LAUREN SNYDER, DO FACEP FAWM



THERMAL WHIPLASH

Hypothermia & Hyperthermia

LAUREN SNYDER, DO FACEP FAWM



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OUTLINE

- Introduction
  - Basics of heat transfer
  - Definitions
- Hypothermia
  - Pathophysiology
  - Classifications
  - Field treatment
  - Resuscitation considerations
- Hyperthermia
  - Spectrum of heat illness
  - Pathophysiology
  - Prevention
  - Field Treatment



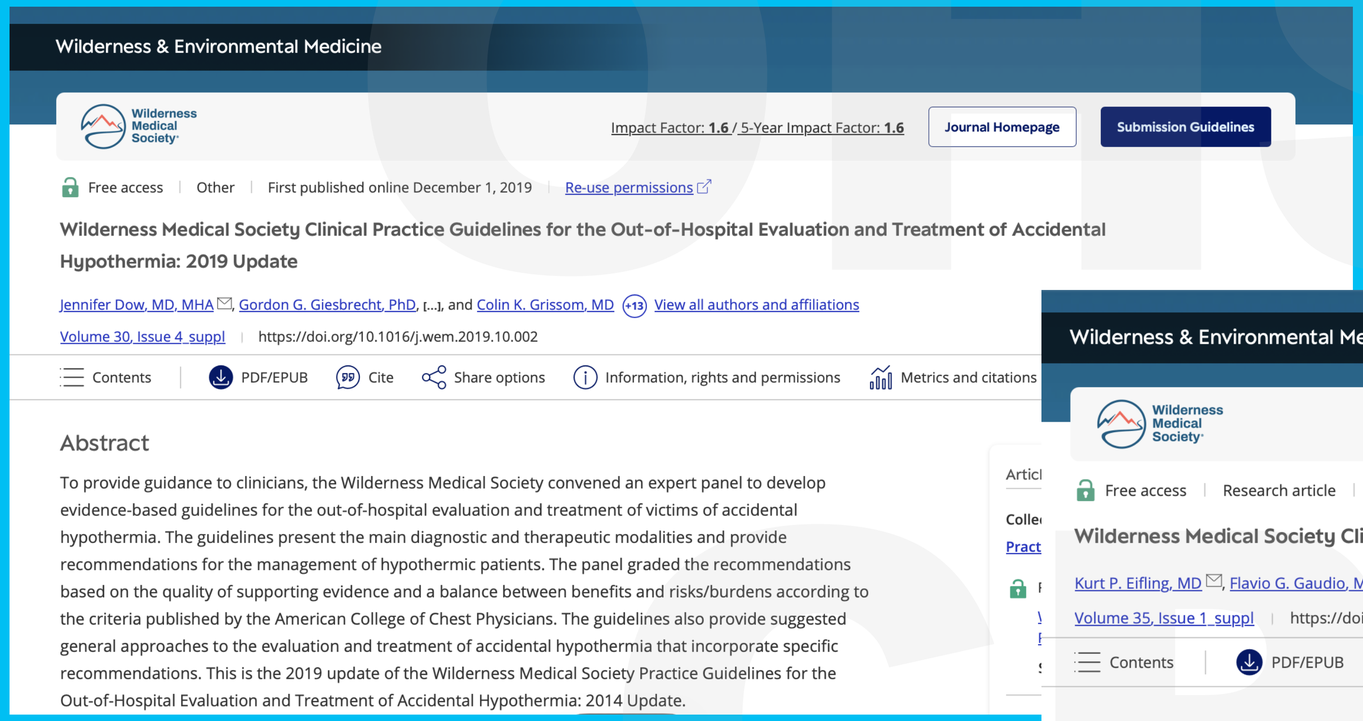
- **Emergency Medicine Residency,**
  Baystate Medical Center (Springfield, MA)
- **Wilderness Medicine Fellowship,**
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- **Fellow of the Academy of Wilderness Medicine (FAWM),**
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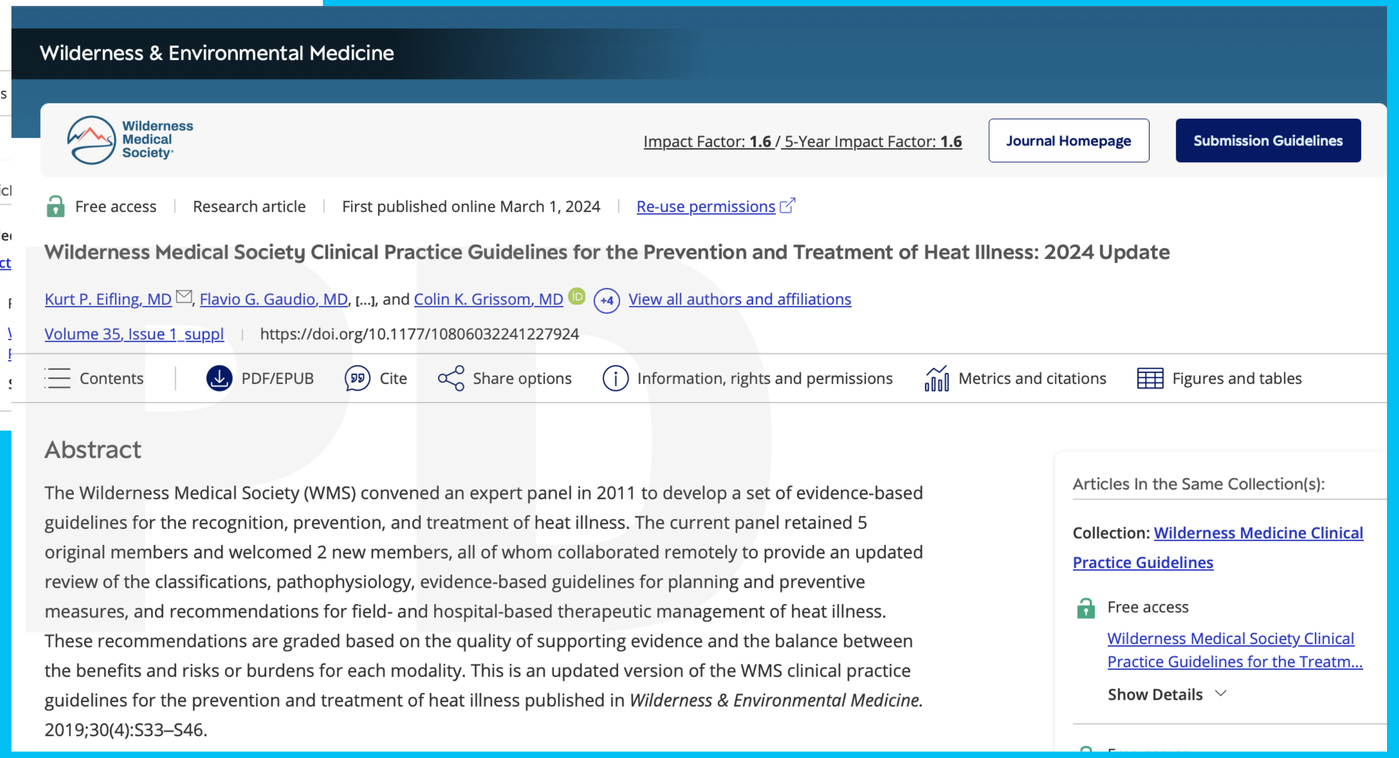



Emergency
EMERGENCY ENTRANCE
No visitors in the building!
WE'RE ALL IN THIS TOGETHER
Multnomah County EMS
Paramedic Unit
AMR
American Medical Response
AMBULANCE

WILDERNESS MEDICAL SOCIETY

Clinical Practice Guidelines





Wilderness Medical Society Clinical Practice Guidelines & Summaries

2026 Guidelines are here!

The Wilderness Medical Society Clinical Practice Guidelines are written in a scientific style and formatted for peer-reviewed medical journals. Wilderness Medicine Magazine *has developed practical, condensed summaries that can be easily accessed and referred to by the wider audience of wilderness medicine providers and enthusiasts. A link to the full guidelines available on wemjournal.org appears next to the summaries.*

-Nancy Pietroski, PharmD, NR-EMT, FAWM, CTH, Executive Editor, Wilderness Medicine Magazine

Accidental Hypothermia
Summary | Guideline



Acute Altitude Illness
Summary | Guideline



Acute Pain
Summary | Guideline



Anaphylaxis
Summary | Guideline



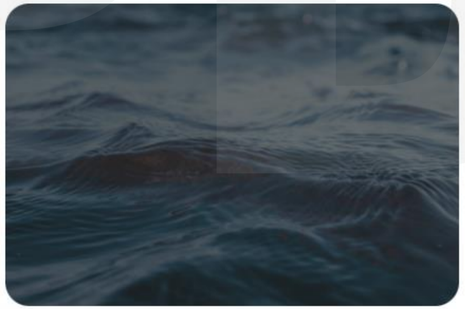
Basic Wound Management
Summary | Guideline



Burn Care
Summary | Guideline



Drowning
Summary | Guideline



Diabetes Management
Summary | Guideline



DEFINITIONS

- **Normal core body temperature: 37°C / 98.6°F**
- **Hypothermia: net heat loss**
  - **Accidental hypothermia: unintentional drop in core temperature to 35°C or lower**
- **Hyperthermia: increase in core temperature above the normal physiologic setpoint, generally accepted value of > 40 °C**

OHSU
CPD

HEAT EXCHANGE

- **Conduction: direct transfer of heat from warmer to cooler objects that are in contact**
- **Convection: transfer of heat to/from a gas/liquid that's in motion**
- **Radiation: transfer of heat in the form of electromagnetic energy between 2 objects that are visible to each other**
- **Evaporation: loss of heat by vaporizing liquid (usually water from sweat or external sources) from the skin, clothing that is in contact with the skin, or respiration**

OHSU CPD


Radiation
Convection
EVAPORATION
Conduction

SPECTRUM OF CONDITIONS



- **Hypothermia**
  - **Frostbite**
  - **Frostnip**
  - **Trench/immersion foot**
- **Hyperthermia**
  - **Heat edema/cramps**
  - **Heat syncope**
  - **Heat exhaustion**
  - **Heat stroke**