

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

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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 its companion documents—Minimum Guidelines and Scope of Practice for Wilderness First Aid and Wilderness Advanced First Aid—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. 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.

This document is not intended to create a legal duty to conform to its described minimum guidelines and scope. Neither the Wilderness Medicine Education Collaborative (WMEC) nor the approving parties are legally responsible for a loss arising from the use or misuse of this document by a WFR provider.

Wilderness First Responder Overview

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

- or 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 graduate may be called upon to make independent decisions on the need for and urgency of evacuation, and calls for outside assistance, where medical equipment is limited, communication unreliable, transport delayed and/or difficult and often by human power, care takes place in austere or harsh environments.

Definitions:

Core: Expected skills and topics which define the scope of practice of a WFR.

Elective: Supplementary skills and topics that may meet the needs of specific audiences.

Focus and Content Overview

A WFR course is commonly taught as a 70-hour course with an emphasis on practical skills and drills. The WMEC considers this the minimum amount of time needed to cover the core topics. Elective skills and topics require additional course time.

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:

- rescuer and patient safety and protection, 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.

The WFR Scope of Practice does not include:

- wound closing with sutures or staples
- administration of prescription medications other than epinephrine by auto-injector for anaphylaxis
- needle decompression, invasive or mechanical airway adjuncts,
- complex medical assessment or diagnosis

Core Topics

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.

Patient Assessment and Basic Life Support (BLS)

- Evaluate the scene and assess for safety and causes.
- Perform a Primary Survey 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 ventilations by mouth to mouth or 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, hemostatic gauze, pressure bandage or commercial tourniquet.

Nervous System

- Assess LOC/LOR, identify a potential mechanism for spine injury, and, if needed, protect the patient's spinal cord

Secondary Survey

- 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.

Secondary Survey Elective skills

- Blood Pressure (BP) with sphygmomanometer with or without stethoscope
- Pulse Oximetry
- Assess lung sounds with stethoscope.
- Medical oxygen delivery devices e.g., cannula or mask; airway management devices e.g. OPA, NPA, and Bag Valve Mask (BVM).

Circulatory System

Shock

- Know common wilderness causes of shock (vomiting/diarrhea, internal/external bleeding).
- Recognize signs, symptoms and vital sign patterns of shock and differentiate from an acute stress reaction.
- Initiate treatment:
 - Provide oral fluids for patients with normal mental status.
 - Stabilize injuries.
 - 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 (asthma, airway obstruction, trauma and anxiety).
- Recognize signs and symptoms of respiratory distress and respiratory failure.
- Recognize signs and symptoms of hyperventilation and shortness of breath related directly to anxiety.
- Recognize chest and lung injury.
- Initiate treatment:
 - Maintain position which supports breathing.
 - Maintain patent airway and support ventilation.
 - Assist patient with their personal medications (e.g. prescribed inhaler) with or without use of epinephrine to treat asthma.
 - Stabilize/support the injured area.
 - Seal an open chest wound.

Nervous System

- Traumatic causes of abnormal mental status
- Recognize the signs and symptoms of traumatic brain injury.
- Initiate treatment:
 - Protect the airway.
 - Protect patient's spinal cord.

- Protect the patient from environmental extremes.
- Monitor the patient for changes in mental status.
- Provide fluids and calories as needed.
- Recognize and know common causes, signs and symptoms of non-traumatic and 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.

Traumatic Problems

Spine Injury

- Recognize a high risk mechanism of injury for spine.
- Recognize signs and symptoms of possible spine injury.
- Initiate treatment:
 - Protect patient's spinal cord
 - 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 spine management skills

- Improvised litters or stretchers

Soft Tissue Injury

Wounds

- Recognize life-threatening bleeding.
- Initiate 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.
 - Dress and 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 (partial/full thickness).

- Approximate percent of body surface area involved.
- Identify high risk anatomical areas.
- Initiate treatment:
 - Cool and protect with clean, non-adherent bandage.
 - Methods to prevent common wilderness burns (eg, sunburn, spilled hot water burns)
 - Initiate evacuation for high risk problems associated with wounds/ burns. Most burns are evacuated due to patient comfort, inability to travel or participate or lack of dressing.

Musculoskeletal Injury

- 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 (fractures of the femur or pelvis, open fractures, persistently impaired CSM).
- Initiate treatment:
 - Treat stable injuries using Rest Ice Compression Elevation (RICE) and a brace/tape as needed.
 - Treat unstable and angulated long-bone injuries with gentle traction into anatomical position.
 - Traction unstable joint injuries into mid-range anatomical position for if there is impaired CSM or splinting in position is impossible
 - Splint all unstable injuries so they provide adequate stabilization, are comfortable for extended care situations and allow for ongoing monitoring of perfusion.
 - Wound care for open fractures.
 - Reduce shoulder, patella, obvious digit and jaw dislocations, or any dislocation with impaired neurovascular function.

Elective musculoskeletal injury treatment skills:

- Traction splints, improvised or commercial, for femur fractures.
- Circumferential pelvic wrap for suspected pelvic fractures.

Environmental Problems

Sunburn

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

Photokeratitis (snowblindness)

- Use cool compresses and dark glasses for snowblindness.
- Craft improvised sunglasses for traumatic eye injury or snowblindness.

Heat Illnesses

- Recognize signs and symptoms of heat exhaustion/dehydration.
- Initiate treatment:
 - Stop activity and find a cooler area.
 - Provide oral fluids to satisfy thirst and electrolytes.
 - Evacuate if not improving.
- Recognize signs and symptoms of heat stroke.
- Initiate treatment:
 - Aggressive, immediate cooling.
 - Evacuate.
- Recognize signs and symptoms of exercise associated (exertional) hyponatremia
- Initiate treatment:
 - Consider fluid restriction and supplemental salt (in food or a hypertonic salt-based solution).

- Evacuate.
- Prevention: Identify predisposing environmental conditions and prevention strategies.

Hypothermia

- Recognize signs and symptoms of mild hypothermia.
- Initiate treatment:
 - Oral fluid, calories, protect from the environment.
- Recognize signs and symptoms of severe hypothermia.
- Initiate treatment:
 - Prevent heat loss (hypothermia wrap with added heat).
 - Handle gently, evacuate.
- Prevention: Identify predisposing environmental and clinical conditions and prevention strategies.

Lightning

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

Submersion

- Initiate treatment:
 - Provide respiratory support.
 - Extrication from the water with attention to respiratory support and spinal protection as is practical.

- Treat hypothermia. Endeavor to maintain potentially hypothermic in a supine position during and after extrication from the water.
- Prevention: recognize high risk environmental conditions and risk management strategies for the public and for the rescuer.

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

- Recognize signs and symptoms of frostbite and non-freezing cold injury
- Initiate 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).

Snake Bite

- Initiate 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 Bites & Stings (insects, arachnids e.g. scorpions, spiders)

- Initiate treatment:
 - Symptomatic treatment including wound care.
 - Tick removal.
 - Transport to a physician/hospital if rash, target, fever etc. appears after removal of an imbedded tick.
- Prevention: Understand the role and importance of clothing, netting, repellents, insecticides in prevention of disease transmission.

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.

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.

Flu-like illness

- Recognize signs and symptoms of flu-like illness (nausea/vomiting/diarrhea, fever, cough, upper respiratory infection)
- Initiate 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.

Allergy

- Recognize signs and symptoms of local and mild allergic reactions.
- Initiate treatment.

- Treat local reactions with cool compresses, topical corticosteroid.
- Treat mild allergic reactions with oral antihistamine.

Anaphylaxis

- Recognize signs and symptoms 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 treatment:
 - Treat vaginitis symptomatically with Over-the-Counter (OTC) medications.
 - Treat UTI with hydration with or without evacuation.
 - 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 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.
- Treat all diabetic emergencies with a change in LOC/LOR with oral glucose/sugar.

Eyes and Ears

- Recognize signs and symptoms of eye problems.
- Initiate treatment:
 - Irrigate and gently remove easily removable foreign objects in the eye.
 - 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 symptomatic treatment.

Toxins

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

Motion sickness

- Understand predisposing environmental conditions, prevention and treatment strategies.

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.

Psychological First Aid

- 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.

SCUBA Diving Injuries

- 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:
 - Stabilization of critical system problems.
 - Provide supplemental high flow oxygen when available.
 - Contact Divers Alert Network or other professional support.

Marine Toxins

- Initiate appropriate treatment
 - Treat Nematocysts (jelly fish, siphonophores, corals, anemones) by

removing tentacles followed by an acetic acid wash (if unfamiliar with species, test first) and subsequent submersion in hot water (113° F/45° C) for 45 minutes.

- Treat marine spine injury with hot water soak until pain relieved or 30-90 minutes and with standard wound care.