GUIDE FOR PREPARING MEDICAL DIRECTORS

National Association of EMS Physicians
American College of Emergency Physicians

NHTSA

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U.S. Department of Health and Human Services

HRSA

Health Resources and Services Administration
Maternal and Child Health Bureau

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Purpose
The purpose of this guide is to aid the State EMS offices and experienced medical directors with their preparation of a one-day course for potential medical directors. This guide outlines the major responsibilities of a medical director and instructors may need to prepare audiovisuals, handouts and other support materials to make the class more successful.

Introduction
In the fall of 1996, the National Highway Traffic Safety Administration (NHTSA) and the Maternal and Child Health Bureau (MCHB) announced a cooperative agreement with the American College of Emergency Physicians (ACEP) and the National Association of EMS Physicians (NAEMSP) to develop a guide for states to use when implementing medical direction training programs and standards.

Prior to this time, there were two national medical director's courses being offered through ACEP and NAEMSP and some states had developed medical director training programs specific to their state. It was felt that these courses were not easily accessible to many physicians throughout the country who were asked to provide medical direction. Since medical direction is an essential component of the EMS system, NHTSA and MCHB determined that the development of a national medical direction course was needed to increase its accessibility to physicians and the states. This project is not intended to compete with any existing national or state program.

In developing this curriculum, the following items were considered: roles and responsibilities of medical directors, including injury prevention; planning and protocols; on-line medical direction and consultation; and audit and evaluation of patient care. In addition, the curriculum addresses the issue of non-emergency physicians providing medical direction and the issue of medical direction for all levels of EMS provider.

Although ACEP and NAEMSP coordinated the development of this product, it required the involvement of other organizations also involved in EMS medical direction. An Expert Writing Team provided broad input and multiple perspectives during the development process. These perspectives include: rural, urban, suburban, private vs. municipal services, local vs. state, and adult and pediatrics. The document was extensively peer reviewed by a National Review Team and the State EMS Directors and it was pilot-tested in Missoula, MT, in September 1999, and Concord, NH, in June 2000.

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- American Ambulance Association
- American College of Emergency Physicians
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- American College of Surgeons, Committee on Trauma
- Emergency Nurses Association
- International Association of Fire Chiefs - EMS Committee
- International Association of Fire Fighters
- National Association of EMS Educators
- National Association of EMS Physicians
- National Association of EMT's
- National Association of State EMS Directors
- National Council of State EMS Training Coordinators
- Society for Academic Emergency Medicine

Course Introduction

Preparation: Familiarity with course facility and classroom resources
Time: 30 minutes

**Overall
Course Objective:** Awareness of the scope of issues and implications that go into decision-making in medical oversight of EMS systems.

**Enabling
Objectives:**   Upon completion of this session, the student will be able to:

1. Define the purpose of the program.
2. Define the schedule for the program.
3. Identify the location of facilities for the event.
4. Recognize the need for an EMS Medical Director training course.

I. WELCOME

Role of EMS Medical Director
- Physician as patient advocate
- Physician as team leader
- Physician as legal component of the system
- Physician as key link in integrating EMS to health-care system

II. OVERVIEW OF EMS

A. EMS is the provision of health care outside of the hospital setting by personnel having varying levels of training.
   1. Personnel are, in effect, physician extenders.
   2. By law, paramedics or advanced life-support providers function under the supervision of the physician medical director.
   3. An increasing number of states are recognizing the need for all levels of EMS personnel and organizations to function under a physician medical director.
   4. EMS is an interdisciplinary health care activity. The community of EMS:
      - Involves a team approach with the medical director as team leader, working with operational leaders (cooperative leadership).
      - Requires medical director to set the tone and direction for the system.
      - Requires medical director to possess a unique set of skills and knowledge.
   5. Health care providers face many challenges. It is critical to have know-ledgeable physicians working with providers in the prehospital setting.

B. EMS is a continuum of care -- from initial onset of illness or injury, through hospitalization and rehabilitation. This is stressed in the EMS Agenda as EMS moves towards community health and wellness, not just emergent care.

C.　EMS medical director
　　1.　The EMS medical director functions in many advocacy roles for the patient, the EMS system and providers, the hospitals, and the community.
　　　　• This is a major responsibility of the medical director.
　　2.　Medical directors come from a wide range of backgrounds and experiences. Many are emergency physicians who have had some exposure to EMS activities during training; some come from other specialties with or without previous exposure to EMS.
　　3.　With the evolution of modern EMS, there is an increasing expectation that medical directors will have expertise in the delivery of EMS care and the administration of EMS systems.
　　4.　The EMS medical director (and EMS physicians in general) must earn respect and grow into the role of leader. This course will provide tools to meet that goal.

III.　COURSE OVERVIEW

A.　This course is designed to provide all physicians, regardless of specialty training, with the general knowledge base to move into the role of EMS Medical Director or other roles in medical oversight activities.

B.　The program will also be valuable to the many non-physicians involved in providing medical oversight.

C.　This course will provide an overview and tools to assist the medical director, and others participating in medical oversight, in assuming leadership roles as patient advocates in the EMS system.

D.　EMS medical oversight is an interdisciplinary activity. To function effectively, the medical director will be working closely and cooperatively with the administrative directors of the organizations within the EMS system.

E.　Clarification of terms: Various terms have been used to refer to medical direction and will be used interchangeably during the course:
　　• Medical control
　　• Medical direction
　　• Medical oversight

IV.　HOUSEKEEPING

A.　Review schedule

B.　Review location of facilities
　　• Meeting rooms
　　• Restrooms
　　• Emergency numbers for facility and community
　　• Building exits and fire escapes

- Smoking area
- Telephones
- Break and lunch areas

V. FACULTY AND STAFF

VI. SPONSORING ORGANIZATIONS

VII. RESOURCES

Module I: EMS Overview

Preparation: Familiarity with materials, scenarios and resources
Time: 30 minutes

**Overall
Objective:**   Describe the EMS Medical Director's and other health care providers'
                     roles in the process of EMS systems medical oversight.

**Enabling
Objectives:**   Upon completion of this session, the student will be able to:

      1.1   Describe the role of the EMS medical director.
      1.2   Discuss the historical development of civilian EMS.

I.   PHYSICIAN LEADERSHIP
    A.   EMS System: Any specific arrangement of emergency medical care resources, facilities, personnel, equipment, and supplies designed to function in a coordinated fashion. May be local, regional, state, or national.

    B.   EMS is the provision of medical care in the out-of-hospital setting by trained personnel extenders functioning under the supervision of the physician medical director.
        1.   Medical Director: The physician who has the primary responsibility and authority to provide medical oversight for all aspects of EMS in an effort to assure its quality of patient care.
        2.   EMS providers do not function under the license of the physician; they function under the <u>supervision</u> of the physician.
        3.   Medical director may be responsible for:
- A specific agency
- An entire EMS system (local, regional, state, or national) with multiple services
- An educational program

    C.   It is highly recommended that a single medical director serve as the focal point for medical leadership of the organization.   In this regard, the medical director provides leadership that sets the standards and tone for the agency or system as it relates to patient care activities.

    D.   The medical director works in collaboration with others in the agency or system (a cooperative interaction). Many others may be actively participating in the process of medical oversight with the medical director including:
- Nurse practitioners
- Nurses
- Physician assistants
- EMS personnel (educators, supervisors, etc.)

E.	Many physician specialties must be available as resources to provide input into the EMS system for system to function effectively:
- Emergency medicine
- Trauma surgery
- Cardiology
- Pediatrics
- Neurology
- Others specialty areas depending on the setting and the system resources available

F.	The medical director serves as the interface and liaison between the EMS system and the medical community in general.

## II.	HISTORY OF EMS DEVELOPMENT
The historical roots of EMS arose from lessons learned from military experience, the need to address issues of sudden cardiac arrest and major trauma. In the early years of civilian EMS development, there was intimate involvement of physician visionaries in the evolution of EMS programs. The federal government, and programs supported by federal funds, was critical to the early growth of EMS.

A.	Ideas and activities in the development of EMS evolved from military experiences, typically during wartime.
1.	The first documented organized activities in field care were during the times of Napoleon. His army's chief surgeon, Jean-Dominique Larrey, developed a system for quickly treating and removing injured soldiers from the battlefield.
2.	Civil war experiences lead to personnel and ambulances from some hospitals providing emergency care for patients outside the hospital.
3.	WWI, WWII and the Korean War focused on the treatment and transport of those injured in combat.
a.	Advanced field treatment units and helicopters first used in the Korean conflict (the MASH units).
b.	Techniques refined during the Vietnam conflict.

B.	Modern prehospital care arose in response to recognized needs for treatment of two epidemics: cardiac arrest and major highway trauma.
1.	Early 1960's saw the development of cardiopulmonary resuscitation (CPR) and defibrillation in the U.S.
2.	In 1966, the publication of a white paper by the National Academy of Sciences- National Research Council entitled, "Accidental Death and Disability: The Neglected Disease of Modern Society," represented the first significant look at the quality of emergency care in the civilian community and reported the lack of quality care in the field and in emergency departments.
3.	Mid to late 1960's saw the introduction of mobile cardiac care units in Belfast, Northern Ireland by Dr. Pantridge. Cardiologists or cardiology

fellows staffed those units.

4. Injury in America, A Continuing Public Health Problem was published as a review of first 20 years of EMS and described the deficiencies as a follow-up to the 1966 white paper.

C. Several areas of the country started programs using paramedics to provide emergency care for people in the field as physician extenders: Miami, FL; Columbus, OH; Portland, OR; and, Los Angeles, CA.

1. Dedicated physicians who served as mentors, educators and leaders and provided close medical oversight of these new health care providers began all of these initial paramedic programs. They demonstrated that non-physicians could implement organized systems to provide appropriate care in a timely manner.

2. The Los Angeles County Fire Department program lead to the TV show "Emergency," the first exposure that the public in general had of emergency medical services.

3. As EMS programs continued to evolve in the 1970's and 80's, the intense physician involvement waned; that trend is now reversing.

D. The federal government has played a leadership role in EMS since the mid 1960's:

1. Emergency Medical Services Act of 1973 (Public Law 154):
   - First national initiative on EMS
   - Defined 15 components of an EMS system (Table 1).
   - Lead to the development of DOT national curricula for EMTs & paramedics in an attempt to standardize the training of prehospital personnel.
   - Established the Department of Health and Human Services EMS Office, providing funding support for development of local, regional and state-organized EMS systems.
   - No provision for medical direction
   - Public Law 154 was renewed and amended in 1976 and 1979.

2. Structured federal funding for EMS ended in 1981.

E. EMS Division of NHTSA is very active in promotion, development and research in EMS.

1. Periodic revisions of the national curricula for EMT-Basic, EMT-Intermediate and EMT-Paramedic and medical direction.

2. Currently coordinating efforts with special task forces:
   - EMS educational issues interface of EMS and managed care organizations
   - EMS Research activities
   - EMS - Public Health initiative

F. Maternal Child Health Bureau EMS-C programs:

1. In 1980s, interest in EMS activities for children developed in recognition

that management of pediatric patients is unique.

2. Federal legislation passed in 1985 allowed for development of EMS-C demonstration projects. Funding has been received in all 50 states and U.S. territories. Continued funding provides grants for:
   - System development
   - Research
   - Targeted issues and education

3. Focus on pediatric issues has improved with recent national curriculum revisions to educate EMS personnel regarding the unique aspects of recognizing and caring for ill and injured children. There are also specialty courses for EMS personnel addressing pediatric care.

G. U.S. Fire Administration
   1. Very actively supports EMS activities in the fire service.
   2. Resource documents are available via the web site.
   3. The National Fire Academy also has resource documents and courses available for fire-based EMS programs.

III. **EMS AGENDA FOR THE FUTURE** (a copy should be provided to each participant)
   A. A multi-organizational process to define the direction of EMS for the turn-of-the century. All EMS medical directors must read the Agenda (EMS attributes -Table 2).
      - Sponsored by the NHTSA and MCHB
      - Coordinated by the National Association of EMS Physicians and the National Association of State EMS Directors
   B. Additional products have been developed based on the EMS Agenda for the Future:
      - EMS Agenda Implementation Guide
      - EMS Education Agenda
      - EMS Research Agenda
      - Leadership Guide to Quality Improvement for EMS Systems

IV. **SUMMARY**
   A. The medical director is one of the critical components of the EMS system.
      - The medical director serves as the medical leader, resource and patient advocate for the system.
   B. There are many resources available to support the medical director's activities.
      - You are to be congratulated for your participation in this important component of the health care system.

TABLE 1: 1973 EMS ACT SYSTEMS COMPONENTS

- Manpower
- Training
- Communication
- Transportation
- Emergency Facilities
- Critical Care units
- Public Safety Agencies
- Consumer Participation
- Access to Care
- Patient Transfers
- Standardized Record Keeping
- Public Information and Education
- System Review and Evaluation
- Disaster Planning
- Mutual Aid

*Note: Medical direction was not included as one of the 1973 components.

TABLE 2: 1996 EMS AGENDA FOR THE FUTURE ATTRIBUTES

- Integration of Health Services
- EMS Research
- Legislation and Regulation
- System Finance
- Human Resources
- Medical Direction
- Education Systems
- Public Education
- Prevention
- Public Access
- Communications Systems
- Clinical Care
- Information Systems
- Evaluation

Module II: EMS Systems

Time: 90 minutes

**Overall
Objective:**   Describe the organizational structure and characteristics of EMS systems.

**Enabling
Objectives:**   Upon completion of this session, the student will be able to:

2.1   List the components of EMS systems.
2.2   Outline organizational and design options for EMS systems.
2.3   Outline system staffing and response configurations.
2.4   Identify the major communications and dispatch issues in EMS systems.
2.5   Describe regionalization of care and destination issues.
2.6   Contrast and compare the differences between rural and urban EMS systems.
2.7   Outline the ways in which EMS systems may be integrated with community health care and public safety resources.
2.8   Describe the interface of EMS systems with managed care organizations.
2.9   Describe the issues related to the utilization of air medical services and EMS systems.
2.10   Outline funding options available for EMS systems.

I. COMPONENTS

A.   The EMS System is not simply one person, one ambulance, one agency, one organization or one hospital. Multiple components must be present and must interact well for the system to function effectively.

B.   The NHTSA Technical Assistance Program offers States and communities a tool to use in assessing the effectiveness of their EMS programs. The NHTSA Technical Assistance Team approach permits States to utilize highway safety funds to support the technical evaluation of their existing and proposed EMS programs. Currently, NHTSA outlines the following as the critical components of an EMS System.

- Regulation and Policy
- Resource Management
- Human Resources and Training
- Transportation
- Facilities
- Communications
- Public Information and Education
- Medical Direction

- Trauma Systems
- Evaluation

There are four other areas that also must be addressed:
- Finance
- Audit and Quality Assurance
- Mutual Aid
- Disaster Planning

Systems will vary from location to location according to the availability of the various components. Specific comments about each of the components, particularly medical direction, will be presented in the session.

II. ORGANIZATIONAL DESIGN

A. There are a number of potential design structures that may be used in an EMS system.
- Each depends on the location (e.g. rural, suburban, and urban) and resources that are available in a given area.
- Often, there are multiple agencies involved in providing EMS services.
- There may be multiple design options in same system.
- The medical director should understand and be involved in the evaluation of EMS system design options.

B. In general, the system is described in terms of the type of organization providing the emergency care and transport for the area.
1. Ambulance service is provided by specific organizations including:
- Private, for-profit companies
- Community-based, not-for-profit organizations
- Municipally based service
- Fire department
- Separate, governmental based EMS organization, typically referred to as a "third service EMS department"
- Law enforcement agencies may provide medical first response.
- Volunteer organizations
- Some hospitals provide the EMS service.

2. Often multiple organizations are involved in the EMS response (e.g. fire department may provide emergency first response services with or without transporting services, while private ambulance companies provide non-emergency and interfacility transports).

It is important to be familiar with the types of organizations in your local EMS system and the role that each of these organizations plays.

III. STAFFING AND RESPONSE CONFIGURATIONS

A. Characteristics of initial responder programs

1.   Goal is to have medically trained personnel available to the patient as quickly as possible.
2.   Based on increased recognition of the importance of providing a rapid response to potentially life-threatening emergencies, including early defibrillation.
3.   Programs are usually distributed around the EMS system in such a manner that the first responders can get to the patient within a few minutes and provide early stabilizing care.
4.   Programs utilize personnel trained at the First Responder or EMT-Basic level.
   - Often trained in the use of an automated external defibrillator (AED), to provide immediate treatment of a cardiac arrest
   - Often based in local fire departments and involve a response with fire apparatus, either a rescue vehicle, engine or private care (volunteer vs. career vs. combination)
5.   In some areas, initial response programs are at the ALS level.
6.   Some private industries and facilities have developed their own first response program to provide care for employees or guests until the EMS system providers can arrive.
   - These programs increase the continuum of care.

B.   Transporting services
1.   Ambulances, to include air ambulances, for further care and transport of the patient
2.   Level of care: BLS by EMT-Basics or ALS by EMT-Intermediates or paramedics

C.   EMS system response: EMS systems with multiple organizations providing varying levels of response or care
1.   Single tier - one agency provides response and transport at one level of care
2.   Multiple tiered response configurations (list not all-inclusive)
   - BLS first response - ALS transport
   - ALS first response - ALS transport
   - Police or fire service first response (BLS or ALS) - private ambulance transport (BLS or ALS)
   - ALS intercept vehicle to support BLS transport service
   - Industrial first response program - BLS or ALS transport
   - Specialty/Critical care transport
   - Rotor and fixed-wing air ambulances
3.   Crew configurations may vary depending on location (e.g. two medics vs medic/intermediate vs medic/basic)
D.   Vehicle deployment - Varying methods
1.   Fixed deployment - vehicles routinely housed in a fixed location within the agency's response area and respond from that location (typically used in fire service-based EMS agencies).

2.   Variable "System status management" deployment - vehicles will "post" (be placed) in different locations throughout the response area.
- Locations are identified based on careful review of the response call volumes over time in an attempt to "predict" statistically where the next call will occur.
- A given vehicle may move from location to location (referred to as "points") depending on call volume and time of day.
- Some points may be building locations; others may be parking lots or other locations without buildings.

E.   Time sensitive patient issues (Prehospital time considerations)
1. Response time standards: The standards or guidelines (many systems are trying to eliminate "standards") established by the EMS system for acceptable times in which to respond to medical care requests.
- Much controversy and discussion about acceptable response times
- No "universally accepted" national standard
2. Some historical general standards have been adopted:
Urban setting: 4 minutes or less for initial responders (e.g. first response) and 8 minutes or less for ALS responders for prospectively identified life-threatening situations
- Numbers are based on statistical data for cardiac arrest studies done in the 1970's looking at survival and the need for early defibrillation.
- For prospectively identified non-life threatening situations, the time for ALS response is suggested to be 12-15 minutes or less.
- Response times in suburban and rural areas are longer.
3.   Factors that influence response times:
- Personnel and resource availability
- Geography
- Weather
- Traffic
- Access issues
  - High rise buildings
  - Population density
  - Special events/mass gathering events
- Other issues
4.   Fractile response times are generally used (i.e. the percentage of time that the response times meet the guidelines).
- Most organizations view a fractile response time within 90% of the time to be acceptable.
- Considered a more realistic reflection of the system's overall performance than average or "median" response times

Each EMS system must look very closely at the response resources and capabilities in the area as acceptable response time standards are established.

F.   The activities of an EMS response are typically described by the following

intervals:
1. Event occurrence to event recognition interval
2. Access interval: time from event recognition to access of EMS
3. Dispatch interval: time from access to dispatch of resources
4. Activation interval: time from dispatch to resources enroute
5. Response interval: time from enroute to arrival at scene (unit stops physical motion at scene)
6. Patient access interval: time from arrival at scene to arrival at patient (first direct contact with patient)
7. On-scene interval: time at scene (or at patient) to depart for hospital (unit began physical motion from scene)
8. Transport interval: time from depart scene to arrival at hospital
9. In-service interval: time from arrival at hospital until unit is back in service available for response

IV. COMMUNICATIONS AND DISPATCH
A. Community access is critical.
1. Public must know how to access emergency services
2. Public must know when it's appropriate to access emergency services
3. At the end of the 20th century, nearly 93% of the population of the United States was covered by some type of 9-1-1 services. Ninety-five percent of that coverage was Enhanced 9-1-1. Approximately 96% of the geographic U.S. is covered by some type of 9-1-1 services.
4. Allow for common access to police, fire and EMS

B. Characteristics of 9-1-1 and other emergency configurations
1. Basic 9-1-1
   - Caller is connected to a call-taker at a PSAP (Public Safety Answering Point)
   - Call-taker then must determine the location and nature of the emergency from the caller prior to dispatching needed resources.
2. Enhanced-9-1-1.
   - More sophisticated, computer-based system
   - Call-taker's computer console displays the phone number (Automatic Number Identification – ANI) and location (Automatic Location Identification – ALI) of the phone from which the call is being made.
3. Seven-digit or ten-digit numbers for emergency services
   - In locations where 9-1-1 is not available
   - Often the numbers for police, fire and EMS are different.
   - Those numbers frequently located in the front of the telephone directory for the area.
4. Wireless 9-1-1 activities
   - 9-1-1 access is increasingly common through wireless resources
   - In 2000, wireless systems do not include ANI/ALI capability
   - FCC rules will allow for that capability in the future.
5. Intelligent transportation systems

- Systems are being investigated that provide automated crash notification information to local PSAPs.
  6. N-1-1 systems
     - Some local programs are providing alternative phone numbers for access to non-emergency services.

C. EMS dispatch activities
   1. In most 9-1-1 systems, the 9-1-1 call is received in a PSAP located in a law enforcement or fire dispatch center.
      - Facility may be also responsible for dispatching EMS resources.
      - There may be a separate dispatch center for EMS.
      - In many municipal systems, the private ambulance companies are not included in the 9-1-1 system.
   2. Legislative or legal authority for EMS dispatch activities in each system must be understood.
      - Many areas have not implemented formal emergency medical dispatch (EMD) programs.
   3. Emergency Medical Dispatch (EMD) programs
      a. Emergency Medical Dispatcher: First EMS provider that a caller contacts. Trained specifically in communications techniques:
         - To appropriately interview the caller
         - Determine the nature of the medical emergency
         - Dispatch the necessary resources
         - Provide instructions to the caller to care for the victim until EMS responders arrive
      b. Priority Dispatching
         - Goal is to provide the medically necessary response (type and level of service) in an appropriate manner (e.g. lights and siren or not) for the nature of the event.
         - Decisions are made based on emergency medical dispatch protocols that have been reviewed and approved by the medical director.
      c. Pre-arrival instructions:
         - Protocols established and approved by the medical director with regular and routine reevaluation.
         - Allows the dispatcher to provide instructions to the caller to begin care for the patient until EMS personnel arrive (e.g. as simple as controlling bleeding or as complex as performing CPR.

D. Functions of EMS Communications
   1. Operational - those communications activities relating to the operation of the organization or system.
      - Dispatch center to vehicles
      - Vehicles to vehicles
   2. Medical - allows interaction between field personnel and medical

oversight resources

E.   Components of EMS Communications systems
    1.   Radios
        a.   Simplex:
            • Allows for only one-way communication at any given time (one talking at a time).
        b.   Duplex:
            • Uses complementary "paired" radio frequencies between the two radios communicating: one unit transmits on one frequency and receives on the other frequency while the other unit transmits on the second frequency and receives on the first frequency.
            • Allows for communication in both directions at the same time, similar to talking on the telephone.

    2.   Telemetry
        a.   Allows the transmission of biological information (e.g. pulse and ECG tracing) over radio waves.
        b.   Used to allow the hospital to view the patient's ECG waveform to provide direction to the paramedics based on that tracing.
        c.   Employed to a lesser degree today because of:
            • Lack of cost-effectiveness in patient care activities
            • Technological problems with the quality of the transmission
            • Some areas still use telemetry, most commonly now for the transmission of 12-lead ECG.

    3.   Telephone
        a.   Land-line (regular telephones) for field to hospital communications
        b.   Wireless
            • For field to hospital communications
            • Cellular transmission of 12-lead ECGs.
            • Systems should not rely on cellular communications systems for routine or disaster setting communications; need backup system

    4.   Telemedicine
        a.   Transmit data, voice and video images from the scene or ambulance to the hospital
        b.   Allows more direct contact between EMS personnel and physicians providing medical direction
        c.   Not widely utilized in the year 2000

F.   Medical Oversight Communications
    1.   Between the EMS personnel in the field and those providing medical oversight (often in hospital)

- On-line medical direction should be available to all levels of EMS field personnel
- Offers opportunity for "field consultation"
- May occur either via radio, land-line or cellular telephone
- Allows for the provision of on-line medical direction

2. System configurations
   a. All on-line (direct communication) medical direction is provided by designated resources, regardless of the hospital to which the patient is being transported. Patient information is then relayed to the receiving hospital.
      - Allows for standardized medical direction by a small group of physicians or nurses.
      - The resource may be a hospital, office or remote location.
      - Allows for regionalization of on-line direction.

   b. Field personnel talk directly with the hospital to which the patient is being transported.
      - Provides the receiving hospital directly with information about their patients.
      - Necessitates that larger number of people provide the on-line direction.

   The system must provide for education, QI oversight and routine review of on-line personnel and activities.

V. REGIONALIZATION OF CARE
   A. General Considerations

   1. All facilities that care for EMS patients are important components of the EMS system.

   2. Many facilities are community hospitals with resources to care for many of the illnesses and injuries that patient's experience.

   3. The specialization of some receiving facilities provides special resources to the EMS system and potentially impacts how EMS personnel treat patients and the locations to which the patients are transported – it allows for the regionalization of health care resources (e.g. Larger EMS systems have specialty receiving facilities readily accessible; other systems must access those facilities by transfer of patients greater distances).

   4. Regardless of whether the EMS system is local, regional, or state, the system must have in place a process for accessing the appropriate resources for the needs of the patient and effectively completing the transfer to those facilities when needed.

- State may have process of categorization for specialized facilities
- Specialty facilities may also have resources to help with medical oversight activities (on-line and off-line)

With these systems in place, it is important to establish appropriate triage criteria to identify those patients who are appropriate to transport to the regional facility with acceptable overtriage and undertriage rates.

B. Other considerations regarding regionalization issues:

1. Appropriate monitoring of transferred patients
2. Extend time of EMS resources away from local area
3. Financial impact on local and regional hospitals
4. Applicable federal and state regulations
5. Bypass / diversion

C. Specialty Considerations

1. The EMS medical director should look to specialists in the area as resources and consultants in their specific patient care areas (e.g. advisory council or special patient care committees)
    - Where specialists are not immediately available, regional resources should be identified
2. Contracts and transfer agreements with all appropriate specialty centers should be prospectively established among EMS systems.
3. The mechanisms by which they are transferred should be established by the EMS system, consistent with local, state and/or federal regulations.

D. Specialties
1. Pediatrics:
    It is well recognized that children respond differently than adults to acute illnesses and injury and require special knowledge and resources to care for them. Historically, there was limited education for EMS personnel on the issues of pediatric medical problems. Initially, most of the equipment and supplies in EMS were geared toward adults and we simply made smaller versions for pediatric patients.
    a. The medical director should ensure that personnel receive the necessary education and that vehicles stock the appropriate equipment and supplies to care for pediatric patients.
    b. EMS medical director should establish relationships in the area:
        - Local emergency physicians
        - Pediatric emergency physicians
        - Pediatric surgeons
        - Pediatricians
        - Regional pediatric specialty resources

2. Trauma Care:
   a. Many states have recognized the need to develop organized trauma systems in the region or state to provide appropriate resources for those patients severely injured (refer to state legislation or regulations and ACS).
   b. EMS system should establish criteria and protocols that address triage (bypass) decisions to identify those critically injured patients who should be taken directly to the trauma center if one is readily available.
   c. If not available, the patient should be stabilized at the nearest appropriate facility and expeditiously transferred to a trauma center.

3. Cardiac Care:
   A major focus has been on the early identification and treatment of those patients experiencing an acute cardiac ischemic event.
   a. Potential patient benefit of prehospital modalities and interventions should be investigated carefully and implemented in those situations found to be appropriate based on available local prehospital and hospital resources.
   b. Referral centers for emergent interventional therapy like thrombolysis, angioplasty and by-pass graft surgery should be identified.
   c. Rapid identification and treatment of cardiac arrest patients:
      • Great interest in Public Access Defibrillation (PAD) - making AEDs units available in as many locations as possible.
      • PAD programs should be integrated with the EMS system through appropriate education, medical oversight and quality improvement activities.

4. Stroke Care:
   a. EMS system needs to look at available resources for assessment and treatment of acute stroke patients.
   b. Appropriate hospitals with necessary radiology and treatment resources should be identified.

5. Specialty Needs and Technology Dependant Patients:
   EMS Medical director must understand the unique needs of specialty and technology-dependent patients and be able to carry those needs to field personnel.

6. Other Specialty Centers:
   a. Other situations in which selected patients with specific medical problems may be best cared for in specialty centers. A small number of patients will typically require these resources:

- Hazardous materials, including treatment of contaminated patients
- Burn unit
- Hyperbaric oxygen chamber
- Special neonatal or obstetrics capabilities
- Spinal cord
- Psychiatric units
- Reimplantation centers
- Rehabilitation centers

    b.   EMS systems must establish mechanisms to access these facilities, either directly from the field or via transfer from initial receiving facilities. If the patient may be taken directly to a specialty center from the field, specific triage criteria must be established prospectively to define those patients who should be directly transported there.

VI. DIFFERENCES BETWEEN RURAL AND URBAN SYSTEMS
    A.   Potential factors:
- Personnel
- Resources
- Response times
- Call volume

    B.   See Table 1 – NOTE: This is a generic table developed by consensus of the National Writing Team.

    C.   System design issues in rural settings are often different than those in urban or suburban settings.

VII. INTEGRATION WITH COMMUNITY HEALTH AND PUBLIC SAFETY
    A.   Likely that EMS will begin to serve a broader based community health role. EMS personnel may be valuable in:
- Community health care education
- Health care screening programs
- Public health medical care
- Local emergency management agencies
- Mental health agencies
- Schools
- Social services
- Nursing homes
- Local physician offices

    B.   EMS services are often the first contact with the local community health services. Hospitals are a major resource for the community. Merging and regionalization of hospitals may affect EMS resources.

VIII. INTERFACE WITH MANAGED CARE
There are many points of interaction between EMS services and managed care Organizations (MCO's).

A. Managed care groups and transporting services interact to provide medical transport for the MCO's subscribers, creating a potential revenue source for the transporting agency.

B. MCO's may require subscribers to contact the MCO for permission to call an ambulance for transport to the hospital
- These policies may conflict with usual 9-1-1 access.
- Some states are establishing legislation or rules affecting this activity.

C. MCO's may suggest treatment or transport options that also vary from routine EMS protocols.
- EMS medical director must work closely with the EMS services and managed care organizations to ensure an appropriate interface.
- Medical director can have great influence and impact in this interface.

IX. AIR MEDICAL CONSIDERATIONS
A. Many EMS systems have access to air medical resources for rapid transport of appropriate patients.

B. Air medical programs may offer additional patient care resources (physician or nurse level staffing, blood transfusion, additional pharmacologic agents, etc.)

C. EMS system should establish:
- Triage criteria to identify those patients for whom air medical transport is warranted.
- Process by which the resources should be activated.

D. EMS medical director and the medical director of the air medical program should meet to develop an interface.

X. EMS FUNDING
A. Historically, reimbursement to EMS services is dependent on physically transporting a patient from one location (usually the scene of the incident) to another location (typically the emergency department).

B. There is some interest on the part of service payers (e.g. managed care organizations, insurance companies) in potentially paying EMS services for care provided on-scene without transport or for transport to facilities other than emergency departments.

C. Municipal EMS services are often partially funded by public agency monies, frequently taxes.

D.	Many community based and volunteer organizations still receive funding from donations and contributions.
	• Some volunteer organizations do not bill at all; more are beginning to bill.
	• Some EMS services establish subscription programs.

E.	Funding for medical oversight is an important issue that must be addressed if the medical oversight program is to be effective and accountable.
	• The medical director should receive appropriate support and reimbursement.
	• Medicare has a billing code for on-line medical direction.

F.	Funding for medical oversight activities can come from various sources.
	• Frequently hospitals or physician practice groups provide financial and administrative support for the physician medical director.
	• Some hospitals also provide staff support for the administrative activities of medical oversight.
	• Some EMS systems have medical control authorities that are supported by the hospital and/or prehospital services in the system.

G.	Evolving Ambulance Reimbursement Issues
	• Medicare
	• Medicaid
	• Capitation

H.	A number of state and national grants available for EMS activities:
	• Office of Highway Safety
	• Office of Rural Health Policy
	• Maternal Child Health Bureau - EMSC programs
	• Federal Block Grant Funds
	• Foundations
	• State specific potential funding sources

CHALLENGES OF URBAN AND RURAL PROVIDERS

	Urban	*Rural*
"Burn Out"	High possibility	Possible
9-1-1 availability	universal	may be 7 or 10 digit
Air Medical	often available	often not available, may take extreme time
Allied Health Specialist	usually available	specialist may not be available
BLS vs ALS	often Paramedic ALS response & transport	variable BLS/ALS availability
Budgetary Issues	often trained financial staff	may have no formal financial training
Business Structure	often corporate/municipal structure	no formal structure-> to formal structure
Call Volume	higher volumes, less "patient time"	lower volume, more "patient time"
Career vs Volunteer	more frequently career	more frequently volunteer
Communications	often structured & militaristic	often casual
Cellular	large areas of coverage	large "dead" spots
Radio	large areas of coverage	large "dead" spots
Community Interactions	less personal involvement	more personal involvement
Disaster Preparedness	mass gathering, natural disasters	unique situations, natural disasters
Dispatch System	medical model	public service model
Extreme Extrications	high rise bldg, multi vehicles	heavy equipment, harsh environment
Geography	variable, typically improved	variable, extreme, unimproved, greater distance
Health Professionals	full complement of specialist	may have limited resources
Interfacility Transports	common, lower acuity	less common, often higher acuity
Jurisdictional Issues	formal agreements, exclusivity	"Gentlemen's"/ formal agreements
Labor Issues	organized labor	recruitment/retention
Maintenance Program	often professional program	may be "as needed"
Management	more structured/formal	less formal training

Medical Direction	often contractual agreement	volunteer or formal agreement
Mutual Aid	formal agreements, multi-agency	adjacent services, formal, none
Additional Units	usually available	unavailable -> available
Other ES Services	often working relationships	usually working relationships
Physician Specialist	often various specialist available	available to no resources available
Primary Response Units	higher number of units	lower no. of units, only 1?
Quality Assurance Programs	often formal process	may be less formal process
Response Time Intervals	generally shorter	generally longer
Skill Opportunities	greater # of individual opportunities	less individual opportunities
Specialty Facilities	have access to	may not be accessible option
Training Opportunities	frequent, variety, cost efficient	infrequent, less cost efficient
Transport Distances	shorter distances, shorter time factors	longer distances and times
Transport Units	ALS, BLS, Transfer	"One unit fits all"
Violence	more common, higher awareness	less common, less prepared
Weather	extreme changes less common	extreme changes possible
Work Schedules	defined, formal process	formal process -> anyone available

Module III: Medical Oversight

Time: 90 minutes

**Overall
Objective:**   Describe the qualifications, roles, responsibilities and authority of EMS
medical directors.

**Enabling
Objectives:**   Upon completion of this session, the student will be able to:

      3.1   Outline medical oversight for state, regional and local EMS
           systems.
      3.2   Identify minimum medical director qualifications.
      3.3   Describe the process of protocol, policy, and procedure
           development, implementation and review.
      3.4   Identify special issues related to clinical care protocols in the
           prehospital setting.
      3.5   Define the terms prospective, concurrent and retrospective as they
           relate to quality management programs.
      3.6   Recognize key personnel management issues.
      3.7   Recognize high risk and special situations.
      3.8   Recognize legal considerations related to EMS systems and EMS
           medical oversight.
      3.9   Identify interfacility transportation issues.

I.   CHARACTERISTICS

    A.   Medical oversight structure varies from state to state, and rules, regulations or
legislative actions define authority.

    B.   Specific resources, regulations and legislative actions pertaining to medical
director's authority to review include:
- National
- State
- Regional
- Local

    C.   Medical oversight structure generally involves all of the following:
- There are several terms that refer to the groupings of activities involved in
medical oversight.
- The activities may be defined according to temporal relationships.
  - Prospective – those activities that occur prior to the patient encounter
  - Concurrent – those activities that occur at the time of the patient
encounter
  - Retrospective – those activities that occur following the patient
encounter

- Other terms refer to on-line/off-line and direct/indirect interactions with EMS personnel

Prospective	Off-line	Indirect
Concurrent	On-line/on-scene	Direct
Retrospective	Off-line	Indirect

1.   Off-line (Indirect) medical director
     This is the physician who has full medical oversight authority and responsibility for EMS system operations. This physician takes responsibility of all medical care provided by the service, including an active day-to-day role in the function and management of the EMS service as it relates to patient care activities.

   a.   To be effective in this role, the medical director must understand the political interactions and dynamics that affect EMS systems and be able to work in concert with the EMS administrative director recognizing the lines of authority/responsibilities of both (see Figure 1)
   b.   Total off-line medical oversight activities may involve the participation of other physicians and non-physicians. Activities include:
      - Protocol development
      - Education
      - Quality improvement
      - Oversight of on-line components
      - Other activities

2.   On-line (Direct)
   a.   Remote – via radio, telephone, etc.
      - This is any physician or designee who provides medical direction with radio- and base-station communications.
      - Specific courses have been developed for training of on-line medical direction.
      - In some situations, on-line medical direction may supercede off-line medical authority. This may be defined by local systems.
   b.   On-scene – by EMS Medical Director and EMS physicians
      - On-line medical direction
      - Other on-scene functions
         - Performance improvement
         - Education
         - Patient care
         - Support for EMS personnel/system
         - Administrative activities
   c.   On-scene – Physician Intervenor (Bystander Physician)

- This is a non-EMS system physician who is present at the scene. The physician may or may not have familiarity with EMS function and training in medical oversight responsibilities.
- Lines of authority and responsibility vary from state to state.

D. Contractual arrangements should exist between medical oversight and the EMS agency. Items include but are not necessarily be limited to:
- Medical oversight authority and structure in system – roles and responsibilities
- Compensation
- Administrative and professional support
- Malpractice insurance coverage
- Occupational health responsibilities
- Equipment provision

II. QUALIFICATIONS

A. Minimum medical director qualifications are active involvement in the emergency care of patients, familiarity with EMS operations, and an unrestricted valid medical license to practice locally.

B. The medical director must understand the whole process of patient care, involving all components of an EMS system. This is best accomplished by spending time in the prehospital care setting to develop a working knowledge of the unique aspects inherent in patient care in this area.

C. The medical director must avoid potential unethical conduct or conflict of interest situations.

D. The medical director must have active involvement in the EMS system or organization in which s/he is working.

III. COMPONENTS:

A. Protocol, policy, and procedure development and review. These fall into several broad categories
- Communications/dispatch
- Response to scene
- Scene triage
- Clinical care
- Transportation – including destination and diversion

B. Protocols may be written in different formats.
- Descriptive
- Algorithmic

C. Clinical care protocols should be developed by the medical director with input from other medical specialists and providers as appropriate. Protocols should broadly cover every anticipated patient encounter. Factors to be considered in protocol development include:

1. Training or re-training of personnel
2. Medications
   - Stability in temperature extremes
   - Controlled substances
   - Storage and space issues
3. Administrative issues
4. Equipment issues
5. Costs to EMS agency
6. Changing modalities
   a. The scientific rationale for new modalities should be closely investigated before being added or deleted. This includes review of research projects and published literature, talking with other medical directors, and possibly designing one's own research project for evaluation.
   b. Close monitoring of the modality through the quality management process and periodic reviews should be performed following the addition/deletion.

D. Quality management concepts should be applied to evaluate prehospital treatment. Oversight of quality management activities is the responsibility of medical oversight, however, selected aspects and reviews can be delegated to those with sufficient training and knowledge. Physicians should be familiar with the general principles and methodology of quality management programs to include:

1. Process and Outcome measures of prehospital care
   - Scene times
   - Procedure completion rates
   - Mortality reviews
   - Trauma and cardiac arrest survival
   - Patient safety and medical error reduction

2. Evaluation methods
   a. Concurrent reviews – review of care while treatment is ongoing. This can be accomplished by riding with EMS personnel in an observer capacity or real-time critique of EMS radio communications.
   b. Retrospective reviews- reviews of written EMS patient care paperwork. This can focus on specifically selected areas
      - Personnel
      - Procedures
      - Selected patient calls (i.e. all trauma calls)
      - High risk situations
      - Sentinel events
   c. Tape audits- review of random or selected radio communication tapes
   d. Assessment of new procedures, equipment, or therapies

3. Principles of quality management
   a. Scope of authority
   b. Analytical methods
   c. Discoverability issues
   d. Participants
   e. Data collection – importance of uniform collection methodology

4. Pitfalls in QI activities:
   - Failure to close the QI loop – information obtained from quality management activities generally should be used to modify treatment protocols and educational activities where appropriate
   - Focusing too much on individuals rather than the system

5. Impediments to QI activities:
   - Access to patient follow-up information (address confidentiality)
   - Lack of an integrated data collection system

E. Personnel management issues require familiarity with applicable personnel policies (including due process), procedures and labor laws. Areas where medical directors frequently address personnel issues include:
   1. Selection and training of personnel
   2. Credentialing of new employees
   3. Probationary period for newly hired
   4. Re-credentialing of existing employees
   5. Disciplinary actions
   6. Remedial training
   7. Withdrawal of medical direction privileges
   8. Issues in dealing with organized labor

F. The medical director must interact with and educate a variety of hospital staff to assure smooth operations and interface with the EMS system. This includes medical, nursing, and ancillary staff.

IV. CLINICAL CARE ISSUES
A. Introduction
   The patients cared for in the prehospital setting are the same as those cared for in the emergency department. The assessment and care provided are different by virtue of the unique setting. The medical director must be familiar with this setting and must spend time in the field to gain this understanding.

B. Patient care and assessment techniques are similar, but may be applied differently in the field and different equipment may be used. For example:
   1. Airway management issues
      - Intubation or ventilation of the entrapped patient
      - Intubation or ventilation of patients in awkward positions

- Intubation in excessively noisy environments.
- Use of alternative airway devices such as the Combitube® or PTL®
  2. Starting IV's in moving vehicles

C. Some techniques and equipment used in the prehospital setting may be unfamiliar to the physician.
  1. Spinal immobilization techniques
  2. Extrication
  3. Communications equipment
  4. Emergency vehicle driving techniques

V. LEGAL CONSIDERATIONS
Federal, state, local laws and administrative codes -

A. Emergency Medical Transport and Labor Act (EMTALA) regulations related to interfacility transfers. Interfacility transportation must consider:
- Patient and/or family consent
- Special training needed by personnel
- Medical director's role and provision of medical direction
- Paperwork necessary to accompany patient

  NOTE: consider some example scenarios that relate to EMTALA issues

B. Legislation:
- Good Samaritan laws
- Scope of practice

C. Delegated medical practice: "respondeat superior"

D. Medical malpractice and liability – not all routine medical malpractice policies cover EMS medical direction activities. It is best to check with your carrier concerning the specifics of this coverage. If there is no coverage through your current malpractice carrier, other options include:
  1. Liability coverage through the EMS agency (may require that you become a part-time employee of agency or sponsoring governmental entity)
  2. Malpractice rider to current policy
  3. Special malpractice policy

E. Special High Risk Situations - The medical director should be aware that certain situations represent a greater degree of medicolegal risk. Particular attention should be paid to protocol development and system response in these areas.
  1. Intervenor physicians & other licensed health care personnel
  2. Informed consent refusal for treatment and transport
 3. Incompetent patients
  4. DNR

5. Resuscitation termination
6. Pronouncement of death
7. Crime scene preservation/investigation
8. Transfer policies
9. ALS to BLS care
10. Mental health patients
    - Personnel must be educated in recognizing and caring for these patients
    - Protocols must be established to define care
    - Patient restraint protocols must be available with proper equipment, training in techniques available
11. System overload/diversion/destination determinations
12. Multiple patient triage
13. Call cancellation/non-transport issues
    - System initiated refusal of care or transport
14. Patient abandonment or abuse by EMS
15. Destination issues for hospital owned EMS services
16. Assault/abuse/ or neglect situations
    - Pediatric
    - Geriatric
    - Domestic
    - Sexual
17. Interaction with the media
18. Minors
19. Care to technology assisted patients
20. Interfacility transfers, including critical care and specialty care transports
    - These issues apply to all physicians involved in arranging for interfacility transports
    - The specific role and responsibility of the EMS Medical Director in interfacility transfers will vary from state to state; it is important to understand those responsibilities in your particular state.
    - Federal reimbursement programs require physician certification of the need for ambulance transfer
    - Patient must meet specific criteria:
      - Patient needed to be restrained
      - Patient was unconscious or in shock
      - Patient required emergency treatment during transport
      - Patient required oxygen during transport
      - Patient bed confined before and after transport
      - Patient needed cardiac monitoring
      - Patient had to remain immobile due to fracture or suspected fracture
      - Other criteria which required the patient to be transported via stretcher
    - Certification may be signed by physician or surrogate nurse or physician assistant

(**NOTE**: consider scenarios to incorporate some of the legal issues
outlined here that are faced by EMS medical directors)

VI. **ADDITIONAL RESPONSIBILITIES** (Open for discussion at the program)
1. Consider referring to national position statements / example medical director contracts,
etc.

Figure 1
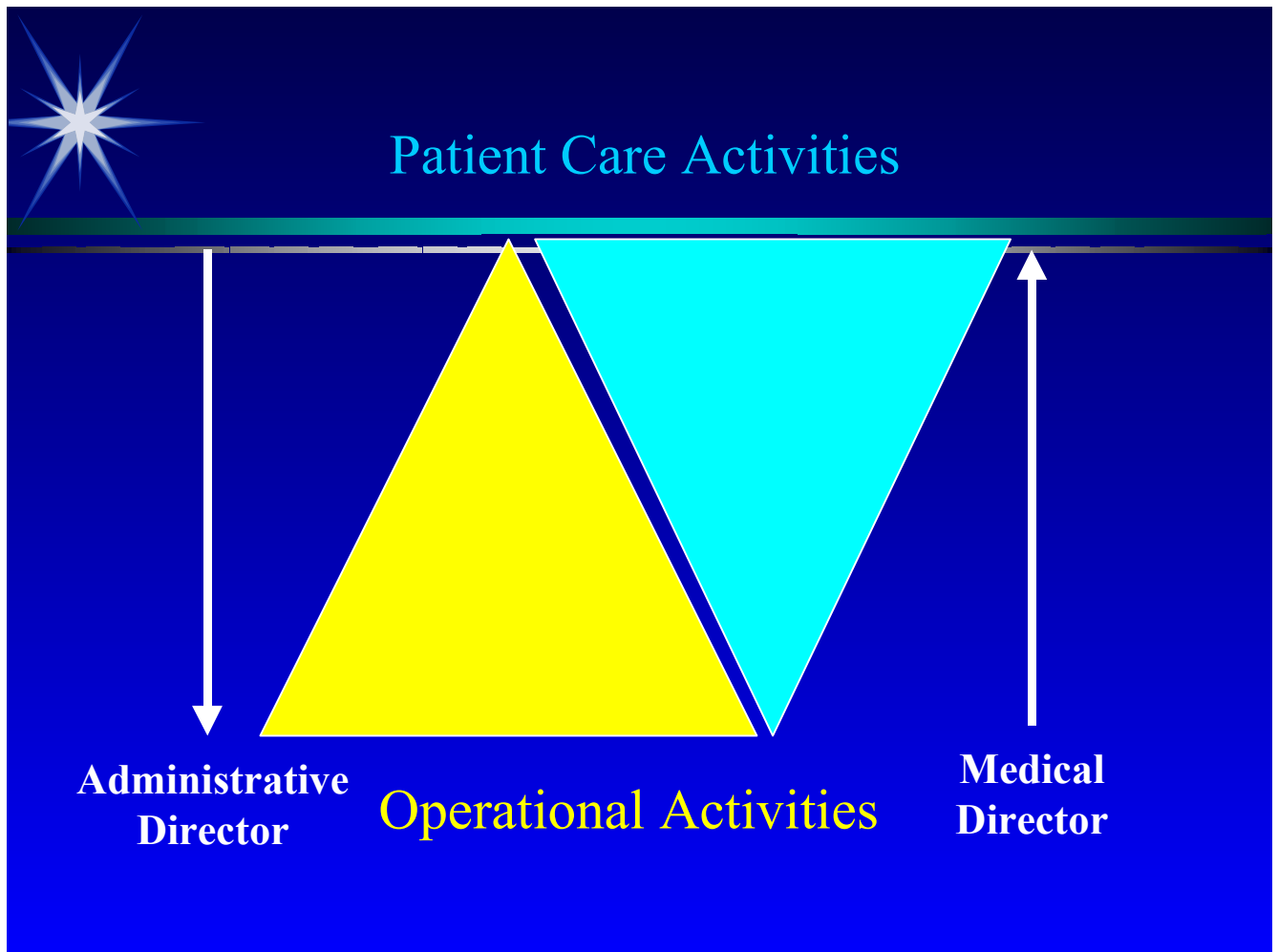
Module IV: Personnel and Education

Time: 30 minutes

Overall
Objective: Describe the medical director's role in personnel education, training and health and safety of EMS providers.

Enabling
Objectives: Upon completion of this session, the student will be able to:

                     4.1 Differentiate the training levels of EMS providers.
                     4.2 Describe the EMS Medical Director's role in training of EMS personnel.
                     4.3 Identify the major national credentialling and accrediting organizations for EMS.
                     4.4 Identify the areas of EMS activities that require special training.
                     4.5 Recognize the difference between certification and credentialling of personnel and approval and accreditation of training programs.

I.   EDUCATION REQUIREMENTS FOR PROVIDERS
There are national and state requirements for initial and continuing education of all levels of EMS providers. The national curriculum undergoes periodic revision. Some states use the same requirements, while many develop their own, particularly with respect to the intermediate level. Understanding of these requirements is essential to designing initial and continuing educational programs. The medical director should be familiar with educational course requirements for each of the following EMS providers.
- Emergency Medical Dispatcher (EMD)
- First Responder
- EMT – Basic
- EMT – Intermediate
- EMT – Paramedic

II.   INVOLVEMENT IN COURSE DESIGN AND INSTRUCTION
Education of many different levels of personnel is necessary for the total EMS system. Direct physician involvement in course design and instruction of initial and continuing education of all levels of personnel is extremely important.

III.   INITIAL AND CONTINUING EDUCATION ISSUES
      A.   Medical directors and other EMS physicians should actively participate in EMS education. Most states require EMS education programs to have a physician medical director. This individual may not be the same person as the system or service medical director.

      B.   Course content should include system-specific issues and items resulting from

quality management activities as well as state and national requirements.

    C.   Special considerations in EMS learning
- Principles of adult learners
- Procedural skills instruction
- Clinical instruction

    D.   Medical directors need to be familiar with effective training techniques that are appropriate to the scope of practice of EMS personnel and include the following
- Procedural skills
- Retention-enhancement methods
- Periodic assessment
- Didactic educational techniques
- Clinical instruction techniques
  a. Selection of clinical training site
  b. Consideration of issues related to patient census, pathophysiology, preceptor selection and supervision.
  c. Contractual relationships between educational provider and clinic training site, if necessary
     - Include responsibilities of both parties
     - Include medico-legal responsibility for student's performance

    E.   Education should be geared to reach the specific needs of the audience (EMS providers - who may be volunteer status, rather than paid career personnel). Consideration should be given to scheduling training on nights or weekends.

    F.   In addition to the education of EMS personnel, the medical director should be involved in the education of other physicians and personnel involved in the EMS system, including the provision of on-line and off-line medical oversight.

IV.   PROGRAM APPROVAL AND ACCREDITATION
    A.   Initial education programs generally are required to obtain approval on a state level, but may receive accreditation from national organizations. The EMS Education Agenda encourages programs to seek that national accreditation.
    B.   Initial programs contain all salient aspects of a curriculum that is either state or nationally approved. A key national accrediting body is the Committee on Accreditation of Education Programs for EMS Professionals (CoAEMSP), formerly known as the Joint Review Committee on Accreditation of Educational Programs for the EMT-Paramedic (JRCEMT-P).
    C.   (The local faculty should discuss how continuing education programs are reviewed and approved in that state).

III.   CERTIFYING/ LICENSING OF PERSONNEL
    A.   All EMS personnel must be licensed/certified in their state.

    B.   The National Registry of EMTs certified competency of candidates. Some states

recognize this certification while other states have their own certifying examination. The medical director must confirm skill abilities.

C.   CME activities are geared to meeting re-certification requirements - either on a state level, for National Registry, or both. In this setting, CME activities must be geared to meeting the state requirements for licensure.

D.   In addition, EMS personnel may be required to have privileges delegated by local medical directors to function within an EMS system. Granting or withdrawing of medical direction privileges is separate from state licensure or certification.

VI.   PROVIDER HEALTH AND SAFETY

A.   Special operations will require specific additional training. The medical director should be familiar with the additional equipment and educational requirements related to these situations.
1.   HAZMAT (hazardous materials)
2.   Fire ground EMS support
3.   Tactical EMS
4.   Domestic terrorism, including WMD
5.   Farm/agriculture EMS response
6.   Military EMS
7.   Technical rescue situations (cave, high angle, water, confined space, urban SAR, wilderness rescue)

B.   Issues of personnel health, safety and wellness
- The medical director must be knowledgeable in these areas and ensure their incorporation in overall agency operations. (However, the EMS medical director is usually not the physician responsible for the occupational health issues of the personnel).
1.   Personnel mental health issues
     a.   Stress management
         - Personnel are expected to act quickly and correctly
         - Personnel see many stressful and tragic events
     b.   Personnel must understand the potential effects of stress on personal life and work performance
     c.   When excessively stressful events are recognized, appropriate counseling and mental health follow-up must be available to EMS personnel.
2.   Personal protection equipment
3.   Infectious disease exposure.
- The Ryan White Act affords EMS personnel the right to obtain blood from a source patient when they have had an exposure.
4.   Hazardous materials exposure
5.   OSHA guidelines, including ergonomics (see OHSA website)
6.   Substance abuse issues including identification and remediation of the impaired provider
7.   Shift work / fatigue

8. Scene safety
9. Safe transport issues
    a.   Proper use of occupant restraint devices
    b.   Safe driving issues. The use of lights and sirens response can result is increased risk to personnel and patients. This risk should be weighed against time saved by this type of response.
    c.   Management of the violent patient

Module V: EMS System Responsibilities

Time: 30 minutes

**Overall
Objective:** Describe the role of EMS as a community health care resource.

**Enabling
Objectives:** Upon completion of this session, the student will be able to:

    5.1   Outline five factors that should be considered when planning medical care for mass gathering activities.

    5.2   Outline the EMS component of the Incident Command Structure.

    5.3   Define triage as it applies to an EMS response.

    5.4   Discuss the issues of prehospital research.

    5.5   Discuss potential public health roles that may be filled by EMS personnel.

I.   DISASTER/MCI MANAGEMENT

A.   Disaster: an event that overwhelms the ability of the local emergency response system.

B.   Mass Casualty Incident: an event that produces multiple casualties.
- MCI and disasters are not the same! (One is not necessarily the other)
- MCI's occur daily

C.   Incident Command/Management System: the structured response to an event defining lines of authority and responsibility.
- **Generally the ranking fire service officer has overall responsibility**
- EMS is one component of a disaster or MCI response
- EMS personnel will be responsible for medical activities

D.   Planning and preparation is critical to the successful response to a disaster or MCI

    1.   Goal of disaster preparedness is to limit the impact of the disaster in terms of lives lost, injuries sustained and damage to the community and to achieve restoration of community activities

    2.   Components of planning process.

        a.   Field responses - how the field response will be provided.

        b.   Hospital responses - how hospitals will respond.

        c.   Regional/mutual aid agreements - among prehospital and hospital services; among various public safety agencies.

        d.   Written plan - must be developed for field and hospital response outlining all roles and responsibilities.

        e.   Exercises/drills - regularly conducted to exercise the response plan and educate responders. They test various potential scenarios.

E. Principles and practice of triage
- Provide the greatest good for the greatest number with the resources available.
- Determine and catalog patient severity - some method of tagging or identifying.

F. EMS Scene response structure
- EMS Command - reports to Incident Command
- Triage
- Treatment
- Transportation

NOTE: address the medical director's role in disaster response in the local system

G. Communications
- Among personnel at site
- With hospitals
- With dispatch center

H. Interagency coordination - among EMS services and other public safety

I. Phases of disaster response
1. Planning
2. Notification
3. Search and rescue
4. Triage
5. Medical care of disaster victims
6. Disaster communications
7. Record keeping
8. Transportation and evacuation
9. Debriefing/Mental Health Support
10. Recovery

J. Disaster medical care
1. Rapid assessment of emergency health care needs
- Determine resources needed for field (treatment and transport).
- Determine how to distribute patients once transported.
2. Medical care at mass casualties - provide initial stabilization if transport delayed.
3. Medical supply/equipment management - to ensure available as needed.

K. National Disaster Medical System (NDMS)
- Disaster Medical Assistance Team (DMAT)
- Disaster Mortuary Team (DMORT)
- Federal Emergency Management Agency (FEMA)

L. County Emergency Management Coordinators

II.   SPECIAL EVENTS MANAGEMENT
    A.   Analyzing the event
        1.   Facility (structure and locations)
        2.   Nature of event
        3.   Crowd size and demographics
        4.   Environmental factors
        5.   Associated factors (alcohol, drugs)

    B.   Staffing the event: Available resources
        1.   Personnel on-site (role of EMS physicians vs. physicians)
        2.   Transportation
        3.   Equipment

    C.   Interagency coordination

III.   RESEARCH
    A.   Introduction
- Quality research is greatly needed in EMS
- Can often be an extension or part of QI program - respond to monitoring of EMS system

    B.   Issues in Research
- Informed Consent - can be difficult in the prehospital setting
- (Review recent federal regulations governing waiver of consent issues)
- Protection of patient's rights (IRB review and approval)
- Confidentiality
- Partner with academic institutions
- Research as part of data collection effort

    C.   EMS Research Agenda

IV.   PUBLIC HEALTH ISSUES
    A.   EMS may play greater role in the future in Public Health issues

    B.   Injury and illness control and injury prevention
        1.   Increased surveillance activities to identify issues of concern.
        2.   Developed area-specific injury prevention programs.
- Primary injury and illness prevention
- Secondary injury and illness prevention
        3.   Involved actively in public education (e.g. home safety inspections, helmet use education.

    C.   Other potential public health venues (per local and state laws)

- Disease surveillance
- Health screening
- Identification of at-risk populations
- Coalition building/collaborating organizations
- Community intervention
- Public policy impact and education
- Disease prevention
- Data collection

Module VI: State, Regional and Local Issues

Time: 60 minutes

Personnel: This will have to be individualized for each state. Preferably lecturers should include someone from the state office of EMS, regional office, and legal representation.

Terminal
Objective: Discuss state-specific issues pertinent to EMS medical directors.

Enabling
Objectives: Upon completion of this session, the student will be able to:

        6.1   Describe the organization of EMS services in the state.

        6.2   Identify the location and role (regulatory and resources) of the state and regional offices of EMS.

        6.3   Recognize the impact of applicable state laws, rules and regulations on EMS medical oversight and the EMS medical director.

I. OVERVIEW OF EMS SERVICES' STRUCTURE

A. All levels of EMS services are supposed to be interrelated and complementary. This is illustrated by discussions of the following:

    1. Functions of State EMS agency and key personnel.

    2. Functions of regional services, their locations, and pertinent demographics.

    3. Functions and organization of local EMS agency(s).

    4. Standards of care may vary between regions. Discuss state, regional and local standards of care and how they are developed.

B. Operational aspects of each level of EMS agency vary with location.

    1. State EMS agency are largely administrative with regulatory and licensing components including periodic inspections. Many state offices offer technical assistance to local EMS systems. State EMS offices are also often operationally active in state disaster and emergency management response activities.

    2. Regional services perform primarily educational and resource roles for local services and act as liaison for the State Office.

    3. Local services operationally perform rescue and emergency response for a defined area.

C. Political interactions occur in all levels of EMS services often affecting available resources, funding, and operations. Discussion of political forces affecting each level of EMS agency, including funding sources, are presented as illustrations.

D. EMS services get their authority from state law or regulations.

1. Discussion of State laws and regulations related to EMS (discuss how to change state EMS laws and rules).
2. Current EMS legislative initiatives in the state legislature.
3. Roles and responsibilities of medical directors under state regulations.
4. State liability protection, statutes (if any) for medical direction.
5. State contact information.

Module VII: Resources

I.   Resource Documents

Prehospital Systems & Medical Oversight, 2nd Edition, Kuehl (Ed), National Association of EMS Physicians, Mosby-Yearbook, Inc., St. Louis, MO, 1994

Principles of EMS Systems, 2nd Edition, Roush (Ed), American College of Emergency Physicians, ACEP, Dallas TX, 1994

Quality Assurance in Air Medical Transport, Eastes and Jacobson (Eds), American Association of Air Medical Services, Word Perfect Publishing Co., Orem, UT, 1991

Quality Management in Prehospital Care, Swor (Ed), National Association of EMS Physicians, Mosby-Lifeline, St. Louis, MO, 1993

Continuous Quality Improvement in EMS, Polsky (Ed), American College of Emergency Physicians, ACEP, Dallas, TX, 1992

A Leadership Guide to Quality Improvement for Emergency Medical Services (EMS) Systems, NHTSA/MCHB, Washington, DC, 1997.

Prehospital Medicine. The Art of On-line Medical Command, Paris, Roth and Verdile (Ed), Mosby-Lifeline, St. Louis, MO, 1996

Emergency Medical Services for Children, Institute of Medicine report, Durch and Lohr (Ed), National Academy Press, Washington, DC, 1993

Emergency Medical Services Agenda for the Future, National Highway Traffic Safety Administration, Washington, DC, 1996

Emergency Medical Services Agenda for the Future Implementation Guide, National Highway Traffic Safety Administration, Washington, DC, 1996

EMS Education Agenda for the Future: A Systems Approach, National Highway Traffic Safety Administration, Washington, DC, 2000.

State EMS legislation and rules and regulations

II. Resource Web Sites

American Ambulance Association   www.the-aaa.org

American College of Emergency Physicians   www.acep.org

American College of Osteopathic Emergency Physicians   www.acoep.org

Centers for Disease Control and Prevention   www.cdc.gov

Commission on Accreditation of Ambulance Services   www.caas.org

Committee on Accreditation of Education Programs
    for EMS Professionals (CoAEMSP)   www.coaemsp.org

Continuing Education Coordinating Board
    for Emergency Medical Services (CECBEMS)   www.cecbems.com

Federal Emergency Management Agency   www.fema.gov

MCHB EMSC Program   www.ems-c.org

National Association of EMTs   http://naemt.org

National Association of EMS Physicians   www.naemsp.org

National Association of State EMS Directors   http://nasemsd.org

NHTSA EMS Division   nhtsa.dot.gov/people/injury/ems

National Registry of EMTs   http://nremt.org

Occupational Safety Health Administration   http://www.osha.gov

U. S. Fire Academy   www.usfa.fema.gov

III.   Resource Organizations

American College of Emergency Physicians
1125 Executive Circle
Post Office Box 619911
Dallas, TX 75261-9911
(972) 550-0911
(800) 798-1822
(972) 590-2816 - FAX
www.acep.org

National Association of EMS Physicians
Post Office Box 15945-281
Lenexa, KS 66285-5945
(913) 492-5858
(800) 228-3677
(913) 541-0156 - FAX
www.naemsp.org

National Highway Traffic Administration
EMS Division
400 Seventh St., SW, NTS-14
Washington, DC 20590
(202) 366-5440
(202) 366-7721 - FAX
www.nhtsa.gov/people/injury/ems

EMS-C National Resource Center
111 Michigan Avenue, NW
Washington, DC 20010
(202) 884-4927
(202) 884-6845 - FAX
www.ems-c.org

U.S. Fire Academy
16825 S. Seton Ave.
Emmitsburg, MD 21727
(301) 447-1000
http://www.fema.gov/

State EMS Office
(each state to complete)
State EMS Director
State EMS Medical Director

Commission on Accreditation of Ambulance Services
1926 Waukegan Road, Suite 1
Glenview, Illinois 60025-1770
(847) 657-6828
(847) 657-6819 - FAX
www.caas.org

Commission on Accreditation of Medical Transport Services
P.O. Box 1305
Anderson, SC 29622
(864) 287-4177
www.camts.org

Committee on Accreditation of Education Programs for EMS Professionals
CoAEMSP
1248 Harwood Rd.
Bedford, TX 76021-4244
(817)) 283-9403
(817) 354-8519 - FAX
www.coaemsp.org

Continuing Education Coordinating Board for Emergency Medical Services
CECBEMS
5111 Mill Run Rd.
Dallas, TX 75244
(972) 387-2862
(972) 716-2007 - FAX
www.cecbems.com