

Wilderness Medicine Update: 2020

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Wilderness Risk Management Conference

October 23, 2020

Welcome to 2020



Credit: [youtube.com/watch?v=nfLGQoyA67c](https://www.youtube.com/watch?v=nfLGQoyA67c)

Welcome to 2020



#covidsilverlining

Unified Definition

“Medical care delivered in those areas where fixed or transient geographic challenges reduce availability of, or alter requirements for, medical or patient movement resources.”

Auerbach's Wilderness Medicine, 7e, 2017

Wilderness EMS, 1e, 2018

EMS Clinical Practice & Systems Oversight, 3e, 2021

Evidence-Based Practice



Wilderness Medical Society Clinical Practice Guidelines



wms.org/research/guidelines



WILDERNESS MEDICINE MAGAZINE

MAGAZINE CONTENTS

ARCHIVES

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**SUMMARIES OF THE WILDERNESS MEDICAL SOCIETY
CLINICAL PRACTICE GUIDELINES**

wms.org/magazine/1191/WMS_Clinical_Practice_Guidelines

Wilderness Medical Society Clinical Practice Guidelines: 2019 Updates

- Acute Altitude Illness
- Frostbite
- Heat Illness
- Hyponatremia
- Hypothermia
- Drowning
- Spinal Cord Protection
- **Water Disinfection**
- **Diabetes**

Water Treatment

Since micro-organisms that cause diarrhea are killed within seconds by boiling water, and rapidly at temperatures $>60^{\circ}\text{C}$ (140°F), the traditional advice to boil water for 10 min to ensure potable water is excessive. Any water brought to a rapid boil should be adequately disinfected. Boiling for 1 min is recommended by the US Centers for Disease Control and Prevention (CDC) to account for user variability in identifying boiling points and adds a margin of safety. The boiling point decreases with increasing altitude, but this is not significant compared with the time required for thermal death at these temperatures. Although attaining boiling temperature is not necessary to kill microorganisms, boiling is the only easily recognizable endpoint without using a thermometer.

wms.org/magazine/1254/2020water_cpg

Diabetes

- Technologies

- Continuous Glucose Monitoring
- Hybrid closed loop insulin delivery systems

[wemjournal.org/article/S1080-6032\(19\)30174-7/fulltext](http://wemjournal.org/article/S1080-6032(19)30174-7/fulltext)

- Screening

- Medical kit preparation
- Medical exams

Routine pre-participation ECG screening of wilderness athletes with diabetes is not recommended (**Evidence grade: 2C**).

Routine exercise ECG to screen for coronary artery disease in asymptomatic wilderness athletes with diabetes is not recommended (**Evidence grade: 1B**).

All individuals with diabetes planning high altitude travel should be up to date on yearly dilated funduscopy. If any degree of retinopathy is present, ophthalmologic risks of wilderness travel should be discussed (**Evidence grade: 1C**).

Exercise-Associated Hyponatremia

Table 2. Prevention Strategies to Mitigate Exercise-Associated Hyponatremia

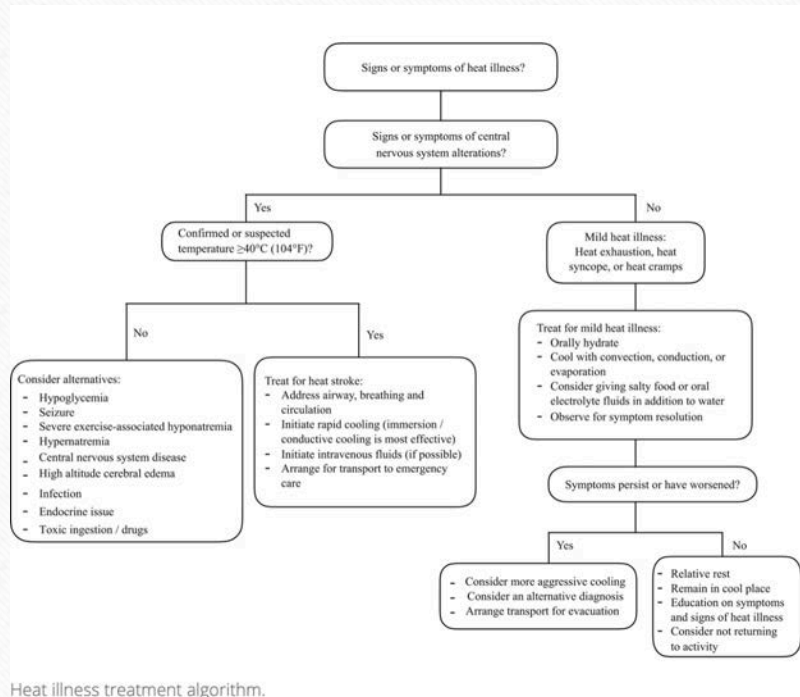
Participants should drink according to the dictates of thirst.

Endurance athletes should get an estimation of their individual fluid needs during prolonged exercise by assessing body weight losses per hour. These body weight losses generally represent fluid loss.

Reduce the availability of fluids among the event routes to prevent overhydration.

Sodium and/or salty snacks should be freely available for consumption along with the appropriate fluid intake, particularly in long hot events, where persons not used to heat and humidity (non-heat acclimatized) may be participating. **NOTE:** this strategy will *not* prevent EAH when combined with overdrinking

Heat Illness



- “The distinction between heat exhaustion and heat stroke is critical.”

- [wms.org/magazine/1251/2019heat_cpg](https://www.wms.org/magazine/1251/2019heat_cpg)

HEAT EXHAUSTION	OR	HEAT STROKE
Faint or dizzy		Throbbing headache
Excessive sweating		No sweating
Cool, pale, clammy skin		Body temperature above 103° Red, hot, dry skin
Nausea or vomiting		Nausea or vomiting
Rapid, weak pulse		Rapid, strong pulse
Muscle cramps		May lose consciousness

- Get to a cooler, air conditioned place
- Drink water if fully conscious
- Take a cool shower or use cold compresses

CALL 9-1-1

- Take immediate action to cool the person until help arrives



An Evidence-Based Guide to Heat Stress

Heat Exhaustion

Consider activity, environment, clothing and predisposing factors.

Nausea
Fatigue
Dizziness
Weakness
Rapid Pulse

Seek Shade
Drink Cool Fluids
Rest

Heat Stroke

Seizures
Agitation
Confusion
Slurred Speech
Loss of Consciousness

Immerse or Douse in Cold Water
Call 911



Only some of these signs/symptoms may be present
Altered Mental Status is the cardinal sign of Heat Stroke.
The presence or absence of sweat on skin is irrelevant
CWI (Cold Water Immersion) is standard of care for Heat Stroke.

@downtofifer
@hawkvox
@TodSchimelpfenig
@timd4321



RAWMedicine.org
@rawmedic

Altitude

Ibuprofen: Ibuprofen cannot be recommended over acetazolamide or dexamethasone for AMS prevention during rapid ascent (Table 2).

Other Options: The following interventions have not been shown to be of benefit: chewed coca leaves, coca tea and other coca-derived products; “forced” or “over” hydration; short-term oxygen use in the form of either visits to oxygen bars or over-the-counter oxygen delivery systems by which individuals inhale oxygen-enriched gas from a small pre-filled canister; other over-the-counter products, such as the powdered drink mixes.

wms.org/magazine/1252/2019altitude_cpg



Drowning Thresholds

- 6°C (43°F)
- 30 minutes if warm water
- 90 minutes if cold water
- 25 minutes of CPR

Spinal Cord Protection: SI to SMR to SCP



or in its absence, by soft, supportive padding around the patient's head and neck. Rigid cervical collars are not a required component of patient care in a WEMS operation even in the case of suspected spinal injuries. Not only are rigid cervical collars not useful for general WEMS operations, the lack of utility for cervical collars has also been shown for teams in specific WEMS environments, such as ski patrols.³⁵ For a more

Wilderness EMS, 2018;21:381

WMS 2019 Clinical Practice Guidelines

Recommendation

Patients requiring extrication should be encouraged to reduce movement of the neck, especially painful movement, and allowed to exit the situation under their own volition if alert and reliable. If injuries or other circumstances such as unconsciousness prevent controlled self-extrication, patients' cervical spines should be packaged to reduce passive motion and the airway adequately managed without a goal of absolute immobilization. There is no requisite role for commercially made or improvised rigid cervical collars in an out-of-hospital environment **(Evidence grade: 1C)**.

[wemjournal.org/article/S1080-6032\(19\)30151-6/fulltext](http://wemjournal.org/article/S1080-6032(19)30151-6/fulltext)

WMS 2019 Clinical Practice Guidelines

Recommendation

Vacuum mattress ([Figure 2](#)) provides superior motion restriction and improved patient comfort (with corresponding decreased risk of pressure sores) and is preferred over a backboard for motion restriction of either the entire spine or specific segments of concern. Backboards and other rigid carrying devices may be used for temporary patient movement if needed but should not be applied as a medical tool with an immobilization goal (**Evidence grade: 1C**).

[wemjournal.org/article/S1080-6032\(19\)30151-6/fulltext](http://wemjournal.org/article/S1080-6032(19)30151-6/fulltext)



[wemjournal.org/article/S1080-6032\(19\)30151-6/fulltext](http://wemjournal.org/article/S1080-6032(19)30151-6/fulltext)

Epinephrine





SYMJEPI™ (epinephrine) Injection
THE DEVICE FOR
ALLERGIC EMERGENCIES
THAT FITS YOUR LIFE

SYMJEPI keeps the confidence to handle allergic emergencies close at hand, wherever you are

SYMJEPI contains the same medicine as in the most widely used epinephrine auto-injectors (EAI), and it is packaged in a compact, easy-to-carry, and ready-to-use device.*

*SYMJEPI is not an EAI.

1 | Ready



When ready to use SYMJEPi, pull cap off to expose needle.

To ensure no accidental epinephrine leakage, do not touch the plunger until the needle is fully inserted.

2 | Steady



Holding by the finger grips, slowly insert the needle into the thigh. SYMJEPi can be injected through clothing if necessary.

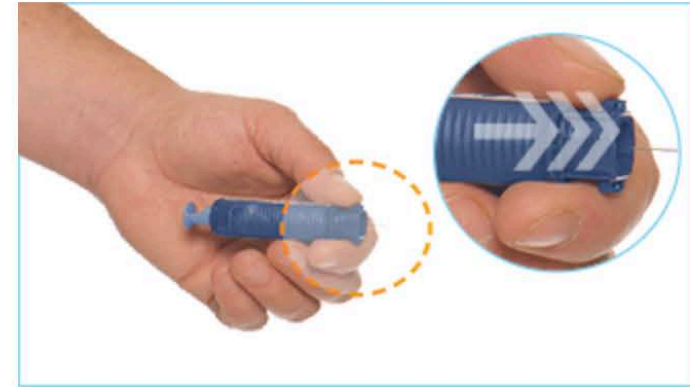
3 | Go



After needle is in the thigh, push the plunger all the way down until it clicks. Hold for 2 seconds. Remove needle and massage the area for 10 seconds.

The correct dose has been injected if the plunger has been pushed all the way down and the solution window is at least partially blocked.

4 | Protect



Once the injection has been administered, using one hand with your fingers behind the needle, slide the safety guard up until it clicks to cover the needle.

IMPORTANT NOTE: SYMJEPI should ONLY be injected into the middle of the outer thigh. Do not inject into the vein, buttocks, fingers, toes, hands, or feet.

Epinephrine Sourcing



Source: EpiPen

Stress Injuries & Psychological First Aid

Overwhelmed, Alone, Helpless

1. Safety
2. Calm
3. Connection
4. Self-Efficacy
5. Hope

LAURA MCGLADREY



Laura McGladrey, aka "Glad," is a family and psychiatric nurse practitioner who specializes in emergency medicine, mental health and traumatic stress, especially in the wilderness and remote parts of the world. She has been an instructor with NOLS Wilderness Medicine since 1999.

Stress Injuries & Psychological First Aid



Table 10.1 Recommended Terminology for Working With Stress-exposed Persons

Recommended Terminology	Commonly Used Terminology
Distress Anguish Tormented Overwhelmed Psychological and social problems	Trauma
Terrifying/life-threatening/horrific events/devastation	Traumatic events
Reactions to difficult situations Signs of distress Problems	Symptoms
Reactions to difficult situations Signs of distress Problems	Traumatized children or traumatized adults
Structured activities, community social support	Therapy, Counseling, Treatment
Survivors	Victims

From Inter-Agency Standing Committee. *Guidance Note for Mental Health and Psychosocial Support*. Port of Prince, Haiti: IASC; 2010.

Wilderness EMS, 2018: Chapter 10

Words Matter

- Wilderness Medical Associates International: “Wilderness EMS” certification
- Wilderness First Responder vs Wilderness Emergency Medical Responder (WFR vs WEMR)

Credentials



Hemorrhage

Massive hemorrhage

Airway

Respirations

Circulation

Hypothermia, **H**yperthermia, **H**ike/**H**elo, **H**unker down, **H**anging

Military to AWLS to Vertical Aid



Hemorrhage



SAVE A LIFE



AMERICAN COLLEGE OF SURGEONS
Inspiring Quality:
Highest Standards, Better Outcomes



THE
COMMITTEE
ON TRAUMA



BLEEDINGCONTROL.ORG

- Tourniquet selection (CoTCCC): wms.org/magazine/1245/tourniquet
- Tourniquet conversion: wms.org/magazine/1267/M-A-R-C-H_Tourniquet_Optimization_and_Conversion

COVID-19



COVID-19 Panel

- First aid kits: more masks, physical distancing, scouts
- Rapid (W)EMS activation, consider (W)EMS risk

COVID-19 Panel

- Compression only CPR
- New risks (covidlateral damage)
 - journals.lww.com/em-news/blog/breakingnews/pages/post.aspx?PostID=525

COVID-19 Panel

“... but the work that we’re all doing is maybe more important than it’s ever been.”

– Tim Hare, *Where There Be Dragons*

COVID-19

- Influenza
- Vaccine availability: Operation Warp Speed
- Testing: antigen and PCR
- PPE

COVID-19 Resources

- <https://wms.org/magazine/1259/covid-19-updates>
- https://www.uwyo.edu/rec/outdoor-program/_files/docs/wilderness-medicine-provider-covid-19-updates.pdf
- <https://www.recreateresponsibly.org/coalition>

Questions & Contact



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