Coordinated Care of Student Athletes with Potential Spinal Injury
Joint Position Statement
North Carolina High School Athletic Association & North Carolina Office of Emergency Medical Services

In a collaborative effort to provide guidance to Athletic Staff and EMS Professionals in the care of student athletes with potential spinal injury, the North Carolina High School Athletic Association (NCHSAA) and the North Carolina Office of Emergency Medical Services (NCOEMS) have agreed to publish a Joint Position Statement. The goal of both the NCHSAA and NCOEMS is to provide the best care to student athletes in accordance with evidence based medicine.

The NCHSAA's mission is to provide governance and leadership for interscholastic athletic programs that support and enrich the educational experience of students. Health and Safety is a priority of the NCHSAA's Strategic Plan. With both the Mission and Strategic Plan in mind, the NCHSAA wholeheartedly embraces collaboration with the North Carolina Office of Emergency Medical Services.

NCOEMS has the responsibility of protection of the public through credentialing, licensing and statewide prehospital medical oversight of EMS Professionals. NCOEMS embraces collaboration with the North Carolina High School Athletic Association.

- The NCHSAA appreciates and respects the expertise and standard of care afforded to the student athletes in our member schools by the Emergency Medical Service (EMS).
- NCOEMS appreciates and respects the specialized expertise of Athletic Staff and the unique challenges associated with caring for student athletes.
- The NCHSAA looks forward, with great anticipation, to collaborating with the EMS to develop and then communicate to our member schools best practice standards for pre-hospital care of student-athletes with acute cervical spine injury.
- NCOEMS appreciates the opportunity to work with the NCHSAA in this endeavor and is committed to build a strong relationship so that our student athletes, and their families, can participate in sporting events knowing that Athletic Staff and EMS Professionals are working together to ensure proper care will be rendered in the event of an emergency.

The NCHSAA encourages Licensed Athletic Trainers (LAT) to follow recommendations from the National Athletic Trainers Association (NATA) contained in the documents sited below.

Appropriate Pre-Hospital Management of the Spine-Injured Athlete Update

https://www.nata.org/sites/default/files/Executive-Summary-Spine-Injury.pdf

EMS Changes to Pre-Hospital Care of the Athlete with Acute Cervical Spine Injury

https://www.nata.org/sites/default/files/c-spine-management.pdf

NCOEMS encourages EMS agencies to refer to their local protocols and work with their local Medical Director and CE Coordinator to ensure all staff are up to date on the standard of care when dealing with these injuries. Please refer to NCCEP Protocol TB-8.

Selective Spinal Motion Restriction – Protocol TB-8

https://bit.ly/2KX6Q70

With those statements being the foundation of this joint position statement, we would offer the following guidance to both Athletic Staff and EMS Professionals:

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Premise: There are many athletic events that EMS may be standing by or called to that traverse the contact and collision spectrums. The potential for a spinal injury is small, but improper management may result in long term disability.

Goal: To provide a reference and guide for training and management of athletic injuries that crosses the multidisciplinary fields of EMS and sports medicine.

Assumptions: EMS providers are skilled in injury situations with potential spinal injury. Athletic trainers and school staff are skilled in the knowledge of the protective equipment worn by the athletes and personally know the individual players.

Background:
--There are approximately 12,000 spinal cord injuries per year in the US with ~9% coming from athletic events.
--Evidence based medicine has shown the continued use of a spine board to transport the patient can be detrimental to their well-being.
--National Athletic Trainers Association has a document with updates that guides training and care of injured athletes. (Prehospital Care of the Spine Injured Athlete, 1998; Updated in 2015/2016)

Educational points:
--Evidence based medicine shows no improvement with leaving any person (including athletes) on a backboard for transport to hospital.

--Athletic trainers and equipment managers are the experts in the protective equipment worn by athletes.

--Athletic teams--school based and recreation league--should have an emergency action plan (EAP) developed in conjunction with EMS (required by general statute for all Public North Carolina High Schools). As part of that plan, a thorough discussion about use of backboards, per local EMS system protocol, should occur.

--EAP drills should occur at least annually, at the start of football season, with documentation kept by the athletic program and EMS agencies. Those EMS providers rendering care at athletic events are highly encouraged to have specialty training to handle such events (with documentation maintained by the agency)

--EAP drills should review game response and practice field response, as predeployed resources may not be present

--"Pre-game" meetings should occur between the athletic program staff and EMS before the game to review equipment and procedures (if EMS on site).

--Spinal equipment, face mask removal equipment, and a system for notification to EMS to come onto the field (suggested "raised fist") should be reviewed prior to the game.

--The EMS unit should have the stretcher out of the ambulance loaded with equipment and response ready during games. (inclement weather dictates modification)

--An athlete with a suspected spinal injury should have the face mask removed on the field.
    --Pathway for removal:
        1. quick release mounts
        2. cordless screwdriver
        3. manual screwdriver
        4. cutting tool

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--EMS and athletic programs should agree upon the method of spinal motion restriction and the plan to leave on or remove protective equipment. Preferably, this discussion should occur during the EAP drill; but, at a minimum, during pre-game.

Options (gear on for transport)
-1. Place athlete on spine board (remove from board prior to transport)
-2. Place athlete on scoop stretcher or similar device (remove device prior to transport)
-After procedure 1 or 2, secure helmet to ambulance cot with tape and devices

Options (gear removed on field)
-Place cervical collar
-1. Place athlete on spine board (remove from board prior to transport)
-2. Place athlete on scoop stretcher or similar device (remove device prior to transport)
-Secure athlete to ambulance cot after procedure 1 or 2

--Method of placing athlete on device (spine board, scoop stretcher or similar device)

Supine preferred method: 8-man lift
Log roll no longer recommended except for prone athlete
Personnel: EMS crew, sports medicine professionals and coaches from schools

Prone preferred method: One motion roll from prone onto device
Each movement increases risk of injury, plan for minimal patient moves
Prefer log "push" to roll athlete rather that log "pull"

--Helmet and Pad Removal

Requires a minimum 4 people
Levitation method of rescuers at following positions
Helmet
Neck
Each shoulder
Suggested to be performed prior to transport as school personnel and EMS have the most experience with removal but this is a local medical direction decision
Can be done on field or once removed from field

--Educational video from Childress Institute for Pediatric Trauma and NC EMS-C to address training issues for football events, is now available for the 2017 season via the following link: https://youtu.be/OBeKqd2cr28

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Executive Summary Update for 2019

Pregame EAP Review

Effective this football season the recommended "pre-game time out" for medical personnel to meet and review emergency plans (mentioned in the 2017 Spinal Injury Management Joint Position Statement between OEMS, NCATA, and NCHSAA) has now been made a requirement by the NC High School Athletic Association. The new meeting is known as the Pregame Emergency Action Plan Review (PEAPR).

Following roles must meet prior to the game and complete a NCHSAA form:

- School game representative
- Both schools sports medicine providers (ATC for sports first responder)
- Lead official
- EMS (if present at game)

Considerations and educational points:

1. EMS standby at football is recommended but not required by the NCHSAA

2. Agencies that do game coverage are suggested to contact the local school and determine time for the meeting (most schools are choosing 30 minutes prior to kickoff)

3. Determine location (most schools are choosing to meet at the ambulance or emergency vehicle if present)

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Heat Illness Updates

Recognition of Exertional Heat Illnesses:

* The two main diagnostic criteria for exertional heat stroke are profound central nervous system (CNS) dysfunction and a core body temperature above 105°F.
* Rectal temperature is the only method of obtaining an immediate and accurate measurement of core body temperature in an exercising individual.

Treatment of Exertional Heat Illnesses:

- The goal for any exertional heat stroke victim is to lower core body temperature to less than 102.5°F within 30 minutes of collapse.

- Cold water immersion is the most effective way to treat a patient with exertional heat stroke. The water should be 35-59°F and continuously stirred to maximize cooling.

Recommendation of assessing rectal temperature if exertional heat stroke is suspected:

- Best practices strongly advise the use of rectal temperature for the assessment of body temperature in a suspected exertional heat stroke patient. It is discouraged to use inaccurate devices such as oral, tympanic, etc.

Specific protocol for the treatment of exertional heat stroke:

- The new guidelines suggest a specific step-by-step protocol for cold water immersion for the sports medicine professionals to implement with an exertional heat stroke patient. This protocol is backed by research exhibiting a 100 percent survival rate when initiated quickly and properly.

Identification of approximate cooling rates for an exertional heat stroke patient:

- While cooling rates may vary, the cooling rate for cold water immersion will be approximately about 1°F every three minutes when considering the entire immersion period for an exertional heat stroke patient. This provides an approximate treatment time for clinicians if rectal temperature monitoring is not possible during treatment.

Recommendation of "cool first, transport second":
The current document now states that a patient suspected of having exertional heat stroke must be cooled via cold water immersion for the full treatment time prior to being transported to a hospital.

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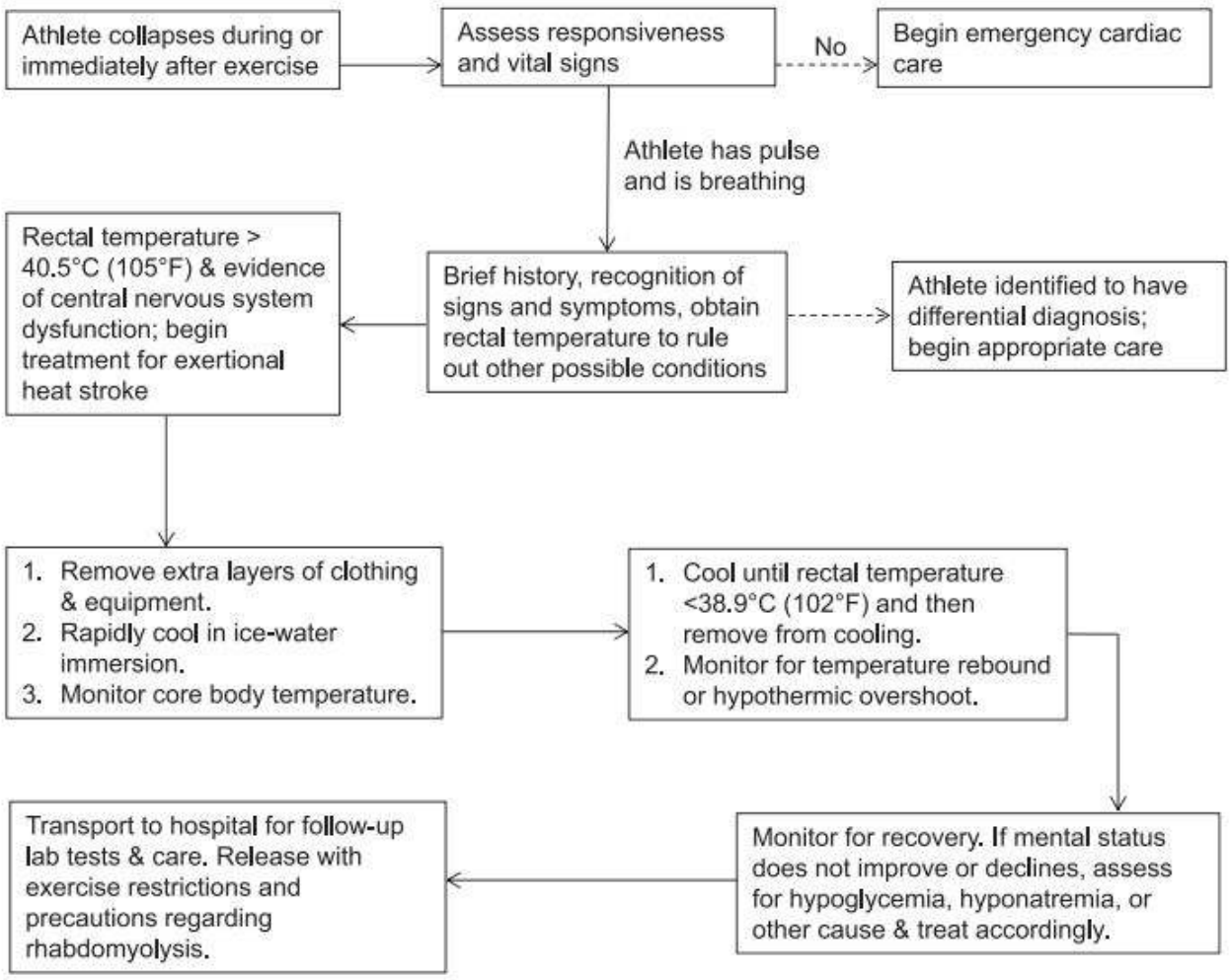

Figure 3. Algorithm for treatment of exertional heat stroke.