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National Athletic Trainers' Association Position Statement: Emergency Action Plan Development and Implementation in Sport

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Objective: An emergency action plan (EAP) is a written document detailing the preparations and on-site emergency response of health care professionals and other stakeholders to medical emergencies in the prehospital setting. The EAP is developed to address any type of catastrophic injury response and should not be condition specific. The objective of this National Athletic Trainers' Association position statement is to provide evidence-based and consensus-based recommendations for developing and implementing an EAP for sports settings.

Methods: These recommendations were developed by a multidisciplinary expert panel that performed (1) a comprehensive review of existing EAP evidence, (2) a modified Delphi process to define consensus recommendations, and (3) a strength of recommendation taxonomy determination for each recommendation.

Results: An EAP is an essential tool designed to facilitate emergency preparedness and an efficient, coordinated emergency response during an athletic event. A comprehensive EAP should consider modes to optimize patient outcomes, the various stakeholders needed to develop the plan, the factors influencing effective implementation of the EAP, and the roles and responsibilities to ensure a structured response to a catastrophic injury.

Conclusions: These evidence-informed recommendations outline the necessary steps for emergency planning and provide considerations for the immediate management of patients with catastrophic injuries. Increasing knowledge and implementation of the EAP to manage patients with catastrophic injuries improves the overall response and decreases errors during an emergency.

Key Words: emergency planning, catastrophic injuries, emergency management

Key Points

- An emergency action plan (EAP) is a written document indicating the preparations and on-site emergency response for any type of catastrophic injury in the prehospital setting.
- An EAP is developed to respond to any type of catastrophic injury and should not be injury or illness specific.
- When considering the components of an EAP, athletic trainers are advised to focus on optimizing patient outcomes, EAP development, EAP response, and EAP implementation to facilitate comprehensive adoption.
- Given that life-threatening emergencies may occur at any time and place, with or without athletic trainers on site, it is critical that athletic programs not rely solely on health care team members to develop and execute the EAP.

Catastrophic sport-related injuries occur when individuals sustain temporary or permanent functional disability or death resulting from sport participation.[1] These can include injuries to internal organs, sudden cardiac arrest (SCA), traumatic brain injury (TBI), exertional heat stroke, exertional collapse associated with sickle cell trait, and more.[2] Since the 1982–1983 academic year, the National Center for Catastrophic Sports Injury Research has recorded more than 3000 catastrophic sport-related injuries among high school and collegiate athletes.[1] However, these data do not encompass catastrophic sport-related injuries sustained by youth, club, recreational, or noninterscholastic athletic activities and thus may not capture all catastrophic injuries in the levels of sports with the largest numbers of participants. Therefore, these data likely represent only a proportion of the catastrophic injuries that have occurred during this period. Capturing and monitoring catastrophic injury data is challenging and, as a result, limited in the existing literature. Across high school and collegiate sports, football, basketball, track and field, wrestling, soccer and baseball have the highest rates of catastrophic sport-related injuries.[1] The leading causes of death during or resulting from sport participation are SCA, TBI, and exertional heat stroke.[1] Spinal cord injuries account for a large number of nonfatal catastrophic injuries.[1] Although various prevention efforts have identified at-risk populations and reduced the relative risks of these conditions,[3] when these emergencies occur, on-site health care professionals must immediately recognize and execute life-saving procedures to maximize the chance of survival and effectively reduce morbidity and mortality.[4]

An emergency action plan (EAP) is a written document detailing the preparations and on-site emergency response of health care professionals and other stakeholders to catastrophic or potentially catastrophic injuries in the prehospital setting. An EAP is a fundamental tool designed to facilitate emergency preparedness via a coordinated and efficient emergency response.[5] An EAP should not be mistaken for policies and procedures, sometimes known as a *protocol*, which is a comprehensive document that provides guidance for decisions, actions, and steps in sports medicine.[6] Although the policies and procedures may be detailed and specific to a given medical condition (eg, SCA, exertional heat illness, mental health), an EAP should be a comprehensive summary of the common initial steps to address a range of catastrophic injuries. For example, a mental health policy and procedure may outline the prevention, initial recognition, and response to a mental health crisis or emergency. The EAP outlines the general response, instructing a person to call for emergency services, directing emergency services to the patient, and providing emergency care (as dictated by the policies and procedures). The National Collegiate Athletic Association and the National Federation of State High School Associations have recommended the development of an EAP for organized athletic activities.[5] However, adoption of these life-saving documents has been lacking.[7–9] Most secondary schools have a written EAP, yet the quality and comprehensiveness of these documents vary significantly.[7] Fewer than 10% of athletic trainers (ATs) working in high schools with a written EAP described implementing the 12 components recommended in the previous National Athletic Trainers' Association (NATA) position statement on emergency planning.[7] Although the sports medicine community has made substantial advancements in emergency planning and management since the 2002 publication of the statement, professional expectations and legal duties of the athletic training profession have also evolved, which could influence the evidence-based and consensus-based recommendations for an EAP. The current updated NATA position statement provides updated details and knowledge acquired since the 2002 document.[5,7] Readers are encouraged to compare their existing EAPs with this updated document. Therefore, the purpose of this NATA position statement is to make evidence-based and consensus-based recommendations for developing and implementing an EAP for ATs working in sports settings.

RECOMMENDATIONS

The NATA and the NATA Research & Education Foundation suggest the following recommendations for the comprehensive development and implementation of an EAP. These recommendations are supported by a variety of evidence, empirical and expert consensus, appropriately labeled using the Strength of Recommendation (SOR) Taxonomy System.[10] Although these recommendations may apply across all settings where an AT is employed, this statement focuses on the sports setting. The recommendations have been delineated in 4 primary areas: optimizing patient outcomes, development, implementation, and response. Operational definitions can be found in Table 1.

Optimizing Patient Outcomes

(1) Institutions and organizations that sponsor athletic events have a responsibility to develop a written EAP for all sponsored activities (including in-season and out-of-season games, practices, conditioning, and skills sessions).[5,11,12] *SOR: C*
(2) Institutions and organizations should develop EAPs specific to each venue and sport.[13–18] *SOR: C*
(3) Institutions and organizations such as state and national athletic associations should provide educational resources for lay responders on the management of catastrophic illnesses and injuries most common in sport.[13,18–22] *SOR: B*

Development

(4) Institutions and organizations should designate an EAP coordinator who facilitates the development, implementation, distribution, and review of the EAP.[11,23] *SOR: C*
(5) The EAP coordinator or designee should evaluate safety considerations for each facility when developing and updating the EAP (eg, emergency medical services [EMS] access and emergency equipment).[5,12,23,24] *SOR: C*
(6) The EAP coordinator or designee should delineate a chain of command with anticipated roles of available personnel potentially involved in the emergency response during sport activities.[25,26] *SOR: C*
(7) The development of the EAP should involve an interdisciplinary health care team.[5,7,24,27–31] *SOR: C*

Table 1. Operational Definitions

Term	Operational Definition
Catastrophic sport-related injury	Temporary or permanent functional disability or death, resulting directly from sport participation[1]
Health care professionals	Individuals with a medical certification, license, or degree who respond within their scope to an emergency, eg, athletic training staff, physicians, emergency medical services personnel, nurses, and mental health professionals
Lay responders	Stakeholders in a sport setting who do not have a medical background but have been trained to respond to an emergency because of their proximity to potential situations, eg, coaches, administrators, team personnel, and facility managers
Team personnel	Individuals involved with sport teams daily, eg, team managers and resource officers
Interdisciplinary health care team	Individuals from different disciplines who collaborate to provide comprehensive care for patients, including athletic training staff, nurses, team and consulting physicians, coaches, facility managers, team personnel, local emergency responders, public safety officials, administrators, and patients (setting dependent)
Local emergency responders	Individuals or groups trained and equipped to provide immediate assistance and support in emergency situations, eg, fire and police personnel, resource officers, and emergency medical services personnel
Safety considerations	Refer to the careful evaluation and planning of potential hazards, risks, and protective measures to ensure the well-being and security of individuals, property, and the environment, eg, risk analysis and risk assessment
Pre-event medical meeting	An essential meeting to review the emergency action plan before all competitions and games; also known as a *medical time-out*
Primary and secondary liaisons	The primary liaison is the first person selected for a role; the secondary liaison serves as backup personnel

Implementation

(8) The EAP should be distributed at least annually, and if updated during the current year, to all members of the interdisciplinary health care team.[11–13,23,24,32–34] *SOR: C*

(9) The EAP should be reviewed (ie, overview of document) at least annually, and if updated during the current year, by all members of the interdisciplinary health care team.[11,13,23,24,32–38] *SOR: C*

(10) The EAP should be rehearsed (ie, hands-on, scenario-based practice) at least annually (ie, 1 time per year or more) by members of the interdisciplinary health care team.[11,13,23,24,32–38] *SOR: C*

(11) Details of the EAP rehearsal should be documented, including when, where, who was present, and which scenarios were rehearsed.[11,23,32,37,38] *SOR: C*

(12) The EAP should be coordinated (ie, developed in collaboration) with local emergency responders and public safety officials.[11,32,34] *SOR: C*

(13) Institutions and organizations should make the EAP available (eg, posted physically at all venues and available electronically) at all venues.[39] *SOR: C*

(14) Before implementation, the EAP should be approved by organizational leadership and those responsible for the development of the plan, who may include school administrators, athletic directors, event organizers, the EAP coordinator, ATs, team physicians, and legal counsel.[12] *SOR: C*

(15) As part of the orientation at a new organization or event (including those providing per diem coverage), ATs should review the EAP.[40] *SOR: C*

(16) After an emergency event, the individuals involved in the emergency response and organizational leadership should conduct and document a debriefing, which may identify strategies to improve the EAP.[23,38] *SOR: C*

(17) After a catastrophic event and activation of the EAP, a critical incident stress debriefing (CISD) should occur.[41] *SOR: C*

(18) Institutions and organizations should document an incident report after activation of the EAP.[42–45] *SOR: C*

Response

(19) The EAP should be discussed before all competitions or games in a pre-event medical meeting (previously known as a *medical time-out*) that includes health care professionals, school administrators or officials, coaches, facility staff, team personnel, security personnel, officials, and any other personnel who may be involved in the response to an emergency.[9,14,23,28,35,46–52] *SOR: C*

(20) Each AT should conduct a daily readiness check of the venue- and sport-specific EAP, including a survey of emergency equipment, EMS access points, and available personnel.[9,14,23,28,35,46–52] *SOR: C*

(21) Emergency equipment (eg, an automated external defibrillator [AED] or whole-body cold-water immersion vessel) should be available, readily accessible, and clearly identifiable with proper signage at all athletic events.* *SOR: B*

(22) An AED should be on site or retrievable for use within 3 minutes at all sport venues.[11,15,21,24,53–55] *SOR: B*

(23) A rapid initial head-to-toe assessment of the patient by ATs, team physicians, or other designated responders should identify the site and severity of injury and determine the need to activate the EAP.† *SOR: C*

(24) When a serious or life-threatening emergency is identified, the EAP should be activated as soon as possible by the first responding individual.‡ *SOR: B*

**References 9, 11, 14, 15, 21, 23, 28, 31, 35, 46–54.*

†References 9, 14, 23, 28, 48, 51, 52, 56–63.

‡References 9, 15, 17, 18, 23, 28, 35, 48–50, 52, 56–60, 62, 64–71.

Table 2. Examples of Organizations Providing Resources to Support Educational Offerings for Emergency Response

Sponsoring Organization[a]	Website	Educational Course(s)
National Federation of State High School Associations	NFHSLearn.com	Concussion in sport First aid, health, and safety Sudden cardiac arrest
Centers for Disease Control and Prevention	CDC.gov	Traumatic brain injury and concussion
American Heart Association	Heart.org	Heartsaver First Aid CPR AED
American Red Cross	Redcross.org	CPR certification, first aid
Korey Stringer Institute	https://ksi.uconn.edu/	Exertional heat illness, catastrophic injuries in sport

Abbreviations: AED, automated defibrillator; CPR, cardiopulmonary resuscitation.
[a] This table is not all-inclusive, as other educational resources may be available.

(25) Activation of the EAP begins with contacting local emergency responders and summoning any on-site health care professionals or trained lay responders as soon as possible.§ *SOR: B*

EVIDENCE REVIEW AND SYNTHESIS

Optimizing Patient Outcomes (Recommendations 1–3)

An EAP outlines and facilitates the immediate actions that must take place in an emergency, ensuring timely care for the patient(s) and optimizing patient outcomes.[5] Catastrophic events can occur during practices, competitions, conditioning sessions, and unaffiliated recreational activities, emphasizing the need for institutions to create an EAP for all organized sporting activities. For each venue, institutions must have a written EAP that is easily accessible to all individuals responsible for responding to an emergency during athletic activities at that location.[5,11–16,18–22] As each sport team will have access to different resources, it is important that each sport in the same venue have its own EAP. For example, the basketball coach may have a medical background and be able to provide care in the chain of command, whereas the volleyball coach may be a teacher with no medical training, who will therefore have a different role when the EAP is activated. Another example is a football game at a stadium containing several thousand spectators: EMS access may be diverted to a different location than at a lacrosse game with a few hundred spectators in the same venue.

A venue- and sport-specific EAP details the location of the event. This includes, at a minimum, an address, cross-streets, and recognizable landmarks to assist EMS access. In some settings, it may also be beneficial to include latitude and longitude, but ATs should coordinate with their local EMS personnel to identify if this is helpful for their setting.

Activating the EAP does not rely on a medical professional being present, and it is impractical to expect all personnel, especially those with minimal health care training, to rely on common sense during an emergency. The written EAP and educational resources aid lay responders in recognizing emergency conditions and serve as a resource so the EAP can be activated when needed, regardless of who is present during an emergency.[17] Lay responders may engage in various roles during an emergency, such as providing direct medical care (eg, recognizing and stopping life-threatening bleeding or providing chest compressions), managing crowds, retrieving emergency equipment, or directing EMS vehicles at the emergency access point. Individuals are more likely to respond to an emergency if they have received training and practiced these skills in advance.[13,72] An expedient response is paramount to successfully treating patients and ensuring they receive the definitive medical care they need.[14–16,19]

The first 10 minutes of an emergency response are critical to the patient's outcome.[73] Evidence indicates that patient outcomes for exercise-related SCA improve substantially when various components of an EAP are incorporated into the response.[21] The importance of first aid and cardiopulmonary resuscitation (CPR) training for all stakeholders who may play a role cannot be understated.[14–16,20,21] According to the "2023 State High School Sports Safety Policy Evaluation" by the Korey Stringer Institute, only 33 states, including the District of Columbia, require that all sports coaches be trained in CPR and the use of an AED.[27,74] Ample community resources are available to facilitate regular training for coaches, administrators, and other stakeholders who may play a role in enacting the EAP. Institutions and organizations that sponsor athletic events should take advantage of these educational offerings for emergency preparedness available through organizations such as the American Red Cross and the National Federation of State High School Associations (Table 2).

Development (Recommendations 4–7)

At the time of this document's publication, few governing bodies require organizations hosting sports to develop a comprehensive EAP. Regardless of legal requirements from states or other entities (eg, the National Collegiate Athletic Association or state high school athletic associations), an EAP is an indispensable portion of athletic training and sports medicine programs to ensure optimal care for patients experiencing a catastrophic event. The development of an EAP should involve a diverse group of interdisciplinary stakeholders of the athletic program. The athletics interdisciplinary health care team is made up of the athletic training staff, nurses, rehabilitation personnel, affiliated physician(s), first responders, and other health care professionals. However, it is imperative to include additional stakeholders who may not have medical training, such as athletics directors, administrators, coaches, and potentially parents and guardians. This health care team has the

§*References 9, 15, 23, 28, 35, 48–50, 56, 57, 60, 62, 64–66.*

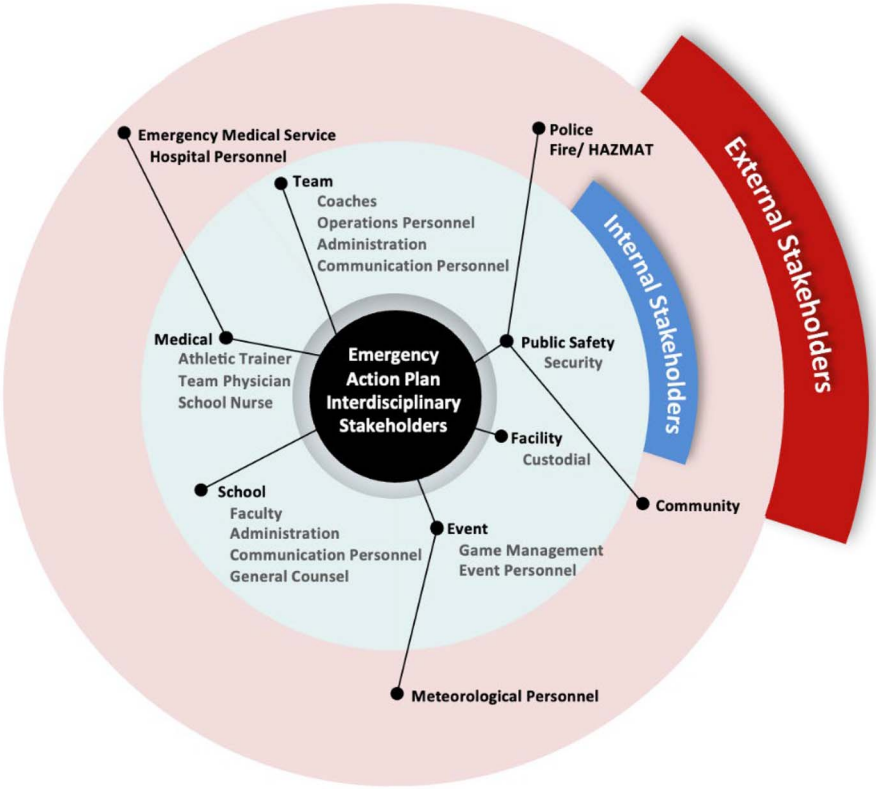

Figure 1. Internal and external interdisciplinary stakeholders who are integral to emergency action plan development, implementation, and response. Abbreviation: HAZMAT, hazardous materials.

primary responsibility of engaging both internal and external stakeholders as part of a robust development process. Internal and external interdisciplinary stakeholders include but are not limited to the individuals identified in Figure 1.[5,7,24,28–31]

Given that life-threatening emergencies may occur at any time and place with or without health care professionals on site, it is critical that athletic programs do not solely rely on the health care team members to develop and execute the EAP. Shared responsibility and the integration of different stakeholders into the development and implementation of the EAP strengthen the emergency preparedness of the entire athletic program.[38,75]

To ensure successful development of the EAP, institutions and organizations should designate an individual to serve as the EAP coordinator.[11,23] In some circumstances, an organization may designate a stakeholder to be the EAP coordinator, but that individual may not oversee the day-to-day operation of the EAP. For instance, an organization may select the team physician as the EAP coordinator, but the team physician is not present at the organization daily; thus, the AT is designated as the on-site EAP coordinator. Athletic trainers are often charged with the role of EAP coordinator[30] because they are expected to have the knowledge and resources to conduct a risk analysis to depict emergency scenarios specific to their setting. Another example of a designee may be an assistant AT supporting the development of the EAP but not in charge of the overall coordination. Perhaps this individual will be responsible for reviewing safety considerations for their primary sport or venue and reporting back to the EAP coordinator for specific considerations. If an AT is not available to serve in this role, the athletics director or other designated staff member may be an appropriate individual. However, we would be remiss if we did not stress the importance of an AT being available for all organizations or institutions sponsoring organized sports.

The EAP coordinator is responsible for the development of the EAP (Table 3), facilitating communication, ensuring completeness of the EAP (including development, coordination, access to emergency equipment, practice, and rehearsal), and collecting the information needed to make the EAP comprehensive, practical, and site specific.[11,23] Another role of the EAP coordinator is to develop a risk analysis (ie, risk assessment), a tool for analyzing, assessing, and setting priorities.[76] In athletic training and sports safety, this may include defining and identifying a *radius of care*.[76] A radius of care can be considered in terms of several factors, such as access to an AT (eg, geographic location of the AT from each venue at any specific time, specific location), access to and application of an AED (eg, a 1-minute brisk walk, within 3 minutes of each venue with a brisk walk), and EMS response times (eg, if EMS is 45–60 minutes away, the organization may opt to keep more supplemental oxygen available on site). It is also the role of the EAP coordinator or designee to delineate the anticipated roles of involved stakeholders during an emergency response as well as to evaluate safety considerations for every facility.[25] For instance, the athletic training practice setting may dictate how many athletics staff members are present based on the day and time and during practices or games. Similarly, if local events or emergencies alter the availability of EMS or the public safety service, communication between the EAP

Table 3. Stakeholders and Considerations for Emergency Action Plan (EAP) Development

- Conduct a risk analysis of the facility based on previous incidents.
- Create a list of venues and facilities used by the athletics program.
- Identify key stakeholders for successful activation of the EAP:
  - Internal and external members of the interdisciplinary health care team;
  - Primary and secondary coaching staff liaisons for each sport team (who are responsible for activating the EAP and providing emergency care to the patient if a qualified health care professional is not present);
  - Primary and secondary facility management liaisons (if applicable);
  - Local emergency responders (ie, fire, police, and EMS personnel) liaison;
  - Public safety liaison (if applicable);
  - Individuals within the organization who are responsible for the approval process of the EAP, such as the athletic director, president or principal, risk manager or legal counsel, team physician;
  - Patients (setting dependent).
- Create a clear list of the anticipated roles of stakeholders.
- Identify and evaluate EMS vehicle access and meeting locations for each venue or facility with the EMS liaison.
- Identify the primary locations and, if needed, the secondary locations of emergency equipment.
- Identify other aspects of the EAP (if relevant), such as air-medical landing zones.

Abbreviation: EMS, emergency medical services.

coordinator and local EMS operations should occur so that temporary changes to the EAP can be made. Once stakeholders and their responsible actions are defined, the chain of command should be communicated and outlined in a written EAP.[77] The EAP coordinator should not seek to undertake all responsibilities independently but rather should interdependently engage, integrate, appropriately delegate, and include all stakeholders in the development of the EAP.

Implementation (Recommendations 8–18)

Development of the EAP is only the first step to ensuring full implementation in the event of an emergency. Organizations must spend the time and resources to distribute the written EAP, educate stakeholders, and review and rehearse delineated responsibilities. Failure to properly disseminate and practice the EAP may lead to a delayed or inadequate response and subsequent litigation.[78]

Implementation can be defined as the steps to ensure that all stakeholders are aware of the plan, know how to execute the plan, and practice the plan and confirm that all stakeholders are aware of these steps through a documentation strategy.[78] Ensuring full implementation of the EAP is a strategy that has been promoted by several organizations.[79,80] Unfortunately, researchers have suggested that, although most athletics programs are writing EAPs, systemic failure occurs in the adoption and implementation of a majority of the components described in the EAPs.[7–9,16,81–87] This omission results in an inadequate EAP, such as missing components, and has been observed at different sporting levels.[17,88,89] No component from the original NATA position statement was in 100% compliance by ATs working in high school settings.[30] This systematic failure is across the entire system and socioecological framework for organizations (eg, ATs, athletic directors, coaches, administrators, local responders, and other stakeholders). All stakeholders must be included in the implementation of the EAP, including the review and rehearsal. Shared responsibility in EAP development and implementation will facilitate improved patient outcomes via a faster response time.[16,30,87,90] In short, increasing awareness of stakeholders will improve the recognition and diagnosis of injuries and illnesses and, ultimately, the treatment of patients.[27,91–93]

Crucial components of EAP implementation are distribution, accessibility, review, and rehearsal involving all stakeholders engaged in the plan's development and execution. The individuals include but are not limited to health care professionals, lay responders, team personnel, and local emergency responders.[11–13,23,24,32–37] Ensuring that all stakeholders are provided a copy of the plan (whether paper based or electronic) allows for accountability. To guarantee that stakeholders have received and reviewed the EAP, organizations may consider documentation strategies such as individual stakeholder signoffs. The EAP should be distributed and reviewed at least annually or more frequently if updated during the current year. Further, the Department of Labor's Occupational Safety and Health Administration (OSHA) has a Federal standard (1910.38) stating that "an emergency action plan must be in writing, kept in the workplace and made available to employees for review."[39] These guidelines support the need for EAPs in the sports setting to be made available to all personnel who may become involved. The phrase "made available" can be interpreted as the EAP being posted at the venue, attached as an item within the venue (eg, secured to a medical kit), or distributed electronically via a PDF or Word document, a mobile application, or otherwise.

Review of the EAP should be documented, including where, when, and with whom. Reviewing the EAP ensures that all stakeholders are communicating and is vital to promoting a structured response.[34,94,95] In US-based K–12 schools, rehearsal for fire drills, active shooters, and bomb threats (among others) are commonplace.[68,96] This is echoed in other domains, such as airplane emergency safety presentations and medical simulations.[97–101] Athletic trainers who were not actively rehearsing the EAP reported they had an understanding of the EAP and were considering how to execute a rehearsal strategy but had yet to do so.[102] This demonstrates the need for improved educational awareness and leadership to facilitate a proper review and rehearsal. The rehearsal should be developed and coordinated by the EAP coordinator and involve all members of the health care team, including local emergency responders.[11,32,34] The rehearsal strategy should incorporate simulated scenarios (eg, role play) at various locations of the organization (eg, on-field, off-field, athletic training facility, weight room) and a variety of catastrophic situations (eg, SCA, TBI, exertional heat stroke, exertional sickling) as well as emergent orthopaedic injuries (eg, fractures, dislocations, and spinal injuries). The rehearsal may include a simulated patient emergency on a field, having a coach activate the EAP, an AT providing immediate care, an AT not on scene but able to arrive within 1 to 2 minutes, and security personnel opening the gates and directing EMS arrival to and departure from the scene. Documentation of the rehearsal supplies written evidence for when the organization conducted the exercise, where it was conducted, and

who was present. Written documentation of the EAP review and rehearsal is important if legal concerns arise and can be used by the organization to measure the extent and effectiveness of EAP implementation.

Lawsuits related to a negative patient outcome from an emergency situation are often settled in favor of the plaintiff, in part due to a lack of documentation regarding an organization's EAP.[103,104] Researchers have supported the need for the EAP to be approved by organizational leadership and those responsible for the development and implementation of the plan.[12] Importantly, every organization is different, and therefore, the individuals necessary for approval will vary by organization. Among others, these individuals may be the AT, team physician, athletic director, school administrator, event organizer, and legal counsel. As part of the orientation at a new organization or event, all ATs (including those providing per diem coverage) should review the EAP. Additionally, ideally, all team and organization personnel should review the EAP. The EAP training (lecture, discussion, self-review, or a combination of these), practice, and simulation have been considered the most useful activities by ATs and other stakeholders during orientation for a new organization.[40]

If the EAP is activated for an emergency, comprehensive, deliberate, and complete documentation is required. Historically, ATs may struggle with comprehensive and complete documentation due to a lack of training or structured guidance.[105] Documentation is a critical component for effective health care administration, especially after EAP activation, which allows a team to review the response and make changes to enhance the next response.[42–45] To improve documentation, some organizations may consider including employers by providing clear guidelines and expectations, using electronic health record systems, and supplying real-time and continuous documentation, among other strategies.[105] Furthermore, an emergency response team debriefing (which should also be documented) allows for the identification of strategies to improve the EAP.[23,38]

In addition to the emergency response team debriefing, a CISD should occur after a catastrophic event to help those who have responded to the incident. A CISD is a coping process that should be facilitated by a qualified individual, often a mental health professional or an AT trained by ATs Care, to offer support for health care professionals who may be at risk of stress from trauma exposure.[106] This process should be initiated by the organization but may also be initiated by the individuals themselves. The debriefing protocol should include identifying a trained facilitator, a timeline for the debriefing, and resources if personnel wish to seek additional support.[41] Given the often-shared mindsets across health care domains, a group CISD may include health care professionals who were not present at the event. For ATs, ATs Care is an NATA-led program that provides crisis management after a critical incident.[107] Importantly, a CISD is usually outlined as a separate section in the policies and procedures manual. Thus, additional details for the CISD process are outside the scope of this document.

Response (Recommendations 19–25)

A comprehensive EAP should outline the step-by-step planning and response to ensure timely care, with considerations for efficiently providing immediate on-site emergency medical care and securing EMS care and transportation for injured patients. This response involves coordination of a pre-event medical meeting, access to and a readiness check of emergency equipment, initial assessment, prompt activation by responding individuals, and contacting local emergency responders.

A key step to ensuring an efficient response is conducting a pre-event medical meeting (otherwise known as a medical time-out; Table 1). This concept originated from both preflight and presurgery checklists. The World Health Organization has developed the Surgical Safety Checklist to decrease errors and adverse events and increase teamwork and communication.[108,109] Improved effectiveness and efficiency can also occur in sports when the EAP is discussed before all competitions and games in a pre-event medical meeting attended by health care professionals, lay responders, team personnel, and local emergency responders.[9,14,23,26,28,35,46–52] The pre-event medical meeting is essential to ensuring that the entire stakeholder team is aware of the activation procedures and location of emergency equipment if needed for a catastrophic event. Additional items to consider at the pre-event medical meeting are standardized emergency signals, emergency communication logistics, and role delineation.

Reviewing emergency equipment before activities is imperative to confirm that all necessary equipment is present and in proper working order. Each AT should conduct a daily readiness check of the venue- and sport-specific EAP, including a survey of emergency equipment, EMS access points, and available personnel.[7,9,14,23,28,35,46–52] It is important to assess not only the identified emergency equipment but also the venue-specific EMS access points and planned routes of travel for those involved in an emergency response. Best practice is to perform readiness checks on all components of the EAP, whether the AT is hosting the event, part of the visiting team, or working in the per diem setting. The various roles of the AT in these different settings must be considered. For example, the home AT may determine factors such as access and egress, traffic, and stakeholder roles, whereas the visiting AT may confirm that these are accounted for and planned. When visiting a new practice or competition site, members of the visiting medical team should familiarize themselves with the venue EAP, location of emergency equipment, and venue layout to obtain a clear understanding of the routes of travel and EMS access and egress points. Factors such as traffic, construction, and the accessibility of gates and doors for entry and exit should be considered in the facility evaluation.

Access to key equipment is a critical component of the EAP. Emergency equipment, such as an AED or whole-body cold-water immersion vessel, should be available, readily accessible, and clearly identifiable with proper signage at all athletic events.** This equipment is sometimes located on the sideline of the event but may also be secured nearby. The location of the AED is critical because SCA remains the leading cause of sudden death in young athletes during sports and exercise.[110–112] Survival after SCA is >80% when an on-site AED is used and an AT is involved in the emergency response.[21,54,55,113] An AED should be on site or retrievable for use within 3 minutes at all sport

**References 9, 11, 14, 23, 28, 31, 35, 46–52.

venues.[11,15,21,24,53–55] Factors such as the time of day and building access and closure should be assessed to ensure an AED is always available (ie, retrieval, application, rhythm analysis, and shock delivery) within 3 minutes after an athlete collapses and becomes unresponsive.[24,114] As previously stated, the EAP and policies and procedures manual are different documents. In some states, legislation has introduced the concept of a cardiac emergency response plan (CERP). Although a CERP or cardiac-focused policy is a vital component of emergency preparedness, it does not replace the need for an EAP.

Clear communication is essential to outline roles, responsibilities, and equipment location and prevent potentially catastrophic errors. During the pre-event medical meeting, key aspects of the on-site EAP should be reviewed, among them (1) expected hand signals and methods of communication, (2) which medically trained personnel are on site or available and how to contact them, (3) the location of the emergency equipment on site or at a nearby venue, and (4) which medical providers will take the lead in a catastrophic event or medical emergency. If a medical professional is not present, the lead responder to an emergency should be identified.

The AT is typically the first medical responder to an emergency and may have witnessed the event. The AT should perform a rapid head-to-toe assessment to identify the site and severity of injury and activate the EAP when needed.†† A rapid head-to-toe assessment includes an initial assessment of responsiveness, physical status, and vital signs (pulse, respiration, and temperature if indicated). If an AT or medical provider is not present, the EAP should be activated by the first responding individual as soon as a serious or life-threatening emergency is identified.‡‡ Prompt activation of the EAP begins with contacting local emergency responders and summoning any onsite health care professionals and trained lay responders.§§ Each of these roles should be predefined as described in the Development section of this document. The initial responding individual should provide immediate and emergent care (ie, first aid, bleeding control, CPR, AED) while awaiting the arrival and assistance of any additional on-site responders and EMS. Timely attention to circulation, airway, and breathing in the head-to-toe assessment is imperative to improving patient outcomes. Basic life support can be provided by both health professionals and lay responders.

METHODS

The NATA Pronouncements Committee, in collaboration with our authorship team, has created new procedures for the development of position statements. The following methods outline most of the changes to the procedures.

Author Group Selection

In March 2022, the NATA distributed an open call for individuals wishing to be considered for the writing team for this position statement. Twenty-six individuals responded to the call, 5 of whom were interested in serving as the lead author. For additional details regarding the selection process from the NATA Pronouncements Committee for the lead author and author team, please contact FNDNStaff@nata.org. Criteria for the group and lead author included the following: (1) expertise in EAPs; (2) research expertise in EAPs; (3) current active involvement in providing clinical care to individuals participating in sports settings (eg, high school, collegiate, or large-scale events); and (4) a diverse group of individuals at various stages of their careers representing a variety of health care professions, ethnicities, and geographic locations. The NATA Pronouncements Committee evaluated each author candidate using a rubric specific to the development of the EAP position statement and used objective criteria to select the final author group: an athletic training researcher with expertise in EAPs (n = 1), a physician with research and clinical expertise in EAPs (n = 1), an international AT with research and clinical experience in EAPs (n = 1), an AT and emergency medical technician with research and clinical expertise in EAPs (n = 1), a high school AT (n = 1), a collegiate AT (n = 1), a physician with a background in collegiate and high school oversight (n = 1), and an AT who also served as a flight paramedic and state trooper (n = 1).

Procedures

Processes to develop this position statement were divided into the (1) literature review, (2) modified Delphi consensus, and (3) level-of-evidence (LOE) classification.

First, the author panel reviewed and synthesized the literature on EAPs in sport. A literature search was conducted by the primary author, who consulted with a librarian to identify peer-reviewed research and consensus recommendations on EAPs relevant to the sports setting. The PubMed, Web of Science, and SCOPUS databases were searched for appropriate articles (see Supplemental Material, available online at https://dx.doi.org/10.4085/1062-6050-0521.23.S1, for search terms). Duplicates were removed by the lead author and a research assistant (C.H.). Titles and abstracts for all articles were reviewed by the lead author and research assistant; research articles were included (Figure 2) if they addressed the effectiveness of EAPs or provided detailed components of an EAP. Articles were synthesized (ie, reviewed and categorized by topic) by a subgroup of coauthors (S.E.S.M., Y.H., M.N.H., E.J.S.) and organized into subtopics and individual recommendations to be voted on by the full author panel.

Second, the author panel used a modified Delphi approach to establish consensus through an anonymous survey,[115] facilitating an unbiased aggregation of expert opinions on EAP development. The first round of the modified Delphi consisted of the evidence-based recommendations (n = 22) along with an open text allowing authors to provide suggestions for additional recommendations not captured by the literature review. All author group members received an anonymous online questionnaire (Qualtrics). They were asked to rate their level of agreement with perception of the recommendation as agreeable, feasible, and clear. *Agreeability* was operationally defined as whether the coauthor agreed with the recommendation. *Feasibility* was operationally defined as whether the recommendation was realistic to expect institutions and organizations to implement, keeping in mind the widely varying resources and competing demands faced by different institutions, organizations,

††*References 9, 14, 23, 28, 48, 51, 52, 56–63.*
‡‡*References 9, 14, 23, 28, 48, 51, 52, 56–63.*
§§*References 9, 15, 23, 28, 35, 48–50, 56, 57, 60, 62, 64–66.*

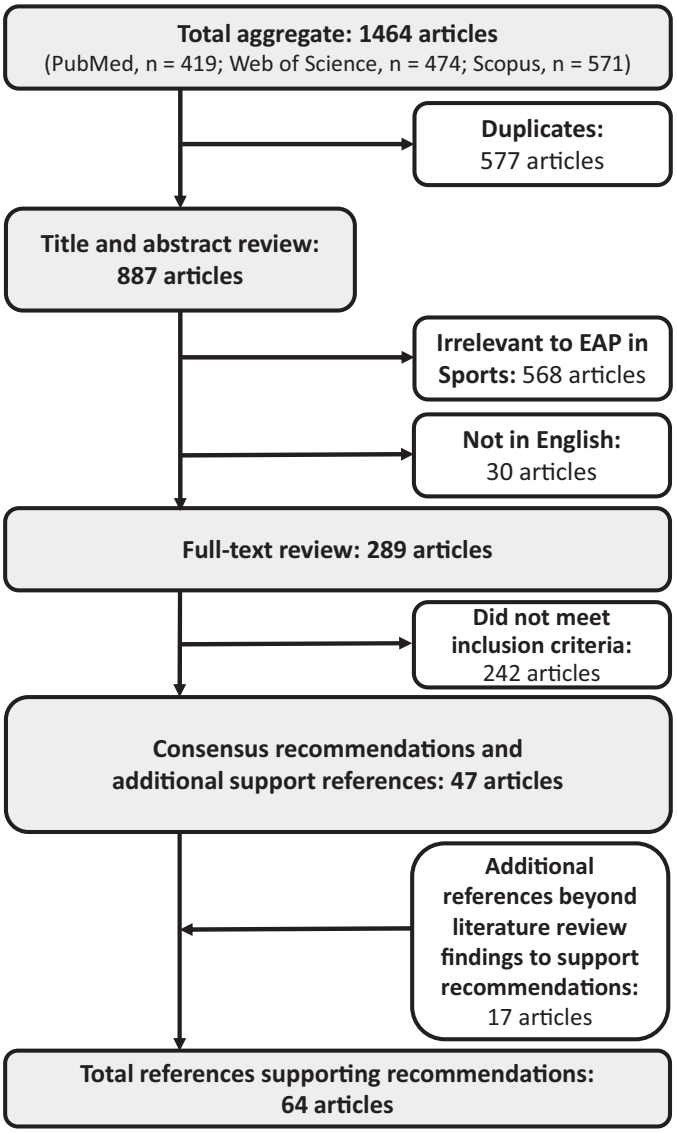

Figure 2. Flow chart outlining the search strategy and article inclusion process. Abbreviation: EAP, emergency action plan.

and venues. *Clarity* was operationally defined as whether the recommendation was clear and easy to understand.

Ratings were on a scale of 0 to 5, with 5 indicating a *high level of agreement* and 0 indicating a *low level of agreement*. Members were also asked to provide comments to support their score for each recommendation. A second subgroup of coauthors (S.E.S.M., J.A.D., R.M.H., D.P.C., G.A.E.) met to discuss the findings. A priori methods required discarding of any recommendation with a score of $<$20% agreeability, retaining any recommendation with a score of $>$80% agreeability, and revisiting through further discussion any recommendation with a score between 20% and 80% agreeability. The first Delphi vote resulted in only 1 recommendation with a score in the 20% to 80% range (mean aggregate for clarity = 77.5%). No recommendations received an aggregate mean of $<$20% agreeability. Further, although the author group had intended to retain recommendations with scores $>$80% in the final version without revision after the initial round of voting, it was clear that minor revisions were necessary to improve readability. Initial language revisions were completed by the second subgroup, with additional revisions provided by the entire author group before round 2 of Delphi voting. The second round of voting revealed no recommendation with a mean aggregate score of $<$80%.

As evidence was limited regarding the effectiveness and outcomes of specific elements of an EAP, we anticipated adding recommendations that were not included in the primary round but informed by expert experience. We had the opportunity to provide comments for additional recommendation considerations during the initial modified Delphi round. These recommendations were grounded in evidence but were not captured by the literature search. For example, recommendation 13 (having the EAP available at all venues) was not captured in the literature search. The expert group agreed this should be a recommendation, as supported by the OSHA and other evidence. The full authorship group met to discuss additional recommendations (13, 18, and 22) suggested for this position statement.

A second Delphi round of scoring for the recommendations was conducted using the same methods as in the first round. The result was 25 recommendations, each with agreeability, feasibility, and clarity mean ratings of $>$85% (Appendix). All authors approved the final recommendations as written.

Third, supporting research articles for each of the recommendations were evaluated using the LOE scale previously described.[10] Each research article referenced in a recommendation was evaluated by 3 independent researchers (S.E.S.M., R.M.H., and research assistant C.H.). Any LOE that lacked unanimous agreement was discussed, and consensus was achieved. Two authors (S.E.S.M., R.M.H.) and the research assistant reviewed the LOE and independently provided a preliminary SOR Taxonomy (SORT)[10] grade for each recommendation. The 3 individuals then met to discuss any recommendations without a unanimous SORT agreement. All authors anonymously voted on agreement with the SORT grade for each recommendation. If an author disagreed with the SORT for a recommendation, the item was brought forth for group discussion and final approval. All authors had a chance to review the LOE for each reference and the SORT grade for each recommendation, and they anonymously provided their agreement with the rating. No authors dissented from the final LOE or recommendation grades. The final recommendations were reviewed and approved by the NATA Board of Directors, the NATA Pronouncements Committee, and the NATA Research & Education Foundation Board of Directors.

Application to Other Settings

Emergency action plans should be developed and maintained for all organized sports at every level. It is important to note differences across the various sports settings: youth, high school, collegiate, semiprofessional, and professional. This document was created with the intent that all recommendations can be applied across all levels of play. However, every level and institution should identify strategies to effectively adopt and implement each of these recommendations. Further, although the purpose of this document was to facilitate the development and implementation of an EAP in the sports

setting, the value of having an EAP applies to other work settings for ATs. The Federal Emergency Management Agency and OSHA have also emphasized the importance of a written EAP.[39,77]

CONCLUSIONS

The recommendations set forth in this NATA position statement were formed through robust evidence review and expert consensus. The development and implementation of a comprehensive EAP is an essential safety measure. Comprehensive EAP adoption and implementation consists of the integration of all recommendations put forth in this position statement. Proactive emergency planning and dissemination, review, and rehearsal of an EAP allow an institution to consider the various factors affecting a patient's outcome after a catastrophic injury. We must continue to investigate and refine the individual components of EAPs to better understand their contribution to an effective, life-saving response to an emergency.

Additional Resources

Additional resources, including practical strategies to implement these recommendations, are available on the websites hosted by the endorsing organizations (nata.org, www.natafoundation.org).

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DISCLOSURES

Samantha E. Scarneo-Miller, PhD, LAT, ATC, reports personal fees from expert witness testimony, consulting for the Korey Stringer Institute, and honoraria for conference presentations. Jonathan A. Drezner, MD, reports research grants from the American Medical Society for Sports Medicine and the National Center for Catastrophic Sports Injuries; he is also an advisor with stock options for Ainthoven. Darryl P. Conway, MA, ATC, reports personal fees and nonfinancial support from Xenith, Stryker Corp, and Conway Ventures, LLC, and is co-owner of Sports Medicine Emergency Management. Edward J. Strapp, MA, ATC, is co-owner of Sports Medicine Emergency Management. Rebecca M. Hirschhorn, PhD, LAT, ATC; Gregory A. Elkins, MD; and Michael N. Hopper, MS, LAT, ATC, indicated they had nothing to disclose.

DEDICATION

This position statement is dedicated to Greg Elkins, MD (May 12, 1962–March 17, 2024), a dedicated advocate for sport safety.

DISCLAIMER

The NATA and NATA Foundation publish position statements as a service to promote the awareness of certain issues to their members. The information contained in the position statement is neither exhaustive nor exclusive to all circumstances or individuals. Variables such as institutional human resource guidelines, state or federal statutes, rules, or regulations, as well as regional environmental conditions, may impact the relevance and implementation of these recommendations. The NATA and NATA Foundation advise members and others to consider carefully and independently each of the recommendations (including the applicability of the same to any particular circumstance or individual). The position statement should not be relied upon as an independent basis for care but rather as a resource available to NATA members or others. Moreover, no opinion is expressed herein regarding the quality of care that adheres to or differs from the NATA and NATA Foundation position statements. The NATA and NATA Foundation reserve the right to rescind or modify its position statements at any time.

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SUPPLEMENTAL MATERIAL

Supplemental Material. Literature search terms.

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Appendix. Agreeability as Determined From the Modified Delphi Process

	Values Presented as Average Likert Scale Score		
Recommendation	Agreeability	Feasibility	Clarity
1	5.00	4.88	4.75
2	5.00	5.00	4.63
3	5.00	4.38	4.50
4	5.00	4.75	5.00
5	5.00	4.75	4.88
6	4.75	4.75	4.63
7	5.00	4.75	5.00
8	4.88	4.75	5.00
9	5.00	5.00	5.00
10	5.00	4.88	4.88
11	5.00	4.71	5.00
12	5.00	4.88	4.75
13	5.00	5.00	5.00
14	5.00	5.00	4.75
15	5.00	4.88	5.00
16	5.00	4.75	4.50
17	5.00	4.38	4.75
18	5.00	5.00	5.00
19	5.00	4.38	5.00
20	5.00	5.00	4.75
21	5.00	4.75	4.86
22	5.00	4.75	4.75
23	4.88	4.63	4.63
24	5.00	5.00	4.88
25	5.00	5.00	5.00