

**Title: Minimum Guidelines and Scope of Practice for Wilderness First Responder (WFR)**

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Disclaimer: The authors of this document represent schools and businesses providing instruction in wilderness first aid.

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## **Introduction**

People who live, work, travel and recreate in the outdoors have specialized medical training needs not adequately met by traditional first aid programs. They care for patients in remote locations, in challenging weather, with questionable communication and support, limited equipment and may need to make independent decisions on patient care and transport. As a result, medical and outdoor specialists developed wilderness medicine courses in an attempt to meet these needs. Initially the content for these courses was written independently and was opinion-based. Subsequently, the content has evolved based on the growing body of medical literature on first aid and wilderness medicine and our experience as practitioners and educators of wilderness medicine. This process has led to a consensus about content and scope of practice (SOP) among the training organizations signatory to this document.

Our intention with this document, and it's companion Minimum Guidelines and Scope of Practice for Wilderness First Aid<sup>1</sup> is to assist the lay public, outdoor program administrators, individuals and other consumers of wilderness medicine courses in their choice of an appropriate course and credential level for their programs. The SOP describes the intended audience, the minimum guidelines for what a Wilderness First Responder (WFR) should know, what decisions they should make and what skills they should be able to perform. Because student and/or organizational needs can vary by location, population, and experience, the SOP provides for a minimum or core requirement and acceptable electives topics and skills. Ultimately it is the responsibility

of each organization choosing medical training to understand its own needs. This document does not delve into detailed descriptions of signs and symptoms, nuances of technique or evacuation guidelines. These are described elsewhere in the first aid and wilderness medicine literature.

While we have strong opinions that these programs are best taught by skilled educators and experienced outdoor and medical people using hands-on practice, case studies, and realistic simulations as the prominent style, we are intentionally not commenting on hours per topic or specific teaching methodologies nor are we crafting a curriculum. These should remain the discretion of the individual program, training institution, course provider and sponsoring agency. We are broadly describing the minimum educational content associated with these courses. Likewise, this document is not intended to speak to questions of competency measurement, organizational accreditation or instructor training or qualification. This document cannot be used to imply any type of endorsement of content or quality for a course provider.

The signatures below reflect the respective organization's support of this document as an acceptable set of guidelines and scope of practice for a WFR provider. This document is not intended to create a legal duty to conform to its described minimum guidelines and scope. Neither the Writing Group nor the approving parties are legally responsible for a loss arising from the use or misuse of this document by a WFR provider.

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## **Wilderness First Responder Overview**

A Wilderness First Responder (WFR) course is primarily intended for non-medical professionals:

- ¥ for whom first aid delivery is often a secondary responsibility,
- ¥ who are acting as a primary care giver in a remote setting or as a second rescuer for a higher trained person,
- ¥ with the outdoor skills needed to participate in and/or lead the trip and who have an effective emergency action plan,
- ¥ who are traveling alone, with family, and/or friends,
- ¥ who are employed or volunteering as wilderness guides, outdoor instructors and educators, Search and Rescue (SAR) team members, ski patrol, medical personnel for adventure races/events, missionaries, wild land firefighter medical team member.

In the context of:

- ¥ multi-day to multi week domestic or international wilderness trips with unreliable communication and/or delayed medical or rescue support,
- ¥ locations where evacuations are primarily walkouts or carryout by the group with the WFR in charge, or with the assistance of local resources and where local Emergency Medical Services (EMS) or Search and Rescue (SAR) access may be delayed,
- ¥ the WFR may be called upon to make independent decisions on the need for and urgency of evacuation, and calls for outside assistance,
- ¥ medical equipment is limited, communication unreliable, transport delayed and/or difficult and often by human power, care takes place in austere or harsh environments.

### **Focus and Content Overview**

A WFR is commonly taught as a minimum 70-hour course with an emphasis on practical skills and drills. The scope of practice for a WFR is to prevent and identify

medical problems, initiate reasonable and prudent field management and identify red flag signs and symptoms necessitating evacuation for potentially life-threatening problems.

Focus is on:

- ¥ a basic physical exam to identify obvious injuries or abnormalities, assessing signs, symptoms, and vital sign patterns, along with obtaining a relevant patient history,
- ¥ prevention of medical problems anticipated by the activity and environment,
- ¥ recognition of environmental conditions that may lead to problems and taking steps to mitigate the environmental challenge,
- ¥ treatment focused on stabilization of emergencies, initiation of specific and appropriate medical treatments (splints, wound care, spine injury management, managing environmental threats, etc.) and assisting patients utilizing their personal medications,
- ¥ conservative decisions on the need for, urgency of and appropriate type of evacuation and for interventions appropriate for this level of training.

## **Patient Assessment and Basic Life Support (BLS)**

- ¥ Evaluate the scene and assess for safety and causes.
- ¥ Perform a Primary Assessment to identify and treat life threats.

### **Respiratory System**

- Manually open, maintain and protect an airway with standard BLS techniques and the recovery position.
- Provide adequate positive pressure ventilations by mouth-to-mask.
- Monitor and maintain airway control and breathing for people with an impaired Level of Consciousness/Level of Responsiveness (LOC/LOR).

### **Circulatory System**

- Provide CPR with standard BLS techniques including AED (automatic external defibrillator).
- Understand start/stop considerations for Cardiopulmonary Resuscitation (CPR) in the remote context.
- Control bleeding with direct pressure, pressure bandage or commercial tourniquet.

### **Nervous System**

- Assess LOC/LOR, identify a potential mechanism for spine injury, protect the spine and minimize movement.
- ¥ Perform a Secondary Assessment/Focused History and Physical Exam
  - Perform a physical exam to identify obvious injuries or abnormalities.
  - Measure and monitor vital signs: LOC/LOR, Heart Rate (HR), Respiratory Rate (RR), Skin Condition.
  - Obtain a patient history.
  - Monitor a patient for changes over time.
  - Document findings, ongoing assessments and treatments in writing.
  - Deliver a concise, complete and clear verbal patient report.
- ¥ Protect and stabilize patients during prolonged evacuation.
- ¥ Decide on need and urgency of evacuation.

- ¥ Plan and conduct evacuation or access SAR/EMS.
- ¥ Elective skills
- Blood Pressure (BP) with sphygmomanometer and stethoscope
- Pulse Oximetry

## **Circulatory System**

### **Shock**

- ¥ Know common wilderness causes of shock.
- ¥ Recognize signs, symptoms and vital sign patterns of shock.
- ¥ Initiate treatment.
  - Provide oral fluids for patients with normal mental status.
  - Stabilize injuries.
  - Control external bleeding.
  - Protect from adverse environmental conditions.
  - Decide on need and urgency of evacuation.

### **Acute Coronary Syndrome**

- ¥ Recognize signs and symptoms.
- ¥ Initiate treatment.
  - Stop activity.
  - Support reliable patient with their personal medications (e.g. aspirin and prescribed nitroglycerin).
  - Initiate evacuation or access SAR/EMS.

## **Respiratory System**

- ¥ Know the common causes of respiratory distress and respiratory failure.
- ¥ Recognize signs and symptoms of respiratory distress and respiratory failure.
- ¥ Recognize signs and symptoms of hyperventilation.
- ¥ Recognize chest and lung injury. (Inline with other points?)
- ¥ Initiate treatment.

- Maintain position which supports breathing.
- Maintain patent airway and support ventilation.
- Assist patient with their personal medications (e.g. prescribed inhaler).
- Stabilize/support the injured area. (Should these two points be inline with others?)
- Seal an open chest wound.
- ¥ Elective skills
  - Assess lung sounds with stethoscope.
  - Medical oxygen delivery devices e.g., cannula or mask; airway management devices e.g. OPA, NPA, and PPV; and Mouth-to-mouth, mouth-to-mask or Bag Valve Mask (BVM).

## **Nervous System**

### Traumatic causes of abnormal mental status

- ¥ Recognize signs and symptoms of traumatic brain injury.
- ¥ Initiate treatment.
  - Protect the airway.
  - Protect the spine.
  - Protect the patient from environmental extremes.
  - Monitor the patient for changes in mental status.
  - Provide fluids and calories as needed.

### Non-traumatic causes of abnormal mental status

- ¥ Know common causes of abnormal mental status.
- ¥ Recognize abnormal mental status.
- ¥ Initiate treatment.
  - Provide oral sugar for patients with a history of diabetes or who are unresponsive for unknown reasons.
  - Cool in the presence of heat stroke.
  - Externally warm in the presence of mild hypothermia.
  - Provide ventilation for a hypoxic patient.

- Protect the patient from environmental extremes and stabilize critical system function.

# Trauma

## Spine Injury

- ¥ Recognize a high risk mechanism of injury for spine.
- ¥ Recognize signs and symptoms of possible spine injury.
- ¥ Initiate treatment.
  - Minimize spine movement with hands or adjuncts.
  - Use rolls, lifts and extrication as needed to facilitate patient examination and protection.
  - Assess for potential spine injury via acceptable selective spine protocol.
  - Stabilize/protect non-ambulatory patients on a litter, vacuum splint, backboard, or on a pad on the ground.
- ¥ Elective skill
  - Improvised litters or stretchers

## Soft Tissue Injury

### Wounds

- ¥ Recognize life-threatening bleeding.
- ¥ Initiate appropriate treatment.
  - Control bleeding with direct pressure, pressure/clot enhancing bandage or commercial tourniquet.
  - Recognize simple versus high risk wounds.
  - Clean wounds by removing debris, scrubbing and irrigating.
  - Bandage wounds.
  - Manage blisters, splinters and fishhook injuries.
  - Manage impaled objects.
- Remove airway obstructions.
- Remove objects impaled from limbs only if unable to stabilize, will easily fall out, or are easy and safe to remove.
  - Manage amputations.

## Infections

- ¥ Recognize signs and symptoms of local versus systemic infection.
- ¥ Initiate treatment.
  - For local infections: warm compresses, promote drainage and monitor.
  - For systemic infections: warm compresses, promote drainage, monitor and evacuate.
- ¥ Understand prevention: drug-resistant infections and bloodborne pathogen awareness.

## Burns

- ¥ Assessment
  - Assess depth.
  - Approximate percent of body surface area involved.
  - Identify high risk anatomical areas.
- ¥ Initiate appropriate treatment.
  - Cool and protect with clean, non-adherent bandage.
- Methods to prevent common wilderness burns (eg, sunburn, spilled hot water burns)

## Musculoskeletal Injuries

- ¥ Recognize signs and symptoms of musculoskeletal injury.
- ¥ Differentiate between stable and unstable injuries.
- ¥ Recognize signs and symptoms of high risk problems associated with musculoskeletal injuries.
- ¥ Initiate treatment.
  - Treat stable injuries using Rest Ice Compression Elevation (RICE) and a brace/tape as needed.
  - Treat unstable injuries with:
    - Gentle traction into position for angulated long bones and impaired neurovascular function.
    - Splints that provide adequate stabilization, are comfortable for extended care situations and allow for ongoing monitoring of perfusion.

- Wound care for open fractures.
  - Treat dislocations with:
- Reduction of shoulder, patella, obvious digit and jaw dislocations, or any dislocation with impaired neurovascular function.
  - ¥ Elective skill:
    - Traction splints, improvised or commercial, for femur fractures.
    - Circumferential pelvic wrap for suspected pelvic fractures.

## **Environmental Medicine**

### **Heat Illness**

- ¥ Recognize signs and symptoms of heat exhaustion/dehydration, hyponatremia and heat stroke.
- ¥ Initiate appropriate treatment.

Heat exhaustion/dehydration.

- Stop activity and find a cooler area.
- Provide oral fluids to satisfy thirst and electrolytes.
- Evacuate if not improving.

Heat stroke

- Aggressive, immediate cooling.
- Evacuate.

Hyponatremia

- Consider fluid restriction and supplemental salt (in food or a salt-based solution).
- Evacuate.
- ¥ Prevention: Identify predisposing environmental conditions and prevention strategies.

## **Hypothermia**

- ¥ Recognize signs and symptoms of mild and severe hypothermia.
- ¥ Initiate appropriate treatment.

### **Mild hypothermia**

- Oral fluid, calories, protect from the environment.

### **Severe hypothermia**

- Prevent heat loss (hypothermia wrap with added heat).
- Handle gently, evacuate.
- ¥ Prevention: Identify predisposing environmental and clinical conditions and prevention strategies.

## **Local Cold Injury (Frostbite and Non-Freezing Cold Injury)**

- ¥ Recognize signs and symptoms of frostbite and non-freezing cold injury
- ¥ Initiate appropriate treatment
  - If not frozen, warm the injury.
  - If frozen, ideally thaw in a warm water bath (99-102°F, 37°-39°C).  
Practically this may need to be skin-to-skin. Field thaw only if there is minimal risk of refreezing.
- ¥ Prevention: identify predisposing environmental conditions and prevention strategies.

## **Altitude**

- ¥ Recognize signs and symptoms of Acute Mountain Sickness (AMS).
- ¥ Recognize signs and symptoms of High Altitude Cerebral Edema (HACE) and High Altitude Pulmonary Edema (HAPE).
- ¥ Recognize patients who need to stop ascent and acclimatize or descend/evacuate.
- ¥ Initiate appropriate treatment.
  - Stop ascent if symptomatic.
  - Descend if no improvement.

- Descend immediately in presence of shortness of breath (HAPE) and ataxia and/or mental status changes (HACE).
- ¥ Understand current recommendations for medications for prevention and treatment of altitude illness.
- ¥ Prevention: understand prevention strategies (e.g. acclimatization and ascent profiles).

## **Lightning**

- ¥ Know the common mechanisms of lightning injury and common presentation of injury (cardiovascular, neurological, burns).
- ¥ Initiate appropriate treatment including prioritizing BLS for apneic and pulseless patients.
  - Treat injuries found with emphasis on BLS.
- ¥ Prevention: Recognize high risk weather conditions and prevention strategies.

## Submersion - Drowning

- ¥ Initiate treatment.
  - Provide respiratory support.
  - Support spine of during rescue of patients with altered mental status.
  - Treat hypothermia.
- ¥ Prevention: recognize high risk environmental conditions and risk management strategies for the public and for the rescuer.

## Medical Problems

The scope of practice for a WFR is prevention, initiation of reasonable and prudent field management and identification of red flag signs and symptoms necessitating evacuation for potentially life-threatening problems.

Flu-like illness, Nausea/Vomiting/Diarrhea, Fever, Cough, Upper Respiratory Infection

- ¥ Recognize signs and symptoms of Flu-like illness.
- ¥ Initiate appropriate treatment.
  - Treat symptomatically. Focus on adequate hydration.
- ¥ Prevention: Focus on camp hygiene, hand washing and water disinfection.

Abdominal Pain

- ¥ Recognize signs and symptoms of an acute abdomen and evacuation parameters.
- ¥ Initiate appropriate treatment.

Allergy

- ¥ Recognize signs and symptoms of local and mild allergic reactions.
- ¥ Initiate appropriate treatment.
  - Treat local reactions with cool compresses, topical corticosteroid.
  - Treat mild allergic reactions with oral antihistamine.

## Anaphylaxis

- ¥ Recognize s/s of anaphylaxis.
  - Treat anaphylaxis with epinephrine, oral antihistamine and evacuation.

## Genito-Urinary

- ¥ Recognize signs and symptoms of vaginitis (in females), UTI, and testicular pain (in males).
- ¥ Initiate appropriate treatment
  - Treat vaginitis symptomatically with Over-the-Counter (OTC) medications.
  - Treat UTI with hydration.
  - Treat testicular pain with evacuation.
- ¥ Prevention: Identify predisposing conditions and prevention strategies.

## Dental

- ¥ Recognize signs and symptoms of lost crown/fillings, broken teeth, avulsed teeth and dental infections.
- ¥ Initiate appropriate treatment.
  - Cover lost fillings, broken crowns.
  - Attempt to preserve avulsed teeth if the evacuation is < 1 hour.
- ¥ Prevention: dental Hygiene and pre-trip screening.

## Diabetes

- ¥ Recognize signs and symptoms of hypoglycemia and hyperglycemia.
- ¥ Initiate appropriate treatment.
  - Treat all diabetic emergencies with a change in LOC/LOR with oral sugar.

## Eyes and Ears

- ¥ Recognize signs and symptoms of eye problems.
- ¥ Initiate treatment.
  - Irrigate and gently remove easily removable foreign objects in the eye.
  - Use cool compresses and dark glasses for snowblindness.
  - Craft improvised sunglasses for traumatic eye injury or snowblindness.
  - Evacuate visual problems.
- ¥ Recognize objects in the ear, ear canal infections and changes in ability to hear.

#### Poison Ivy, Oak, Sumac

- ¥ Recognize signs and symptoms of contact dermatitis.
- ¥ Initiate appropriate symptomatic treatment.

#### Sunburn

- ¥ Initiate appropriate treatment
  - Treat as a superficial burn.
- ¥ Prevention: Understand the role of ultraviolet barriers; sunscreen and clothing.

#### Motion sickness

- ¥ Initiate appropriate treatment.
- ¥ Prevention: Understand predisposing environmental conditions and prevention strategies.

## **Toxins**

#### Poisoning

- ¥ Understand general principles of ingested, inhaled and absorbed poison management and CO poisoning.
- ¥ Discuss prevention.

- ¥ Initiate appropriate treatment:
  - Ingested Poisons: Supportive care and evacuation.
  - Inhaled Poisons: (commonly CO, occasionally other gasses e.g. volcanic fumes, smoke) Scene safety. Remove from exposure. Administer O2, if available.
  - Absorbed Poisons: remove contaminated clothing. Flush area with water and wash with soap.

### Snake bite

- ¥ Initiate appropriate treatment.
  - Immobilize the limb.
  - Use compression wraps for pit viper bites only as dictated by local protocol.
  - Transport to a physician/hospital.
  - Monitor for signs and symptoms of envenomation.
- ¥ Prevention: identify common human behaviors that are factors in snakebite incidents.

### Arthropods (insects, arachnids e.g. scorpions, spiders)

- ¥ Initiate appropriate treatment
  - Symptomatic treatment including wound care.
  - Tick removal.
- ¥ Prevention: Understand the role and importance of clothing, netting, repellents, insecticides in prevention of disease transmission.

## Medical Legal

- ¥ Understand the following legal concepts as they apply to wilderness medicine.
  - Duty to Act and Good Samaritan Laws
  - Scope of practice and standards of practice
  - Consent and confidentiality

- Concepts of certification, licensure, and protocols
- ¥ Understand the function of written medical protocols and guidance from a medical advisor.
- ¥ Medication Administration
  - Understand the legal aspects of medication administration by laypeople in a remote context.
  - Understand the concepts of right drug, reason, route, dose, and patient.
  - A WFR should not be making decisions on whether a patient should or should not take their personal prescription medications (unless it's an obvious situation of abuse or harm). A WFR may assist trip participants in the administration of prescription medications and may offer OTC medications for adults to make their own decision according to the package label.
  - The possession and administration of epinephrine by laypeople is a complex issue. Support for laypeople using epinephrine for anaphylaxis varies considerably amongst jurisdictions, including state-to-state and country-to-country. The WFR needs to become familiar with any specific regulations and implications in this regard. Organizations should be strongly encouraged to seek advice from a lawyer and/or guidance from a person acting as a medical advisor before deciding to initiate a policy that includes the emergency use of injectable epinephrine.

## **Elective Topics**

Electives are skills and knowledge within the WFR scope of practice, that can be included or excluded at the discretion of the course provider to meet specific needs of the student and the context in which they will use their WFR.

### **SAR Fundamentals**

- ¥ Understand fundamental concepts of search and rescue, Incident Command System (ICS), and evacuation plans.

### **SCUBA Diving Injury**

- ¥ Know the physiology of Self-Contained Underwater Breathing Apparatus (SCUBA) and breathing a gas under pressure.
- ¥ Know basic pathophysiology of pulmonary over pressure problems and decompression sickness.
- ¥ Recognize the common signs and symptoms.
- ¥ Initiate treatment to include:
  - Stabilization of critical system problems.
  - Provide supplemental high flow oxygen when available.
  - Contact Divers Alert Network or other professional support.

### **Mental Health**

- ¥ Recognize a possible mental health issue.
- ¥ Recognize signs of stress in participants and colleagues.
- ¥ Initiate appropriate treatment provide psychological first aid and consult with a mental health professional.

### **Toxins: Marine**

- ¥ Initiate appropriate treatment
  - Treat Nematocysts (jelly fish, corals, anemones) with hot water immersion or vinegar for box jellyfish (Class Cubosa).
  - Treat marine spine injury with hot water soak until pain relieved or

30-90 minutes and with standard wound care.

#### Reference

1. Johnson D, Schimelpfenig T, Hubbell F, et al. Minimum Guidelines and Scope of Practice for Wilderness First Aid. *Wilderness Environ Med.* 2013; 24:456–462