



Jackson Hole Fire/EMS Operations Manual

Approved by: Will Smith, MD, Medical Director

Approved by: Brady Hansen, Chief

Title: **Treatment Protocol:
Hypothermia / Frostbite**

Division: 17
Article: 4.25
Revised: November 2019
Pages: 3

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 ETCO2 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 ETCO2 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 re-warming 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 ETCO2 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 ETCO2 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.