A Situational Introduction

A rescue in the wilderness. You think of hard-core macho rock-jock mountain rescue types bringing the victim down a cliff. But with today's emphasis on EMS, the rescuers often have EMT or paramedic training, and may have a drug box and defibrillator on their backs.

You're working at East Podunk ER, and you hear over the EMS radio that the local rescue team is going out on a wilderness rescue. A few hours later, you get a call on the radio: "Medic Command, this is Wilderness EMT-Paramedic John Jones calling for command." You answer "This is MD-2001, go ahead." (Or whatever.)

"Doc, we've got a 38 year old male with a history of epilepsy on Dilantin® [phenytoin] who took a 200' tumbling fall 24 hours ago. His hiking buddies insulated him as best they could, but he hasn't had anything to eat or drink since then, and has taken no Dilantin® as it was lost in the fall. His complaints are of being cold, being hungry and thirsty, and of pain in the right leg and chest. He denies any past medical history other than seizures; his last seizure was a year ago. He has no allergies.

"His vital signs are: rectal temperature 91°F [33°C], pulse 100 and strong, respirations 26 and shallow. He is alert but slightly slow in answering.

"Physical exam shows the following. Ears, nose, and throat are clear. PERL, EOMI. No Battle or raccoon sign. Neck is nontender. We didn't check range of motion because he has a distracting injury.

"Chest shows point tenderness in four places in the right anterior chest, with slightly decreased breath sounds on that side along with voluntary splinting on that side. Heart sounds are normal.

"Abdomen is nontender, with decreased but present bowel sounds. Back is nontender. Pelvis is stable.

"Extremities show many minor scrapes and tiny lacerations, but full range of motion of all joints and no localized tenderness except for the right lower leg, which has an obvious open comminuted tibia-fibula fracture. Those present had applied a clean dressing, but no irrigation. There is no obvious foreign material in the fracture site; bleeding is controlled. Dorsalis pedis pulse is 1+ on both left and right; can't palpate a posterior tibial pulse on either side. Sensation and toe movement is intact distally. Judging from the blood around here, the patient lost about a liter of blood before the bleeding stopped.
"As per our standing orders, we are started an IV of D5LR [5% dextrose in Lactated Ringers=Hartmann's solution], and are preparing to irrigate the open fracture with sterile saline. We have provided the patient with better insulation, and are administering warm, humidified air via a soda-lime system. A Heat-Pac™ charcoal sarong and Stokes litter should be arriving at the in half an hour, at which time we can start the evacuation.

"Given existing manpower, terrain, and weather, we estimate an ETA to your Emergency Department of 22 hours.

"Do you have any orders? Our specific questions are:

"1. Do we administer any antibiotics? Again, the patient has no allergies, and we have oral Bactrim® [trimethoprim-sulfamethoxasole], oral Cipro® [ciprofloxacin], and intravenous Rocephin® [ceftriaxone].

"2. How should we manage intravenous fluids, and should we place a Foley catheter to help fluid management?

"3. Do you have any special orders regarding rewarming?

"4. We have oral and intravenous Dilantin® available. How much should we give, and by what route? Again, the patient has been without Dilantin® for 24 hours, and is normally on 300 mg daily."

"5. Can you think of any particular problems we should watch for during the evacuation?"

OK, you've got 10 minutes of your shift left. What do you tell these WEMTs?

What is a "Wilderness Command Physician"?

This Wilderness Command Physician course is designed to help you deal with medical command problems like what was just presented. In an ideal EMS system, Wilderness Command Physicians (WCPs) would be identified, and command requests like this would be routed only to those who were trained as WCPs. WCPs would also serve as medical directors for wilderness EMS agencies; you would provide standing orders, review cases, provide continuing education, and do quality assurance.

We aim to help you learn the following.

• How wilderness EMS fits into regular EMS, and how wilderness EMS can apply to large-scale disasters.

• How the wilderness environment constrains wilderness EMS, and how it affects the kind of problems you can expect your WEMTs to see.

• How communications work (or don't work) in wilderness EMS, including some technical details, but mostly human communication concerns.

• How to handle medical command when the rescue lasts for multiple days, and may involve many more problems than we usually have to worry about when doing medical command.
• What it's really like for WEMTs in the field.
• How to actually communicate effectively with WEMTs, even if they aren't expert at doing this sort of medical command, either.
• The role of stress in patients and rescuers, what Critical Incident Stress Debriefing is, and what you need to do as a Wilderness Command Physician or wilderness EMS medical director.
• The limitations and capabilities of WEMTs as far as immobilization and packaging.
• Those medical and surgical problems that are likely in wilderness search and rescue team members, and how WEMTs are trained to deal with them; questions about standing orders, oral medications, and WEMTs personal and team medical kits.
• Specific details of particular medical problems that you may need to deal with over the radio:
  - Heat Illness
  - Hypothermia
  - Frostbite
  - Burns
  - Lightning Strikes
  - Acute Mountain Sickness, High Altitude Pulmonary Edema, High Altitude Cerebral Edema, and High Altitude Flatus Expulsion.
  - Snakebite and Spider Bites
  - Many-hour Management of Wilderness Patients
  - Trauma in the Wilderness

More detailed educational objectives are provided in the WCP Lesson Plan and Course Guide which you will receive during or before class.

Curriculum
As a doctor, you'll find large chunks of the material very basic and you can rapidly skip over it. However, you should keep in mind that primary care is new to students -- EMTs are well-drilled as far as EMT-type basics, but have no training in this primary care medicine. As you skim, try to form a picture in your mind of what WEMTs will know, and what they won't. You might even want to skim through an EMT-Basic or paramedic textbook to review what they are taught. Even if you were an EMT before medical school, you'd be surprised what they don't include in the curriculum.

If you don't take the full WEMT course, we don't include any practical hands-on experience other than observing WEMTs at work in the field and giving them medical command. This isn't a course in how to do things yourself, it's a course in how to give direct medical direction to WEMTs. If you want to do hands-on
wilderness medicine, take the entire WEMT course, work with your local rescue team, or you might even want to take the Advanced Wilderness Life Support class offered by Stonehearth Open Learning Opportunities (SOLO) in North Conway, NH.

Additional Training
To a high degree, most of what you need to know for the Wilderness Command Physician course can be found in the Wilderness EMT textbook.

Your reading in the Wilderness EMT text, discussions in class, and the practical exercises in wilderness medical command that form a major portion of the Wilderness Command Physician class prepare you to assume direct medical control of Wilderness EMTs.

However, you probably won’t just be a Wilderness Command Physician; you’ll probably also take a leading role in indirect medical control of Wilderness EMTs, too. This class isn’t designed to prepare you for that role, but we need to discuss at least the basics here. If you’re interested in training to become a Wilderness EMS Agency Medical Director, there are two specific training courses:

1. The National EMS Medical Directors Course, offered by the National Association of EMS Physicians. It’s about a week long, and usually offered concurrently with NAEMSP meetings. Every EMS Medical Director should take this course.

2. There is a one-month rotation in Wilderness EMS for emergency medicine residents at Mercy Hospital in Pittsburgh. The outline of this rotation is attached as an appendix. Though this rotation is an excellent introduction to Wilderness EMS, many physicians can probably meet the educational objectives of this rotation through other means. Regardless, the outline serves as a guide to what you need to know to be a Wilderness EMS Medical Director.

Except for this handout, and the recommended readings, particularly the National Association of EMS Physicians' Medical Directors' Handbook (especially the Wilderness EMS chapter), second edition, the Wilderness EMT textbook is what you’ll study.

Wilderness EMS Politics
You are taking this class, we assume, because you are interested in improving wilderness EMS. In particular, you want to work with wilderness search and rescue EMTs and paramedics.

But, to get to your goal, you’re going to have to deal with EMS and SAR politics, and in particular to deal with “turf.” And, to effect better wilderness EMS, you’ve got to pick a route to get there, and there are several choices.

Let’s say you’re going to be moving to Outback County. Let’s say that Outback County is a bit backwards as regards wilderness EMS, but you’re going to change all of that. So, after some investigation, you find out the current state of Wilderness EMS in Outback County.
Outback County is in a state where the County Sheriff is officially responsible for search and rescue, and the state doesn't have much of a role. However, many county sheriffs have more or less abdicated their responsibility to a local volunteer rescue squad, fire department, or the county Civil Defense coordinator.

In Star City, the Outback County seat, there is a paid/volunteer ambulance service that has a search and rescue team. You know this because on your first visit to Start City Ambulance Service you saw a big step van with "Search and Rescue" in big letters on the side. The van has a few radios, two ropes, a Stokes litter, and a compressor and several SCUBA tanks. The "SAR team" consists of one EMT who has been through a NASAR Managing the Search Function course, two EMTs who are recreational climbers, and one EMT and two paramedics who are divers. Aside from vehicle rescue, the only rescues the past year are three body recoveries and pulling a cow out of a sinkhole. They have contributed searchers to three searches in the county, but as far as you can tell, nobody in the ambulance service has any search training except the one EMT who's been to MSF. The city fire department also has a "rescue squad" but it's limited to building rescue and vehicle rescue; apparently there is bitter contention over whether the fire department or the ambulance service is responsible for "rescue," but they seem to only be talking about vehicle rescue.

There are three all-volunteer rural rescue squads in Outback County. They have a complex and incomprehensible set of turf wars going on, but cooperate at some levels. They all share disdain for the city ambulance service, and are resisting with all their considerable political might a plan to consolidate into a single county-wide EMS agency based in Star City. None of the squads has an organized SAR team, but one has a search dog group (four handlers and dogs) loosely associated with it, and quite a few members have been through both the National Cave Rescue Commission "Orientation to Cave Rescue Class" and the NASAR FunSAR (Fundamentals of SAR) class, and seem to have a solid outdoor background.

There is a volunteer wilderness rescue team based at the State College in Star City. They are mostly college-age outdoor types, and therefore held in contempt by both the city ambulance company and the rural rescue squads. Three members of this Outback Rescue Group were rescue-certified members of Mountain Rescue Association teams before they moved to Star City. Eight of the members are EMTs, two of whom are also members of one of the rural rescue squads (not the one with the dog team), and two are paid paramedics with Star City Ambulance Service. They don't have a rescue truck, but have a cache of what looks like well-cared for basic wilderness SAR equipment.

State College Cave Club has a "cave rescue team" that really consists of everyone in the cave club. About half of the cave club has been through the NCRC "Orientation to Cave Rescue" class. Two members are EMTs but not affiliated with an EMS agency. One of them is also a member of Outback Rescue Group, and has also completed the NCRC Level 1 and Level 2 cave rescue training.

You meet with the Outback County Sheriff. He is vague about which SAR teams he means, and you get the impression he doesn't really know much about them, or care. However, he is careful to point out the various important law enforcement advances he has instituted in the last several years, including a new computer system. He also
reminds you that elections are next month and reminds you to vote. (County Sheriffs are elected officials.)

The hospital provides medical command for Star City Ambulance, but as far as you can tell, there's really no medical direction for the three rural rescue squads.

State regulations about EMS don't say anything about wilderness EMS, and from your conversations with EMS officials, it's not something they've thought about much. Besides, they've got other problems pressing for attention just now, and it's clear that thinking about wilderness EMS gives them a headache, and they'd rather talk about just anything else. This seems mostly because they're "up to their asses in alligators" due to recent funding cuts and several new initiatives by the state legislature. Actually, you meet the state EMS director at an EMS course, and you find out he is very much in favor of improving wilderness EMS in the state, but just doesn't have any resources for such nonessential projects at this time.

The state EMS regulations seem to apply solely to urban EMS, and make no provisions for wilderness EMS. You do find out that there is a mine rescue team in the area that has been essentially independent of the EMS regulations for several years. Several members of this mine rescue team live in Star City, including one paramedic with Star City Ambulance, but the team is based in nearby Knotsobac County. One of the ER docs at the Knotsobac County Hospital is their medical director. They have their own medical kits and medical protocols for their nurses and paramedics.

By checking with NASAR and SOLO, you find out there are three SOLO Wilderness EMTs in you county. All of them are members of the State College Outing Club, but have no affiliation with any SAR team or EMS agency.

OK, that's what you're walking into. Still want to be a Wilderness Command Physician for these people?

As it turns out, word about your interest in Wilderness EMS spreads like wildfire. Within a week of moving to Star City, you've got 15 messages on your answering machine from members of all these various organizations wanting to bend you ear. Having at least a modicum of political savvy, you realize that you're walking into a minefield. Get too cozy with any one caller and the remainder will assume you've sided with the enemy and do their level best to crucify you.

The solution to this problem is left as an exercise for the reader. (There is a very simple and elegant solution, but the proof is too long for this margin.)

**Wilderness EMS Models**

Assume that you have managed to deal with the political considerations in the last section. You now are ready to move ahead with providing medical command for your wilderness rescuers. You can take several approaches.

For one, you could work within the existing EMS system; you could try to set up special wilderness protocols and standing orders for one of the existing EMS agencies. You will go to the state EMS office and try to press through new state
regulations for wilderness EMS. Or, you could try to get one of the SAR teams recognized as an EMS agency that solely does wilderness rescue EMS, but doesn't use any ambulances.

Another option is simply to rely on doctor-patient relationships and assume that what you're doing with wilderness rescue isn't EMS, but a different kind of medicine. You work closely with your wilderness EMTs, train them to do whatever you want, and let them operate under your license. You respond to all wilderness rescues and assume care as soon as you reach the patient, and you've given your EMTs orders as far as what to do before you get there. You don't worry about having the organization licensed as an EMS agency, because you're not doing EMS, you're doing wilderness rescue medicine.

A third option is to set up your own system parallel to the existing EMS system: set up wilderness EMS protocols and standing orders, credentialing, continuing education, QA, and medical command. They would be similar to those of the existing EMS system model, but oriented to wilderness rescue needs.

Testing

Your practical test will be a group session, where you will listen to tapes of a simulated WEMT report. You will give advice and orders, then your advice and orders will be critiqued by other members of the class. The criterion for passing is that you don't do anything outrageously wrong.

The written test is the same exact test as given to the WEMT students. You'll be graded exactly as they are.