Allegheny Mountain Rescue Group

c/o Dept. of Emergency Medicine, Mercy Hospital
1400 Locust St. Pittsburgh, PA 15219-5166
Emergency Alert: 1-800-MED-STAT in Pennsylvania
1-412-647-7828 elsewhere Business Calls: (412) 869-3747
A local Group of the Appalachian Search and Rescue Conference, Inc.
A Member Team of the Mountain Rescue Association, Inc.

Reply to:
Keith Conover, M.D.
36 Robinhood Road
Pittsburgh, PA 15220-3014
412-561-3413; CIS: 70441,1506
Internet: kconover+@pitt.edu

October 22, 1994

DUPLICATE

Gary Mechtel, ASRC Ops Ofcr
SMRG ASRC Delegate
9027 Early April Way
Columbia, MD 21046

Dear Gary:

SUBJECT: **ASRC Ops Manual**

Only received your letter and the Ops manual draft when I arrived home from work a few minutes shy of midnight on the 20th, so couldn't have it to you with comments that day as you requested. However, enclosed you'll find my marked up copy.

Regarding the personal equipment list: I think the only way to resolve the helmet/goggle/hearing protection issue (and my own particular insistence that FTMs or above have a head-mounted light, not just a flashlight) is to have different lists for CQ and for FTM/FTL and above. CQs don't need helmet, ear protection, or a headlamp, because we don't expect to be able to use a CQ for a helicopter work where they will need goggles, an evacuation where litter bearers need helmets, or night evacuations or difficult night search tasks that require a head-mounted light.

I also think our Medical Officer ought to develop a standard recommended first aid kit.

My only other substantive comments fall into the medical realm.

First: standards for clinical care should be set by physicians. If the ASRC tries to set standards of clinical care we're either (1) practicing medicine without a license, or (2) setting ourselves up as a clinical care standard-setting organization like the

National Association of EMS Physicians or Wilderness Medical Society. The ASRC helped create the Wilderness EMS Institute, which now functions as such an organization-- but it has a large number of active physicians affiliated with it. I recommend we leave the creation of clinical care standards to NAEMSP, WMS, WEMSI, and other medically-oriented organizations, and to our physician State Medical Directors.

Second: as far as non-clinical operational standards for medical care (what to carry in kits, levels of training, certification, licensure, continuing education for field providers, which reporting forms to use, etc.), this is something that should be a shared responsibility between the ASRC Ops Committee (primarily the Ops Officer and Medical Officer) and the physician State Medical Directors.

Third: I've drafted a set of medical policies for the ASRC in Pennsylvania, based on my understanding of the duties and responsibilities of the role of Medical Director. I mailed these to all ASRC Groups at the beginning of the month, but perhaps you haven't seen them yet; please give me your comments on this draft, and cogitate over the proper interface between physician-created medical policies and the Ops-Committee created Ops Manual.

Fourth: WEMSI will have an administrative policy manual done within the next week or two; it concerns itself with WEMSI structure and administrative responsibilities, accreditation of Wilderness Command Physicians, accreditation of field providers, and details of on-line and off-line medical control. This will apply to all ASRC personnel when operating in Pennsylvania, and very specifically to those seeking accreditation by WEMSI. I will send you the complete document as soon as it is available, but a preprint draft of some portions are enclosed.

Here are some specific suggestions for modifications:

I suggest that we modify 2.10.2 as follows:

"The ASRC Medical Officer, in consultation with the Operations Officer and the State Medical Directors, shall recommend to the ASRC BOD standards for: minimum Group BLS (EMT-Basic) medical kits, medical documentation and reporting for each state in which the ASRC operates, and recommended medical training, certification, continuing education, and documentation of such for field providers. The Medical Officer shall review the standards of care established by all ASRC State Medical Directors and ensure that all first aid and medical training provided by the ASRC is consistent with these standards of care."

As far as 2.10.5: As far as I know the ASRC has never had "Medical Advisors" though individual Groups may have had them. We do have Medical Directors for Virginia and Pennsylvania charged with both on-line and off-line medical direction for our care within those states. Suggest changing this to "State Medical Directors."

I'd add a 2.13:

2.13 Requirements, Roles and Responsibilities of ASRC State Medical Directors

2.13.1 ASRC Operations Committee Participation - ASRC State Medical Directors shall be members of the Operations Committee.

2.13.2 Requirements for Appointment as State Medical Director - The ASRC State Medical Directors shall be appointed by, and serve at the pleasure of, the ASRC Board of Directors. He or she shall be an Active Member of the ASRC who meets the following requirements:

2.13.2.1 upon appointment, be licensed to practice medicine as a Medical Doctor or Doctor of Osteopathy in the State for which he or she will serve as State Medical Director;

2.13.2.2 upon appointment, or within six months of appointment, meet and thereafter maintain, all requirements with his or her home state for the provision of routine prehospital medical command (on-line medical direction) (NOTE: Exceptions to requirement 2.13.2.2 may be granted by the ASRC Board of Directors in the event that the State Medical Director possesses all other qualifications for the post, and has previous or present prehospital or emergency experience, but whose current practice does not accommodate compliance with the requirements for obtaining or maintaining medical command privileges in the State.);

2.13.2.3 upon appointment, or within six months of appointment, meet, and thereafter maintain, all requirements for accreditation by the ASRC-CEM Wilderness EMS Institute as a Wilderness Command Physician; and

2.13.2.4 upon appointment, or within six months of appointment, meet the ASRC Field Team Member standards and thereafter maintain FTM certification.

2.13.3 State Medical Director establishes Standard of Care for State - The ASRC State Medical Director shall establish a standard of wilderness and back-country medical care for ASRC personnel in the state. This shall be in the form of

2.13.3.1 - Wilderness medical protocols (and standing orders if desired), and other documents that may be used to set the standard of care (e.g., ASRC-CEM WEMSI Curriculum, Wilderness Life Support Guidelines). This material shall be reflected in any ASRC first aid or medical training of members who may be responsible for medical care in the particular state.

2.13.3.2 - Policies for other related activities, including but not limited to: medical oversight/control/command both off-line and on-line, documentation and reporting, quality improvement, and optionally accreditation of field personnel to operate at higher levels of care.

You may note that we're going to have problems with different standards of care in each state. Some of this is unavoidable, but David Ramsey of MIEMSS and others on the WEMSI staff are starting to work toward multi-state standardization by working through the Atlantic EMS Council (I think that's the right name). It is a consortium of many states, including Virginia and Maryland and Pennsylvania, and for example is responsible for the EMT and medic reciprocity throughout the region.

Thanks for all your work on the Ops manual. Hope these comments help.

Yours truly,

Keith Conover, M.D.

AMRG ASRC Delegate

encl: ASRC-MED.DOC/.LTR (ASRC draft Pennsylvania Medical Policy); COMMO.DOC (Partial draft of WEMSI Communications and Medical Control Policy); STRUCTURE.DOC (WEMSI structure and administrative responsibilities).

cc: Mike Kuga (AMRG Ops), Mike Yee (AMRG Training), Rich Worst (AMRG Chair), Don Scelza (ASRC/PA ALS Coordinator), Bob Koester and Camille Birmingham (ASRC Ops Committee), Dave Carter (ASRC Chair), Amy Rue (ASRC Medical), Jack Grandey (WEMSI Operations), Gene Harrison (WEMSI Communications)

C:\TEXT\ASRCMISC\OPS3.LTR

10/13/94.

Keith,

I'm off to France for a few days on business. I have made significant changes to the ops manual. Please Read & Mark-up. If there are areas where we are in significant disagreement, I'll fill in the area as a TBD. in the final copy. I'm sending this along to Bob & Camille. Note this not the complete manual. However, I would like to show some completed sections at the next BOD.

P.S. If you could get something back by 10/20, I'll be eternally grateful.

RECEIVED 10/20/94
2338 hrs.
SORRY...

Yours,
Gary

P.S. note that the #-scheme shall change in the final write-up

Appalachian Search and Rescue Conference
Medical Policy-- Pennsylvania

Draft Version 0.2: October 22, 1994
Comments to:
Keith Conover, M.D., ASRC PA Medical Director [kconover+@pitt.edu; 412-561-3413 (H)]
Effective Date: 1 December, 1994

Purpose:

1. To establish the curricula for the medical care components of ASRC training programs related to medical care in Pennsylvania.
2. To establish the standard of care for medical treatment provided by ASRC personnel in Pennsylvania.
3. To define the policies, procedures, and implementation of medical care by ASRC personnel in Pennsylvania.
4. To establish and identify the authority for medical training and care for the ASRC in Pennsylvania.

Scope:

All ASRC training programs with a first aid or medical component, ASRC-coordinated search and rescue operations in Pennsylvania, and operations in Pennsylvania coordinated by other agencies but in which ASRC personnel participate.

Policy:

1. All first aid and medical training conducted by the ASRC, for personnel who may respond to operations in Pennsylvania, shall utilize or be consistent with the information and materials developed by the Wilderness EMS Institute (WEMSI). These include, but are not limited to: the Wilderness EMT Curriculum and text, and the Wilderness EMS Protocols.
2. The standard of care for first aid and medical treatment during ASRC-coordinated search or rescue operations in Pennsylvania, or by ASRC personnel during operations in Pennsylvania coordinated by other agencies, shall be that established by WEMSI. This standard of care is as described in WEMSI material, covering both basic life support (BLS) and advanced life support (ALS) care.
3. The delivery of medical care during search or rescue operations coordinated by the ASRC shall use personnel accredited by WEMSI, following the protocols, procedures, and standards of practice established by WEMSI, and directed by WEMSI accredited Wilderness Command Physicians.

4. WEMSI accredited medical personnel shall render appropriate medical care to patients of ASRC coordinated search rescue operations in Pennsylvania, according to the patient's needs and the accreditation level of the provider. All such care shall be directed by WEMSI Wilderness Command Physicians via Medical Communication (as defined in the WEMSI Communications and Medical Control Policy) if possible, and according to the WEMSI Wilderness EMS Protocols and WEMSI Standing Orders if patient-specific physician medical control is not available.

5. During ASRC-coordinated search or rescue operations in Pennsylvania, WEMSI accredited medical personnel shall have authority in patient care issues and follow WEMSI Wilderness EMS protocols, regardless of local EMS protocols, procedures and scope of practice. In the event of question or conflict, local EMS personnel or physicians will be directed to contact any WEMSI accredited Wilderness Command physician for verification of WEMSI personnel, procedures, and authority. ASRC personnel are authorized to defer medical care to non-ASRC WEMSI-accredited personnel if no WEMSI-accredited ASRC members are present.

6. All medical care shall be documented according to WEMSI procedures on WEMSI Patient Record Forms and Pennsylvania EMS Reports utilizing the ASRC's Pennsylvania EMS agency number, SR003. These reports shall be forwarded to the ASRC/PA ALS Coordinator. Prior to filing the reports with the appropriate agencies, the rendered care shall be reviewed by a QI committee, consisting of, at a minimum, the ASRC Pennsylvania ALS Coordinator, the ASRC Pennsylvania Medical Director, and the ASRC Medical Officer. Deviations from appropriate standards of care shall be referred to the ASRC-Pennsylvania and WEMSI Medical Directors, via the ASRC-Pennsylvania ALS Coordinator, for consultation and addressed further, as appropriate.

Authority:

1. This policy and all that is covered by it, shall be under the authority of the ASRC Pennsylvania Medical Director. All care rendered by WEMSI accredited medical personnel during ASRC coordinated search or rescue operations in Pennsylvania, or when ASRC personnel are acting under the coordination of another agency, shall be according to the medical practice license of the Wilderness Command Physician in the case of patient-specific physician contact, or the WEMSI Medical Director in the case of protocol or standing order use.

2. The ASRC Pennsylvania Medical Director shall be appointed by, and serve at the pleasure of, the ASRC Board of Directors. He or she shall meet the following requirements:

a. upon appointment, be licensed to practice medicine as a Medical Doctor or Doctor of Osteopathy in Pennsylvania;

b. upon appointment, or within six months of appointment, meet and thereafter maintain, all requirements with his or her home state for the provision of routine prehospital medical command;

c. upon appointment, or within six months of appointment, meet, and thereafter maintain, all requirements for accreditation by WEMSI as a Wilderness Command Physician; and

d. upon appointment, or within six months of appointment meet the ASRC Field Team Member standards and thereafter maintain FTM certification.

NOTE: Exceptions to requirement (b) above may be granted by the ASRC Board of Directors in the event that the ASRC Pennsylvania Medical Director possesses all other qualifications for the post, and has previous or present prehospital or emergency experience, but whose current practice does not accommodate compliance with the requirements for obtaining or maintaining medical command privileges in Pennsylvania. Such exceptions must be endorsed by the WEMSI Medical Director.

Chair, ASRC Board of Directors Date

ASRC PA Medical Director Date

WEMSI Medical Director Date

Wilderness EMS Institute
Communications and Medical Control Policy
Draft Version 0.1
September 6, 1994
Comments to:
Gene L. Harrison, EMT, Communications Officer [harrison@mitre.org; 1-703-777-6111 (H), 1-703-883-6142 (W)] or
Keith Conover, M.D., Medical Director [kconover+@pitt.edu; 412-561-3413 (H)]

I. Introduction

Medical care is best delivered with a qualified physician at the patient's side. A good but lower level of care is having field personnel providing care based on standing orders. Intermediate between the two is having a physician direct care through two-way communication with paramedical personnel in the field: not as good as having a physician present, but better than field personnel directed only by standing orders.

Traditional EMS requires immediate, bidirectional, real-time voice communication for field personnel to act on the direction of a remote physician. This requires sophisticated communications equipment. It also requires sophisticated system design. In the wilderness and in the backcountry, sophisticated communications infrastructures are seldom available. Nonetheless, wilderness and backcountry patients deserve the benefit of physician control of their care when possible. Despite technical limitations of the wilderness/backcountry context, physicians can and should, with adaptations, provide medical control to field personnel. For WEMSI, instead of "direct" communication for on-line medical control, we use the term "*Medical Communication*" to signify the situations when paramedical personnel in the field may accept and act on orders from a remote physician. This policy outlines and defines how patient-specific medical control can be accomplished through *Medical Communication*.

II. Applicability

This section defines ***Medical Communication*** for patient-specific medical control ("on-line command") for wilderness and backcountry medical situations. This policy shall apply unless overruled by specific and relevant state or federal law.

This policy applies to all medical communication by WEMSI-accredited Wilderness Command Physicians and WEMSI-accredited paramedical personnel. This includes medical communication between WEMSI-accredited

Wilderness Command Physicians and WEMSI-accredited paramedical personnel. It also applies to such WEMSI-accredited personnel and medical communications with physicians and paramedical personnel who are not WEMSI-accredited in the wilderness/backcountry context.

III. Requirements for Remote, Patient-Specific Medical Control (*Medical Communication*)

A. Background: Accurate, Immediate, and Bidirectional Communication for Urban EMS

Patient-specific medical control ("on-line command") generally requires "direct" communication between the physician and the out-of hospital paramedical personnel in the field. The legal definition of this "direct" communication varies from publication to publication and from state to state. Used in its precise meaning, "direct" communication only occurs when the physician and paramedical person are standing near one another. However, communications equipment such as two-way radios, telephone, and cellular phones provide communications that are so similar to direct communication as to substitute for it.

"Direct medical control" for traditional urban EMS supports information interchange that has three important characteristics. First, it is without intermediaries that might introduce significant errors: it is **accurate**. Second, it allows real-time (instant) interactive exchanges: it is **immediate**. Third, it allows both physician and medic to send and receive information: it is **bidirectional**.[‼] The usual radio or telephone connection between hospital ED physician and urban medic is accurate, immediate, and bidirectional.

While such communications are the ideal, they may not always be available in the backcountry. However, other forms of communication may be adequate to legitimately support patient-specific medical control. The following section defines the characteristics and limits of other forms of communication for patient-specific medical control.

‼ The two-way nature of medical communication is essential to the proper functioning of patient-specific medical control. Some aspects of medical communication, such as EKG telemetry, may be unidirectional.

B. **Modification for the Wilderness/Backcountry Context**

In the wilderness/backcountry context, immediate communications are not always possible. An extreme example is during the initial stages of a cave rescue. In such a case, written notes between the physician at the surface and the medic underground convey all medical (and other) information.

Wilderness rescue operations often last for hours or days. Therefore, a delay of minutes (or even hours) will not invalidate the value of a link between physician and field personnel. Provided that information is passed accurately both ways, even written messages can be a valid method of medical control. Personnel in the field must have written standing orders to follow in the gaps between such communications. However, written standing orders do not negate the value of a physician's patient-specific medical control.

The two critical requirements for *Medical Communication* are that it is **accurate** and that it is **bidirectional**. Delays should be minimized but *Medical Communication* need not be immediate.

IV. Patient-Specific Medical Control Procedure

When faced with a patient care situation in the backcountry or wilderness context, WEMSI-accredited paramedical personnel should attempt to establish contact with, and coordinate medical care with, a WEMSI-accredited Wilderness Command Physician.

At present, each WEMSI-accredited paramedical person is provided a roster of Wilderness Command Physicians, and is expected to call the physicians on this roster in order until able to reach one. Having a person at a search or rescue base initiate the communication is the preferred method. When WEMSI establishes a centralized communication facility, a single call will transfer the job of contacting a Wilderness Command Physician to communications personnel who have facilities conducive to such work.

If a WEMSI-accredited paramedical person cannot communicate with a WEMSI-accredited Wilderness Command Physician, he or she may accept medical control from a physician who is not accredited by WEMSI. In such a case, this policy applies.

WEMSI-accredited paramedical personnel are authorized and responsible for competent and effective medical care in accordance with their WEMSI training and their wilderness/backcountry experience. Therefore, if in their judgment it is necessary, WEMSI-accredited personnel are authorized to decline orders from, or break off communications with, non-WEMSI accredited physicians. In such a case, WEMSI paramedical personnel should attempt to contact another physician, preferably a WEMSI-accredited Wilderness Command Physician. If necessary, they should return to reliance on the WEMSI Protocols and Standing Orders.

V. Medical Communication -- Voice

A. *Medical Communication* exists when a physician and paramedical person can speak directly to one another (real-time bidirectional voice communication). Examples are as follows:

   a. when the physician and paramedical person are in direct proximity (e.g., the physician is looking over the medic's shoulder); or
   b. when the physician and paramedical person are close but not in direct physical proximity, and can still speak to one another by voice (e.g., shouting down a cave passage); or
   c. when the physician and paramedical person are not in proximity, but may speak with one another via technical means that enables accurate real-time bidirectional voice communications (e.g., radio, telephone, field phone, or combinations of these three).¬ [§]

B. All medical voice communication shall be in standard American English. Standard medical terms, abbreviations, and acronyms are acceptable provided they are understood by both parties.

[¤] Digital voice retransmission equipment, sometimes used as an single-frequency alternative to automatic repeater stations, is considered the same as other forms of electronic voice communication for the purposes of this policy.
[§] This does not require full-duplex communications mode; an alternate unidirectional communications mode, such as the standard radio communications mode where one cannot listen while pressing the push-to-talk button, is acceptable.

C. Should voice communications quality be marginal (due to such factors as poor communications equipment or channel quality), personnel shall use the ASTM Standard Practice for Phonetics.

VI. Medical Communication -- Data

A. *Medical Communication* exists when a physician and paramedical person can exchange data messages or digital information with one another that include text data. Though some unidirectional or bidirectional non-text information may be transmitted, the data must include bidirectional voice or text data to be *Medical Communication*. EKG or other telemetry by itself would not constitute *Medical Communication* as it does not include bidirectional voice or text data. However, communication need not be real-time if the medical mission can still be performed successfully. Potential examples of data *Medical Communication* are as follows:

a. hand-written or typed notes;
b. facsimile;
c. imagery, electronic or otherwise;
d. voice recordings;
e. machine transmissions such as teletype or TTD;
f. wireless data transmissions using international Morse code, or CCITT alphabets 5 (Baudot) or 7 (ASCII) (e.g., HF radio, VLF cave radio, VHF/UHF packet data systems)

B. Medical data communication that uses written or recorded language shall be in standard American English. Standard medical abbreviations are acceptable provided they are known to both parties.

C. Should recorded voice or data communications quality be marginal (due to such factors as poor communications equipment or channel quality), personnel shall use the ASTM Standard Practice for Phonetics.

VII. Medical Communication -- Relay

A. Introduction

The technical requirements for *Medical Communication* were laid out above: it must be accurate and bidirectional. Traditional EMS, which emphasizes the real-time nature of direct medical control, does not permit relaying of messages. There is good reason for this. The classic

game of "gossip" illustrates the problem: a message is started at one corner of a classroom and whispered from one student to another. When the message arrives at the far corner of the classroom, it is unrecognizable.

In wilderness search and rescue rescue, however, relays are common. (Backpackable automatic repeaters are sometimes used, but not always available or in the right location.) A rescuer at the top of a mountain uses a handheld radio to relay messages from people on one side to those on the other side. Because of the problems of relaying accurate messages, reliable relay protocols have evolved. They involve composing a written message at one end, transmitting it word-for-word through the relay, then reading it back to the originator word-for-word for confirmation. This protocol has provided reliable error-free communication for military and search and rescue operations for many years.

B. Relay Procedure

To be *Medical Communication*, a relay or series of relays must:

1. transmit all messages word-for-word;
2. read back the message word-for-word from the recipient to the originator;
3. have an acknowledgement from the originator to the recipient that the message was returned intact; and
4. have a written or typed log of the message at the originator, at the recipient, and at all intermediate relay stations.

Structure: Wilderness EMS Institute

Draft Update October 20, 1994

1. **Medical Director**
    1.1. ***Medical Oversight***[‼]
        1.1.1. **Medical Advisory Board**
        1.1.2. **Medical Command Officer**
        1.1.3. **Wilderness Command Physician Panel**
    1.2. ***Technical Publications***
        1.2.1. **Editorial Board**
        1.2.2. **Curricula Editor**
        1.2.3. **Textbooks Editor-in-Chief**
        1.2.4. **Task Group Leaders**
        1.2.5. **Course Guides Editor**
2. **Executive Director**
    2.1. **Public Information Officer**
    2.2. **Financial Officer**
    2.3. **Research Director**
    2.4. **Legal Advisor**
    2.5. **Information Systems Manager**
3. **Director of Operations**
    3.1. **Prehospital/ALS Officer**
    3.2. **Communications Officer**
    3.3. **Training Officer**
    3.4. **Personnel Evaluation Officer**
    3.5. **Quality Improvement Officer**

1. **Medical Director**

[Appointed jointly by the Medical Director, Center for Emergency Medicine of Western Pennsylvania (CEM) and the Chairman, Board of Directors, Appalachian Search and Rescue Conference (ASRC).

[Reports to the Medical Director of CEM and Chairman of ASRC.

[Appoints and supervises other staff except as provided below.

[Serves as Operational Medical Director for medical oversight of field operations ("offline medical command"): with advice of Medical Advisory Board, establishes protocols and standing orders for Wilderness EMS agencies using WEMSI for medical control.

[With advice and consent of CEM Medical Director and ASRC Chair, appoints members of Medical Advisory Board.

[With advice of Medical Command Officer and consent of Medical Advisory Board, appoints Wilderness Command Physicians to on-line Wilderness Command Physician panel.

‼ AS WEMSI grows, expect to appoint lieutenants to help oversee the Medical Oversight Technical Publications functions of the Medical Director.

[Reviews and approves policies for accreditation of, medical control for, and management of Wilderness EMS prehospital personnel.

[Submits all major WEMSI direct publications to Editorial Board to review for compliance with WEMSI and community medical standards and high levels of technical accuracy.

1.1. ***Medical Oversight***

1.1.1. **Medical Advisory Board**

[Composed of selected physicians and others with relevant expertise.

[Appointed by Medical Director with advice and consent of CEM Medical Director and Chair of ASRC Board of Directors.

[Reviews and approves WEMSI Protocols and Standing Orders; advises Medical Director on accreditation and medical control/communications policies.

[Approves appointments to Wilderness Command Physician panel.

1.1.2. **Medical Command Officer**

[Appointed and supervised by Medical Director.

[Establishes, reviews and updates policy and requirements for appointment to the Wilderness Command Physician panel.

[After investigating credentials, recommends applicants for Wilderness Command Physician panel to Medical Director.

[Monitors Wilderness Command Physician panel performance and continued compliance with accreditation and other WEMSI policies.

1.1.3. **Wilderness Command Physician Panel**

[Appointed by Medical Director on advice of Medical Command Officer and with consent of Medical Advisory Board.

[On-call to provide direct medical oversight ("on-line medical control"; "direct medical command") for WEMSI field personnel.

[Maintains continued compliance with accreditation and other WEMSI policies.

1.2. ***Technical Publications***

1.2.1. **Editorial Board**

[Appointed and supervised by Medical Director.

[Composed of expert physicians, EMS and SAR administrators, educators, and prehospital personnel.

[Reviews all major WEMSI direct publications (Lesson Plans, draft Textbook Chapters) for compliance with WEMSI and community medical standards and high levels of technical accuracy.

1.2.2. **Curricula Editor**

[Manages the development, production, and distribution/publication process for the Wilderness EMT and any other curricula developed by WEMSI.

2.2. **Financial Officer**

[Maintains WEMSI financial records.

[When WEMSI institutes finances independent of ASRC and CEM, provides regular financial reports to Executive ASRC Chairman and CEM Medical Director (or CEM Executive Director, at option of CEM Medical Director).

2.3. **Research Director**

[Appointed by the Executive Director with approval of Medical Director.

[Reports to the Executive Director.

[Develops WEMSI research program to meet stated goals, including involving CEM residents in wilderness-related research projects.

2.4. **Legal Advisor**

[Appointed by the Executive Director with approval of the Medical Director.

[Reports to the Executive Director.

[Investigates legal aspects of Wilderness EMS and provides legal information (but not required to provide formal legal advice) to the WEMSI staff.

[Develops database of legal information related to Wilderness EMS as part of WEMSI's commitment to serving as a Wilderness EMS information resource.

[Reviews WEMSI publications and programs with eye to improving legal aspects.

2.5. **Personnel Evaluation Officer**

[Appointed by the Executive Director with approval of Medical Director.

[Reports to the Executive Director.

[Reviews existing testing instruments and revises.

[Develops and validates database of test questions based on WEMSI Curriculum; may develop separate versions for internal testing and for non-WEMSI organizations developing their own tests.

2.6. **Information Systems Manager**

[Appointed by the Executive Director with approval of Medical Director.

[Reports to the Executive Director.

[Serves as Project Leader for WEMSI computer and Internet mail accounts at University of Pittsburgh.

[Assists Training Officer in developing regional database for tracking team and individual accreditation data.

3. **Director of Operations**

[Appointed by and supervised by Medical Director.

3.1. **Prehospital/ALS Officer**

[Appointed and supervised by Medical Director.

[Establishes policy for accreditation of and management of WEMSI prehospital/out-of-hospital non-physician personnel.

[Accredits and manages WEMSI prehospital/out-of-hospital personnel for Wilderness EMS agencies for which WEMSI provides medical oversight.

[Fulfills all standard EMS Quality Assurance/Quality Improvement functions for WEMSI-accredited non-physician prehospital/out-of-hospital personnel.

3.2. **Communications Officer**

[Appointed and supervised by Medical Director.

[Develops and maintains a communications plan for physician-to-field communication for patient-specific medical direction.

[Develops and maintains alerting and rotation system for members of Wilderness Command Physician panel.

[Develops and maintains system for quality improvement of WEMSI on-line medical direction.

Medical Director: Keith Conover, M.D.

Medical Advisory Board: Roy Alson, Ph.D., M.D.; Albert Baker, M.D.; Samuel J. Chewning, M.D.; Keith Conover, M.D.; Jack Grandey, EMT-P, Robert Koester, M.S; David W. Lindell, M.S., EMT-P; Robert Lasek, M.D.; Susan McHenry, EMT; Paul Paris, M.D., FACEP; Chev. Bernie Roche, Reg.N., BSCN, OSJ; Walt Stoy, Ph.D., EMT-P; Charles E. Stewart, M.D., FACEP; Ralph Wilfong, EMT.

Medical Command Officer: Samuel J. Chewning, M.D.

Editorial Board: Roy Alson, Ph.D., M.D.; Albert Baker, M.D.; David A. Carter; Keith Conover, M.D.; Robert Koester; David W. Lindell; Robert Lasek, M.D.; Susan McHenry; Richard Packer; Paul Paris, M.D.; Judy Press; Greg Shea; Walt Stoy, Ph.D.; Cady Soukup; Charles E. Stewart, M.D.; John Wallace; Ralph Wilfong.

Curricula Editor: Keith Conover, M.D.

Textbooks Editor-in-Chief: Keith Conover, M.D.

Task Group Leaders: Mark Pennington (Section 1); David W. Lindell (Section 2); Roy Alson, Ph.D., M.D. (Sections 3, 18); Art Dodds, Jr. (Section 4); Charles E. Stewart, M.D. (Section 5A); Brett D. Bender, M.D. (Section 5B); Eric Swanson, M.D. (Sections 6, 7); Keith Conover, M.D. (Sections 8-11); Bern Shen, M.D. (Section 12); Michael Yee (Sections 13, 17); Ronald N. Roth, M.D. (Section 14); Jack Grandey (Section 15); Bernie Roche (Section 16); Robert Koester (Section 19); Robert Wagner, V.M.D. (Section 20)

Course Guides Editor: David W. Lindell, EMT-P

Executive Director: George Pry, EMT

Public Information Officer: Thom Jones, EMT-P

Financial Officer: Betty P. Thomas, CPA

Research Director: Greg Larkin, M.D.

Legal Advisor: Andrew H. Appel, Esq.

Information Systems Manager: Charles P. Kollar, EMT-P

Director of Operations: Jack Grandey, EMT-P

Prehospital/ALS Officer: Jack Grandey, EMT-P

Communications Officer: Gene Harrison, EMT

Training Officer: Jack Grandey, EMT-P

Personnel Evaluation Officer: Mark Beluscak, EMT

Quality Improvement Officer: Jack Grandey, EMT-P

Personnel Information Manager: John Massa, R.N.