Approved 9/2/26, Effective 1/15/27, replaces all prior versions

# 11A - HEAT ILLNESS ADULT & PEDIATRIC

EMERGENCY MEDICAL DISPATCHER
EMERGENCY MEDICAL RESPONDER
EMT
EMT-INTERMEDIATE 85
ADVANCED EMT
PARAMEDIC

TREATMENT PRIORITIES
1. Early cooling therapy
2. Vital sign
3. Fluid resuscitation
4. Rapid Cooling for Heat Stroke

## EMD

REMOVE ANY SOURCES OF HEAT.
REMOVE OUTER CLOTHING.
APPLY COOL WATER TO ENTIRE SKIN SURFACE WHILE FANNING.
TURN ON AN AIR CONDITIONER OR FAN.

## EMR / EMT

GENERAL SUPPORTIVE CARE
REMOVE FROM HOT ENVIRONMENT
COOL BODY INCLUDING HEAD WITH WATER OR SALINE
APPLY ICE PACKS TO GROIN, NECK, AXILLA
DIRECT FAN ON PATIENT TO PROMOTE EVAPORATIVE COOLING/AVOID SHIVERING
OBTAIN VITAL SIGNS
$O_2$ VIA NC, NRB, OR BVM AS APPROPRIATE
APPLY CARDIAC MONITOR (if equipped)

**EMT OR HIGHER LICENSE:**
MEASURE END – TIDAL $CO_2$ & MONITOR WAVEFORM CAPNOGRAPHY (if equipped, **Mandatory use if pt intubated)
PLACE SUPRAGLOTTIC AIRWAY IF INDICATED & ONLY IF BVM VENTILATIONS INEFFECTIVE

## EMT-I85 / AEMT

**ADULT:** INTUBATE IF INDICATED

IV ACCESS
**ADULT:** IV NS 500 mL BOLUS IF NO SIGNS OF PULMONARY EDEMA.
USE CHILLED NS (when available) IF HEAT STROKE SUSPECTED & RAPID COOLING UNAVALIBLE
**ADULT:** REPEAT UP TO 2 LITERS NS IF FATIGUE, ALTERED MENTAL STATUS, &/OR HYPOTENSION < 100 mmHg PERSISTS IF NO SIGNS OF PULMONARY EDEMA

**PEDIATRIC:** IV NS 20 mL/kg BOLUS IF NO SIGNS OF PULMONARY EDEMA
**PEDIATRIC:** REPEAT UP TO 60 mL/kg IF FATIGUE, ALTERED MENTAL STATUS, &/OR HYPOTENSION < (70 + 2x age in years) mmHg PERSISTS IF NO SIGNS OF PULMONARY EDEMA

## PARAMEDIC

**ADULT:** MEDICATION ASSISTED INTUBATION IF INDICATED

**ADULT:** MIDAZOLAM 0.1 mg/kg IM/IVP/IN/IOP TO MAX OF 5 mg FOR ACTIVE SEIZURE. MAY REPEAT X 1 IN 5 MINS IF STILL SEIZING.
**OR**
**ADULT:** DIAZEPAM 5 mg IVP/IOP or 10 mg IM FOR ACTIVE SEIZURE. MAY REPEAT X 1 IN 5 MINS IF STILL SEIZING.
**OR**
**ADULT:** LORAZEPAM 2 mg IVP/IOP/IM FOR ACTIVE SEIZURE. MAY REPEAT X 1 IN 10 MINS IF STILL SEIZING.

**PEDIATRIC:** MIDAZOLAM 0.1 mg/kg IM/IVP/IN/IOP TO MAX OF 5 mg FOR ACTIVE SEIZURE. MAY REPEAT X 1 IN 5 MINS IF STILL SEIZING.
**OR**
**PEDIATRIC:** DIAZEPAM 0.1 mg/kg TO MAX OF 5 mg IVP/IOP/IM FOR ACTIVE SEIZURE. MAY REPEAT X 1 IN 5 MINS IF STILL SEIZING.
**OR**
**PEDIATRIC:** LORAZEPAM 0.1 mg/kg TO MAX OF 2 mg IVP/IOP/IM FOR ACTIVE SEIZURE. MAY REPEAT X 1 IN 10 MINS IF STILL SEIZING.

OLMCP CONSULT IF SEIZURE CONTINUES DESPITE ABOVE TREATMENT

CONTINUOUS ASSESSMENT & TREATMENT PER APPLICABLE PROTOCOL(S)

**Protocol 11A: Heat Illness Adult & Pediatric (cont.)**

**Rapid Cooling for Heat Stroke**

## PURPOSE

Rapid, on-scene cooling is highly beneficial to survival from **environmental or exertional-induced heat stroke**. On-scene cooling is not intended for patients who have a non-environmental, non-exertional cause for elevated core temperature (such as fever from an infectious disease). The exact cooling method(s) chosen is often dependent upon scene location, available personnel, and available resources. The primary goal of rapid cooling for heat stroke is to provide **immersion cooling before transporting** to an emergency department. While on-scene cooling will involve extra minutes of care prior to transport, few if any destination hospitals have immersion cooling capabilities, particularly capabilities that can deployed as rapidly as within the EMS System for Metropolitan Oklahoma City and Tulsa. The extra time and effort in cooling before transporting can prove life-saving.

## PROCEDURE

In static settings, such as multi-hour fireground rehabs, and particularly in pre-planned static settings, such as summer outdoor football practices, cold water/ice bath immersion resources already on-scene should be identified and utilized.

For unplanned heat exposures leading to heat stroke, cold water deluge is the most practical application. As soon as potential heat stroke is identified, an emergency apparatus capable of establishing water supply from a fire hydrant should be dispatched. If a copious cold water supply or fire hydrant is not immediately available at the scene, it is acceptable to move the patient via ambulance to the nearest such copious cold water supply or fire hydrant to perform rapid cooling for heat stroke.

**Cold Water Deluge:**

1. Place the patient in a cooling bag.
2. Place a minimum estimated 5 gallons of iced water on patient while fire hydrant source is established (if available/applicable).
3. Deluge water over the patient's chest and lower body continuously while protecting the patient's airway.
4. Deluge water until patient temperature is less than 102.2°F (39°C) or, if continuous temperature monitoring is not available, until the patient demonstrates improvement in mental status.
5. Do not initiate deluge while the patient is in an ambulance or on an ambulance stretcher due to electronics.
6. Unless hypotensive or other immediate need, prioritize rapid cooling in the setting of heat stroke, over IV access and other invasive procedures.

**Protocol 11A: Heat Illness Adult & Pediatric (cont.)**

**Static Setting Cold Water/Ice Bath Immersion:**

1. Utilize a tub designed to manage weight of patient and water.
2. Fill tub with ice and water to a level that will cover the patient's chest.
3. Ice the water to reach a temperature near 50°F.
4. Utilize a tarp or similar device to lower and lift the patient.
5. Utilize a blanket roll or similar device looped under the axillae to keep the patient's head (airway) above water.
6. Agitate the water while patient is immersed.
7. Immerse until patient temperature is less than 102.2°F (39°C) or, if continuous temperature monitoring is not available, until the patient demonstrates improvement in mental status.
8. Unless hypotensive or other immediate need, prioritize immersion cooling in the setting of heat stroke, over IV access and other invasive procedures.

**ADDITIONAL CONSIDERATIONS**

- Cooling bags should have handles to facilitate movement and oscillation of the patient during deluge or immersion. Webbing or sewed-on handles are preferred over less sturdy options. Handles cut into the material of the bag are more prone to leaks and failure.
- Rectal thermometers designed for continuous monitoring (if available) should be placed as soon as possible, even if after cold water deluge or cold water/ice bath immersion has been initiated.
- Fire hydrant water temperature may range between approximately 50°F to 70°F depending on time of year. Fire hydrant water is preferred over fire apparatus tank water due to more predictable temperature range.