



## EMS System for Metropolitan Oklahoma City and Tulsa 2021 Medical Control Board Treatment Protocols



 EMS SECTION

Approved 9/9/20, Effective 1/15/21, replaces all prior versions

### 11E – HEAT STROKE – ATHLETIC PARTICIPANTS WITH FIELD COOLING CAPABILITIES ON-SITE AT EVENT

EMERGENCY MEDICAL RESPONDER
EMT
EMT-INTERMEDIATE 85
ADVANCED EMT
PARAMEDIC

Indication: Life-threatening heat stroke by clinical assessment requiring rapid cooling of core body temperature

Contraindication: Cardiac Arrest  
Respiratory Arrest  
Unstable Airway  
Inability to Maintain Normal Oxygenation

#### Technique (Ice Bath Immersion or Commercially Produced Body Cooling Wraps):

Athletic trainers and sports medicine physicians most typically are able to identify athletes at increased risk of heat stroke, stopping their activity and initiating cooling measures before heat stroke occurs. Athletic trainers most typically know their assigned athletes well, work in consultation with sports medicine physicians, and are valuable resources on the scene of an athletic-related medical emergency.

Field cooling with ice bath immersion or using commercially produced body cooling wraps, typically performed in a training room area adjacent to the actual “field” of play, can lower core body temperature more rapidly than ice packs to the groin and axilla as traditionally used in EMS care or Emergency Department based care. The reality is that no local Emergency Department has measures that can lower core body temperature more rapidly than effective field cooling.

After initial Paramedic assessment of the patient, consult with an OMD physician (Dr. Goodloe or Dr. Knoles) or OMD paramedic (Duffy McAnallen, David Howerton, or Matt Cox) is mandatory to help guide efficient, effective patient management, including field cooling.

Essential steps in any field cooling include: rapid activation of 911-based EMS care, continuous attention to airway/breathing/circulation, organized ongoing assessment and care throughout cooling, ability to accurately and continuously measure core body temperature by rectal thermometry, and packaging/moving the patient for timely ambulance transport once field cooling has achieved core body temperature less than 103F (rectally).



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### Heat Stroke – Athletic Participants with Field Cooling Capabilities On-Site at Event (cont.)

Appropriate hospital destinations for patients requiring emergent field cooling once cooled:

- Tulsa area: St. Johns Medical Center, Saint Francis Hospital, Hillcrest Medical Center, OSUMC
- Oklahoma City area: The Children's Hospital, Integris Baptist Medical Center, Integris Deaconess Hospital, Integris Southwest Medical Center, OU Medical Center, St. Anthony Hospital

#### Step 1 (Figure 1):

The patient will most likely be encountered immersed in an ice bath or within the commercial cooling wrap device. Rectal thermometry should already be in place as well. Initial assessment includes confirmation of pulse – best practice would be to have continuous access to one wrist, and effective breathing. Any patient requiring active airway management beyond positioning the head above the ice bath should be removed from cooling and transported as quickly as possible.



Figure 1

#### Step 2 (Figure 2):

The Paramedic should establish location near the patient's airway throughout cooling. Attach waveform capnography to continuously measure spontaneous circulation, respiratory rate, and ventilatory effects. Notify OMD for patient consultation of care.



Figure 2

#### Step 3 (Figure 3):

Cooling impact should be rapid, being able to see decrease in core body temperature on the rectal thermometer screen. Be prepared for sudden alertness, and often vomiting, once the core temperature approaches 103F. If initial temperature shows 107.9F, realize the actual temperature is likely higher, as most available rectal thermometers will only read to 107.9F.



Figure 3



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### Heat Stroke – Athletic Participants with Field Cooling Capabilities On-Site at Event (cont.)

#### Step 4 (Figure 4):

Prior to patient alertness, pass a lifting tarp under the patient to assist in safely lifting the patient, particularly if immersed in an ice bath.



Figure 4

#### Step 5 (Figure 5):

Once a core body temperature of 103F is achieved, the patient should be removed from ice immersion and packaged on the EMS stretcher for timely transport to a destination identified in this guidance document. Any patient with emergent field cooling mandates an Emergency Department evaluation.



Figure 5