# Critical Assessment and Reflection on Experience Form: A Novel Approach to Clinical Assessment

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**Context:** There is a clear need for quality improvement in health care. The 2020 Commission on Accreditation of Athletic Training Education *Standards for Professional Athletic Training Programs* require students to apply concepts of quality improvement to provide athletic training care and deliver excellent patient outcomes. As such, programs may be looking for strategies to view students' clinical experiences through a lens of quality improvement.

**Objective:** To introduce the Critical Assessment and Reflection on Experience (CARE) form, which is a novel clinical education tool that assesses student clinical skills using critical reflection and quality improvement concepts.

**Background:** Historically, students have demonstrated achievement by comparing their skill performance with a competency checklist. Typically, the skills assessed, and the level of achievement expected progress to allow learning over time. However, current athletic training clinical education literature has shifted to promote experiential learning, critical thinking, and active reflection to develop competence.

**Description:** Students complete the CARE form after patient encounters or other clinical experiences. The form requires students to practice documentation and communication skills, but also to critically reflect on performance by applying quality improvement, patient safety, and evidence-based practice concepts.

**Clinical Advantage(s):** The form holds advantages for multiple stakeholders, including students, preceptors, and program administrators. The CARE form encourages students to engage in authentic patient interactions rather than relying on contrived learning experiences. By encouraging live patient encounters, this tool results in less burden on preceptors to create additional opportunities for students. Program administrators can use the tool to incorporate quality improvement standards meaningfully into the curriculum. Additionally, the CARE form creates opportunity to document program assessment.

**Conclusion(s):** Professional programs should consider implementing the CARE form as a clinical experience assessment tool to develop students' quality improvement and critical thinking skills when providing athletic training services.

Key Words: Clinical education, critical reasoning, quality care, patient safety

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#### **KEY POINTS**

- The Critical Assessment and Reflection on Experience (CARE) form is a novel tool used for assessing clinical education that includes essential 2020 CAATE educational core competencies, such as quality assurance, patient safety and evidence-based practice.
- The CARE form emphasizes active learning and critical self-reflection of athletic training students through authentic patient encounters.
- Since the CARE form is student-driven, the preceptor can assume the role of mentor and provide the athletic training student with more formative feedback through planned debriefs.

#### INTRODUCTION

The emphasis of health care has evolved from merely providing patient care to delivering quality health care services that result in exceptional patient outcomes and experiences. In 2001, the National Academy of Medicine (NAM), formerly the Institute of Medicine, published Crossing the Quality Chasm to introduce 6 aims for quality care.<sup>1</sup> These aims include providing care that is safe, timely, effective, efficient, equitable, and patient centered (STEEEP).<sup>1,2</sup> The NAM recommends these aims be applied not only in clinical practice, but also in curricula and clinical experiences of professional health care programs to train the future workforce in quality improvement. More recently, the Triple Aim framework has been introduced to improve the experience of health care. The Triple Aim describes a balanced formula for establishing quality health care systems by improving patient experiences, improving population health, and reducing health care costs.<sup>3</sup>

Although providing exceptional care is important, patient care also needs to minimize potential harm. Minimizing harm is a necessary goal for health care providers because of the high rate of patient harm that occurs in the US health care system annually.<sup>4</sup> This patient harm was first exposed by the NAM in its seminal publication, *To Err is Human: Building a Safer Health System*.<sup>5</sup> Although medical care is generally accompanied by some level of risk, many of the adverse events reported by the NAM were deemed preventable.<sup>5</sup> The NAM recommends implementing systems that work to anticipate and catch errors before they happen in order to eliminate preventable patient harm events.

However, to achieve this recommendation, one must first understand how and why errors occur. There are a variety of types of errors, each with many different circumstances in which they could happen. Although traditionally errors are described in the context of hospital settings, such as medication or surgical errors, there is potential for errors to arise in athletic training practice. Diagnostic errors happen when clinicians are influenced by cognitive biases or shortcuts

that may lead to missed or incorrect diagnoses. Human-factor errors, such as clinicians being tired, distracted, or burdened with heavy patient volumes, as well as a lack of experience or knowledge may contribute to mistakes by athletic trainers (ATs). These 2 types of errors are especially relevant for athletic training students who are in the process of gaining clinical skills and knowledge for patient care and decisionmaking. Another common type of error is improper facility maintenance that could lead to patients contracting health care-associated infections (eg, methicillin-resistant Staphylococcus aureus) from equipment or surfaces that are not effectively disinfected. Further, a clinician may improperly use a piece of equipment, or a patient may self-treat incorrectly using a machine-based modality. Errors can also result from ineffective communication during patient transitions and handoffs; teamwork barriers, such as competing roles and responsibilities among health care professionals; or decreased patient compliance due to unclear take-home instructions given by the provider to the patient.<sup>5</sup>

To reflect these important themes of providing quality care and minimizing patient harm in athletic training practice, the 2020 Standards for Accreditation of Professional Athletic Training Programs<sup>6</sup> have been updated to include using quality improvement and assurance strategies for improved patient care. More importantly, these updated standards reflect a shift from merely knowing or understanding to applying concepts and analyzing results. It is not sufficient for students simply to explain quality improvement; the standards require that students *use* quality improvement.<sup>6</sup> With the clear need for quality improvement in health care and the adoption of these updated standards, athletic training education programs may be looking for strategies to incorporate themes of quality improvement in students' clinical experiences. Given all of this, the objective of this manuscript is to introduce the Critical Assessment and Reflection on Experience (CARE) form, a collaborative, learner-initiated, formative assessment mechanism for students and clinicians to interact with quality improvement and patient safety concepts in clinical practice.

#### BACKGROUND

Professional athletic training programs use a variety of words/ phrases to denote the clinical skills students must successfully demonstrate to progress through the program and ultimately graduate. Some examples are proficiencies, checkoffs, and competencies. Because these words are defined differently programmatically, we have elected to describe these more globally as *clinical skills* throughout the manuscript. The CARE form is designed to be a novel approach to clinical skills assessment by encouraging quality clinical education experiences and linking required demonstration of clinical skills to real patient interactions. In general, the CARE form shares similar concepts to a morbidity and mortality conference by examining patient cases through a quality improvement lens. Morbidity and mortality conferences are often used in medical education and health care to improve clinician performance and patient safety outcomes.<sup>7,8</sup>

This assessment tool was developed by the authors based on several pedagogic philosophies to highlight concepts from quality improvement and patient safety in clinical practice. Although there are many ways to weave these concepts into an educational program, the CARE form does so through learner participation (ie, the form is completed in response to patient care provided), active reflection (ie, the form requires students to reflect on the care provided), and formative assessment (ie, the form includes multiple opportunities for students to receive and apply feedback). It is important to explore the way these principles fit into best practices and the existing infrastructure of athletic training education.

## **Learner Participation**

The importance of learner participation is present in general pedagogic theory. Kolb's<sup>9</sup> model of learning styles features 4 dimensions: concrete experience, reflective observation, abstract conceptualization, and active experimentation. These 4 dimensions are depicted on an equally segmented pie chart, and Kolb's theory is that learning styles exist at the intersections. The 4 styles are accommodator, converger, diverger, and assimilator. Although there is variability of preferred style among learners, there is some research to support that divergers are common among professional students studying in rehabilitation fields, such as athletic training and physical therapy. Divergers learn best at the intersection of concrete experience and active reflection.<sup>10,11</sup> An opportunity to gain hands-on practice remains an imperative part of quality athletic training education. Students consistently identify clinical experiences as one of the most valuable learning opportunities of professional education.<sup>12-14</sup> In a 2014 qualitative study, Mazerolle et al<sup>13</sup> attempted to define athletic training students' preferred learning experiences. The group concluded that students related quality learning to those experiences that provided opportunity to participate in skills and communicate with preceptors. Faculty also recognize the important role of clinical education, reporting that diversity and mentorship in these experiences aid students' transition to independent practice as newly credentialed ATs.<sup>15,16</sup> The CARE form applies these concepts by encouraging authentic patient interactions during clinical education followed by a structured debrief with a preceptor.

## **Active Reflection**

Before debriefing the CARE form with their preceptor, students are asked to reflect upon their experience. This format mirrors the learner preference to the diverger style, which includes active learning, and supports the conclusion of the aforementioned Mazerolle et al<sup>13</sup> study that students identify reflection as a key element to quality learning experiences. Active reflection requires an athletic training student to consider what went well and what could have gone better and to explain how these successes and challenges influence best patient care.

The role of reflection has also been highlighted by research exploring athletic training students' experiences during

simulated patient encounters.<sup>17</sup> After 2 different simulated patient encounters, participants in one study identified the important role of reflection on future action. Although reflection can assist students debriefing about what just happened, the authors<sup>17</sup> reported that reflection also plays a big role in students' ability to identify strategies to improve the care provided during future encounters. Similarly, the CARE form ends with the development of recommendations for improvement for future practice.

## Formative Assessment

The CARE form is intended to be used as a formative, rather than summative, assessment tool. Rather than assessing and informing whether certain knowledge has been attained, this tool can monitor how a student is learning, thinking about, and applying knowledge. For example, assessment of clinical skills is imperative to athletic training education. When faced with more traditional assessments like contrived scenarios and/or practical exams, some students can take a performance-oriented approach in which the focus is on looking good and avoiding mistakes. The zone of proximal development<sup>18</sup> defines the outer limit of a learner's competence. When an adult learner is more concerned with looking good when completing a clinical skill, then the learner will not participate in challenging tasks. A formative assessment structure that is continuous, learner initiated, and team driven provides a model for the adult learner to work toward competent patient care with less fear of looking bad or making mistakes.<sup>19</sup>

The premise of assessing students' ability to provide competent patient care is that a minimum level of competence should be achieved upon completion of the program. Bloom's mastery learning<sup>20</sup> model asks students to master a set of learning objectives after successfully demonstrating prerequisite knowledge. Because a critical aspect of this model is to allow the learner unlimited time to progress through the objectives, professional training programs have had to modify the mastery learning model to accommodate the structured curricula based on the academic calendar.20 The academic calendar poses additional challenges when professional programs consider the need for students to both learn concepts and demonstrate application over time. To curb these challenges, many programs have elected to remove assessments from clinical experiences altogether (favoring a less lifelike approach) or, alternatively, to conduct only summative assessments in clinical experiences (favoring result over process). The CARE form emphasizes competent patient care by shifting from preceptor-driven summative evaluation to learner-driven skill development.

## Relation to Competency-Based Education

There has been increased discussion in the athletic training community about the benefits of exploring a competencybased approach to education (CBE).<sup>21</sup> The precept of CBE is to design curricula so that learners can demonstrate mastery of required competencies tailored to their pace. As such, there is a profound increase in learners' clinical involvement because of the responsibility of directing their own learning. Curriculum in CBE is developed over a flexible time line, with competencies acquired and assessed as opportunities present. Competency-based learning is most effective when clinical experiences are in real time as the student is being mentored and assessed.<sup>22</sup> The learning theory behind the justification for the CARE form further highlights many of the challenges in athletic training education that CBE can address: encouraging assessment of clinical skills to occur in clinical practice, recognition of progression of student role in clinical practice throughout education, and maximizing individual program strengths through selection of unique program proficiencies.

#### DESCRIPTION OF THE CARE FORM

The CARE form can be implemented in a variety of ways and can be modified for individual program use. Programs can decide how the CARE form best fits into their curriculum. The authors suggest using the CARE form to replace or supplement whatever mechanism (proficiency packet, checkoffs) is used to track students' completion of skills they are expected to perform during clinical experiences. However, there are many other ways the CARE form can be used to assist program faculty, such as in understanding what experiences students are having in clinical practice. The CARE form does this by documenting domains of practice, student roles and responsibilities in patient care, and instances of interprofessional practice. The CARE form was first implemented with the expectation that one CARE form per week would be submitted by students, therefore encouraging the student and preceptor to engage together in at least one real-patient or another administrative encounter weekly. There is also merit to using the CARE form for classroombased high-fidelity simulations or standardized patient experiences. Although the form serves as a formative assessment tool to provide student feedback, multiple CARE forms can be combined to create a summative assessment of students' performance across the curriculum.

The CARE form has 6 general sections: (A) Encounter Information, (B) Quality Assessment, (C) Review of the Literature, (D) Preceptor Debrief, (E) Recommendations for Future Practice, and (F) Encounter Outcome. A template for the full form is provided in Supplemental Appendix A (available online at www.nataej.org). The form is intended to be completed entirely by the student in collaboration with or guidance from preceptors or faculty. Each section requires students to use critical thinking and self-reflection to assess their clinical skills. Following is a more detailed description of each section and its components.

Section A: Encounter Information includes basic background information about the encounter, including demographics of the student and clinical site. Students identify their role in the encounter. Four options are included: (1) observer, in which a student participates by watching the preceptor complete a task; (2) technician, in which a student performs a task explicitly instructed by the preceptor; (3) basic decision maker, in which a student develops recommendations for action with preceptor guidance and performs duties somewhat independently; and (4) advanced decision maker, in which a student develops recommendations for action and performs duties with increased autonomy and minimal preceptor guidance. This section also includes identification of the achieved program outcomes in relation to the demonstrated skills. This component can be modified to fit individual program needs. For example, this section could list appropriate Commission on Accreditation of Athletic Training Education (CAATE) educational standards, Board of Certification (BOC) domains

of practice, program outcomes, or course learning objectives. This first section also includes identification of members of the interprofessional team. Lastly under Encounter Information, students must provide documentation of the event. If a student provides direct patient care, the form requires appropriate medical documentation; in other types of encounters, students should practice professionally documenting events using standard terminology and nomenclature.

Section B begins the reflective and critical thinking components. Here, students reflect holistically upon the encounter, considering what went well and what they would do differently and identifying their strengths and weaknesses in skills and knowledge. The Quality Assessment asks students to consider the encounter through a lens of quality assurance using the NAM's STEEEP domains of quality. Following the STEEEP assessment, students are asked to consider patient safety concepts by examining their experience for possible occurrences of, or potential for, common types of error in health care. Specific examples of each of these errors are elaborated on in Supplemental Appendix B. Fundamentals of quality improvement and patient safety should be introduced to students and preceptors before the CARE form is adopted so users are adequately prepared to interact with these features in the context of athletic training practice.

In section C, students summarize available evidence to support their performance. This section also provides an opportunity to correct any quality errors or inaccurate knowledge and/or skills applied during the encounter. Students should perform a search of the literature and draw from essential athletic training resources, such as National Athletic Trainers' Association position and consensus statements.

In section D, students summarize feedback received from their preceptor. Although the debriefing meeting could take many forms, the suggested focus is on the student's applied clinical knowledge and skills and "soft skills" such as communication and teamwork, along with the efficacy of care provided. The debrief also provides an opportunity to discuss the encounter in relation to evidence-based practice (EBP). The student should present the best available literature gathered in section C and then engage in conversation about how the other 2 pillars of EBP (ie, clinician or student expertise and patient values, beliefs, and circumstances) influenced the decisions made during the encounter.

After debriefing with the preceptor, students participate in a quality improvement exercise by generating Recommendations for Future Practice in section E. These recommendations are based on the areas for possible improvement identified in section B and use sections C and D for guidance. The authors suggest that these recommendations be formatted using the specific, measurable, attainable, relevant, time-bound (SMART) goal-setting technique to help students establish strong, clear, and achievable goals for their next encounter. Goal setting can also connect the specific program or learning outcome(s) that will be addressed (section A) by guiding the relevant content to be reviewed. Lastly, section F: Encounter Outcome can be used to document whether the encounter was overall successful or not. A notation of "successful" should be considered if a student has demonstrated the knowledge and skill that would allow the student to perform the clinical skill

safely in independent athletic training practice. Both the preceptor and student should sign the CARE form to ensure the goals and outcomes are mutually agreed upon.

#### **ADVANTAGES**

The CARE form provides benefits for multiple stakeholders in athletic training, including athletic training students, preceptors, and program administrators (ie, program director and clinical education coordinator [CEC]). Although tied to clinical skills determined by curriculum and student status, the CARE form is not prescriptive and allows for flexibility in achieving these clinical skills and knowledge. It places responsibility on students to know and communicate about which clinical skills they are being assessed, and to be actively engaged in the patient care and athletic training duties being performed in real time. This method of learning is also designed to decrease some of the challenges faced by preceptors to check off student clinical skills.

#### Students

**Application of Athletic Training Skills and Responsibilities.** Throughout the CARE form, students are asked to consistently apply and practice broad athletic training skills, like documentation, goal setting, and communication. Formal written documentation and communication are extremely important clinical skills, but are not always intentionally included in assignments or may be restricted at clinical sites because of the use of electronic medical record systems or other documentation practice challenges.<sup>23</sup> Each CARE form completed requires students to provide a formal patient encounter note or description of the athletic training service or task completed to practice concise and clear communication as well as professional nomenclature for documentation best practices.<sup>24</sup>

Like setting the aims used to complete Plan-Do-Study-Act (PDSA) cycles that are instrumental in quality improvement, asking students to set well-constructed SMART goals is critical in their development.<sup>2,18</sup> Goal setting is a common activity in athletic training education, but oftentimes students set broader, more comprehensive goals at the beginning, midterm, and end of a semester's clinical experience. Conversely, the goals set on the CARE form are used in their clinical experiences immediately and drive students to engage in similar encounters in order to show growth and progress toward mastery.

In section D, students formally debrief the encounter with their preceptor. This provides an opportunity for students to communicate about the encounter process and outcome(s). With the CARE form, students have a safe space to practice their professional communication, to ask questions, and to seek feedback and mentorship from preceptors. Furthermore, developing strong verbal communication skills is critical for optimal patient outcomes, as it facilitates continuity of care (eg, reducing handoff errors) and improves interprofessional teamwork.

**Meaningful Patient Encounters.** Providing students with authentic patient interactions is important to professional socialization and improving clinical skills. Experiential learning and engaging in patient care are strongly desired by

students during clinical education as they are able to apply their didactic knowledge and skills in athletic training practice.<sup>13,14,16</sup> Clinical experiences are deemed so important that immersive clinical experiences are now included in the 2020 *Standards for Accreditation of Professional Athletic Training Programs.*<sup>6</sup> By implementing the CARE form, programs can require students to engage in at least one patient or other athletic training–related experience per week in an appropriate role to encourage this experiential learning encounter.

However, reflection on the experience is even more important than the experience itself. Reflective practice requires the student to purposefully review an encounter to facilitate growth and learning.<sup>25,26</sup> The CARE form is based on students' self-reflection to identify their strengths, areas of deficiency, and metacognition by completing a thorough assessment of their knowledge and skills, including exploring their thought processes (eg, cognitive biases or diagnostic errors).

## Preceptors

The CARE form may provide a solution for many of the challenges faced by preceptors. Preceptors often cite role strain, timely feedback, and finding tasks for the athletic training student as barriers to precepting.<sup>14,27</sup> Placing the responsibility on the student to initiate and complete the CARE form removes the burden from the preceptor of finding tasks and/or time for the student to complete course-related assignments.

**Emphasizing Mentorship.** Assuming the role of a mentor, rather than a grader of course-related assignments, is another benefit of using the CARE form. Although preceptors are still asked to determine if the outcome of the encounter is successful or not and provide the student with feedback, they are able to do so through facilitation rather than formal assessment. By scheduling at least, one weekly debrief, preceptors can preplan time for meetings in which they provide corrective or reinforcing feedback. Mentorship is also beneficial for the student, as preceptors find this role more effective in positively engaging students in learning and developing their confidence than acting as a supervisor.<sup>28</sup> The CARE form emphasizes the preceptor's role to teach the student from the perspective of a clinician in the field, providing insight on all the pillars of EBP.<sup>29</sup>

Lifelong Learning. Acting as a mentor and discussing the contents of the CARE form with the student also creates a mutual learning relationship.<sup>30</sup> Reciprocal learning is an important benefit to serving as a preceptor. Precepting is a valuable way for clinicians to be exposed to new concepts and evolving athletic training education. The CARE form can serve as a source of information on current literature and best practices, as students are required to prepare a relevant literature review (section C). Furthermore, the CARE form can be used by the preceptor to focus on areas for development and the advancement of contemporary expertise. The 2020 Standards for Accreditation of Professional Athletic Training Programs<sup>6</sup> now include a standard requiring preceptors to demonstrate expertise within the domains of athletic training. As such, preceptors can continue their own learning and growth as health care providers through discussions about quality improvement and patient safety.

**Program Outcomes.** In section A, program directors have the flexibility to insert specific program and learning outcomes that are of interest to track, such as the BOC domains of practice or elements from the CAATE standards. Having this ability to track outcomes is extremely useful for program administrators to aggregate data required for CAATE accreditation.<sup>6</sup> Additionally, these data can serve as an indicator for which courses, learning objectives, or overall program outcomes should be evaluated and adjusted.<sup>31</sup>

**Integrating Educational Core Competencies.** From a CAATE educational standards perspective, sections B and C familiarize students with important core competencies, including quality improvement, patient-centered care, and EBP.<sup>6</sup> Using these core competencies as a framework to develop student self-reflection and critical thinking skills is essential in the development of competent and capable health care professionals.<sup>7</sup> Section C is especially important to create a professional habit of consistent integration of best practices in patient encounters as well as developing lifelong learning and continuing education skills in students.

Clinical Experiences. Tracking student roles and responsibilities (section A) can be useful for the CEC in several ways. First, CECs can determine which clinical sites provide more autonomy, which can be helpful when placing students according to their program status. For example, it may be more appropriate for a final-semester student to be placed at a site that allows students to act in an advanced decision-maker role as they prepare to transition to practice. Ensuring more alignment between student readiness and preceptor comfort regarding level of decision-making may provide students with more appropriate opportunities to develop mastery and competency. Recent literature has shown newly certified and practicing ATs report challenges with confidence and decision-making in their first years practicing independently.<sup>32</sup> The CARE form can help improve preceptor confidence in student decision-making, as the form prompts students to consistently be thinking about the quality and safety of their care and engaging in structured debriefing.

**Preceptor Continuing Education.** The CARE form may also be useful in creating preceptor education modules that provide preceptors with tools and strategies to allow students appropriate learning opportunities or more autonomy. For example, developing modules that introduce preceptors to pedagogy on CBE and critical reasoning may help preceptors feel more prepared as clinical educators.<sup>28</sup> Using findings from sections C and D can provide insight into the areas of clinical best practice that would be useful for preceptors to align with evolving AT education and student learning. Preceptors may view the opportunity for free continuing education units as a benefit to serving in these roles.<sup>33</sup>

## CONCLUSIONS

The Triple Aim of health care initiative encourages quality health care by improving population health, reducing health care costs, and improving overall patient care. The transition to the 2020 *Standards for Accreditation of Professional Athletic Training Programs* provides an opportunity for educators to reflect on the interaction between quality improvement concepts and clinical education experiences. Although quality improvement must be integrated into the curriculum, clinical experiences should include planned, repetitive, and progressive assessment of learner skills and ability to ensure safe and effective health care services. A critical component of the CARE form is the inclusion of quality assessment, which reinforces quality of health care delivery, improving patient outcomes, and reducing the number of clinician errors and their associated costs (ie, the Triple Aim).

Contemporary learning theories suggest that experiential learning and reflective practice can augment critical thinking and reasoning skills. The use of self-regulated learning is a strategy shown to work well with adult learners. Adult learners tend to be self-directed and intrinsically motivated to acquire a set of skills that will build on current knowledge and past experiences.<sup>34</sup> The CARE form allows a learner to reflect on clinical skills and abilities, providing a safe environment for the critical appraisal of performance, acknowledgement of errors made, and formalization of a plan by developing goals. The CARE form emphasizes quality improvement and patient safety while aligning with learner-initiated pedagogy. Although created for adult learners in professional education programs, the CARE form is also suitable for ATs newly transitioning to practice and even for practicing clinicians engaging in intentional lifelong learning practices.

The expectation to complete the CARE form in real-time clinical experiences encourages learner participation while relieving the preceptor of responsibility to create contrived clinical scenarios. When the preceptor leads a contrived activity using a simulated scenario to assess the learner's clinical skills and ability, the learner becomes less engaged and less inclined to critically think and reflect on the task. The interaction between the learner and the preceptor, if initiated by the learner, encourages high-level critical thinking and reasoning. It permits learners to identify mistakes and gives them time to process the activity, research best practice, and then engage the preceptor in the assessment and planning phases. When the preceptor is viewed as a partner in the learner's acquisition of proficiency, a safe setting is established to encourage dialogue with and mentorship of the learner.<sup>35</sup>

Opportunity for further development to the CARE form exists. Although the form can be modified to meet the needs of individual education programs, the CARE form is novel and needs further implementation in clinical settings. The CARE form is designed for formative assessment for learning, which is a hallmark of CBE; however, summative assessment in higher education exists in most professional athletic training programs, and therefore a rubric or alternate scoring could be adopted to award a grade for the clinical experience. There is a learning curve to the use of the CARE form, as with any new assessment tool. Before implementing the CARE form, it is prudent to clearly define expectations to the learners and preceptors, providing educational modules on quality care and improvement, examples of what is expected in each section (see Supplemental Appendices A and B), and/or samples of completed CARE forms.

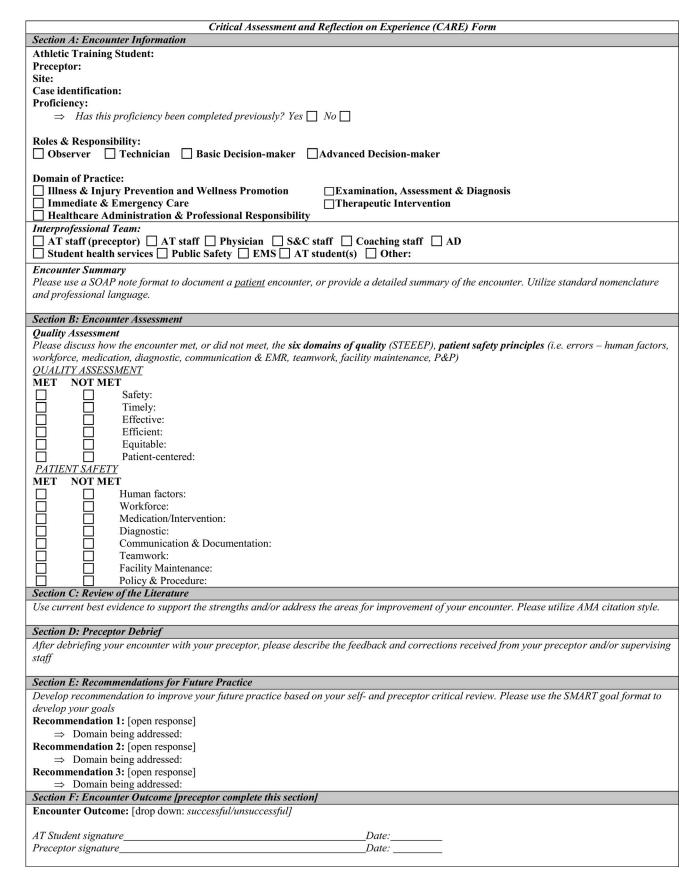
## REFERENCES

1. Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academies Press; 2001.

- Lopes Sauers A, Sauers E, Snyder Valier, AR. Quality improvement in athletic health care. J Athl Train. 2017;52(11):1070–1078. doi:10.4085/1062-6050-52.10.15
- Berwick D, Nolan T, Whittington J. The Triple Aim: care, health, and cost. *Health Affairs*. 2008;27(3):759–769. doi:10. 1377/hlthaff.27.3.759
- 4. Landrigan C, Parry G, Bones C, Hackbarth A, Goldmann D, Sharek P. Temporal trends in rates of patient harm resulting from medical care. *N Engl J Med.* 2010;363(22):2124–2134. doi:10.1056/NEJMsa1004404
- 5. Institute of Medicine. *To Err is Human: Building a Safer Health System*. Washington, DC: National Academies Press; 2000.
- 6. Commission on Accreditation of Athletic Training Education. Standards for Accreditation of Professional Athletic Training Programs: Master's Degree Programs. Austin, TX: Commission on Accreditation of Athletic Training Education; 2020.
- Wong B, Etchells E, Kuper A, Levinson W, Shojania K. Teaching quality improvement and patient safety to trainees: a systematic review. *Acad Med.* 2010;85(9):1425–1439. doi:10. 1097/ACM.0b013e3181e2d0c6
- Rosenfeld J. Using the morbidity and mortality conference to teach and assess the ACGME general competencies. *Curr Surg.* 2005;62(6):664–669. doi:10.1016/j.cursur.2005.06.009
- 9. Kolb A, Kolb D. The Kolb Learning Style Inventory 4.0. Kaunakakai, HI: Experience Based Learning Systems; 2013.
- Thon S, Hansen P. Preferred learning styles of professional undergraduate and graduate athletic training students. *Athl Train Educ J.* 2015;10(2):159–163. doi:10.1186/s12913-016-1423-5
- Stander J, Grimmer K, Brink Y. Learning styles of physiotherapists: a systematic scoping review. BMC Med Educ. 2019;19(2):1–9. doi:10.1186/s12909-018-1434-5
- Young A, Klossner J, Docherty CL, Dodge TM, Mensch JM. Clinical integration and how it affects student retention in undergraduate athletic training programs. J Athl Train. 2013;48(1):68–78. doi:10.4085/1062-6050-48.1.22
- Mazerolle SM, Bowman TG, Benes SS. Defining the engaging learning experience from the athletic training student perspective. *Athl Train Educ J.* 2014;9(4):182–189.
- Benes S, Mazerolle S, Bowman T. The impact of clinical experiences from athletic training student and preceptor perspectives. *Athl Train Educ J.* 2014;9(4):156–165.
- 15. Kicklighter T, Geisler P, Barnum M, Heinerichs S, Martin M. Exploration of factors perceived to influence development of diagnostic reasoning in athletic trainers and athletic training students. *Athl Train Educ J*. 2018;13(2):120–130.
- Bowman T, Mazerolle S, Barrett J. Professional master's athletic training programs use clinical education to facilitate transition to practice. *Athl Train Educ J.* 2017;12(2):146–151.
- Walker S, Weidner T, Armstrong K. Standardized patient encounters and individual case-based simulations improve students' confidence and promote reflection: a preliminary study. *Athl Train Educ J.* 2015;10(2):130–137.
- Konopasek L, Norcini J, Krupat E. Focusing on the formative: building an assessment system aimed at student growth and development. *Acad Med.* 2106;9(11):1492–1497. doi:10.1097/ ACM.000000000001171

- Carillo-de-la-Pena M, Bailles E, Caseras X, Martinez A, Ortet G, Perez J. Formative assessment and academic achievement in pregraduate students of health sciences. *Adv Health Sci Educ Theory Prac.* 2009;14(1):61–67. doi:10.1007/s10459-007-9086-y.
- 20. Schellhase K. Applying mastery learning to athletic training education. *Athl Train Educ J.* 2008;3(4):130–134.
- 21. Mace K, Welch Bacon C. The future of health professions education: considerations for competency-based education in athletic training. *Athl Train Educ J*. 2019;14(3):215–222.
- 22. van der Vleuten C, Sluijsmans D, Joosten-ten Brinke D. Competence assessment as learner support in education. In: Mulder M, ed. *Competence-Based Vocational and Professional Education*. Cham, Switzerland: Springer International Publishing; 2017:607–630.
- 23. Welch Bacon C, Eppelheimer B, Kasamatsu T, Lam K, Nottingham S. Athletic trainers' perceptions of and barriers to patient care documentation: a report from the athletic training practice-based research network. *J Athl Train*. 2017;52(7):667– 675. doi:10.4085/1062-6050-52.3.15
- 24. Best Practice Guidelines for Athletic Training Documentation. Carrollton, TX: National Athletic Trainers' Association; 2017.
- 25. Menard L, Ratnapalan S. Reflection in medicine. *Can Fam Physician*. 2013;59(1):105–107.
- Murdoch-Eaton D, Sandars J. Reflection: moving from a mandatory ritual to meaningful professional development. *Arch Dis Child.* 2014;99(3):279–283. doi:10.1136/archdischild-2013-303948
- 27. Dodge T, Mazerolle S, Bowman T. Challenges faced by preceptors serving in dual roles as health care providers and clinical educators. *Athl Train Educ J*. 2014;9(1):29–35. doi:10. 1111/inr.12272
- Hankemeier D, Kirby J, Walker S, Thrasher A. Athletic training preceptors' perceived learning needs regarding preceptor development. *Athl Train Educ J.* 2017;12(1):39–45.
- 29. Steves R, Hootman J. Evidence-based medicine: what is it and how does it apply to athletic training? J Athl Train. 2004;39(1):83–87.
- Nottingham S, Barrett J, Mazerolle S, Eason C. Examining the role mentorship plays in the development of athletic training preceptors. *Athl Train Educ J*. 2016;11(3):127–137.
- Geisler PR. Programmatic assessment in a remote world: using technology and evidence in athletic training & therapy education [webinar]. https://www.wfatt.org/webinar-archive. Accessed June 13, 2020.
- Walker S, Thrasher A, Mazerolle Singe S, Rager J. Challenges for newly credentialed athletic trainers during their transition to practice. J Athl Train. 2019;54(11):1197–1207. doi:10.4085/1062-6050-387-17
- Bowman T, Mazerolle S, Dodge T. Mentoring and personal relationships are perceived benefits of serving as an athletic training preceptor. *Athl Train Educ J.* 2018;8(3):35–40.
- Knowles M, Holton E, Swanson R. *The Adult Learner*. 6th ed. Abingdon, United Kingdom: Routledge; 2005.
- Sargeant J, Mann K, Manos S. R2C2 in action: testing an evidence-based model to facilitate feedback and coaching in residency. J Grad Med Educ. 2017;9(2):165–170. doi:10.4300/ JGME-D-16-00398.1

#### Appendix.



Roles & Responsibilities These terms serve to define	
	e the role the student played in the clinical encounter.
	luties provided by a clinician or another student
	ning duties by following specific directives provided by
<b>Partic designing marker</b> another clinician/student	luties with minimal preceptor supervision and guidance.
	luties independently, but with supervision.
	e quality improvement (STEEEP) and a brief definition
or examples:	e quarty improvement (STEEET) and a orier definition
	does not create further injury or harm.
	that could be harmful (e.g. physically, emotionally), or
	e for patients & providers (e.g. time in the waiting room)
-	evidence, as well as refraining from providing services
	veruse or misuse of resources
	ion like equipment, supplies, and energy; or do not waste
resources.	
	led to all patients regardless of patient characteristics or
	nicity, gender, socioeconomics, religion, orientation)
	s patient preferences and values
	es of common types of patient safety errors
	performed by the clinicians: mistakes (i.e. conscious
	ps (i.e. accidental or unconscious incorrect decisions)
	g tired or distracted, job dissatisfaction, or being a new
professional	
	actors (e.g. long shifts and/or weekends, evenings and
	volumes, and a lack of supervision or mentorship)
	ed by the <i>provider</i> (e.g. wrong medication, person, route
	or timing) or <i>facility management</i> (e.g. administering
	<i>Conservative prescribing</i> (i.e. limiting drug
	compliance. Interventions, (e.g. machine or equipment-
	ent is improperly applied or used, a patient self-treats, or
if the treatment is not indic	
	ses and thinking shortcuts (or heuristics) leading to
	ses. Common examples include: <i>anchoring</i> (i.e. focus on
	nly), affective (i.e. personal feelings effect judgement),
	pply things most recently seen, or conditions that made
	<i>cors</i> (i.e. misinterpret information), <i>premature closure</i>
(i.e. accept the <b>first</b> answer	
	information shared between providers that is critical for
· · · · ·	e and efficient care plans and referrals, and a formal
	e.g. for communication, but also legal purposes).
	anding of each other's roles and responsibilities, role
	communication when sharing or working collaboratively
	agues or other health care professionals.
	ety (e.g. OSHA and BOC Facility Principles) and equity
	ndards) standards. Healthcare-associated infections, like
MRSA or other staph-like	infections from improper disinfectant procedures
Policy & Procedure Missing or inaccurate polic	cies, or policies that do not reflect best evidence. (e.g. stead of mobile weather app)