Wilderness Medicine
Update: 2020

Seth Collings Hawkins, MD
Wilderness Risk Management Conference
October 23, 2020
Welcome to 2020

Credit: 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

“Because we’ve always done it that way.”
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°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.
Diabetes

• Technologies
  • Continuous Glucose Monitoring
  • Hybrid closed loop insulin delivery systems

• 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 fundoscopy. If any degree of retinopathy is present, ophthalmologic risks of wilderness travel should be discussed (Evidence grade: 1C).

wemjournal.org/article/S1080-6032(19)30174-7/fulltext
Exercise-Associated Hyponatremia

<table>
<thead>
<tr>
<th>Table 2. Prevention Strategies to Mitigate Exercise-Associated Hyponatremia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants should drink according to the dictates of thirst.</td>
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<tr>
<td>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.</td>
</tr>
<tr>
<td>Reduce the availability of fluids among the event routes to prevent overhydration.</td>
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<tr>
<td>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. <strong>NOTE:</strong> this strategy will <strong>not</strong> prevent EAH when combined with overdrinking</td>
</tr>
</tbody>
</table>
Heat Illness

- “The distinction between heat exhaustion and heat stroke is critical.”
- [wms.org/magazine/1251/2019heat_cpg](http://wms.org/magazine/1251/2019heat_cpg)
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
- Call 911

Heat Stroke
- Seizures, Agitation, Confusion, Slurred Speech, Loss of Consciousness
- Immerse or Douse in Cold Water

CALL 9-1-1
- Get to a cooler, air conditioned place
- Drink water if fully conscious
- Take a cool shower or use cold compresses

MAY BE PRESENT
- Faint or dizzy
- Throbbing headache
- No sweating
- Body temperature above 103°
- Cool, pale, clammy skin
- Red, hot, dry skin
- Nausea or vomiting
- Nausea or vomiting
- Rapid, weak pulse
- Rapid, strong pulse
- Muscle cramps
- May lose consciousness

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.

@downtosiffer
@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.
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. For a more
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
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
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 (EAlis), 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

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Stress Injuries & Psychological First Aid
<table>
<thead>
<tr>
<th>Recommended Terminology</th>
<th>Commonly Used Terminology</th>
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<tbody>
<tr>
<td>Distress</td>
<td>Trauma</td>
</tr>
<tr>
<td>Anguish</td>
<td></td>
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<tr>
<td>Tormented</td>
<td></td>
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<tr>
<td>Overwhelmed</td>
<td></td>
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<tr>
<td>Psychological and social problems</td>
<td></td>
</tr>
<tr>
<td>Terrifying/life-threatening/horrific events/devastation</td>
<td>Traumatic events</td>
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<tr>
<td>Reactions to difficult situations</td>
<td>Symptoms</td>
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<tr>
<td>Signs of distress</td>
<td></td>
</tr>
<tr>
<td>Problems</td>
<td></td>
</tr>
<tr>
<td>Reactions to difficult situations</td>
<td>Traumatized children or traumatized adults</td>
</tr>
<tr>
<td>Signs of distress</td>
<td></td>
</tr>
<tr>
<td>Problems</td>
<td></td>
</tr>
<tr>
<td>Structured activities, community social support</td>
<td>Therapy, Counseling, Treatment</td>
</tr>
<tr>
<td>Survivors</td>
<td>Victims</td>
</tr>
</tbody>
</table>

Words Matter

- Wilderness Medical Associates International: “Wilderness EMS” certification

- Wilderness First Responder vs Wilderness Emergency Medical Responder (WFR vs WEMR)
Credentials

KEEP CALM
IT'S POLL TIME
Hemorrhage

**Massive hemorrhage**

**Airway**

**Respirations**

**Circulation**

**Hypothermia, Hyperthermia, Hike/Helo, Hunkering down, Hanging**

*Military to AWLS to Vertical Aid*
Hemorrhage

STOP
THE BLEED

SAVE A LIFE

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

KEEP CALM
IT'S POLL TIME
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.recreateresponsibly.org/coalition
Questions & Contact

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