TEMPERATURE AND ENVIRONMENTAL EMERGENCIES

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, ETCO2, and pulse oximetry monitoring when available
- ❑ **Treatment Plan**
  - **Heat Related**
    - Temperature elevation **WITHOUT** altered mental status (**Heat Exhaustion**)
      - Slow cooling with ice packs, wet towels, and/or fans to areas in the vicinity of carotid, femoral, brachial arteries.
      - If 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 Patient Care Guideline***
    - Room temperature IV fluids should be administered for both heat exhaustion and heat stroke (AEMT and PM only)
    - Benzodiazepines may be used for shivering (AEMT and PM only)
  - **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 (AEMT/PM only)
        - ➢ Cardiac arrest: Chest compressions and ventilations. Limit defibrillation attempts to 3 and no external pacing. Likelihood of successful defibrillation improves as patient is warmed.
        - ➢ Pediatric cardiac arrest due to hypothermia (temperature <30 C/86 F): consider 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): consider direct transport to University of Utah Medical Center and **do NOT rewarm** this patient.
        - ➢ Handle the patient gently during transport because rough movement may precipitate dysrhythmias.
      - **Moderate: 86-93°F (30-34°C)**
        - ➢ Use warm packs to neck, armpits, and groin
        - ➢ Warm IV fluids (AEMT/PM only)
      - **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 (AEMT/PM only)

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

ADULT

AEMT

❑ Advanced airway, vascular access and fluid therapy

Heat Emergencies
- Cool fluid therapy: 500 – 1000 cc NS 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
- Warm fluid therapy: 500 – 1000 cc NS bolus

PARAMEDIC

❑ **Cold emergencies**
- Withhold anti-arrhythmic meds until temperature >86°F (30°C)

PEDIATRIC (<15 years of Age)
NOTE: Pediatric weight based dosing should not exceed Adult dosing.

AEMT

❑ Advanced airway, vascular access and fluid therapy

Heat Emergencies
- Cool fluid therapy: 20 ml/kg IV 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.

Cold Emergencies
- Warm fluid therapy: 20 cc/kg NS bolus

PARAMEDIC

❑ **Cold emergencies**
- Withhold anti-arrhythmic meds until temperature >86°F (30°C)