



# Jackson Hole Fire/EMS Operations Manual

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Hypothermia / Frostbite  
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## Hypothermia / Frostbite (Treatment Protocol)

### ALL PROVIDERS - MILD

#### Mild Signs:

- Tachycardia, hypertension, shivering, normal mental status
- Body still able to control temperature
- Core temp 32-35 C (90-95 F)
- Perform ABCs, secure the airway and administer warm humidified oxygen as indicated.
- Pulse oximetry is not accurate in cold extremities.
- **Stop heat loss.**
  - Remove patient from environmental exposures, shelter from wind and wet. Insulate from ground or snow.
  - Remove any wet clothing and undergarments. Dry the skin.
  - Insulate patient from cold with dry clothing or blankets.
- If patient has **frostbite**, and ambulation/travel is necessary for evacuation or safety, avoid warming of extremities until definitive treatment can be provided.
  - If warm water is not available, re-warm **frostbitten** parts by contact with other warm skin surfaces (no direct dry heat or fire). **Do not rub or cause physical trauma.**
  - If warm water is available, immerse frostbitten parts in circulating water at 102-104 F to thaw injury completely.
  - After immersion, cover injured parts with loose sterile dressing. Do not rupture blisters if present. **Do not allow any injury to re-freeze.**
  - Pain control as needed.
- Obtain rectal temperature if possible and check vitals Q 15 minutes.
- Allow patient to consume warm beverages containing glucose.
- Warmed blankets or heat packs may be placed on head, neck, axilla and groin areas. Place a thin barrier such as a towel between the heat source and the skin.
- Handle patient gently and monitor LOC frequently.
- **If LOC diminishes or re-warming is unsuccessful, go to severe hypothermia protocol.**
- **Transport ASAP.**

#### ADULT EMT-BASIC PROVIDER

- If altered mental status, check blood glucose.

#### PEDIATRIC EMT-BASIC PROVIDER

- If altered mental status, check blood glucose.

**EMT-INTERMEDIATE PROVIDER  
PARAMEDIC PROVIDER**

- Consider acquiring ETCO<sub>2</sub> waveform and numerical value. Treat accordingly
- If altered mental status, consider **Narcan**.
- Warmed IV fluids may be considered.
- Pain medications as needed during rewarming of frostbitten parts.

**EMT-INTERMEDIATE PROVIDER  
PARAMEDIC PROVIDER**

- Consider acquiring ETCO<sub>2</sub> waveform and numerical value. Treat accordingly
- If altered mental status, consider **Narcan**.
- Warmed IV fluids may be considered.
- Pain medications as needed during rewarming of frostbitten parts.

**ALL PROVIDERS - SEVERE****Severe Signs:**

- **Bradycardia, hypotension, loss of shivering, slowing of functions and**
- **Altered LOC**
- **Body unable to control temperature**
- **Core temp less than 32 C ( 90 F )**

- Establish unresponsiveness, perform **ABC's**. If any pulse is detected do not start CPR.
- Establish an airway and ventilate with 100% warm and humidified oxygen via bag valve mask before moving the patient. (Unless immediate danger exists).
- **Stop heat loss.**
- Handle patient gently, move to location protected from the elements and remove all wet or frozen clothing.
- Insulate patient from cold with dry clothing or blankets, avoid firm pressure points.
- Perform a secondary assessment, including **rectal temperature**.
- If cardiac arrest develops, prolonged resuscitation may be appropriate. Continue until rewarming can take place in the hospital setting. **Consult medical control**.
- **Note: If rectal temperature is below 86 degrees F, defibrillation and resuscitative drugs may not be effective.**

**ADULT  
EMT-BASIC PROVIDER**

- Obtain a blood glucose level.

**PEDIATRIC  
EMT-BASIC PROVIDER**

- Obtain a blood glucose level.

**EMT-INTERMEDIATE PROVIDER  
PARAMEDIC PROVIDER**

- Apply cardiac monitor
- Consider acquiring ETCO<sub>2</sub> waveform and numerical value. Treat accordingly
- Establish IV. Consider 250-500mL warmed IV fluid bolus, then 125mL/hr or as advised by medical control.
- If LOC remains diminished, administer **Narcan**. If blood glucose is less than 60, administer **Dextrose 10%**. Repeat as indicated.

**EMT-INTERMEDIATE PROVIDER  
PARAMEDIC PROVIDER**

- Apply cardiac monitor.
- Consider acquiring ETCO<sub>2</sub> waveform and numerical value. Treat accordingly
- Establish IV. Consider 20 mL/kg warmed IV fluid bolus, then weight based maintenance fluid or as advised by medical control.
- If LOC remains diminished, administer **Narcan**. If blood glucose is less than 60, administer **Dextrose 10%**. Repeat as indicated.

### Special Considerations:

- Once rewarming has begun, observe for 'after drop' or brief period of continued deterioration before improvement occurs. When re-warming, warm the trunk first. Warming the extremities causes dilation of peripheral blood vessels. This circulates cold blood to the core, making core temperature cooler.
- The central nervous system is the most sensitive to hypothermia. Patient has progressive decline in mental ability from incoordination, confusion, lethargy to coma.
- Hypothermia patients may still be alive and have un-reactive pupils, minimal respirations, bradycardia and hypotension. **This warrants careful assessment of vitals.** Palpate and listen for 2 minutes when checking vitals.
- Cold irritates the heart muscle. Hypothermic patients often have a slow heart rate or arrhythmias which usually resolve with warming. They are also susceptible to ventricular fibrillation if handled roughly.