POSITION PAPER
NATIONAL ASSOCIATION OF EMS PHYSICIANS

PHYSICIAN MEDICAL DIRECTION IN EMS

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Modern EMS systems are designed to bring sophisticated emergency medical care to the patient's side. While contemporary EMS systems do not routinely utilize physicians to deliver care, the public expects to receive equivalent care provided by EMS personnel. As such, EMS systems require knowledgeable physician participation and supervision at every level. Active physician involvement in many EMS systems has brought needed improvements, but guidelines for a medical director's qualifications, responsibilities, and authority continue to be refined.

The out-of-hospital mission is accomplished through varied approaches. Some systems are inclusive, with all system components (dispatch, first response, ALS care, and transport) housed within the same agency. Others consist of separate agencies within government; some involve cooperative interaction between public and private agencies. A physician may serve as medical director of the entire system or a specific segment. If medical direction is segmented, there must be close interaction between medical directors of the agencies that comprise the system.

The final influence, authority, and responsibilities of a medical director will depend on the specific system structure, the community's needs and resources, and multiple other variables. This document will help to assess needs, set priorities, and provide a focus for discussion with administrators and government officials. This document reflects the National Association of EMS Physicians' position on the job duties of the EMS medical director, and is intended to help system administrators integrate medical direction throughout EMS system. It is anticipated that this will serve as a resource for EMS physicians in their leadership role.

Essential Qualifications

- Licensed to practice medicine or osteopathy
- Familiar with local/regional EMS activity

Desirable Qualifications

- Board certification or board preparedness in emergency medicine (American Board of Emergency Medicine or American Board of Osteopathic Emergency Medicine)
- Active clinical practice of emergency medicine
- Completion of an EMS fellowship

Acceptable Qualifications

- Board certification or board preparedness in a clinical specialty, approved by the American Board of Medical Specialties or the American Osteopathic Association

Required Formal Training or Demonstrated Continuing Education Activity

- Training or significant experience in the clinical practice of out-of hospital emergency medical services
- Training or significant experience in the provision of direct (on-line) and indirect (off-line) medical direction
- Knowledge of the design and operation of all components of EMS systems
- Knowledge of the principles of emergency medical dispatch
- Knowledge of federal, state, and

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local laws and regulations regarding EMS
- Knowledge of local, regional, and state mass casualty and disaster plans
- Training or significant out-of-hospital clinical experience in utilization of emergency patient care equipment, the spectrum of out-of-hospital skills (BLS and ALS), and communication systems

Desired Formal Training or Demonstrated Continuing Education Activity

- Mechanism for the evaluation and management of occupational injury and illness
- NAEMSP Medical Director's Course, or its equivalent
- Training or equivalent experience in methods of education for out-of-hospital personnel (ACLS, ATLS, PALS, APLS, BLS at the instructor level)
- Training or equivalent experience in the techniques for medical audit and continuous quality improvement (CQI) of EMS systems
- Knowledge of emergency medical dispatch: caller inquiry, prioritization, tiered dispatch criteria, and pre-arrival patient care instructions
- Knowledge of basic principles of labor relations, management, and fiscal oversight for health care organizations
- Knowledge of public health education, injury prevention, and health promotion techniques
- Experience and/or training in out-of-hospital care research
- Involvement in local, regional, state, or national EMS organizations

Level of Functioning and Time Commitment

The general responsibilities of the medical director include the establishment and maintenance of guidelines for care. Each EMS system component has an important impact on patient care, and the medical director must have a thorough understanding of each. Dispatch, first responders, EMTs, paramedics, and ambulance transport are publicly visible components, each of which requires regular direction. In addition, the EMS system's administration, education, and quality improvement programs, while less visible to the general public, require active involvement.

Depending on the state of evolution of an EMS system and its current level of sophistication, the medical director's role may range from solely offering medical direction to being responsible for operations and fiscal management. Each additional duty requires increasing levels of physician effort and time, and investment of resources by the EMS system into the system itself and in its support for medical direction.

Responsibilities of an EMS medical director and the areas in which the medical director assumes leadership may be categorized into three major areas of clinical care, administration, and public health.

OUT-OF-HOSPITAL CARE

Communications

The medical director should be involved in establishing or modifying dispatch training and protocols, and should ultimately be responsible for development of:

- An enhanced 911 system
- Level of medical training of call-takers and dispatchers based on recognized national standards and modified as appropriate for local circumstances and regulations
- Caller inquiry protocols
- Pre-arrival patient care instructions and their criteria for utilization
- Ranking of call priority and triage by the potential medical significance of the patient complaint
- Criteria for dispatch of first responders
- Criteria for dispatch of BLS vs ALS personnel
- Criteria for emergency vs nonemergency response
- Criteria for implementation of disaster or multiple casualty response
- Procedures for reviewing and updating dispatch protocols
- Continuous quality improvement program evaluating compliance with dispatch protocols and identifying opportunities for improvement
- Access to relevant records to accomplish CQI
- Continuing medical education for emergency medical dispatch personnel and testing to an approved level of proficiency
- Evaluation recommendations of communications technology
- Qualified direct (on-line) medical direction and implement protocols for their use and evaluation
- System for Critical Incident Stress Management

Field Clinical Practice

The medical director should be involved in establishing:

- Entry level of medical training and credentialing of out-of-hospital personnel based on recognized national standards
- Periodic testing to verify skill proficiency for personnel involved in out-of-hospital care
- Protocols for transport and nontransport, including patient-initiated refusals and EMS system-initiated refusals with specific guidelines considering appropriate access to care, cost efficiency, and ultimately patient safety
- Protocol for interaction with other responders or agencies
- Protocol for utilizing direct medical direction
- Criteria for determining patient transport and destination

- Procedures for reviewing and updating patient care protocols
- Set or approve medical standards for promotion of individuals to higher levels of patient care responsibility
- Standards of care for out-of-hospital providers' clinical practice
- For all patient care providers, official authority to limit the medical activities of patient care providers for cause secondary to deviation from established clinical standards of practice or by not meeting training standards
- Continuous quality improvement program(s)
- Access to relevant records to accomplish CQI
- Standard specifications for equipment used during patient care
- Evaluate and make recommendations on whether to adopt new patient care technologies
- Mechanism for the evaluation and management of occupational injury and illness
- System for Critical Incident Stress Management

Physician Clinical Responsibilities

- Maintain a presence in the field to provide on-scene medical direction, assess compliance to protocols and policy, observe the quality of patient care, and be a resource and teacher
- Maintain current knowledge and skills appropriate for the clinical practice of out-of-hospital emergency medicine
- Participate in training and continuing medical education (CME) for base station and out-of-hospital personnel in the classroom and at the patient's side
- Knowledge of the Incident Command system

Personnel Education

The medical director should be involved in establishing or modifying educational objectives, and should review and approve:

- Requirements for initial training and CME for out-of-hospital personnel
- Educational curricula that reflects topics identified in local quality improvement analysis
- Evaluation of medical competency of out-of-hospital providers to ensure maintenance of an adequate knowledge base and skill proficiency
- Promotion of opportunities for additional education and advancement within the organization by establishing collaborative relationships with academic institutions

System Evaluation

The medical director must be involved in this process of CQI. The CQI process must be integrated into the day-to-day operations of each distinct component, with data shared between these various agencies and reported to a CQI office and the medical director.

The CQI process is a dynamic continuum. Evaluation of any shortcoming in patient care involves first looking at the protocol to ensure its appropriateness or need for updating. Second, the educational system must be responsive to the CQI office and keep personnel up-to-date through routine reviews and supplemental attention to identified problem areas. With this approach, feedback may go appropriately to the system as a whole or to individual personnel; frequent feedback of positive performance is essential.

The medical director, with or through the CQI, staff should:

- Establish measurable standards that reflect the goals and expectations of the EMS system and local community
- Establish a mechanism for data collection that captures information reflecting standards
- Establish and ensure compliance with written patient care protocols and standard operating procedures for emergency medical dispatch and clinical patient care
- Operate closely with the educational system to relay appropriate feedback and stimulate necessary changes to accomplish common goals
- Solicit and incorporate consumers' and other health care providers' input into the evaluation process
- Provide positive reinforcement to individuals and the system as well as corrective instruction
- Analyze system efficacy and cost–effectiveness with respect to patient outcomes
- Clinical supervisors should contribute to the CQI process

EMS Research

Not all EMS systems will have the resources to participate in formal research. However, a solid CQI program will generate useful data that will be of benefit to the EMS system and may perhaps enlighten other EMS systems.

The medical director is encouraged to:

- Participate in, support, and encourage the application of research methods to improve patient care, cost–effectiveness, and system performance
- Identify local health care and operational issues related to out-of-hospital care that are in need of scientific evaluation and provide leadership to develop research in that area
- Identify potential sources of funding for EMS research in the community or at the state and federal levels
- Establish collaborative relationships with academic institutions and other health care providers involved in scientific research
- Incorporate basic principles of conducting research in the objectives for the local EMS provider CME
- Assist the development of reliable methods for data collection

- Investigate the effectiveness of EMS interventions, treatments, and system design

ADMINISTRATION

Patient outcome and the quality of care depend on the care provided by EMS personnel at the scene of an emergency. The quality of this care is influenced by systemwide policies, daily administrative and operational decisions, and interaction with other public agencies and health care providers. Issues such as public access to EMS, qualifications and utilization of personnel, mode of communication, financial planning, and system evaluation may have a profound effect in patient outcome. As an advocate for quality medical care, the medical director must have the right and authority to provide input at every level of the decision making process within the organization.

Medical Director Liaison Activities

The medical director should demonstrate leadership through:

- The facilitation of information flow among the community of caregivers, from out-of-hospital to emergency department to inpatient care with regard to goals, expectations, and priorities of clinical care, and information regarding clinical outcomes
- The facilitation of information flow among all EMS personnel
- Establishing standards and requirements for concurrent direct (on-line) medical direction regarding base station education and physician field experience
- Establishing minimal qualifications and training for the delegation of authority for direct (on-line) medical direction to surrogates (registered nurses, etc.)
- Resolution of disputes involving medical care occurring within the EMS system
- Strategies for integration of out-of-hospital emergency care and the global health care delivery system
- Interactions with national, regional, state, and local EMS authorities regarding standards, requirements, and resource utilization
- Coordination of activities such as mutual aid, disaster planning and management, and hazardous materials response
- Participation in national EMS organizations
- Serving as educator and liaison to local government
- Serving as educator and liaison to local medical community
- Delegation of authority to other physician(s) as assistant medical director(s)
- Serving as educator and liaison to the media.

Finance

The medical director should demonstrate leadership through:

- Budgetary, planning, and management issues
- Grant application process for system funding, expansion, and research
- Reviewing and making recommendations regarding EMS equipment
- Establish funding priorities regarding issues directly affecting patient care

Public Access

The medical director should demonstrate leadership through:

- Collaboration with other health care providers and networks in the community to guarantee public access to EMS for the treatment of perceived medical emergencies
- Collaboration with local agencies to ensure EMS access to all members of society regardless of socioeconomic status, age, language barriers, etc.

PUBLIC HEALTH

Because of frequent interactions in the community, out-of-hospital providers are able to evaluate many public health issues firsthand; their observations and insights should be a source of valuable information to other agencies and the community. The medical director should be aware of the community's health care needs and promote full integration of the EMS system as a public health resource.

Public Education

The medical director should demonstrate leadership through:

- Assisting in public education regarding appropriate utilization of the EMS system, health promotion, and the prevention of emergencies
- Assisting in public education regarding prevention, initial approach, and basic management of common medical emergencies
- Collaboration with other community providers and local authorities to assist in community health assessment and surveillance to determine public education needs
- Promotion of public recognition of EMS personnel and function

Illness and Injury Prevention

The medical director should demonstrate leadership through:

- Promulgation of injury and illness prevention programs among out-of-hospital providers
- Education of out-of-hospital providers in the principles of prevention as part of routine CME
- Collaboration with other local health care providers and authorities in the assessment of the community's specific needs for prevention activities
- Collection and analysis of data

identifying factors that contribute to injuries and illness
- Promulgation of public education on prevention of injuries and illness
- Development of programs for injury or illness prevention

Legislation and Regulation

The medical director should demonstrate active leadership through:

- Analysis of legislation affecting local and/or regional EMS practice
- Participation in the development of legislation related to EMS, including articulating EMS positions, serving as an expert resource, and soliciting support.
- Participation in local and national EMS organizations

Integration of Health Services

The medical director should demonstrate active leadership through:

- Collaboration with other health care providers in the community to integrate EMS interventions as part of continued health care and to identify outcome of patients accessing the system
- Collaboration with other health care and social resources in data collection and transmittal of information leading to community's health needs assessment and surveillance
- Developing innovative roles for EMS providers to participate in public health care issues responding to specific needs and resources within the community served

Information Systems

The medical director should demonstrate active leadership through:

- Advocating adoption of uniform data elements and definitions within the EMS system consistent with nationally recognized standards
- Working with health care administrators, health care organizations, agencies, and authorities to develop an integrated information system that would allow the exchange of vital information
- Ensuring of legal protection of all data related to CQI activities

OBLIGATIONS OF THE EMS SYSTEM

The EMS system has an obligation to provide the medical director with the resources and authority commensurate with the responsibilities outlined above, including:

- Compensation for services
- Necessary material and personnel resources
- Liability insurance for duties and actions performed by the medical director

Bibliography

1. American College of Emergency Physicians. Medical direction of prehospital emergency medical services. Ann Emerg Med. 1993;22:767–8.
2. Krentz MJ, Wainscott MP. Medical accountability. Emerg Med Clin North Am. 1990;8:17–32.
3. Stewart C. Communication with emergency medical services providers. Emerg Med Clin North Am. 1990;8:-103–17.
4. National Highway Traffic Safety Administration. Emergency Medical Services: Agenda for the Future. Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration, August 1996. (DOT HS 808 441, NTS–42).
5. Fitch JJ. Prehospital Care Administration. St. Louis: Mosby–Year Book, 1995.
6. Kuehl AE (ed). Prehospital Systems and Medical Oversight (2nd Edition). National Association of EMS Physicians. St. Louis: Mosby–Year Book, 1994.
7. Swor RA (ed). Quality Management in Prehospital Care. St. Louis: Mosby–Year Book, 1993.
8. Polsky SS, Krohmer J, Maningas P, McDowell R, Benson N, Pons P. Guidelines for medical direction of prehospital EMS. Ann Emerg Med. 1993;22:742–4.
9. Polsky SS (ed). Continuous Quality Improvement in EMS. Dallas: American College of Emergency Physicians, 1992.
10. Roush WR (ed). Principles of EMS Systems. Dallas: American College of Emergency Physicians, 1989.
11. American Society for Testing and Materials. Standard Practice for Qualifications, Responsibilities, and Authority of Individuals and Institutions Providing Medical Direction of Emergency Medical Services. Annual Book of ASTM Standards. Philadelphia: ASTM, September 1988.
12. Stewart RD. Medical direction in emergency medical services: the role of the physician. Emerg Med Clin North Am. 1987;5:119–32.
13. Pepe PE, Stewart RD. Role of the physician in the prehospital setting. Ann Emerg Med. 1986;15:1480–3.