[2,5] In the United States, athletic trainers must provide proof of a valid ECC certification annually, whereas in Canada, either BLS or FR is required.[2,5] As there is no concise definition of EM present in the current research, the purpose of this study was to define one.

Definition of EM

A brief thematic definition of EM can be defined as a response to any situation imposing harm to a patient. This definition uses the term "response" to encompass a wide array of tasks that require extensive skill and knowledge in emergency procedures to be implemented at a high level in emergent situations. Participants discussed several aspects of EM within their personal definitions, and several concepts emerged and are included in the term "response." These are planning, patient care, and self-care. Unsurprisingly being prepared and having an emergency action plan was discussed as a major component of EM as the National Athletic Trainer's Association offers numerous official position statements and other documents that demonstrate the need for planning and preparation from diabetic emergencies to oral injuries.[22,27–31] Although all distinct in their own way, these point to the fact that planning and preparation is key. Participants agreed that patient care through the recognition, assessment, and treatment of emergent conditions was foundational in nature and is also unspringing as part of a thematic EM definition. Self-care and discussion of EM as it affects provider mental health was an unanticipated finding and one that deserves further investigation.

When reviewing participants' top 3 skills, only 1, CPR with AED, is included in BLS and therefore falls within the ECC guidelines. Airway management and bleeding control are not standard components of a BLS course yet are found in educational competencies.[2,6,16,32] Currently, no avenue exists to combat skill and knowledge decay for airway management and bleeding control; however, participants agree that these skills are vital to have. Athletic therapists in Canada certifying after 2020 are required to maintain their FR certification and will therefore have access to a more comprehensive review; however, the 36-month recertification timeline far exceeds the known rates for knowledge and skill decay.[10,12,14,33]

Foundational Knowledge

All participants agreed that EM is an essential skill set and is a foundation of the profession. Many discussed that these EM skills are what separates us from other healthcare providers and that the basis of their EM definitions was rooted in the use of their foundational knowledge to recognize and respond to an emergent situation. Similar research has demonstrated that other professionals agree that our EM knowledge and skills set us apart.[23] As a foundational component to the profession, there is a great focus on gaining EM knowledge and skills through the use of practical testing and clinical experiences.[16] However, a greater focus on maintaining our EM knowledge and skills is needed as current mandatory CE only encompasses a narrow focus of EM.

Gain and Maintain

A surprising result of this study found participants citing personal practice as their main component to gain or maintain EM skills and knowledge. None of the participants discussed taking additional courses, certifications, or formal CE to further their knowledge; instead, they discussed the need to continue to practice the skills taught in their respective programs. This personal practice may be beneficial as research demonstrates that review

is beneficial to performance and offers a stepwise progression of retention as individuals progress toward mastery.[9,34] However, if the material being reviewed is not accurate or current with best practice standards, athletic trainers and therapists run the risk of reinforcing poor habits that may have potentially negative consequences. Clinicians practicing skills with knowledge they ascertained 5 to 25 years ago is not ideal as best practice standards are constantly changing. This is compounded by the fact that participants in both countries discussed that their mandatory recertification courses may not always meet the standards as expected. Additionally, as mandatory EM recertification guidelines are currently at or over 1 year, there exists a high probability that decay will occur before formal review or recertification.[2,5,12] This is not to say that personal review is not beneficial but instead that neither the BOC nor CATA have a mandatory requirement for practice and instead rely on ECC or BLS certifications and their recertifications to maintain EM knowledge and skills.[1,2,5,9–11,14] Further research investigating the timing, content, and results of personal practice is needed to determine the effectiveness of this type of review in combating decay and maintaining knowledge and skills.

Additional Certifications

Participants had varying opinions on the need for additional certification beyond that of their country's minimum standard. All but 3 reached the conclusion that additional certifications were not needed and instead named personal practice as more important to maintaining skills. The 3 Canadian participants that cited the need for additional certifications discussed that the scope of higher-level certifications is wider than that of BLS, as it included more skills, techniques, and knowledge. This discussion is valid as the scope of currently mandated ECC and BLS standards is extremely narrow and only includes 1 of the top 3 skills athletic trainers and therapists believe to be most important.[2,5,6,32] Although there is benefit to yearly review of knowledge and skills, the review associated with recertification is currently limited and may not account for the amount of decay that has occurred.

Limitations

There are several limitations within this study. With purposeful recruitment, there is an inherent bias that we have attempted to mediate with our recruitment strategies, although some bias may still be present. Although the study was aimed at recruiting content experts within EM, these experts may often experience their own bias, which may be represented in our results. Another limitation is the lack of equal representation from different clinical settings, genders, and race ethnicities. Future research in this area could act to limit these biases by surveying a wider population of clinicians with varied educational and professional backgrounds as well as race ethnicities and clinical settings.

CONCLUSIONS

Through the information gathered in this study, we have identified a thematic definition of EM and established that EM is a foundational skill set of both athletic trainers and therapists alike. In discussing methods to gain or maintain EM skills, participants agreed that personal practice was preferred over additional certifications or formal CE courses. Although more formal review and practice have repeatedly been shown to provide a stepwise improvement in knowledge and skills, the research is lacking with respect to personal practice of previously acquired information. Additionally, as best practice continues to change, reviewing original information may not provide the most benefit to athletic trainers and therapists. Further research is needed to determine the effects of personal practice on the level of knowledge and skill. Mandatory EM CE requirements within the BOC and CATA are limited, and, currently, the timelines to recertify ECC and BLS far exceed those of knowledge and skill decay, indicating that decay is likely occurring. Further research is currently underway on this topic by the authors; however, more is needed. Additionally, the narrow scope of both ECC and BLS excludes multiple aspects of EM that athletic trainers and therapists felt important as foundational skills. The combination of these factors indicates that although athletic trainers and therapists continue to meet organizational requirements necessary for clinical practice, they may still be experiencing a high level of knowledge and skill decay. Educators and students alike need to be aware of the limitations of CE and strive to ensure that their CE choices are varied and at appropriate intervals to combat both knowledge and skill decay.

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