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WILDERNESS INSTRUCTOR

Minimum Guidelines and Scope of Practice for Wilderness First Aid

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Introduction

People, both laypersons and healthcare providers who live, work, travel, and recreate in the outdoors have specialized medical training needs not met by traditional first aid programs. They care for patients in remote locations, in challenging weather, with questionable communication and support, limited equipment, and the 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 it has evolved based on evidence and experience. This process has led to a consensus about content and scope of practice (SOP) for wilderness first aid (WFA) providers amongst the leading training organizations.

Our intention is to assist the lay public, outdoor program administrators, and other consumers of wilderness medicine courses in their choice of an appropriate course and credential for their programs. SOP describes the intended audience and the expected knowledge and skill set for a WFA provider. Because student and organizational needs can vary by location, population, and experience, the SOP document provides for a minimum or core requirement and acceptable elective topics and skills. Ultimately it is the responsibility of each organization or individual choosing medical training to understand their own individual or institutional needs.

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

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This document focuses on first aid. It does not speak to the sound emergency action plans, leadership, risk management, and outdoor skills that go hand-in-hand with wilderness medical skills to prevent injury and illness.

Although we have strong opinions that these programs are best taught by skilled educators and experienced outdoors people using hands-on practice, case studies, and realistic simulations as the principal educational styles, we are intentionally not commenting on specific teaching methodologies, nor are we crafting a curriculum. These should remain at the discretion of the individual training program institution, course provider, and sponsoring agency. Likewise, this document is not intended to speak to questions of organizational accreditation or instructor training or qualifications. This document may not be used by a course provider to imply any type of endorsement of course content or quality.

The signatures below reflect the respective organizations' support of this document as an acceptable set of guidelines and SOP for a WFA 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 WFA provider.

Wilderness First Aid Overview

A WFA course is intended for nonmedical professionals:

- For whom first aid delivery is a secondary responsibility
- Who are acting as a second rescuer for a more highly trained person
- Who are participating in or leading trips, or traveling with family and friends

WFA providers may be expected to act in the context of:

- Locations where evacuations are primarily walkout or litter carry with the assistance of local resources and where local emergency medical services (EMS) access is expected in a timely manner (< 8 hours)
- Short trips relatively close to help; day trips/camps, stationary wilderness camps, weekend family activities, front-country outdoor recreation

Additional certification recommended:

- Cardiopulmonary resuscitation (CPR) for adults, children > age 8
- Automated external defibrillator (AED)

Definitions

- Core: expected skills and topics that define the scope of practice of a WFA
- Elective: supplementary skills and topics that may meet the needs of specific audiences

Focus and Content Overview

- WFA is commonly taught as a 16-hour course with an emphasis on practical skills and drills. The writing group considers this the minimum amount of time needed to cover the core topics.
- Focus is on:
  - Performing a basic physical examination to identify obvious injuries or abnormalities, assessing basic and obvious signs, symptoms, and vital sign patterns, along with obtaining a simple relevant medical history
  - Prevention of medical problems anticipated by the activity and environment
  - Treatment focused on stabilization of emergencies, initiation of specific and appropriate medical treatments (basic splints, wound care, spine immobilization, managing heat and cold), and assistance to patients using 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

Medications

A WFA graduate may care for a patient who is taking personal medications (eg, aspirin or prescribed inhaler or nitroglycerin) under the direction of their physician. WFA graduates 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). Administering medications that have not been prescribed to the patient or are not the patient's personal medications places the WFA graduate on questionable legal ground. An exception to this, which varies on a state-by-state basis, is the use of epinephrine for anaphylaxis.

The WFA SOP does not include:

- Traction splints
- Wound closing with sutures
- Use of prescription medications other than epinephrine by autoinjector for anaphylaxis
- Needle decompression
- Invasive or mechanical airway adjuncts
- Releasing tourniquets in the field
- Complex medical assessment or diagnosis

Elective skills after additional training

- Passive reduction of shoulder and patella dislocation
- Spine evaluation and patient packaging

Core Skills

PATIENT ASSESSMENT AND BASIC LIFE SUPPORT

- Evaluate the scene—assess for safety and causes, emphasizing personal and team protection
- Perform a primary assessment (identify and treat life threats)
  - Respiratory system
    - Manually open, maintain, and protect an airway with standard basic life support (BLS) technique and the recovery position
    - Provide adequate ventilations by mouth to mask
  - Circulatory system
    - Assess for pulse and signs of life, administer chest compressions, and use AED if available
    - Control serious bleeding with well-aimed direct pressure, pressure or clot-enhancing bandage, or tourniquet
  - Nervous system
    - Assess level of consciousness/level of responsiveness (LOC/LOR), identify a potential mechanism for spine injury, protect the spine, and minimize movement
    - Monitor and maintain airway control and breathing for people with an impaired LOC/LOR

- Perform a secondary assessment
  - Perform a basic physical examination to identify obvious injuries or abnormalities
  - Measure and monitor vital signs (LOC/LOR, pulse, respiration, skin signs)
  - Take a basic patient history
  - Monitor a patient for changes over time
  - Document findings and ongoing assessments and treatments
- Plan and conduct evacuation or contact with outside resources

Does not include:

- Assessing blood pressure
- Assessing lung sounds
- Assessing pupils
- Assessing or evaluating complex illnesses
- Invasive or mechanical airway adjuncts
- Needle decompression

Circulatory System

- Identify common causes of volume shock (vomiting/diarrhea, bleeding)
- Recognize signs and symptoms of volume shock (vital sign patterns) and differentiate from an acute stress reaction
- Initiate appropriate treatment to include
  - Administer oral fluids for a patient with normal mental status
  - Stabilize injuries
  - Control external bleeding with well-aimed direct pressure, pressure or clot-enhancing bandage, or tourniquet
  - Protect from adverse environmental conditions
- Make an evacuation decision when faced with high-risk problems associated with volume shock
  - Cannot stop fluid loss or losses exceed ability to restore volume
  - Persistently abnormal or worsening vital signs
  - Inability to maintain core body temperature

Acute Coronary Syndrome

- Recognize signs and symptoms
- Initiate appropriate treatment to include
  - Stop activity
  - Support a reliable patient with their personal medications (eg, prescribed nitroglycerin or aspirin)
- Initiate evacuation and access EMS or search and rescue (SAR)

Respiratory System

- Recognize the most common causes and signs and symptoms of respiratory distress and respiratory failure (asthma, airway obstruction, trauma)
- Initiate appropriate treatment to include:
  - Maintain appropriate and comfortable position
  - Maintain patent airway and ventilation as needed
  - Support the patient using their personal medications (eg, prescribed inhaler) and treatment plan
- Initiate evacuation when faced with high-risk problems associated with respiratory compromise
  - Cannot improve respiratory status
  - Worsening symptoms despite treatment
  - Persistent abnormal mental status

Does not include:

- Use of epinephrine to treat asthma

Nervous System

- Identify the most common causes of abnormal mental status (trauma, extremes of temperature, inadequate oxygen, low blood sugar, seizure)
- Recognize signs and symptoms of head injury or altered mental status
  - Alteration of mental status
  - Loss of consciousness
  - Confusion, disorientation
- Initiate appropriate treatment: head injury
  - Protect the airway
  - Protect the spine
  - Protect the patient from environmental extremes
- Initiate appropriate treatment: nontraumatic causes of abnormal mental status
  - Administer oral sugar as needed
  - Cooling in the presence of heat stroke
  - External warming in the presence of mild hypothermia
  - Protect the patient (airway, spine, environmental extremes)
- Initiate evacuation when faced with a high-risk nervous system problem from any cause
  - Any altered mental status or disorientation
  - Decreased level of consciousness
  - No improvement despite treatment

Spine Injury

- Identify high-risk mechanism of injury for spine
  - Fall associated with loss of consciousness

- Trauma resulting from high-velocity impact (eg, motor vehicle accident, climbing falls, high-speed skier/biker)
- Falls from greater than 1 m (3 feet)
- Landing on head or buttocks (axial loading)

- Recognize signs and symptoms of possible spine injury
  - Spine tenderness
  - Loss or impaired motor or sensory function
  - Unconsciousness or abnormal mental state
- Initiate appropriate treatment
  - Initiate patient protection including spine stabilization
  - Perform simple rolls, lifts, and extrication to facilitate patient examination and protection
- Initiate evacuation: access assistance for transport or evacuation for all high-risk mechanisms or signs and symptoms of spine injury

Wounds

- Recognize life-threatening bleeding
- Identify simple versus high-risk (grossly contaminated, marine, crushing, open joint spaces, animal bites) wounds
- Initiate appropriate treatment
  - Control bleeding with well-aimed direct pressure, pressure or clot-enhancing bandage, or tourniquet
  - Treat open chest wounds with an occlusive dressing
  - Clean wounds by removing debris and irrigating (potable water under pressure, dilute povidone-iodine solution)
  - Bandage wounds
  - Manage blisters (prevention and treatment)
  - Manage impaled objects (more than a fishhook or splinter).
    - Remove objects impaled from limbs only if unable to stabilize, will easily fall out, prevents transport, or unable to control bleeding because of the object
- Recognize signs and symptoms of an infection, both local and systemic
  - Treatment: local—warm compresses, promote drainage, monitor
  - Treatment: systemic—same, and evacuate
- Prevention: methicillin-resistant Staphylococcus aureus (MRSA) awareness, camp hygiene

Does not include:

- Closing wounds with sutures
- Releasing tourniquets placed to control life-threatening bleeding
- Administering prescription antibiotics

Burns

- Recognize superficial vs deep (partial or full-thickness) burns
  - Depth: superficial or deep (partial or full thickness)
  - Approximate extent
  - Identify high-risk areas (palms and soles, face and airway, genitals)
- Initiate appropriate treatment
  - Cool, protect with clean, slightly moist or non-adherent bandage
  - Make evacuation decision
- Prevention: for sunburn and spilled hot water burns
- Initiate evacuation for high-risk problems associated with wounds or burns. Most burns are evacuated because of patient comfort, inability to travel or participate, or lack of dressing

Musculoskeletal Injuries

- Recognize signs and symptoms of musculoskeletal injury and differentiate between stable and unstable injuries
- Identify high-risk problems associated with musculoskeletal injuries:
  - Fractures of the femur or pelvis
  - Open fractures
  - Persistently impaired circulation, sensation, movement (CSM)
  - Involvement with a critical system (circulatory, respiratory, nervous)
- Initiate appropriate treatment
  - Treat stable injuries using rest, ice, compression, elevation (RICE) as available and a brace or tape as needed
  - Treat unstable injuries with:
    - Gentle traction into position for angulated long bones
    - Traction into position for joints only if there is impaired CSM or splinting in position is impossible
    - Splints that provide adequate stabilization, are comfortable for extended-care situations, and allow for ongoing monitoring of perfusion
- Initiate evacuation for unusable or unstable musculoskeletal injury

Does not include:

- Traction splints for the femur

Allergic Reactions

- Recognize signs and symptoms of local and mild allergic reactions

- Initiate appropriate treatment
  - Local—cool compresses, topical corticosteroid
  - Mild allergic reactions—anticipate further symptoms suggestive of anaphylaxis (see below)
- Decide on need and urgency of evacuation

Anaphylaxis

- Recognize signs and symptoms of anaphylaxis
- Initiate appropriate treatment
  - Treat anaphylaxis with epinephrine via autoinjector, oral antihistamine, and evacuation

Does not include:

- Epinephrine from ampules or vials
- Corticosteroids, other than topical

Heat Illness

- Recognize signs and symptoms of heat exhaustion, dehydration, and heat stroke
- Initiate appropriate treatment
  - Heat exhaustion or dehydration
    - Stop activity and remove from environment
    - Oral fluids and electrolytes as needed
    - Evacuate if not improving
  - Heat stroke
    - Aggressive, immediate cooling
    - Evacuate
- Prevention: identify predisposing environmental conditions and preventive strategies
  - Hydration; avoidance of overhydration

Hypothermia

- Recognize signs and symptoms of mild and severe hypothermia
- Initiate appropriate treatment
  - Mild hypothermia
    - Oral fluid, calories, protect from the environment
    - Evacuate if not improving
  - Severe hypothermia
    - Prevent heat loss (hypothermia wrap with added heat)
    - Handle gently; evacuate
- Prevention: identify predisposing environmental conditions and preventive strategies

Lightning

- Prevention: recognize high-risk conditions and preventive strategies
  - Know local weather patterns, leave the scene, or seek adequate shelter
- Initiate appropriate treatment:
  - Treat what you find, with emphasis on:
    - Cardiopulmonary arrest with BLS
    - Injuries found
    - Burns
    - Neurologic deficits
  - Initiate evacuation

Submersion

- Initiate appropriate treatment
  - Treat what you find, with an emphasis on:
    - Respiratory arrest
    - Spine injury potential
    - Hypothermia
- Evacuate everyone with a loss of consciousness or persistent respiratory distress
- Prevention: identify high-risk conditions and preventive strategies with an emphasis on personal safety when planning rescue

Common Medical Problems

- Recognize red flag signs and symptoms necessitating evacuation
  - Abdominal pain (local tenderness, fever, persistent vomiting, getting worse over 12 hours, known pregnancy)
  - Vomiting and diarrhea (blood, fever, tenderness, output exceeds intake)
  - Any noticeable blood in stool, urine, or vomit
  - Cough, upper respiratory infection (URI: respiratory distress, fever, coughing up colored phlegm)
  - Urinary tract infection (UTI: fever, back pain or tenderness, vomiting)
  - Ear, nose, and throat (ENT: visual problems more than blurring, fever, airway compromise)
  - Fever (abnormal mental state, headache, other signs or symptoms as above)
- Prevention: camp hygiene (handwashing, kitchen sanitation), water disinfection.

Does not include:

- Detailed discussion of pathophysiology, signs, symptoms, and treatment of common medical conditions

Elective Topics

Electives are supplemental program, activity, and environmentally relevant topics, such as local cold injury, altitude, snakebite, marine toxins, arthropod envenomation, dislocation reduction and spine injury management, or additional practice time on assessment and practical skills that may meet the needs of specific audiences.

Dislocations

- Elective skill with program specific parameters
- Passive reduction of shoulder dislocations (simple hanging arm/Stimson)
- Passive reduction of patella dislocations
- Reduction of obvious digit dislocations

Does not include:

- Reduction of the hip, elbow, ankle, wrist, or knee

Spine Injury Management

It may be difficult for students to learn how to accurately and correctly perform a spine evaluation (eg, National Emergency X-Radiography Utilization Study (NEXUS) or modified Canadian or NEXUS) within the context of a standard 16-hour WFA course. WFA training providers may, on a case-by-case basis, supplement the core WFA topics with specific training modules covering spine evaluation and patient packaging.

Local Cold Injury (Frostbite and Nonfreezing Cold Injury)

- Recognize signs and symptoms of frostbite and nonfreezing cold injury
- Initiate appropriate treatment
  - If not frozen, warm the injury
  - If frozen, warm water bath (37.2°–38.9°C [99°–102°F])
  - Protect from refreeze, do not use radiant heat or massage
- Evacuate if blisters form, patient is unable to use the injury, or you cannot protect from refreeze
- Prevention: identify predisposing environmental conditions and preventive strategies

Altitude

- Recognize signs and symptoms of acute mountain sickness (AMS) and key indicators of serious altitude illness, high altitude cerebral edema (HACE) and high altitude pulmonary edema (HAPE)
- Initiate appropriate treatment:
  - Stop ascent if symptomatic
  - Descend if no improvement
  - Descend immediately in presence of shortness of breath (HAPE) and ataxia or mental status changes (HACE)
- Evacuate altitude illness with shortness of breath (HAPE) and ataxia or mental status changes (HACE)
- Prevention: identify predisposing environmental conditions and preventive strategies

Does not include:

- Dispensing prescription altitude medications.

Poisoning

- Know common sources of poisons in the wilderness
- Initiate appropriate treatment
  - Ingested poisons
    - Supportive care and evacuation
    - Consult with poison control
  - Inhaled poisons (commonly carbon monoxide)
    - Scene safety
    - Remove from exposure
- Prevention: identify common environmental toxins and predisposing conditions

Toxins: Snakebite

- Initiate appropriate treatment
  - Immobilize the limb (avoid compression/constriction)
  - Avoid unproven or discredited treatments that may harm (ice, incision and suction, electricity, tourniquets, compression, meat tenderizer, etc.)
  - Transport to a physician or hospital
  - Monitor for signs and symptoms of envenomation
- Prevention: identify common human behaviors that are factors in snakebite incidents

Does not include:

- Unproven or potentially harmful interventions (eg, suction, constriction, ice, etc.)

Toxins: Arthropods (insects and arachnids, eg, scorpions, spiders)

- Prevention strategies (clothing, netting, repellents, insecticides)

- Symptomatic treatment
- Evacuate if rash, fever, headache appear secondary to a bite
- Evacuate symptomatic scorpion stings to medical care and possible antivenin administration

Toxins: Marine

- Initiate appropriate treatment
- Treat nematocysts (jellyfish, corals, anemones)
  - Saltwater rinse to remove loose nematocysts; soak in hot water, alcohol, or vinegar (first test a small area of the sting for adverse effects); scrape off remaining nematocysts
- Treat marine-spine injury
  - Soak in hot water until pain relieved or 30–90 minutes, standard wound care
- Evacuate to supportive care if pain persists, rash worsens, a red streak develops between swollen lymph nodes and the sting, or if either area becomes red, warm, and tender

Signatures of supporting individuals and organizations who teach wilderness medicine, provide wilderness or remote medical care, or use staff with WFA training

INDIVIDUALS

Jed Williamson, Editor, Accidents in North American Mountaineering; Murray Hamlet, DVM, Former Director, Natick Cold Weather Laboratories

OUTDOOR PROGRAMS

Jeannette Stawski, Executive Director, Association of Outdoor Recreation and Education; Hal Beck, Field Program Director, Adirondack Leadership Expedition; Aaron Gorban, WEMT, Leadership Training and Risk Management Director, Appalachian Mountain Club; Scott Smith, Owner, Apex Mountain Guides; Brian Stoudnour, Program Director, Hulbert Outdoor Center; Dave Calvin, EMT-P, Wilderness Education Association, Indiana University; Marilynn Davis, WEMT, Owner, Jackson Hole Outdoor Institute; Justin S. Padgett, MS, NREMTP, Executive Director, Landmark Learning; Jonathan Bryant, Nantahala Outdoor Center; David Yacubian, Director of Risk Management, NatureBridge; Ian Wade, Executive Director, OB International; Josh Norris, Coordinator, Adventure Leadership Program, Oregon State University; Todd Wright, Director of Outdoor Education, St. Michael's College, Vermont; Matthew May, Owner, 4 Points Expeditions

CONSERVATION

Steve Smith, National Director of Risk Management and Safety, The Student Conservation Association; David Critton, Chief Operating Officer, Southwest Conservation Corps

WILDERNESS MEDICINE, EMS, SAR

Mike Ditolla MS, WEMT-P, Program Director, Center for Emergency Programs, University of Utah; Mike Webster, Executive Director, WMA Canada; Patrick Malone, Director, Initiative for Rural Emergency Medical Services, University of Vermont; Michael Englund, Central Arizona Mountain Rescue; James Cole, EMT-P, Agency Chief/Flight Paramedic, San Juan Islands EMS; Matt Rosefsky, WEMT, Owner, Medic; Dundar Sahin, Akut Mountain Rescue, Turkey; Rowan Lewis, WEMT, Director, SOLO Africa; Stephen Glass, Wendigo Lake Outdoor Center, Director, SOLO Canada; Jono Bryant, EMT-P, Director, SOLO Southeast; Samantha Chu, General Manager, WMA Brasil; Rodrigo Vial, Director, Vial Adventure and Consulting, Santiago, Chile; Sun Lingye, Director, WMA China; Takuya Ota, Director, WMA Japan; Tommy Walker, AEMT, President EASPA's Foundation, Buenos Aires, Argentina; Danny Gillum, Director, WMO of the Mid West; David Fitzpatrick, MD, Director, WMO of the South East; Ben Gorelick, Director, WMO of Patagonia; Julie Munger CEO, Abigail Polsby CFO, Sierra Rescue, Inc; Einar Örn Arnarsson, Chief First Aid Instructor, ICESAR Rescue School; Jason Luthy, MS, WEMT, Program Director, Longleaf Wilderness Medicine; Brian Phaneuf, Executive Officer, Remote Areas Emergency Medicine and Survival; Amol Kulkarni MD, Savanna Medics Limited, Tanzania