Chapter IV: Scene Management, Communications, Documentation and Reporting



Appalachian Search and Rescue Conference Center for Emergency Medicine of Western Pennsylvania

Wilderness EMT Textbook

Chapter IV: Scene Management, Communications, Documentation and Reporting

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Background Information

The ASRC-CEM Wilderness Emergency Medical Services Institute

The ASRC-CEM Wilderness Emergency Medical Services Institute, previously named the Wilderness Emergency Medicine Curriculum Development Project, is devoted to developing curricula for wilderness EMS providers and medical control physicians, and fosters wilderness EMS research. It is a cooperative venture of the Appalachian Search and Rescue Conference and the Center for Emergency Medicine of Western Pennsylvania. The ASRC is a large, tightly-knit wilderness search and rescue organization with eight teams throughout the mid-Appalachian states. The Center for Emergency Medicine is an emergency medicine and prehospital care research and teaching organization. It provides a medical helicopter service, an emergency medicine residency, Emergency Medical Services for the city of Pittsburgh, and conducts a variety of related projects.

The WEMSI Wilderness EMT Curriculum

This chapter is part of the WEMSI Wilderness Emergency Medical Technician Textbook. In concert with the WEMT Curriculum, the Textbook has been in development since 1986, and took as its starting point a program Dr. Conover developed for the National Association for Search and Rescue in 1980. The Project also draws on many other sources. These include the Wilderness EMT program of SOLO (Stonehearth Open Learning Opportunities), the WEMT program developed by Wilderness Medical Associates, and the Winter Emergency Care Course of the National Ski Patrol. The Wilderness Medical Society's educational and research publications provide needed background for the Textbook. The National Association of EMS Physicians has developed and has published clinical guidelines for delayed/prolonged transport; WEMSI protocols are also available as a model.

With textbooks used by its EMT and SAR prerequisites, the WEMT text provides the material needed to complete the Wilderness Prehospital Emergency Care curriculum established by the Wilderness Medical Society. (Indeed, early drafts of this textbook were a major resource for the WMS curriculum.) We assume that students have the knowledge and skills of an EMT-Basic or EMT-Paramedic. (The curriculum can accommodate both EMTs and paramedics in the same class.) We also assume that students have the knowledge and skills of the Virginia Ground Search and Rescue Field Team Member standards or better. (EMT standards are available from state EMS offices or the U.S. Department of Transportation. The Virginia GSAR standards and GSAR Manual are available from the Virginia Department of Emergency Services, 310 Turner Road, Richmond, VA 23225-6491.) The curriculum is competency-based rather than hours-based, but can be competed in 5-6 intensive days. The curriculum also recommends clinical training, for which guidelines are available in the Curriculum.

WEMT Textbook Chapter Development

An outline for each of the twenty sections was created by a Task Group of five to twenty selected members, but draws on many published sources and consultants. A Task Group Leader guides the Task Group in reviewing and revising the section, and the Curriculum Coordinator supervises all aspects of curriculum development. When the outline satisfies the Task Group, it goes to the **Editorial Board**, including officers of the ASRC and CEM. It also includes experts in emergency medicine, search and rescue, and education, and a State EMS director. Once acceptable to the Board, it is released to the public.

The Task Group Leader and Editor-in-Chief then produce a Textbook chapter based on the outline. Having a single editor provides a coherent, unified style. Basing chapters on the Task Group's Lesson Plans, as approved by the Editorial Board, ensures accuracy. Each chapter provides a glossary of terms new to a reader with basic EMT and SAR training. In the complete textbook, these glossaries are merged and alphabetized. Each chapter also provides references to support its statements and for further reading. Background that need not be presented in a class based on the Curriculum appear *in a small, italic font.*

The textbook will be commercially published when completed. All profits will be used to support curriculum development. The textbook will be submitted for publication in 1997. Until then, preliminary versions of the chapters will be printed in this format. These preliminary versions are for use at classes only when authorized by WEMSI. A Course Guide with information about Wilderness Emergency Medical Technician training and course scheduling, and a checklist for recommended inhospital training are available. For a price list of available publications, write to: Center for Emergency Medicine, 320 McKee Place, Suite 500, Pittsburgh, PA 15213-4904, (412) 578-3203, or email wemsi+@pitt.edu.

We solicit suggestions from those reading any of our Lesson Plans or Textbook chapters. Please send your comments to the Editor-in-Chief, (see title page).

Educational Objectives

- 1. Describe important concepts in the initial management of a patient who has been lost, including possible dehydration, hyponatremia, hypothermia, starvation, and disorientation.
- 2. Describe important concepts in the initial management of patients who are being rescued, including:
 - a. removing patients from water immersion, including:
 - i. hydrostatic "squeeze," and
 - ii. possible ill effects of patient selfassisting in rescue efforts;
 - b. removing entrapped patients from entrapment, including "third-space" losses, hyperkalemia, and crush syndrome; and
 - c. moving and realigning patients into a standard anatomic position for further immobilization and packaging.
- 3. Describe the components and important concepts embodied in the "FAST" and "STOP" mnemonics for scene management.
- 4. Outline major safety concerns for common backcountry search and rescue scenes, including:
 - a. vehicle accidents
 - b. aircraft accidents
 - c. cabins, huts and clearings
- 5. Give the rationale for having three separate sequential reports (initial contact report, preliminary situation report, full situation report) for search "finds" and initial rescue contacts.
- 6. Describe how the following communications concepts apply to a WEMT in contact with a Wilderness Command Physician:
 - a. roles of communication, including direct medical control and medical advice, reporting to Base, arranging support and additional resources, and arranging for the transition from evacuation to transportation;
 - b. direct communication and "direct medical control";
 - c. security;
 - d. acknowledgment;

Notes on the Scene Management Chapter:

This part of the curriculum might seem, at first glance, to fit into the search and rescue training prerequisite, or to duplicate facets of EMT training. However, we have found that management of the scene and management of the patient are inextricable. We find that WEMTs who have had this specific training in scene management do much better on both indoor and field exercises. (And in the field "for real" too, we hope.)

Communications, reporting, and documentation are even more important to a WEMT than to a "street" EMT. When medical command and search and rescue team communications are spread out over many hours, small mistakes can mean big problems. ("No, I didn't want pills, I wanted IV Dilantin; the patient is nauseated and isn't keeping anything down! Go back and get me some of the IV Dilantin!" Team member prepares for the 3-mile hike back down the mountain to Base.) Too, the picture the WEMT paints to the Wilderness Command Physician must be accurate if the WEMT expects good command and good medical advice.

- e. logging and recording messages;
- f. using clear English without codes; and
- g. standard search and rescue "Status Codes" and their meaning.
- 7. Outline and describe the major components a WEMT's report to a Wilderness Command Physician should include, including:
 - a. medical information, including:
 - i. introduction,
 - ii. history (patient ID and chief complaint, history of present illness, and past medical history),
 - iii. physical exam,
 - iv. field diagnoses,
 - v. treatment thus far,
 - b. the current situation;
 - c. tentative plans for further medical care, evacuation, and transportation; and
 - d. plans for further contact.
- 8. Discuss the variation in estimates of wilderness evacuation time by those trained and untrained in wilderness rescue, and indicate how to provide Base or a Wilderness Command Physician with the means to assess the accuracy of evacuation time estimates.
- 9. Identify important differences between "street" and wilderness documentation, including:
 - a. need for durable waterproof records;
 - b. roles of documentation, including:

- c. following trends in vital signs and patient condition;
- d. information for other WEMTs who care for the patient during the evacuation;
- e. legal documentation;
- f. research;
- g. quality control and improvement; and
- h. education.
- 10. Identify important non-patient-care points to include in wilderness patient documentation, including:
 - a. the environment;
 - b. the terrain;
 - c. equipment and personnel limitations;
 - d. any extrication, packaging, or evacuation problems;
 - e. the mechanism of injury;
 - f. your decision-making process, and any changes in your field diagnoses over time; and
 - g. any wilderness-specific treatments you employed, and documentation of the reasons for employing them.
- 11. Discuss safety, legal, moral and practical issues that need to be addressed before, during and after rescue of persons in the wilderness*
- 12. Discuss preservation of evidence and the safety of incident scenes commonly encountered during wilderness search and rescue operations.

Disclaimer

Recommendations for medical treatment in this curriculum are presented for training purposes only. We have attempted to ensure that all recommendations are consistent with current medical practices, but all care provided by WEMTs must be by the order of a physician. Your physician medical director must set protocols and standing orders, and you must follow them, even if they conflict with the recommendations in this curriculum.

Introduction

First and foremost, since this is a medical text and not a search and rescue text, this chapter considers the specific medical considerations that impact scene management.

This chapter also focuses on **reporting** and **documentation** -- seemingly dry subjects, but, as any experienced WEMT can tell you, central to the practice of a good WEMT.

An Appendix does provide an overview of search and rescue scene management from a general (nonmedical) perspective. This Appendix is not designed to turn you into a rescue team leader, only to provide the basics and to mention in passing some medically-important considerations.

The most important, and difficult topic in this chapter is **reporting**. Being able to provide a good Wilderness EMT report forces you to organize your thoughts, to come to conclusions about the patient's injuries or illnesses, and to express these thoughts clearly. In WEMSI WEMT classes, students often find reporting to be the most difficult skill of the class. And so it is worthwhile to spend considerable time studying the sections on reporting here, and to spend time thinking and practicing reporting.

Initial Patient Management

Patient Management on Searches

Wilderness SAR team members are quite often the first to find a person who has been lost. Based on statistics gathered by the Appalachian Search and Rescue Conference, the subject may be basically well and able to walk out with assistance (about 1/3 of found subjects), dead (again, roughly 1/3 of subjects), or ill or injured and requiring an evacuation (again, about 1/3 of patients). Those who are ill or injured (and many of those who are able to walk out) share certain characteristics due to being without food, shelter, and perhaps water for hours or days.

^{*} Italicized objectives refer to the optional Appendix.

Dehydration and Hyponatremia

Dehydration and hyponatremia are common findings in lost people. Those who are lost are often able to find at least small amounts of water, but seldom have a source of salt. Thus, they have depletion of salt more than water. Because hyponatremia can lead to a decreased level of consciousness or even seizures, all SAR team members should be taught to not to give search subjects water unless no salty fluids are available. Gatorade* at regular strength, in small sips, is best. Salted drinks are second best.

Hypothermia

Hypothermia is common in search subjects. We think of subacute ("exposure," "mountain") hypothermia in association with the outdoors, search subjects have often been exposed to cold over a long period, and are often fit the category of chronic hypothermia better. However, adding heat is always appropriate because otherwise the core temperature will continue to fall due to unavoidable losses despite the best insulation. Warm oxygen, warm IVs, and hot packs are all appropriate means of adding heat without rewarming. A Swedish charcoal vest is probably the best way to add heat. Hypothermia is covered in more detail in the chapter on *Cold-Related Disorders*.

Sometimes you will be in an outdoor environment, and will find an unresponsive... patient? corpse? And you will need to rapidly determine what to do. Except in the very hottest environments, you will suspect hypothermia. Details of decisions about CPR in the backcountry, CPR and ACLS in hypothermic patients, and determining death are discussed in the chapters on *Cold-Related Disorders* and *Wilderness Medical Problems*, but the flowchart here (see Figure 1) may be of some help in approaching these situations.

Starvation

Starvation is common among those who have been lost, and starvation causes certain biochemical abnormalities. A decrease in plasma proteins may lead to dependent edema. Starvation ketoacidosis may lead to a fruity odor on the breath similar to that smelled in those with diabetic ketoacidosis. The ketoacidosis also leads to variable degrees of confusion and lethargy.¹⁻³ Some of this danger may be attributed to a deficiency of one of the B vitamins, thiamine (vitamin B1).⁴ Acute psychosis or other neurological problems* can come from giving large amounts IV glucose or a large meal to a patient with thiamine deficiency due to poor diet and excess alcohol consumption.⁵ It is now common for paramedics to routinely give IV glucose and naloxone (e.g., Narcan®) for altered consciousness; when this protocol was first



Figure 1: Decision Tree for Unresponsive Body

proposed, some proposed that paramedics should also routinely give thiamine to prevent such

^{*}Wernicke's encephalopathy and Korsakoff's psychosis.

problems. As it turns out, giving an ampule or two of D_{50} (50% dextrose solution) is not likely to precipitate such problems. However, feeding a large meal or two to a starving wilderness patient just might cause such problems. Therefore, giving an oral thiamine supplement pill with the first meal seems like a reasonable precaution. Thiamine pills are available without prescription in drug and health food stores, and it is virtually inconceivable that giving one vitamin pill with a meal will cause any ill effects. (Some vitamin pills may cause stomach irritation if given on an empty stomach.)

Disorientation

It is the experience of many experienced wilderness rescuers that their patients are often confused and disoriented -- but that this resolves quickly once the patient is able to interact with other human beings in a reasonable social context.

Being lost in the woods can, independently of any physical illness, cause disorientation and confusion. Check the patient carefully for signs of head injury, dehydration or hyponatremia (see above), infection, hypothermia, heatstroke, stroke, or underlying psychiatric illness such as Alzheimer's Disease. But don't be surprised if you find nothing. And that the patient, over a period of a half-hour or so, gradually becomes reoriented and then acts entirely normal.

Dealing with the patient during that first period of disorientation can be challenging. Ways to help minimize this include:

- allow the patient to keep familiar objects nearby (e.g., a jacket that the patient has had all through several days of being lost)
- minimize the confusing sounds and sights of a search and rescue scene (e.g., keep most of the team away from the patient -- as difficult as this may be without hurting team members' feelings -- explain why to the team members)
- channel all contact with the patient through a single attending WEMT

You will find more guidelines for dealing with those with psychotic reasoning near the end of the chapter on *Stress Management and Critical Incident Stress Debriefing.* Patient Management on Rescues

Removing Patients from Water Immersion

Hydrostatic "squeeze": (reserved)

Possible ill effects of patient self-assisting in rescue efforts (reserved)

Removing Entrapped patients from Entrapment

"Third-space" losses, hyperkalemia, and crush syndrome are all problems that may occur when patients are entrapped. Most of these problems don't usually kill patients until after they are released from entrapment, however. And hydration (either IV or oral) can go a long way to prevent such potentially-lethal complications of entrapment.

These medical problems are discussed in detail in the chapter on Wilderness Trauma. The important point in this scene management context is that medically-unsophisticated rescuers often see rescue from entrapment as an immediate priority -- and do not understand that their hasty rescue efforts can kill patients. Therefore, you, as a Wilderness EMT, have the responsibility to educate other rescuers to the need for hydration (and possibly other medical treatment) prior to release from entrapment.

Moving and Realigning Patients

A general principle of first aid and "street" EMS is "splint it as it lies." For short transport times, this makes sense.

But for long transport times, it makes less sense. Being in a twisted position, whether it's of the neck, back, a broken arm, or any other body part, is likely, over time, to cause problems. First, it is likely to cause muscle spasms and pain. More importantly, though, such twisted positions can put pressure on nerves and blood vessels. Twisted positions can also promote continued bleeding into the tissues, and cause pressure on the skin from broken bones on the inside that can cause death (necrosis) of the skin.

Moving or "untwisting" bodies or limbs can, indeed, cause additional damage -- which is why

for "street" EMS the splint-it-as-it-lies rule is good. But when transport times are long, the benefits of untwisting may outweigh the risks. The decision to splint-as-it-lies or to untwist is a medical one, and should be made by the besttrained or most-experienced person at the scene. Often, as a Wilderness EMT, this means you. In the backcountry, though, the general rule is to "put it back the way it should be," because of the great benefits of normal alignment of the spine and extremities.

And, even on the street, "untwisting" makes sense. An example is someone who may have a spinal injury, but is in a twisted position. Gently untwisting the spine to get the patient on a standard backboard is now well-accepted even on the street.

How to Untwist: The major situations where you should untwist are twists of the spine and twists (or other unnatural bends) of the extremities. Realigning fractures and other deformed extremities is covered in the chapter on *Wilderness Surgical Problems: Orthopedics.*

Untwisting patients' torsos and spines is simple to explain, but difficult to do. The principle is simply to gently and gradually move and untwist the patient back into a normal anatomic position for further immobilization and packaging. You will want to do this in a smooth and coordinated way, especially if you suspect spine injury. Many trained hands make it easier to untwist someone -- but often, there is little room where the patient lies at the bottom of a tumbled pile of rocks, or in a narrow crevice in a cave.

Untwisting patients is covered in more detail in the chapter on *Immobilization*, *Packaging and Transportation of Wilderness Patients*.

Scene Management Abbreviated

Scene management is an art and science in itself. It is not the job of this text to teach such skills -that is done by search and rescue textbooks and, more importantly, by wilderness search and rescue training. Appendix A to this chapter provides some guidelines that you may find useful. The scene that you will manage, or help manage, will require different tactics depending on the nature of the incident, e.g., aircraft, car, cliff, field, cave, etc. You may need to consider scene preservation measures if you suspect criminal intent, if the subject is dead, or for aircraft accidents due to the need to determine the cause of the accident. As a Wilderness EMT, you may enter a scene believing that you are looking for a lost person and discover that much more has transpired. Proper reaction to clues at the scene, proper preservation of evidence, concern for safety of yourself and team members, and good documentation at the scene will help prevent possible repercussions later on.

The sequence of events at the scene of an incident, and the control (or lack of control!) of these events and circumstances. Don't turn an incident into a disaster, or a patient into a victim.

Mobilization

The scene of an incident may have many faces and places to supervise. An assemble point is required to get people together. Once there, personnel may need to go to a staging area before they finally get to the incident or begin to search for a subject in a search. During mobilization, WEMTs generally must assemble and check the team and personal medical kits and equipment.

Base Camp

The base camp is probably the initial assembly point that all are directed to during the call-out. An ideal base camp has easy road access, drinkable water, showers, shelter, toilets, a helicopter landing area, telephones, electrical power, a large parking area, an area for camping, an area for the press, an area for family members, office space, and good security. Good sites are: schools, fire departments, churches, and summer camps. WEMTs may be asked to set up a place for medical examination and treatment of those at Base Camp or returning from the field. Important items to consider for the medical station include: lighting, privacy, protection from wind and dirt, clean water, and places for personnel to sit or lie.

Staging Area

This area is closer to the incident than Base and may lack some or all of the other niceties of a Base Camp. This area may not be staffed 24 hours a day and many items will be trucked in and out as the teams are deployed. Sometimes medical equipment may be stockpiled at a staging area. WEMTs who stock the staging area must ensure medical supplies are protected from sun, rain, cold, and protected from damage by careless SAR personnel, rodents, or other animals, including search dogs.

Helicopter Landing Zone (LZ)

It is not always practical to locate a helicopter landing area at the Base Camp. A designated landing area may be established with minimal communications and transportation assignments to provide access to helicopter operations and medical evacuation. Planning helicopter LZ locations may require the WEMT's input regarding expected patient condition.

At the Scene in the Field

When arriving at an incident site, whether a found person, downed aircraft, or wilderness accident:

- ensure team personal and team safety first,
- limit the number of people making the initial entry into the area (to preserve evidence)
- establish contact with the subject
- investigate
- report and document all of your activities and what went on at the scene.

Scene Mnemonics

There are a few basic principles of scene management, though, that every WEMT should know. In particular, two common mnemonics are worth knowing.

"FAST" is a standard mnemonic used in many types of rescue. It outlines the overall principles and sequence of search and rescue efforts:

- Find
- Access
- Stabilize
- Transport

The important concept embodied in the FAST mnemonic is that access and stabilization occur prior to transport -- that medical care can and should occur as soon as you can get access to the patient, maybe even before you can get the patient out of an entrapment.

"STOP" is a standard mnemonic taught in survival courses -- designed to help you pause and engage your intellect. In a survival situation -- or other pressured and potentially confusing situations -- using the STOP mnemonic may save lives.

- Stop
- Think
- Observe
- Plan

What hazard caused the subject to stop here? What dangers face your and your team? Is this the person you are looking for? Do you have the correct equipment to enter the area safely? Is this area the scene of criminal action? When all questions are answered AND YOU ARE ASSURED OF YOUR SAFETY AND THAT OF YOUR TEAM MEMBERS, you may take steps to enter the scene. As one Appalachian Search and Rescue Conference member likes to put it: "don't just do something, stand there! "

Scene Hazards

The chapter on **The Wilderness Environment** discusses natural hazards that you as a Wilderness EMT can expect to encounter.

Vehicle Accident in Wilderness Environment:

Vehicles bring with them large amounts of fuel, electrical dangers, possibilities of explosives and fire arms, hazardous materials and extrication requirements that most wilderness rescuers are unequipped for. Think carefully on entering the scene. Bikes, Four Wheelers, Three Wheelers, and 4X4 vehicles do not present the magnitude of hazards as an aircraft, but you should approach them with much the same thoughts.

Aircraft

Even if the aircraft appears to be intact, expect that fuel has spilled onto the ground. Approach the scene from higher ground and down wind, if possible, to prevent walking onto fuel and into the face of a fire should it start abruptly.

Aircraft Electrical Power: Most aircraft use large capacity Ni-Cad batteries at 24 volts or higher. The electrolyte is a base solution vice sulfuric acid used by most automobiles. Expect that all electrical circuits are active and present a fire hazard. Batteries may be located anywhere including under passenger seats.

Military Aircraft: Military aircraft have many more dangers. Explosive bolts used to separate the canopy, rocket motors on ejector chairs, fire arms carried by crew, unexploded ordnance, radiation hazards, and high powered radio transmitters (RADAR) that can cause internal microwave burns to persons standing in front of the antenna. The military authorities may not wish the site entered due to National Security requirements.

Cabins, Huts, and Clearings

Most people would be relieved to find a cabin in the woods to enter and get warm. Test the structure for strength before putting weight on the floors etc. If it has been especially cold, you should open the door and permit fresh air to enter the cabin before entering. Many times a person will light a stove, use up all of the available air, and be overcome by carbon monoxide. You need not suffer the same fate. All types of animals will use the voids in and around the cabin for homes. Be especially cautious. Since remote cabins may be near patches of marijuana or moonshiners' stills, beware of booby-traps; remote clearings may be marijuana patches, and may likely be booby-Also, you may encounter a cabin trapped. belonging to a terrorist organization, or just a hermit who sets traps for uninvited guests. Indeed, the potential danger from "civilization" that you encounter in the backcountry probably outstrips the natural dangers by a large margin.

Other Scenes:

Water: Rivers, oceans, lakes, ponds and pools have killed more rescuers than any other single hazard. It remains your responsibility to protest yourself and your team from attempting a rescue without the proper equipment and skills.

Cave: The cave environment requires special awareness and training for you and your team. Radios will not work and special communication techniques are required.

Rock Face: If your subject is on a rock face, or near a vertical wall, make sure that you and your team are in a safe area out of danger from falling rocks. You may not be able to access your subject until additional equipment or trained personnel arrives. In general, rig a safety line for rescuers to clip into when there is danger of a fall over an edge.

Other Hazards: Be alert for any possible hazard. Observe continuously for problems. Communicate with your team and your subject.

The above and other natural hazards are addressed in the chapter on *The Wilderness Environment*.

Communications

Key Communication Concepts

"Communications is Your Lifeline!!"

Why is communication so critical?

- Coordination of Manpower and Resources (People and Things)
- Exchange of Mission and Support Information (Data)
- Medical Control for EMS
- Emergency Support
- Time Saver
- Force Multiplier
- "Working Together, You Can Do A Lot More Than Working Alone!"

WHO GETS COMMUNICATIONS?

- Patients and Their Medics
- All Field Teams (Including Isolated Personnel)
- Base Operations (Including Comm Center and Command
- Home or Dispatch Operations
- Support Activities (Including Logistics, Transport...)
- Associated Agencies (Including Sheriff, Rangers, EMS...)

WHAT KIND OF COMMUNICATIONS?

- Critical Component: "Intention to Communicate!"
- People-to-People
- Categories
- Manual and Electronic
- Direct and Indirect
- Real Time and Delayed
- Examples and Characteristics

- Radios
- Field Telephones
- Landline Telephones
- Whistles and Audible Signals
- Written Notes and Messages
- Others

CRITICAL COMMUNICATIONS FACTORS

- Support to, and Access by, ALL Who Need It!
- Interoperability (Both Technical and Operational)
- Training and Experience
- Standard Procedures

HOW TO COMMUNICATE?

- Test It First (And Test the People, Tool)
- Lots of Spares and Supplies (Batteries, Antennas...)
- Relay Messages "Verbatim", and Relay for Others, Too
- Acknowledge ALL Messages
- Communications Security (Scanners, Press, Criminals...)
- Clear Communications
- Plain English
- Use Only Standard SAR Codes ("Status 1, 2, or 3")
- Radio Procedures (See Handouts)

Radio Use

The majority of wilderness communications will require the use of a radio. An exception to the use of a radio would be in a caving rescue where a field telephone may be better suited for the situation. To be used effectively, both the person transmitting and receiving the message should be using the same language. While we could both be talking in English, one could be talking Fire/Rescue and the other person CB slang.

The proper operation of your communication equipment is critical to the success of your task

and the survival of your patient. When given a radio, you must assure yourself that you understand the operation of the radio and that it is working properly. Try to always carry spare batteries (tested), extension antenna, protective case for the radio, note pad and pencil, plastic bag for weather protection, spare radio (tested), and lost communication instructions.

Here are some hints to assist you to transmit and receive better in the field:

Line of sight: The radio frequency used in most search and rescue situations will not send signals around hills or above canyons walls. If you are below a ridge line, etc. you may not be in contact with your base until you move to higher ground or use a longer antenna. Under good conditions you can expect to communicate over 5 miles.

Squelch: This controls the sensitivity gate on the receiver. If the squelch is off or set low, all signals are processed and a roar is heard through the speaker. If the squelch is set high there will be no roar but only the most powerful signal will come through. The proper setting is to turn the squelch until a roar is heard. Turn the knob back until the roar stops and then turn back a bit. This gives the highest sensitivity for the conditions without the roar that consumes battery power and drives people crazy.

Listen to Radio: During your task, make a note about when and where you are able to receive BASE clearly and what other Field Teams you are able to hear clearly. This information may be used later if you can not reach BASE or what other Field Teams could be in contact with BASE that could relay for you.

Improving Your Transmissions: If you can hear BASE and they cannot hear you or your transmission is poor back to BASE, try:

- Take the radio out of the case an hold it above you head while transmitting.
- Add the extension antenna.
- Place the radio on top of a car or truck. The metal surface will act as a ground plane to pull more of the signal to follow the ground and not radiate out into space.
- Move to higher ground.

• Attempt a relay through another field team that can hear you and talk with BASE more clearly.

Batteries: Attempt to use the lowest transmit power that gives good communications to BASE. This will help conserve battery life. NOTE: To prevent inadvertent damage to the radio, always install the antenna before installing the batteries and turning the radio on.

Clear Text: To ensure proper communication both person must understand the need of the other person. The Incident Command System (ICS) requires that all persons in the command structure use clear text, codes such as ten series, elaborate medical terminology or trade names for equipment diminish the meaning and create the possibility of misunderstanding.

Key Words and Procedures: A good radio transmission is well thought out, brief, and uses clear text. Here is a selection of key words to assist your initial understanding of field communications.

- **BREAK** -- Used to interrupt communications between Base and another Unit for emergency communications.
- CHANNEL -- A channel number is used as a short hand to identify a communications frequency to use, i.e. CHANNEL 1 could mean, use 155.160 MHz.
- CLEAR -- Used by the Net Controller, normally the Base Radio Operator, to let other units know that they are free to communicate with others.
- **OVER** -- I have finished with my transmission and expect a response.
- RADIO CHECK -- Used when operation of radio is questionable and at start of task. It identifies to the Base Radio Operator that no messages are forth coming and if the radio sounds normal a response would be LOUD AND CLEAR.
- **READY TO COPY** -- This is a statement and a question used to verify that you will and are ready to write down the next series of instructions.
- **REPEAT.** -- May be used to ask the person to repeat their last transmission or I

REPEAT, if you are repeating your last transmission.

- SPELL -- May be used to ask the person to spell the work, using the International Phonic Alphabet of I SPELL if you will use the phonic alphabet. The ICAO International Alphabet is attached.
- STANDBY -- Please wait until I can give you an answer or my attention. Something has come up that was not expected. Used by Base Radio Operator when your communication has been interrupted by a BREAK.
- STATUS 1 -- Subject/s have been found, in good health and can be walked out.
- STATUS 2 -- Subject/s have been found alive and will need to be assisted/carried out.
- STATUS 3 -- Subject/s have been found dead.
- THIS IS -- Used to identify yourself.

This is an example of how the radio communication of a field team finding a clue and BASE could sound.

BASE, THIS IS, ALFA, OVER.

ALFA, THIS IS, BASE, OVER.

BASE, We have located a baseball cap, blue in color, no other identification, size 7.5, at map DELTA 3021. We have marked the site. What are your instructions? (Note: If you have forgotten to get any information prior to calling BASE you will be forced to ask BASE to STANDBY while you get the information such as the map coordinates.)

STANDBY, ALFA. (Note: BASE will normally ask you to standby while they contact Operations and Plans to determine if the clue is of significant to this incident. While you are Standing by, BASE may work with other units.)

ALFA, THIS IS, BASE, OVER.

BASE, THIS IS, ALFA, OVER.

ALFA, Remain at your present location until contacted by Officer Henry, who will take the item into custody. Report when ready to resume your task. OVER.

BASE, Understood, will remain until contacted by Officer Henry and will report when ready to resume task. OVER.

BASE, CLEAR.

Communications, Initial Set Up

The Net Controller, normally an organization holding a Federal Communication Commission License and authorized to operate radios for the purpose of the type of operation that you are assigned to, will establish initial communication at a location that permits access to telephone, roads, water, electrical power, parking, etc., near the operations area. They are responsible for the proper operation of the radio, i.e., on frequency, correct power, distortion free and appropriate language is used. As the operation continues a base station with antenna mast may be set up and other remote relays or re-transmitters may be used to enhance the communications with field units.

Large operations in the U.S. may request that the United States Department of Interior provide the use of some of the radios from the Boise, ID Fire Suppression Radio Cache. These radios are intended for large fire fighting operations, natural and manmade disasters, searches, etc.

Communications Security

Of the commonly used communication media, the telephone is the most secure, i.e. the possibility of your conversation being overheard. Expect that all radio transmissions are being monitored by your Responsible Agent, the press and family of the subject/s you may be searching for. Inadvertent statements or gallows humor will portray you as non-professional in you dealings with your task, producing misleading information and unnecessarily distress the family and friends of the subject/s.

The Press

The press will already have all of the operating frequencies that the FCC License permits you to operate on programmed into their scanners. This is legal and should not create a problem for your operations. Develop the best possible working relation by keeping the Press away from your primary communications center. Keep them briefed frequently and with the story that you want them to tell. Give them a Public Information Officer to make sure that they get the best possible story. The Press also has excellent communications capabilities that they may make available at little or not cost, i.e. satellite up and down links for telephone communications.

The Family

The family and friends of the subject/s must be kept informed of the events of the operation. Many transmissions are routine or are running down clues that may give fault hope to the family. The Family members should be, as much as possible, kept in a private secure area, given frequent briefings, and informed of all changes to the operation before the Press is informed. It is very embarrassing for the press to inform the family. While the person assigned as a family liaison may carry a radio, it should be on a separate frequency so that they may be contact disturbed routine but not by radio communications.

Reporting

Introduction to Reporting

Reporting is key to coordinated search and rescue and wilderness Emergency Medical Services. The following outlines ideal reporting -- reality may be different, but you should do your best to approach this ideal.

- Most WEMS Reporting is via Voice Radio ("Paint A Picture")
- Keep Reports Brief and to the Point
- Save Limited Resources (Batteries...)
- Security (Avoid Publicity and Intercept, Switch Channels...)
- Write and Read Reports AND Orders
- Reports Should Be Relevant To Field Treatment
- Report Situation and Plans
- Obtain Advice and Medical Control (Direct Link...)
- Coordinate Support (Personnel and Equipment)

- Coordinate Evacuation and Transport (Patients and Teams)
- Present report as follows: Introduction, History, Physical exam, Field Diagnoses, Situation, and Treatment Thus Far.

Reports During SAR Operations

When you are designated to perform a task you will be assigned some equipment, radios and a radio identification, i.e. team ALFA. Once you are about to start your task, Incident Command will be very interested in your progress. The Base staff will generally use your radio reports to log your progress, providing some important documentation for you. The following discusses when and the nature of the contacts made with Incident Command.

At Base or Staging Area

Perform a radio check with BASE using all radio equipment you will take to the field. You are now expected to remain on the air for future contact even though you may not have been deployed to the field, as yet.

Starting Task

Once deployed to your task area, contact BASE with your map coordinates and that you are starting your assigned task.

Routine Check-Ins

Your Task Assignment Form will have the times or the contact interval recommended by the Incident Command. This could be once every half hour or only as necessary.

Reporting Clues

If engaged in a search, and your team has identified an item of significant to the task, obtain the following information prior to making contact with BASE. Determine what significant this item may have. Investigate the area around the clue, but be careful not to destroy the other evidence in the area. Determine your map coordinates and note the time.

Reporting of Subject/s Find: INITIAL CONTACT

When you find a subject/s or incident site, you should consider the following before making an initial contacting with BASE.

- Is this the correct person, aircraft, etc.?
- What is the general condition of the subject/s.? STATUS 1, 2, 3.
- What are the map coordinates?

If you call as soon as you found the incident site, BASE will inundate you with questions. If you wait until you have all of the possible information, BASE may dispatch teams needlessly, before knowing enough about the find.

Follow Up

Take time to get all of the information ready for BASE. Is the subject/s in danger? Can they be approached safety? Are additional equipment and personnel needed? What is the ETA to a road head for your team.? What is the weather now? The initial medical report on the operations channel will be restricted to STATUS 1, 2, 3. Patient vitals maybe redirected to another radio channel to go directly into Medical Command.

Medical Command: The Team Medic will normally communicate with Medical Command to first present the patient to Medical Command and then to receive advice and instruction on patient care.

Team Leader: Continues to provide updates on when and how the subject/s will be ready to move and if there are additional equipment or personnel needs. This radio should remain apart from the patients location, as some statements could be misunderstood by your patient.

What not to Report: While the majority of them are valid, some personal observations, opinions, description of maimed bodies, odor of rotten flesh, and the like will not add to the professional image of your team, and may create problems for (or with) the press and family of the subject.

Reporting Format Details

Explanation of Reporting Format

- Team identification and location.
- Medic name, level of training
- History:
- Patient ID and Chief Complaint: (name generally not given to attempt to keep some patient confidentiality) age, race, sex, (estimated weight for children, infants, or small or large adults); nature of accident, injuries or illness; may use PQRST mnemonic for painful complaints (see section on Patient Assessment).

- History of Present Illness: elaborate on Chief Complaint.
- Past Medical History: may use SAMPLE history mnemonic (see section on Patient Assessment). include Review of Systems (ROS) only if indicated.
- **Physical Examination**: generally much more detailed than "street" EMT's secondary survey.
- Vital Signs: Pulse, Blood Pressure, Respirations, Temperature, (also Urinary Output, Level Of Consciousness, Glasgow Coma Scale, or other items if appropriate)
- Specific Examination Results: HEENT, neck, lungs, heart, abdomen, extremities; as appropriate for the patient. If time permits, generally give the complete exam, head to toe. Start with a general impression before going to specifics. Try to "paint a picture" in the doctor's mind's eye.
- Field Diagnosis: EMTs and paramedics are said "not to make a diagnosis" because this is "practicing medicine without a license." Hogwash. Especially in the wilderness, you must form a tentative diagnosis (or diagnoses) for your patient, or you won't know how to care for the patient. Example: "My impression is that the patient has exhaustion and mild hypothermia, which explain the slight confusion, but no head injury. He also has a probable fracture of the ankle, though it might just be a severe sprain, and a single right rib fracture but without any evidence of pneumothorax, hemothorax, or pulmonary contusion."
- Situation:
- **Resources**: What equipment, supplies, and personnel you have available or are likely to have in the near future.
- Environment: Weather, terrain, related problems.
- Evacuation Time Estimate
- Plans: what do you plan to do now? What will you do if you can't reestablish contact with your physician?

ID: Team Identifier and Medic name and level of training

Chief Complaint

History:

- History of Present lilness
- Past Medical History
- Medications
- Allergies

Physical Exam

Field Diagnoses (or problem list)

Scene:

- Weather
- Terrain
- Resources
- Prior Treatment
- Evacuation Time Estimate

Evacuation Priority:

- Hasty (Very Urgent) or
- Urgent or
- Routine or
- Delayed (bivouac)

Treatment Now

Plans for Possible Problems During Evacuation

Figure 2: Standard Reporting Format

Reporting Examples

Version 1

How would you like to be a Wilderness Command Physician for this operation?

"Base, this is Team Alfa with a medical report. We found him at the bottom of a twenty- foot cliff, presumably after a fall but he doesn't remember. His vital signs are stable, but he's cold and slightly confused. The detailed physical exam is as follows: The head shows a few abrasions, but no deformity; the ears are [10 minutes more of physical exam] Over."	
	"Team Alpha, this is Base; your radio signal is almost unreadable. Please move to a better position, and say again all after `medical report.' Over."
 "Roger. Base, this is Team Alfa with a medical report. We found him at the bottom of a twenty-foot cliff, presumably after a fall but he doesn't remember. His vital signs are stable, but he's cold and slightly confused. The detailed physical exam is as follows: The head shows a few abrasions, but no deformity; the ears are [10 minutes more of physical exam] 	
	"Team Alfa, [yawn] this is Base. Did you want to talk to the doctor? He's not here right now. Over."
"[In a frustrated tone] Yes, I'd like to speak to the doctor Over."	
	"OK, hang on, Alfa. Here he is."
	"Team Alfa, this is Wilderness Command Physician Bates; I just arrived here at Base. I understand you found a patient. Please give your report."
"Well, it's like this. We found him at the base of this little cliff, you know? He is on an albuterol inhaler for asthma, but not now. And he doesn't remember what happened, but his	

head exam shows some abrasions, so he must have fallen, but the cervical spine is clear, and his eyes are OK too, the ears also. And he has maybe a sprained or maybe broken ankle." [Voices in the background.] "Foot. It's his foot. He's not allergic, but he's had a hernia. A hernia operation. A long time ago. And we're about ready to package. He's a little warmer now, but still not completely with it. He's" [pause] "He's" [pause] "He's vomiting." [pause] "OK, he's stopped now. We'd like to do reduce the shoulder dislocation, give him some IM morphine, and evacuate. Any further orders?"	
	"Team Alfa. Whoever you are, don't touch the patient; take your hands off the patient, and back away slowly, until you're at least ten feet away. Hand the radio to someone else. Anyone else. Now someone tell me what's going on before I threaten to kill someone."

Version 2

How to do it right.

"Base, this is Team Alfa. We have located the subject, Status 2, at Charlie 0214. Will require litter, evacuation team, and additional medical gear. Permission to speak to Medical Command, please. Over."	
	"Team Alpha, this is Base; your radio signal is almost unreadable. Please move to a better position, and say again all after `medical command.' Over."
"Base, this is Alfa. How copy now?"	
	"Alfa, this is Base. Copy fine now. Understand Status 2 find at map coordinates Charlie 0214, that you need litter, evacuation team, and additional medical gear, and that you wish to speak to Medical Command. Is that correct? Over."
"That is correct. Over."	
	[new voice] "Team Alfa, this is Wilderness Command Physician Bates. I just arrived here at Base. I understand you found a patient. Please give your report."

"Doctor Bates, this is Wilderness EMI-	
information on the subject at Base Have you	
reviewed this information? Over."	
	"Sorry no I haven't I'll see if someone
	can find it for me, but for now, assume I
	know nothing except that your team is up in
	the mountains somewhere."
"OK, we've been searching for a twenty-two year old white male since this morning. He was hunting with friends yesterday, and got separated from them at dark. We found him at the base of a twenty-foot bluff, and his injuries and the situation suggest he fell over it last night. He doesn't remember falling, but remembers waking up where he is now. His chief complaints to us are pain in the left shoulder and right foot, and that he's tired, cold, and hungry. How copy so far?"	
	"Alfa Leany you find Co sheed "
With company willing around last offer	Ana, i copy you line. Go anead.
dark, then waking up where he is right now	
sometime during the night, with his left	
shoulder and right foot hurting. Because of his	
injuries, he wasn't able to try to walk out, so he	
hobbled a few feet to a sheltered place and made cost of a post with some losses. Break	
made soft of a nest with some reaves. Break	
[pause]	
"Continuing	
He has no medical problems except for mild	
astinina, for which he occasionally uses an	
problem now. He has no drug allergies.	
His vital signs are: BP 110/70 Pulse 92 and	
regular. Respirations 16 and unlabored. Rectal	
temperature is 97° F.	
The head and face show a few abrasions but	
no significant tenderness, no deformities, and	
no significant bruising. The ears, eyes, nose and	
mouth are all normal to inspection with a	
penlight; PERL and EOMI.	
The neck is nontender but we are continuing	
shoulder a distracting injury.	
How copy so far?"	
rion copy to rat.	
	"Alfa, this is medical command. Copy

	fine so far, except for the temperature. Did
	you say that was a rectal temp? Over."
"Affirmative. We've got one of those one- shot electronic thermometers, though we'd like a continuous-reading one for the evac."	
	"OK, go ahead with your report."
"The chest is nontender and the lungs are clear. Heart sounds are normal. The abdomen is soft and nontender. The back shows some slight tenderness and spasm in the lower left back but it is really quite minor according to the patient. The pelvis is stable and nontender. Break" [pause] "continuing His left shoulder seems to have an anterior dislocation: it has the characteristic deformity like we were taught in Wilderness EMT class, and he can't bring the left hand to his right shoulder. Neurovascular status is intact distally, and there is no other abnormality of this or the other arm.	
The right foot has some tenderness anterior to the the the bump on the outside of the ankle. There's a small bit of swelling there, but no bruises. He says he could have probably walked on it if it weren't for the shoulder. Even though the tenderness is in the foot, it seemed to bother him more when I inverted the ankle than when I pressed it, so I suspect it's just a sprain. He might have a fracture, but if so, I don't think it's a very big one. Break"	
[pause] "continuing	
The neurological exam, including mental status, cranial nerves, sensory, motor, deep tendon reflexes and finger-to-nose test, is completely normal. The only problem is that he really doesn't remember falling last night, though it's pretty obvious he did. Copy so far?"	
	"Copy fine. Good report, but can you summarize it for me?"
"OK, to summarize, we've got a 22-year old with no active medical problems who fell about twenty feet but can't remember it. He has mild hypothermia, dehydration, and starvation, and a right sprained ankle and a left shoulder dislocation. We're immobilizing the cervical	

spine right now, but given that it's going to take a long time to get him out of here, I'd like to	
clear it if we can reduce the shoulder here.	
Even if we can reduce the shoulder, I don't	
think he's up to walking much if at all, so it's going to have to be a litter evacuation.	
I don't know what it's like down there at	
Base, but up here at 4000 feet, there's about a	
20-knot breeze and it's foggy and raining.	
There's no way a helicopter is going to fly	
tonight.	
The team leader has picked an evac route,	
but it doesn't look like fun. We've got a real	
really pasty rhododendron then slogging	
through some fairly flat but very brushy bogs for	
about a mile, then a fairly nice semi-tech	
evacuation about a half mile down to a jeep	
trail. Once a litter team gets here, which I hope	
Base is going to say is soon, it'll probably take	
about five hours to get him out.	
total of nine people. Two of us are paramedics	
and two are EMTs. We've got a little tarp set up	
as a bivouac for all of us, and we've got a stove	
going to make some water-bottle hot packs for	
him. We've given him some hot soup but he	
just vomited it up. Hold on "	
"OK. He's still hungry. I think he just	
scarled down a little too much of that soup. We tried to give him just a little, but he grabbed it	
with his good hand. I think he's willing to try	
small sips now. Is that OK?"	
	"Sure, that sound fine though I'd like to
	be sure that he's not vomiting due to a head
	injury."
"Sure, I can understand your worry, but this	
guy really acts completely normal, his	
nauseated before I think his head is OK be	
just ate too fast."	
-	"OK, more chicken soup sounds good."
"We've just got our individual paramedic	
level personal medical kits, but no group kit."	
"What we'd like to do is to get a little more	
soup and hot cocoa into him, rewarm as best we	
can, and try a shoulder reduction once he's a	
Ittue warmer and his muscles have relaxed a bit.	
better, we'd like to clear the c-spine if we can.	

The main things we plan to watch for are vomiting while he's in the stretcher, make sure he warms up, and make sure his asthma doesn't act up."	
	"That sounds just fine. If his shoulder still hurts somewhat after the reduction, then feel free to give him a couple of acetaminophen or hydrocodone pills, depending on how much it hurts. If you think you'll need to give IM Toradol), or any other pain medications to get the shoulder in, though, you won't be able to clear the cervical spine, you know. Talk to me first, if you need medication for the shoulder dislocation. Anything else right now?"
"No, that about covers it. Medical Command, this is Team Alfa clear."	
	"Alfa, this is medical command clear. I'll turn you back over to the Base Radio Operator to make some arrangements for a litter team and such."

Documentation

The paper trail that represents decisions made to allocate personnel, equipment and events begins with the first notification and ends after the final report and debriefing back at quarters. Documentation serves several purposes, including protection from litigation. Each time you respond to an incident, your team is successful or not. Each time there are many items that other teams may learn from. War stories at dinner may not correctly convey the learning process. Complete documentation of each phase, task and patient care, will assists your team and others in a better understanding of how to do a better job the next time. The documentation tracks the costs and help you to solicit funds from other organizations.

The documents will require preservation and protection from press and prying eyes until they can be released in an orderly manner. In some cases litigation will require that the document be sealed until the case is settled in court.

"If you didn't write it down, it didn't bappen."

Attached to this chapter are figures showing standard WEMSI patient record cards. They are worth looking at carefully -- these give you a good idea is to the information that others (including lawyers) will want to see.

Appendix A: Scene Management

When you arrive at an incident site, i.e. lost person, aircraft, accident. Ensure your personal safety first, limit the number of persons making the initial entry into the area (to preserve evidence), establish contact with subject, investigate, report and document all of your activities and what went on at the scene.

Scene Management: Sequential Checklist

The following is an approximate sequence of events and actions that need to be taken at a SAR scene. As a WEMT and the team medic, your responsibility is rarely to perform all of these yourself -- the Field Team Leader shoulders that responsibility. But you may be required to perform some of these tasks in addition to your medical responsibilities, so it is worth thinking through this sequence as you prepare your mind for any wilderness search and rescue operation.

Observe Continuously

Stay alert and stay alive, and this includes protecting your team. Also, always be watchful for indications of criminal activity or possible evidence and its preservation.

Approach the Scene

Continue to observe while approaching, regardless of the method (hiking, helo-insertion, etc.) and beware of hazards.

Assess the Situation

Evaluate hazards, environment, history of incident, identification of scene, initial location of subjects, etc.

Contact report

Provide an early report to base (or support activity) concerning your identity, location, quick

estimate of situation (from above), preliminary observations, anticipated support requirements, and next actions and recommendations. Do this before you get on the scene and get too busy!

Access the scene

Get to the scene itself by completing the approach. Stay alert!

Stabilize the Situation

Mitigate, avoid, or fix significant hazards (such as rockfall, water, unstable obstacles, etc.), both to your team and the subjects. Minimize or compensate for interference (such as rain, leaking chemicals, tourists, etc.).

Locate ALL the Patients

Rapid area survey, with quick patient interviews, if possible.

Assess the Patients

Preliminary survey and triage.

Preliminary Situation Report

Provide an initial report to base confirming your location and concerning your initial assessment of the situation and the patients, anticipated support requirements, and next actions and recommendations. Do this before you get bogged down in the detailed activities!

Full Assessment of Patients

Full surveys of patients, secondary to triage and your estimate of their probability of survival in the circumstances.

Stabilize the Patients

Treat the most critical (survivable) first, then the rest, and protect them all.

Full Situation Report

With the knowledge of what the situation really is (you hope!), provide a report to base concerning clarifications and updates to your initial report, any modified requirements, and your next actions and recommendations. If appropriate, this is the time to establish medical control (if available), or continue operating on standing orders and initiative.

Extricate the Patients

Remove the patients from any encumbering circumstances (snow, airframe, hazards, etc.) to enable full access and future packaging.

Reassess the Patients

Once freed, the patients should be reexamined, restabilized, and reprotected. Be conscious of any changes in conditions (such as LOC, BP, distal neurovascular deterioration, etc.).

Record the Scene

Collect, photograph, or document any potentially or actually significant evidence or circumstances for future training, reports, and possible legal activities.

Package the patients

Prepare the patients for medical stabilization and physical transport by litter, helo, etc. with special attention to shock, vibration, thermal insulation, and rapid access.

Evacuation Report and Coordination

Provide a report to base concerning latest patient conditions and situation, including evacuation method, route, schedule, and necessary coordination, plus next actions and recommendations.

Evacuate the Patients

Evacuate the patients from the scene to base, landing zone, or place of safety and further care.

Perform continuous or frequent patient monitoring, with special attention to deteriorating vitals or other medically significant changes.

Consolidate the Scene

Clean up scene and collect your gear and team. Preserve or conceal any significant elements, as necessary for survival or ecology.

Final Situation Report

Provide a final report to base of resolution of the situation, any remaining tasks to be done, and departure plans.

Extract Team

And don't forget anybody! Check in at base when returned.

Scene Complications and Considerations

Adverse Locations

Remote or difficult locations of the scene or the subjects may significantly restrict access (no room in tight crawlways) or even prevent it. It may also cause very long delays and difficulties in obtaining support and supplies, and large expenditures of manpower to perform the mission. This usually requires special skills and equipment, which must be obtained rapidly.

Adverse Environments

Although covered in detail in other sections, the management of the scene may be severely affected by the environment. Examples are terrain (jungle, mountains, caves, floods, disasters, etc.), weather (tornadoes, lightning, etc.), and animals and plants (mountain lions, skunks, poison ivy, dense brush, etc.) Preparation and training, with some special gear, is usually required.

Multiple Injuries and Multiple Patients

Often a single patient is a significant challenge. Multiple patients, from downed aircraft, disasters, or terrorism, will overwhelm even the best Wilderness EMS systems. Rapid assessment, triage, flexibility, and massive coordinated support (usually never enough) are needed.

Psychological Considerations

Both the patients and the team may be subject to severe or debilitating psychological effects. It is critical to continuously monitor each others attitudes and actions, and to employ teamwork for mutual support. PMA (positive mental attitude) can overcome almost anything, but it is not the same as the "instinct to survive". Personnel must also want to survive, and often draw support from experience, training, familiarity, and knowledge. Avoid susceptibility to ignorance or defeatism (or those who are subject to these problems).

Security

Any scene may become the target of an onslaught of tourists or the press, or curious (or hungry) animals. If this appears probable, scene isolation may be difficult without early action or law enforcement support. Scenes may also contain evidence of criminal activities which must be preserved, and may be the subject of destructive actions by involved perpetrators.

Common SAR Scenes

Here are some common scenarios, with a "checklist" approach to management:

Lost Person found in Wilderness

Report initial find. Ensure your safety. Hold your team back about 20 feet. The team leader and team medic will approach the subject to determine if this is the lost person, their condition, and if there is a need to preserve the site for possible criminal investigation. A person found dead will require police authority before moving any items or the subject. A person who is in danger of dying may be moved and treated without any authorization beyond your EMS Protocols. Begin preparations to move your patient out and estimate time and distance to roadheads.

Rescue of Person in Vertical Environment

Report initial find. Ensure your safety. Ensure that your team is in a safe area. Rig safe anchors and safety lines for rescuer clip-in. Determine the needs of your team to access the person. Observe the condition of the subject. Do not hurry. Once you are assured that all equipment and the skilled personnel are ready to go to the subject should you go.

Alrcraft Accident Site

Report initial find. Ensure your safety. See additional safety concerns on aircraft above. Hold your team in an area that does not appear to be part of the crash site. Once you have determine the probable safety of an individual to enter the site, an experienced person should be selected to enter and assess the site. Everyone should be cautioned to look over their heads for both victims of the crash and parts of the aircraft in a wooded area. A boundary should be established just beyond the crash site for personnel to hold at. In a wooded area you can determine the probable direction the aircraft had just before impact by looking at the tree damage. This area should be searched for wreckage and possible victims if any are unaccounted for.

Make every effort to verify the aircraft number and the number of persons in the crash site. Report this to Incident Command as soon as possible. You have found an old crash site, or one that had not as yet been reported. If you have the correct crash site and can not account for all passengers, recognize that additional teams will be required to search the area.

Injured persons should be treated immediately and moved to a position of safety as soon as the situation and patient treatment warrant. Persons that are obviously dead should be left where found. A cover may be placed over the person, but do not use parts of the wreckage. If you have a camera available, take pictures before injured persons are removed and parts of the aircraft moved to extricate them. Do not wait for a camera if one is not immediately available. Move as little of the wreckage as possible but move anything you need to, to treat your patient.

If triage tags are available, place the unused tags of an injured person in the seat or location that you have taken them from. Most have a unique number assigned to the set of 4 tags for an individual.

Conclusion: the Ideal Operation

Prior to starting your assignment you had been briefed on what to expect by Incident Command Operations: a corporate jet crash with four on board. You made some initial judgments regarding how best to approach the scene and what equipment you decided to carry with you. You are successful in locating the scene and the next few seconds determine the course of events to follow: Remembering all of what you've been taught, plus using your common sense, you scan for hazards. You guide your team in avoiding these hazards, get the patients out of range of the hazards, provide medical care with radio contact with your Wilderness Command Physician, who instructs you how to do an escharotomy on one patient to save the patient's arm, then evacuate them to the waiting helicopter at the LZ. You turn over organized written reports to the helicopter crew, which are in turn turned over to the emergency physician in the Emergency Department and then the trauma surgeon -- these reports turn out to be important in the management of the patients in the trauma unit.

All of the patients survive, and do relatively well. One of the patients' family sues the jet manufacturer, and the attorney also names you SAR team in the suit. You, as the SAR team WEMT, are deposed by the lawyer -- but after reviewing your deposition, buttressed by your detailed documentation, the lawyer drops you and the SAR team from the suit.

You take a deep breath as you leave the county court building, and decide you'll stay involved in wilderness SAR after all.

Glossary

Hyponatremia: a level of sodium ("natrum" in Latin) in the blood that is less than normal. This may come from a lack of sodium or an excess of water in the blood.

Dependent edema: edema of the lower parts of the body. When one is standing or sitting most of the time, this becomes pedal edema in the ankles; when lying, it becomes presacral edema in the lower back.

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Appendix B: WEMSI Patient Record Form

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Appendix C: ITU-ICAO Phonetic Alphabet

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