Certification Standards for Wilderness First Aid Courses

Date: October 1, 2023.

Introduction

The Wilderness Medicine Education Collaborative (<u>WMEC</u>) was formed in 2010 to provide a forum for discussing trends and issues in wilderness medicine and to develop consensus-driven scope of practice documents and de facto standards for Wilderness First Aid (WFA), Wilderness Advanced First Aid (WAFA), and Wilderness First Responder (WFR) certifications. In 2022, the WMEC expanded its work to include related white papers and position statements. Our mission is to elevate wilderness medicine education and set standards for common field certifications. Collectively, the WMEC schools have over two hundred years of experience teaching wilderness medicine and have trained over 750,000 students in the past four decades.

The Wilderness First Aid course is an introductory course that focuses on basic assessment and treatment skills, and raises awareness of environmental illnesses. This certification is for those on half, full-day, or overnight trips with reliable cell or satellite phone service, and where outside assistance is typically available within a few hours. WFA graduates are often employed as trip leaders in college outdoor programs and residential camps or as guides or instructors in low-risk activities and environments.

First aid requirements in a remote setting often differ from the scope of first aiders in a front-country environment. Over time, course 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) for wilderness medicine certification within the recreational and professional outdoor industry. For more information about certification, licensure, curriculum, scope of practice, and accreditation and why the WMEC documents provide practical standards for industry-wide medical certifications, view this document.

This document and its companion documents—Certification Standards for Wilderness Advanced First Aid Courses and Certification Standards for Wilderness First Responder Courses—are intended to set clear standards for wilderness medicine certifications for the outdoor industry. We recommend the recreational public, outdoor program administrators, and other consumers of wilderness medicine courses refer to these documents and recommendations when choosing an appropriate course and credential level for themselves, their program, or their service. Users are encouraged to compare the standards documents to an individual provider's course curriculum to ensure their course meets the minimum standards. Because the needs of students and organizations vary by location, population, and experience, some educational institutions may choose to exceed these standards. While schools that teach wilderness medicine are not legally bound to conform to these standards, they have a professional obligation to consider them. Failing to follow an industry standard may dilute the quality and value of the WFA certification and compromise the care of wilderness participants.

While the educational approach to meeting the standards is left to the discretion of the course provider, we recommend that instructors who teach wilderness medicine are skilled educators and medical providers who utilize hands-on practice, case studies, and realistic simulations as the prominent delivery style for their courses. We recommend that a minimum of 50% of the in-person course time is dedicated to practical hands-on learning. Because of the amount of knowledge presented in a relatively short period of time during a course and the necessity to perform well in a field situation, we encourage each wilderness medicine school to provide their students with reference material or a field manual that outlines the signs, symptoms, and treatment of the problems presented during their course.

This document is not a curriculum. Detailed information on the topics, including signs and symptoms, can be found in the first aid and wilderness medicine literature. Neither the WMEC nor the approving parties are legally responsible for a loss arising from the use or misuse of this document by a WFA provider. Outdoor programs may benefit from working with a medical advisor to identify any predisposing terrain, environmental, and clinical conditions that may contribute to program-related accidents, injuries, and illnesses and suggest risk management strategies designed to prevent them. For more information on medical advisors, standing orders, and protocols view this document.

Focus and Content Overview

The WMEC recommends a minimum of 16 hours of in-person class time is required to cover the WFA core topics and skills in a standard or hybrid course. We do not recommend WFA courses that are taught entirely online (e.g. synchronous, asynchronous, or a combination of each). We recommend that WFA graduates be certified in adult and child CPR and AED use based on the American Heart Association (AHA) or International Liaison Committee on Resuscitation (ILCOR) guidelines and their skills practiced and verified through in-person training; depending on your provider, formal certification may or may not be included in a WFA course. The WMEC believes that the in-person hours of all wilderness medicine courses are an essential element of each training. For more information about in-person versus online only, view this document.

The scope of practice for a WFA is to identify and treat basic life threats, treat common environmental illnesses, and initiate communication with online medical support and emergency resources as soon as possible for further assistance.

WFA core topics and skills are discussed at an introductory-level, covering basic concepts and terminology, with a focus on building foundational knowledge about wilderness medicine. Students are expected to demonstrate basic patient assessments skills, recognize and treat life threats, and know how to call for emergency assistance.

WFA certification standards focus on the following proficiencies:

- Rescuer and patient safety and protection, a physical exam to identify apparent injuries or abnormalities, assessing signs, symptoms, and vital sign patterns, and obtaining a patient history.
- Stabilize basic emergencies, initiation of specific and appropriate medical treatments (e.g., splints, wound care, managing environmental threats, etc.), and assisting patients with their medications.
- Awareness of environmental illnesses.
- Recognize life threatening medical problems with the use of a digital or print field manual <u>and</u> in conjunction with online medical professionals.
- Make informed decisions regarding the need and urgency of an evacuation <u>with</u> the assistance of online medical and rescue professionals.

Treatment & Evacuation

We recommend treatment guidelines and evacuation parameters based on injuries and illness. Due to the dynamic nature of the wilderness environment and the unique variables of each situation, some treatments may not be available and a prompt evacuation may not be a viable option. In the standards document, we provide a generic recommendation to assess the need and urgency of the evacuation. In general, we recommend an urgent evacuation for all potentially life-threatening problems. However, we understand that in some cases, the associated risk may be too high to attempt an evacuation, or an evacuation is not possible. Most WFA graduates do not have the training or experience to conduct a risk/benefit analysis that accurately weighs the risks to all parties involved in the treatment and evacuation of a patient and should consult medical and rescue professionals before initiating an evacuation.

Student Evaluation

To receive certification, students must demonstrate a basic understanding of topics and practical skills via in-person skill training and simulations.

WFA certifications must be renewed every two to three years by repeating the course. Wilderness medicine schools, employers, and students share the responsibility for knowledge acquisition and skill retention. Practical skills are perishable if not practiced regularly. We recommend employers update and review critical wilderness medicine information and current practices related to their trips with staff before each season. We recommend that graduates actively maintain their skills through study, case study review, and simulation practice. We also suggest both employers and graduates carefully assess each trip's hazards and take steps to mitigate them before starting a trip or expedition.

Content Hyperlinks

Core Topics

Medical Legal

Patient Assessment

Scene Survey
Primary Survey
Secondary Survey
Plan

Core Traumatic Problems

Hypovolemic Shock
Traumatic Brain Injury
Chest Trauma
Spine Injury
Soft Tissue Injury
Musculoskeletal Injury

Core Environmental Problems

Contact Allergic Reactions
Hydration
Heat Exhaustion
Heat Stroke
Hypothermia
Lightning
Drowning
Toxins & Vector-borne Diseases

Core Medical Problems

Identifying Life-threatening Medical Problems
Local Allergic Reactions
Anaphylaxis
Abdominal Pain

Core Skills

Core Basic Life Support Skills

Assess pulse at carotid artery
Apply direct pressure
Apply pressure bandage
Maintain body temperature
Understand commercial tourniquet use
Understand spinal cord protection

Core Secondary Survey Skills

Count pulse rate (HR) at radial artery
Count respirations (RR) and note quality
Assess skin condition
Assess mental status/LOR
Take SAMPLE history
Complete head-to-toe physical exam
Complete patient SOAP notes

Core Spine Management Skills

Know how to perform an emergency move for spine-injured patients

Know how to protect spine-injured patients

Core Musculoskeletal Treatment Skills

Splint long bone and joint injuries

Core Hypothermia Treatment Skills

Improvise a hypothermia wrap

Core Anaphylaxis Treatment Skills

Use an epinephrine auto-injector

Detailed Core Topics & Skills

Medical-Legal

Medical-Legal

Understand the following legal concepts as they apply to wilderness medicine:

- Duty to Act and Good Samaritan Laws.
- Scope of practice.
- Consent and confidentiality.
- Understand the function of:
 - Certification.
 - o Licensure.
 - Guidelines.
 - Standing orders.
 - o Protocols.
 - o Authorization (from a Medical Advisor).

Patient Assessment

Scene Survey

- Evaluate the scene and assess for safety and causes, including the need for personal protection equipment (PPE).
- Identify the obvious mechanism(s) of injury.
- Identify environmental and scene threats.
- Quickly evaluate resources.
- Consider the number of patients, the number of rescuers and their training, first aid/medical equipment, etc.

Primary Survey

- Stabilize life-threats.
- Assess the need and urgency of an evacuation.

Respiratory System

Assess:

- Patient's ability to breathe on their own.
- Quality of ventilation.
- Airway for foreign bodies or fluids.

Treatment:

- Understand the need for and application of rescue breathing in apneic patients.
- Clear airway.
- Provide rescue breathing when indicated.
- Monitor and maintain airway control and breathing for people with an impaired Level of Responsiveness (LOR).

Awareness of:

- Asthma and the use of and how to assist a patient with their rescue inhaler.
- Anaphylaxis and how to administer an epinephrine auto-injector.

Circulatory System

Assess:

- Presence of patient's pulse at carotid artery.
- For life threatening bleeding/wounds.
- Likelihood of shock.

Treatment:

- Understand the need for and application of CPR in pulseless patients.
- Understand start/stop considerations for CPR in the remote context.
- Control bleeding with well-aimed direct pressure, wound packing, pressure bandage, or commercial tourniquet.

Nervous System

Assess:

• Level of Responsiveness (LOR). Know the common causes and signs and symptoms for traumatic, environmental, and medical mechanisms.

Treatment:

- If LOR is depressed, attempt to identify and treat the underlying cause.
- Monitor airway and provide rescue breathing when indicated.
- Identify a potential mechanism for a spine injury, and, if needed, protect the patient's spinal cord.

Core Basic Life Support skills:

- Practice and confirm practical skills via realistic simulations for adults and children:
 - Assess pulse at carotid artery.
 - Apply direct pressure.
 - Apply pressure bandage.
 - Maintain body temperature.
 - o Understand commercial tourniquet use.
 - Understand spinal cord protection.

Secondary Survey

- Perform a physical exam to identify obvious injuries or abnormalities.
- Measure and monitor vital signs: Level of Responsiveness (LOR), Heart Rate (HR), Respiratory Rate (RR), and Skin (circulation/color, temperature, wet/dry).
- Obtain a patient history.

Core secondary survey skills:

Practice and confirm practical skills via skills practice and realistic simulations

- Count pulse rate (HR) at radial artery
- Count respirations (RR) and note quality
- Assess skin condition.
- Assess mental status/LOR
- Take SAMPLE history
- Complete head-to-toe physical exam.
- Complete multiple patient SOAP notes on case-study or simulated patients

Plan

- Document scene, primary, secondary survey findings, and patient information in a SOAP note.
- Develop a current and anticipated problem list.
- Develop and prioritize a treatment plan.
- Assess the need and urgency of evacuation.
- Deliver a basic verbal patient report to an outside agency if requesting assistance or additional resources.
- Monitor a patient for changes over time.
- Continually reevaluate treatment and evacuation plans.

Core Plan & Evacuation skills:

Basic improvised carries

Core Traumatic Problems

Traumatic Brain Injury

- Assessment:
 - Recognize the signs and symptoms of a minor traumatic brain injury (mTBI).
 - Recognize the signs and symptoms of increasing intracranial pressure.
- Treatment:
 - Protect the airway.
 - Protect the spinal cord.
 - Protect from environmental extremes.
 - o Monitor for changes in mental status, decreased LOR and vomiting.
 - Assess the need and urgency of evacuation.

Hypovolemic Shock

- Assessment:
 - Evaluate for hypovolemic shock due to internal or external bleeding.
 - Recognize signs, symptoms, and vital sign patterns of hypovolemic shock and differentiate them from an acute stress reaction.
- Treatment:
 - Identify and manage the cause of hypovolemia
 - Keep the patient warm and protect from adverse environmental conditions
 - In the early stages of hypovolemic shock, allow the patient to take small sips of fluid if they have a patent airway and fluid is tolerable.
 - Stabilize musculoskeletal injuries.
 - o Minimize physical exertion.
 - \circ Assess the need and urgency of evacuation.

Chest Trauma

- Assessment:
 - Evaluate and recognize the signs and symptoms of respiratory distress and respiratory failure due to chest trauma and subsequent lung injury.
 - o Differentiate between open and closed chest injuries
- Treatment:
 - Maintain a position that supports breathing.
 - o Maintain a patent airway and support ventilation.
 - Stabilize/support injuries to the chest wall.
 - Seal an open chest wound; use a vented chest seal if feasible. Monitor.
 - Assess the need and urgency of evacuation.

Spine Injury

- Assessment:
 - Recognize a high-risk mechanism of injury for spinal cord damage.
- Treatment:
 - o Protect the airway.
 - Protect the spinal cord.
 - Use rolls, lifts, and extrication as needed to facilitate patient examination and protection.
 - o Protect from adverse environmental conditions. Keep the patient warm.
 - Assess the need and urgency of evacuation.

Core spine management skills:

- Know how to roll or lift spine-injured patients into a litter.
- Know how to protect the spine and keep the patient warm.

Soft Tissue Injury

Wounds

- Assessment:
 - Recognize life-threatening bleeding.
 - Assess and communicate the need for post-exposure prophylaxis (PEP) for animal bites.
 - Distinguish simple versus high-risk wounds.

Treatment:

- Control bleeding with direct pressure, pressure/clot enhancing bandage, or commercial tourniquet.
- Clean wounds by removing debris and pressure irrigation/debridement.
- Dress and bandage wounds. For large wounds, deep puncture wounds, consider wet-to-dry dressings. Dress abdominal eviscerations with moist gauze and keep the patient warm.
- o Monitor for infection.
- Manage blisters, splinters, and fish hook injuries.
- Remove impaled objects unless met with increased bleeding, pain, or resistance. Do not remove objects impaled in the globe of the eye, abdomen or chest cavity.
- Understand how to treat amputations.
- Assess the need and urgency of evacuation.

Burns

Assessment:

- Recognise the common causes of wilderness burns—sunburns, hot water burns, grease burns, etc.—and take steps to mitigate them.
- Assess depth: superficial, partial, or full thickness.
- Approximate percent of body surface area involved.
- Identify high-risk anatomical areas (e.g., airway, face, hands, feet, and genitals).

Treatment:

- Cool burns and protect with a clean, non-adherent bandage.
- Understand that most burns are evacuated due to patient comfort, inability to travel or participate, or lack of appropriate dressing.
- Assess the need and urgency of evacuation.

Musculoskeletal Injury

- Assessment:
 - Recognize signs and symptoms of musculoskeletal injury.
 - o Differentiate between stable and unstable extremity injuries.
 - Recognize signs and symptoms of high-risk problems associated with musculoskeletal injuries (e.g., fractures of the femur or pelvis, and open fractures).

• Treatment:

- Treat stable extremity injuries with supportive and anti inflammatory treatment.
- Treat unstable long-bone and joint injuries with gentle traction towards anatomical position. Note: This does <u>not</u> include specific techniques for the reduction of joint dislocations.
- Splint unstable extremity injuries. Splints should provide adequate stabilization, be comfortable during extended evacuations, and allow for ongoing assessment of CSM.
- Irrigate the wound and clean bone ends before applying traction to and splinting an open fracture.
- Assess the need and urgency of evacuation.

Core musculoskeletal injury treatment skills:

• Understand the principles and practice improvised long bone and joint splints.

Core Environmental Problems

Contact Allergic Reactions

- Recognize signs and symptoms of contact allergic dermatitis.
- Treatment:
 - Wash affected area with soap and cool water to remove oily plant resin (urushiol)
 - Manage itching with cool compresses and topical corticosteroids.
 - Monitor for anaphylaxis.
 - Assess the need and urgency of evacuation.
- Awareness:
 - Ability to identify and avoid poisonous plants.

Dehydration

- Assessment:
 - Recognize common causes and spectrum of signs and symptoms for mild to severe dehydration.
- Treatment:
 - Provide oral fluids and electrolytes to satisfy thirst. Know how to improvise an
 effective oral electrolyte solution.
 - Identify and treat the underlying cause.
 - Assess the need and urgency of evacuation.
- Awareness:
 - Consider fitness for the activity, hydration status, environmental temperatures, exertion levels, altitude, etc.

Exercise Associated Hyponatremia

- Assessment:
 - Recognize the spectrum of signs and symptoms for mild to severe exercise associated (exertional) hyponatremia
- Treatment:
 - o Provide sodium and initiate fluid restriction.
 - Assess the need and urgency of evacuation.
- Awareness:
 - Consider hydration status and amount of water consumed relative to sodium consumption.

Heat Exhaustion

- Assessment:
 - Recognize signs and symptoms of heat exhaustion.
- Treatment:
 - Stop activity, remove insulative clothing, and find a cooler area.
 - Provide oral fluids to satisfy thirst.
 - Assess the need and urgency of evacuation.
- Awareness:
 - Consider fitness, environmental temperatures, exertion levels, work/ rest ratios, hydration status, underlying medical conditions, and physical conditioning.

Heat Stroke

- Assessment:
 - Recognize signs and symptoms of heat stroke.
- Treatment:
 - Aggressive, immediate core cooling as per available resources: Consider cool/cold water immersion, misting, fanning, shade, etc.
 - Assess the need and urgency of evacuation.
- Awareness:
 - Consider environmental temperatures, exertion levels, hydration status, underlying medical conditions, and physical conditioning.

Hypothermia

- Assessment:
 - Recognize the spectrum of signs and symptoms for mild to severe hypothermia.
- Treatment:
 - Mild Hypothermia:
 - Give oral fluids and calories and protect from the environment. Consider a hypothermia wrap.
 - Moderate Hypothermia:
 - Handle gently and place supine in hypothermia wrap; when resources permit, add insulated external heat to the patient's core.
 - Severe Hypothermia:
 - Handle gently and place supine in hypothermia wrap with added heat.
 - Assess the need and urgency of evacuation.
 - Perform rescue breathing or CPR when indicated.
- Awareness:
 - Consider environmental temperatures, wind, rain, or snow, exertion levels (exhaustion), hydration status, available calories, shelter, and clothing.

Core hypothermia treatment skills:

• Practice and demonstrate how to build and move a patient into a hypothermia wrap.

Drowning

- Assessment:
 - Recognize the spectrum of signs and symptoms for fatal and non-fatal drowning.
- Treatment:
 - When indicated, removal from the water should include practical respiratory support and spinal protection.
 - Perform rescue breathing or CPR when indicated; if present, breathe through any foam exuding from the patient's mouth or nose.
 - Treat for hypothermia as necessary.
 - Assess the need and urgency of evacuation.
- Awareness:
 - Factors that contribute to drowning.

Lightning

- Assessment:
 - Know the common mechanisms of lightning injury and common presentation of injury (cardiovascular, neurological, burns, and potential for traumatic injuries).
- Treatment:
 - Prioritize treating apneic and pulseless patients.
 - o Perform rescue breathing or CPR when indicated.
 - Triage and treat any traumatic injuries.
- Awareness:
 - Recognize high-risk locations and weather conditions to minimize the risk of lightning strikes.

Toxins and Vector-borne Diseases

- Prevention:
 - Be aware of animals in the environment in which you travel whose bites or stings carry harmful toxins, vector-borne diseases, and toxins that groups carry into the wilderness environment, and understand preventative measures.
- Assessment:
 - Know and recognize the signs and symptoms of envenomation or illness from naturally occurring and synthetic toxins or vector-borne diseases that you may encounter.
- Treatment:
 - General Principles:
 - If possible, consult with a local poison control center (PCC) regarding toxin exposure.
 - Clean the local area as recommended.
 - Monitor for signs and symptoms of systemic involvement and provide rescue breathing or CPR as needed.
 - If anaphylaxis is suspected, see "Anaphylaxis" section (hyperlink)
 - Assess the need and urgency of evacuation. Begin an urgent evacuation if critical systems are affected (or likely to be affected).

Core Medical Problems

The scope of practice for a WFA graduate includes having some awareness and initiation of reasonable and prudent field treatment for minor medical problems and the rapid recognition of signs and symptoms requiring evacuation for potentially life-threatening ones.

Identifying Life-threatening Medical Problems

- Assessment:
 - Recognize signs and symptoms of medical problems that conservatively require an evacuation such as chest pain/pressure or shortness of breath at rest, decreasing Level of Responsiveness (LOR), signs and symptoms of systemic infection.
- Treatment:
 - Rest. Position of comfort.
 - For chest pain/pressure: Administer four low-dose aspirin or one regular aspirin dissolved in water.
 - For shortness of breath at rest in someone who has asthma: stop activity, rest, calm the patient and have them self-administer their prescription rescue inhalers.
 - For diminishing Level of Responsiveness (LOR) due to a problem with sugar: administer oral glucose/sugar to all awake patients. Administer oral glucose/sugar to the oral mucosa to all unresponsive patients while laying on their side to protect the airway.
 - Begin an urgent evacuation for patients with signs and symptoms of a systemic infection.
 - Assess the need and urgency of evacuation with the aid of an outside medical professional

Abdominal Pain (including Gastrointestinal Illnesses)

- Assessment:
 - Recognize the signs and symptoms of abdominal pain commonly encountered during wilderness travel: bloating, gas, constipation, diarrhea, and nausea/vomiting.
 - Recognize signs and symptoms of an acute abdomen that require an urgent evacuation: rigid abdominal muscles, guarding, rebound pain, and generalized abdominal pain that becomes specific.
- Treatment:
 - Rest. Position of comfort.
 - Assess the need and urgency of evacuation.

Local and Mild Allergic Reactions

- Assessment:
 - Recognize signs and symptoms of local and mild allergic reactions.
- Initiate treatment:
 - o Identify and remove the allergen or trigger when possible.
 - Treat local allergic reactions with cool compresses. a topical corticosteroid, and an oral antihistamine.
 - Monitor for anaphylaxis.
 - Assess the need and urgency of evacuation.
- Awareness:
 - Identify predisposing environmental and clinical conditions and prevention strategies. Consider patient history, triggers, and individual management plans.

Anaphylaxis

- Assessment:
 - Recognize signs and symptoms of anaphylactic reactions.
- Treatment:
 - Administer epinephrine as the first-line treatment for all anaphylactic reactions.
 - o Administer an oral antihistamine as adjunctive treatment
 - Monitor for a second phase anaphylactic reaction and treat with epinephrine as described above.
 - Take steps to avoid repeated exposure to the allergen or trigger.
 - Assess the need and urgency of evacuation.
- Awareness:
 - Identify predisposing environmental and clinical conditions and prevention strategies. Consider patient history, triggers, and individual management plans.
- Core anaphylaxis treatment skills:
 - Practice and demonstrate how to use an epinephrine auto-injector.

Wilderness Medicine Education Collaborative Authors:

Lee Frizzell, BA, WEMT retired, Executive Director
Frank Hubbell, DO, Medical Director
Josh MacMillan, BS, NREMT-Paramedic, NH EMT-I/C, Assistant Director of Education
SOLO Wilderness Medicine
621 Tasker Hill Rd., Conway, NH 03818

Nadia Kimmel, MS, BSN, WEMT, CEO* Desert Mountain Medicine 225 Harrison Ave, Leadville, CO 80461

David McEvoy, MS, Paramedic Director Aerie Backcountry Medicine 315 S. 4th East, Suite 205, Missoula, MT 59801

Paul Nicolazzo, BA, WEMT retired, President*
Wilderness Medicine Training Center International
7 Holloway Lane, Winthrop, WA 98862

Gates Richards, M.ED, FAWM, Associate Director NOLS Wilderness Medicine 284 Lincoln St. Lander, WY 82520

Abby Rowe, M.ED, WEMT-A, President*
Wilderness Medical Associates International
1 Forest Avenue, Portland, ME 04101

*Draft committee members

Special thanks to historical WMEC authors and contributors:

David E. Johnson, MD, FACEP, Past President and Medical Director Wilderness Medical Associates

Tod Schimelpfenig, FAWM, Past Curriculum Director NOLS Wilderness Medicine

Carl Weil, WEMT, FAWM
Wilderness Medicine Outfitters