**CAP health & wellness** HSO Briefing: HYPOTHERMIA

**Purpose:** To inform CAP ES personnel about health risks associated with adverse weather, preparation for outdoor activities, and appropriate care of casualties that develop hypothermia.

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| (U) **Bottom Line:**   * Risk to populations**: very low** **| low** | **moderate** | **high** * **Hypothermia is a condition that can affect people from the tropics to the arctic.** * **Enthusiasts of the Great Indoors: Related to injury, alcohol or drug use, or underlying medical or mental health issues.** * **Enthusiasts of the Great Outdoors: Can be related to injury, inadequate preparation for activities complicated by adverse weather, delay in travel, or accidental immersion.** |

**Source: Wilderness Medical Society Practice Guidelines**

**Overview:**

What is hypothermia?

Normal body temperature is between 98.0 and 99.0 F (37 C), with a mean of about 98.6 F

* Mild hypothermia: Core temperature 95 F (35 C)
* Moderate hypothermia: Core temperature 89.6 F (32 C)
* Severe hypothermia: Core temperature less than 82.4 F (28 C)

Temperature is difficult to measure in the field, as core temperature is usually measured rectally. Oral measurements and ear and skin thermometers are inadequate and unsuitable for use in the field. Conventional mercury thermometers do not register abnormally low temperatures.

## **Ways we lose heat:**

* Evaporation: The loss of heat by vaporizing liquid – usually water – from the skin or clothing. Example: sweating.
* Radiation: Transfer of heat in the form of electromagnetic energy between two objects. Example: warming hands near a fire.
* Conduction: The direct transfer of heat from warmer to cooler objects in direct contact. Example: Sitting on a concrete step. Feels cold, doesn’t it. Seems warmer after our body heat warms it.
* Convection: The transfer of heat to or from a gas or liquid that is in motion. Example: Sitting in front of a fan.

**Dress for success:**

* Dress in layers:
  + Allows removal of clothing when body heats with exertion.
  + This is difficult while wearing a heavy insulated parka
* Wicking layer next to the skin
  + Avoid “rotten cotton” – the cloth of death. Does not insulate when wet and does not wick moisture.
  + Polypropylene and similar fabrics are preferable.
* Insulating layer
  + Fleece or wool garments insulate when wet.
  + Can use multiple layers as needed.
* Wind and water-resistant layer
  + Gortex or similar fabric breathes and allows passage of water vapor.
* Wear gloves and a hat to prevent heat loss. Protect the back of the neck.
* Keep your feet dry and have spare dry socks.

In regions with cold and snowy winters, locals have learned to thrive in that climate and know how to dress for the weather. Hypothermia is more likely to affect those:

* Who are involved in an accident
* Whose vehicle becomes stuck or stalled
* Who are impaired by alcohol, drugs, or other medical issues

In more temperate climates, hypothermia is more likely the result of misadventure, such as going hiking without checking the weather on a Spring weekend and becoming lost or delayed by an injury complicated by a sudden rainstorm. Prolonged exposure to wet conditions, even with temperatures in the 60 – 70 F degree range can also cause hypothermia when clothing becomes wet. Several factors predispose towards hypothermia:

* Poor planning
* Sudden adverse weather
* Inadequate preparation

**Recognizing hypothermia**

* Mental Status:
  + Normal mental status: not hypothermic
  + Able to care for themselves: Mild hypothermia
  + Conscious but disoriented: Moderate hypothermia
  + Not shivering and Unconscious: Severe hypothermia
* Shivering
* Pulse and Breathing: check vital signs for one full minute, recognizing difficulty taking a pulse with cold fingers.

**Recommendations*:***

**Treatment of Hypothermia:**

* Protect patient from further exposure
  + Get them under shelter or in a sleeping bag
  + Wind and water-resistant layer
  + Insulate from cold ground with sleeping bag or pad
* Keep them horizontal
  + Don’t let them walk
  + Avoid cardiovascular collapse with dilation of peripheral blood vessels
* Remove wet clothing if shelter available
  + Cut them off rather than removing normally
  + Less stressful for patient
  + Requires less movement of patient
* Active external rewarming
  + Use large heat packs on chest and back
  + Smaller heat packs in armpits
  + Body to body contact is very effective
  + Do not use small chemical heat packs as they may cause burns
  + DO NOT put hypothermic patient in a water bath or shower to rewarm
  + Can cause cardiovascular collapse by peripheral dilation of blood vessels.
* Warm liquids and food
  + High carbohydrate preferred
  + Only if conscious and able to swallow
* Transport patient on a litter
  + Handle VERY gently
  + Keep patient horizontal as much as possible
  + Helps avoid development of a lethal heart arrhythmia like ventricular fibrillation
* “They ain’t dead ‘til they’re warm and dead!”
  + CPR and artificial ventilation are appropriate
  + It is safe to interrupt CPR for transportation
    - One minute of CPR
    - One minute of movement
  + Conventional ACLS interventions; defibrillation and medications are not indicated until the patient is warmed.

Hypothermia Prevention and Management Kits were developed by the military and are commercially available for patient care and treatment when faced with difficult weather in the field.

* Compact and self-contained
* Generate heat
* Integral wind and water barrier

**Questions**: **Contact your Region/Wing/Unit Health Services Officer or**

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