

EMS Subspecialty Certification Review Course

4.5.4 Wilderness EMS Systems



2025



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Learning Objectives

- Describe the **challenges** of patient care in **Wilderness EMS (WEMS)**
- Discuss **evacuation/non-traditional transport options**
- Coordinate WEMS into a **multi-agency response**
- Recognize **personal survival/technical skills** required in wilderness/remote environments



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Question

- The risk of performing some appropriate medical interventions in a wilderness EMS setting may outweigh the benefit at that time (i.e. starting an IV in an avalanche slide path).
 - a. True
 - b. False



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WEMS Introduction

- Definition: *"an area where fixed or transient geographic challenges alter requirements for, or the availability of, medical or patient movement resources"*
- Wilderness Medicine: *medical care delivered in wilderness areas*



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Where is the Wilderness?



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Why is the Definition of Wilderness Important?

- WEMS clinicians may be authorized to follow operationally specific protocols when in a "Wilderness Environment"
- WEMS can be defined as the *systematic* and *pre-planned* delivery of wilderness medicine by formal health care clinicians



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Are "Wilderness Medicine" and "WEMS" Equivalent?

- Wilderness Medicine: the general care of patients in an austere or wilderness setting.
- Assumes unexpected and opportunistic care
- WEMS: a team that has specifically trained for a particular type of emergency medical response to a particular set of environmental challenges, specifically configured to that locality and maintaining a formal wilderness certification.



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Epidemiology: Out of Hospital (Not Prehospital!)

- US National Park Service
 - Equal numbers medical and trauma
 - 0.9 nonfatal events per 1M visitors
 - 77% non transport
 - Deaths: 78% male, heart disease>drowning>falls

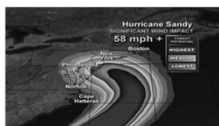


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WEMS Introduction

- Remote/Austere/Resource limited environments
 - Specialized Skills, Expertise, Equipment needed
 - Could be related to a disaster in an urban setting
 - Not just based on a '2 hour transport time'



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WEMS Skill Levels/Scope of Practice

Basic Life Support (BLS)

- Wilderness First Aid (WFA)
 - 8 hours
- Wilderness First Responder (WFR) & Wilderness EMR*
 - 60-80 hours: Most Common for guides, SAR teams, etc.
 - *State cert; duty to act..
- Outdoor Emergency Care Technician (OEC-T) – NSP
 - 100 hours
- Wilderness EMT
 - EMT + 48-80 hours



Advanced Life Support (ALS)

- Wilderness AEMT(>WEMT<Paramedic)
- Wilderness PM not formally recognized
- Wilderness Mid Level Providers (PA, NP, etc.)
- Wilderness Physician

ALS providers generally obtain traditional training and then take specialized courses to augment their wilderness skills.



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Wilderness Physician Medical Oversight

- Significant challenges
 - Remote operations
 - Direct oversight may not be possible
 - Direct telephonic consultation may not be possible
- Optimal
 - Involvement in field operations at minimum w training
- If Direct Oversight: must be fully operational



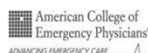
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WEMS Patient Care Challenges

- Risk vs. Benefit of Time/Evacuation/Patient Care
 - ‘Stay and Play’
 - Stabilize first, then evacuate
 - Airway, Pain Control, Splinting
 - ‘Scoop and Run’
 - Evacuation takes priority over patient care.
 - Generally in technical environments (avalanche path)



- Direct and Indirect Medical Oversight should be provided by a physician with WEMS experience



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Specialized WEMS Protocols

- **Wound Care**
 - Irrigation, simple debridement, ongoing wound assessment, antibiotic administration
- **Termination of CPR after 30 minutes**
 - Longer attempts may be considered in: hypothermia, lightning, and cold water drowning cases
- **Reduction of Joint Dislocations**
 - Shoulder (indirect trauma), Patella, Digits



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Specialized WEMS Protocols (cont.)

- **Selective Spinal Immobilization (SSI)**
 - Spinal immobilization dramatically increases the difficulty of the extraction and increases rescue time
 - Increased risk to patient and rescuers (potential for spine injury may not justify this additional risk)
 - EMS providers can effectively work with SSI protocols
- **Anaphylaxis and Severe Asthma**
 - Epinephrine, Steroids, Histamine Blockers



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Evacuation/Non-Traditional Transport

- **Rehab the Patient** (i.e. feed, water, rest)
 - So the patient can walk out under their own power
- **Ground Rescue**
 - Improvised Carry Device/Splint (rope litter, backpack, etc.)
 - Wheeled Litter
 - Horse
 - All Terrain Vehicle (ATV)



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Evacuation/Non-Traditional Transport

• Technical Rescue

- High Angle (cliffs) / Low Angle (side of steep roads)
- Cave / Confined Space
- Snow / Ice / Crevasse / Glacier / Avalanche
- Swiftwater (river) / Stillwater (lakes)
- Helicopter (short haul / hoist)
- Fixed Wing (Civil Air Patrol, remote access)

• Risk vs. Benefit of overall operation



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Multi-agency Response

- WEMS should **function within** the **established health care system** (not outside of it)
- Wilderness Search and Rescue can be **complex** involving the **interface of several EMS agencies** (SAR, Traditional EMS, Helicopter EMS, etc.)

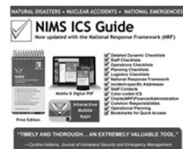


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Multi-Agency Response (cont.)

- Unified Command under the **Incident Command System** (National Incident Management System)



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Multi-Agency Response (cont.)

- **Communication** is often difficult due to remote locations or loss of infrastructure
 - **Standing Orders** for WEMS providers is essential
- **Pre-planning** high likelihood rescues can optimize/coordinate the WEMS response
- **Interagency training** in a region will dramatically increase response capability



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Personal Survival/Technical Skills

- WEMS Providers must:
 - Have **medical skills set and tools adapted to the wilderness** environment
 - Be able to **operate safely and travel/engage the technical terrain**
 - Care for not only patient but also operate independently in austere environments
 - Possess **survival skills**



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Take-Home Points

- WEMS is practiced anywhere there is **patient care in a resource limited environment**
- WEMS Providers must have the **medical decision making** tailored to the **risk vs. benefit** of the environment
- WEMS Providers must be able to **operate independently** in the wilderness environment
- Wilderness EMS is part of the EMS Core Content
 - Special Operations (20% of test items)



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Question

- Wilderness/Austere environments are best defined as:
 - a. Any location where the typical EMS resources are not able to easily access the patient
 - b. Only when there is an over 2 hour transport time
 - c. Only in remote unpopulated areas
 - d. Only in 3rd world countries



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