Wilderness Medicine Practices and Protocols

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The familiar world of pre-hospital medicine, of Emergency Medical Technicians (EMTs) and ambulances, has standards, certifications, regulations, licenses and protocols. In contrast, wilderness medicine programs, curricula and instructors are not commonly credentialed or standardized at a state or federal level, and some of our practices seem beyond the scope of accepted first aid. Our critics wonder if we teach people to practice medicine without a license.

In reality, the differences between urban pre-hospital and wilderness medicine are small. The actions and equipment of wilderness medicine may look different, but the treatment principles are the same. Our curriculum consists of the same straightforward first aid that is taught to and practiced by the urban First Responder and EMT albeit with an emphasis on relevant environmental topics such as heat, cold, altitude, and a few differences based on the circumstances of our practice.

The uniqueness of wilderness medicine is primarily the context of our practice: environment, improvisation and extended care. In the wilderness we may care for a patient in driving snow, rain, cold and wind without the luxury of the controlled ambulance environment. Urban training does not prepare you to cope with poor weather or darkness, immobilize a fracture without a pre-made splint, or spend an endless night in the woods keeping a patient warm and dry.

The field of wilderness medicine has done itself a disservice emphasizing its uniqueness, rather than its commonalities with standard first aid and pre-hospital medicine. The perception that we teach people to practice medicine beyond their competence and outside of legal boundaries is unfortunate, and incorrect.

What looks unique, cavalier and maybe illegal are wilderness medicine practices such as the focused spine assessment, traction-in-line, wound cleaning, reduction of dislocations, epinephrine for anaphylaxis and expedition medications. However, if we look closely, we'll find these are actually familiar, thoughtful and supported by medical expertise, research and protocols.

The Focused Spine Assessment

For example, the concept of selective spine immobilization, what we at WMI know as the "focused spine assessment" and many term "spine clearing" is not unique to wilderness medicine. It has the support of organizations such as the National Association of EMS Physicians[1] as well as a body of medical research[2,3], Wilderness Medical Associates[4] and the Wilderness Medical Society[5]. There are a number of EMS systems with "spine clearing" protocols. The focused spine assessment is very helpful in wilderness medicine, where prolonged immobilization and the need to carry a patient can be tough on both patient and rescuer. At the same time the gravity of this decision is clear. We teach this protocol carefully, intentionally and with multiple practice sessions. Our experience tells us that it is used correctly and appropriately in the field.[6]

Traction-In-Line

It's a misconception that using traction-in-line to straighten a limb with compromised circulation, sensation or motion is aggressive and beyond the scope of urban pre-hospital practice. It's included in the

EMT National Standard Curriculum for a severe deformity or compromised circulation, sensation or motion.[7] It's also the advice in most EMT texts, the WMS Practice guidelines and other protocols because it can allow for better immobilization, reduced pain and improved circulation and neurological status.[8] It's rare to need this skill, and it's less commonly used in the urban context because of prompt transport, but it's within the scope of practice. This is also taught carefully, deliberately, and with caveats to slow or stop traction-in-line if we find resistance or increasing pain.

Dislocations

The practice of reducing dislocations in the field is unique to wilderness medicine. It is supported by the Practice Guidelines of the Wilderness Medical Society and many other wilderness medical experts and protocols.[9] Early reduction often results in dramatic pain relief, reduces circulatory and neurological risks to the extremity, can allow for better immobilization and ease of transport. Again, this is not taught in a casual manner. The instruction is clear and careful. We know to stop if we find resistance or increasing pain.

Wound Cleaning

Wound cleaning may look aggressive because it's rarely done by EMT's and Paramedics. As an ambulance EMT I cover wounds, transport the patient and the cleaning is done, as it should be, in the emergency room. In a wilderness context we can't leave wounds open and dirty until we arrive at the hospital. Wound care is essential to avoid infection and promote healing.[10] We don't teach our students to inject lidocaine as an anesthetic or to suture a wound. We teach gentle irrigation, dressing, bandaging and how to recognize signs of infection. It's straightforward first aid. We simply teach people to do it properly.

Medications

In our curriculum we do speak to administering over-the-counter (OTC) and prescription medications in a wilderness context. The non-prescription medications we suggest relieve minor pain, stomach upset, diarrhea, sneezes and sniffles. They are taken by mouth and serious side effects are rare. We teach our students to be prudent with medication use, and regardless of whether the medication is prescription or OTC, to make sure it's the right drug, for the right patient in the right dose and for the right reasons.

Administering prescription medications is usually restricted to licensed medical professionals or individuals acting within established Emergency Medical Services systems. EMTs and Paramedics for example, administer mediations under the supervision of a medical director and within state regulations. There are organized groups in remote circumstances who may carry prescription medications, often for managing pain, infection or altitude illness, as a component of their medical supplies. These expeditions often use written protocols developed by physician advisor to guide their use of these medications. With modern communication technology it is often possible to consult directly with a physician before administering a prescription medication. The legalities of this unusual practice vary with the state and the country in which the expedition travels and are beyond the scope of this document to discuss.[11]

The prescription medication carried more commonly by wilderness trips is epinephrine, most often in auto-injectors, for life-threatening allergic reactions. Its use is supported by the Wilderness Medical Society, and other experts on anaphylaxis, yet it remains a prescription medication.[12] As a self-assisted medication epinephrine is part of the EMT curriculum, and recommended as a first aid practice by the Red Cross and the American Heart Association.[13] Commonly the epinephrine administered is the patient's, and the staff member assists the patient. However, there are examples of new onset anaphylaxis in outdoor programs. We teach students to recognize a severe allergic reaction and how to correctly administer the epinephrine. There are an increasing number of state laws that allow for the administration of epinephrine by a "lay person" to an individual experiencing a life threatening allergic reaction. This is likely to be an

area of continued discussion and evolving laws and regulations in ensuing years.

Evacuation Decisions

An understated difference between urban and wilderness medicine is the concept of decision-making. In the context of my ambulance practice I rarely make a decision whether a patient goes to the hospital or not. If they are a reliable patient either they sign a release or I give them a ride. In the wilderness however, I need to decide if the patient needs to see the doctor, and if so, how urgently.

This is not a trivial decision. It's unrealistic to take every ill or injured person out of the wilderness to see a physician. An evacuation can disrupt a long awaited trip. If a simple transportation problem for a stable patient is misinterpreted as an urgent evacuation, a rescue team may be unnecessarily put at risk. Conversely, it may impact the patient's health if needed physician care does not happen in a timely manner.

Any time a trip leader (professional or volunteer) makes a medical assessment, treatment and evacuation recommendation that individual is practicing medicine. Where they cross a boundary between practices that can be done by a layperson and practices that are the province of a physician is, at times, a gray area. This is precisely the reason we encourage all our wilderness medicine students who may find themselves in a leadership position to obtain a medical director and seek guidance on making these decisions. Your physician can review your training, experience and provide support for the context in which you will practice medicine.

This is why WMI includes evacuation guidelines in our wilderness medicine curriculum, provides a service to outdoor programs in developing their protocols and advocates that outdoor programs have evacuation protocols to communicate their expectations to their instructors and support their decisions.

Evidence Informed Practice

The wilderness medicine we teach is chosen carefully, and is reviewed by our Medical Advisory Panel to be accurate, relevant and practical. We review accident data and the experience of outdoor programs and search and rescue operations to learn what is relevant to people in wilderness. We know, for example, the importance of preventative medicine through hygiene, and the need for outdoor leaders to be prepared to manage athletic injuries and small wounds. These are minor topics in an urban curriculum, important concepts in wilderness medicine.

The familiar world of pre-hospital medicine, of Emergency Medical Technicians (EMT) and ambulances, has the appearance of a system bolstered by sound medical science and controlled by standards and certifications. This is not completely true. There are practices and protocols in an urban setting that are based more on our experience and an educated guess than definitive science. For example, there are ongoing arguments in the emergency medical field about the efficacy of traction splints for femur fractures, and whether lights and sirens have any impact on patient outcome. In both urban and wilderness medicine we question practices, seek what works and what is best for our patient. In both the city and the wilderness we approach our practice thoughtfully, carefully and responsibly.

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