CMC TCCC

COMBAT MEDIC/ CORPSMAN

DHA Defense Health Agency JOINT TRAUMA SYSTEM

TACTICAL COMBAT CASUALTY CARE COURSE

MODULE 12: HYPOTHERMIA PREVENTION AND TREATMENT

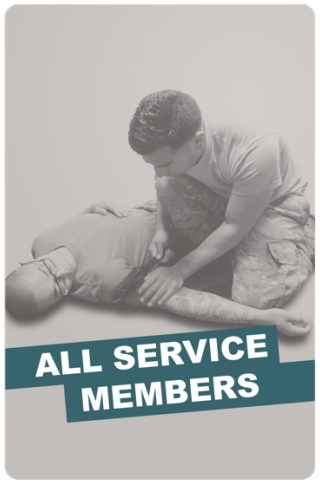
Committee on Tactical Combat Casualty Care (CoTCCC)

TCCC TIER 1	TCCC TIER 2	TCCC TIER 3	TCCC TIER 4
All Service Members	Combat Lifesaver	Combat Medic/Corpsman	Combat Paramedic/Provider

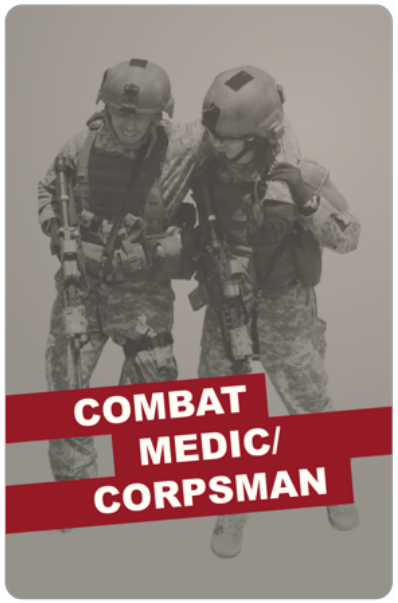
TACTICAL COMBAT CASUALTY CARE (TCCC) ROLE-BASED TRAINING SPECTRUM

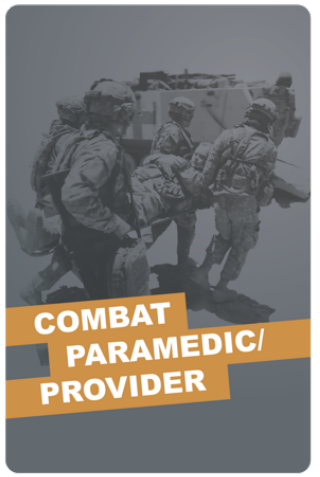
ROLE 1 CARE

NONMEDICAL PERSONNEL



MEDICAL PERSONNEL





◀ YOU ARE HERE

STANDARDIZED JOINT CURRICULUM

1 x TERMINAL LEARNING OBJECTIVES

15 **Given a combat or noncombat scenario, perform hypothermia prevention measures on a trauma casualty during Tactical Field Care and Tactical Evacuation Care in accordance with CoTCCC Guidelines.**

- **15.1** Identify the indications, progressive strategies, and limitations of active hypothermia prevention of a trauma casualty in Tactical Field Care
- **15.2** Identify passive hypothermia prevention measures on a trauma casualty (CLS T12:E67).
- **15.3** Demonstrate active and passive external warming hypothermia prevention and treatment measures on a trauma casualty.

03 x ENABLING LEARNING OBJECTIVES

= **Terminal Learning Objectives** ● = Cognitive ELOs ▨ = Performance ELOs

MARCH PAWS

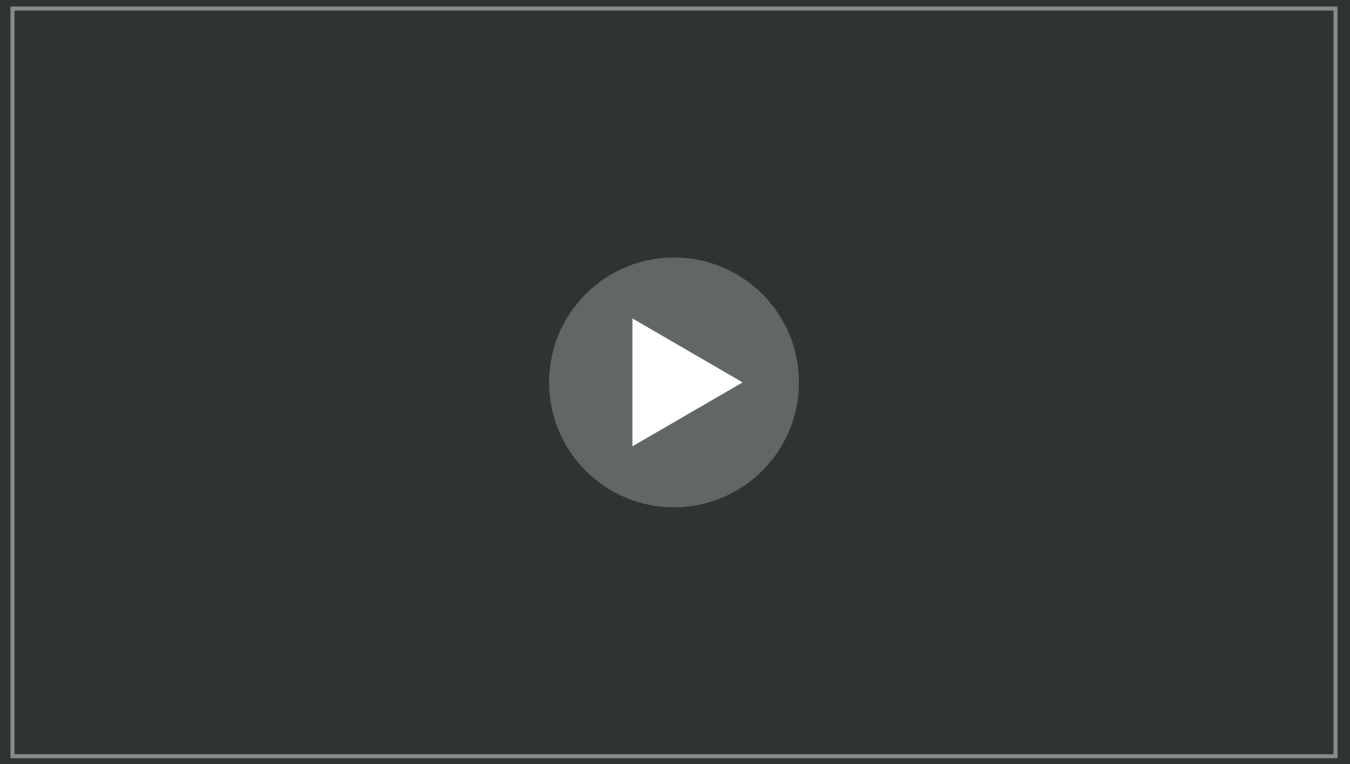
LIFE-THREATENING

- **M** MASSIVE BLEEDING — #1 Priority
- **A** AIRWAY
- **R** RESPIRATION *(Breathing)*
- **C** CIRCULATION
- **H** HYPOTHERMIA / HEAD INJURIES

AFTER LIFE-THREATENING

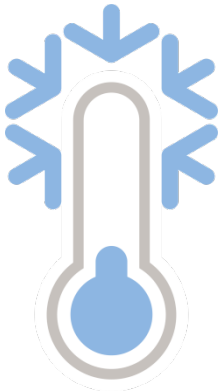
- **P** PAIN
- **A** ANTIBIOTICS
- **W** WOUNDS
- **S** SPLINTING

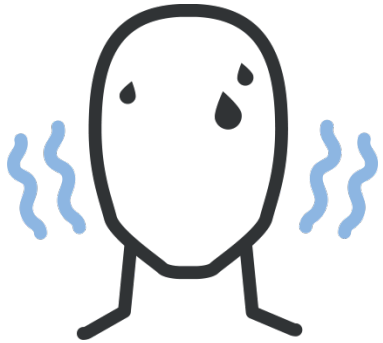
HYPOTHERMIA PREVENTION VIDEO



Video can be found on deployedmedicine.com

HYPOTHERMIA





- Hypothermia is a decrease in core body temperature
- This can result from exposure to cold air, water in the environment, or casualty being placed on cold/damp ground
- In trauma, hypothermia can result from impaired body thermoregulation due to bleeding and shock
- Even a small decrease in core body temperature (below 36 degrees C or 96.8 degrees F) can increase mortality in trauma and burn casualties
- The vicious cycle of acidosis, hypothermia and coagulation (lethal triad), requires prevention management strategies at each level

IMPORTANT CONSIDERATIONS:
Hypothermia is a potential concern in trauma even when operating in warm environments

MARCH

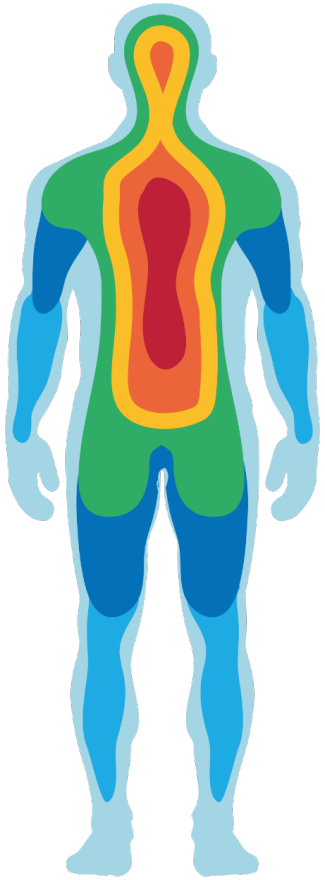
HYPOTHERMIA
SIGNS AND SYMPTOMS

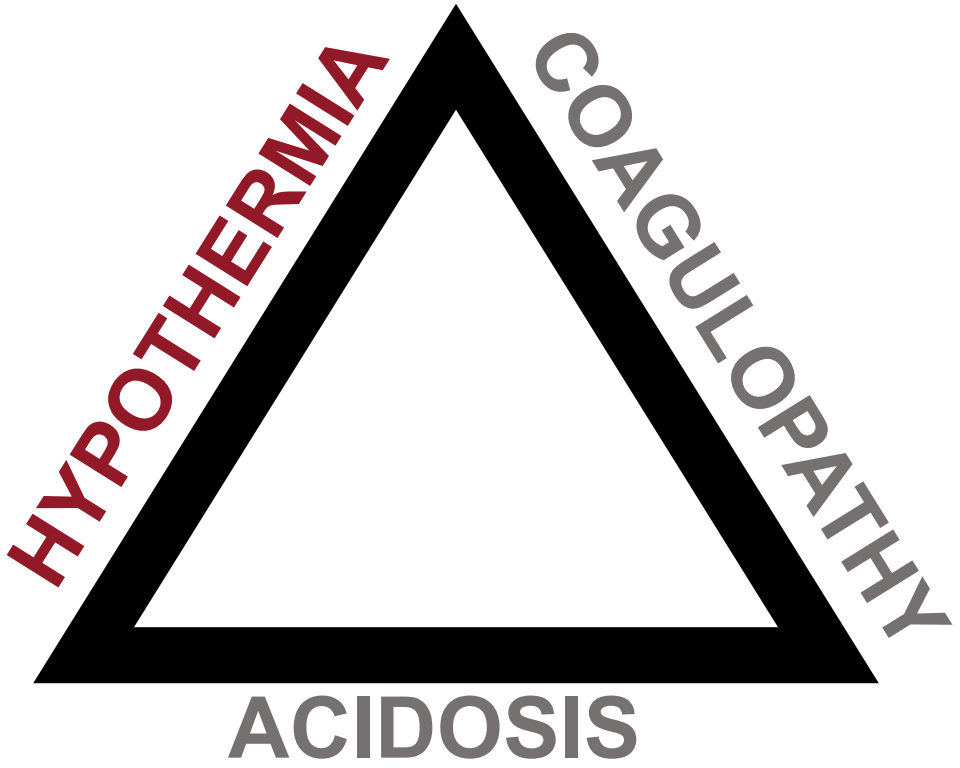
- Maintain a high index of suspicion when operating in cold, wet, windy environment
- **SHIVERING** in mild hypothermia
- **CONFUSION**, **DISORIENTATION**, **SLURRED SPEECH**
- **BREATHING SLOWS** with **DECREASED RESPIRATORY DRIVE** in moderate to severe hypothermia

⚠ **ALL** trauma casualties in shock or at risk of shock are at risk for trauma-induced hypothermia even when operating in warm environment

MARCH

TRAUMA'S
LETHAL TRIAD





- **Environmental** factors
- **Physiologic response** to **BLOOD LOSS**
- **Clotting factor dysfunction** from hypothermia
- Casualties with **BURNS** are also at **increased risk** of hypothermia

M A R C H

ACTIVE HYPOTHERMIA
PROGRESSIVE STRATEGIES

- Take early/aggressive steps to prevent further body heat loss
- Add external heat when possible, for both trauma and severely burned casualties
- Minimize the casualty's exposure to the elements
- Replace wet clothing with dry, if possible

⚠ It is much easier to **prevent** hypothermia than to treat it

M A R C H

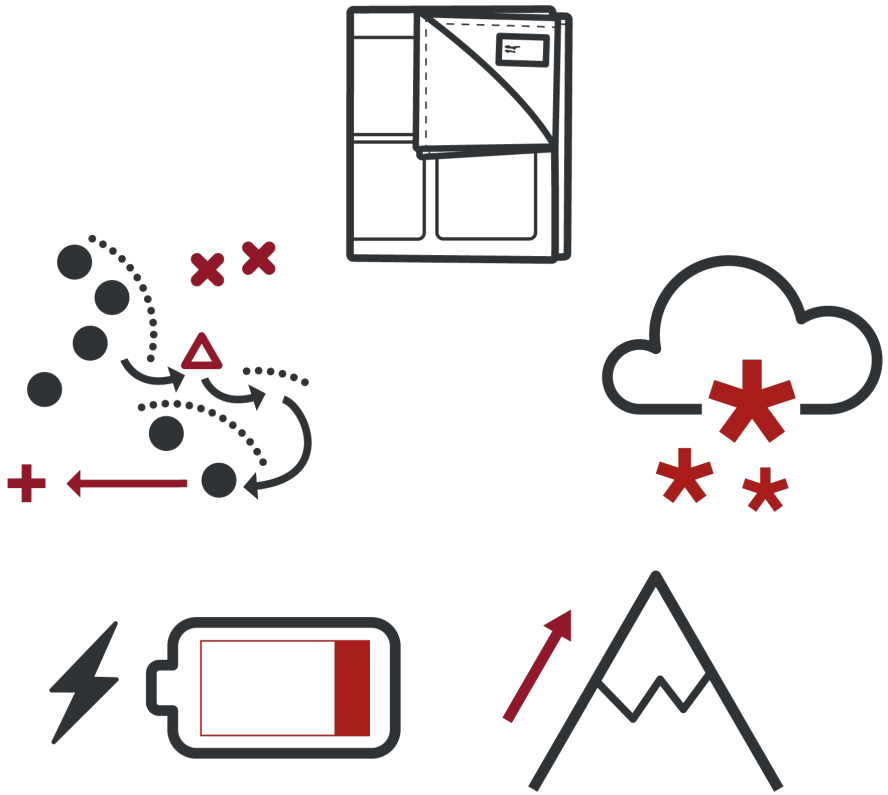
HYPOTHERMIA INDICATIONS

- **Moderate to severe trauma**
- **Central nervous system trauma**
- **Burn patients >33% TBSA with second - or third- degree burns**
- **Altered level of consciousness/unresponsive**
- **Inability to shiver**
- **Hypothermic** patients with core temperature <28°C (82.4°F)

ALL trauma casualties in shock or at risk of shock are at risk for trauma-induced hypothermia even when operating in warm environment

MARCH

ACTIVE HYPOTHERMIA LIMITATIONS



Possible active hypothermia limitations may include:

- Service specific mission and load out
- Limitation of active rewarming devices
- Cold Weather
- Altitude (if oxygen/chemical driven)
- Loss of power to battery powered IV fluid warming device(s)

MARCH

HYPOTHERMIA PREVENTION

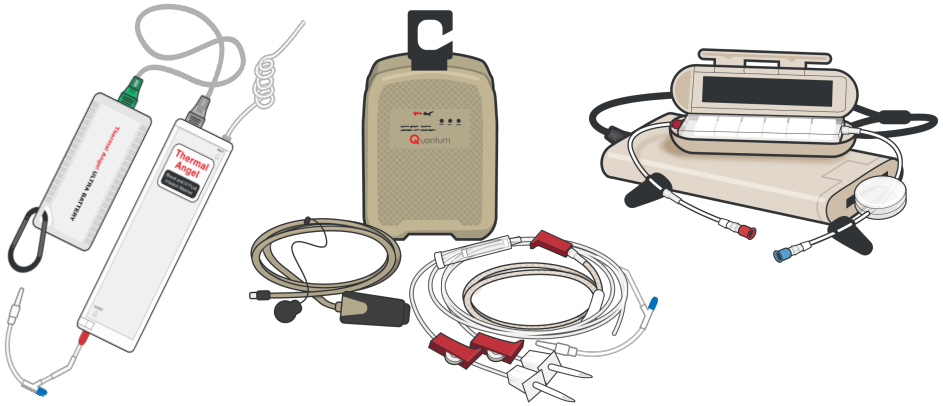
- Prevent additional body heat loss
- Minimize the casualty's exposure to the elements
- Keep protective gear and dry clothing on/with the casualty if feasible
- Place active heating blanket on casualty's anterior, torso, head, and axillae
- Enclose the casualty in the exterior impermeable enclosure bag
- Upgrade hypothermia enclosure system to a well insulated enclosure system

⚠ It is much easier to **prevent** hypothermia than to treat it

MARCH

ACTIVE HYPOTHERMIA MANAGEMENT

CAUTION: Do not apply active warming blanket directly to bare skin to prevent burns



- **In addition to aggressive steps taken early to prevent further loss of body heat, when possible, trauma and severely burned casualties should be actively warmed**
- **ACTIVE** hypothermia treatment uses external heating sources to warm the casualty
- If commercial hypothermia kit is not available, improvised vapor barrier can be utilized
- As a mission planning factor, an insulated hypothermia enclosure system with external active heating should be pre-staged

Use battery powered IV warming devices:

- Flow rate up to 150 ml/min
- 38°C output temperature

MARCH

PASSIVE HYPOTHERMIA MANAGEMENT

- Passive hypothermia management **does not** reverse the hypothermic process, due to significant blood loss
- If an active warming device is not available, wrap passive warming materials under and around the casualty
- Enclose casualty in vapor barrier to retain heat and keep dry/insulated
- Upgrade as additional materials become available

KEY POINTS

- Blood loss can cause a significant drop in body temperature, even in hot weather
- Wrap the entire blanket-like shell (or passive heating materials) completely around the casualty, including the head
- Do not cover the face
- Keep the casualty off the ground

MARCH

SKILL STATION

Hypothermia (skill)

- Active / passive hypothermia prevention and management

SUMMARY

- Hypothermia is decreased core body temperature secondary to external environmental factors and/or hemorrhage and shock
- Hypothermia in trauma patients is an independent predictor of mortality
- Hypothermia is a consideration even in hot operational environments as hemorrhage and shock can cause significant hypothermia in trauma casualty
- Active hypothermia management/prevention is preferred, when available, and involves external heating of the casualty
- Passive hypothermia management/prevention can be used when active warming is not available. It **DOES NOT** reverse the hypothermic process
- Hypothermia is easier to prevent than it is to treat

MARCH

CHECK ON LEARNING

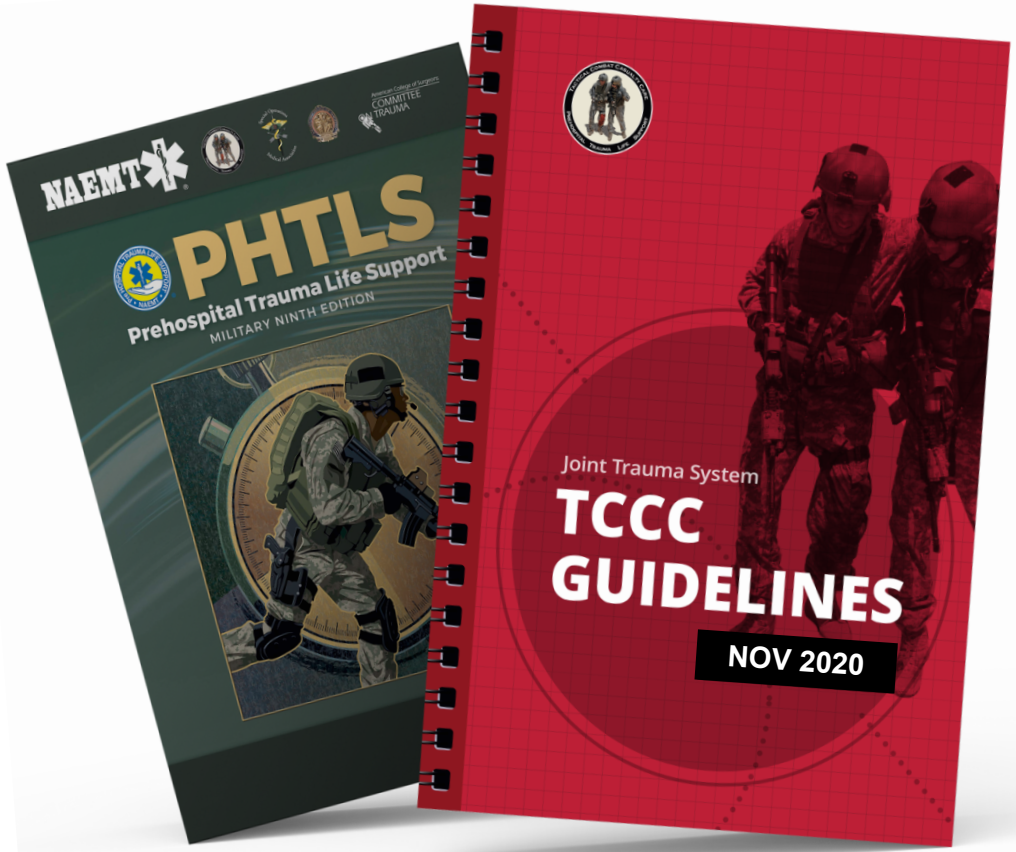
Why is it important to prevent/manage hypothermia in a trauma casualty?

True or False? Hypothermia is not an issue in hot operational environments?

What is the difference between active and passive hypothermia management?

ANY QUESTIONS?

REFERENCES



TCCC: Guidelines

by JTS/CoTCCC

Updated regularly – latest edition dated 5 November 2020

These guidelines are the result of decisions made by the Committee on Tactical Combat Casualty Care as they explore evidence-based research regarding best practices

PHTLS: Military Edition

by NAEMT

Prehospital Trauma Life Support, Military Ninth Edition