

# TEMPERATURE AND ENVIRONMENTAL EMERGENCIES

## UPDATED 1/2024

### ALL PROVIDERS / EMT

- ❑ Scene and patient management
  - Remove patient from hot or cold environment, when possible
  - Focused history and physical exam
  - Body temperature and blood glucose assessment.
  - Assess level of consciousness; apply the *Altered Mental Status Guideline* if applicable.
  - Assess for underlying causes; medications, toxins, CNS lesions or other medical conditions.
- ❑ Cardiac monitor, ETCO<sub>2</sub>, and pulse oximetry monitoring
- ❑ **Treatment Plan**
  - **Heat Related**
    - Temperature elevation **WITHOUT** altered mental status (**Heat Exhaustion**)
      - Slow cooling with ice packs, wet towels, and/or fans to areas near carotid, femoral, brachial arteries.
      - If the patient is alert and not nauseated, oral rehydration with water or balanced electrolyte solution.
      - Severe muscle cramps may be relieved by gentle stretching of the muscles.
    - Temperature elevation **WITH** altered mental status (**Heat Stroke**)
      - Aggressive cooling to unclothed patient utilizing fine mist water spray and fans in conjunction with ice packs to groin and axilla while maintaining modesty (NOT Recommended for children and infants)
      - Aggressive cooling should be stopped if shivering begins.
      - Monitor closely for dysrhythmia, recognize and treat with the appropriate **Cardiac Arrest or Cardiac Chest Pain Guideline**
    - Room temperature IV fluids should be administered for both heat exhaustion and heat stroke
    - Benzodiazepines may be used to control shivering
  - **Cold Related**
    - Protect patient from further heat loss (application of blankets, removal of wet clothing, warm environment, etc.).
    - Suspicion of cardiac arrest in cold environment, assess for 30-45 seconds to confirm pulselessness.
    - Measure body temperature and treat accordingly
      - **Severe: <86°F (30°C)**
        - Use active external rewarming (heated oxygen, warm packs to neck, armpits, groin, etc.)
        - Administer warm IV fluids
        - Cardiac arrest: Chest compressions and ventilations.
          - Limit defibrillation attempts to 3 and no external pacing.
          - The likelihood of successful defibrillation improves as the patient is warmed.
        - Pediatric cardiac arrest due to hypothermia (temperature <30 C/86 F):
          - Direct transport to Primary Children’s Medical Center and **do NOT rewarm** this patient.
        - Adult cardiac arrest due to hypothermia (temperature <30 C/86 F):
          - Direct transport to University of Utah Medical Center **or Intermountain Medical Center** and **do NOT rewarm** this patient.
        - Handle the patient gently during transport, rough movement may precipitate dysrhythmias.
      - **Moderate: 86-93°F (30-34°C)**
        - Use warm packs to neck, armpits, and groin
        - Warm IV fluids
      - **Mild: >93°F (34°C)**
        - Warm with blankets, warm environment, etc.
        - Frostbite precautions – Do not rub or use dry external heat. Re-warm with 40°C water if

- possible.
- Warm IV fluids

**Key Considerations**

- Avoid refreezing of cold extremities. If refreezing cannot be avoided during transport, do not start the thawing process.

ADULT

PEDIATRIC (<15 years of Age)

NOTE: Pediatric weight based dosing should not exceed Adult dosing.

**AEMT**

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- Advanced airway, vascular access and fluid therapy

**Heat Emergencies**

- Cool fluid therapy: 500 – 1000 cc NS or LR bolus

**Cold Emergencies**

- Warm fluid therapy: 500 – 1000 cc NS or LR bolus

- Advanced airway, vascular access and fluid therapy

**Heat Emergencies**

- Cool fluid therapy: 20 mL/kg NS or LR bolus

**Cold Emergencies**

- Warm fluid therapy: 20 mL/kg NS or LR bolus

**PARAMEDIC**

**PARAMEDIC**

- Cold emergencies**

- Withhold anti-arrhythmic meds until temperature >86°F (30°C)
- Warm fluid therapy: 500-1000cc NS or LR bolus

- Heat Emergencies**

- Cool fluid therapy: 500 – 1000 cc NS or LR bolus

- Benzodiazepines for shivering:**

- **Midazolam**
  - IN/IM/IV/IO – 5 mg, may repeat once in 5 minutes, if needed. Total max dose: 10mg
- **Diazepam**
  - IV/IO – 5 mg, may repeat every 5 minutes, if needed. Total max dose: 20mg
  - **Intramuscular (IM) – 10 mg,** may repeat once in 10 minutes, if needed. Total max dose: 20 mg (IM not preferred unless no other options)
- **Lorazepam**
  - IV/IO/IM – 1-2mg, may repeat every 5 minutes, if needed. Total max dose: 4mg

- Cold emergencies**

- Withhold anti-arrhythmic meds until temperature >86°F (30°C)
- Warm fluid therapy: 20mL/kg NS or LR bolus

- Heat Emergencies**

- Cool fluid therapy: 20mL/kg NS or LR bolus

- Benzodiazepines for shivering:**

- Midazolam**
  - IN/IM: 0.2 mg/kg (max 5 mg), may repeat once in 5 minutes, if needed. Total max dose: 10 mg
  - IV/IO - 0.1 mg/kg (max 5 mg), may repeat once in 5 minutes, if needed. Total max dose: 10 mg
- Diazepam**
  - IV/IO - 0.1 mg/kg (max 5 mg), may repeat every 5 minutes, if needed. Total max dose: 10 mg
  - **Intramuscular (IM): 0.2 mg/kg** (max 10 mg), may repeat every 10 minutes, if needed. Total max dose: 20 mg (IM not preferred unless no other options)
- Lorazepam**
  - IV/IO/IM – 0.1mg/kg (max 2 mg), may repeat every 5 minutes, if needed. Total max dose: 4 mg.