Ohio ACEP EMS MEDICAL DIRECTORS' COURSE

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Chapter I: Introduction and Ohio EMS History & Structure

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I. Introduction

The Ohio Chapter, American College of Emergency Physicians (Ohio Chapter ACEP) is proud of its tradition of leadership in Ohio regarding the development and support of Emergency Medical Services (EMS). The Ohio Chapter ACEP leadership has historically promoted a collaborative relationship with the state of Ohio to promote education and excellence in the field of emergency medicine, and Ohio law has recognized the connection between EMS and emergency medicine with a seat for an emergency medicine physician on the State Board of Emergency Medical, Fire and Transportation Services. Ohio Chapter ACEP presidents served as the first Medical Director for the new Ohio emergency medical services agency and as the first chair of the State EMS Board. Ohio Chapter ACEP also supports prehospital provider education as the state's lead agency for International Trauma Life Support (www.itraumaohio.org) and through an annual Emergency Care Conference dedicated to prehospital education and training for over twenty years. Our legacy of EMS expertise and cooperation continues with the third edition of the Ohio EMS Medical Directors' Course, which fulfills the requirement Ohio Administrative Code §4675-3-05 that requires "new or existing EMS medical directors who are not board certified or board eligible in emergency medicine or have completed a pediatric emergency medicine or EMS fellowship to complete the "National Association of Emergency Medical Service Physicians" (NAEMSP) medical directors' course, the Ohio "American College of Emergency Physicians" (ACEP) medical directors' course, or other equivalent course approved by the board."

Ohio Chapter ACEP appreciates the responsibility and the honor and the partnership with the State Board of Emergency Medical, Fire and Transportation Services (EMFTS), the Division of EMS and the Ohio Department of Public Safety, Division of EMS Medical Director, in preparing this course.

This course is designed to cover essential aspects for EMS medical directors in Ohio seeking to provide excellence in education, protocols and process improvement within each of their agencies, and to understand the legal and statutory framework of the EMS system in Ohio. Additional material may be presented in the appendices at the end of each chapter for material considered informational, but not essential to practice as an EMS medical director. Links and websites for additional state and national resource material are provided within the text.

This course is accessible to Ohio's EMS Medical Directors free of charge via the websites of the Ohio Department of Public Safety, Division of EMS (www.ems.ohio.gov) and Ohio Chapter ACEP. (www.ohacep.org) Certificates of completion will be prepared for any physician who requests proof of completion and who completes and returns the course post-test and evaluation form. The certificate of completion will serve as record of compliance with Ohio Administrative Code §4675-3-05.

II. History of EMS

Late in the decade of the 1960s as America was fascinated by manned space flight and the race to the moon, another innovation was quietly being developed: prehospital care. Following the lead of a cardiologist, Dr. Frank Pantridge of Belfast, Northern Ireland, a small group of physicians in the United States began to provide advanced prehospital care as never done before. (1, 2)

Five cities including Columbus, New York, Miami, Seattle and Los Angeles each developed the first metropolitan advanced out-of-hospital care systems in the United States. Among the physicians who led this innovation were: Drs. James V. Warren, William J. Grace, Eugene L. Nagel, Leonard A. Cobb and Michael Criley. Each of these physicians were interested in treating cardiac problems such as “possible heart attacks” and cardiac arrest. These programs developed largely independent of each other.

Miami, FL

Dr. Eugene Nagel was perhaps the first physician to provide advanced training to firefighters. As early as 1964, he began training firefighters in closed heart massage, now known as cardiopulmonary resuscitation (CPR). By 1969 Nagel had trained firefighters to resuscitate patients from cardiac arrest. Miami had its first survivor to hospital discharge of a cardiac arrest patient in June of 1969. (3)

New York, NY

At St. Vincent’s Hospital in Manhattan, Dr. William Grace began what was the United States’ first mobile coronary care unit in 1968. Grace used ambulances based at St. Vincent’s Hospital to transport physicians to the scene of cardiac emergencies. Like most early advanced prehospital medical programs, Grace targeted only cardiac patients. (3)

Columbus, OH

Mobile coronary care in Columbus began with the “Heartmobile” program in April of 1969. Dr. James Warren and his team formulated the first vehicle specifically designed as a mobile coronary care unit, the Heartmobile, based on a recreational vehicle platform. (1) As in Manhattan, physicians were dispatched to assist with the care of cardiac patients. Unlike Manhattan, the Columbus program incorporated the fire department using firefighters alongside the physicians. Designed to transport the care and facilities of the coronary care unit directly to the patient, the Heartmobile facilitated patient treatment while in route to the hospital. Ambulances used in New York were small and did not allow significant patient care during transportation. (4)

Los Angeles, CA

December 1969 marked the beginning of mobile coronary care in Los Angeles. Squad 59, an old forestry service station wagon, was housed at a small fire station on the grounds of Harbor General Hospital. Dr. Michael Criley trained the firefighters who responded with a nurse from Harbor General Hospital. (3)

Seattle, WA

Using a system very similar to the Columbus Heartmobile program, Seattle established the Medic One program in March 1970. Firefighters were trained at Harborview Medical Center and responded with physicians in a large recreational vehicle officially called Medic One. Firefighters affectionately referred to Medic One as “Moby Pig.” (4, 5)

Columbus Division of Fire

In 1931 the Columbus Division of Fire became involved in out-of-hospital medical care when a “Lyons pulmotor” was donated to the department. Intended to resuscitate firefighters who were overcome with smoke, the device was carried in the cChief’s buggy. By 1933 then Chief Edward Welch recognized the need for out-of-hospital care and proposed establishment of an emergency squad in his budget. Newspaper coverage of an event in 1934 catalyzed Chief Welch’s plan when an electrical lineman working on a power pole was electrocuted. Chief Welch responded with two firefighters and the pulmotor. Their resuscitation efforts were unsuccessful but the following news coverage caused citizens to begin calling the Division of Fire for medical assistance. Subsequently, the Division of Fire Maintenance Shop converted a 1927 Seagrave hose wagon to a squad car. The squad car was equipped with an “H and H inhalator” and medical supplies donated by the American Red Cross. Thus, the Columbus Division of Fire became one of the first departments in the country to provide out-of-hospital emergency medical care. (1)

III. EMS in Ohio

EMS in Ohio became codified in 1976, when the Ohio General Assembly enacted House Bill 832 to create the Ohio Emergency Services Advisory Council and to establish training and certification requirements for EMS personnel. Under House Bill 832, these responsibilities were divided between the Ohio Department of Education and the Ohio Board of Regents. The Ohio Department of Education assumed responsibility for the certification and training requirements for EMT-A (basic EMT) and ambulance driver programs. The Ohio Board of Regents was responsible for the training and certification of EMT-Ps (paramedic) and ADV EMT-As (advanced EMTs). As a result of the controversy that developed between these two divisions and their different methods of operation, House Bill 222 was enacted in 1986. This bill placed all training and certification of EMTs under the Ohio Department of Education. This bill also created the Ohio Emergency Medical Services Agency within the Ohio Department of Education. The medical director and the administrator were appointed by the superintendent of Public Instruction and served at the pleasure of the superintendent. The medical director was authorized to direct the administrator with regard to EMS issues according to the rules adopted by the State Board of Education.

In 1992 Senate Bill 98, sponsored by State Senator Bob Ney, created the State Board of Emergency Medical Services, which became responsible for the certification of emergency medical technicians-ambulance (EMT-A), advanced emergency medical technicians-ambulance (ADV EMT-A), emergency medical technicians-paramedic (EMT-P), and the accreditation of emergency medical services training programs and

continuing education programs.

Senate Bill 98 created a State Board of Emergency Medical Services within the division of Emergency Medical Services of the Ohio Department of Public Safety. The Ohio Department of Public Safety was the new name for the former Ohio Department of Highway Safety. The emergency medical services functions previously performed by the Ohio Emergency Medical Services Agency, the Emergency Medical Services Board under the Ohio Department of Education, and by the Governor's Emergency Medical Services Advisory Council were eliminated and consolidated under the State Board of Emergency Medical Services. The functions and authority of the State Board of Emergency Medical Services were established in section 4765 of the Ohio Revised Code.

In April 2013, House Bill 51 merged the Ohio Medical Transportation Board (OMTB) and the State Board of Emergency Medical Services into the State Board of Emergency Medical, Fire and Transportation Services.

IV. Current structure of EMS in Ohio

The Division of Emergency Medical Services is responsible for the education, certification and investigation of all emergency medical service and fire service providers in the state of Ohio. The division serves as the administrative arm of the State Board of Emergency Medical, Fire and Transportation Services which is made up of medical, nursing, hospital administration and EMS and Fire service professionals from around the state.

The State Emergency Medical, Fire and Transportation Services Board consists of 20 members appointed by the Governor. Section 4765.02 of the Ohio Revised Code specifies that the Governor, with the advice and consent of the Senate, will appoint members with background or experience in EMS or trauma care and shall attempt to include members representing urban and rural areas, various geographical regions of the State and various schools of training.

The State Emergency Medical, Fire and Transportation Services Board has a full-time Executive Director recommended by the Board and appointed by the Director of the Ohio Department of Public Safety; a Medical Director appointed by the Board; and staff appointed by the Board. The Board is authorized to appoint advisory groups to serve in consultation with the Board, the Executive Director and the Medical Director.

The rule-making authority of the Board covers standards for the performance of emergency medical services for emergency medical technicians (EMTs), advanced EMTs (AEMTs) and Paramedics; application fees; waiver of fees; procedures for issuance and renewal of certificates; standards for certificates of accreditation and approval; qualifications for certificates; the curricula, number of hours of instruction and training, and instructional materials to be used in training programs and continuing education programs; examinations for certifications to practice; procedures for granting extensions and exemptions of continuing education requirements; procedures for approving additional functions to be performed by EMTs, AEMTs and paramedics; and standards for protecting the confidentiality of information maintained by the Board.

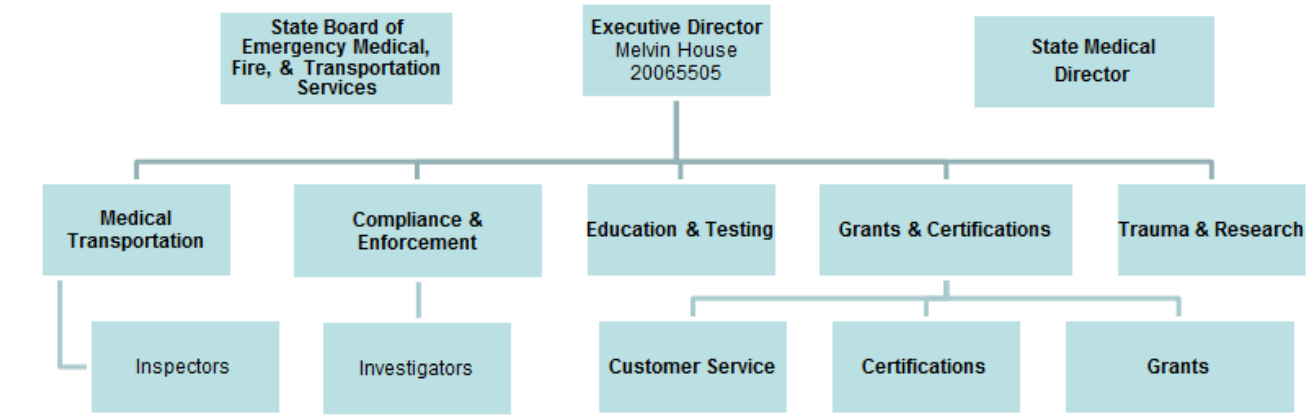
Funding for the Board comes from fines for traffic violations including citations for not wearing a seat belt while operating a vehicle or allowing passengers to ride unrestrained in a motor vehicle.

The Board has established an Emergency Medical Services Incidence Reporting System (EMSIRS) and a Trauma System Registry.

The state is currently divided into 10 different prehospital. Each region has either a regional physician director or a physician advisory board.

State of Ohio EMS Regions:

Division of EMS Organization:



Div. of EMS Draft Org. Chart
06/06/2013

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Appendix A
The Ohio State University Wexner Medical Center Influence: the Heartmobile Story

Mobile coronary care was conceived in Columbus, Ohio in 1966. (1, 6) Dr. James Warren, a cardiologist, was the Chairman of the Department of Medicine at the Ohio State University Wexner Medical Center (OSUWMC). Warren was known to travel extensively and met Dr. Frank Pantridge in the United Kingdom. Pantridge had begun operating "flying squads" in 1966 to respond to out-of-hospital patients with myocardial infarction and sudden death in Belfast, Northern Ireland. (6) Warren adopted Pantridge's ideas and began discussions about mobile coronary care with the Columbus Division of Fire given their prior commitment to out-of-hospital medical care. With the help of a local industrialist named Dave Ellies, the Advanced Coronary Treatment Foundation, the central Ohio chapter of the American Heart Association and the Regional Medical Program formed a coalition. (1, 6, 7) By April of 1969, the Heartmobile program had been grafted into the existing Columbus Division of Fire's emergency medical care system. It operated as a joint effort between the Columbus Division of Fire and OSUWMC. (1)

Initially, the Heartmobile was located in a small temporary building that was erected on the campus of OSUMC directly adjacent to the Emergency Department (ED). This building later became known as the "Heart Shack." According to Dr. Richard Lewis, the Dean of the Medical School did not want the Heartmobile housed on the campus of the Medical Center. Warren had the building constructed nearly overnight without the Dean's knowledge. When the Dean found out, he was upset but allowed the structure to stand. (8)

There were sleeping quarters for the firefighters who were off duty volunteers. When a call for assistance was thought to be cardiac in nature, a resident or cardiology fellow was paged and responded from the 11th floor Coronary Care Unit. Three firefighters and a physician would then respond to the call. Average response times were 12 minutes with most of the delay being related to the physician responding to the Heartmobile. (2)

Dr. Richard Lewis arrived at the Ohio State University in July of 1969, fresh out of residency and a two-year tour with the military. Warren approached Lewis and asked him if he had any interest in the Heartmobile program. As Lewis put it: "Well, I had never given it any thought at all. But you don't turn down things for your new Chairman!" (6, 7) Lewis then supervised the Heartmobile project from July of 1969 and collected data on every Heartmobile run to judge the effectiveness of the program. Subsequently, Lewis became Medical Director of the Columbus Division of Fire EMS program from 1971 to 1981. (2)

During the early days of the Heartmobile program, there were regular meetings between Lewis and the coronary care directors from around the city. ED nurses were quickly included in those meetings. The cooperation of the nurses and coronary care units was crucial to the acceptance of the Heartmobile program within the medical community.

Early in the Heartmobile program, Warren and Lewis recognized a problem with a lack of physicians interested in responding with the Heartmobile. Further, fellows and residents from OSUMC who responded with the Heartmobile were a significant source of delay while the firefighters waited for them to present from the hospital to the Heartmobile.

On December 6, 1969, a conference was presented at OSUMC entitled "A Workshop: On the Operation of a Mobile Coronary Care Unit." This workshop was conducted in cooperation with the Ohio State Regional Medical Program and the Central Ohio Heart Association. Present along with Drs. Warren and Lewis were Drs. Pantridge from Belfast, Grace from New York and Hirschman (one of Nagel's colleagues) from Miami. Other representatives were present from across the nation including Los Angeles, Seattle, Houston and Maryland. Considerable discussion centered on who should provide advanced coronary care in the future: physicians, firefighters, nurses or others. (4)

By 1971 it was apparent to Warren and Lewis that firefighters could be trained to operate without physician presence. Furthermore, experience indicated that electrocardiogram (ECG) telemetry was disappointing and unreliable. It became apparent that properly trained paramedics could read the ECGs as well as resident physicians. James J. Hughes, Jr., Columbus Director of Public Safety, who was involved in the Heartmobile program from the start, agreed with Warren and Lewis and approved the firefighter only operation. On July 1, 1971, the Columbus Division of Fire took over Heartmobile operations. Firefighters began treating patients at emergency scenes without direct physician supervision. (1, 2) Medics were established at stations 2, 10, 15 and 16 and were supplemented with basic life support squads at stations 1, 6, 7, 8, 14, 17 and 21 along with rescue squads at stations 2, 16, 17 and 23. (2) Liability for the paramedic's actions, initially a worrisome issue, was assumed by the City of Columbus.

Each of the other cities that initially had physicians respond to the scene ultimately abandoned physician care in favor of firefighters or ambulance personnel who were trained to provide advanced medical care. A new class of health care provider was born - the paramedic.

Rapidly, the Columbus medic system spread to the local suburbs where smaller departments cooperated with the Columbus Division of Fire to jointly provide emergency care to the central Ohio community. (9) Among the first of these departments was the Sharon Township Division of Fire that today is known as the Worthington Fire Department.

In July of 1971 firefighters began to respond to medical emergencies without physicians in Columbus. The Heartmobile was moved to a Columbus Fire Station. The temporary building used to house the Heartmobile on the campus of the Medical Center was converted to a classroom. A 96 hour paramedic course was developed and taught by Kathryn (Katy) Sampson, a Coronary Care Unit nurse, and a team that included Drs. Richard Lewis, Stephen Schaal, Phillip Fulkerson and later, John Stang. Paramedic students soon dubbed the building: "The Heart Shack." Firefighters from Columbus, Franklin County and other surrounding counties including Delaware received their paramedic training from the OSUMC team. Katy and the OSUMC team influenced most of the early paramedics in central Ohio. (1, 9)

Heartmobile Influence on Modern EMS

While the programs in each of the five cities discussed above grew largely independent of each other, the Columbus Heartmobile program did influence emergency medical services (EMS) in Ohio and nationally. Within the central Ohio area, fire department-based EMS is clearly the dominant model. This predominantly fire-based EMS resulted from the influence of the Columbus Division of Fire model for prehospital care that developed out of the Heartmobile program. The Heartmobile is also credited with being the first program of its type to provide advanced treatment to patients with non-heart related medical problems. (6)

According to Dr. Lewis, Dr. Cobb from Seattle visited the Heartmobile program during its infancy. (8) The Seattle Medic One program began about a year after the Heartmobile project and closely resembled the Columbus-based project. Both programs were based at a university medical center and were cooperative efforts between the fire department and the medical centers. Both programs initially had physicians and firefighters respond together, later replacing the physician with firefighter paramedics. The Medic One vehicle (Moby Pig) and the Heartmobile were both large recreational vehicles converted to bring the resources of the coronary care unit to the patient. Cobb also used Regional Medical Program funding just as Warren had done in Columbus. President Lyndon B. Johnson, as part of his Great Society policy, established the Regional Medical Programs.

Although the Heartmobile preceded the Medic One program by about a year, Cobb removed the physician from Medic One before Warren and Lewis converted the Heartmobile to firefighter only system in July of 1971. Both programs flourished in the 1970s. Along with the Los Angeles paramedic program, Columbus and Seattle had the best survival rates for cardiac arrest patients. Early survival rates for ventricular fibrillation/tachycardia cardiac arrest in these three cities ranged from 25 to 33%. (9-12) A study of the impact of the Columbus paramedic program also demonstrated a reduction in the mortality rates for heart attack patients. (10) Furthermore, the study showed that a knowledgeable population could appropriately activate the Advanced Life Support System.

Today Seattle has one of the leading EMS systems in the country. They conduct a large amount of resuscitation research and their survival rates for cardiac arrest are the best of the 50 largest cities surveyed in the United States. (13) Along with Cobb, Dr. Michael Copass was also instrumental in the

development of the Seattle Medic One System. Copass continues to direct Medic One today and though Leonard Cobb is retired, he continues to play an active role.

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Chapter II: Legislative and Legal Issues

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I. Introduction

There are many legislative and legal issues that have an impact upon and guide an EMS system and the medical director. It is important that the EMS medical director maintains an awareness of and involvement with issues at the local, state, and federal level. Physician involvement is critical for appropriate compliance and institution of these policies. In this chapter, state and federal legislative and legal issues will be presented. Medical directors must understand and address these issues proactively in the EMS system.

II. Legislative Issues

In this section, legislation that shapes and governs EMS systems is presented.

Origins of EMS/Essential Components

Most EMS services can trace their origins to the Federal Emergency Medical Systems Act of 1973. This Act required the establishment of an EMS system with 15 essential components. The components are:

1. Provision of manpower
2. Training of personnel
3. Communication
4. Transportation
5. Facilities
6. Critical care units
7. Use of public safety agencies
8. Consumer participation
9. Accessibility of care
10. Transfer of patients
11. Standard of medical record keeping
12. Consumer information and education
13. Disaster linkage
14. Mutual aid agreement
15. Independent review and evaluation

Notably absent from the components of an EMS system is medical direction.
More information can be found at: ***EMS Act of 1973, Public Law 93-154, Washington, DC, 1973.***

III. Federal Regulations

The following federal regulations directly impact an EMS system:

ADA

The Americans with Disabilities Act (ADA) is a federal law that was passed in 1990. This law was developed to eliminate discriminatory treatment of disabled persons and is applicable to employment, public services, public accommodations and telecommunications. A disability may be defined in the following ways:

1. A physical or mental impairment that substantially limits one or more of the major life activities
2. A record of such activity, and
3. People regarded as having such an impairment

Discrimination may result from any situation where the disabled individual feels an adverse result occurred because of the disability. The most common situation is an individual seeking employment. It is advisable to obtain legal advice for any situation that may have ADA implications.
More information can be found at: http://www.ada.gov/.

OSHA

The Occupational Safety and Health Administration (OSHA) oversee the environment in which employees work. All EMS departments must adhere to the strict guidelines that are established by OSHA and include:

1. Documentation for exposures
2. Documented procedures to minimize exposures
3. Engineered work environment to minimize exposures
4. Proper warnings to notify employees of potential hazards
5. Hepatitis B vaccines must be offered at no cost
6. Personal protective equipment must be provided
7. Must have a system that mandates the use of personal protective equipment, with a documented disciplinary system
8. Employers must prohibit eating or drinking in areas where exposure is possible

A good resource for further information is your local hospital or community health department. All health care providers should be OSHA competent. More information can be found at: http://osha.gov/ .

COBRA/EMTALA

The Comprehensive Omnibus Budget Reconciliation Act of 1985 (COBRA) and the Emergency Medical Treatment and Active Labor Act of 1986 (EMTALA) cover “dumping” and “reverse dumping” of patients. Revisions to EMTALA were made in 2003. EMS may be impacted when a hospital or physician makes a decision to transfer a patient by an EMS service between facilities. COBRA/EMTALA requires the following:

1. All persons who present to the hospital campus (the “250-yard rule”) requesting or requiring emergency care are covered by COBRA/EMTALA.

2. First, the treating hospital must provide for an appropriate medical

screening examination to determine whether or not an emergency medical condition, including active labor, exists.

3. If there is an emergency condition, the sending physician must treat the patient to the level that the physician, medical staff and hospital are able. The patient must be stabilized prior to transfer, or the transferring physician must certify that the benefits of transfer to the receiving hospital outweigh the risks associated with the transfer. Transporting personnel must have the appropriate training and scope of practice to meet the needs of the patient during transfer.

4. Women who are in active labor are protected from transfer if delivery is imminent, except if the transferring physician certifies that delivery at the sending hospital poses a greater risk to the mother or fetus than being transferred.

5. If a transfer is necessary:

    - The receiving facility must be notified and accept the patient.
    - The sending facility physician must certify that the transfer is medically necessary.
    - Documentation of the patient's medical condition and copies of the medical record, laboratory studies and radiographs should be sent with the mutually agreed upon transporting agency following appropriate instructions to the transporting personnel.

Violations of COBRA/EMTALA are very expensive. Civil monetary policies may range up to $50,000 per physician and per hospital ***each*** per incident, and physicians and hospitals who violate COBRA/EMTALA risk losing ability to participate in federal payment programs such as Medicare. Receiving hospitals are also required to report violations of COBRA/EMTALA or risk sanction themselves. More information can be found at: http://emedicine.medscape.com/article/790053-overview.

CLIA

The Clinical Laboratory Improvement Amendment (CLIA) of 1988 requires that clinical laboratories adhere to certain standards of quality and finance the program through the collection of fees. Based on interpretation of this regulation, EMS agencies may be considered mobile laboratories. Since many EMS agencies only perform glucose monitoring, CLIA allows most of these agencies to obtain a waiver for performance of a "simple test." More information can be found at: http://wwwn.cdc.gov/clia/default.aspx.

FLSA

The Fair Labor Standards Act (FLSA) was passed in 1938, but it did not significantly impact EMS agencies until a 1985 amendment was added. According to this law, an individual who is paid to perform a service for a jurisdiction cannot volunteer to perform the same type of service for the jurisdiction. More information can be found at: http://www.dol.gov/whd/flsa/index.htm.

HIPAA

HIPAA is the acronym for the Health Insurance Portability and Accountability Act of 1996. The Centers for Medicare & Medicaid Services (CMS) is responsible for implementing various unrelated provisions of HIPAA; therefore HIPAA may mean different things to different people.

Title I of HIPAA protects health insurance coverage for workers and their families when they change or lose their jobs. This now allows portability of health insurance coverage even if you have pre-existing conditions.

The administrative provisions of HIPAA require the Department of Health and Human Services to establish national standards for electronic health care transactions. In addition, national identifiers must be established for providers, health plans and employers. It also addresses the security and privacy of health data. The goal is to promote the widespread use of electronic data interchange in health care. It is anticipated, that by adopting these standards, the efficiency and effectiveness of the nation's health care system will improve.

HIPAA for the EMS provider will mean assuring confidentiality of the patient's medical information. This includes spoken, written, electronic and photographic information. It is appropriate to share necessary information with those involved in the direct care of the patient. It is not appropriate to discuss patient information with those extraneous to the patient's care. Radio protocols should continue to use the same generic description of a patient's situation and condition. Reports written or given verbally should reflect the objective medical assessment and be given to those who are part of the patient's care team. This includes secretaries, administrators, technicians, nurses and physicians who play an immediate role in the medical screening, stabilization and disposition of the patient.

Documents from the EMS-patient encounter must remain secure. This may require shredding or HIPAA-compliant trash disposal of protected health information that does not become part of the chart. Electronic devices that store data must also have an inherent means to protect confidentiality.

For a complete understanding of the HIPAA intent and process, a HIPAA in-service is required. Most medical facilities offer these training programs to their employees. There are some private organizations that will contract with the EMS service to provide the training for a fee. Every EMS service must demonstrate HIPAA compliance.

More information can be found at: http://www.hhs.gov/ocr/privacy/.

IV. Ohio Legislation

EMS is guided in Ohio by legislative mandate. It controls:

1. Licensing
2. Capabilities of personnel under that license
3. Required oversight and involvement of physicians or physicians' board
4. Accreditation of the education process, continuing education process, and

the education agencies for each level of licensed personnel
5. Initial training and ongoing education requirements
6. Termination or downgrading of licenses
7. Statutory immunity
8. Funding options and opportunities
9. EMS delivery organization requirements
10. Composition and conduct of the agency or board which oversees EMS
11. Interaction with other public safety agencies *(fire and law enforcement)*
12. Disaster preparation

The Ohio Revised Code section 4765 contains all current statutes affecting the State Board of Emergency Medical, Fire and Transportation Services. http://codes.ohio.gov/orc/4765.

V. Ohio Law

Most state statutes have provisions, and in Ohio this is extended through the Ohio Revised Code which offers immunity to public EMS providers in a civil action for injury, death or loss of consortium or property resulting from the administration of emergency medical services, unless the services are administered in a manner that constitutes willful or wanton misconduct. Willful and wanton misconduct is based on showing a reckless disregard for safety and not a mere mistake or failure to meet the appropriate standard of care.

System responsibilities

1. Legal Compliance
The EMS rules for the state of Ohio should be reviewed and compliance ensured. Every provider should adhere to the rules and regulations, and if possible, each system should have the ability to monitor its personnel and notify the medical director of any issues that may arise.

2. Duty to respond and evaluate
The EMS system needs policies to maximize response to requests for assistance within their jurisdiction. Policies should be established which clearly delineate under what circumstances a service will, or will not, respond. This can be accomplished by outlining such issues as response area, response times, closest providers and mutual aid. Once the provider has responded to the scene, there is a duty to evaluate the patient and/or the situation

3. Duty to treat
All protocols and standing orders related to the provision of patient care should be developed with oversight from the medical director. Once developed, it is wise to have periodic educational updates and review of charts, and possible testing to assure prehospital providers' competency. Once an assessment has been completed, EMS caregivers have a responsibility to treat any emergency condition they discover, provided that it can be done safely. Once treatment is initiated, treatment should be continued until care is safely turned over to a level of provider that is an equivalent or higher level of care. Cessation of treatment without the

patient's care being transferred may constitute patient abandonment, unless the patient refuses and is competent to refuse. Cessation of treatment may also occur if it is unsafe to continue care, or the system is in a disaster mode.

4. Policies

Policies for the decision to transport, the destination of transport, and the level of care during the transport all require medical director involvement.

All policies and procedures should comply with local laws and regulations. Capabilities of receiving facilities and transport times must be considered in writing transport policies. EMS personnel and the on-line physician are responsible for the patient until they arrive at an emergency facility or an approved destination.

Every patient being transported requires appropriate assessments and management from the initial contact until arrival at the final destination. Complete documentation should be done on every patient. Patient preferences may not be possible if the transport to that facility would pose a risk to the life or safety of the patient. This should be explained to the patient.

5. Patient refusal of care and/or transportation

An adult with mental capacity has the right to refuse care or transport even if the refusal goes against medical advice. Documentation is critical in this situation to protect the EMS provider and the medical director. A written policy should be in place that addresses the essential actions and documentation required of the EMS provider. These cases should be reviewed to assure consistency and accurate documentation. The patient, and family member if available, must be informed of the potential consequences of refusal of treatment. Documentation should include the complete assessment, proof of capacity, discussion of consequences of the refusal and after care instructions.

6. Impaired patient

There are times when EMS personnel will encounter patients who may be mentally unstable *(under the influence of drugs, violent, hypoglycemic, hypoxic or otherwise compromised)*. These patients place the prehospital care provider in a very awkward position. These situations may result in litigation if not handled appropriately. The EMS provider must provide appropriate treatment and transport in these situations, and should not accept any refusal of care or transport from such patients determined to lack capacity. Frequently, it may be necessary to involve law enforcement to assure proper patient care and safety for all concerned.

7. Patient restraint

EMS providers may use reasonable force to restrain a patient, but they should not cause harm. If available, assistance from law enforcement is encouraged, especially with aggressive patients. If possible, on-line medical consultation should be sought. Documentation should include descriptions of the patient's condition, concerns regarding the situation,

capacity or incapacity of the patient to consent or withdraw consent *(alcohol, drugs, trauma, etc.)* and restraint techniques *(both physical and non-physical)*.

8. Treatment/transport of minors

EMS personnel are routinely called to evaluate minors *(less than 18 years of age)*. Their responsibility is to carry out a complete evaluation and perform any emergency medical treatment and appropriate transportation if needed. All calls should be rapidly and appropriately evaluated in a format that fulfills the usual department criteria. In any emergency situation, a minor should be assessed, treated and transported based on implied consent. Specific protocols should be developed and followed.

9. Documentation

Medical directors must assure that all prehospital providers document patient care in a concise, accurate and complete manner. A patient record is required for all transported patients. Appendix A (pages 9-10) lists the essential and local use data elements of (EMSIRS-2). The Incidence Reporting Procedure Manual provides detailed information about these data elements and is available on the Ohio EMS website, www.ems.ohio.gov.

It is in everyone's best interest to have situations in which EMS personnel denied transport or the patient refused transport documented even more completely in the prehospital care report. It has been shown that a properly completed patient care report is the best defense against malpractice allegations.

10. Interhospital transfers

EMS personnel may be requested to perform interhospital transfers. COBRA/EMTALA legislation overrides all state or local rules regarding patient transfer. All patients must be thoroughly assessed and transferred in an appropriate manner following stabilization. Although EMS personnel are not directly involved in this process, they may be impacted by physician decisions. It is legally dangerous for any EMS unit to transfer a patient if any non-EMS procedures, protocols or medications are needed in transfer. EMS should not operate outside their scope of practice or the parameters of the protocols provided by the medical director during the transfer. If the EMS unit is uncomfortable transporting the patient, their medical director should be contacted.

11. Physician on the scene

Occasionally, EMS providers are confronted by the patient's private physician and other physicians wishing to direct the patient care at the scene. When EMS personnel begin assessment and treatment of a patient, they establish a physician-patient relationship between the medical oversight physician and the patient. Therefore, a physician at the scene should not assume responsibility unless authorization has been given by the on-line medical oversight physician. EMS personnel must not deviate from the standard of care protocols and should document all interactions and exchanges made between the physicians. Under selected circumstances, the on-scene physician may control medical care and then

give the patient to EMS personnel for transfer. If the medical care of the patient is directed by the on-scene physician who does not follow the EMS protocol, the on-scene physician should accompany the patient to the hospital. If the physician on-scene does not assume control and assists with care that conforms to EMS protocol, he/she need not accompany the unit to the hospital.

12. Transport from a physician's office

This represents a special case of the physician on-scene in that a doctor-patient relationship already exists. It is appropriate to assist the physician with care being rendered if it is consistent with EMS protocols. If care is not consistent with EMS protocols, permission from on-line medical oversight is needed. It is often best to expedite transfer and afford care en route if potential conflicts exist.

Appendix A

Emergency Medical Services Incidence Reporting System Version 2.2 (EMSIRS-2) Data Elements

This is a listing of the data elements collected by the EMS Incidence Reporting System.

Please refer to the EMSIRS-2 Procedure Manual for definitions of elements and code lists.

Field #	Field Name
01	EMS Agency Number
02	Incident/PCR Number
03	Type of Service Requested
04	Unit Call Sign / ID
05	Primary Role of the Reporting Unit
06	Crew Certification/License Levels
07	Incident Address
08	Incident City/Village/Township
09	Incident ZIP Code
10	Incident County
11	Type of Dispatch Delay
12	Type of Response Delay
13	Type of Scene Delay
14	Type of Transport Delay
15	Type of Return to Service Delay
16	Response Mode to Scene
17	Complaint Reported by Dispatch
18	EMD Performed
19	Date/Time of Initial Call for Help
20	Unit Notified by Dispatch Date/Time
21	Unit En Route Date/Time
22	Unit Arrived on Scene Date/Time
23	Arrived at Patient Date/Time
24	Unit Left Scene for Hospital Date/Time
25	Patient Arrived at Destination Date/Time
26	Date/Time Incident Completed
27	Date/Time Unit Available for Next Incident
28	Patient's Home ZIP Code
29	Gender
30	Race
31	Ethnicity
32	Date of Birth
33	Primary Method of Payment
34	Level of Service Provided
35	Condition Code Number (pending)
36	Number of Patients at Scene
37	Mass Casualty Incident
38	Incident Location Type
39	Prior Aid
40	Prior Aid Performed By
41	Outcome of the Prior Aid
42	Injury Present
43	Complaint Anatomic Location
44	Complaint Organ System
45	Primary Symptom
46	Other Associated Symptoms
47	Provider's Primary Impression
48	Provider's Secondary Impression
49	Cause of Injury
50	Injury Type
51	Protective Devices Used
52	Airbag Deployment
53	Cardiac Arrest

54	Cause of Cardiac Arrest
55	Resuscitation Attempted
56	Barriers to Patient Care
57	Alcohol/Drug Use Indicators
58	Initial Systolic Blood Pressure
59	Initial Diastolic Blood Pressure
60	Initial Pulse Rate
61	Initial Respiratory Rate
62	Initial Glasgow Coma Score – Eye
63	Initial Glasgow Coma Score – Motor
64	Initial Glasgow Coma Score – Verbal
65	Medication Given
66	Medication Complication
67	Intervention / Procedure
68	Date/Time Intervention / Procedure Successful
69	Number of Intervention / Procedure Attempts
70	Intervention / Procedure Successful
71	Intervention / Procedure Complication
72	Advanced Directives
73	Destination
74	Incident / Patient Disposition
75	Transport Mode from the Scene
76	Reason for Choosing Destination
77	Trauma Triage Criteria
78	Type of Destination
79	Emergency Department Disposition
80	Hospital Disposition

Source: Ohio Department of Public Safety, Division of EMS website, http://www.publicsafety.ohio.gov/links/emsirs_data_element_list.pdf

Chapter III: EMS Systems and Integration

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The EMS system consists of a number of components that must be coordinated and integrated. These components were originally outlined in the EMS Systems Act of 1973. The major elements are access, personnel, training, transportation, facilities, public information, education and public safety agencies.

I. Access

The first aspect of the EMS system is access. The public must be able to access the system in a convenient manner with an easy to remember code, such as 9-1-1. Currently, 93% of the population has access to some type of 9-1-1 service. In addition, 89% of Ohioans have enhanced 9-1-1 services. Special provisions must be made in the system for individuals who have auditory handicaps or multilingual requirements. The system should be universal, accessible and not dependent on ability to pay. The system should be designed so that an alternative code is available if the main system is not available. Central dispatch is critical for coordination and management of resources. In addition to EMS, other public services should be accessible through central dispatch to enable the system to function in a coordinated fashion. Receiving hospitals must agree to provide knowledgeable medical oversight to field personnel, and be available in a reasonable period of time.

Different types of 9-1-1 service:

1. Basic 9-1-1: Caller is connected to a central area. After determination of the location and the nature of emergency, EMS personnel are dispatched.

2. Enhanced 9-1-1: Computer-based system with automatic caller ID, location of the call and in many cases, geographical latitude and longitude of caller.

3. Non-9-1-1: Seven-digit or ten digit number that is used in areas where 9-1-1 service is not available.

II. Emergency Medical Dispatchers

Traditionally, the physician medical director has oversight responsibilities for providers in direct contact with patients. With the emergence of Emergency Medical Dispatchers (EMD) as an evolving standard of care for prehospital dispatch and pre-arrival instructions, the physician medical director now may have oversight duties in the dispatch center. The American College of Emergency Physicians believes that physicians must supervise the medical aspects of an EMD programs including:

- Approval of the medical component of the dispatch protocols, including mechanisms to determine call priority and configuration of response, and appropriate pre-arrival instructions;
- Review of dispatch program performance, and maintenance of active involvement in quality improvement activities;

- Accessing dispatch tapes for review of quality of patient care issues;
- Authority to recommend or make appropriate changes to protocol or personnel; and
- Providing oversight for the ongoing education, training and medical care provided by emergency medical dispatchers.

See ACEP Policy Statement on Physician Medical Direction of Emergency Medical Services Dispatch Programs (Approved 1998, Revised 2010)

Most Emergency Medical Dispatch (EMD) programs have regimented quality control procedures with properly-trained quality review personnel. The steps necessary for ensuring quality dispatch and pre-arrival patient instruction can be easily accomplished. Common areas of focused EMD review include:

1. Adherence to triage *(acuity of call)* protocols

2. Adherence to pre-arrival instruction protocols

3. Call processing time *(time of call being answered to EMS unit being dispatched)*

4. Selection of proper EMS response vehicle *(ALS/BLS and location)*

The physician medical director should maintain a close working relationship with the director of the communications center to ensure that this type of quality review occurs.

III. Personnel

All aspects of the system within the service region must be adequate to provide service 24 hours a day, 7 days a week. All aspects of the system should be assessed. The EMS system personnel should consist of first responders *(fire, police and other public safety elements)*, communicators *(EMD)*, EMTs, AEMTs, paramedics, MICU personnel, nurses, respiratory therapists, EMS systems coordinators and EMS physicians. EMS medical directors should have knowledge of personnel issues, including their responsibilities as medical director. The key issues include having authority over patient care including the ability to limit immediately the patient care activities of personnel who deviate from established standards or do not meet training standards. In addition, the medical director should evaluate and determine prehospital personnel's skills. Documentation that should be maintained by the EMS agency and available for medical director review include the new employee's application, references from prior employers and training programs, pre-employment screening and field orientation evaluations. Some systems document the new employee's knowledge of protocols. Patient care and incident/scene management should also be documented.

IV. Training

All personnel should receive appropriate training *(including clinical training)* and continuing education. For state guidelines see Chapter VII, go to http://ems.ohio.gov/ems_certification.stm or visit the Ohio Administrative Code, Chapter 4765-19 which addresses continuing education requirements

(http://codes.ohio.gov/oac/4765-19). Telephone complaint operators, dispatchers and other personnel must meet appropriate training and experience requirements.

V. Transportation

The region should determine the number of necessary units to transport the patient population served. Consideration should be given to varying types of transportation, including ground, air and water. Both the facilities and vehicles must meet appropriate standards related to location, design, performance and equipment as outlined by the State Board of Emergency Medical, Fire, and Transportation Services (http://ems.ohio.gov/ems_medical_transportation.stm)

The first type of transportation unit is a Basic Life Support (BLS) unit. These units should be equipped with radio communication capabilities and meet the State Board of Emergency Medical, Fire, and Transportation Services requirements for both the vehicle and equipment. A vehicle checklist is available for BLS ambulances on their website. Staffing should consist of at least two EMTs and responding facility locations should allow for 8-minute response times *(95% of calls)*. The system should be structured to respond in a cost-effective manner to serve the communities' needs.

A second type of ground transport unit is an Advanced Life Support (ALS) unit. In addition to the elements listed under BLS requirements, additional equipment is needed and personnel trained beyond the EMT level should be available. Some systems may be tiered whereas some may be all ALS, depending on available resources. Mobile Intensive Care Units *(ground)* should also be available to allow appropriate transportation to specialized hospital critical care units. These units should be available in quantity and quality to meet the service needs of the region.

Planning should include the specialty care areas of trauma, burn, spinal cord injury, poisoning, cardiac, stroke, high-risk infant and behavioral emergencies. Helicopter transport should also be available as a secondary response to assist local EMS. Ideal distances for utilization of a helicopter are a 30–150 mile radius from the patient to the facility. The system should be designed to effectively utilize this resource, based on distance, resources and medical condition. See "Guidelines for Operations of Air Medical Services" published by the Ohio Department of Public Safety (http://publicsafety.ohio.gov/links/ems_air_medical.pdf).

Fixed wing aircraft are used most effectively for transfer of patients from greater than a 150-mile radius. Transport vehicles and equipment for water rescue should be based on regional needs.

VI. Equipment

The appropriate equipment should be available to providers. Appendix A lists the required equipment for BLS and ALS ambulances as required by the State Board of Emergency Medical, Fire, and Transportation Services.

VII. Facilities

An adequate number of easily accessible emergency medical facilities should be available and collectively capable of providing 24-hour services. Each emergency facility should be categorized according to appropriate standards. EMS planners must understand each facility's capabilities for 24-hour emergency care, critical care, trauma care, burn care and rehabilitation/special-situation care. The minimum criteria for an effective EMS region include:

1. Regional categorization of receiving centers using accepted state or national criteria. By state statute, all trauma victims must be transported to a state-designated trauma center except where such transport is medically inappropriate or where a shortage of local resources would be created. Other centers with regional, state or national designation include specialty hospitals caring for pediatrics, burns, stroke and ST segment elevation myocardial infarction (STEMI) patients.

2. Regional Physician Advisory Boards are available to plan and evaluate the categorization plan. These groups are defined by state statute and should seek advice from diverse individuals including hospital administrators, nurses and other health system planners.

3. Regional plans for mutual agreement of facility categorization, critical care capabilities, transfer agreements and resource sharing.

4. Policies for diversion and bypass for all facilities in the region.

Ambulance Diversion

Reaffirmed by ACEP Board of Directors October 2006 and April 2012
Approved by the ACEP Board of Directors January 1999, titled "Ambulance Diversion". This policy statement was prepared by the EMS Committee and replaces the statement, "Ambulance Diversion/Destination Policies," approved by the ACEP Board of Directors November 1991. (http://www.acep.org/Content.aspx?id=29080).

The American College of Emergency Physicians (ACEP) believes that each EMS system must develop mechanisms to address patient diversions by health care facilities. These mechanisms must include the establishment of diversion policies for the EMS system that include agreements between facilities regarding when to divert patients and when to accept diverted patients. These cooperative agreements between hospitals and out-of-hospital agencies must be designed to:

- Identify situations in which necessary hospital resources are not available and temporary ambulance diversion is required.

- Notify EMS system personnel and providers (out-of-hospital and hospital) of such occurrences.

- Provide for the safe, appropriate, and timely care of patients who continue to enter the EMS system during periods of diversion.

- Notify EMS system personnel and providers (out-of-hospital and hospital) immediately when the situation that caused the diversion has been resolved.

- Explore solutions that address the causes for diversion and implement policies that minimize the need for diversions.

- Provide for the periodic review of policies and guidelines governing diversion.

Specialty considerations

1. The EMS medical director may establish relationships with local specialists as resources and consultants in their specific areas.

2. Contracts and transfer agreements with all appropriate subspecialty centers should be established and reviewed on an annual basis.

Individual specialties

1. Pediatrics: the medical director should make sure the EMS providers receive special training in the care of pediatric patients and be knowledgeable in the local resources to care for pediatric patients.

2. Trauma care: the EMS medical director should have an awareness of the organized trauma system in the state of Ohio (available at http://www.ems.ohio.gov/ems_trauma.stm). Providers are required to be trained about the use of state trauma triage guidelines, have protocols which address utilization and develop QA programs which monitor performance.

3. Cardiac care: The EMS medical director should be aware of local cardiac resources and have established protocols. In particular, care of patients with STEMI should be addressed and knowledge of percutaneous coronary intervention (PCI) centers with 24-hour capability be established.

4. Stroke care: The EMS medical director needs to be familiar with resources in the local community and region in the care of stroke victims. Protocols should be established to transport patient to the most appropriate facility.

5. Patients with specialty needs and technology-dependent patients (home ventilators, left ventricular assist devices, infusion pumps, etc.) should be addressed in consultation with specialty centers

The EMS medical director must understand resources available in the local community and region for children with special health care needs and ventilator-dependent patients, and have established pre-incident training, care and destination protocols.

VIII. Public Information and Education

The EMS system must provide programs of public education and information so that all individuals in the area are aware of how to access the system and appropriately utilize it. It should also provide information to the public on first aid, public access defibrillation, injury prevention and other training programs that are available.

IX. Public Safety Agencies

Ideally, other public safety agencies such as police, fire department, lifeguards and park rangers could function as first responders within the EMS system.

X. Mutual Aid

Agreements should be established by written contract between EMS regional systems to provide emergency services on a reciprocal basis where appropriate. These contracts should be re-evaluated and reviewed annually and address the issues of service coverage, communication linkages, licensors, certification, reimbursement, which protocols to apply, and who transports the patient.

XI. Response Phases

A complex series of events occurs when the EMS system responds to an emergency.

Pre-arrival

The first phase includes public access, system access, emergency medical dispatcher and emergency vehicle deployment. The public must know how to access the EMS system, understand its appropriate use and learn what they can do before EMS arrives. The use of trained emergency medical dispatchers can be crucial in this phase of care.

Access and dispatch

1. Access
   The first requirement is a universally recognized telephone number. Several configurations are available to augment the 9-1-1 system.

   - Free access from telephones (highway, college campuses, etc.) with a link to a public safety answering point, and/or

   - Computer files which are linked to the phone system and identify where the call originates. This benefits individuals who may be unable to communicate. The public safety answering point has individuals available to determine what types of emergency services are required by protocols implemented and consistently applied.

   - Automatic crash notification systems available in many vehicles

2. Dispatch
   In most 9-1-1 systems, the 9-1-1 call is received in a communication center located in a law enforcement or fire dispatch center. Other configurations exist including:

   - There may be a separate dispatch center for EMS.
   - Hospital facilities may be also responsible for dispatching EMS resources.

In many municipal systems, the private ambulance services are not included in the 9-1-1 system.

In many municipalities or counties, the ability to provide 9-1-1 response is mandated by legislative authority.

Emergency Medical Dispatch (EMD) programs

1. Emergency medical dispatcher is the first EMS provider that a caller contacts. These individuals are trained specifically in communications techniques

   - to appropriately interview the caller
   - to determine the nature of the medical emergency
   - to dispatch the necessary resources
   - to provide instructions to the caller to care for the victim until EMS responders arrive

2. Priority dispatching: the 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.

3. Pre-arrival instructions: protocols established and approved by the medical director with regular and routine re-evaluation that allows the dispatcher to provide instructions to the caller to begin care for the patient until EMS personnel arrive *(as simple as controlling bleeding or as complex as performing CPR)*

It should be noted that many areas in Ohio have not implemented formal emergency medical dispatch (EMD) programs.

Vehicle response

1. Two different response patterns may be in place

   - The vehicles are based at fixed stations or
   - The vehicles are positioned at strategic locations based on call patterns.

The first option is more common and is preferred by EMS personnel; the second option has been shown to improve response times and improve system efficiency. A third option would be a combination of the first two options, based on the time of the day and call pattern.

2. Functions of EMS communications during Vehicle Response

Operational efficiency is achieved by have coordination through communication activities between the operational elements of the EMS organization or system including:

- dispatch center to vehicles
- vehicle to vehicle
- medical command to vehicle – allows interaction between field personnel and medical oversight resources

Scene response

First responders are usually dispatched based on regional protocols and may consist of fire personnel or police. These personnel may be formally certified at an emergency medical responder (EMR) level or at the emergency medical technician (EMT) level. A tiered response system may be available consisting of BLS and ALS units. In addition, air medical transport may be activated under appropriate conditions.

Transport

The units should have protocols and access to medical resources that assist with the decisions to stabilize in the field versus provide rapid transportation to an appropriate facility. Policies for patient destination should be in place to facilitate appropriate decision-making and resolve conflicts. Standard operating procedures should address the transportation of minors and patient refusal of care.

Transfer of care

Patient data must be transferred to the emergency department staff in an accurate, concise format. It should be remembered that EMS agencies have reporting requirements to the Ohio EMS Agency under the EMS Incident Reporting System as previously discussed.

Appendix A: Required equipment for BLS and ALS ambulances

AMBULANCE EQUIPMENT CHECKLIST

Disposable equipment is acceptable where applicable; equipment/supplies shall not be expired.

OXYGEN EQUIPMENT	YES	NO	N/A
Permanently installed main oxygen system (current hydrostatic testing)[OAC 4766-2-10(A)(1)]			
Permanent variable flow regulator (0-15 LPM minimum)(1) [OAC 4766-2-10(A)(2)]			
Two secured portable oxygen tanks (minimum "D") (current hydrostatic testing)[OAC 4766-2-10(A)(3)]			
Portable variable flow regulator (0-15 LPM minimum)(1) [OAC 4766-2-10(A)(4)]			
Bag mask resuscitator w/reservoir capable of 100% oxygen flow (self-Inflating)[OAC 4766-2-10(A)(5)]			
Transparent masks for bag mask resuscitator (Adult-Child-Infant)(1 each) OR (adult, combo child/pediatric) [OAC 4766-2-10(A)(6)]			
Transparent oxygen masks [Adult (2); Child(1); Infant (1); Neonate(1)] [OAC 4766-2-10(A)(7)]			
Nasal cannulas (Adult-Child)(2 each) [OAC 4766-2-10(A)(8)]			
Oxygen connective tubing and appropriate adapters (1) [OAC 4766-2-10(A)(9)]			

SUCTION EQUIPMENT	YES	NO	N/A
Permanently installed suction unit [OAC 4766-2-10(B)(1)]			
Portable suction unit (powered or hand operated) [OAC 4766-2-10(B)(2)]			
Rigid pharyngeal curved suction catheters w/wide-bore tubing (2) [OAC 4766-2-10(B)(3)]			
Soft tip suction catheter (2 sizes)(between 6.0 and 10 French(1); between 12 and16 French (1) [OAC 4766-2-10(B)(4)]			
Sterile water and/or NS (4) totaling 1000ml min excluding IV solutions [OAC 4766-2-10(B)(5)]			
Sterile gloves (2 pair)[OAC 4766-2-10(B)(6)]			
Suction tubing (2) [OAC 4766-2-10(B)(7)]			
Suction bags (2 extra disposable liners or containers) [OAC 4766-2-10(B)(7)]			

AIRWAY EQUIPMENT	YES	NO	N/A
Oropharyngeal airway kit (one each 40mm through 100mm)[OAC 4766-2-10(C)(1)]			
Nasopharyngeal airway kit (set of six) 18 to 34 French OR 20 to 36 French[OAC 4766-2-10(C)(2)]			
Complete intubation kit, BLS per protocol only Extra batteries and bulbs[OAC 4766-2-10(C)(3)(a)]			
Syringes (assorted sizes)[OAC 4766-2-10(C)(3)(b)]			
Adult Stylet[OAC 4766-2-10(C)(3)(c)]			
Pediatric Stylet [OAC 4766-2-10(C)(3)(d)]			
Adult Magill Forceps[OAC 4766-2-10(C)(3)(e)]			
Pediatric Magill Forceps[OAC 4766-2-10(C)(3)(f)]			
Adult Endotracheal Tubes (2 each cuffed) 6.0mm, 7.0mm, 8.0mm)[OAC 4766-2-10(C)(3)(g)]			
Pediatric Endotracheal Tubes (1 ea. uncufffed 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5)[OAC 4766-2-10(C)(3)(h)]			
Water soluble lubricant (1)[OAC 4766-2-10(C)(3)(i)]			
Laryngoscope handle[OAC 4766-2-10(C)(3)(j)]			

AIRWAY EQUIPMENT	YES	NO	N/A
Laryngoscope blades (1each) (curved 2,3,4 and straight sizes 0,1,2,3,4)[OAC 4766-2-10(C)(3)(k)]			
Secondary confirmation device for ET tube placement[OAC 4766-2-10(C)(3)(l)]			

BLEEDING CONTROL/BURN EQUIPMENT	YES	NO	N/A
Adhesive dressing strips (10)(various sizes) [OAC 4766-2-10(D)(1)]			
Sterile gauze pads (20)(Various sizes) [OAC 4766-2-10(D)(2)]			
Combine abdominal pad [4 assorted (not less than 8" X 7"] [OAC 4766-2-10(D)(3)]			
Conforming/Elastic gauze (4 assorted) [OAC 4766-2-10(D)(4)]			
Sterile universal trauma dressing (10" X 36")(2) [OAC 4766-2-10(D)(5)]			
Sterile nonporous dressing (4)[OAC 4766-2-10(D)(6)]			
Assorted tape (4) [OAC 4766-2-10(D)(7)]			

ISOLATION EQUIPMENT	YES	NO	N/A
Bio-hazard containers for infectious and blood stained medical waste [OAC 4766-2-10(E)(1)]			
Sharps container[OAC 4766-2-10(E)(2)]			
2 Packaged kits **OR IF CARRIED LOOSE:** Isolation goggles and mask or mask/shield combo (2 of each size)[OAC 4766-2-10(E)(3)(a)]			
Isolation gowns (2 each size) [OAC 4766-2-10(E)(3)(b)]			
Isolation gloves (2 pair of each size) [OAC 4766-2-10(E)(3)(c)]			
N-95 (min) mask (size appropriate for each crew member)[OAC 4766-2-10(E)(3)(d)]			

IMMOBILIZATION EQUIPMENT	YES	NO	N/A
Extremity immobilization devices (e.g. board, air, vacuum, ladder, or equivalent[OAC 4766-2-10(F)(1)]			
Traction splint (adult & child - 1 each) OR (adjustable for adult and child - 1)[OAC 4766-2-10(F)(2)]			
Backboard or equivalent (2)[OAC 4766-2-10(F)(3)]			
Backboard straps (3 each per board) [OAC 4766-2-10(F)(4)]			
Commercial cervical immobilization device (2) Adult [OAC 4766-2-10(F)(5)]			
Rigid extrication collar (Infant-Child-Adult) (small-medium-large) [OAC 4766-2-10(F)(6)]			
Stairchair and/or combo stairchair/folding cot (1) [OAC 4766-2-10(F)(7)]			

ADJUNCT EQUIPMENT	YES	NO	N/A
Trauma Shears (1 pair)[OAC 4766-2-10(G)(1)]			
Stethoscope (1)[OAC 4766-2-10(G)(2)]			
BP Cuff (Infant, Child, Adult, Large Adult)(1 each) [OAC 4766-2-10(G)(3)]			
Non-mercury thermometer (oral or equivalent) (1) [OAC 4766-2-10(G)(4)]			

AMBULANCE EQUIPMENT CHECKLIST

ADJUNCT EQUIPMENT	YES	NO	N/A
Penlight (1)[OAC 4766-2-10(G)(5)]			
Large flashlight (1)[OAC 4766-2-10(G)(6)]			
Tongue blades (2)[OAC 4766-2-10(G)(7)]			
Eye protector pads (2)[OAC 4766-2-10(G)(8)]			
Water soluble lubricant (1)[OAC 4766-2-10(G)(9)]			
Packaged obstetrical kit (1)[OAC 4766-2-10(G)(10)]			
Exam gloves (minimum 2 full boxes; various sizes) [OAC 4766-2-10(G)(11)]			
Patient cot (1)(with 3 straps)[OAC 4766-2-10(G)(12)]			
Pillows and cases (2)[OAC 4766-2-10(G)(13)]			
Sheets (2)[OAC 4766-2-10(G)(13)]			
Heavy Blankets (2) (bath blankets shall not be substituted for blankets) [OAC 4766-2-10(G)(13)]			
Towels (2)[OAC 4766-2-10(G)(14)]			
Emesis basins or equivalent (2) [OAC 4766-2-10(G)(15)]			
Urinal or equivalent (1)[OAC 4766-2-10(G)(16)]			
Bedpan (1)[OAC 4766-2-10(G)(17)]			
Personal towelettes or equivalent (10) [OAC 4766-2-10(G)(17)]			
2 ABC fire extinguishers (5lb minimum each) (front & back)[OAC 4766-2-10(G)(18)]			
Extinguishers mounted per KKK-A-1822 [OAC 4766-2-10(G)(18)(a)]			
Extinguisher maintenance check per OSHA [OAC 4766-2-10(G)(18)(b)]			
Patient restraints (4)[OAC 4766-2-10(G)(19)]			
ANSI II high visibility vest (1 for each crew member) 29 CFR 634 [OAC 4766-2-10(G)(20)]			

ONBOARD DEFINITIVE CARE EQUIPMENT	YES	NO	N/A
BLS			
Approved medications as shown on State Board of Pharmacy License/Addendum [OAC 4766-2-10(H)(1)(a)]			
Automated external defibrillator (Adult and Pediatric Pads) [OAC 4766-2-10(H)(1)(b)]			
INTERMEDIATE	**YES**	**NO**	**N/A**
Approved medications as shown on State Board of Pharmacy License/Addendum [OAC 4766-2-10(H)(2)(a)]			
Approved I.V. solutions as shown on State Board of Pharmacy License/Addendum [OAC 4766-2-10(H)(2)(b)]			
Intravenous Equipment Alcohol and povidone iodine preps (10 each) [OAC 4766-2-10(H)(2)(c)(i)]			
Arm boards (1 each) [OAC 4766-2-10(H)(2)(c)(ii)]			
IV Administration sets (4) [OAC 4766-2-10(H)(2)(c)(iii)]			
IV Catheters (assorted sizes) [OAC 4766-2-10(H)(2)(c)(iv)]			
Needles (assorted sizes) [OAC 4766-2-10(H)(2)(c)(v)]			
Automated External Defibrillator (Adult and Pediatric Pads)[OAC 4766-2-10(H)(2)(d]			

ONBOARD DEFINITIVE CARE EQUIPMENT	YES	NO	N/A
ALS			
Approved medications as shown on State Board of Pharmacy License/Addendum [OAC 4766-2-10(H)(3)(a)]			
Approved I.V. solutions as shown on State Board of Pharmacy License/Addendum [OAC 4766-2-10(H)(3)(b)]			
Intravenous Equipment Alcohol and povidone iodine preps (10 each) [OAC 4766-2-10(H)(3)(c)(i)]			
Arm boards (1 each) [OAC 4766-2-10(H)(3)(c)(ii)]			
IV Administration sets (4) [OAC 4766-2-10(H)(3)(c)(iii)]			
IV Catheters (assorted sizes) [OAC 4766-2-10(H)(3)(c)(iv)]			
Intraosseous Needles or kit, per protocol (2) [OAC 4766-2-10(H)(3)(c)(v)]			
Needles (assorted sizes) [OAC 4766-2-10(H)(3)(c)(vi)]			
Cricothyroidotomy-needle or surgical, per protocol [OAC 4766-2-10(H)(3)(c)(vii)]			
Monitor/defibrillator (with EKG Trace) external cardiac pacing capability [OAC 4766-2-10(H)(3)(d)]			
Defibrillator gel or pads[OAC 4766-2-10(H)(3)(d)(i)]			
Quick-look paddles, if applicable [OAC 4766-2-10(H)(3)(d)(ii)]			
EKG leads [OAC 4766-2-10(H)(3)(d)(iii)]			
Chest attachment pads[OAC 4766-2-10(H)(3)(d)(iv)]			
Pedi-paddles/Pads[OAC 4766-2-10(H)(3)(d)iv)]			

	YES	NO	N/A
Was a violation notification issued for this vehicle?			
Is the copy of the Violation Notification attached to this form?			
Is a reinspection required?			

Date of Inspection _____

_____

OMTB Field Inspector **(print name)**

_____

OMTB Field Inspector Signature

Chapter IV: Direct and Indirect Medical Oversight

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I. Introduction

Medical oversight is defined as physician-directed prehospital emergency medical care in which the EMS medical director assumes medicolegal responsibility for the patient care administered by the prehospital provider. The prehospital provider therefore practices under the license of the medical director. Medical oversight can be further divided into direct *(on-line or immediate)* and indirect *(off-line)* which is further divided into prospective and retrospective phases. Each of these has specific requirements and duties for the physician and the prehospital care provider.

II. Direct Medical Oversight

Direct medical oversight is defined as the concurrent interaction between a prehospital provider and a responsible physician by radio, telephone or in person. Direct medical oversight is unique in that the medical care by the physician is delivered through the prehospital provider. EMS personnel transmit information regarding patient evaluation to the physician and then perform any further evaluation, procedures or treatments as instructed. The authority to provide direct medical oversight can be delegated by the director to other physicians who are familiar with the protocols and capabilities of the EMS system. The prehospital provider serves as an extension of the physician, functioning under the license of the medical director. This arrangement establishes medical accountability.

There are several necessary elements involved in delivering direct medical oversight. A designated physician must be immediately available at all times. Radio, telephone or both must be dedicated for voice communication between prehospital personnel and the physician. Approved, written protocols must exist to serve as a template for medical treatment in the majority of emergency situations encountered. These protocols guide both the physician and prehospital worker and provide the prehospital provider with instructions for emergency care in situations where direct contact with the physician is impossible. Although this is the expected method of application of direct medical oversight, there are systems where there is no requirement for physician contact if the necessary treatment is BLS only. In situations where ALS is essential, however, direct medical oversight is optimal.

Obvious advantages of a direct medical oversight system include assignment of physician accountability and the opportunity to provide supervision and education of prehospital personnel in the field. Transmission of medical information regarding the patient's clinical status, response to treatment and physician involvement prior to instituting any treatments outside established protocols are other benefits of direct medical oversight.

III. Physician Responsibility and Authority

In performing direct medical oversight, the physician establishes a physician-patient

relationship with the prehospital provider functioning as the intermediary. This relationship implies the same responsibilities for care as does the direct physician-patient interaction. It is therefore expected and required that the physician provide medical direction that is consistent with the current standard of care for emergency medicine.

Prior to participating in medical oversight, the physician must be instructed as to the proper operation of the radio or telephone system and be familiarized with all existing treatment and general operation protocols of the EMS system. These prehospital protocols should be used to appropriately guide patient care and the physician is given the authority to deviate from standard protocol based on the patient's clinical status and the prehospital environment. Other items that must be within the authority of the physician include prescribing prehospital treatment for the patient, choice of receiving facility and mode of transport.

IV. Direct Medical Oversight Systems Design

There are three basic prototypes of direct medical oversight system organization. *Receiving hospital* medical oversight allows the receiving facility to direct the prehospital care of incoming patients. This provides continuity of patient care but will often compromise standardization of emergency medical care as this may vary according to the facility.

In the *centralized* model, all on-line medical oversight is delivered through a single hospital regardless of the receiving facility. Standardization of care is maximized, quality assurance is facilitated and physician accountability is easily assigned. There is, however, a lack of interaction between physicians and prehospital personnel.

In a *satellite* system, the base hospital as well as associated hospitals provide medical oversight and each squad is assigned to a particular oversight location. An advantage here is increased familiarity of physicians with prehospital personnel, but standardization of care may be difficult despite the use of uniform policies and protocols in this model.

Hospital-based medical oversight units are required to oversee EMS system implementation and general operations, quality assurance and improvement. Added duties include

1. Designation of a medical director
2. EMS system and prehospital care education of the base hospital staff and prehospital personnel
3. Formation of a network of receiving hospitals
4. Providing medical oversight to the receiving hospitals
5. Direct contact with the receiving hospital regarding incoming ALS patients
6. Daily run review
7. Maintaining patient care records
8. Training and certification of EMS personnel and medical oversight physicians

The American College of Emergency Physicians adds the following guidelines

1. Base hospital equipment and personnel for medical oversight must be located in the emergency department.
2. All requests for medical oversight receive a prompt and educated

response.
3. Patient confidentiality must be assured.
4. Regional EMS systems must participate in the collection of items necessary to allow quality assurance and improvement.
5. Information to receiving hospitals must be transmitted in an accurate and timely manner.
6. Continuing medical education must be provided for medical oversight and EMS personnel.
7. Choices regarding referral hospital selection must be based solely on clinical grounds and not monetary gain.

When to provide medical oversight

There are three major reasons to obtain medical oversight from a physician: First, to transmit medical information to the receiving facility; second, to get approval for treatments that are not in the standing orders; and third, to obtain assistance in decision-making. The usefulness of on-line medical oversight is directly related to the availability and ability of the on-line physician. With the increased numbers of incoming calls to 9-1-1 and EMS services, the following general guidelines concerning when to obtain direction have been established including:

1. Discretion of the prehospital provider
2. Choice of medical therapy
3. Treatment needed is outside the established protocols
4. ALS intervention is required
5. Disagreement between prehospital providers as to the appropriate therapeutic intervention

Other instances might involve

1. Cardiorespiratory resuscitation
2. Death in the field
3. Triage of multiple victims
4. Physician or public service personnel intervention at the scene
5. Childbirth
6. Patients in shock
7. Severe respiratory distress
8. Pediatric patient care
9. Chest pain
10. Certain drug overdoses (e.g., tricyclics)
11. Non-transport due to lack of medical necessity or patient refusal
12. Pronunciation of patient death
13. Withdrawal of life-saving interventions

Utilizing standing orders and telemetry

1. The use of standing orders in on-line medical oversight systems allow the prehospital provider to institute therapy in certain well-defined clinical situations prior to contacting medical oversight. These orders do not require communication with medical oversight prior to implementation. Standing orders have been of proven benefit in treating critical care patients, clinical presentations with varied differential diagnoses, high-risk clinical areas and referral hospital selection. For example, in the case of

traumatic arrest, standing orders might include CPR, intubation, bilateral chest decompression and advanced cardiovascular life support (ACLS). To be properly utilized, orders must be clearly written and approved by the appropriate EMS council and/or review board so as to have the same implications as those orders given on-line.

2. The use of telemetry was added to on-line medical oversight in an attempt to reduce the risk of sudden death due to arrhythmia early in the post MI period. Initially, telemetry was applied only in situations where the incidence of a potentially fatal arrhythmia was high and treatment intervention by medical oversight could be lifesaving. The effective application of telemetry requires personnel experienced in ECG interpretation to provide medical oversight. Medical oversight personnel must receive specific training in the recognition, interpretation and treatment of arrhythmias in the form of ACLS. As such, delegation of this duty to non-physicians must be carefully considered.

Quality improvement considerations

1. Simply providing direct medical oversight does not guarantee good medical care or patient outcome. Guidelines to quality improvement are provided in the base hospital contract with the EMS Review Board or other local/regional agencies. The medical oversight center is required to perform regular assessment and in-depth review of all aspects of day-to-day operations to guarantee the services delivered meet the current standard of emergency medical care. Items emphasized include

    - Protocol review for adherence to the current standard of care, state law, administrative codes and EMS policy
    - Training and continuing education of all direct medical oversight personnel
    - Direct field supervision of prehospital personnel
    - Notification and communication of medical information to receiving hospitals
    - Documentation of appropriate certification of medical oversight personnel
    - Review of direct medical oversight patient records and outcome
    - Assistance and cooperation with quality assurance procedures
    - Research studies
    - Formal review of base hospital operations
    - Staffing requirements
    - Qualifications for physician surrogates who provide medical oversight
    - Critique of in-the-field operations
    - System design issues
    - Protocol development and review
    - Outcome analysis
    - Re-assessment after system changes are made

V. Indirect Medical Oversight

Indirect or off-line medical oversight consists of administrative and clinical duties of the EMS medical director throughout the EMS system. Indirect oversight can be further subdivided into prospective and retrospective phases, each with specific tasks.

The actual decision to establish an EMS system is the first step in prospective medical oversight. The medical director coordinates and oversees protocol development, personnel training, testing and certification and development of operational policy and procedures. These activities are the direct responsibility of the medical director who is medically accountable.

Protocols are clinical guidelines for the prehospital provider, developed to assure consistency of care during every patient interaction and encompass the medical conditions most likely to be encountered. These may be constructed using either symptoms *(e.g., chest pain)* or diagnosis *(e.g., myocardial infarction)* in a simple algorithm. The advantage of symptom-based treatment protocols is the ability to use a stepwise approach to evaluation and treatment. Standing orders are procedures or treatments that can be initiated by an EMS personnel prior to contacting medical oversight. Direct medical oversight communication is required following completion of these standing orders. Included under the heading of protocols are operational guidelines dealing with record keeping, restocking of equipment, narcotic administration and communications. Both protocols and standing orders require approval by an EMS review board, regional medical board, Regional Physicians Advisory Board or other appropriate prehospital medical care authority promoting agreement as to the standard of care.

Prehospital care training programs, based upon the National Highway Traffic Safety Administration's (NHTSA) National EMS Education Standards, serve as the foundation of EMS education curricula. Advanced coronary life support (ACLS), advanced trauma life support (ATLS), international trauma life support (ITLS) and pediatric advanced life support (PALS) courses are used to supplement comprehensive training and update treatment protocols. The level of training and recertification will include comprehensive training and update of treatment protocols. The level of training and recertification will depend on the population served. Maintaining proficiency in assessment techniques, procedural skills and familiarity with medication regimens, however, requires either practice in the field or in-hospital hands-on review sessions, and time spent in the emergency department. Training regarding response, transport and scene time is also required and dependent upon the population characteristics of the community served. It is the duty of the medical director to decide what is necessary.

VI. Retrospective Medical Oversight

The retrospective phase requires the combined efforts of the medical director, assistant medical director, EMS committee and medical oversight personnel. A medical audit in the retrospective phase includes formal examination of the management decisions by the medical director and his/her delegates. System-wide quality improvement evaluations of on-scene times, frequency of medical and procedural interventions, treatment deficiencies, EMS personnel proficiency skills and patient transport refusals should occur to ensure compliance with the standards of emergency medical care as well as the EMS agency's policies. Protocol modifications, EMS personnel counseling, remedial education, and recertification activities are also important components of retrospective medical oversight.

VII. Legal Considerations

There are numerous legal considerations involved in providing prehospital care. To avoid litigation within an EMS system, careful consideration must be devoted to general organization and operation.

The medical director is assigned full responsibility for all aspects of medical care within the system. A written statement fully defining the authority, duties and limitations of the director is essential for promoting mutual understanding about respective roles. Depending on the actual system, this oversight will be assigned by an EMS Board, local or state agency. The relationship of prehospital providers to the director should also be clarified in order to establish the lines of medical accountability. The medical director determines which prehospital providers will be permitted to deliver patient care in the EMS system.

Medical oversight physicians are at significant risk for both vicarious and direct liability. *Vicarious* liability is that which results from the acts or conduct of others who the physician has supervisory responsibilities for, while *direct liability* involves the physician's own acts or omissions. Although the true definition of vicarious liability requires that there be a legal relationship between the involved parties, the fact that the prehospital provider acts as an extension or agent of the physician guides accountability. Ultimately, it is the medical director who incurs liability for negligence in on-line medical oversight, and potentially for off-line medical oversight as well.

Quality improvement and risk management programs act as safeguards against legal risk. These must be designed in such a way as to effectively maintain the standard of care and protect the public from the inappropriate or inadequate delivery of prehospital care. The most common source of claims is risk-taking activity on the part of the prehospital care provider, such as failure to immobilize the cervical spine despite mechanism consistent with possible injury, failure to operate the ambulance in a responsible manner or equipment failure due to neglect of routine maintenance guidelines. Abandonment, which is the refusal or failure to transport a patient who has summoned assistance, has resulted in numerous claims. One study noted an approximately 20% paramedic triage error rate. For these and other reasons, protocols must be written so as to prevent haphazard deviation from proper treatment regimens.

Issues of consent are another potential source of litigation. In the initial assessment of a patient, the EMS personnel must determine if the patient is able to give consent for treatment and transport. Under applicable state law, the patient must first be determined to be an adult. Then it must be determined whether or not the patient has the mental capacity to make informed medical decisions. Problems arise when the patient examination reveals an altered sensorium with physical evidence of potentially life-threatening illness or injury and the patient refuses treatment. Such issues can be managed prospectively with stringent protocols, e.g. to include a mental status examination as part of the initial prehospital evaluation. Consent issues concerning living wills, do not resuscitate orders and choice of receiving hospital also must be decided.

Legal issues dealing with EMS communication mainly center on dispatch and appropriate call response. Many EMS systems have instituted protocols requiring that all incoming 9-1-1 calls be given a response. Callers are then questioned in order to clarify the nature of the emergency in order to determine an appropriate response level. Pre-arrival instructions are then given and the squad dispatched. Systems with heavy

call volumes have instituted “call screening.” In these systems, the dispatch personnel decide if EMS will respond to the call. The risk of making an incorrect decision is high, and therefore is not recommended.

VIII. Conclusion

EMS is in constant evolution secondary to changing demands of the population as well as constraints due to decreased funding. Increased physician involvement has proven instrumental in maintaining high-quality EMS patient care including medical oversight, certification standards and the implementation of lifesaving therapeutics including AED use and early defibrillation. Continued physician involvement will not only ensure that the standard of care of patients within the EMS system is routinely met or exceeded, but also will promote the continued growth and advancement of EMS as a field.

Chapter V: EMS Medical Director Qualifications

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I. Introduction

In order for an EMS system to provide safe and effective care, active participation by physicians is crucial. The American College of Emergency Physicians (ACEP) Guidelines for Medical Direction of Prehospital EMS (see appendix 1) requires the designation of a physician as EMS medical director who assumes primary responsibility to ensure quality medical care throughout the system.[1] The National Association of EMS Physicians (NAEMSP) echoes this in their position statements on Physician Medical Direction in EMS and Medical Direction for Operational EMS.[2, 3] More importantly the state of Ohio requires all levels of EMS providers to have a medical director possessing a valid Ohio medical license.[4, 5] However outside of the legal requirements and recommendations there is little information and minimal research on what qualifications are required or desirable for an EMS director.

Because EMS is about emergency care and EMS personnel interact primarily with the emergency department, it is only natural that emergency physicians be the ones involved in EMS medical direction. This is a good starting point. However simply completing an emergency medicine (EM) residency or working as an emergency physician is not sufficient. Additional qualifications and skills are essential. Nor should it imply that an interested and involved physician trained in another specialty is unable to provide good medical direction.

The recently recognized subspecialty of EMS will likely improve the situation in the future at least for larger and more urban systems. However it is unlikely that a sufficient number of EMS fellows will ever be trained to meet the needs of all communities, some of which do not even have an adequate number of EM residency trained physicians, and courses such as this will continue to help fill the void for those trained in other specialties as well as EM graduates who do not feel qualified. In fact the state of Ohio (see appendix 1) requires completion of this, or the NAEMSP EMS Medical Director's course, for those physicians not having completed an emergency medicine residency, an EMS or pediatric emergency medicine fellowship, or being board certified in EMS.[5]

II. Physician Qualifications

Role of the EMS Medical Director

Any discussion about medical director qualifications must include a consideration of their responsibilities. EMS is the provision of medical care in the pre- or out-of-hospital setting, by providers who are acting as agents of a licensed physician, i.e. their medical director. Consequently the medical director should have input into all clinical and patient care aspects of the EMS system or service, with the specific job description dictated by local needs and resources. Most importantly he or she should have knowledge of the current practice of emergency medicine as well as the EMS scope of practice.

The NAEMSP position paper recognizes that EMS providers often function in remote or austere environments that require specialized skills, and therefore specialized medical direction.[3] Examples include ski patrols, swift water rescue, wild land fire crews, tactical EMS, rural communities with lengthy transport times and many others. The EMS medical director operating in these locations should have appropriate knowledge and ideally some training, certification and licensure in the specific operations within the service.

As in any other field of endeavor, the education process is essential to the success of the provision of EMS care. Medicine is constantly evolving and EMS providers need to be current in treatment protocols of common ailments as well as undergo continual retraining and review of the less common or high risk situations and procedures. The quality of care provided by EMS is ultimately the medical director's responsibility. Thus he or she is an educator and needs to take an active role in the education and training of the EMS providers and should have some knowledge and experience in developing, coordinating and teaching an EMS curriculum.

Research is mentioned as an important element of EMS seemingly implying it is a duty of the medical director; however most will lack the proper training and more importantly the resources for this endeavor. Medical directors should however cooperate and attempt to participate whenever possible in regional projects.[6] They should also attempt to stay current with the new research and literature, a job made easier by belonging to a national organization such as the NAEMSP (National Association of EMS Physicians) or ACEP (American College of Emergency Physicians) and attending their annual meetings.

Maintaining quality care and adhering to a certain standard is also necessary irrespective of the size of the EMS agency, and the director needs to be facile at developing and running a quality performance improvement program.

It is also a political job. In many, if not all communities the position requires the approval of the municipal, or other local authorities. Equipment needs to be replaced or purchased, training hours budgeted, people hired, disciplined or released. Medical directors will often need input in these decisions. EMS interacts with the public and with multiple other agencies such as police, nursing homes, and hospitals. Multiple issues and complaints are bound to occur and demand attention. Dispatch is often under the control of police, especially in smaller communities, or it may be regionalized and housed somewhere distant. Since care actually begins at the time of initial contact with the emergency medical dispatch system, attention needs to be given this aspect of care. Pre-arrival instructions have been shown to save lives and should be the norm. All of this requires a willingness and ability to work with other people, many of whom may be representing different interests and agendas. Good communication skills are essential.

Finally, the job demands leadership and vision as well as the passion to "make it happen". Emergency medicine has evolved tremendously over the last 25 years. Just consider a few of the following examples: dispatch pre-arrival instructions, do not resuscitate documents, field pronouncements, noninvasive ventilation, capnography, prehospital ECGs and STEMI centers, compression only cardiopulmonary resuscitation (CPR), post cardiac-arrest hypothermia, the

establishment of a trauma network in the state and the proliferation of stroke centers in certain areas. Today's EMS providers and physicians may not know what a HEAR radio is, what MAST trousers are and have never administered bretylium or dopamine in an ambulance. The director needs to take whatever action necessary to update the protocols and initiate those changes that will improve care as well as eliminate dangerous and outdated practices no matter how ingrained they are; not always an easy task.

Physicians who provide medical direction for agencies that also provide interfacility transports should review the NAEMSP position paper dealing with this.[7]

References (assessed Dec. 12, 2012)

1. http://www.acep.org/Content.aspx?id=47410
2. **http://www.naemsp.org/Documents/POSITION%20PhysicianMedDir.pdf** or Alonso-Serra H, Blanton D, O'Conner R. PHYSICIAN MEDICAL DIRECTION IN EMS Prehosp Emerg Care. 1998 Apr-Jun;2(2):153-157.
3. **http://www.naemsp.org/Documents/POSITION%20MedDirforOperationalEMSPrograms.pdf**
4. http://codes.ohio.gov/oac/4765
5. http://codes.ohio.gov/oac/4765-3
6. http://www.acep.org/content.aspx?id=29540 **http://www.naemsp.org/Documents/POSITION%20MedDirofInterfacilityTransports.pdf Or** Shelton SL, Swor RA, Domeier RM, Lucas R. Medical direction of interfacility transports: National Association of EMS Physicians Standards and Clinical Practice Committee. Prehosp Emergency Care 20004(4):361-364.

Appendix 1

ACEP Position Papers Relevant To EMS Medical Direction
Medical Direction of Emergency Medical Services
Reaffirmed by the ACEP Board of Directors October 2001 and April 2012
Revised and approved by the ACEP Board of Directors April 2005
Revised and approved by the ACEP Board of Directors titled, "Medical Direction of Emergency Medical Services" September 1997
Revised and approved by the ACEP Board of Directors titled, "Medical Direction of Prehospital Emergency Medical Services" October 1992
Amended and approved by the ACEP Board of Directors November 1987
Originally approved as a policy statement by the ACEP Board of Directors titled, "Medical Control of Prehospital Emergency Medical Services" April 1984

*As an adjunct to this policy statement, ACEP's EMS Committee has prepared a Policy Resource and Education Paper (PREP) entitled "**Medical Direction of Prehospital Emergency Medical Services**," available from Customer Service*

The American College of Emergency Physicians (ACEP) believes that all aspects of the organization and provision of basic (including first responder) and advanced life support emergency medical services (EMS) require the active involvement and participation of physicians. ACEP also believes that EMS must have an identifiable physician medical director at the local, regional, and state level.

The primary role of the medical director is to ensure quality patient care. Responsibilities include involvement with the ongoing design, operation, evaluation and revision of the EMS system from initial patient access to definitive patient care.

Each EMS system should ensure that the medical director has authority over patient care, authority to limit immediately the patient care activities of those who deviate from established standards or do not meet training standards, and the responsibility and authority to develop and implement medical policies and procedures. The EMS medical director's qualifications, responsibilities, and authority must be delineated in writing within each EMS system. Ideally, the EMS medical director will be a board-certified emergency physician. The EMS system has an obligation to provide the EMS medical director with the resources, authority, and compensation commensurate with these responsibilities.

http://www.acep.org/content.aspx?id=29570 (assessed Dec12, 2012)

Physician Medical Direction of Emergency Medical Services Dispatch Programs
Reaffirmed by the ACEP Board of Directors June 2010
Revised and approved by the ACEP Board of Directors September 2003
Originally approved by the ACEP Board of Directors October 1998

The American College of Emergency Physicians (ACEP) believes that Emergency Medical Services (EMS) is the delegated practice of medicine. Responsibility for the medical care of the patient begins with the initial request for care. The Emergency Medical Dispatch (EMD) program is an integral and critical component of the EMS system and is clearly a medical function.

An EMD program requires the active involvement of EMS physician medical directors. The role of the physician medical director of an EMD program is:

- To approve the medical component of the dispatch protocols, including mechanisms to determine call priority and configuration of response, and appropriate pre-arrival instructions;

- To routinely review dispatch program performance, and maintain active involvement in quality improvement (QI) activities;
- To have access to dispatch recordings for review of quality of patient care issues;
- To have the authority to recommend or make appropriate changes to protocol or personnel; and
- To provide oversight for the ongoing education, training, and medical care provided by emergency medical dispatchers.

The physician medical director's qualifications should include:

- Knowledge of current EMS scope of practice and legislation relating to 911 and dispatch functions; and
- Education or training, knowledge, and experience in emergency care delivery and medical direction of EMS systems.

ACEP also supports the availability of basic 911 access for all communities of the United States as a minimum public service and encourages the establishment of enhanced levels of 911 access in all communities where it is feasible. Access may include the use of certified EMD call takers and dispatchers as well as standardized dispatch protocols including pre-arrival instructions.
http://www.acep.org/content.aspx?id=29634 (assessed Dec. 12, 2012)

Physician Medical Direction of Emergency Medical Services Education Programs
Reaffirmed October 2008 by the ACEP Board of Directors
Reaffirmed October 2002 by the ACEP Board of Directors
Approved by the ACEP Board of Directors January 1997
As an adjunct to this policy statement, ACEP's Emergency Medical Services Committee developed a Policy Resource Education Paper (PREP), Physician Medical Direction of EMS Education Programs.
The American College of Emergency Physicians (ACEP) and the National Association of EMS Physicians (NAEMSP) believe that changing technology, advances in research, and changing health care delivery systems, require the active involvement of knowledgeable, identifiable, and responsible physician medical directors in the provision of emergency medical services (EMS) education programs, including initial and continuing education programs. The role of the physician medical director of an EMS education program is:

- to approve the medical and academic qualifications of the faculty, the accuracy of the medical content, and the accuracy and quality of medical instruction given by the faculty; to routinely review student performance and progress and attest that the students have achieved the desired level of competence prior to graduation; and
- to have a significant role in faculty selection and curriculum development, authority over presentation of medical content, and authority to assure that faculty teach established medical practices.

The physician medical director's qualifications should include:

- knowledge of current EMS scope of practice and legislation relating to education programs;
- training and experience in emergency care delivery and medical direction of EMS systems; and
- appropriate credentials attesting to experience in coordinating and teaching related education programs.

http://www.acep.org/content.aspx?id=29636 (assessed Dec. 12, 2012)

Leadership in Emergency Medical Services
Revised and approved by the ACEP Board of Directors June 2000; October 2004; and June 2011
This policy statement originally replaced a Council Resolution with the same name and was approved by the ACEP Board of Directors September 1995 The American College of Emergency physicians (ACEP) reaffirms its commitment to physician leadership of Emergency Medical Services (EMS) and supports the following principles:

- EMS physician medical directors should actively direct and lead the clinical performance of all EMS systems, serving with recognized ultimate clinical authority.
- EMS physician medical directors should actively guide and advocate for EMS system design that is based on evidence-supported clinical practices and outcomes.
- EMS physician medical directors should actively direct and oversee the operation of EMS communication systems, establishing or modifying dispatch training and protocols and leading the continuous quality improvement program based on evidence-supported practices and outcomes.
- EMS physician medical directors should actively direct and oversee ongoing clinical competency verification programs that serve in determining clinical privileges for individual providers in an EMS system.

- EMS physician medical directors should actively direct and oversee continuous quality improvement activities designed to critically appraise and advance the quality of clinical performance in EMS.
- EMS physician medical directors should actively participate and advocate in development of engaging, evidence-supported education for EMS providers.
- EMS physician medical directors should actively advise and guide the development of certification and scope of practice policies affecting EMS providers at local, state, and national levels.
- EMS physician medical directors should actively monitor and influence issues impacting EMS system funding, reimbursement, and government regulation.
- EMS physician medical directors should actively promote research initiatives involving EMS systems and providers, recognizing that pre-hospital research is an essential element in advancing evidence based medicine within the pre-hospital setting.
- EMS physician medical director leadership should be an integral part of pre-hospital research; thus ACEP supports the further development of federal EMS grants that link distribution of funds for any EMS purpose with the end goal of enhancing the quality of care provided in the pre-hospital environment.

http://www.acep.org/content.aspx?id=29540 (assessed Dec. 12, 2012)

Appendix 2

4765-3-05 Medical director requirements for each emergency medical services organization.

(A) The medical director for each EMS organization shall meet the following minimum qualifications:

(1) Possession of a valid Ohio medical license;

(2) Active involvement in the provision of emergency care to patients;

(3) Active participation with one or more EMS organizations, including but not limited to:

(a) Conducting performance improvement programs;

(b) Conducting education programs;

(c) Conducting protocol updates.

(4) Evidence of high ethical standards and no conflicts of interest;

(5) Utilizes aggregate data from the division in peer review and quality improvement programs at the local level;

(6) Except as set forth in paragraphs (B) and (C) of this rule, evidence of one of the following:

(a) Board certification by the "American Board of Emergency Medicine" or the "American Osteopathic Board of Emergency Medicine";

(b) Board eligibility by completion of an emergency medicine residency program recognized by the "American Board of Medical Specialties" or the "American Osteopathic Association";

(c) Board certification by a medical specialty board recognized by the "American Board of Medical Specialties" or the "American Osteopathic Association," followed by successful completion of an emergency medical services fellowship;

(d) Board certification by the "American Board of Pediatrics" or the "American Osteopathic Board of Pediatrics," followed by successful completion of a pediatric emergency medicine fellowship program accredited by the "Accreditation Council for Graduate Medical Education" or the "American Osteopathic Association Program and Trainee Review Council."

(B) An existing medical director who meets all the qualifications listed in paragraph (A) of this rule except paragraph (A)(6) shall do either of the following:

(1) Complete the "National Association of Emergency Medical Service Physicians" (NAEMSP) medical director course, the Ohio "American College of Emergency Physicians" (ACEP) medical director course, or other equivalent course approved by the board; or

(2) Submit to the board written verification of EMS medical director experience and verification that the individual conducted performance improvement programs or training.

(C) A physician who meets all of the qualifications listed in paragraph (A) of this rule except paragraph (A)(6) and wishes to become a new medical director shall do all of the following:

(1) Complete the "National Association of Emergency Medical Services Physicians " (NAEMSP) medical directors course, the Ohio "American College of Emergency Physicians" (ACEP) medical directors course, or other equivalent course approved by the board;

(2) Petition the board for a waiver of the emergency medicine residency program requirement. The state medical director, in conjunction with the RPAB chairs, will review the petition for waiver and make a recommendation to the board;

(3) Submit any and all additional information or documents requested by the board, the state medical director, or the RPAB chairs to support the petition.

(D) Each medical director is required to participate in peer review and quality improvement programs, as provided in section 4765.12 of the Revised Code. Effective 02/06/2012.

Chapter VI: Levels of Prehospital Providers

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I. Introduction

Currently the state of Ohio EMS Board recognizes four levels of prehospital providers, all of which function under a physician's medical license: Emergency Medical Responders (EMR), Emergency Medical Technicians (EMT), Advanced Emergency Medical Technicians (AEMT), and Paramedic. These terms are synonymous with the former terms of First Responder, EMT Basic, EMT Intermediate, and Paramedic. Each has its own educational requirements, curricula, and a scope of practice which may differ from those of comparable levels of providers in other states (a fact that needs to be considered if a provider was trained or has been working outside of Ohio). In 2010 Ohio adopted the National Standard Curriculum and the National EMS Scope of Practice Model as a foundation for the Ohio EMS Scope of Practice and associated education requirements which may reduce some of these differences. These changes are described in more detail below. For reference, the NHTSA's Office of EMS education standards are available at (http://www.ems.gov/EducationStandards.htm).

Each community may tailor and revise protocols to fit its region and meet its needs. However, they must remain within the approved Ohio EMS scope of practice for all levels of EMS providers. EMS medical directors are reminded that while they can restrict a provider's scope of practice, they are not permitted to expand it beyond the scope of their certificates to practice. The EMS Board may temporarily allow services beyond the standard respective scopes of practices as part of a board-approved research study.

The reaccreditation cycle in Ohio is three calendar years and thus a three-year continuing education cycle is expected for each level of prehospital provider. The medical director may be called on to assist in this and it is beneficial if he or she takes an active role in the process. It should be noted that 10% of each year's applicants for recertification will randomly be required to submit proof of approved continuing education (CE). This chapter serves as an overview of the different levels of prehospital providers, their training, responsibilities and continuing education requirements. The most recent scope of practice can be found in chart form on the ODPS web site (www.ems.ohio.gov/).

For access to more detailed information, links to the appropriate Ohio Revised Codes (ORC) and Ohio Administrative Codes (OAC) have been included at the end of each section. The ORC covers authorized services and the OAC covers both curriculum and continuing education requirements.

II. Emergency Medical Responder (EMR)

Emergency Medical Responders (EMRs) are designated to help stabilize and treat many life-threatening conditions until advanced providers arrive. They are usually safety

officers or firefighters. EMRs are most practical in areas where they can consistently be first on scene. This can be especially helpful in crowded settings such as airports, casinos, shopping malls, and factories. They can also be helpful in more rural communities where staffing a full-time ambulance is impractical.

EMRs are trained to provide CPR, automatic defibrillation and basic airway management (including giving mouth-to-barrier ventilation). They are also trained for assisting childbirth, splinting and administration of epinephrine auto-injectors for anaphylaxis. They are also expected to obtain vital signs and patient history.

EMRs must complete an approved minimum 48-hour class that follows the current National Standard Curricula. It was under the new National Standard Curriculum that First Responders became known as Emergency Medical Responders but their training and scope of practice did not change appreciably.

III. Emergency Medical Technician (EMT)

With more than 20,000 Emergency Medical Technicians (EMTs) with active certifications this is the most common prehospital provider certification level in the State of Ohio, especially among volunteers and in rural settings and smaller communities. In addition to the skills of an EMR, the EMT is trained in extrication/transport and has more airway skills. This includes supraglottic airway insertion in patients who are both pulseless and apneic (if permitted by a physician). They are allowed to assist a patient in using his or her own nitroglycerin, inhalers and now can also administer epinephrine auto-injectors to patients in anaphylazis and aspirin to a chest pain patient. Additionally, they are trained to assist in setting up an IV, applying a cardiac monitor and in obtaining a glucose level by fingerstick when an AEMT or Paramedic is involved in patient care. The complete curriculum may be viewed at ORC 4765-15-01.

IV. Advanced Emergency Medical Technician (AEMT)

A step-up from the EMT, the Advanced Emergency Medical Technician (AEMT) can start an IV and administer multiple medications including dextrose, diphenhydramine, benzodiazepines, naloxone, glucagon, nalbuphine, narcotics or other analgesics for pain relief. Additionally, they can administer nitroglycerin and subcutaneous or intramuscular epinephrine, as well as nebulization treatments, even if the patient has not been prescribed them. They may also intubate an apneic patient, interpret a rhythm strip, manually defibrillate and perform needle chest decompression.

V. Paramedic

Paramedic is currently the highest level of prehospital provider in Ohio, with more than 10,000 certified in the state (the majority of which are concentrated in more urban settings). In order to become a Paramedic one must first possess an EMT certification.

During their education program, they are trained in the ACLS algorithms, including transcutaneous pacing, defibrillation and administering drugs such as lidocaine,

amiodarone and initiation and monitoring of thrombolytics. They are also taught to give IV medications by infusion, to perform a cricothyrotomy, to nasally intubate and to use non-invasive positive pressure ventilation, and maintain a blood transfusion.

Critical Care Paramedic

This level of provider is not recognized by Ohio law. This function is typically performed by a nurse.

VI. Summary

Medical directors must have a clear sense of the training and skill levels of their providers. This will determine what they can be reasonably allowed to do and should be reflected in their protocols. It will also determine what CE and how many hours the medical directors should provide or require. This can be a challenge especially where services are made up of different levels of providers. Because they work together it is important that they train together. For example, it is important for EMTs to know what the paramedics are doing, in order to properly assist and work with them.

Chapter VII: EMS Education

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I. National Standards

The EMS education system envisioned in the 1996 *EMS Agenda for the Future* by the US DOT and the National Medical Services Education Standards was developed into the *Education Agenda*.(1) This document states that, to be most effective, each component in the EMS education system should be structured, coordinated and interdependent. Diagram 1 below outlines the structure of the *Educational Agenda*.(1)

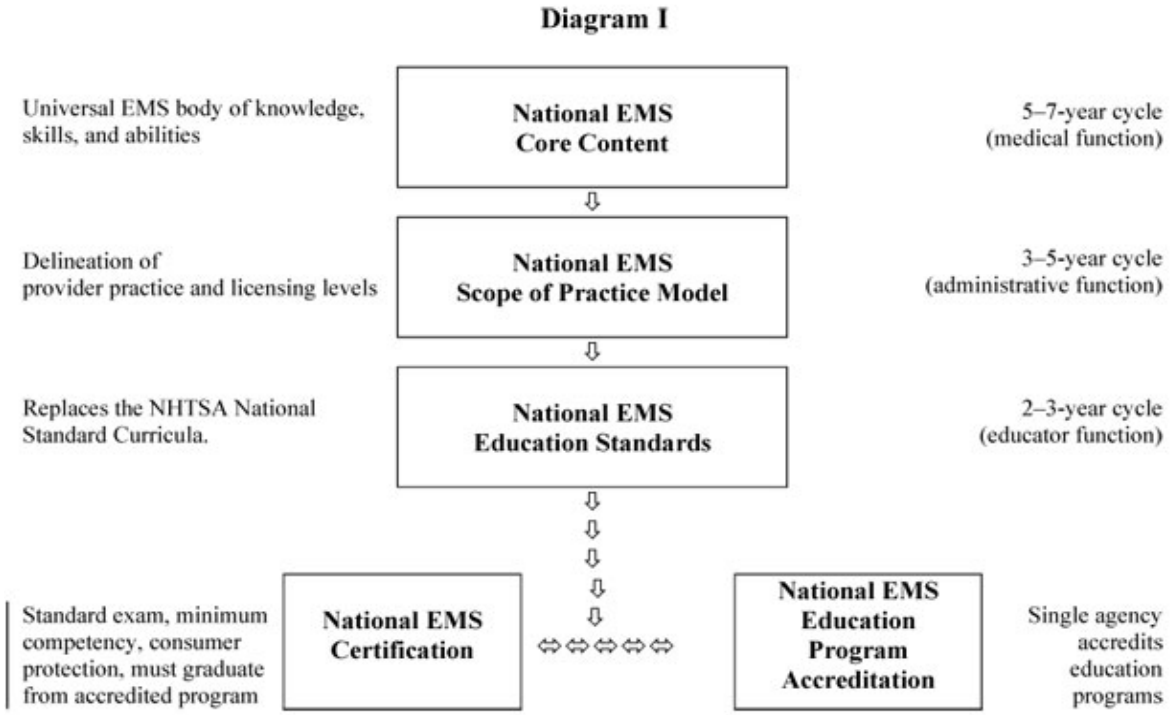

Diagram 1: Model EMS System
(From www.nhtsa.dot.gov/people/injury/ems/emscorecontent/images/Dai1.jpg)

The *National EMS Core Content,* published in 2005, defines the entire domain of out-of-hospital practice and identifies the universal body of knowledge and skills for EMS providers.(1) The *National EMS Scope of Practice Model* (*Scope of Practice*), published in 2006, is a consensus document that defines the levels of EMS personnel and delineates the practices and minimum competencies for each level of EMS personnel.(1) The *National EMS Education Standards,* completed in 2009, outline the minimal terminal objectives for entry-level EMS personnel to achieve within the parameters outlined in the *National EMS Scope of Practice Model*.(1) Although educational programs must adhere to the *Standards*, its format will allow diverse implementation methods to meet local needs and evolving educational practices.

The *National EMS Education Standards* comprise four components

1. **Competency** - This statement represents the minimum competency required for entry-level personnel at each licensure level.

2. **Knowledge Required to Achieve Competency** - This represents an elaboration of the knowledge within each competency (when appropriate) that entry-level personnel would need to master in order to achieve competency.

3. **Clinical Behaviors/Judgments** - This section describes the clinical behaviors and judgments essential for entry-level EMS personnel at each licensure level.

4. **Educational Infrastructure** - This section describes the support standards necessary for conducting EMS training programs at each licensure level.

The entire text of EMS Agenda for the Future, National EMS Core Content The National EMS Scope of Practice Model (Scope of Practice), and the National EMS Education Standards can be found at: http://www.ems.gov/EducationStandards.htm

II. Ohio EMS Education

The Ohio Department of Public Safety Division of EMS is responsible for the education, certification and investigation of all emergency medical service and fire service providers in the state of Ohio. It also oversees the accreditation and approval of EMS training sites for certification and continuing education programs and statewide EMS disaster response planning.

The following information pertains to the State of Ohio, which uses the National EMS Education Standards and National Standard Curricula. Outside of Ohio one should contact the appropriate State EMS Office to see what versions are currently adopted and used.
http://www.nasemso.org/About/StateEMSAgencies/StateEMSAgencyListing.asp (2)

III. Training Sites

There are currently 88 training sites in Ohio that offer some level of EMS instruction. A training facility search can be conducted at:
https://ext.dps.state.oh.us/emstrainingfacility/ (3). Of the 57 facilities offering Paramedic training, only nine are nationally accredited at the time of this publication. Training provided may be for EMR, EMT, AEMT, and/or Paramedic depending on the accreditation. Requirements for EMS accredited institutions are outlined in Ohio Revised Code and Ohio Administrative Code: http://codes.ohio.gov/oac/4765.(4)

Each training institution must have a program director to oversee the EMS training program and a program medical director that specializes in emergency medicine. All EMS courses must be developed under the direction of a physician who specializes in emergency medicine. All courses offered must be taught by an individual who holds a certificate to teach as an Ohio EMS Instructor, Assistant EMS Instructor or EMS Continuing Education Instructor or a physician as EMS instructor.(4)

An EMS instructor with a certificate to practice must have held a certificate/license for at least of 5 of the past 7 years as an EMR, EMT, AEMT, Paramedic, registered nurse (RN), physician assistant (PA) or must be a physician. An instructor must also pass the

required knowledge and practical entrance examinations at the level of certification (RN and PA test at the Paramedic level) and completed the 50-hour instructor-training course that focuses on adult students and basic teaching techniques. He or she must also complete eight hours of instruction specific to the field of EMS and 10 hours of supervised teaching under auspices of an accredited institution. A physician may apply for a certificate to teach by submitting a completed Physician EMS Instructor application. Physicians are not required to complete the instructional CE hours. A physician must have a valid license to practice medicine or osteopathic medicine; be either an active medical director or recommended by a local regional physician advisory board (RPAB), accredited or approved institution; and meet all the judicial eligibility qualifications of a person applying to teach.(4)

Assistant EMS instructors and EMS continuing education instructors have to be certified or licensed for at least three of the past five years. Assistant instructors must also pass the knowledge and practical skill exams and complete supervised teaching hours.(4)

An overview of the Ohio Public Safety Instructor Course and NHTSA EMS Standards-based Instructional Guidelines can be found at: http://www.ems.ohio.gov/ems_education.stm.(5)

Students wishing to apply for admission must be at least 18 years old, or 17 and in the 12th grade, and must not have been convicted of or plead guilty to a felony, violation of a narcotic law, any misdemeanor involving moral turpitude or any fraud in applying for EMS certification.

The National Guidelines for Educating EMS Instructors suggest that educators be more than good clinicians, they should be good teachers. Professional attributes of EMS educators should include: commitment to the needs of adult learners, ability to teach using different methods to a diversity of adult learners, responsibility for assessing learning outcomes, insightful thinking about their practice and membership in larger EMS and educational communities.(1)

In the future the training sites will need to seek national accreditation because the National Registry has moved to only accept training from nationally accredited programs for paramedic candidates. In 2010 Ohio adopted the national accreditation of state training programs. All Ohio paramedic training programs must be accredited by 2018.(6)

IV. Levels of Providers

With Ohio's adoption of the National EMS Education Standards in 2010 the National Registry's move to recognize only nationally accredited programs, the definitions, roles and titles of provider levels have changed. Ohio recognizes four levels of providers: Emergency Medical Responder (EMR), Emergency Medical Technician (EMT), Advanced Emergency Medical Technician (AEMT) and Paramedic. First Responders are now known as EMRs but their training and scope of practice has not changed appreciably. Basic EMTs are now known simply as EMTs. The next level is AEMT, followed by Paramedic. EMT-Intermediate will be effectively "phased out" over the next two recertification cycles. These changes affect the initial training as well as CE of the providers, their scope of practice and existing protocols. Therefore it is important that all EMS medical directors be aware of the changes. In Ohio these changes were effective

February 6, 2012, and all training that began on or after September 1, 2012 must follow the new curriculum and rules.
For more information on the curriculum and scope rules, please visit http://ems.ohio.gov/inc/curriculum_message020112.html.(7)

EMS medical directors are not permitted to exceed the Ohio scope of practice for EMS providers, but may provide clarifications or limitations on services that are permitted. The EMS board may allow providers to temporarily practice beyond their scope of practice as part of a board-approved research study.

V. Emergency Medical Responder Curriculum

An EMR is often a public safety officer who may arrive on a scene prior to EMTs or Paramedics. The EMR curriculum consists of 48 hours and contains 14 sections including Preparatory, Anatomy and Physiology, Medical Terminology, Pathophysiology, Life Span Development, Public Health, Airway Management, Patient Assessment, Medicine, Shock, Trauma, Special Patient Populations and EMS Operations.

The preparatory section covers introduction to EMS, workplace safety, documentation, EMS communications and medical/legal/ethical issues. Anatomy and Physiology uses simple knowledge of the body as the foundation for emergency care. Medical Terminology reviews simple medical and anatomical terms. Pathophysiology covers simple knowledge of shock and respiratory compromise. Life Span Development uses simple knowledge of age-related differences to assess and care for patients. Public Health covers awareness of local public health resources and the role EMS personnel play in public health emergencies. Airway Management applies knowledge (fundamental depth, foundational breadth) of anatomy and physiology to assure a patient airway, adequate mechanical ventilation and respiration while awaiting EMS response for patients of all ages. Patient Assessment covers scene size-up, primary assessment, history taking, and secondary assessment. The Medicine section teaches recognition and treatment of life threats while awaiting additional emergency response and includes BCLS and use of an automated external defibrillator (AED). The Trauma section uses simple knowledge to recognize and manage life traumatic threats including bleeding and manual spine immobilization, while awaiting additional response. Special Patient Populations covers obstetrics, delivery, neonatal care, pediatrics, geriatrics and abuse. EMS Operations covers ambulance operation, incident management, multiple casualty incidents, air medical transport, vehicle extrication, hazardous material awareness and mass casualty incidents due to terrorism and disaster.

For more information and complete curriculum please visit either:
http://www.ems.gov/pdf/811077b.pdf
http://www.ems.gov/EducationStandards.htm

The Ohio EMR Refresher Training Program consists of 15 classroom hours and includes preparation considerations, airway management, patient assessment, cardiac management, illness and injury management, trauma issues, childbirth, pediatric issues and geriatric issues. To receive a certificate a participant must also complete written and practical tests. Completion of the refresher course meets requirements of the First Responder to EMR transition policy.

For more information and complete curriculum please visit either website:
http://www.publicsafety.ohio.gov/links/Ohio%20EMR%20Refresher%20Approved051612.pdf
http://www.ems.ohio.gov/ems_education.stm

VI. Emergency Medical Technician Curriculum

The EMT curriculum is at least 150 hours long (previous EMT-B curriculum was 130 hours). The EMT curriculum includes everything covered in the EMR curriculum and additional topics and training. The classroom hours covers 14 sections: Preparatory, Anatomy and Physiology, Medical Terminology, Pathophysiology, Life Span Development, Public Health, Pharmacology, Airway Management, Patient Assessment, Medicine, Shock and Resuscitation, Trauma, Special Patient Populations and EMS Operations.

The Preparatory module includes introduction to EMS, evidence based decision-making, workplace safety and wellness, documentation, EMS system communication and medical/legal/ethics issues. Anatomy and Physiology covers body parts and functions. Medical Terminology covers terms, abbreviations, and acronyms. Pathophysiology covers ventilation and perfusion. Life Span Development applies knowledge of life span to patient assessment and management. Public Health covers principles of illness and injury prevention. Pharmacology applies fundamental knowledge of the medications that the EMT may assist/administer to a patient. Airway management covers fundamental knowledge of anatomy and physiology as it applies to patient assessment and management to assure a patient airway, adequate mechanical ventilation and respiration for patients of all ages. Patient Assessment covers scene size up, primary and secondary assessment, history taking, monitoring devices and reassessment. Medicine applies knowledge to provide basic emergency care and transportation of the acutely ill patient with a neurologic, abdominal, gastrointestinal, allergic, infectious, endocrine, psychiatric, cardiovascular, toxicology, respiratory, hematologic, genitourinary, renal, gynecologic, non-traumatic musculoskeletal or facial complaint. Shock and Resuscitation covers BCLS and use of an AED. Trauma covers basic care and transportation for an acutely injured patient including assessment, bleeding, care of pregnant patients, environmental injuries, multisystem trauma and care of specific injuries. Special Patient Populations includes obstetrics, neonatal care, pediatrics, geriatrics, child/elder abuse/neglect, homelessness, bariatrics, technology-assisted, hospice, tracheostomy care, sensory deficits, homecare and patients with developmental disabilities. EMS Operations covers ambulance operation, incident management, multiple casualty incidents, air medical transport, vehicle extrication, hazardous material awareness and mass casualty incidents due to terrorism and disaster.

In addition to the classroom and skills assessment, the student must have at least 10 hours of clinical experience and complete ten patient assessments including one pediatric assessment.

Complete Ohio curriculum can be found at either website:
http://www.ems.gov/pdf/811077c.pdf
http://www.ems.gov/EducationStandards.htm

A 30-hour refresher course (Ohio EMT Refresher Training Program) covering same topics is also available. The didactic portion of the curriculum can be taught online, but testing must be done in a classroom environment. Completion of the course meets the requirements of the EMT-Basic to EMT transition policy.

Complete curriculum can be found at either website:
http://www.publicsafety.ohio.gov/links/Ohio%20%20EMT%20Refresher%20Approved051612.pdf
http://www.ems.ohio.gov/ems_education.stm

VII. Advanced EMT Curriculum

AEMT curriculum consists of 14 sections taught over 200 hours. These sections include Preparatory, Anatomy and Physiology, Medical Terminology, Pathophysiology, Life Span Development, Public Health, Pharmacology, Airway Management, Patient Assessment, Medicine, Shock and Resuscitation, Trauma, Special Patient Populations and EMS Operations. The curriculum adds to that of the EMT course. In addition the curriculum includes the following skills with assessment: intravenous access, intubation, supraglottic airway devices, dual-lumen airway devices, subcutaneous injection, intramuscular injection, patient assessment, intravenous medication administration, intraosseous infusion, manual defibrillation and bronchodilator administration.

Complete curriculum can be found at either website:
http://www.ems.gov/pdf/811077d.pdf
http://www.ems.gov/EducationStandards.htm

A 40-hour Ohio AEMT Refresher Training Program based on the National EMS Education Standards is available. The didactic portion may be taught online, but the testing portion must be done in a classroom environment. The subject areas are Airway Management, Medicine, Trauma, Special Populations and EMS Preparatory and Operations. Completion of the course meets the requirements of the EMT-Intermediate to AEMT transition policy.

Complete curriculum can be found at either website:
http://www.publicsafety.ohio.gov/links/Ohio%20AEMT%20Refresher%20Approved051612.pdf
http://www.ems.ohio.gov/ems_education.stm

As the intermediate level is “replaced” with the Advanced EMT, which will require 70 more instructional hours, EMS systems that utilized EMT-Intermediates instead of Paramedics may need to reassess.

VIII. Paramedic Curriculum

Ohio EMS training programs that began on or after September 1, 2012 are conducted in accordance with the national EMS educational standards approved by the NHTSA. An anatomy and physiology course must be completed as a prerequisite for admission into the EMS training program. Training programs consist of at least 900 hours and include at least 500 hours of didactic and laboratory portion and at least 400 hours of clinical and field training. The didactic and laboratory portions are broken down into 14

sections: Preparatory, Anatomy and Physiology, Medical Terminology, Pathophysiology, Life Span Development, Public Health, Pharmacology, Airway Management, Patient Assessment, Medicine, Shock and Resuscitation, Trauma, Special Patient Populations, and EMS Operations. The topics are similar to those covered in the EMT class, but in more depth and there are more skills taught. Prior to graduation a student must demonstrate proficiency by completing at least 50 adult assessments, 30 geriatric assessments and 10 pediatric assessments. Within these assessments a portion must be for a chest complaint, shortness of breath complaint, abdominal complaint and altered mental status complaint. Students must also perform intravenous medication administrations, subcutaneous injections, intramuscular injections, bronchodilator administrations, intravenous access, intubations, electrocardiogram interpretations, intraosseous initiation and manual defibrillation. Some of these skills may be done on a mannequin or simulator. In addition the student must complete at least 50 advanced life support ambulance runs. Other procedures such as vaginal delivery of an infant or tension pneumothorax decompression are taught, but a minimum number of performances are not specified by the Ohio Revised Code. Programs should graduate students that have mastered cognitive (medical knowledge), affective (professionalism) and psychomotor (skills) requirements.

Complete curriculum can be found at either website:
http://www.ems.gov/pdf/811077e.pdf
http://www.ems.gov/EducationStandards.htm

A 48-hour Paramedic refresher course is available and covers many of the same topics. Completion of the course meets the requirements of the EMT-P to Paramedic transition policy.

Complete curriculum can be found at either website:
http://www.publicsafety.ohio.gov/links/Ohio%20Paramedic%20RefresherApproved051612.pdf
http://www.ems.ohio.gov/ems_education.stm

Adopting the national curriculum in 2010 changed this provider level by increasing the training hours from 600 to 900, making Anatomy and Physiology a prerequisite instead of allowing it to be taught concurrently and, finally, by introducing modules on new procedures. Some schools and agencies have already incorporated select components into their training scope of practice and will be less affected, while others are faced with major changes.

IX. Qualifications for a Certificate to Practice

After completing a training program through an accredited institution, a student must submit an application for a certificate to practice and must meet the following additional requirements:

1. Complete National Incident Management System Course IS-700 and Incident Command System Course IS-100, as mandated by the Department of Homeland Security.
   http://training.fema.gov/emiweb/IS/crslist.asp

2. Pass an initial certification examination

3. Be 18 years of age

4. Must not have been convicted of or plead guilty to a felony, misdemeanor committed in the course of practice, a misdemeanor involving moral turpitude, or a violation of any narcotic law

5. Must not have been adjudicated as mentally incompetent

6. Must not engage in the illegal use or acquisition of controlled substances, alcohol or other drugs

X. Continuing Education

All prehospital providers are required to attend a minimum number of Continuing Education (CE) hours during each three-year certification cycle which now coincides with their birthday rather than a calendar year. These are detailed below. Any training program with a Certificate of Accreditation approved by the Ohio EMS Board is also certified to offer continuing education courses. If not an accredited program, training program must apply to the Ohio EMS Board for a Certificate of Approval as a continuing education program. Requirements for a CE program are as follows:

1. Has a program coordinator who assumes general responsibility for administering and operating the continuing education program.

2. Retains a program medical director who assumes responsibility for the medical components of the continuing education program.

3. Ensures that all courses are taught by instructors who hold a valid Ohio certificate to teach that is appropriate to the level of course taught.

4. Has sufficient classroom and laboratory facilities to accommodate the number of participants in each program.

5. Requires a course evaluation form be completed by each attendee.

6. Issues a certificate of completion to each participant who completes the course.

7. All courses must be taught by either EMS instructors who hold valid Ohio certificates to teach or a guest lecturer with an EMS instructor present.

A Continuing Education Program Coordinator's Guidebook is available at www.publicsafety.ohio.gov/links/ems_ce_coord_handbook08.pdf. It includes information on logistics of coordinating a program, tips on planning and preparing courses, suggestions on lesson plan development, application forms and record keeping examples. Courses may be instruction in a traditional classroom, independent study through an approved institution, a skills course or via distance learning with a testing process either online or with other electronic media formats.

Appendix 1:

Current Ohio CE requirements

EMR shall comply with one of four CE pathways:

1. Completion of at least 15 hours of CE, including a minimum of 1 hour of each: patient assessment, CPR, airway management, AED, illness and injury management, trauma issues, anaphylaxis and patient assisted auto-injector epinephrine administration
2. Completion of the EMR refresher program
3. Current registration with the national registry at the EMR or equivalent level
4. A passing score within three attempts on an examination approved by the board. The examination must be taken during the last six months of the current EMR certification period

www.publicsafety.ohio.gov/links/EMR%20CE%20Options%20Effective%202-6-12.pdf

EMT must comply with one of four CE pathways:

1. A minimum of 40 hours of CE including at least six hours of pediatrics, two hours of geriatrics and eight hours of trauma issues which includes trauma triage
2. 30 hour EMT refresher course
3. Current registration with national registry of EMT and completion of the trauma triage and transportation protocols
4. A passing score on an exam approved by the board within three attempts during the last six months of current certification period

http://www.publicsafety.ohio.gov/links/EMT%20CE%20Options%20Effective%202-6-12.pdf

AEMT must comply with one of four CE pathways:

1. A minimum of 60 hours including eight hours of pediatrics, four hours of geriatrics and eight hours of trauma including trauma triage and transportation protocols
2. Completion of the AEMT refresher course plus 20 hours of additional CE
3. Current registration with the national registry at the AEMT level and completion of the trauma triage and transportation protocols
4. A passing score within three attempts on an examination approved by the board taken within the last six months of current certification period

http://www.publicsafety.ohio.gov/links/AEMT%20CE%20Options%20Effective%202-6-12.pdf

A Paramedic must comply with one of four CE pathways:

1. A minimum of 86 hours including 12 hours of pediatrics, four hours of geriatrics, eight hours of trauma including trauma triage and transportation protocols, six hours of cardiac care, which may be satisfied by completing ACLS or similar program
2. Completing the Paramedic refresher course plus 38 additional hours of CE
3. Current registration with the national registry at the Paramedic level and completion of the trauma triage and transportation protocols as approved by the board
4. A passing score within three attempts on an examination approved by the board within the last six months of current certification period

http://www.publicsafety.ohio.gov/links/Paramedic%20CE%20Options%20Effective%202-6-12.pdf

Chapter VIII: Adult Education

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I. Introduction

Medical directors provide supervision, leadership, and quality control for the practice of prehospital providers within the community. A high quality educational process is essential to the continued effectiveness of local EMS. Understanding how adults learn most effectively will lead to more valuable and efficient training and continuing education sessions for EMS providers.

The subject of adult learning theory, or andragogy, was established by Malcolm Knowles.

Knowles identified several assumptions related to the motivation of adult learning:

1. **Adults are autonomous and self-directed** [1, 2]. Adults need to know the importance or rationale for learning something. They also need the freedom to determine which educational topics are covered and time to work on exercises that reflect their interest. Medical directors must serve as facilitators during instructional sessions in which adult participants are actively engaged. This includes directing participants to the answers they are seeking rather than providing them with facts in the traditional lecture format. Role-playing, case studies, and simulations are generally the most popular techniques for EMS personnel.

2. **Adults have accumulated a foundation of life experiences and knowledge** that may include work-related activities, family responsibilities and previous education [1, 2]. Medical Directors must have a strong appreciation for the importance of tying participants' past experiences to learning objectives. Facilitators must draw out adults' relevant experiences and knowledge during educational activities. The learning objectives of each session must be connected to these experiences, both good and bad, to allow the participants to tie new concepts to familiar circumstances.

3. **Adults are goal-oriented** [1, 2]**.** The earlier in the program that goals and objectives are identified the better. Adults generally have a clear idea of what they seek to achieve. This is why they welcome well thought out training sessions with clear cut objectives that will help them accomplish their goals.

4. **Adults are relevancy-oriented** [1, 2]**.** EMS personnel are interested in learning material that is pertinent to their work and duties as prehospital providers. They must understand the relevance of the objectives if they are to truly engage in the training sessions. This can be particularly challenging when training with different levels of providers at the same time.

5. **Adults are practical**, focusing on the aspects of a lesson most useful to them in their work [1, 2]. EMS personnel are not interested in knowledge that is not applicable to their day-to-day activities. Medical directors must inform participants clearly as to how the session will be valuable to them in the field.

6. **As do all learners, adults need to be shown respect** [1, 2]**.** Medical directors must recognize the vast experience EMS personnel provide during training sessions. EMS personnel should be treated as colleagues and allowed to share their views openly in the classroom.

II. Knowledge Retention

In order to truly benefit from classroom instruction, students must retain the information. The instructors' jobs are not finished after simply giving a lecture. They must have a strategy to assist the learner in retaining the information.

What we remember is directly related to our level of involvement. This is the reason why multiple studies have demonstrated that students retain approximately only ten percent of what they read, twenty percent of what they hear, fifty percent of what they watch, seventy percent of what they say and ninety percent of what they say and do. While didactic sessions allow for a simple method to deliver factual information to a large audience, knowledge retention is undeniably enhanced by hands-on training and interactive learning. EMS education should provide the opportunity for students to apply knowledge gained in didactic sessions and allow them to demonstrate their ability to incorporate that knowledge and skill into real life situations.

III. Medical Simulation

Medical Simulation can facilitate traditional training and assessment methods to achieve this goal. Simulation methods offer a wide variety of conditions and experiences and an environment that is focused on the learner (and not on a sick patient). Medical simulation facilitates exposure to rare and/or life threatening conditions. This is especially important because prehospital providers have a smaller number of opportunities to improve their skill set in controlled environments. Medical simulation allows a dedicated individual, seeking the ability to perform at an expert level, a safe environment that facilitates the development of such expertise with no risk to the patient population. Common mistakes can occur and be corrected and recommendations for improved performance can be made.

The degree of fidelity chosen is generally not a key factor to effective hands-on training. Case scenarios, CPR manikins and simple task-trainers are examples of low-fidelity simulation. These modalities can be just as effective as sophisticated high-fidelity simulations that include virtual reality trainers, standardized patient actors and computer-controlled manikins [3].

There is a common misperception that introducing simulation into an existing program will require the development of a new curriculum. Medical simulation is easily integrated into existing curricula by merely “bringing to life” existing case study material [4]. This does not require more than obtaining/developing a series of problem-based case

scenarios and utilizing some basic equipment (rhythm generator, CPR manikin and basic task trainers).

IV. Case Scenarios

Case scenarios allow various levels of providers the opportunity to work through patient care and assess their ability to diagnose and manage patients. As the student progresses through the case, the scenario may be modified to meet new goals and objectives. As opposed to robotically working through a predictable case scenario, the student may encounter different variables as they treat the patient either appropriately or inappropriately. A treatment that was effective initially may not work again, forcing the student to consider other options. This introduces uncertainty and the students can learn to adapt and apply knowledge under a simulated stressful environment. Once simulation is safely included into the existing curriculum, the training sessions should be set up to facilitate the execution of a technique called “deliberate practice“.

V. Deliberate Practice

Deliberate practice is a mastery learning theory developed by K. A. Ericsson [5]. His research indicates that there is no evidence of high-level performance without experience or practice. “Natural talent” alone has never been shown to produce expert performance. Even the most accomplished professionals need approximately ten years of sustained repetitive practice before becoming “world-class.” Tiger Woods is a classic example of what the research shows. Woods had trained intensely for at least 15 years by the time he became the youngest-ever winner of the U.S. Amateur Championship, at age 18. He continued to train at a rigorous pace dedicating numerous hours a day to conditioning and practice, in an attempt to continue to improve every aspect of his performance.

Deliberate practice is not about repeating the same thing over and over. The objective is to accomplish more advanced levels of performance each time [5]. It requires the student to make a decision to develop a certain skill by setting up training conditions to reach that higher level. Once that level is reached they must continue to desire to reach even further [5].

As a medical director how do you set up training in the Deliberate Practice framework? Get your students motivated (as described in the beginning of the chapter). Then follow the below steps [6]. The students must be:

1. **Provided with well-defined learning objectives**
2. **Placed in scenarios with the appropriate level of difficulty**
3. **Provided with opportunities for focused repetitive practice**
4. **Provided with educational measurements for their performance**
5. **Given immediate informative feedback about their performance**
6. **Provided an opportunity to reflect on their own actions and develop possible solutions for self-improvement**
7. **Provided with opportunities to advance the level of their training**

The repetitive practice using simulation and feedback is integral to the development of competence. Time must be provided for repetition with feedback so the learner can correct any errors made.

VI. Life-long Learning

The process of life-long learning is crucial for EMS providers. Although the initial training programs of EMT, AEMT and Paramedics are effective at preparing providers to enter the practice of prehospital patient care, daily patient contact is often inadequate to assure maintenance of critical knowledge and procedural skills. Key elements in sustaining and continuing a culture of life-long learning include team building, communication and goal setting. Team building skills are essential in advocating for an effective and productive group. With quality teamwork, an organization is stronger and capable of working through hardships and surpassing others to become leaders. Communication is a crucial aspect of team skills and a necessary component of an effective team. Lack of communication is a major barrier to quality teamwork and each member should be heard. Goal setting may be motivational and accomplished through pre and post testing of core material and procedural skills. The aim of life-long learning is to enable adult learners to continue to evolve and develop professionally into leaders and teachers.

All continuing education programs for EMS providers must meet the requirements for continuing education programs by the State Board of EMS. In addition to format considerations, these CE classes must be held at a state-certified continuing education or training center, with a state-certified instructor. Medical directors should be familiar with the scope of practice of each level of provider and specific educational needs of each provider level. Goals and objectives should comply with realistic expectations of each provider level. Training that does not follow the state-approved guidelines, is not held at a state-approved location, or that is not with a state-approved instructor may not qualify for formal continuing education hours.

VII. Summary

Lectures will likely remain a mainstay for many training programs, as they are a good way of transmitting large amounts of information, are inexpensive, portable and can be done by one person. However, they fall short in many areas and programs should make every effort to incorporate at least some simulation, skills and scenario-based learning into their training. This type of approach satisfies the majority of Knowles assumptions related to adult learning. Problem-based case scenarios are practical and relevant to the participant’s job, while allowing them to tap into their past experiences and knowledge. In addition, by actively involving participants in the educational exercises using simulations, retention is increased as participants remember far more of what they said and did then what they simply heard. It also offers the chance for deliberate practice, which has been shown to be indispensable to the development of expert performance.

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Chapter IX: Remediation

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I. Goals of Quality Improvement

The ultimate goal of quality or performance improvement in EMS is to assure high quality, appropriate and efficient patient care by identifying and correcting those areas in which improvement can be made. This includes actions to prevent further injury or harm to patients. Problems may be identified from stakeholder complaints, by random chart audits, as well as through a focused quality initiative (QI) process. Recognizing that many quality concerns, even those complaints directed at a specific individual or event, arise from system problems, the medical director should consider these areas first. If it is determined that a problem exists with equipment, a process may be developed to study alternative equipment purchases, to update equipment or investigate new technology. Nonetheless, occasional individual or group issues may be discovered that need to be addressed.

Remediation

Remediation is the planned, structured, stepwise process by which identified weaknesses or sub-standard levels of performance are corrected and improved. It may encompass a wide range of goals and objectives ranging from simple improvement of clinical assessment and procedural skills to disciplinary action for improper behavior and practice. Examples of remediation are discussed below and range from specific reading assignments or courses, to allotted time spent with the medical director in the ED seeing patients under his or her supervision. This is particularly helpful when knowledge and skill deficits are more global.

When issues of employee impairment are considered, the human resources department of the agency needs to be involved in the process. While issues of medical care are familiar to a medical director, the quagmire of actions required to legally remediate issues of substance abuse or impairment require the guidance of a human resources expert. This will allow maximum protection of all parties involved.

Remediation is a corrective action intended on improving individual and group performance to ensure quality care. It is not meant to be punitive. However there are occasions when it is impossible to achieve this without disciplinary action or termination of the provider. Issues of job termination or “restriction of trade” of a poorly performing prehospital provider offer new areas of liability for a medical director. Most malpractice coverage does not include any coverage for administrative or employment issues. It is strongly advised that any physician considering becoming a medical director secure EMS-specific liability insurance that includes coverage if a suit is brought due to a disgruntled agency employee. Likewise, current medical directors should evaluate their coverage to be sure it includes employment issues and grievances.

During remediation, the legal rights of the individual need to be respected, with careful attention paid to due process and the right of the individual(s) to file a

grievance. The due process component of the quality assurance plan and grievance procedures should be in place before issues arise. At times however, some component may need to be negotiated during the formulation of the plan with those personnel who will be involved in the remediation process. Similarly, grievance procedures should be well planned in accordance with statutory requirements which provide for thorough documentation and allow the individual due process.

The remediation program needs to be documented in all cases. Even in the simplest cases it is worth having some notes or record of the case. Unfortunately, issues will arise with individuals where all attempts at remediation eventually fail. In the event of further necessary disciplinary actions, especially job termination, having documentation of attempts at remediation can be extremely helpful, as well as, allow for a more rapid termination of employment.

Due process

Due process may be defined as “notification of the alleged problem and an opportunity to respond.” In other words you have the right to know what the problem is and the chance to explain yourself and give your side of the story. It derives from the 14th Amendment to the U.S. Constitution which guarantees that “no person may be deprived of life, liberty, or property without due process of law.” Also, no person may be denied “the equal protection of the law.” A public servant’s job *(e.g. firefighter or paramedic)* is considered individual property; therefore any action against it is protected under the due process clause of the 14th Amendment.

Other procedural rights, such as the opportunity to cross-examine witnesses and to be represented by counsel are also associated with the concept of due process. The equal protection clause further protects against “arbitrary and unreasonable actions of employing boards...”

Finally, it is important to consider whether the individual in question is employed under a limited contract *(a contract for a specified period of time, {i.e., 1, 2, 3, or 5 years})* or is under tenure. Laws governing procedure for non-renewal, termination or remediation may vary accordingly.

It behooves all parties involved in remediating, disciplining or terminating prehospital care providers to be familiar with the above concepts and laws governing them. Medical directors will be called upon to assist with situations involving non-renewal of a prehospital provider’s contract, grievances, remediation or termination; however it is recommended that they not be directly involved in the actual terminating process. It is sufficient that they exercise authority over which prehospital personnel may care for patients.

Grievance

A grievance is a question or controversy between any staff member, such as an EMT, and the administration or overseeing entity concerned with the interpretation, application or compliance with the provisions of a contract or standards of care. It may be brought forth by an individual or by a group of individuals as a “Class Action Grievance.” Medical directors of agencies with

union employees should be especially well-versed on their agency's grievance procedures and the defined role of the medical director in those processes.

Ideally there is a work environment whereby any squad member having a complaint or problem can discuss the matter with any member of the command/medical direction structure, allowing for resolution prior to a formal grievance procedure. A staff member should enjoy the right to present any problem without fear of coercion, interference, discrimination, restraint or reprisal. While a grievance policy should allow and even encourage discussions related to potential issues and problems, it should not permit the union or individual to prevent a necessary change from occurring. For problems that cannot be so easily and internally resolved, a clearly defined and formal grievance policy should exist which describes the procedure for addressing any concerns or complaints. Such a procedure should entail certain important aspects. A time frame for the process to be initiated and acted upon should be stated, and a grievance report should be formally submitted. A hearing or meeting should be undertaken including the parties in question. A sequential process of fact finding, investigation, conclusion and appeal should occur. Finally, independent arbitration may be needed. Forms for each step should be developed and documented. In some instances, a grievance committee can be formed from various members inside and outside of the organization to assist in the process.

II. Remediation

Planning remediation

Pre-planning the quality assurance analysis and remediation phases should include a negotiated contract with those who will participate in the process. Those who will be evaluated must "buy in" to the plan, or even the most well developed program will be useless. This negotiated provision for due process must ensure the ethical, statutory and contractual rights of the individual during remediation or disciplinary process. The remediation cycle must be acceptable to all parties involved (and adhered to once implemented). Resistance or refusal to participate by squad members will disrupt the quality assurance program and be detrimental to the provision of quality care.

In Ohio, the Collective Bargaining Act (April 1, 1984) provides for statutory negotiation of remediation and disciplinary action for those individuals represented by collective bargaining agreements. Therefore, a good working relationship and pre-negotiated quality assurance (QA) programs are prerequisites in these instances, which may also be guided by additional statutory and legal precedents. There may be federal, state and local legislation provisions which would need to be considered before a formal QA program can be instituted. Indeed, a union contract may require detailed guidelines for remediation and disciplinary actions that would have to be negotiated from the onset. For volunteers, inclusion in the QA process and remediation options may be a prerequisite for participation in the EMS service.

Remediation profile

The remediation process starts with the creation of a profile of the individual, squad or system, and identifying the deficiencies and failures in meeting a pre-set standard of care. Several questions should be asked in the development of this profile. Can the individual (or squad or system) accurately and efficiently gather the data needed to formulate a decision? Can this data then be applied to arrive at a logical, useful impression or isolation of the most important clinical problem? Once the impression is derived, are the treatment skills applied reasonably, efficiently, appropriately and performed in a timely manner? This helps determine to what extent there exists a system or process problem or if an unobtainable standard exists. A profile may also include, or consist entirely of issues which involve deviation from standards of practice, gross negligence or problems of behavior within the context of the EMS system.

Interview

The remediation then proceeds with an interview with the individual or squad whose profile has been developed. The EMS director, the medical director physician or his/her delegate must oversee this interview. If the employee is part of a union, a union representative will accompany the employee in an advocacy role. This interview in some instances may be viewed as the initiation of a legally mandated process. The interview must be conducted in a professional, confidential, “to-the-point” manner. It is not a time for emotional airing of grievances. The items in the profile should be clearly presented and substantiated. In some instances, union or legal representation may be presented as specifically called for by negotiated contract. A “paper trail” of the process should begin here with the entire process being recorded. A copy of the paper trail should be provided to the individual(s) in question and kept on file.

Remediation plan

During the interview, a remediation plan (see options below) should be agreed upon and openly discussed in detail. Goals for improvement should be clearly established and a time for completion set along with a follow up meeting date. Completion of the options for re-education, skills training or disciplinary action is then accomplished and documented.

The agreed upon follow-up meeting must then be held to evaluate effectiveness of remediation to date and provide an opportunity for individual input. Discussions of effectiveness of the re-education program and changes in the practice profile of the individuals during remediation with respect to those areas under scrutiny should occur at this point. Testing to ascertain retention and/or development of skills or knowledge may be considered or administered at this time.

Further remediation, discipline or review may be indicated and must be agreed upon. Again, all aspects of this follow-up meeting must be clearly documented and made available to the person undergoing the process. The remediation cycle may be terminated here and the individual squad member placed back into the ongoing QA plan, or steps for removing the member from participation in prehospital care may be started if irreconcilable deficiencies persist in accordance with legal and statutory guidelines.

Remediation Options

1. A preceptorship emphasizing certain identified areas for improvement for a specified period of time with an EMS member, nurse, physician or prehospital care provider.

2. Clinical time spent reviewing different areas under the overview of a physician, nurse or EMS provider in the Emergency Department.

3. Specific run reviews can be performed to isolate problems, review assessment and treatment strategies and modes of improvement.

4. Selected reading coupled with written reports may be useful.

5. Repeating or auditing courses or sections of courses *(such as ACLS)* are options.

6. A program of after-run critiquing in the Emergency Department by the physician, if done in a positive and encouraging manner with particular attention to those items of deficiency, can be most rewarding.

REMEDIATION OPTIONS CHART

Testing
Procedure & skills testing
Equipment testing
Clinical scenario testing
Written tests on specific subjects
Protocol tests

Observation
Field preceptorship
Emergency Department (clinical)
Riding with squad by ED personnel

Education
Run review *(topic specific, procedural, pathophysiology)*
Selected reading
Written review
Slide, tape review
Course repetition
Course auditing
Run critiquing
Literature review
New product educational in-service

Discipline
Performance of assessment or skill/ procedure only with preceptor
Field suspension of delineated procedure(s)
Suspension
Decertification

Progress through remediation options

1. The progress made by the individual or squad during the remediation process must be carefully monitored by the squad EMS director or physician medical director.

2. The goal is the improvement of care by the members of the EMS system and ongoing analysis of the entire system and its component parties.

3. Documentation of all aspects of the remediation and disciplinary process must be complete, timely, non-biased and part of a complete "paper trail."

4. Due process must be ensured with allowances for input of the individual and options for appeal.

5. The goal is to ensure the highest quality and most efficient provision of prehospital emergency medical care as defined by agreed upon standards.

6. The improvement of valuable personnel will improve the entire delivery system.

III. Grievance

Definitions

The final judgment decision of the administration to not renew or to terminate a contract is not subject to the grievance procedure; however, procedural matters related to this decision are grievable under this procedure. If a specific section of this agreement limits the parameters and use of this grievance procedure, such limitation shall be followed. If specific administrative agency relief of a quasi-judicial nature is provided for by the Statutes of the State of Ohio or the United States for review or redress of a specific matter *(such as Worker's Compensation, Unemployment Compensation, Equal Employment Opportunity Commission, Civil Rights Commission but specifically excluding the State Employment Relations Board)* such matter may not be made the subject of a grievance and may not be processed as such.

A Grievance Committee may be created which may represent the aggrieved party or group. A Class Action Grievance may be filed by the Grievance Committee as the Committee of Interest, representing the membership, if the grievance affects a group of professional staff members and may be filed at Level III, if Level I and II are not appropriate. *(See diagram 1.)* Time limits specified herein may be altered by mutual agreement, in writing, of the parties.

Grievance Process

The grievance process is a series of steps, sometimes referred to as levels, taken to resolve the issue. Failure to resolve the problem moves it up to a higher level or to the next step. With each step, more and usually higher-ranking individuals are recruited to help resolve the dispute. At some point help is also sought from outside the organization, most often in the form of arbitration. At each step, the individuals involved and their responsibilities are clearly defined, and a time frame is established for resolving the issue. Customarily, union representation is allowed when the individual is part of a union.

An example of the grievance process follows:

Level 1
A grievance must be reported orally within five days of the occurrence to the immediate supervisor (which may be the ire chief or his designee in a smaller service). That individual has 3–5 days to respond orally. If it is not resolved at this point it shall move to level 2.

Level 2
The grievance is written and presented to the next higher ranking officer or resubmitted to the same individual (esp. in smaller services) and again this person has a set time within which to respond. However this time the response is in writing and again it must be offered within a specified time, usually in 3–5 days.

Level 3
At this point the grievance is appealed in writing to the fire chief, board of trustees, mayor's advisors or some similar group of people or their designees. This must be done within a prescribed time. These individuals have the authority to affirm or override the disciplinary measures proposed to this point; however, they usually cannot increase them.

Level 4
At this point in most organizations the grievance is being presented to outside arbitration. A grievance policy and procedure recognizes the right of a person to bring up issues of concern and provides a formal mechanism for resolving them. While it protects the legal rights of the individual, it also provides a means by which an organization can defend and justify its actions.

Records

To facilitate the operation of the grievance procedure forms for filing and processing grievances shall be designated by the medical director and the grievance committee.

Copies of all documents, communications or records dealing with a grievance shall be furnished to all. In addition, one copy of each shall be retained in a grievance file. No records, documents or communications concerning a grievance shall be placed in the personnel file of any participants.

Appendix 1

Sample GRIEVANCE REPORT

_____ (Indicate Level II or III, whichever is appropriate)

I. Name of the Aggrieved_____

II. Name of the Party in Interest_____

III. Date the Aggrieved become aware of the grievance_____

IV. Grievance

A. Statement of Grievance:

B. Relief Sought:

C. Reason, Explanation or Comments:

V. Representative chosen by Aggrieved_____

VI. Signature of Aggrieved Date _____

VII. Date copy sent to the Party in Interest and filed with the Grievance Committee_____

VIII. Date received by the Party in Interest_____
or the Grievance Committee_____

FILED BY GRIEVANCE COMMITTEE REPRESENTATIVE AT RESOLUTION OR WITHDRAWAL OF GRIEVANCE

1. Name of Aggrieved_____
2. Name of the Party in Interest_____
3. Date of Grievance_____
4. Date Grievance Filed_____
5. A. Statement of Grievance

   B. Relief Sought

TO BE FILLED OUT WHEN GRIEVANCE HAS BEEN COMPLETED

1. Signature of Medical Director_____

   Date_____
2. Signature of EMS Supervisor_____

   Date_____
3. Date Filed_____
4. Signature of Department Chief_____

   Date_____

Appendix 2

CASE SCENARIOS

Remediation

Case 1

Your agency has recently adopted some of the latest American Heart Association (AHA) guidelines into its cardiac arrest protocol. During a follow up run review you notice that there is considerable deviation for the protocols by the A shift especially on days when one of two medics is one duty. The patients all appear to be getting pulse checks and a high percentage are getting intubated early in the resuscitation. One of the two is the chief's cousin.

QUESTIONS

1. Is this likely to be a simple knowledge issue?
2. How would you gather objective data as to the circumstances surrounding this problem?
3. What individuals would you want involved in the investigation and suggested remediation?
4. What type of remediation options might exist?
5. How would you handle this case if attempts at remediation are met with resistance?
6. How would you ensure that the individual's due process is not violated if efforts to remediate fail?

Case 2

In another agency for which you are medical director and which also changed its cardiac arrest protocol, you find even more startling deviation from the protocol by the same two medics, who work there part time. However this agency serves a very ethnically diverse community.

QUESTIONS

1. Is this likely to be a simple knowledge issue? How might you precede to determine if there are other issues?
2. How would you gather objective data as to the circumstances surrounding this problem?
3. What individuals would you want involved in the investigation and suggested remediation?
4. What type of remediation options might exist?
5. How would you handle this case if attempts at remediation are met with resistance? What recommendations would you make?
6. How would you ensure that the individuals' due process is not violated if efforts to remediate fail?

Grievance

Case 1

A full-time, nationally-registered Paramedic files a grievance with medical control. The prehospital care provider states that on a recent run, a severe asthmatic patient began to exhibit increasing ventricular ectopy while being given an albuterol inhaler en route to a neighboring emergency facility.

The paramedic states he made appropriate contact with medical control, where, after three attempts and five minutes, he spoke with a department nurse. The nurse “ordered” continued inhaler therapy, whereby the Paramedic requested direct contact with the ED physician. The nurse denied request, stating over the radio that the two physicians on duty were “too busy.” Despite several requests for direct physician contact, the paramedic was unable to accomplish this and terminated radio contact four minutes from the receiving hospital.

The paramedic terminated the albuterol treatment and the patient required intubation five minutes after arrival for respiratory failure. The patient also experienced a short run of ventricular tachycardia, which resolved with suppressant treatment. The patient recovered after an eight-day hospital stay.

The paramedic states the inability to speak with the ED physician endangered his patient, and caused the squad members attending the patient frustration and anxiety. He contends the radio should not be answered by a nurse or any other personnel other than the ED physicians.

QUESTIONS

1. Is this grievance justified?

2. How would you gather objective data as to the circumstances surrounding this problem?

3. How can a formal grievance procedure help in this case?

4. Who should serve on a “grievance committee”?

5. How would you handle this case in your department? What recommendations would you make?

Chapter X: Operational Issues

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I. Introduction

This chapter will cover the operational challenges facing the medical director of an EMS system; including common and high-risk operational issues. Much of the text will be drawn from sample protocols and policies to illustrate some of the aspects one should consider in development of their own unique system's operational requirements.

- Scene Authority
- Non-system Physicians on Scene
- Consent for Emergency Medical Care and Refusal of Care
- Patient Transport and Destination Decisions
- Medical Communications
- Completion of Patient Care Reports
- Photography and Digital Media
- Behavior Emergencies and Violent Patients
- Air Transport Utilization
- Major Disease Outbreak and Altered Standards of Care
- Emergency Personal Exposure to Infectious Diseases and PPE
- Death and Near Death Situations - Dead on Scene, Termination of Resuscitation, DNR
- Law Enforcement Interface and Incidents of Domestic Violence
- Crime Scene Management
- Critical Incident Stress Management
- Interfacility Transports
- Public and Media Relations
- Organizing the Approach to Files and Recordkeeping

Scene Authority

Scene authority is an area subject to state law and regulation. The Ohio EMS Board oversees this aspect of care in Ohio.

A typical protocol includes the following language:

> Control of patient care at the scene of an emergency shall be the responsibility of the individual in attendance most appropriately trained and knowledgeable in providing prehospital emergency stabilization and transport. When an ambulance arrives at the scene of a medical emergency, and/or contact is made with medical control by a medic, a physician/patient relationship is established between the patient and the physician providing medical control. The physician is responsible for the management of the patient, and the EMS provider acts as an agent of medical control unless a patient's physician is present.

When EMS responds to a physician's office the following shall apply:

1. EMS providers shall perform its duties per protocol.
2. The physician may elect to supervise care provided by EMS personnel.
3. If the physician directs the EMS providers to perform a procedure or administer a medication which is not covered by this protocol, then EMS will advise him/her of such. The EMS provider will not perform this procedure. The EMS provider may assist the physician in performing the procedure. If the physician initiates a medication which is to be continued during patient transportation which is not covered by this protocol, then the physician is expected to accompany the patient to the hospital.

Non-system (Intervener) Physicians on Scene

Intervener Physician: An intervener physician is a physician on the scene who has no previous connection with the patient. For the Good Samaritan physician to assume control of the patient he/she must:

- Submit proof of licensure in the state.
- Be willing to assume responsibility for the patient at the scene and during patient transportation to the hospital. This includes accompanying the patient during transportation (except multi-casualty situations).
- Perform procedures outside the scope of EMS protocol. If the physician is unwilling to comply with these requirements then his or her assistance should be respectfully declined.

The medical director or medical control may elect to grant on-scene or supervisory privileges to a physician in certain circumstances. Ideally many of these would be pre-determined. One common area of such a practice would be athletic team physicians at professional or large collegiate sporting events where response protocols and plans have been discussed and practiced in preparation.

Consent for Emergency Medical Care and Refusal of Care

It is the duty of an EMS provider agency to respond to all requests for emergency medical care. The second duty is to evaluate any patient that is ill or injured, asking a set of questions designed to find any emergency medical conditions, and performing a physical evaluation including vital signs. The third item in emergency medical care is treatment, which includes obtaining consent from the patient or an appropriate guardian.

In general, patients that have requested emergency medical service have given consent for all three elements of emergency medical care. The elements of patient consent applicable to the emergency environment include all three of these legal doctrines.

- ***Informed consent*** occurs when the competent patient or guardian is informed of the potential benefits and risks of a process or procedure, alternatives to that process or procedure, and the possible consequences related to each.

- ***Expressed consent*** is a written or verbal request to be evaluated and treated.

- ***Implied consent*** occurs when the patient or guardian demonstrated willingness to have the procedure performed or when the patient presents in distress and does not refuse life- or limb-saving care.

Ideally, the patient will be treated under the doctrine of informed consent and will actively participate in decisions regarding their care. However, in many emergency situations, EMS providers must act under the legal authority of implied consent.

Vital signs are a necessary and important segment of good patient assessment and are to be taken and recorded (numerically) for all patients on all runs. If vital signs are not recorded on the patient care report (PCR), then a written explanation in the narrative section shall be included. This is to be performed regardless of EMS provider level.

There is a delicate balance between individual rights and appropriate EMS response. Adult patients who are in full command of their mental faculties have the right to refuse treatment even when the refusal is imprudent by accepted medical standards. This only applies to patients who have mental capacity and capable of making such decisions. This is not the case with the patient who is neurologically depressed, mentally unstable (either chronically or acutely) or is gravely disabled, which means that he/she is unable to provide for the basic needs of life. Often, decisions of capacity should be made after discussion with medical control.

There are two categories of patient non-transports: 1) the patient-initiated refusal in which the patient refuses care, and 2) the EMS provider-initiated refusal in which the prehospital care provider believes the patient does not warrant emergency transport.

Reports have shown that both types of patient non-transports promote a growing number of lawsuits against EMS systems and their personnel. The issues of liability and abandonment may arise. The patient or the patient's family may later claim that the patient was incompetent to refuse care due to medical, psychiatric or an alcohol/drug related condition. Documentation by the EMS personnel who evaluate these patients and the use of on-line medical control could be of great importance when these cases are being defended.

Ambulance run reports involving non-transports should include:

- Good documentation, including vital signs
- Physical examination
- Mental status, alertness and/or orientation
- When appropriate, lack of suicidal intent
- Advice/directions given by on-line medical control, if contacted
- Signature should include the presence or absence of a parent or guardian on scene, when appropriate

Remember that a signature may not always be obtained and certainly does not replace excellent documentation regarding the discussions between the EMS crew and the patient.

Contact your department's senior officer or medical control for assistance if needed. On-line medical control can assist in:

- Preventing refusals by patients lacking mental capacity
- Convincing patients have mental capacity but appear ill, to accept transport
- Assisting EMS personnel with other difficult or unusual circumstances

Good documentation as well as contact with on-line medical control can help prevent a lawsuit. There are many elements to a non-transport patient interaction.

Some departments have found it beneficial to use additional language to record patient refusal. There are templates with the following content for EMS providers to keep on their clipboards and apply as needed to the PCR. This should provide a format for better documentation and risk management. The following language may be used for non-.

For patients who the EMS provider thinks need emergency medical treatment: We have examined the patient and feel that the patient may have an emergency condition that needs evaluation and treatment at a medical facility. Despite this, the patient does not wish to use our medical service for removal to a medical facility. We feel the patient (or a family member) has the mental capacity to make this decision. We advised them that further medical problems may develop, such as .....

We advised him/her to go to a medical facility or their doctor's office now to have this evaluation and treatment done. We advised him/her to call 911 and we will return if the patient develops any further problems. These instructions are confirmed by.....…….(signed by the patient or guardian).

For patients where there is mutual agreement that emergency medical treatment is not needed, and in locations where EMS is being provided as a public service: We have examined the patient and, to the best of our ability to assess an emergency in the field, do not feel that an emergency condition exists that needs transportation in our ambulance to a medical facility. We feel the patient (or a family member) has the mental capacity to make this decision. We advised them that if other medical problems develop to go to a medical facility or their doctor's office to have further evaluation and treatment done. We advised that they may call 911, and we will return if the patient develops any further problems. These instructions are confirmed by .....…… (signed by the patient or guardian).

If a reliable friend, family member or guardian is with the patient: We asked bystanders to assist us in convincing the patient that an emergency may exist and that transportation to a medical facility was needed. Despite this, the patient does not wish to use our medical service for transport to a medical facility. This

person confirms the instructions we gave to the patient and may call 911 if the patient changes their mind. ……(signed by the person familiar with the patient)

Patient Transport and Destination Decisions

In general, there is no law that guides patient transport and destination decisions with the exception of trauma patients. This is typically a regional or department-specific function. There are sample protocols that can provide guidance regarding destination decisions. In essentially all circumstances, emergency care providers are trained to take patients to the appropriate hospital. For example, pediatric hospitals are NOT considered appropriate transport sites for adult patients, except those "special needs" patients with long term relationships with the specialty children's hospital. Similarly, obstetrical patients should be transported to hospitals with labor and delivery units.

In Ohio, the state law has established a formal trauma system and did grant authority to the State EMS Board to develop rules governing trauma patient destinations. Please refer to Chapter 16 on Trauma Triage for full detail and explanation.

As a best practice, there should be policies in place which encourage hospitals to use EMS services to treat and transport patients who are in a building in the community where an emergency response is not available or appropriate for the patient. An example would include an ill or injured patient in a physician office building on a hospital campus. Similarly, hospitals will call when a construction worker located on the roof of the building is critically injured and must be stabilized and moved off the roof. If a non-trauma center ED has had a trauma patient "dropped off", and rapid transport cannot be provided by a private ambulance or helicopter, the local protocol should specify that 911 be activated to provide timely transport to an appropriate trauma center.

A sample protocol is as follows:

> EMS personnel dispatched to ill and/or injured person/s in public buildings or locations and on the surrounding street shall offer to transport the patient to any hospital. The only exceptions to this policy are: cases in which the chosen emergency department declares that it is temporarily closed, the patient is unstable or there is a specific medical reason not to do so. The patient is to receive this transport service unless he/she refuses to be transported. Patients should be transported to the hospital of their choice provided that the hospital chosen is within a reasonable distance from the patient's location and is capable of meeting the patient's immediate needs. Generally this is often interpreted to be a certain number of miles (10, 20, 40, etc.), a specified time frame (e.g. 45 minutes away) or a stated geographic limitation (any open facility in the city, county, etc); a reasonable distance is based on traffic, weather conditions and department-specific policies that should be decided by those leaders.

Non Emergencies - If the patient does not require transport by an EMS provider, the patient should be asked if they request transport. If the patient requests transport but does not require transport by an emergency unit, offer help in calling an alternative mode of transport. If the patient does not require ALS or BLS emergency transport

and demands transport by an emergency unit, call for the Shift Supervisor or EMS coordinator. The supervisor/coordinator may consult with the receiving emergency department attending physician or primary care physician for assistance.

Transporting Minors - When minors require treatment, the parents should be contacted if possible.

- If the situation requires immediate transport, transport to the most appropriate medical facility. Parental consent will be obtained by the hospital.

- Minors cannot refuse needed treatment or transport. Telephone contact with a parent, relative or guardian may be necessary.

- If minors are in an appropriate location, they may be transported to their home (if nearby) for parental consent or for release to the parent if there is no need for transport.

- If a minor is released to his/her own care (16-18 years of age), exact instructions must be given to the patient, there must be documentation that the mental status of the patient is not impaired and all instructions must be understood by the patient. This must also be documented on the patient care report. Attempts should still be made to contact a parent or guardian.

- Emancipated minors must produce documentation to be excluded.

The purpose of the patient destination policies is to provide criteria to assist with transport decisions in certain situations. Whenever the EMS provider is unsure about the most appropriate destination, contact medical control for direction. The majority of destination decisions are uncomplicated and the patient is transported to the facility of their choice. However, there are certain situations that indicate the patient should be transported to a specialty facility (e.g., trauma center, burn center, etc.) or the closest appropriate facility.

Situations often arise that require the EMS provider to recommend a facility other than the one requested by the patient. This can turn a simple transport decision into a very difficult decision for the patient and the EMS provider. The decision to recommend a facility other than the one chosen by the patient should be dictated by the patient’s medical condition. The EMS provider should involve medical control with any unclear issues regarding transport. In most cases the patient will agree to a destination recommended by prehospital personnel with proper explanation.

If the patient does not, cannot or will not express a choice of hospitals, the EMS provider should transport the patient to the nearest hospital believed to be capable of meeting the patient's immediate medical needs without regard to other factors (e.g., patient's ability to pay, hospital charges, county or city limits, etc.).

Occasionally the EMS provider is faced with a conflict regarding the transport decision between the patient and a family member. If the patient is alert, oriented and capable of making informed decisions, the patient’s decision prevails.

Prehospital personnel should attempt to explain the situation so that the family member understands the EMS provider is required to honor the patient's request.

Legal Note: Persons serving as guardians have the same decision-making power as the patient regardless of the severity of the condition or the situation (such as cardiac arrest, unstable vital signs or requested hospital on diversion).

Medical Communications

Medical information is reported to ensure continuity of care, discuss treatment plans, request orders and enhance reception of the patient at the receiving emergency department. Professionalism and courtesy are expected at all times during medical communication.

Most systems have specific guidance regarding the timing, content and requirements of medical communications. They may include the following elements and a sample protocol as below:

Medical control must be notified in the following patient conditions or situations:

- When indicated in the patient care protocols.
- When the EMS provider is unsure of the most appropriate treatment for a patient.
- When patients refuse EMS treatment and/or transport where capacity is in question.
- Incidents involving multiple-patient transports.
- When patients requiring isolation (tuberculosis, meningitis, SARS).
- When the EMS provider is unsure of the appropriate destination.

Patient report content should include:

- Level and name of EMS Provider
- Unit number
- The purpose/need for the transmission (patient information, request orders)
- The estimated time of arrival with the patient (ETA)
- Patient’s age, sex (and weight if applicable)
- The chief complaint, pertinent history, medications and appropriate allergies
- Assessment findings (vital signs, glucose level, EKG, treatment rendered, etc.)
- If orders are received or denied, repeat the order or denial of the order back to ED personnel and obtain physician's name.

Many health care providers are moving to a standardized reporting format called SBAR (situation, background, assessment, recommendation) that can be modified for EMS communications. Protected health information should never be transmitted over the radio.

Since every patient situation that may require advanced ED notice cannot be listed, EMS personnel should confirm the hospital's available resources when considering transport destinations. Therefore, it is important that the EMS provider be aware of the specialty capabilities of the health care facilities in their region and that they receive updated information from the communications center or medical control regarding hospitals on diversion.

In the event that the EMS provider is unable to contact medical control prior to hospital arrival (i.e. equipment failure), EMS providers are to operate under standing orders to provide emergency medical care if further delay would lead to serious deterioration or death of the patient. Whenever you are unable to contact medical control, YOU MUST:

- Notify the ED physician as soon as possible after hospital arrival.
- Document reasons for failure to contact medical control in the patient care report.

Obviously, systems in which on-line medical direction is not utilized are not required to provide this documentation.

Completion of Patient Care Reports

Documentation becomes the legal record of a patient's history and treatment by prehospital personnel and can also be used as defense against malpractice. The completion of reports is required in some form for all units that respond to dispatched incidents. In some circumstances, the documentation of the emergency medical responder is only documented in an incident report if no specific patient care is provided.

There are now electronic and hard copy options available for PCR. Specific requirements are based on the capabilities of the system.

Here are general guides to care documentation:

- Use the department-specific instrument.
- The PCR must be filled out completely with all pertinent information.
- The report is a record that reflects on YOU and the profession as a whole, so be concise, write legibly, spell correctly and use accepted terminology and abbreviations. The report should also be considered a legal document.

Provide written documentation of a patient's condition and treatment for medical and legal purposes. It also adds to the continuity of patient care after arrival to the hospital. Courts have interpreted improper documentation as a failure of treatment and monitoring of a patient. This may create the presumption of inadequate care.

In a hard copy report, any error should have one line drawn through it with your initials. Marking out entries, scratching out entries or writing over entries has been interpreted as attempts to conceal facts.

For every patient contact, the following must be documented:

- A clear history of the present illness, including chief complaint, time of onset, associated complaints, pertinent negatives and mechanism of injury.
- A complete physical exam appropriate for the emergency condition.
- Level of consciousness.
- At least one complete set of vital signs.
- Patients transported should have at least two complete sets of vital signs documented – one on scene and one during transport.
- Vital signs should be repeated after every drug administration.
- For drug administration, note the dosage of the drug, route of administration, time of administration and response. A patient weight should be noted on the PCR.
- A complete listing of treatments performed in chronological order.
- For extremity injuries, neurovascular status must be noted before and after immobilization.
- For potential spinal injuries, document motor function and sensory findings before and after immobilization.
- For IV administration, note the size of intravenous (IV) catheter, placement of IV, number of attempts, type of IV fluid and flow rate.
- An EKG lead II strip shall be attached for all patients placed on the cardiac monitor. Any significant rhythm changes should be documented. For cardiac arrest, attach the initial strip, ending strip, pre and post defibrillation, pacing attempts or code summary report, etc.
- For intubation, document the centimeter mark at teeth, methods which confirm placement (equal breath sounds, chest wall movement, absent gastric sounds, CO_2 detector), size of endotracheal tube, and number of attempts.
- Any medical control orders requested whether approved or denied.

Each department needs to have a medical record privacy policy and safe storage for at least 7 years' worth of reports, and in many cases much longer than that. Data from EMS patient care reports must be submitted to the state's EMS incident reporting system (EMSIRS).

Photography and Digital Media

Patient privacy is a critical element of emergency care, and concerns over this issue have been codified under Federal law.. Each Department should have a patient information privacy policy in place and comply with HIPPA regulations.

Emergency responders are expected to concentrate on the performance of their duties while on the scene of an emergency. There have been very unpopular and unethical situations where EMS members responding on the scene of medical emergencies, fires and other incidents have been taking photographs or videos of these incidents for their personal use. Images have also been distributed on web sites. In response, many departments have written policies forbidding or limiting use of personal phones and cameras at incident scenes, particularly when providers are involved in patient care.

These policies are intended to maintain trust, improve service to the public and to minimize allegations of improper behavior by fire and emergency medical services.

The taking of photographs, including videos, may not be acceptable conduct for three reasons. First, it distracts personnel from the proper performance of their duties. Second, it may cause the agency to be sued for invasion of privacy by the person being photographed. Third, photographs taken by EMS personnel on the incident scene, including personal photographs, will become evidence in any subsequent litigation. Fire and EMS personnel, like police officers, are considered to be agents of the state, so the agency will be obligated to disclose these photographs in criminal cases and, if requested, in a civil matter. Failure to do so will result in adverse consequences in the criminal or civil matter.

A sample protocol may include language such as:

> Members shall not use private cameras belonging to the member, or the patient, or anyone else, to photograph patients. This policy refers to any cameras, including those associated with mobile phones. Photography equipment may be assigned to specially-trained supervisory members of the department to perform scene photography, and only those trained personnel using department-provided equipment shall perform this operation.

It should be noted that some important medical information can be conveyed using digital images (e.g. mechanism of injury, condition of vehicle after impact). Such situations are very rare and should be clearly outlined by the service medical director. Such images should also be transferred for use as part of the medical record and should be immediately destroyed from any private devices. The use of images for medical purposes should be dictated by a specific policy and procedure.

Behavior Emergencies and Violent Patients

When faced with a patient that poses a potential threat of violence to the EMS crew, the first duty of the crew is to protect themselves and bystanders. EMS providers have the right to refuse placing themselves in jeopardy of physical harm from violent patients. At no time should any EMS responder place him or herself in a situation that he/she cannot control without the presence of law enforcement.

Violent or suspected violent persons needing medical attention:

- The EMS provider in charge shall ascertain from law enforcement officials whether the patient is under arrest and a ward of the State.

- If the patient is under arrest at time of transport, the law enforcement agency will be asked to escort the patient aboard the ambulance.

- If law enforcement personnel do not escort the patient, EMS personnel are under no obligation to maintain custody outside medical guidelines (i.e., if the patient is coherent, he or she has the right to refuse treatment and leave).

- If physical restraint of the patient is warranted for safety of the EMS crew, law enforcement personnel should be asked to assist in restraining the patient before departure. A specific restraint policy should be in place.

- EMS personnel have the right to restrain a patient for the safety of the EMS crew when violence is anticipated.

The topic of excited delirium should be addressed in protocols. See http://www.exciteddelirium.org/ for additional information.

Examples of pharmacological sedation include haloperidol (Haldol), lorazepam (Ativan), ketamine (Ketalar) or midazolam (Versed). The use of intranasal medication delivery is a useful adjunct in the safe management of many of these patients

Transportation and/or treatment can be denied by EMS for any violent or suspected violent patient for the following reasons:

- The patient is mentally alert, capable of making decisions about his care and refuses restraint.
- The patient cannot be adequately restrained by the EMS crew.
- The patient is deemed unsafe to transport while restrained without law enforcement presence and law enforcement declines to escort aboard vehicle.
- The patient has not been properly searched for weapons.

Patients who are under arrest:

- The law enforcement agency that has custody of the patient shall be informed that if law enforcement turns custody completely over to the EMS crew, no attempts to maintain restraint or custody are promised.

- If acceptable to the EMS providers, law enforcement escort by following in a separate vehicle may be allowed for maintaining custody. Such decision should be based on the perceived threat of violence to the EMS crew.

- Specific protocols should be in place addressing the transportation of prisoners.

Air Transport Utilization

Medical evacuation aircraft can be utilized when available and/or when conditions warrant, to improve scene care capability and reduce transport time for critically ill or injured patients.

Four basic questions should be considered concerning the use of air transport services:

- Would the amount of time needed to transport a patient by ground transportation to an appropriate medical facility increase the risk to the patient's survival and/or recovery?

- Would weather, road conditions or other factors affecting the use of ground transportation seriously delay the patient's access to tertiary medical care?

- Does the available ground ambulance have the clinical skills, equipment or extra personnel to care for the patient during transport from the scene of an accident?

- If the seriously injured patient is trapped, would the extrication time allow for the helicopter to arrive at the scene and speed delivery of the patient to a trauma receiving facility?

The following guidelines govern on-scene requests for air transport response. The incident commander shall be responsible for adhering to the guidelines set forth in protocol. Indications for requesting air transport stand-by can be initiated by any responder en route or at the scene based on the mechanism of injury or other information provided. .

Indications for requesting air transport evacuation of a patient from the scene of injury include:

- Patient injury evaluation by the first-arriving paramedic meets trauma criteria for trauma center destination (http://www.publicsafety.ohio.gov/links/ems_oac4765_14_geriatric_triage_details09.pdf).

- The scene of injury is more than 30 by ground transport from the trauma center destination (distance, traffic and weather conditions considered).

- Patient extrication, vital on-scene care and ground transport time is estimated to be greater than the time span from requesting service to air transport patient arrival at the trauma center.

- A multi-casualty incident (MCI) in which awaiting sufficient numbers of ground transport units for critical patient(s) would result in a transport time delay that exceeds the time span from request of service to air transport patient arrival at the designated trauma center.

Contraindications for requesting air medical evacuation of a patient include:

- Patients in cardiac arrest, except in very special medical situations.
- Patients contaminated by hazardous materials.
- Patients with uncontrolled violent or erratic behavior.
- Refusal by a clinically competent patient

Proper utilization of air transport resources includes a safety plan for the scene.

Helicopter safety and landing zones:

- Command will consider what resources are needed to prepare a safe landing zone and appropriately utilize the resource. A sector officer and appropriate apparatus may be needed to establish and maintain a safe landing process.
- A safe landing zone is determined by taking into account wires, crowds, trees and overhead hazards.
- Never approach a helicopter until instructed by the flight crew to do so.
- If the rotors are turning, never approach a helicopter from the rear or from above.

Firefighter and EMS Personnel Incident Rehabilitation

The safety of EMS and fire personnel was enhanced with the January 2008 introduction of National Fire Protection Association (NFPA) Standard 1584. The standard is titled “Rehabilitation Process for Members During Emergency Operations and Training Exercises”. This standard represents the work of the U.S. Fire Administration (USFA) which recognized the benefit of on-scene recovery of fire personnel.

NFPA 1584 has been created to reduce scene risks related to exhaustion, over-heating and inhalation of products of combustion. The principles of rehabilitation standardized by NFPA 1584 help EMS agencies develop a safe work environment for their members. Under NFPA 1584, rehabilitation should occur whenever on-scene training or incident activities pose the risk of members exceeding a safe level of physical or mental endurance. The types of incidents will vary from structural and wildland fires, HAZMAT incidents, multiple casualty incidents and any prolonged operation during bad weather. EMS is expected to take the lead in sharing the rehabilitation concept with law enforcement and other emergency services personnel who take part in the scene.

Medical Evaluation in the Rehabilitation Area

Each arriving emergency worker will be questioned regarding any medical symptoms, be asked about any injury resulting from incident work, and have assessment of appropriate vital signs, and these items all documented. Any injury or medical symptoms should be addressed immediately by the most highly trained and qualified EMS person available. Injury care will be provided, and an appropriate injury report will be completed.

Appropriate vital signs will be assessed on each individual on each visit to the rehabilitation area and will include pulse rate, pulse oximetry and a carbon monoxide oximetry in all operations that involve firefighting or hazardous materials operations.

Major Disease Outbreak and Altered Standards of Care

The EMS agency needs to incorporate the concept of operations (CONOPS) document which outlines the general strategy for use during a pandemic flu event or other medical disease. It is activated to address the goals outlined in the next section.

The plan is created to allow for phased activation. Some elements of this plan will be activated in response to the threat of pandemic flu; others will be activated in stages based on the duration and severity of the pandemic. This creates the flexibility to react based on a dynamic situation and ensures that the EMS agency acts cooperatively with local, regional and federal response strategies.

Emergency Personal Exposure to Infectious Diseases and Post-Exposure Prophylaxis (PPE)

Type and Use of Personal Protective Equipment

- Gloves - For any patient contact and when cleaning/disinfecting contaminated equipment. Puncture resistant gloves will be worn in situations where sharp or rough edges are likely to be encountered, i.e., auto extrication.

- Face Mask & Eye Protection - Facial protection will be used in any situation where splash contact with the face is possible. This protection may be afforded by using both a face mask and eye protection or by using a full-face shield. When treating a patient with a suspected or known airborne transmissible disease, particulate facemasks should be used. For some respiratory illnesses consider placing a mask on the patient.

- Coverall/fluid resistant gowns - Designed to protect clothing from splashes, gowns may interfere with, or present a hazard to, the EMS professional in some circumstances. The decision to use gowns to protect clothing should be left to the member. Structural firefighting gear also protects clothing from splashes and is preferable in fire, rescue or vehicle extrication activities.

- Shoe/Head Coverings - Fluid barrier protection will be used if suspected contamination is possible.

Post Exposure Management
Secure area to prevent further contamination

- Decontaminate the patient.

- If the eyes, nose or mouth are involved, flush well with large amounts of water.

- Notification and relief of duty. The worker's supervisor should be immediately notified if a worker experiences an exposure involving potentially infectious source material. The supervisor should determine if the worker needs to be relieved of duty.

- Report the Exposure. The worker or immediate supervisor should promptly complete an exposure report, appropriate for the agency and submit it to the designated infection control officer.

- Specific protocols should be in place to guide post-exposure care.

Note that in instances of blood or body fluid exposure, the source (patient) may also be requested to provide blood or body fluids specimens in order to properly counsel and treat the exposed emergency care provider.

Death and Near Death Situations – Dead on Arrival, Do Not Resuscitate (DNR), and Termination of Resuscitation

Dead on Arrival

Resuscitation will not be initiated in the following circumstances:

- Burned beyond recognition
- Decapitation
- Deep, penetrating, cranial injuries
- Massive truncal wounds
- Hemicorporectomy
- Rigor mortis, tissue decomposition or severe dependent post-mortem lividity
- Triage demands with multiple victims

DNR

- The individual has been pronounced dead by a licensed physician, medical examiner, coroner or other person legally authorized in the state to pronounce death.

- The physician (patient's physician, medical director or emergency physician) states to at least two EMS personnel (Paramedics and/or EMTs) that resuscitation is not to be attempted on this patient and the physician agrees to accept responsibility for pronouncing the patient dead.

- DNR Order (either a DNR-CC or DNR-CCA) are present and valid. The patient's family has a “Do Not Resuscitate” order present on the scene that has been signed by a Licensed Physician. See Appendix A.

The EMS provider’s responsibility is to the patient. Neither the family nor law Enforcement Officers have the right to refuse resuscitation attempts for the patient.

- The EMS provider is responsible for the medical judgment as to whether a patient is obviously dead or dismembered.

- Document absence of vital signs and attach the EKG strip to the EMS record. In possible crime cases, do not remove or cut clothing, remove penetrating objects or cut through penetrating holes in clothing unless absolutely necessary for patient evaluation/care.

- Patients who do not meet the above criteria should have their cardiac rhythm checked by a EMS provider. Any rhythm other than asystole should receive full resuscitative efforts and be transported to the closest emergency department.

- If the EMS provider has any doubt as to how to handle a situation, contact medical control and give an assessment of the situation.

- Patient assessment should always occur promptly and without delay. NEVER withhold or put off patient assessment to take time to read a document. In the absence of a valid DNR, requests by family members to withhold assessment and lifesaving treatment should be set aside initially except in the setting of a patient who is obviously dead.

Termination of Resuscitation

If the patient is in asystole, full ACLS measures should be instituted including intubation, intravenous access and ACLS drugs along with CPR. If the patient remains in asystole after 20 minutes of full ACLS measures involving at least two rounds of ACLS drugs, then the in-charge paramedic on the scene may determine that the patient is inappropriate for further resuscitative efforts. If resuscitative efforts are ceased, all IV lines, endotracheal tubes and other interventions must be left intact.

Patients thought to be hypothermic and asystolic should be treated according to protocol and transported to the closest emergency department.

Law Enforcement Interface and Incidents of Domestic Violence

Domestic violence cases pose an interesting challenge for EMS. Laws vary by state and in some states EMS providers are mandated to report felonious assaults. The scenes are often volatile and may pose a hazard to the EMS providers if they enter prior to knowledge that domestic violence has occurred. Often patients will be reluctant to seek medical care at the hospital. Although patients that are fully competent have the right to refuse medical treatment, emergency medical personnel should take the extra time to convince the patient about the need for immediate medical care.

Crime Scene Management

EMS personnel need to establish policies and protocol that allow the functions of EMS and law enforcement to proceed in an efficient and productive environment.

A crime scene management protocol should be used when law enforcement personnel advise EMS that they have responded to a crime scene or EMS determines that a crime scene may exist. These protocols should ensure the protection of patient welfare as well as to ensure the ability to conduct an effective and thorough investigation.

Critical Incident Stress Management

All medical directors should have programs in place to aid responders who have been exposed to particularly stressful scenes. Such scenes include pediatric deaths, particularly traumatically injured patients or incidents with numerous fatalities. It is important, however, that all responders watch for signs of difficulty managing stress among their co-responders on an ongoing basis. There is debate in the literature about the usefulness of formal critical incident stress debriefing (CISD) and some

studies suggest that it may actually cause harm in some cases. Regardless, the best practice is to have a support plan in place so that when the need arises, responders and department leadership know how to get the process underway. In small departments, such services may be provided by volunteer chaplains or mental health professionals. In larger departments, individuals should have access to an employee assistance program.

When individual responders are being negatively impacted by a stress reaction, it may be necessary to modify or restrict their duty until they have developed adequate coping ability for the particular critical incident that triggered the need for intervention. The medical director should be notified of any responder under their supervision who is known or suspected of having trouble dealing with a critical incident.

Interfacility Transports

Many EMS systems have transport units that are available for interfacility or scheduled transports.. Protocols should be in place to support these patient care efforts. Guidelines should also exist that specify the availability of these services, how and when suspension of these services will be determined and which personnel may be used for interfacility transport. Additionally, if specialized equipment or procedures may be required for transport, educational programs should be developed in conjunction with the medical director.

Public and Media relations

The EMS department has a significant role in public education. All departments should appoint a trained public information officer and have that individual trained to serve in that capacity. The EMS medical director may also have significant roles in public education and community relations.

Organizing the Approach to Files and Recordkeeping

Medical Directors will benefit as a member of the leadership team by organizing the administrative and clinical files related to EMS system administration.

Appendix A

State DNR Form. Available at http://www.odh.ohio.gov/pdf/forms/dnrfrm.pdf

DNR IDENTIFICATION FORM

❑ **DNRCC**
(If this box is checked the DNR Comfort Care Protocol is activated immediately.)

❑ **DNRCC—Arrest**
(If this box is checked, the DNR Comfort Care Protocol is implemented in the event of a cardiac arrest or a respiratory arrest.)

Patient Name:_____

Address:_____

City_____ State_____ Zip_____

Birthdate_____ Gender ❑ M ❑ F

Signature_____ (optional)

Certification of DNR Comfort Care Status (to be completed by the physician)*

(Check only one box)
❑ **Do-Not-Resuscitate Order**—My signature below constitutes and confirms a formal order to emergency medical services and other health care personnel that the person identified above is to be treated under the State of Ohio DNR Protocol. I affirm that this order is not contrary to reasonable medical standards or, to the best of my knowledge, contrary to the wishes of the person or of another person who is lawfully authorized to make informed medical decisions on the person's behalf. I also affirm that I have documented the grounds for this order in the person's medical record.

❑ **Living Will (Declaration) and Qualifying Condition**—The person identified above has a valid Ohio Living will (declaration) and has been certified by two physicians in accordance with Ohio law as being terminal or in a permanent unconscious state, or both.

Printed name of physician*:_____

Signature_____ Date_____

Address:_____ Phone_____

City/State_____ Zip_____

* A DNR order may be issued by a certified nurse practitioner or clinical nurse specialist when authorized by section 2133.211 of the Ohio Revised Code.

See reverse side for DNR Protocol

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DNR
COMFORT CARE

DO NOT RESUSCITATE COMFORT CARE PROTOCOL

After the State of Ohio DNR Protocol has been activated for a specific DNR Comfort Care patient, the Protocol specifies that emergency medical services and other health care workers are to do the following:

WILL:

- Suction the airway
- Administer oxygen
- Position for comfort
- Splint or immobilize
- Control bleeding
- Provide pain medication
- Provide emotional support
- Contact other appropriate health care providers such as hospice, home health, attending physician/CNS/CNP

WILL NOT:

- Administer chest compressions
- Insert artificial air way
- Administer resuscitative drugs
- Defibrillate or cardiovert
- Provide respiratory assistance (other than that listed above)
- Initiate resuscitative IV
- Initiate cardiac monitoring

If you have responded to an emergency situation by initiating any of the **WILL NOT** actions prior to confirming that the DNR Comfort Care Protocol should be activated, discontinue them when you activate the Protocol. You may continue respiratory assistance, IV medications, etc., that have been part of the patient's ongoing course of treatment for an underlying disease.

Table of Contents

Chapter XI: Protocols and Standing Orders

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I. Introduction

Protocols are commonly defined as the actions or sequence of interventions expected of prehospital providers in response to a given patient complaint or condition. In short, they provide a guideline as to necessary treatments to be given.

Standing orders are the parts of the protocol that may be applied by the EMS provider without contacting online medical control. The standing orders are still considered orders from the physician, but may be undertaken expeditiously in a given set of circumstances without the physician being notified. A protocol will typically have standing orders which the prehospital provider can execute until they reach a certain point in the protocol, at which point medical control must be contacted. For example, a chest pain protocol may allow the Paramedic to start an IV, administer aspirin and nitroglycerin and obtain a 12-lead EKG, but may require a verbal order from online medical control before administering morphine. A balance must be struck between giving EMS providers a wide latitude to operate efficiently with minimal interruption and indicating those times when consulting a physician would be helpful. Some EMS medical directors have enabled all protocols to be performed without online medical control.

Protocols should reflect currently accepted standards of emergency care while taking into consideration the limitations of the prehospital environment. This requires regular review of the protocols and changing them to reflect these standards as they evolve. A good example includes the use of noninvasive positive pressure ventilation, which has recently been allowed as a BLS skill in Ohio.

II. Protocols

Protocols: What is Appropriate for Each Emergency Medical Service?

Protocols that are appropriate for one EMS provider or agency are not necessarily appropriate for another. Differences in training level, call volume, transport times, oversight, crew configuration, prevalence of certain diseases, available equipment and local hazards will help determine what protocols are appropriate for a given EMS agency. For example, EMS agencies that have a large contingent of industrial complexes utilizing cyanide should be well prepared to deal with this threat. EMS agencies with routinely very short transport times may not need paralytics or sedatives to facilitate intubation or may not have sufficient opportunity to start a nitroglycerin IV infusion.

Protocols: Rules or Guidelines?

To some extent, they are both. It is impossible for any protocol to address every patient condition that EMS providers may encounter. Medical directors must therefore exhibit some flexibility in application of interventions. For example, a

patient complaining of nausea may state an allergy to promethazine, which is in the paramedic's protocol for nausea. The Paramedic may instead opt to administer diphenhydramine, though this is not in protocol, but still may be medically appropriate. Another example would be administration of diazepam for torticollis. Though including a specific protocol for torticollis would be a waste of time and paper due to the rarity of the condition, the Paramedic may be correct in administering diazepam for symptomatic relief. In such cases, the emergency care provider should think outside the box in consultation with online medical control.

Protocols that are too vague may not communicate clearly the expectations of the medical director. They also may represent a "deliberate indifference" to the possibility of harm to patients, serving as a source of liability for the EMS agency and medical director. Protocols that are too rigid and specific may exclude too many patients and be tedious for EMS providers to use.

Interventions that carry minimal risk to the patient should be applied at the discretion of the prehospital provider. Administration of oxygen, establishing IV access and application of a cardiac monitor or performance of a 12-lead EKG should be under standing orders.

Interventions that apply to a large population, such as pain control with narcotics, should also have few limitations, and the prehospital provider should have wide latitude in providing pain control.

Interventions that carry substantial risk of harm or fairly specific indications should have a strict set of conditions under which they can be applied. Intravenous thrombolytics would be one such example. It may be appropriate that such interventions require direct online medical control to be permitted.

Similar to many other professions, the proficiency of EMS providers is variable. The medical director may feel that certain interventions, such as rapid sequence intubation, are within the capabilities of some Paramedics but not others. The medical director may consider writing supplemental protocols for those providers that are more proficient, proactive and experienced. This is a controversial area; some feel that this brings additional cutting-edge interventions to the field that otherwise would not be appropriate for all medics in the system. It also creates an incentive to providers to take a greater interest in continuing education offerings and advancing their skills. Others feel that this creates a "double standard", which would be unfair to patients who happened not to get one of the Paramedics with a broader scope of practice.

Scope of Practice

In many states, the EMS scope of practice at any level is well-defined. In others, the scope of practice is left, to some extent, up to the individual medical director. This leads to wide variation in practice patterns throughout the country.

The Ohio Department of Public Safety, Division of EMS defines certain interventions that the Paramedic can perform and has ruled that they may administer "any medication required in the delivery of emergency care". This has

been interpreted to NOT include antibiotics, except in the case of a declared emergency such as a large-scale bioterrorist attack. In most other cases, the medical director has broad discretion in determining the paramedic formulary.

EMTs and AEMTs in Ohio have a scope of practice that is more rigidly defined. The list of medications that can be administered by the EMT or AEMT is determined by the EMS Board.

As a general rule, medical directors can usually restrict but not expand the scope of practice defined by the state for EMS providers. The medical director cannot permit the EMS provider to perform interventions that have not been defined as part of the scope of practice for a prehospital provider at that certification level. The National EMS Education Standards provides an excellent starting point for standards of training for EMS providers. This may serve as a guide for medical directors in understanding the EMS provider's knowledge base.

Optional skills such as rapid sequence intubation (RSI), surgical cricothyroidotomy, non-invasive positive pressure ventilation (NIPPV, CPAP or BiPAP) and adult intraosseous access may not be adequately covered in standard Paramedic training and will require additional training for the EMS providers to be proficient in them. This is especially true of skills that are performed infrequently.

Deviating from Protocol

It is inevitable that an EMS system will occasionally have providers that deviate from protocol. Whether intentional or not, medically appropriate or not, every protocol deviation should be reviewed by the medical director. The Ohio Division of EMS website and National Scope of Practice document should be consulted about any questions regarding scope of practice.
www.ems.gov/education/EMSScope.pdf

EMS providers should be encouraged to act independently, but must be directed to consult online medical control at any time should they have a question or should they feel a given protocol does not precisely fit the situation at hand. The judgment of the online medical control physician must always supersede the written protocol. The EMS provider should never be punished for following an online order unless it is well outside his scope of practice or he was deceptive in getting the order in the first place.

Extremely wide deviation from protocols (incision and drainage of an abscess, for example) may constitute practicing medicine without a license, and corrective action must be immediately taken with the provider if these occur. Unintentional deviation from protocols should be immediately addressed. Multiple factors may contribute to these, and review should not only encompass the EMS provider's knowledge and understanding of the protocol, but other factors as well. The protocol may be worded in a way that is confusing or contradictory. The EMS system may lack equipment necessary for accurate differentiation of patient conditions (12-lead EKG, for example). Human factors such as medication vials that appear similar, multiple dosage forms of the same medication (morphine, which may come in 2 mg, 4 mg, 5 mg and 10 mg vials) and fatigue from

extended work hours or inadequate rest periods between shifts may all play a role in errors.

Minor deviations from protocol may not require any corrective action or remediation if medically appropriate for the patient. Review of these incidents may indicate changes that need to be made to the written protocols.

Protocols: Continuing Education and Testing

The medical director must ensure that EMS providers maintain proficiency in all protocols. This requires continual testing of both knowledge and physical skills. Written testing should be undertaken on a regular basis, and it is reasonable to do so at least yearly. Practical testing should include realistic and standardized scenarios in which EMS providers can be evaluated and areas for improvement identified. Access to human patient simulators can be sought to enhance these experiences. How often EMS providers undergo practical testing is determined by their ongoing experience as well as the complexity and risk of procedures to be performed. For example, IV cannulation is a frequently performed skill and is easily evaluated in practical testing, so it may not require frequent evaluation. Endotracheal intubation is a high-risk, low frequency procedure; it is therefore appropriate that practical testing on endotracheal intubation be performed frequently.

Continuing education should be available for EMS providers to update and refresh skills throughout the year. Any protocol changes must be covered thoroughly in training sessions. Experienced EMS providers can be very useful as adjunct instructors and may develop content for these continuing education classes. EMS providers which demonstrate particularly strong skills matched with experience may be useful as evaluators for practical skills testing and may provide invaluable input into testing scenarios, protocol development and written testing.

Performance in written and practical testing should be part of the EMS providers personnel file, along with records of continuing education. From a liability perspective, this provides proof that the medical director and Emergency Medical Service are continually striving to ensure high standards of care and is part of a broader program of quality assurance.

III. Summary

Protocols serve a vital function to EMS. They make clear to providers the expectations of the medical director with regards to patient care, serve as a standard against which care can be measured and provide educational material for EMS providers. Standing orders are the parts of the protocols that may be implemented without online medical control. Protocols may be viewed as guidelines as well as standards of care for EMS providers. Through the protocols, the medical director establishes the scope of practice of the EMS providers within a given system and within the confines of the scope of practice established by the state of Ohio. A successful protocol will have buy-in from field personnel and reflect modern emergency care practices and bring the greatest benefit to the patients in the system with the given limitations of time, space, equipment, training and personnel.

Resources

National EMS Education Standards. Available from the National Highway Traffic Safety Administration (NHTSA), this document sets a framework for the knowledge and skills for EMS providers. The *Standards* define the minimal entry-level educational competencies for each level of EMS personnel as identified in the *National EMS Scope of Practice Model*. Many states base their scope of practice on this document, though there are differences in each state. http://www.ems.gov/EducationStandards.htm

National EMS Scope of Practice Model. The *National EMS Scope of Practice Model* defines and describes four levels of EMS licensure: Emergency Medical Responder (EMR), Emergency Medical Technician (EMT), Advanced EMT (AEMT), and Paramedic. Each level represents a unique role, set of skills, and knowledge base. The *National EMS Scope of Practice Model* divides the core content into levels of practice, defining the minimum corresponding skills and knowledge for each level www.ems.gov/education/EMSScope.pdf

Chapter XII: Protocol Development and Implementation

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I. Introduction

Protocols are the evaluation and treatment templates that guide the EMS providers approach to a particular problem in the field. They are an indispensable component of an off-line EMS system. The majority of EMS agencies have protocols. The problem frequently encountered by a new medical director is one of outdated protocols needing revision and new protocols needing to be written because of new approaches or technologies. The rapid development of new pharmaceutical interventions as well as devices that help to enhance survival in the field necessitate a hands-on approach to reviewing and improving the EMS protocol on a regular basis. With the publication of scientific research that shows an accepted intervention NOT being effective, then the deletion of that intervention is also required. Finally, if the skill level in the EMS provider's staffing unit changes, new protocols or revisions may be needed.

The developmental process requires several steps. Assuming the intervention is valid, then defining the need for a new or revised protocol is the first step. The establishment of a protocol committee is sometimes a prudent step. This committee meets on a regular basis and discusses EMS trends, new procedures and interventions and scientific research regarding EMS and best practices. National guidelines should also be consulted. The committee can consist of EMS providers in the system, EMS or fire administrative representatives, union officials if pertinent, local physician experts and any other representatives that might be helpful in looking at and developing EMS protocol.

The next step is to consider what resources are available. This includes labor as well as financial considerations. Certain protocols that would work in one EMS system may not be practical for another. The protocol should not make unrealistic demands on the EMS system it serves but work within the capabilities of the system. At the same time, if a certain intervention is deemed crucial to the overall well-being of the public served, then ways should be explored and all avenues exhausted to try to find a way to implement that protocol.

Finally, the QI (quality improvement) or PI (performance improvement) process should identify areas that require attention in terms of the protocol. If there are areas of QI that are less than optimal and do not meet the standard of practice in the general area of service of the respective EMS system, then the protocol should be modified to allow for the best possible outcome to be realized in that particular intervention. For example, if your QI process shows that your EMS providers are only giving aspirin to chest pain patients in 75% of cases, then the chest pain protocol should be reviewed and the language made stronger as to the necessity of giving aspirin to patients experiencing chest pain.

The easiest approach to protocol development is to borrow established protocols, (i.e. those available through the EMFTS Board), which have already been extensively reviewed, and then modify them to address specific local requirements. You can also query different EMS systems around the country and visit their websites. Many times

they will post their EMS protocols on line and share them with anyone who requests them.

II. Identifying Need

The first step is identifying the need for a new protocol and this may arise for several reasons; a problem discovered in a QI analysis, a new drug or therapeutic intervention, scientific evidence showing the failure of an established protocol or new leadership within the EMS agency. A new technology or approach is “discovered” and either the EMS providers are asking to do it or the city council and community demands it. There may be scientific recommendations from professional organizations, such as the recent American Heart Association push for improved stroke recognition by the EMS community. Alternatively, the push may come from the legislative arena. An example of this is the designated state trauma system with designated trauma centers.

Variations in the skill level of providers employed by an EMS agency may also require modifications to the protocols. If all of the rescuers are EMT or AEMT and Paramedics are added, the protocols may require modification. Finally, as a physician, an awareness of new issues and trends may identify a need that previously did not exist.

III. Establishing Validity

As medical director, the first priority is to establish that an approach or intervention is valid, appropriate, truly needed and beneficial in the prehospital environment. This is frequently self-evident, such as the case with improved stroke recognition or the use of aspirin in chest pain. Examples of more challenging issues are the use of non-invasive positive pressure ventilation in the field, the performance of 12-lead ECGs, the use of prehospital thrombolytics, the use of muscle relaxants to facilitate intubation or allowing basic level providers to perform intubations. The introduction of new devices for IV access or cricothyrotomy will also require discussion and a decision of their appropriate place in the EMS environment. Prehospital termination of resuscitation and/or patient pronouncement are also challenging issues.

Establishing validity may require some literature research, discussion with colleagues and community leaders and, last but not least, the EMS providers and EMS agency lead supervisor. There is a move to make EMS more of an evidence-based practice. Unfortunately, the process is hampered by the scant amount of good prehospital research as well as strong commercial pressures.

The fact that the approach or intervention is valid in one setting may not mean that it is appropriate nor needed in your system. For instance, it may be appropriate to teach your responders how to reduce joint dislocations if you practice in remote wilderness areas but not in an urban area. It is generally a good idea to know the number and types of runs that your service makes. If there are only two runs a year that would require the use of a new piece of equipment or intervention then it probably is not needed. This is especially true if it is expensive and does not prevent significant morbidity or mortality. If transport times are brief, many prehospital interventions are also probably not justified.

IV. Available Resources

Providers - While emergency catheterization and angioplasty may be the optimal treatment for many heart attacks, it is clearly beyond the scope of practice of any prehospital provider. The administration of aspirin is not. More challenging are issues such as the administration of thrombolytics in the field, for which there is some literature support under certain conditions. This is a moot point if your providers are EMTs or AEMTs. However, it may also be academic if your transport times are under 10-20 minutes and you transport to a center that performs emergency angioplasty. Many other interventions fall into the scope of practice for Paramedics but would be deemed inappropriate for EMTs and AEMTs.

Next, assess the need for additional training, testing and supervision for the use of any new medication or intervention. This is especially true for complex concepts and interventions. It is relatively easy to teach a medic how to use a pulse oximetry unit but somewhat harder for him or her to understand some of its limitations. A little more advanced and difficult is the use of capnography and its correct interpretation and the introduction of a 12-lead ECG program into the assessment of chest pain patients.

One must also consider whether those interventions and equipment are used frequently enough. If not, it may be very difficult to maintain skill level and enthusiasm, and interest will tend to wane rapidly. If your providers are primarily volunteers, it may be difficult to get them to participate in any additional training.

Medical Director - The medical director of an EMS system is a resource as well. Consider the investment of time, energy and money that you will need to make for the intervention to be successful. The more complex the intervention or protocol, the more demanding it will be for you. Inability to commit the necessary time and energy may doom the entire project and any future ones to failure. Beware of the desire to make so many changes that in the end none get done! Perhaps some of the responsibility can be shared with others in your service.

Equipment - In addition to the cost of training and retraining, there are material and equipment costs. Cost is also an issue with many of the newer defibrillators that can perform a 12-lead ECG. Although expensive, between $12,000-$17,000 per unit, if your EMS agency transports many patients with chest pain, this may be a worthwhile investment. In addition, if you have long transport times during which the care provided might potentially impact subsequent ECGs obtained in the ED, it may be a very desirable purchase.

An emerging intervention is the use of non-invasive positive pressure ventilation in the field by EMS providers for pulmonary edema and respiratory distress. Use of these technologies requires additional equipment and training. Nonetheless if you have a large nursing home or elderly population it may be a good investment, especially if you have longer transports during which the patient may derive benefit from the treatment.

Buy-in and Implementation - This process is easiest if there has been input from all of the participants *(EMS providers, EMS System administration and local hospital leadership)* prior to implementation. By instituting a partnership early in

the process, the likelihood of success increases because of the ownership and vested interests of the participants. Implementation requires educating the EMS personnel to the new intervention or approach as well as alerting the hospital emergency department staffs of the new intervention. The protocol needs to be clearly understood and any skills need to be reviewed and tested before the new protocol is implemented.

V. Revision of Protocol

As stated earlier, it would be unusual to arrive in a situation where there are no existing protocols. Where this is so, consultation with medical control may be indicated. While most of the above discussion revolves around new protocols or the introduction of new technology and medications requiring significant protocol changes, often the job is one of fine-tuning the existing protocols. A plan should be in place to periodically review a system's written protocols. This should be done to assess new and controversial areas of practice. See table 1 for more examples.

VI. Discontinuation of a Protocol

Periodically, as interventions come under scrutiny and research attempts to determine efficacy, a protocol may be deemed incorrect or actually potentially dangerous. This requires immediate attention by the medical director. The overuse of lights and sirens for emergency transports is one example.

Discontinuing an intervention is often more difficult than implementing a new protocol. In place of the enthusiasm that one might encounter with something new, there is often resentment. The discontinuation process should be the same as the implementation process with emphasis on education and QI.

VII. Summary

Protocols are an indispensable component of an EMS system. They are templates that guide the EMS provider's approach to a particular problem and define the standards of practice. Useful in training, they also serve as an instrument to assess quality of care. As new technology and medications become available, new protocols need to be written and old ones revised. This requires determining the validity as well as the utility of the intervention for your system. Consideration of local needs as well as local resources is an important part of the procedure. Finally, the new protocol sets a new standard that needs to be evaluated through the QI or PI process.

Resources
Ohio Department of Public Safety EMS Division
Regional Physicians Advisory Board (RPAB)
Ohio Chapter ACEP
National ACEP
National Association of EMS Physicians (NAEMSP)
Other Medical Directors
Emergency Medicine Physicians
Pediatric Emergency Medicine Physicians
NAEMT
JEMS Magazine
EMS Magazine

Table 1

Examples of New or Revised Protocols
Stroke recognition
Trauma destination protocols
ET tube verification
Use of end-tidal CO_2 monitoring
Amiodarone in Pulseless ventricular fibrillation
Analgesia for fractures
12-lead ECG for Chest pain
Sedation and paralysis to facilitate paramedic intubation

Chapter XIII: EMS Quality and Performance Improvement

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I. Introduction

Multiple quality assurance (QA) tools exist that can assist the medical director and EMS in ensuring high quality prehospital care. Modern QA endeavors are part of a Continuous Quality Improvement (CQI). These initiatives are comprehensive and multifaceted programs that involve input from field providers, agency leaders and managers, physicians, staff and patients.

Despite the variety of successful CQI methodologies, all of them share basic characteristics that must be present for an effective CQI program:

1. Errors/defects must be treated as a learning opportunity, rather than a basis for criticism and punishment. Errors/defects are generally system failures, rather than operator error. Providers at any level (Emergency Medical Provider through physician) are less likely to report errors if they face criticism and punishment. This reluctance to report includes self-reporting and reporting on others.

2. Analysis must be data driven. Anecdotal data do not meet the rigor with which clinical decisions must be made. Without baseline metrics, it is impossible to see if performance is improving or degrading.

3. Quality and patient safety improvements are a journey, not a destination. The best performing and safest healthcare delivery organizations treat quality and safety as a core value, not a project with start and stop milestones.

II. Learning from Errors and Defects

High reliability organizations (HRO) such as nuclear facilities and the airline industry know that each variance from a nominal value or protocol may have catastrophic consequences. Even one standard deviation from the mean, while acceptable in some industries, would lead to unacceptably high mortality in healthcare delivery. For example, commercial aviation is defect free for approximately eight standard deviations. (1)

Such companies cultivate an obsession with failure, examining each very closely through post incident review, morbidity and mortality conferences and tracking of outcomes. HROs attempt to reduce variability as much as possible. On aircraft carriers, *every single* carrier landing is graded and subject to review. This scrutiny applies to all pilots, regardless of rank or stature. This uniform grading practice helps to create a culture that focuses on learning and improvement and shifts away from a culture of blame. At Toyota, all workers are empowered to stop the entire assembly line at any

time. This creates a culture of focus upon defect elimination rather than a culture of punishment.

While it is impossible to standardize the type of call that EMS providers handle, the medical director should standardize inputs into the system to reduce variability in patient outcomes. This includes skill standards for EMS providers, equipment on the ambulance and protocols.

In addition to these tangible actions, medical directors must create a culture whereby providers and patients feel safe reporting errors (Just Culture). If QA is seen by the EMS providers as a punitive measure, they will be reluctant to talk with the medical director. In addition, they are far less likely to report errors or ask the physician to go over a call with them, losing a valuable opportunity for educational or protocol clarification.

Counter intuitively, a successful reporting culture will begin to see an increase in error reporting. This increase usually indicates more reporting, not more errors.

One important aspect of CQI work is to design systems and protocols that protect patients from the human errors inherent in all providers. It is important to recognize that most variances are the result of system problems with multiple contributing factors, rather than a single error. Using the “swiss cheese” model of error set forth by James Reason, several holes must line up in order for a clear passage through the cheese to be made. For example, consider the following steps that occur when a paramedic asks for orders for fentanyl:

1. The Paramedic follows a protocol, which dictates when fentanyl is indicated

2. The Paramedic speaks with online medical control and asks for the correct dose, expecting to get a dose within an expected range

3. The online medical control physician orders a given dose

4. The Paramedic repeats the dose back to the online medical control physician

5. The Paramedic draws up the dose

The five steps should help prevent a paramedic from giving an incorrect dose. The five protections are a mix of system protections (protocols, training) and individual redundancies (online direct orders, repeat back). These steps are all designed to prevent a mistake from a paramedic that may be tired, stressed, inexperienced or some other at-risk state.

III. Analysis Must Be Data Driven

Healthcare is already a data driven industry. You take vitals signs and draw laboratory studies. The only way to evaluate the efficacy of an EMS program is by measurement. You may choose to measure clinical capability, such as IV success rate. You may

choose to measure cycle time, such as the time from arrival on scene to the first intervention. Whatever you measure, it must be based on data rather than based on opinion. When choosing how you measure success, the data you collect must satisfy these criteria:

- The data are reliable and reproducible. It must be something that can be measured consistently over time, and it must be able to be measured by different people.

- The data should have a balancing measure. A balancing measure is intended to prevent EMS personnel from unintended behavior. For example, if you measure IV success rate a paramedic may subconsciously avoid attempting difficult IV sticks. Therefore, when measuring IV success rate you should either account for difficult sticks or make sure that the overall number of IV starts remains consistent.

- The data you collect should have a connection to patient outcomes. Not all data that **can** be collected **should** be collected. EMS personnel that arrive on scene very quickly are useless if they always get lost going to the ED. The ultimate goal for any EMS system is to improve patient outcomes. Therefore, make sure that whatever you measure will result in benefit for patients.

IV. CQI is a Journey, Not a Destination

In order to be successful, CQI initiatives must be continuous and must have participation from all members of the organization. Field providers are the only members of the EMS system totally immersed in prehospital care. Physicians have expert knowledge, but do not have the first-hand view of what happens prior to arrival at the ED. If field providers are not included in this process, they will see the CQI program as burdensome and punitive. You must design a CQI program with their full partnership. All improvement breaks down to a simple equation: E = QxA
The Effectiveness of a program = the Quality of the program x the Acceptance of the program.

In addition, improvement and safety must be part of your culture. EMS providers will follow your lead, so be sure to emphasize Improvement. CEOs typically count on saying something ten times to make sure their staff hears it once. Create a culture by starting each staff meeting with a “safety story” – a real example of someone ensuring good clinical outcomes. For example, a safety story may be an example of a Paramedic seeing ED staff co-mingle full and empty oxygen cylinders. If the Paramedic either reports this or takes the initiative to create separate storage areas, he/she is an example of making safety and quality a core value.

V. CQI Tools

“Near Miss” Reporting:

The Federal Aviation Administration (FAA) has pioneered a great number of

safety initiatives. Flight crews perform detailed preflight checks of their equipment in a standardized fashion, which ensures that no steps are being missed. This approach is appropriate for EMS agencies as well for the same reasons. Flight crews also have the ability to report “near misses”, which did not result in a bad outcome but were felt by the crews to have the potential for equipment damage, injury or loss of life. This reporting is done in a non-punitive way, which encourages personnel to bring forth their concerns to the benefit of the entire system. Pharmacies have also started taking a similar approach to reduce medication errors in the hospital. For example, medications which are similar in appearance and have a similar-appearing names or packaging are specially marked or separated.

Individual call review:

This is the simplest, although the most time-consuming, method of QA available to the EMS agency. Services with very small call volumes may allow post-run review of all calls, but for most services, it is impractical for the physician to do so. EMS supervisory personnel can screen out run sheets for physician review or may perform the initial QA review and report findings to the medical director. In large EMS systems, it is most practical for the agency to select or screen calls requiring medical director review, and this task should be delegated to an EMS agency member with strong clinical skills. The greatest limitation of the post-incident chart review is that written paperwork may not tell the whole story. There may be other factors influencing decision-making, and therefore QA staff must obtain further information from providers before drawing a conclusion. Even with attention to detail and an attempt to faithfully depict the events that unfolded during a call, the chart may not completely or entirely accurately describe the entire call.

Occurrence review:

Occurrence review is a call review triggered by an undesired event or adverse outcome, such as unrecognized endotracheal tube placement, medication error or protocol deviation. These frequently come to the attention of the service through reporting by the hospital to the EMS, reporting by employees who witness an error or bad outcome or by patient or family complaint. Adverse occurrences are sometimes identified in routine screening of EMS run reports. Clustering of adverse events should prompt routine review of these call types. If occurrence review is the only method of QA undertaken, the medical director will fail to have a balanced view of the quality of care being provided. He may develop an unduly negative view of the EMS provider’s care, since all he sees is complications and potential errors. Occurrence review only transpires when an issue is discovered; there may be substantial problems in care that never come to light because they are not witnessed.

Select chart review:

Certain call types involving problem-prone patient scenarios should be flagged for automatic review; these include calls where high risk interventions have been performed (intubation, surgical airway, chest decompression), or other quality measures come into play (cardiac cath lab door-to-balloon times, trauma

transport times) or that are frequently litigated (refusals, pediatrics). Calls with high morbidity or low patient satisfaction are areas that should be monitored. The advantage of this system is that the calls reviewed carry high medical risk to the patient as well as legal risk to the agency. However, using this method solely for call review may miss opportunities to ensure performance in other types that may not be seen as “critical care”.

Rotating chart review:

Review of calls may be undertaken with emphasis on certain call types or certain providers. For example, QA personnel may select one month to concentrate on reviewing chest pain calls; the next month, pediatric calls; the next month, abdominal pain and so on. This allows the agency to examine calls that would not ordinarily be flagged as “high risk”. With proper planning, this will occur before monthly training on that particular topic, identifying weak areas to be covered in training. The advantage of this type of call review is that you can compare a narrow set of calls system wide.

Individual Skill Tracking:

Certain skills should be tracked both as a system performance measure as well as individual performance measure. Endotracheal intubations, end tidal CO_2 monitoring, 12-lead EKG performance, IV success rate and aspirin for suspected cardiac chest pain are all examples of skills or interventions that should be tracked. It is particularly important to do so with infrequently performed or high risk interventions.

Performance Benchmarks:

Many systems use benchmarks such as door-to-balloon times, response times, system-wide skill performance success rates, and attendance at training sessions to ensure high performance of its providers. These can be relatively easy to track and calculate, as well as chart trends over time. These can be used to compare system performance to systems in other areas.

Comparing and Competing:

A little “friendly competition” may be generated if the providers have their performance compared with the other providers in the service, and this may stimulate an interest in improving performance. While performance outliers may not appreciate being identified to their coworkers, this may generate some peer pressure as well as personal drive to improve. An EMS should never be deliberately humiliated for their performance. Another option is to have unanimous reporting of comparative data.

Patient Satisfaction:

Many EMS systems employ post-market surveys to determine patient satisfaction with services. Customer feedback scores are common in industries that are service-based (hospitality) rather than process-based (manufacturing). These can provide detailed comments as well as numerical scores that can be

immensely helpful in determining opportunities for improvement, as well as recognizing individual achievement. If left with the patient and family member at the hospital, it is likely that they will have ample time on their hands in the emergency department to complete the survey, and this may ensure a high return rate. Keep in mind that survey forms should be in plain, easily understood language. Also, survey data frequently suffers from self-selection bias. They tend to be used more frequently by angry customers than satisfied ones. This risk can be mitigated by tracking data over time and carefully screening for statistically significant trends.

The customer's perception of service may, however, be irrelevant to the skill with which the paramedic handled the call. Customers who received some of the most critical life-saving interventions will likely have little memory of the encounter with EMS.

Service Recovery:

Surveys that indicate poor satisfaction or complaints that are received by the agency should be acted upon immediately. Not every complaint is legitimate, nor should every provider be chastised for poor customer satisfaction. Timing of the complaint may give a clue as to the reason for the complaint; if the complaint arrives some weeks after service, it may be in response to the bill rather than a real concern over the care or service provided. If the complaint arrives very soon after the call, then there may be a legitimate complaint. The medical director may be asked to render an opinion to management if there is a specific concern regarding medical care provided, but this function is otherwise out of the role of the medical director.

Liability

While cases are rare, an EMS agency may face liability for poor medical care when policy or procedure constitutes a pattern of behavior that can be reasonably expected to violate the constitutional rights of others. EMS agencies therefore have a duty to attempt to ensure high quality care. Even if unintentional, failure to address concerns over actions or omissions by employees may constitute "deliberate indifference" to the fact that others may be harmed. *Canton v. Harris* showed that a plaintiff "can prove that the [governmental agencies'] failure to train evidences deliberate indifference to the rights of its inhabitants such that the failure to train in effect constitutes a governmental custom or policy within the *Monell* framework." Likewise, a CQI program can show that individual variances are just that, rather than systemic incompetence.

Quality assurance processes, whether done through incident review, benchmarks, morbidity and mortality or case conferences, are invaluable to performance and patient safety. The Ohio Revised Code is explicit when it comes to the discoverability of information gathered during EMS quality assurance review:

"Information generated solely for use in a peer review or quality assurance program conducted on behalf of an emergency medical service organization is

not a public record under section 149.43 of the Revised Code. Such information, and any discussion conducted in the course of a peer review or quality assurance program conducted on behalf of an emergency medical service organization, is not subject to discovery in a civil action and shall not be introduced into evidence in a civil action against the emergency medical service organization on whose behalf the information was generated or the discussion occurred. No emergency medical service organization on whose behalf a peer review or quality assurance program is conducted, and no person who conducts such a program, because of performing such functions, shall be liable in a civil action for betrayal of professional confidence or otherwise in the absence of willful or wanton misconduct." ORC4765.12

Making QA Work for Your Agency

In order to work well, QA processes should be sensitive, relevant and immediate to performance. QA review of calls should occur when the details are still fresh in the EMS provider's mind. This will lead to getting better information on the EMS provider's thought processes and contributing factors if an error has occurred.

The QA process should be closely linked to training and continuing education. Common errors, bad outcomes or particularly difficult calls may indicate opportunities for training to improve skills and confidence among providers. This feedback loop should be continuous.

Quality assurance and performance assessments should be part of every EMS provider's personnel file. They can be useful at regular employee reviews to identify areas where the provider does well and areas that need improvement. This can be useful in establishing goals for the coming months for the employee to work on.

Example of the CQI process at work

An ALS ambulance, including one EMT and one Paramedic, are called to the home of a 65 year-old female complaining of nausea and vomiting. Her symptoms started approximately four hours prior to the 911 call. Her vital signs are normal, and exam is unremarkable. EKG and blood sugar are normal. The paramedic cares for the patient in the back of the ambulance, starting an IV to administer fluid and nausea medication. When she draws up the medication, however, instead of administering 25 mg of promethazine as she intended, she administers 5 mg of diazepam. The patient is mildly sedated, but suffers no other undesired effect. The paramedic realizes the error and reports this on arrival at the hospital to the receiving physician as well as to the EMS shift supervisor and medical director. An incident report is filed, and the patient run report accurately reflects the events of the call.

This would seem at first glance to be a simple error: the paramedic meant to draw one medication and mistakenly did another. But a deeper examination of the incident reveals that there are several contributing factors. User error is certain. Not only did the paramedic fail to obtain the right medication, but failed to perform the "right drug, right route, right dose, right date, right patient" checklist before administering the drug. This was reviewed with the paramedic to prevent

this sort of individual error in the future. Examination of training records revealed that this safety check had not been covered in continuing education, so this paramedic, while experienced, had not been recently refreshed on this procedure. Therefore, the procedure was added to the training plan agency-wide to ensure that it is periodically covered.

The EMS crew was in hour 20 of a 24-hour shift and had high run volumes all day. The paramedic in question had left her 24-hour shift at her part time job just 6 hours before starting this 24-hour shift, so fatigue was another concern. This led to policy change limiting consecutive shift hours with mandatory downtime between 24-hour work periods. It also led to institution of policy regarding non-punitive “safety stand-down” of individual personnel if they are showing signs of excessive fatigue.

The drug bag was examined as well to determine if the medications were housed in the same compartments or appeared similar in their containers. Had this been the case, the agency could have added a more prominent label on the medications or order them in a different packaging to improve identification. Finally, the paramedic voluntarily reported the incident, leading to enhancing safety for patients throughout the system. She was commended for being forthright regarding the error. This is the epitome of the culture of safety within the system.

What this case illustrates is that a small error may be indicative of larger system-wide issues that need to be addressed.

VI. Summary

Comprehensive quality assurance works to ensure high quality prehospital emergency medical services. QA has moved beyond simple call review when something goes awry, and requires a proactive approach to identify problems before they occur. This requires a collaborative effort between the medical director, EMS administration, and prehospital providers to help ensure that lessons learned in QA are translated into training, protocols, and patient care.

_____(1) A very frequently used CQI methodology, Six Sigma, is so titled because the work should be error free for six standard deviations. That performance capability would lead to patients only experiencing 3.34 defects per million defect opportunities. Although the actual number is subject to debate, the consensus defect (sigma) level for healthcare is roughly three sigma (1 defect per hundred defect opportunities).

Chapter XIV: Disaster Planning

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I. Introduction

Disasters or mass-casualty incidents occur when an event of any type or etiology causing destruction overwhelms an emergency response system and the ability of the community to respond in a sufficient manner (1). In some instances disasters cause immediate morbidity and mortality, whereas other disasters can lead to sub-acute or long-term complications. The consequences of the disaster are not limited to the medical realm; often psychological, emotional and financial challenges persist for years following the event.

In the recent decade, the United States and the global community have experienced many forms of disasters. Examples include tsunamis in Indonesia and India, several tornados in the Mid-West, hurricanes that have ravished the southeastern and northeastern regions of the United States, unfortunate train and airplane crashes, and the sobering events of increasing terroristic activity. Experts believe the occurrence of disasters will increase in the future secondary to several factors including worsening threats of terrorism, more populations of people living in regions with hurricanes, tornados and earthquakes, and the increased production and transportation of hazardous material (2).

Since the terrorism events of 9-11 federal, state and local governments have emphasized the importance of proper disaster planning and response. The bombing during the Boston Marathon in 2013 exemplifies the importance of disaster planning and mass-casualty response. This chapter will define and classify types of disasters, review the stages of disaster management, describe the incident command system (ICS), discuss disaster triage techniques, and provide an overview of the statewide and national resources available for the EMS medical director.

II. Definitions and Classifications

Disaster preparedness is a unique field for many reasons. While many disaster situations can be organized in discrete categories, each event is unique in some regard. The diversity of communities affected by disaster events also adds to the variable nature of the discipline. Further, disaster responses involve several different agencies, hospitals, EMS groups, and are sometimes subject to different rules and regulations.

While it is challenging to attempt a concrete definition of disaster and mass casualty events, the one defining characteristic of all events is that the response capabilities of the local community, state agencies or federal government are overwhelmed (2). It follows that such large events as the Boston Marathon bombings and Aurora, Colorado shootings were defined as mass casualties. However, it is important to note that a school bus crash in rural Ohio could overwhelm resources of the local EMS and a small hospital and thus would be considered a mass casualty event as well.

Many methods are employed to classify disasters. The first classification is based on the etiology of the event; that is, natural versus man-made. While the public is most familiar with this scheme, it does not address response capabilities and, often, the cause of the event is infrequently evident in the initial stages of the response. A second method classifies disasters based on the number of casualties. The same limitations apply to this scheme because it does not consider that response capabilities and casualty counts are often a dynamic process (2).

A third classification method organizes disasters based on the degree of response needed.

Level I: local resources are adequate
Level II: regional resources are needed for adequate response
Level III: state and federal assistance is needed

The advantage of this system is that it addresses the response needed to address the disaster. The disadvantage of this scheme is that it does not account for the dynamic nature of disasters as more information is gathered and processed. A fourth method for disaster classification is the PICE method (potential injury creating event). In addition to staging disasters based on need of resources, this scheme provides information regarding possibility of more casualties, geographic involvement, whether local resources are overwhelmed, and the status of outside aid (2).

III. Stages of Disaster Management

The stages of disaster management include mitigation, preparedness, response and recovery.

Mitigation

Disaster mitigation refers to steps and precautions taken prior to a disaster event to reduce damage from disaster or mass casualty events. For example a large, costal city prone to severe hurricanes may create a floodwall to divert overflowing water. A key factor in the mitigation process is the hazard vulnerability analysis, which allows a community to identify which disasters are most probable for their region and plan accordingly.

Preparedness

Using the hazard vulnerability analysis as a reference, disaster planning should begin with identifying possible disasters and developing a response plan for each. Important considerations include disaster plan activation, communication between regional EMS agencies and law enforcement, resource utilization strategies, communication equipment, public relations, patient management and personnel safety. Frequent practice scenarios and disaster drills are essential to the preparedness process.

Response

The response phase consists of activation of the disaster plan, notification of appropriate agencies, scene assessment and establishment of the ICS, triage and transportation. Dissemination of information should follow in a well-planned, structured manner typically orchestrated by an information officer. The ICS

functions as the epicenter of the disaster management process serving many functions as outlined below.

Recovery

The recovery phase involves the returning of the community back to baseline. Essential steps in this process include debriefing disaster personnel and post-disaster stress management. The debriefing can serve as a quality assurance and performance improvement opportunity for future events. While some experts question the efficacy of Critical Incident Stress Debriefing (CISD), EMS agencies need to provide some form of targeted and deliberate post-hoc intervention to treat acute stress reactions and prevent delayed morbidity.

IV. The Incident Command System

The ICS refers to the management approach utilized in disaster assessment and response. It was first developed in the 1970's during wildfires in California as a means to improve communications and several other operational parameters. The Department of Homeland Security requires state and federal agencies to use the ICS in emergency responses. It is also endorsed by the Occupational Safety and Health Administration (OSHA) and the National Fire Protection Association (NFPA) (3).

Contrary to traditional management strategies, the ICS is a dynamic system that is adaptable to various disaster situations. Despite the initial ambiguity associated with early assessment and response, the ICS mandates delegation, organization, and structured authority with the aims of incident stabilization, scene safety and life-saving medical interventions.

The five components of the ICS include command, planning, operations, logistics, and finance/administration. The incident commander is the primary decision-maker and the lead authoritative figure. Typically, this is an individual specifically trained in incident command. Interactions with public safety officers, information officers and liaison officers are usually coordinated through the incident commander (3).

The four remaining components of the ICS are often delegated to individuals reporting to the incident commander. The operations branch addresses personnel decisions, staffing decisions, and the overall disaster approach. The planning branch provides continuing disaster assessment and provides recommendations for further decision-making. The logistics branch is responsible for communications, the well-being of EMS providers and medical equipment and other supplies. Finally, the finance branch documents information on providers, injury reports and local resources used (3).

Please refer to the following for further information on the ICS:
http://www.fema.gov/national-incident-management-system.

V. Disaster Triage

Unlike traditional prehospital patient encounters involving one patient and nearly unlimited resources, mass casualty triage involves multiple patients, a stressful and possibly unsafe environment, and limited resources. The goal of disaster triage is to provide resources for as many patients as possible and to determine which order

patients need treated and transported. A reliable and accurate triage method is needed to avoid under-triage or over-triage of victims (4).

The most commonly encountered triage scheme and the one endorsed by the state of Ohio is START (simple triage and rapid treatment) Triage. This system assesses the patient's ability to walk, the presence of respiratory distress, adequate circulation through pulse determination, and neurologic status. Similar to the START Triage, JumpSTART Triage has been recommended for pediatric patients (4). Figure 1 and Figure 2 outline the START and JumpSTART algorithms.

The endpoint of primary triage categorizes victims into one of four categories:

1. Black: the patient is dead or has insurmountable injuries
2. Red: the patient requires emergent interventions. This category is the highest priority.
3. Yellow: the patient requires urgent interventions
4. Green: the patient does not require urgent care ("walking wounded"). This category is the lowest priority.

Triage must be a continuous process and should be repeated throughout the disaster response. Medical conditions can fluctuate and victims may become unstable overtime.

Figure 1

START Triage Algorithm (5)

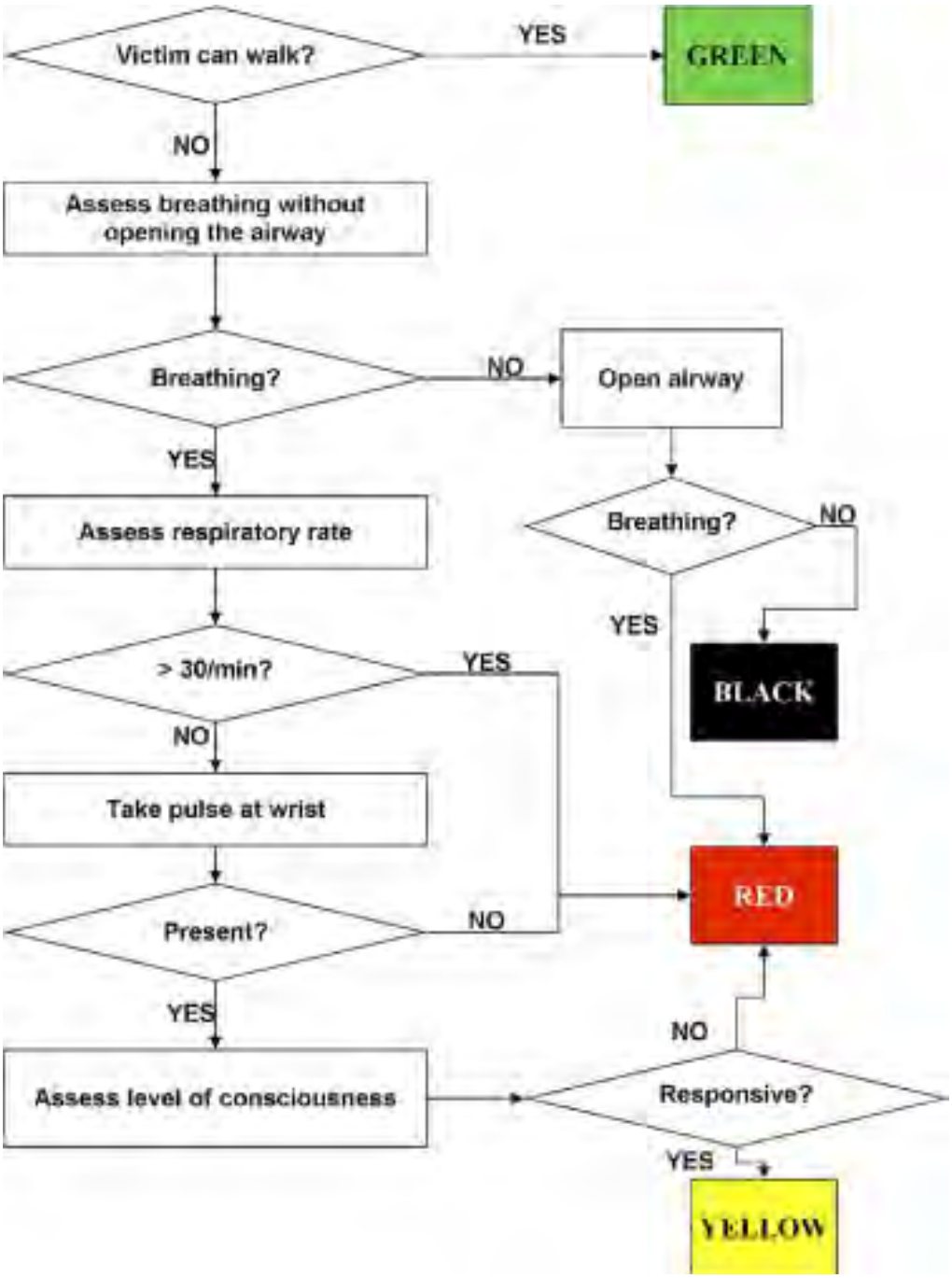
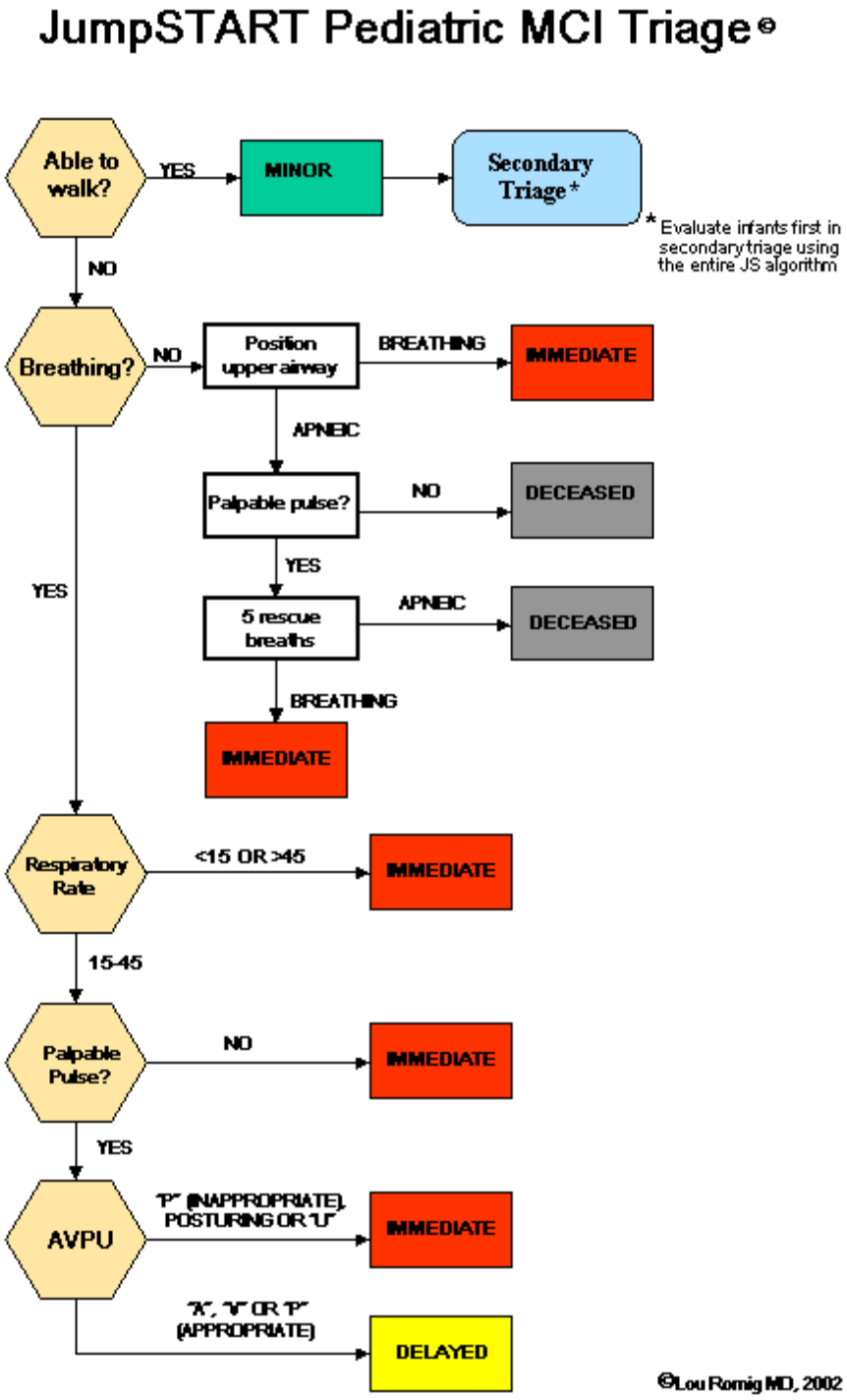


Figure 2

JumpSTART Triage Algorithm (6)



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5. Kahn CA, Schultz CH, Miller KT and Anderson CL. Does START Triage Work? An Outcomes Assessment after a Disaster. 2009. 54(3): 424-30.

6. The JumpSTART Pediatric MCI Triage Tool. Principles of Multicasualty Triage. http://www.jumpstarttriage.com/JumpSTART_and_MCI_Triage.php.

Federal Resources

- Federal Emergency Management Agency
  - Provide resources for disaster preparedness and mitigation
  - Coordinate federal disaster responses
  - Part of the Department of Homeland Security
  - www.fema.gov
- Department of Homeland Security
  - www.dhs.gov

State Resources

- Ohio Emergency Management Agency
  - http://ema.ohio.gov
- Ready Ohio
  - http://publicsafety.ohio.gov/NPM/index.stm

Chapter XV: EMSC (Emergency Medical Services for Children)

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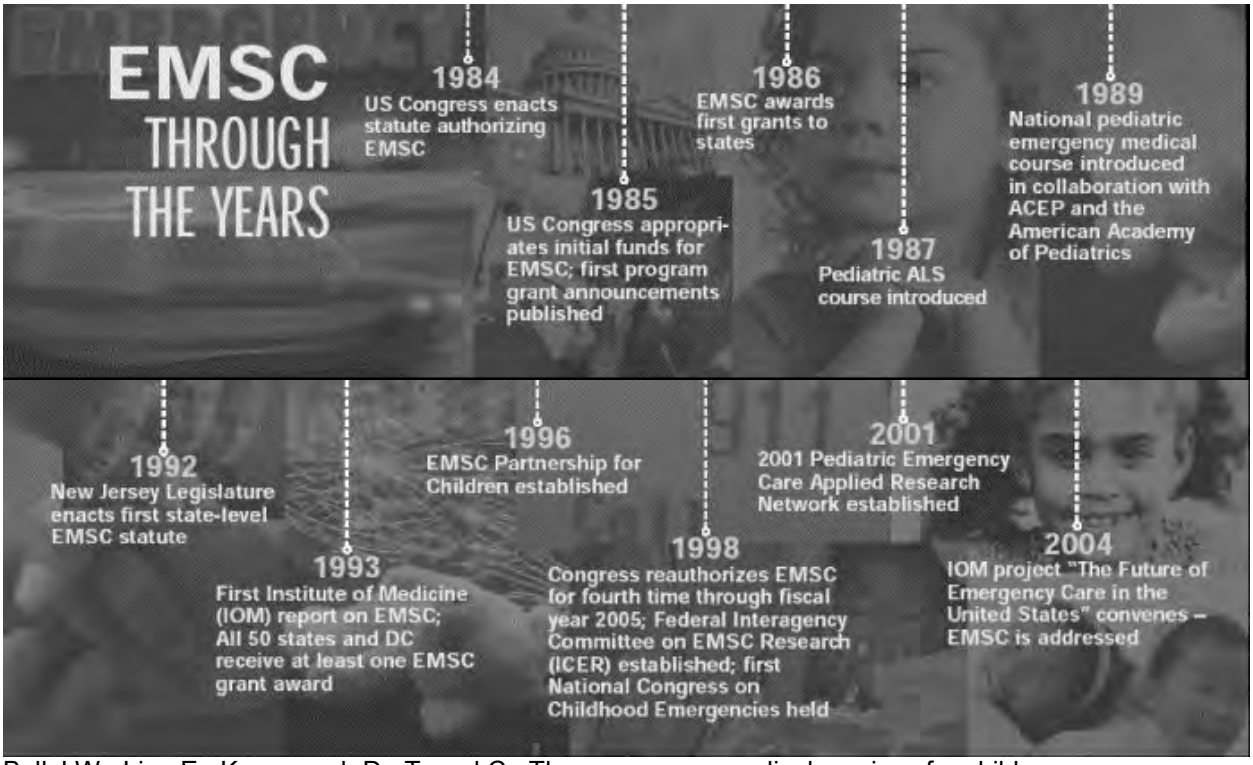
I. Introduction

Focused on raising awareness of the importance of providing specialized emergency care for children, EMSC was founded in 1984 by Senator Daniel Inouye of Hawaii and Dr. Calvin Sia from the American Academy of Pediatrics (AAP) The EMSC program was administered by the Health Resources and Services Administration's (HRSA) Maternal and Child Health Bureau to provide funds for states to implement the integration of pediatric specific equipment and training into current EMS systems. The goals of this new program were prevention, pediatric-specific education and training with appropriate guidelines and equipment, supporting research, and providing funding to allow for the implementation of the aforementioned changes to the way acute care was delivered to children.



Ball J.W., Liao E., Kavanaugh D., Turgel C. The emergency medical services for children program: Accomplishments and contributions. Clinical Pediatric Emergency Medicine. 2006;7(1):6-14.

II. EMS-C Goals

The over-arching goal of EMSC is to provide an uninterrupted system of care for all pediatric patients. Starting with the prevention and education of parents/caregivers, the goal is to reduce the incidence of preventable injuries. Despite best efforts at prevention, there will always be critically ill and injured children who require care. The integration of pediatric patients into the system of care starts with the EMS providers. EMSC has helped develop specific educational strategies so that EMS providers can deliver appropriate care based on pediatric guidelines. The goal is that EMS providers can begin this uninterrupted system of care by transporting children to hospitals with

pediatric designations. Such hospitals have specialized pediatric equipment readily available, and medical personnel trained to specifically care for acutely ill and injured child. For those communities without hospitals with pediatric designations, EMSC supports having systems in place for initial stabilization and transfer to facilities that can provide specialized pediatric care. In addition, EMSC provides resources for local, state and federal agencies to allow for the incorporation of pediatric components to disaster preparedness plans.

One of the most important goals of the EMSC program has been its plan for widespread dissemination of resources, guidelines, educational tools, research data and grant funding to study and implement the above. This is centralized at the EMSC National Resource Center: http://www.childrensnational.org/EMSC/, allowing for an efficient transfer of knowledge to those who seek to improve the care provided to the acutely ill or injured child.

Development of EMSC programs at the local, regional or state level often starts with a needs assessment. Knowing that some of the areas of the greatest need are often located in more rural areas, grant funding has been made available, and guidelines have been developed to help implement EMSC at all levels of care in all locations and situations. Collaboration between national organizations and federal agencies with an interest in pediatric emergency care has led to the development of the EMSC Partnership for Children Consortium which helps to disseminate new initiatives to improve the care provided at the local, state and federal levels.

III. Pediatric-specific EMS Needs

EMSC has compiled resources for providers to aid in acquiring the appropriate pediatric-specific equipment, to prepare education and training sessions for EMS and hospital staff, and to conduct quality assurance follow-up to ensure the best possible care was provided

Equipment

The National Resource Center has made available a variety of sources that have recommendations for equipment guidelines for children for use in different situations (i.e. pre-hospital and general emergency department). EMS providers and hospitals can utilize the EMSC Performance Measures to determine their readiness to provide care to the acutely ill or injured child.

The following is adapted from the Emergency Medical Services for Children National Resource Center (EMSC NRC).
EMSC Performance Measures Required Pediatric Emergency Medical Equipment for Patient Care Units.

BLS List (35 total unique items)
Suction catheters - Rigid tonsil tip (1) - Flexible between 6-10 fr. (1) - Flexible between 12-16 fr. (1)

Oxygen delivery
- Nasal cannula
  1. adult (1)
  2. child (1)
- Non-rebreather masks
  1. adult (1)
  2. child (1)

Bag valve mask
- Hand operated self-expanding bags
  1. child (450-750 ml) (1)
  2. adult (>1000ml) (1)
Masks for BVM- (1ea) (4)
- Adult
- Child
- Infant
- Neonate

Airways Nasal Airways (2) - 1 size between 16-24 fr - 1 size between 26-34 fr Oral airways- one in each size (3) - 0-1 - 2-3 - 4-5
Pulse oximeter with pediatric and adult probes (2) (Note: Pulse oximeter may be independent or integrated with a monitor/defibrillator or other device)
Bulb suction for infants (if not included in OB kit) (1)
AED or defibrillator that includes pediatric capability (1)

Immobilization devices
- Rigid cervical for children 2 years through adult
  1. small (1)
  2. medium (1)

http://www.childrensnational.org/files/PDF/EMSC/ForGrantees/Equipment_Checklist_for_PMs.pdf

ALS List

(Includes items on BLS list plus 34 or 35 additional unique items depending on end tidal CO_2 capability and with 2 ET tubes of same size counted as 1 item)

Endotracheal tubes
Uncuffed and/or Cuffed endotracheal tubes (2 each) (10)

- 2.5
- 3.0
- 3.5
- 4.0
- 4.5
- 5.0
- 5.5
- 6.0
- 7.0
- 8.0

Laryngoscope blades
Miller in sizes (4)

- 0
- 1
- 2
- 3 or 4

Curved sizes (2)

- 2
- 3 or 4

Stylettes for Endotracheal Tubes

- Adult size (1)
- Pediatric size (1)

Meconium aspirator adaptor (1)

Magill forceps

- Adult size (1)
- Pediatric size (1)

End-tidal CO2 detection capability: either quantitative capnometry (1) or colorimetric in sizes adult and pediatric (2)

Vascular access
Intravenous catheters sized 24-14 ga

- Range of 4 sizes with at least one smaller than 20 ga. (4)

Intraosseous needles (2)

- Adult size
- Child size

Assorted syringes; at least 2 sizes including 1 cc (2)

Defibrillator with the appropriate paddles and/or pads to defibrillate children and adults (2)

Transcutaneous cardiac pacemaker with adult and pediatric pads/cables (may be integrated with monitor/defibrillator) (2)

Education and Training

It has always been the goal of EMSC to make available the tools and resources necessary to educate EMS personnel and hospital providers in an effort to standardize the care provided to children.

A good resource for EMS education and training can be found at: http://www.childrensnational.org/EMSC/EducationTraining/

Other common education programs for prehospital providers regarding the approach for caring for the sick or injured child include:

ITLS Pediatric (PITLS):
ITLS Pediatric continues the training of the Basic and Advanced courses with an emphasis on understanding and responding to trauma in children. The eight-hour course teaches the proper assessment, stabilization and packaging of pediatric trauma patients. It also highlights techniques for communicating with young patients and their parents. Hands-on stations include:

- Patient assessment and management
- Airway management and chest decompression
- Fluid resuscitation
- Spine motion restriction - pediatric immobilization device

Prehospital Trauma Life Support (PHTLS):.
This course promotes trauma patient management through global education of all providers involved in the delivery of prehospital care. It improves the quality of trauma care in your area and decreases mortality. The program is based on a prehospital trauma care philosophy, stressing the treatment of the multi-system trauma patient as a unique entity with specific needs. PHTLS is developed by the National Association of Emergency Medical Technicians in cooperation with the American College of Surgeons Committee on Trauma.

The EMSC National Resource Center (NRC) now offers EMSC-focused training online: http://www.childrensnational.org/EMSC/EducationTraining/web-based-training.aspx

Examples include the following NRC courses - currently available:

Family Presence in the Emergency Department primarily targeting emergency department nurses, this course includes three modules: evidence for family presence (FP), introduction to FP, and implementation of a FP program.

Pediatric Disaster Planning and Preparedness primarily targeting emergency management officials, EMS responders, hospital personnel, and school management personnel, this course includes five modules: Why Disaster Planning for Children Is Needed; Accessing Community Risk for Disasters Involving Children; Preparing the Community for Disasters Involving Children; Responding to Disasters Involving Children (Assessment/Triage); and Responding to Disasters Involving Children (Resuscitation/Treatment.

An additional educational and training resource is the Pediatric Education for Prehospital Professionals (PEPP), developed by the American Academy of Pediatrics. PEPP is a curriculum designed specifically to teach prehospital professionals how to better assess and manage ill or injured children. More information can be obtained at http://www.peppsite.com/.

Quality Assurance and Improvement

It is the responsibility of the EMS medical director to regularly review the pre-hospital care of pediatric patients with EMS providers - not only those involved directly in the care of the patient, but also their EMS colleagues. Such quality assurance and improvement meetings (or "Run Reviews") allow for review of established protocols, assessing whether those protocols were followed, as well as the success or failure of any procedures that were required. These sessions can serve as a reminder of the differences in caring for children, since they comprise only a minority of any pre-hospital provider's patient care opportunities. It is important to provide a mechanism for early recognition of potential problems and determine the effectiveness of corrective action. As such, quality improvement reviews should be held for physicians, nurses and ancillary staff to ensure the care provided to the acutely ill and injured child meets standard of care and pediatric emergency care guidelines.

IV. Resources

Protocols

One of the first areas of focus of EMSC was the development of pediatric guidelines and protocols, with the goal that doing so would standardize the care provided to children in the pre-hospital and hospital settings. EMSC has the goal that the guidelines developed will be evidence-based, promoting clinical expertise supported by quality research.

The Institute of Medicine's (IOM) panel on Practice Guidelines and Performance Measures developed the following recommendations with regard to developing EMSC practice guidelines and protocols (noted in part below):

- A national commitment must be made to the research and development of pediatric emergency care guidelines
- Practice guidelines specifically tailored to EMSC should be developed or refined through a broad consensus
- Ensure that EMSC guidelines are flexible in design
- Use a scientific approach to the development of EMSC guidelines
- Acknowledge the family's role in guidelines
- Develop performance measures that consider high-risk children separately

The following is adapted/obtained from the EMSC NRC, and further information may be obtained from:
http://www.childrensnational.org/files/PDF/EMSC/PubRes/NAEMSP_Model_Pediatric_Protocols_%282003_Revision%29.pdf

Model Pediatric Protocols

These model pediatric prehospital guidelines, developed by the National Association of EMS Physicians in collaboration with EMSC, provide a basis for medical direction to create or refine existing guidelines to meet local, regional, and state needs. They also set forth a standardized approach to pediatric treatment that can be employed by a wide variety of EMS systems. Protocols may differ between different agencies depending on local, regional, or state policies and needs. They should be modified to fit specific localities/agencies, and additional protocols may be needed in certain areas. It is also important for EMS agencies to develop guidelines and protocols for those children in their area with special health care needs.

EMSC Partnership for Children
National Association of EMS Physicians
Model Pediatric Protocols

GENERAL PATIENT CARE
TRAUMA
BURNS
FOREIGN BODY AIRWAY OBSTRUCTION
RESPIRATORY DISTRESS, FAILURE, OR ARREST
BRONCHOSPASM
NEWBORN RESUSCITATION
BRADYCARDIA
TACHYCARDIA
NON-TRAUMATIC CARDIAC ARREST
VENTRICULAR FIBRILLATION OR PULSELESS VENTRICULAR TACHYCARDIA
ASYSTOLE
PULSELESS ELECTRICAL ACTIVITY
ALTERED MENTAL STATUS
SEIZURES
NON-TRAUMATIC HYPOPERFUSION (SHOCK)
ANAPHYLACTIC SHOCK/ALLERGIC REACTION
TOXIC EXPOSURE
NEAR-DROWNING
PAIN MANAGEMENT
DEATH OF A CHILD AND SUDDEN INFANT DEATH SYNDROME (SIDS)

Research

The lack of scientific evidence-based knowledge in pediatric emergency care makes research in this area of critical. In an effort to enable and improve this research, grants were secured and the first federally funded pediatric emergency care research network was formed (Pediatric Emergency Care Applied Research Network – PECARN).

PECARN is comprised of several emergency departments, and it is using its combined more than 800,000 annual patient volume to conduct research and develop guidelines that would otherwise be difficult, since pediatric volumes at

any one institution are often insufficient to provide an adequate research population.

In an effort to focus research on the areas of greatest need, PECARN has identified high-priority EMS research topics for children via a consensus of representatives from the four PECARN nodes and from EMS agency partners. The priority list was presented at a PECARN EMS summit, and consensus was obtained. The PECARN EMS pediatric research priority list should help focus future pediatric research based on the topics listed below:

Final Clinical and System Topics in Priority Rank Order:

Clinical Topics		***System Topics***	
Rank	Topic	Rank	Topic
1.	Airway management	1.	Effectiveness of out-of-hospital interventions
2.	Respiratory distress	2.	Knowledge and skill deterioration
3.	Trauma	3.	Patient outcomes
4.	Asthma	4.	Evaluation of the impact of overall EMS
5.	Head trauma system changes on children	5.	Training effectiveness
6.	Shock		
7.	Pain		
8.	Seizures		
9.	Respiratory arrest		
10.	C-spine immobilization		
11.	Cardiac arrest		
12.	Injury prevention		
13.	Children with special needs		
14.	Poisoning		
15.	Abuse and neglect		

The IOM Committee on the Future of Emergency Care in the United States Health System published findings and recommendations for improving pediatric emergency and trauma care in 2006, in the text “Future of Emergency Care: Emergency Care for Children; Growing Pains.” Below is the summary of their recommendations:

> -The Secretary of Health and Human Services should conduct a study to examine the gaps and opportunities in emergency care research, including pediatric emergency care, and recommend a strategy for the optimal organization and funding of the research effort. This study should include consideration of the training of new investigators, development of multicenter research networks, involvement of emergency and trauma care researchers in the grant review and research advisory processes, and improved research coordination through a dedicated center or institute. Congress and federal agencies involved in emergency and trauma care research (including the Department of Transportation, the Department of Health and Human Services, the Department of Homeland Security, and the Department of Defense) should implement the study’s recommendations.

-Administrators of state and national trauma registries should include standard pediatric-specific data elements and provide the data to the National Trauma Data Bank. Additionally, the American College of Surgeons should establish a multidisciplinary pediatric specialty committee to continuously evaluate pediatric-specific data elements for the National Trauma Data Bank and identify areas for pediatric research.

Finances

Grant funding has had an important role in EMSC and it's goals. Grant funds have been used to support prevention education for the public, to develop and administer training for EMS providers, to improve the availability of pediatric-specific equipment for ambulances and emergency departments, and to fund research to improve pediatric emergency care. There are a variety of resources available to support EMSC, and a portion of those are listed below:

FINANCIAL and RESEARCH RESOURCES AVAILABLE TO SUPPORT EMSC

Grants and Cooperative Agreements Funded by EMSC	Description
State Partnership (SP) Grants	State Partnership grants fund activities to improve and integrate pediatric emergency care in a state EMS System. The typical applicant is a state government unless the state decides to delegate responsibility to an accredited school of medicine. Every grantee is required to collect and report data on program-defined performance measures.
Targeted Issue (TI) Grants	Targeted issue grants are intended to address specific needs, concerns, or topics in pediatric emergency care that transcend state boundaries. Grantees are typically schools of medicine looking to find new approaches to providing the best possible emergency care for children across the nation. Typically, the projects result in new products or resources, or demonstrate the effectiveness of model system component(s) or service(s) of value.
Network Development Demonstration Project (NDDP) Cooperative Agreements	NDDP cooperative agreements demonstrate the value of an infrastructure or network that conducts multi-center investigations on the efficacy of treatment, transport, and care responses for children, including those preceding the arrival of children to hospital emergency departments. The PECARN currently consists of four NDDP cooperative agreements awarded to academic medical centers.

Central Data Management Coordinating Center (CDMCC)	Following the inception of the PECARN, a cooperative agreement was awarded to the University of Utah to serve as the Network's Central Data Management and Coordinating Center (CDMCC). The Center provides a central repository for data generated by each of the PECARN research sites, or nodes, and their hospital affiliates. The CDMCC also works with PECARN principal investigators to implement PECARN-wide standards for data collection and analysis in order to ensure uniformity and quality of the data and to monitor the safety and timely progress of PECARN studies.
National EMSC Data Analysis Resource Center (NEDARC)	Funded through a cooperative agreement, NEDARC provides technical assistance to EMSC grantees and state EMS offices in the areas of data collection, data analysis, data communication, quality improvement, grant writing, and research design.
EMSC National Resource Center (EMSC-NRC)	Also funded through a cooperative agreement, the EMSC-NRC provides support to EMSC federal project officers and EMSC grantees.

Adapted from the U.S. Department of Health and Human Services, Health Resources and Services Administration website, http://mchb.hrsa.gov/programs/emergencymedical/ Emergency Medical Services for Children http://mchb.hrsa.gov/programs/emergencymedical/

V. SUMMARY

Through the various efforts of the EMSC program, there has been improved awareness of the need for pediatric-specific care for the acutely ill or injured child. Grant funding from EMSC has enabled the formation of committees to further the development of future protocols and guidelines, to provide appropriate equipment in the pre-hospital and hospital setting, and to support the research of those investigating the various aspects of pediatric emergency care. One of its most important functions is EMSC's centralized data center, which allows providers from even the most remote location access to protocols, guidelines, research and educational resources to implement optimal emergency care for children in their area.

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Chapter XVI: Trauma Triage - Ohio

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I. Introduction

The term *triage* comes from the French term *trier,* meaning "to sort." Triage is the act of sorting patients based on medical need. The primary goals of EMS triage are:

- Rapid assessment;
- Ascertaining the severity of illness or injury; and
- EMS patient transport to the closest, most appropriate medical destination capable of treating the medical emergency at hand.

Triage allows EMS to achieve definitive medical care for patients in the quickest manner possible. Triage assists EMS in getting the "right" patient to the "right" hospital in the "right" amount of time.

EMS has a duty to triage patients. Rapid, appropriate triage can make the difference between life and death in acutely ill or injured patients. When multiple patients are triaged, successful triage also provides for the proper allocation of resources.

II. Types of Triage

Triage has varying connotations based on the number of patients on-scene, as well as the medical resources available to treat those patients. The two types of triage are *non-disaster/basic triage* and *disaster/mass casualty triage*.

Non-Disaster/Basic Triage

Non-disaster/basic triage is used by EMS when a single or a few ill or injured patients need to be assessed and a destination decision needs to be reached based on the severity of each patient's medical condition.

Each patient in a *non-disaster/basic triage* situation is assessed individually. Triage decisions occur after assessment of the patient. Common triage categorizations in non-disaster/basic triage include *emergent, urgent and non-urgent*.

Alterations in the primary patient assessment - the "ABCs" of airway, breathing, circulation and disability - warrant the highest level of triage categorization and should precipitate a rapid transport of the patient to the closest, most appropriate hospital. Alterations in the secondary assessment of patients may also generate a high triage categorization, for example if a patient has a pulseless fractured extremity. Patients in which less severe or no abnormalities are found in the primary or secondary assessment are transported at a lesser degree of urgency. All available information including primary and secondary assessment, history if known, mechanism of injury and/or exposure to disease should be used to make each triage decision.

If triage categorization is borderline between one category and another, EMS should act on the side of caution and assign the higher triage category to the patient.

TABLE A: **Commonly Used Non-disaster/Basic Triage Categories**

CATEGORY	DEFINITIONS
Emergent	• Life-threatening injuries • Significant alterations in the primary patient assessment---the "ABCs" of airway, breathing, circulation and disability • Significant alterations in the secondary survey, for example severe pain or pulseless extremity • Penetrating torso trauma even if no other changes in assessment
Urgent	• Serious illness or injury that requires treatment within 30-60 minutes
Non-urgent	• Illness or injury that can wait without harm for treatment beyond 60 minutes

Disaster/Mass casualty Triage

Disaster/mass casualty triage is used at EMS scenes in which there are several ill or injured patients, or in which the number of patients (even if a few) overwhelms available medical resources. This type of triage allows multiple victims to be triaged based on acuity and likelihood of survival, in light of finite medical resources. Please refer to Chapter 14 for more information regarding disaster triage and mass casualty events

III. State of Ohio's Triage Criteria

In the year 2000, *Trauma Triage Criteria* for EMS were mandated as part of the then-new statewide trauma system. Ohio law (ORC §4765.40) gives the authority to the Ohio EMS Board to establish specific triage rules for EMS. Trauma triage rules were originally completed for all Ohio EMS providers in early 2001. These first state-based triage rules include criteria for triaging both adult and pediatric patients. In 2008, a study published by Werman et al[1] documented specific geriatric trauma triage criteria with data analyzed from the state's trauma registry. Based on that report, Ohio EMS Trauma Triage Rules were revised by the EMS Board, and included additional triage criteria for geriatric trauma victims as their own category of patients.

All Ohio EMS providers are bound by Ohio's EMS Trauma Triage Rules. The Ohio Trauma Triage Rules[2] define *trauma* and *trauma injury* in patients by a mechanism of injury of one or more of the following:

- Blunt or penetrating injury;
- Exposure to electromagnetic, chemical, or radioactive energy;
- Drowning, suffocation, or strangulation; and/or
- A deficit or excess of heat.

The trauma victims must also have "severe damage or destruction of tissues" with a "significant risk" of:

- Loss of life;
- Loss of a limb;

- Significant, permanent disfigurement; and/or
- Significant, permanent disability.

Ohio's Trauma Triage Rules allow the Regional Physician Advisory Boards (RPABs) to establish caveats to the state's Trauma Triage Rules for EMS in their regions, providing that RPAB triage criteria is no less stringent than state rules. Several RPABs in Ohio have established their own criteria. EMS should ascertain whether such criteria exist in their RPAB region. RPAB regions that have not established their own trauma triage criteria for EMS under applicable rules set by the EMS Board shall default to the state's trauma triage rules.

***TABLE E*: State of Ohio Trauma Triage Criteria for EMS**

ANY ONE OR MORE TRAUMA INJURY/SYMPTOM THAT REQUIRES TRANSPORT OF <u>PEDIATRIC PATIENTS AGE <16 YEARS</u> TO A VERIFIED TRAUMA CENTER UNLESS ONE OF FIVE EXCEPTIONS APPLIES*
Physiologic conditions of: • Glasgow Coma Scale less than or equal to 13: • Loss of consciousness greater than five minutes; • Deterioration in level of consciousness at the scene or during transport; • Failure to localize to pain; • Respiratory rate < 10 or > 29; • Requires endotracheal intubation; • Requires relief of tension pneumothorax; • Pulse > 120 in combination with evidence of hemorrhagic shock; • Systolic blood pressure < 90 or absent radial pulse with carotid pulse present.

Anatomic conditions of:
• Penetrating trauma to the head, neck, or torso;
• Significant, penetrating trauma to extremities proximal to the knee or elbow with evidence of neurovascular compromise;
• Injuries to the head, neck, or torso where the following physical findings are present:
  ・ Visible crush injury,
  ・ Abdominal tenderness, distention, or seatbelt sign,
  ・ Pelvic fracture,
  ・ Flail chest;
• Injuries to the extremities where the following physical findings are present:
  ・ Amputations proximal to the wrist or ankle,
  ・ Visible crush injury,
  ・ Fractures of two or more proximal long bones,
  ・ Evidence of neurovascular compromise;
• Signs or symptoms of spinal cord injury;
• Second degree or third degree burns > 10 percent total body surface area, or other significant burns involving the face, feet, hands, genitalia, or airway.

ANY ONE OR MORE TRAUMA INJURY/SYMPTOM THAT REQUIRES TRANSPORT OF <u>ADULT PATIENTS AGE 16-69 YEARS</u> TO A VERIFIED TRAUMA CENTER UNLESS ONE OF FIVE EXCEPTIONS APPLIES*
Physiologic conditions of: • Glasgow Coma Scale less than or equal 13; • Loss of consciousness greater than five minutes; • Deterioration in level of consciousness at the scene or during transport; • Failure to localize to pain; • Evidence of poor perfusion; • Evidence of respiratory distress or failure.

Anatomic conditions of:

- Penetrating trauma to the head, neck, or torso;
- Significant, penetrating trauma to extremities proximal to the knee or elbow with evidence of neurovascular compromise;
- Injuries to the head, neck, or torso where the following physical findings are present;
  - Visible crush injury,
  - Abdominal tenderness, distention, or seatbelt sign,
  - Pelvic fracture,
  - Flail chest;
- Injuries to the extremities where the following physical findings are present:
  - Amputations proximal to the wrist or ankle;
  - Visible crush injury:
  - Fractures of two or more proximal long bones;
  - Evidence of neurovascular compromise.
- Signs or symptoms of spinal cord injury;
- Second or third degree burns > 10 percent total body surface area, or other significant burns involving the face, feet, hands, genitalia, or airway.

ANY ONE OR MORE TRAUMA INJURY/SYMPTOM THAT REQUIRES TRANSPORT OF GERIATRIC PATIENTS AGE 70+ YEARS TO A VERIFIED TRAUMA CENTER UNLESS ONE OF FIVE EXCEPTIONS APPLIES*^

Physiologic conditions of:

- **Glasgow Coma Scale less than or equal to 14 in a trauma patient with a known or suspected traumatic brain injury;**
- Glasgow Coma Score less than or equal to 13;
- Loss of consciousness greater than five minutes;
- Deterioration in level of consciousness at the scene or during transport;
- Failure to localize to pain;
- Respiratory rate less than ten or greater than twenty-nine;
- Requires endotracheal intubation;
- Requires relief of tension pneumothorax; Pulse greater than one hundred twenty in combination with evidence of hemorrhagic shock;
- **Systolic blood pressure < 100**, or absent radial pulse with carotid pulse present;

Anatomic conditions of:

- Penetrating trauma to the head, neck, or torso;
- Significant, penetrating trauma to extremities proximal to the knee or elbow with evidence of neurovascular compromise;
- Injuries to the head, neck, or torso where the following physical findings are present:
  - Visible crush injury,
  - Abdominal tenderness, distention, or seatbelt sign,
  - Pelvic fracture,
  - Flail chest;
- Injuries to the extremities where the following physical findings are present:
  - Amputations proximal to the wrist or ankle,
  - Visible crush injury,
  - **Fracture of one or more proximal long bone sustained as a result of a motor vehicle crash,**
  - Fractures of two or more proximal long bones,
  - Evidence of neurovascular compromise;
- Signs or symptoms of spinal cord injury;
- Second degree or third degree burns > 10 percent total body surface area, or other significant burns involving the face, feet, hands, genitalia, or airway;
- **Injury sustained in two or more body regions.**

Cause of injury of:

- **Pedestrian struck by a motor vehicle;**
- **Fall from any height, including standing falls, with evidence of a traumatic brain injury.**

There are five exclusion criteria for EMS to transport a patient to a non-trauma center. They are as follows:

1. "It is medically necessary to transport the victim to another hospital for initial assessment and stabilization before transfer to an adult or pediatric trauma center;
2. It is unsafe or medically inappropriate to transport the victim directly to an adult or pediatric trauma center due to adverse weather or ground conditions or excessive transport time;
3. Transporting the victim to an adult or pediatric trauma center would cause a shortage of local emergency medical service resources;
4. No appropriate adult or pediatric trauma center is able to receive and provide adult or pediatric trauma care to the trauma victim without undue delay; (or)
5. Before transport of a patient begins, the patient requests to be taken to a particular hospital that is not a trauma center or, if the patient is less than eighteen years of age or is not able to communicate, such a request is made by an adult member of the patient's family or a legal representative of the patient."

IV. Other Triage Considerations

EMS should follow their agency's standard operating procedures with regards to triage in their jurisdictions. Ohio has not currently promulgated triage rules for other emergent conditions such as heart attacks and acute strokes. When making triage destination decisions for patients experiencing medical emergencies, EMS should triage patients to hospitals that have appropriate capabilities to care for the particular condition. Hospitals have varying levels of emergency capabilities. EMS should work with local hospital partners and regional trauma and emergency systems to achieve an understanding of the capabilities of each local hospital. EMS should select the triage destination decision based on what is in the *best interest of the patient.* Transport of patients to the nearest hospital when a patient is experiencing an acute medical condition for which that hospital has no specialty capabilities is not in the best interest of the patient. Especially in metropolitan areas, EMS may need to bypass the nearest hospital if it lacks specialty capabilities required by the patient's medical condition, in order to take the patient to another hospital that can provide the appropriate level of care.

TABLE F: **Triage Destination Decisions for Consideration Based on Patient Condition**

MEDICAL CONDITION/SYMPTOMS	OPTIMAL HOSPITAL TYPE IF AVAILABLE
Significant trauma injury	Verified trauma centers (Level I is the highest trauma center level)
ST-elevation myocardial infarction (STEMI)	Verified chest pain centers
Acute stroke	Verified stroke centers if possible
Neonatal (especially premature) patients	Accredited neonatal intensive care nurseries (Level III is the highest level of neonatal care)
Obstetric patients in active labor	Hospitals with obstetric (OB) units and in-house OB physician coverage
Patients with burns >20% body surface area	Verified burn centers
Carbon monoxide poisoning	Hospitals with hyperbaric capabilities

Closed head injuries with low Glasgow Coma Scale	Hospitals with neurosurgical capabilities and in-house neurosurgeon

Some regions in Ohio have publicized local hospitals' emergency capabilities to assist EMS in making triage destination decisions for patients experiencing emergent medical conditions. EMS agencies can ascertain through their RPAB or regional trauma/emergency system whether such documentation has been published in their region.

V. Triage Training

Triage is a skill requiring on-going training to maintain proficiency. All EMS providers in the state are required to have formal trauma triage education at least once in every three-year certification cycle as a requirement for re-licensure (OAC §4765-15-03, 4765-16-03, 4765-17-02). The Ohio Department of Public Safety, Division of EMS, posts a training module on-line at www.ems.ohio.gov/ems_trauma.stm that is available at no cost. Other options for training include similar products developed through regional trauma and emergency systems in Ohio, and other accredited Ohio EMS training sites. More information about Ohio EMS trauma triage continuing education requirements can be found at www.publicsafety.ohio.gov/links/ems_hdi_complete_traumatriage_course.pdf.

Triage training for other emergency conditions such as acute strokes, myocardial infarctions and severe asthma attacks is also essential. EMS agencies should establish triage education programs for these critical patient scenarios so that their EMS providers archive proficiency. Education in *disaster/mass casualty Triage* can be achieved through active participation in disaster drills in conjunction with hospitals and other community emergency response partners.

VI. Summary

Triage is a multi-faceted process that requires attention and skill on the part of the EMS provider. Triage is a dynamic process requiring careful reassessment of patients for changes in condition and. EMS scene triage is the first triage phase for the patient; aeromedical transport programs, emergency departments and hospital inpatient units all conduct a triage assessment of the patient upon arrival.

The State of Ohio mandates trauma triage rules for EMS. Other trauma triage criteria intended to benefit patients and EMS may be available through RPABs and regional trauma and emergency systems. Ongoing triage education is essential to maintaining triage proficiency of the EMS workforce in Ohio.

References

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Chapter XVII: Fireground

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I. Introduction

There are 321,000 career firefighters and 830,000 volunteer firefighters operating out of more than 30,000 fire departments within the United States. EMS is provided by 60% of these departments, and is a separate service for the remaining 40%.

Whether EMS is integrated into the fire department, or operates as a separate service, EMS activities are an integral part of fireground operations. EMS personnel care for and transport fire victims as well as injured firefighters. In addition, the National Fire Protection Agency (NFPA) now requires a rehabilitation sector, with trained EMS providers to evaluate firefighters for readiness to return to fireground activities. An understanding of EMS operations on the fireground requires basic knowledge of the Incident Command System (ICS), incident types, and fireground safety. These topics, in addition to the specific EMS fireground tasks, are covered in this chapter.

II. Fireground Operations

Fires occur in all types of structures as well as in the open. Typical incident types include single family house fires, apartment fires, high rise fires, office and commercial fires, vehicle fires, outdoor or wildland fires, and hazardous materials incidents.

The number and types of fire vehicles and personnel on the scene will depend on the incident type, as well as the size and spread of the fire. Each piece of apparatus carries 2-6 firefighters, with staffing dependent on local resources and staffing patterns. For a typical house fire, two engines, a ladder truck and/or heavy rescue respond, with additional units added if the fire is not easily controlled. Fires in apartment buildings and commercial structures often require multiple engines, ladders and rescue squads, with a corresponding increase in the number of personnel.

Fires in high rise buildings may require resources, including EMS personnel and supplies, to be staged several floors below the fire. EMS crews in areas with high rise buildings must be prepared to rapidly relocate to a remote location, with all of their supplies and personal protective equipment (PPE).

A small, but significant portion of fire and EMS responses, are for incidents involving substances that are hazardous to human health and/or present significant fire or explosion risk. These incidents may be the result of accidental release of a hazardous material (HAZMAT) or the purposeful use of HAZMAT as a weapon of mass destruction (WMD) by terrorists.

Standard firefighting PPE and operations usually offer inadequate protection in incidents involving HAZMAT. Special HAZMAT units with highly trained personnel and high-level PPE are utilized for these incidents.

Local protocols guide the level of involvement of EMS providers on HAZMAT incidents. In some cases, EMS providers may be limited to caring for only patients who have been decontaminated. In some systems, ALS providers are an integral part of the HAZMAT team. In others, EMS providers may not be part of the HAZMAT squad but may be tasked with providing patient care prior to decontamination, and assist with decontamination. EMS providers who are not expected to care for patients before decontamination are required to meet Awareness Level Hazmat Training (NFPA 472), but those who may be involved with patient care prior to decontamination, or with the decontamination process, must meet Operations Level training requirements and competencies (NFPA 472 – codified in 29 CFR OSHA Regulations 1910.120), NFPA 473).

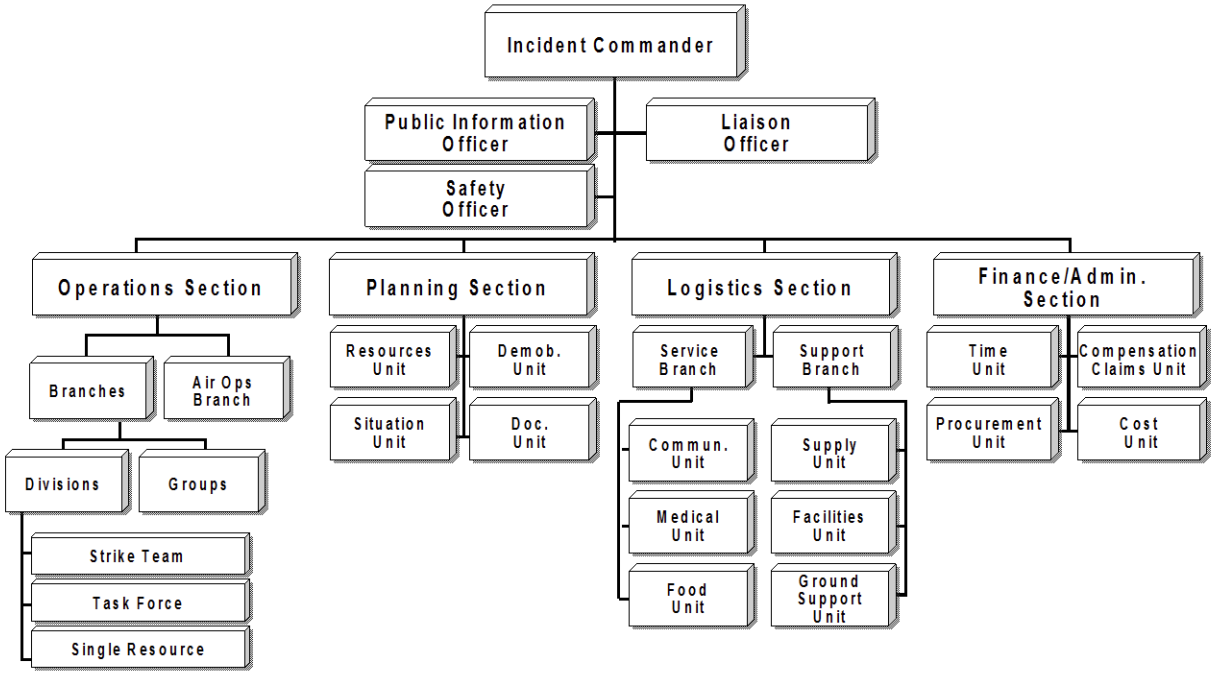
IV. Vehicle Placement

Apparatus placement at fire scenes is crucial to fireground operations. Typically, engines or pumpers, which supply the hoses and water for fire suppression, are located at the nearest fire hydrant and just before or just beyond the involved structure. Ladder trucks are generally positioned directly in front of the affected structure or in the optimal location for aerial ladder placement.

EMS vehicles are typically positioned well away from the involved structure. This allows for easy egress for transportation of victims, and ensures that the ambulance is not blocked in or in the way of fire apparatus. On HAZMAT incidents, vehicles may be located at some distance from the actual incident, depending on the nature of the chemicals involved.

V. Incident Command System (ICS)

All fire scenes are managed through a nationally recognized incident command system, NIMS (National Incident Management System). The ICS is a management structure that can be molded to any type or size of event, provides uniform lines of communication, and limits the span of control of any one individual or link within the system. The fireground ICS is divided into sectors and branches under the Incident Commander. EMS operations for the incident are generally a branch under the Operations Sector. Depending on the size of the incident, EMS operations may be broken down into several sections; Triage, Treatment, Disposition and Transportation. These are the same sectors as found in the management of mass casualty events. EMS personnel may also be in charge of or assigned to the Rehabilitation Sector.



http://www.training.fema.gov/EMIWeb/IS/ICSResource/assets/reviewMaterials.pdf

VI. Communications

Most fireground communications are accomplished via radio. It is paramount that EMS providers on the fireground have the same or compatible radios as fire units operating on the scene. Frequency assignments should be established by protocol. Training in the use of radios and local communication protocols is also critical to ensuring effective fireground communication. If the local EMS system is not integrated into the fire department, arrangements for joint communications and training must be made in advance.

Radio communications are generally restricted to necessary instructions and information only, with most communications following the chain of command. The EMS officer should monitor the radio for progress of search teams, location and number of victims, and any specific orders from the operations sector officer. The presence of viable victims or injured firefighters will generally require additional EMS resources be called to the scene. The EMS officer is responsible for determining the number and type of additional EMS units/personnel required.

In addition to radios, all personnel entering an area where self-contained-breathing apparatuses (SCBA) are necessary, must be required to have a PASS (Personal Alert Safety System) unit. These units activate if the firefighter is still for greater than 30 seconds, or can be activated by firefighters in distress. EMS providers working on the fireground should be familiar with these units, as activation of one during a working fire may indicate a trapped or down firefighter.

VII. Fireground Safety

The fireground presents numerous physical and chemical safety hazards. A high awareness level must be maintained at all times while on the fireground. EMS providers

must not only be prepared to deal with victims of these potential hazards, but must also avoid becoming a fireground casualty.

Physical hazards include moving fire apparatus, outstretched hoselines, water under pressure, power tools, falling debris, explosions, and the potential for structural collapse. Fire gasses include carbon dioxide and carbon monoxide, cyanide, and any number of hazardous chemicals. Shifting winds may cause a small fire to burn out of control, and require rapid relocation of personnel and equipment. In the post-9/11 era, the possibility of terrorism and an explosive device designed to harm responders must also be considered.

Weather conditions may also cause fireground safety hazards. Large volumes of water used for fire attack in below freezing temperatures may result in large areas of ice, creating a fall hazard. Lighting strikes must be considered during thunderstorm fire responses. High winds may carry embers, debris and airborne chemicals a long distance from the actual fireground. High heat and humidity will precipitate heat stress injuries in firefighters wearing heavy gear.

Personal awareness, appropriate vehicle positioning, remaining in assigned positions, wearing safety vests and other appropriate personal protective gear, and monitoring fireground radio traffic is critical to EMS personnel safety on the fire ground.

VIII. Fireground Injury Patterns

EMS providers on the fireground must be prepared to treat not only fire victims but also injured or ill firefighters. The injury patterns vary significantly between fire victims and fire fighters.

Among house fire victims, children under five and adults over 75 are most likely to suffer lethal injuries. Adults 20-49 have the highest incidence of non-fatal house fire injuries. Over 40% of non-fatal injuries are sustained attempting fire fighting or rescue and 25% occur during an attempt to escape. Inhalation injury, burns and traumatic injuries must all be anticipated. EMS personnel must also be aware that the risk of fire injury increases with intoxication and pre-existing disabilities. The need for decontamination prior to EMS care must be considered in any structure where hazardous materials may be stored or used. Smoke inhalation is by far the leading cause of civilian fire deaths.

Among firefighters, however, the leading cause of fireground fatalities is not injury but acute myocardial infarction. Of the approximately 100 annual firefighter deaths over the past 10 years, nearly half were due to sudden cardiac death or stroke. The high incidence of cardiac events among firefighters is related to age, pre-existing physical conditions, and the extreme physical demands (exertion) required during structural firefighting. EMS providers must consider primary cardiac arrest in any “firefighter down” situation.

According to the NFPA, from 2003- 2006, there were approximately 40,000 firefighter fireground injuries each year. Of these injuries, more than 10,000 were considered moderate or severe. The leading types of moderate to severe injuries were: sprain or strain (34%), pain only (9%), isolated thermal burns (9%), lacerations (6%), contusions (5%), exhaustion (5%), and smoke inhalation (3%). The leading causes of these injuries were slip, fall or trip.

The leading types of minor injuries were: sprains or strains (27%), pain only (11%), thermal burns (11%), lacerations (8%), contusions (6%), exhaustion (6%), and smoke inhalation (5%).

Approximately one-half of fireground injuries occur during fire suppression activities, 25% occur during support activities including structural overhaul, ventilation, and salvage operations. Moving equipment and hose lines accounted for 9% of injuries, and 3% occurred during rescue or EMS operations.

IX. Role of EMS on the Fireground

Upon arrival to the fireground, the first EMS unit will report to the Incident Commander (IC) in person for assignment and direction as to location and duties of EMS providers. Usually, the first arriving EMS officer will be appointed as chief of the EMS Sector. The EMS Sector chief will work in conjunction with the IC or Operations Chief to determine the need for additional staffing and vehicles, and expansion of the ICS to include triage, disposition and transportation sectors if needed. In addition to treating and transporting victims from the fireground, EMS personnel may also be assigned to staff the Rehabilitation Sector during fireground activities.

EMS personnel assisting in fireground activities must be prepared to deal with single or multiple civilian and/or firefighter patients. All equipment, including oxygen, aide bag, spinal immobilization equipment, ALS supplies, cot and defibrillator must be located at the designated area. Appropriate PPE must be worn. EMS personnel not trained in firefighting activities should await delivery by firefighters of patients to the designated EMS area. In addition, EMS personnel who are not trained in firefighting must receive training and be allowed to practice the proper removal of self-contained-breathing apparatus (SCBA), firefighting gear, and hazardous materials suits from a downed firefighter.

X. Rehabilitation Requirements

Firefighting, especially in the initial fire attack, is extremely strenuous work, performed in a toxic environment while wearing PPE weighing 25-50 pounds. The resulting extreme exertional stress has been linked to firefighter deaths and injuries. In an effort to reduce firefighter deaths and injuries, the NFPA (NFPA 1584) now requires establishment of a rehabilitation sector during any incident or training exercise where firefighters are expected to work for an hour or more. Depending on the relationship between local EMS and fire services, EMS personnel may be responsible for staffing the rehabilitation sector, or only for the care and transportation of firefighters who do not meet the requirements for return to work in accordance with local protocols.

XI. Rehabilitation Sector Components

Rest and Recovery: A minimum of 10 minutes rest is required. Longer periods may be required in extremes of weather and work conditions. Firefighters requiring longer periods of rest than usual may require further medical evaluation.

EMS providers are required to assess all firefighters entering the rehabilitation zone for the following conditions:

- Presence of chest pain, weakness, dizziness, nausea or headache;
- General complaints of cramps, aches, pain;
- Symptoms of heat or cold stress;
- Changes in gait, speech or behavior;
- Alertness and orientation x 3;
- Vital sign abnormalities

Vital signs that are usually checked include temperature, pulse, respirations, blood pressure, pulse oximetry and carbon monoxide (CO) assessment, utilizing either an exhaled CO monitor or a pulse CO-oximeter. Local protocols determine vital sign parameters that are required for return to work. The NFPA recommends the following:

Blood pressure: Systolic <160, diastolic <100
Pulse <100
Respirations: >12 and <20
O2 Saturation: >92% on room air
Temperature: Between 98.6° F and 100.6° F
CO Level: No set guidelines but treatment for anyone with CO above 10 should be initiated and possibly transported. Cyanide poisoning should also be considered

Other components of rehabilitation include relief from climactic conditions, cooling or warming measures, rehydration, and calorie and electrolyte replacement for prolonged incidents.

Local protocols will determine if EMS personnel staff the rehabilitation sector, but, in all cases, EMS must be on-scene and ready to transport. In addition, separate EMS crews must be responsible for rehabilitation. The same crew cannot be assigned to perform both functions.

XII. Summary

EMS providers will have varying levels of involvement with fireground operations depending on their level of integration within the fire department at the local level. In fully integrated Fire/EMS systems, personnel may be cross-trained and capable of functioning as both firefighters and EMS providers. On the other extreme, EMS may be a completely separate service, who are essentially standing by until treatment or transport of fire victims or personnel is required. Regardless of the system, joint training, protocol review and ongoing communication between fire and EMS providers is recommended to ensure safe and effective EMS operations on the fireground.

Chapter XVIII: Grants and Funding

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Ohio Emergency Medical Services, Grants Administrator Past & Present

I. Introduction

There are numerous ways to obtain grant funding for your EMS department. The possible resources listed below are constantly changing. Grants offered from a funding source are usually for a specific project the granting agency believes is important. These important priorities will change over time, making most funding sources only temporary. The additional resources listed below serve as a guide to provide ideas on where to look for funding as well as some resources that will help with the grant writing process. Since priorities and key dates for funding are constantly changing, EMS agencies are advised to visit the funding agencies website for the most recent grant information.

II. Resources

Below are several examples of resources available:

Ohio EMS Grant Programs - www.ems.ohio.gov
The Ohio EMS grant program is overseen by the Ohio Emergency Medical, Fire & Transportation Services Board and administered by the Division of EMS. This grant program was initiated in 1994 to provide supplementary funds to EMS and fire agencies that provide EMS response pursuant to 4765-5-02 of the Ohio Administrative Code. Funded through seat belt fines, the program presently distributes over $3.1 million dollars annually. Applications are available in February and due April 1st annually. There are currently six priority areas in which grants are awarded.

1. First Priority shall be given to emergency medical service organizations for the training of personnel, for the purchase of equipment and vehicles, and to improve the availability, accessibility, and quality of emergency medical services in this state. In this category, the board shall give priority to grants that fund training and equipping of emergency medical service personnel;

2. Second priority shall be given to entities that research, test, and evaluate medical procedures and systems related to adult and pediatric trauma care;

3. Third priority shall be given to entities that research the causes, nature, and effect of traumatic injuries, educate the public about injury prevention, and implement, test, and evaluate injury prevention strategies.

4. Fourth priority shall be given to entities that research, test and evaluate, procedures that promote rehabilitation, retraining, and reemployment of adult or pediatric trauma victims and social service support mechanisms for adult or pediatric trauma victims and their families;

5. Fifth priority shall be given to entities that conduct research on, test, or evaluate one or more of the following:

a) Procedures governing the performance of emergency medical services in this state;

b) The training of emergency medical service personnel;

c) The staffing of emergency medical service organizations.

6. Sixth Priority shall be given to entities that operate EMS training programs at the paramedic level and are seeking national accreditation of the EMS training program at the paramedic level. This priority will not be available beginning in the grant cycle 2017.

    a) To be eligible for a grant distributed pursuant to paragraph (A)(6) of this rule, an applicant for the grant shall meet all of the following conditions:

        (1) Hold a certificate of accreditation issued by the board under section 4765.17 of the Revised Code to operate an EMS training program at the paramedic level;

        (2) Be seeking initial national accreditation of the EMS training program at the paramedic level from an accrediting organization as approved by the board;

        (3) Apply for the national accreditation on or after February 25, 2010

For more information regarding the Ohio EMS Grant Program, call the Division of EMS at 1-800-233-0785.

Ohio Fire Marshal's Office www.com.ohio.gov/fire
The Ohio Fire Marshal's office offers grant funding to Ohio fire services for firefighter training, equipment, and data reporting as well as offering a loan program to small governments. The training offered though the Ohio Fire Marshal's Office is for fire operations only and does not include EMS.

Ohio Emergency Management Agency www.ema.ohio.gov
This site offers information on homeland security funding and preparedness grants.

Division of Forestry's Rural Community Fire Protection Grant www.dnr.state.oh.us
This grant is only for communities with populations under 10,000. Priority is given to the organization of new departments, multi-community projects and individual equipment purchases.

U.S. Rural Development Program www.rurdev.usda.gov
This program provides grants and low interest loans for fire, rescue and police operations to communities with a population of less than 20,000.

Foundations
There are over 2,000 charitable foundations in Ohio with grant programs. Unfortunately, very few EMS or fire departments have approached these organizations for financial assistance with special projects or programs. Once the project is

determined, identify the appropriate foundation by researching its history of support to other community agencies. Most foundations can be approached by a phone call or a simple proposal letter. Once a foundation is identified - a foundation that may be interested in your project, they can provide applications and instructions. There are numerous books at the local library detailing the appropriate way to approach a Foundation and to obtain funding. Local libraries may have a list of local charitable organizations. Guidestar (www.guidestar.org) is a non-profit organization that acts as a clearinghouse for charitable organizations. The grant explorer feature of the Guidestar website requires a paid subscription and allows the user to research the grant activity of both grant makers and grantees.

Federal Grants www.grants.gov
Federal grants can be a great source of funding. They are designed to impact as many individuals as possible. Grants.gov is the federal government's source for all federal funding information and where you apply for all federal grants.

U.S. Fire Administration/FEMA www.usfa.dhs.gov
This site contains information on financial assistance available from the U.S. Fire Administration/FEMA for fire departments and other first responders, including the Assistance to Firefighters Grant Program and the State Fire Training Systems Grant.

Firegrantshelp.com www.firegrantshelp.com
This website is sponsored by a corporation and is affiliated with the Journal of Emergency Medical Services. This site claims to be the ultimate grant resource guide. National information, a state by state breakdown on funding programs available to fire services, and ongoing articles and assistance with grant writing and resources for preparing the Assistance to Firefighters application is included in this guide. A list of corporate grants available state by state is also included.

EMSgrantshelp.com www.emsgrantshelp.com
This website is the same as mentioned above, but is specifically for EMS funding. The site also includes state-by-state funding links, corporate funds available and helpful hints for Assistance to Firefighter Grants.

Ohio Office for the Farm Service Agency www.fsa.usda.gov/oh
This program is not a grant, but rather a loan program. Ohio Office for the Farm Service Agency will offer low interest loans to rural areas with a population under 20,000. These loans can be used for many different types of projects including buildings, fire and rescue vehicles, ambulances and communication equipment. This program can be of great assistance if a program is worthy of doing, yet funding is not fully available. Use your local Ohio Office for the Farm Service Agency representative to help complete the necessary paperwork. For more information, contact the Ohio Office for the Farm Service Agency at (614) 255-2441.

State/federal surplus programs www.das.ohio.gov
This program can be used to obtain vehicles, office furniture and equipment, clothing and blankets and other items targeted as surplus items. Most of the items sent to the surplus yard are in good shape. Only volunteer departments can be directly involved in the federal surplus program. If a volunteer organization would like to be involved with the state surplus program, it must be affiliated with a tax-producing entity. Both state and federal surplus programs are administered by the Ohio Department of Administrative Services. They can be reached at (614) 466-6570 or (614) 466-6585. Call the office to obtain more information or to obtain an "Application for Eligibility."

Cooperative Purchasing Program www.das.ohio.gov
Although not a grant program, the office can help an organization save a significant amount of money. Any political subdivision can join the Cooperative Purchasing Program. Check with your city, township or county clerk to determine if you are already registered. Everything from blankets to cars, to first aid and hospital supplies are included. To receive more information or a complete list of items available, contact the Office of Procurement Services, Cooperative Purchasing Program at (614) 466-5090.

U.S. Census Fact Finder http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml
Many grant applications require a supplement of demographic information. This site will provide much of the information you will need.

III. Sources of Injury Prevention Funds

Ohio Department of Public Safety www.highwaysafetyoffice.ohio.gov
Ohio Traffic Safety Office
1970 West Broad St., 4th Floor
Columbus, OH 43223
Phone: 614-466-3250

The Ohio Traffic Safety Office administers the state's section 402 funds from the National Highway Traffic Safety Administration. This program provides funding to local agencies targeting traffic safety issues. Grants are awarded on an annual basis for specific, priority traffic safety issues which are determined each year from Ohio Traffic Crash records.

Ohio Department of Health http://www.healthy.ohio.gov/vipp/injury.aspx
The Ohio Department of Health provides funding to reduce injury and injury-related deaths to Ohioans through the development of comprehensive, multi-faceted, population-based programs at the local level that address the risks associated with injuries.

IV. Steps to Having a Successful Fund Raising Program

1. Do not depend on grants as your primary funding source.
2. Always try local sources first *(tax levies, mailings, run charges, etc.).*
3. Develop contacts; network with everyone.
4. Have a grants coordinator (or assign this function to someone on a part-time basis).
5. Get on mailing lists of granting organizations.
6. Be able to prove organizational credibility and worthiness of projects/programs.

V. Summary

Grants can be a valuable additional source of revenue to fund specific projects. It takes planning and persistence but will benefit providers and their patients in the end.

Additional Resources: Tactical EMS

Thomas Collins MD, FACEP
The MetroHealth System, Director, Emergency Medical Services

I. Introduction

Although *c*urrently TEMS is not recognized in Ohio legislation or regulation, this chapter is presented as a resource for EMS medical directors in Ohio.

Tactical Emergency Medical Support (TEMS) is the area of EMS directly involved with supporting law enforcement operations. Law enforcement agencies continue to face evolving threats including better organized criminals with access to more lethal military style weapons, chemical agents, and hazardous materials (like those encountered in meth labs). TEMS has similarly evolved to bring the advances of prehospital care to a unique environment that has a high risk of injury and limited potential for standard "load and go" situations.

TEMS can also be referred to as **Tactical Operational Medical Support (TOMS).** Much of the advances in the TEMS field can be attributed to the work of the Casualty Care Research Center (CCRC) at the Uniformed Services University of Health Sciences. Their class, commonly known as CONTOMS (Counter Narcotics Tactical Operations Medical Support), established the framework and delivery of current TEMS programs.

II. Role of Tactical Medical Support

A **TEMS** program's primary focus is reducing the negative impact of injury or illness during tactical law enforcement operations**. Unlike normal EMS operations in which patient care is the primary objective, the TEMS objective is the successful completion of the tactical mission.** *This is a critical distinction*. The tactical team commander has ultimate authority over all members of the tactical team, including TEMS members. Whereas the senior paramedic may be in charge of a cardiac arrest, or a mass casualty scene, the tactical commander is in charge of the tactical operation, with EMS serving as a support and advisory role and not the primary decision maker.

Tactical environments are divided up into zones based on potential risk of the perpetrator's ability to inflict injury. Similar to HAZMAT zones, they signify potential threat.

- **Cold Zone** (sometimes referred to as Safe Zone) – area of no threat.
- **Warm Zone** – area of potential threat
- **Hot Zone** (sometimes referred to as the Kill Zone) – area of direct or immediate threat.

III. Types of TEMS programs

There are a wide variety of TEMS programs based on resources and needs of each individual law enforcement community. Some communities have no formal TEMS

program and simply utilize the local 9-1-1 response ambulance when an injury occurs. Medical emergencies can only receive care once evacuated to the cold zone.
Some programs utilize EMS providers that receive TEMS training and are assigned to the tactical team, with some also required to receive formal police academy training. Other programs take current police officers who are assigned to the tactical team and provide further training as EMS providers.

Physician involvement can vary as well. Most TEMS programs have a physician that serves as medical director, supporting the function of the TEMS members much like a medical director provides support of an EMS system. A few TEMS programs have physicians who have received tactical training and actually enter the warm and hot zone with the tactical team.

Should the TEMS EMT/Medic carry a weapon?
Debate exists on whether TEMS members should carry weapons. While they should certainly know how to render safe all weapons used by the tactical team, arming TEMS members is dependent on the level of law enforcement training, overall role and responsibilities during operations, and the authorization of the tactical commander. The medical director cannot authorize the TEMS providers to carry weapons.

IV. Components of TEMS

TEMS has a wide range of responsibilities in contributing to a successful mission. These include:

- Proper health maintenance and medical preparation of all tactical team members.
- Preplanning potential medical responses related to the mission.
- Medical intelligence gathering on perpetrators, hostages, or other involve civilians.
- Providing medical support during the operational phase of the mission.
- Medical and behavior health debriefing as needed at the completion of the operational phase.

Preparation

The first step in completing a successful tactical mission is proper preparation. The TEMS provider should have extensive training with the tactical team. This includes types of weapons utilized, common deployment, entry, search tactics, and integration into other components of law enforcement. Focus training on TEMS is available at formal courses (such as CONTOMS) and conferences.

The TEMS provider should also focus on the medical preparation of all team members, and get to know any medical conditions that team members may have. The TEMS provider should provide routine medical screening of all team members to assist the tactical commander in determining readiness.

Pre-Planning

Some tactical situations develop quickly with little time for proactive planning. Others, such as serving high-risk search warrants, allow time to pre-plan the steps needed if a tactical team member, perpetrator, or civilian was injured. The TEMS providers should be very familiar with locations of trauma centers in their community. The TEMS pre-plan includes specialized services provided at trauma centers and

regular hospitals, phone numbers for alerting the hospital of an incoming injury, and the most expeditious routes of travel. If deployed to remote areas, contact with the local air medical program should also be included.

Medical Intelligence gathering
On scene, the TEMS provider gathers information about medical and psychological conditions of perpetrators or hostages that may assist the tactical commander in managing the incident. It is not uncommon for violent criminals to have a history of a mental health disorder or substance abuse. Interviewing family and neighbors may gather information that is useful in anticipating behavior or response to stress.

Field Operations
TEMS team members can support their tactical team a number of ways. Some TEMS members with necessary training accompany the team during entries and into hot zones. In this capacity, they can initiate treatment of injuries quickly, but evacuation may be difficult if the environment is hostile. Some teams elect to have TEMS members operate in the warm zone, where it may be somewhat safer, but still close enough to initiate care quickly once patients are evacuated into the warm zone.

Movement into the warm and hot zone can limit the type of resuscitation equipment the TEMS member can carry, often limited to what can be placed into a large backpack and waist pack.

Prolonged operations may require the TEMS team member to consider the impact of the ongoing mission on the health and effectiveness of the entire tactical team. Considerations include:

- Hydration
- Rest
- Environmental Exposure (i.e.,- heat exhaustion, hypothermia)
- Routine medications (i.e., – blood pressure or asthma medications)

Transportation Considerations
TEMS programs may have their own transport ambulance or may rely on local EMS in the cold zone to provide transport. The operational pre-plan should have already identified closest trauma centers, burn units, and acute care hospitals. If security considerations allow, including local EMS in the planning phase may facilitate their response and support. Coordination with local air medical programs may be needed if operating in remote areas. The TEMS team member will need to consider the best location for a safe landing zone with no threats from obstructions or perpetrators.

Debriefing
All safety forces are faced with unusually stresses each day and many have adopted programs to help debrief affected personnel. At times, tactical teams enter environments in which someone is trying to directly harm them. The TEMS team member should be aware of how this may impact the ongoing emotional health of the tactical team members and identify available resources for help.

V. Special Considerations for TEMS Providers

Communications

Normal EMS operations have the ability to contact the hospital easily by cell phone or radio. In tactical situations, medical control communications may be limited or impossible. The TEMS team member will need to be able to use good independent judgment in these situations. Treatment protocols may need to be adjusted to allow certain actions without prior medical control approval.

Unique injuries

Injuries occur during tactical operations by a variety of devices not typically encountered in EMS. These include:

- ***Stun grenades*** (also known as flash/bangs) – These devices are used to incapacitate subjects by producing an intense bright flash and loud noise over 150 decibels (the space shuttle launch is approximately 180 decibels). Subjects are disoriented for 1-3 seconds. Injuries have been reported and fires can start in the presence of combustible material.

- ***TASER® guns*** – These devices fire small probes trailing a thin wire into the clothing of a threatening subject. A high voltage, low amperage electric current is then transmitted through the wire to the subject, providing temporary incapacitation. Remember that behavior by subjects that prompts TASER® use can commonly be the result of drug intoxication or other injury/illness.

- ***Riot Control Agents*** (Mace, OC, pepper spray, etc.) – These agents are typically used at relatively short range and sprayed on a subject. There are also aerosol devices than can be thrown into crowds. Additionally, pepper ball rounds can be fired by paintball guns, but filled with pepper spray material. Exposure will result in immediate irritation of affected tissue including eye burning and tearing, burning in the nose and mouth, coughing and skin burning.

VI. Summary

- The role of the TEMS provider can vary significantly depending on the type of tactical team, background medical and law enforcement training, and command structure.
- The tactical team commander has ultimate authority over the mission. Patient care may not always come first.
- Preparation and preplanning for anticipated needs and resources is a critical component.
- Patient treatment in the field can be challenging due to hostile environments, limited equipment, and delays in evacuation and transport.
- The TEMS provider needs to be familiar with all types of weapons utilized by their tactical team, potential injuries caused by their weapons and initial treatment.

Ohio Chapter ACEP EMS Medical Directors' Course
POST TEST

Chapter I Questions

1. **Which of the following cities was <u>not</u> one of the first to establish an EMS system?**
   a. Seattle
   b. Columbus
   c. Pittsburgh
   d. Miami

2. **Who established one of the first prehospital care systems in Belfast?**
   a. Pantridge
   b. Nagel
   c. Warren
   d. O'Leary

3. **Which US President is generally credited with the funding of modern EMS systems?**
   a. Abraham Lincoln
   b. Franklin Roosevelt
   c. Lyndon Johnson
   d. Ronald Reagan

4. **What is the state agency who has responsibility for paramedics in Ohio?**
   a. Ohio Department of Health
   b. Ohio Department of Education
   c. State Board of Emergency Medical, Fire and Transportation Services
   d. Ohio Board of Regents
   e. Ohio Department of Public Safety

5. **The partnership between the Ohio State University and the Columbus Division of Fire resulted in which transport vehicle?**
   a. Heartmobile
   b. MedicOne
   c. 'Moby Pig'
   d. Station 51

Chapter II Questions

1. **Which of the following is <u>not</u> true regarding ADA?**
   a. ADA is a federal law
   b. The law was designed to eliminate adverse treatment of disabled persons
   c. ADA is a state law
   d. Discrimination may result from a situation where the disabled person feels an adverse result occurred because of the disability

2. **Which of the following does OSHA require?**
   a. Documented procedures to minimize exposures
   b. HIV screening on all new employees
   c. Individuals provide their own protective equipment
   d. All employees must be warned of infected personnel

3. **Generally, which of the following is a COBRA/EMTALA violation?**
   a. Transfer of a patient who would be placed at greater risk for a poorer medical outcome by remaining at the sending hospital
   b. Transfer of a pregnant woman with an imminent delivery
   c. Transfer of a patient requiring subspecialty care
   d. Transfer of a patient who is stabilized prior to transfer

4. **According to Ohio law, which of the following may result in a claim of malpractice against EMS personnel?**
   a. Failure to splint an injured extremity
   b. Failure to administer pain medication
   c. Resuscitating a person with no DNR identification
   d. Willful and wanton misconduct

5. **Which of the following is essential when a patient refuses transport?**
   a. Proof of capacity
   b. Documentation
   c. Patient informed of potential complications
   d. All of the above

Chapter III Questions

1. **Which of the following is NOT considered a responsibility of the EMS Medical Director as it relates to emergency medical dispatch:**
   a. Approving dispatch pre-arrival medical instructions
   b. Quality assurance through auditing of dispatch recordings
   c. Assuring proper staffing levels in dispatch center
   d. Oversight of recurrent training and medical education

2. **A new paramedic joins your EMS service. You have introduced a new device to perform endotracheal intubation. Which of the following statements is true regarding your role as medical director?**
   a. The paramedic has the ability to use the device based on the State's scope of practice
   b. The EMS coordinator must sign off on the use of the device prior to the paramedic using it in practice
   c. The paramedic is allowed to use this device under the NHTSA Paramedic Training Curriculum
   d. The medical director has sole authority to limit use of this new device for paramedic's operating under their direction

3. **Which agency has primary responsibility for determining the minimum equipment which must be present in an ALS ambulance?**
   a. State Board of Emergency Medical, Fire, and Transportation Services
   b. Ohio EMS Agency
   c. National Highway and Transportation Safety Administration
   d. The EMS medical director

4. **A medical director has the authority to expand an EMT's scope of practice as long as the provider uses the expanded skills only while on duty for the EMS service under that medical director's authority:**
   a. True
   b. False

Chapter IV Questions

1. **An EMS agency calls your facility and asks for medical control. Your responsibilities include:**
   a. Prompt availability
   b. Medical direction consistent with the standard of care
   c. Familiarity with the protocols of the EMS agency
   d. All of the above

2. **Which of the following is <u>not</u> a recommended responsibility for an EMS medical director?**
   a. Serve as a patient advocate
   b. Develop and implement protocols
   c. Hire and fire EMS personnel
   d. Promote EMS research

3. **A helicopter service calls the hospital to which they are transporting a patient. This type of medical control system is called:**
   a. Receiving hospital medical control
   b. Centralized model for medical control
   c. Satellite system for medical control
   d. Indirect medical control

4. **Which of the following is not a reason to contact medical control?**
   a. To transmit medical information to the receiving facility
   b. To review protocols
   c. To get approval for treatments not in the standard orders
   d. To get assistance in decision-making

5. **Which of the following is true regarding EMS protocols?**
   a. They are an example of direct medical control
   b. They are designed to assure consistency of care in well-defined situations
   c. Operational guidelines are not part of the protocols
   d. Diagnosis-based protocols are the best design for EMS providers

Chapter V Questions

1. **Which of the following is an accurate statement about medical direction in Ohio?**
   a. As the least trained levels of EMS provider only Emergency Medical Responders and Emergency Medical Technicians are under a physician's medical control.
   b. Paramedics are more highly trained and therefore are not under a medical director's control.
   c. Because only Paramedics and Advanced EMTs can give medications only they operate under a medical director's license.
   d. All EMS providers function under a medical director and his or her license

2. **A recent graduate of a family practice residency practicing in a rural area is asked to be a medical director for a volunteer squad. Which of the following are true?**
   a. He would need to complete an approved EMS medical director's course and then request and obtain a waiver from the EMS Board.
   b. Because it is a volunteer squad there are no restrictions on or requirements to be a medical director and he is OK.
   c. He is ineligible because he never completed an emergency medicine residency.
   d. He can do it as long as he is active in the emergency care of patients.

3. **Which of the following is not a requirement to be an EMS medical director in Ohio?**
   a. An EM residency, EMS or pediatric emergency medicine fellowship, or successful completion of an EMS medical director's course (e.g. NAEMSP's or Ohio's)
   b. Participation in an ongoing QA process and peer reviews
   c. Participation in EMS research
   d. A valid Ohio medical license
   e. Active in emergency care of patients

4. **An EMS medical director signs the agencies pharmacy license annually and does a training at that time. He has an EMS coordinator who is responsible for the remaining EMS trainings. Protocols have not been reviewed for at least 4 years. In order to fulfill his state mandated requirements he should**
   a. Demonstrate more active participation in the agencies training, with input into the topics, reviewing the material and being present at more of the trainings.
   b. Have an active quality improvement program with feedback into training and protocols

c. Receive aggregate data from the state EMS office to benchmark at the local level
d. All of the above

Chapter VI Questions

1. Which of the following is true regarding EMTs in Ohio?

a. They may assist the patient with NTG
b. They may provide spinal immobilization
c. Their curriculum is assessment-based
d. All of the above

2. Which of the following is true regarding continuing education for EMTs?

a. It occurs over a 3-year cycle
b. Completion of a 30-hour refresher course is an option
c. Maintaining National Registry is an option
d. The recertification cycle will now be based on their birthday rather than a calendar year
e. All of the above

3. The police officer with an Ohio EMS certification has taken a 48-hour course in advanced first aid and no other training. He is most likely a:

a. EMR
b. EMT
c AEMT
d. Paramedic

4. Which is the most common certificate level in the state of Ohio?

a. EMR
b. EMT
c AEMT
d. Paramedic
e. Critical Care Paramedic

5. Which is the highest certificate level in the state of Ohio?

a. EMR
b. EMT
c AEMT
d. Paramedic
e. Critical Care Paramedic

Chapter VII Questions

1. National EMS Core Content:

a. Defines the entire domain of out-of-hospital practice and identifies the universal body of knowledge and skills for EMS providers
b. Is a consensus document that defines the levels of EMS personnel and delineates the practices and minimum competencies for each level of EMS personnel
c. Outlines the minimal terminal objectives for entry-level EMS personnel to achieve within the parameters outlined in the National EMS Scope of Practice Model
d. None of the above
e. All of the above

2. The National EMS Education Standards comprises the following components:

a. Competency -This statement represents the minimum competency required for entry-level personnel at each licensure level.
b. Knowledge Required to Achieve Competency - This represents an elaboration of the knowledge within each competency (when appropriate) that entry-level personnel would need to master in order to achieve competency.
c. Clinical Behaviors/Judgments - This section describes the clinical behaviors and

judgments essential for entry-level EMS personnel at each licensure level.
d. Educational Infrastructure - This section describes the support standards necessary for conducting EMS training programs at each licensure level
e. All of the above
f. A and B only

3. **Ohio EMS education is currently overseen by:**
   a. The Department of Health
   b. The Department of Education
   c. The Department of Public Safety
   d. The Department of Homeland Security
   e. The Department of Human Services

4. **Which of the following statements about continuing education (CE) hours for prehospital providers is correct?**
   a. EMRs need at least 15 hours every cycle
   b. EMTs need at least 20 hours every cycle
   c. AEMTs need at least 40 hours every cycle
   d. Paramedics need at least 60 hours every cycle

5. **In 2010, Ohio adopted the NHTSA (National Highway Traffic Safety Administration) National EMS Scope of Practice Model and the National EMS Education Standards as a foundation. Which of the following is correct?**
   a. First responders are now known as EMTs
   b. EMT-P are now known as paramedics
   c. The training hours required for EMTs went from 100 hours to 130 hours
   d. The training for providers need not be done at a nationally accredited program

Chapter VIII Questions

1. **Knowles identified several assumptions related to the motivation of adult learning. These include which of the following?**
   a. Adults are autonomous and self-directed
   b. Adults are practical
   c. Adults need to be shown respect
   d. All of the above

2. **Which of the following is NOT important in setting up a deliberate practice framework?**
   a. Providing well developed learning objectives
   b. Providing opportunities for repetitive practice
   c. Maintaining the same level of practice
   d. Providing educational measurements for performance

3. **What are the state requirements for formal CME for EMS?**
   a. State-certified instructor
   b. Must be held at a state-approved facility
   c. Must follow state-approved guidelines
   d. All of the above

4. **In regards to Medical Simulation training, the degree of fidelity chosen:**
   a. Must include high-fidelity manikins to be effective
   b. Is generally not a key factor to effective hands-on training
   c. Must include specialized EMS training equipment to be effective
   d. Requires the development of a specialized curriculum for EMS providers

Chapter IX Questions

1. **Which of the following is true regarding a remediation process?**
   a. It is a planned, structured process
   b. The process may encompass a wide range of goals
   c. Its goal is the improvement in the quality of care
   d. All of the above

2. **Which of the following is part of "due process"?**
   a. No person may be denied equal protection of the law
   b. Two violations of any rule must occur before a discipline process can be started
   c. No counsel representation is allowed in EMS proceedings
   d. The EMS personnel should not be given the details of the infraction which resulted in their dismissal

3. **What is a remediation profile?**
   a. Any run having a fatal outcome
   b. Profile of identifiable deficiencies which fail to meet pre-set standards of care
   c. Any complaint from a receiving hospital
   d. Failure to comply with a medical control physician order

4. **An EMS provider shows a recurrent problem with treatment of patients with chest pain. Which of the following may be remediation options?**
   a. A preceptorship in the ED with the EMS medical director
   b. Specific run review with a review of assessment and treatment strategies
   c. Selected reading coupled with a written report
   d. All of the above

5. **Which of the following statements about grievances is false?**
   a. A grievance needs to be reported within a limited time, such as five days after the occurrence.
   b. The lowest level of grievance which may involve someone outside the department is a level 3
   c. A level 3 usually involves outside arbitration
   d. While a level 1 is usually resolved informally by discussion, a level 2 usually requires a series of written communications.

Chapter X Questions

1. **Which of the following needs to be done for a physician, not previously patient's physician, to participate in the care of the patient?**
   a. Properly identifies themselves
   b. Is willing to assume responsibility for patient management
   c. Documents their intervention by signing prehospital care report
   d. Has discussed with medical control
   e. All of the above

2. **A patient who has requested EMS assistance has given consent by the following doctrines except?**
   a. Informed consent
   b. Desired consent
   c. Expressed consent
   d. Implied consent

3. **True of False. If law enforcement personnel do not escort the patient, EMS personnel are under no obligation to maintain custody outside medical guidelines.**
   a. True
   b. False

4. **Which of the following is an incorrect element of a mass causality incident (MCI)?**
   a. Scene management takes priority over victim care
   b. Multiple victim care takes priority over individual victim care
   c. An MCI, by definition, needs no more classification or levels
   d. Need to consider both medical and managerial issues

5. **True or False. The EMS provider's responsibility is to the patient, thus neither law enforcement or family have the right to refuse resuscitation attempts.**
   a. True
   b. False

Chapter XI Questions

1. **Factors that affect protocols include all of the following, except:**
   a. EMS interest level
   b. Call volume
   c. Transport times
   d. Local hazards
   e. Crew configuration

2. **True or False. The medical director can both restrict and expand scope of practice defined by the state.**
   a. True
   b. False

3. **True or False. It is acceptable, and even encouraged, for the medical director to have both written and practical testing of the protocols.**
   a. True
   b. False

Chapter XII Questions

1. **The first priority when evaluating any EMS intervention is whether it is:**
   a. Valid
   b. Appropriate
   c. Necessary
   d. All of the above

2. **Which of the following would be appropriate procedures for a paramedic to perform in their protocol?**
   a. Chest tube
   b. Angioplasty
   c. Needle Decompression of a tension pneumothorax
   d. Tracheostomy

3. **Who should have input before any EMS protocols are implemented?**
   a. EMS providers
   b. Fire administration
   c. Hospital ED staff
   d. All of the above

4. **The QI or PI process should identify areas that require attention in terms of the protocol.**
   a. True
   b. False

Chapter XIII Questions

1. **An example of a high reliability organization (HRO) is:**
   a. School district
   b. Manufacturing company
   c. Nuclear power plant
   d. Restaurant

2. **When developing a "Just Culture" and continuous quality improvement (CQI) programs, it is important for all of the following, except:**
   a. Discipline in a timely manner
   b. Ensure that everyone is aware of an individual provider's mistakes
   c. Expect perfection
   d. Create a culture whereby providers and patients feel safe reporting errors

3. **CQI tools include all of the following, except:**
   a. "Near miss" reporting
   b. Individual call review
   c. Suggestion box
   d. Performance benchmarks

4. **In order to work well, quality assurance (QA) processes should be:**
   a. Sensitive
   b. Relevant
   c. Timely
   d. All of the above

Chapter XIV Questions

1. **Which of the following best defines a disaster or mass-casualty event?**
   a. Any natural event such as a hurricane or tornado
   b. An unexpected event that overwhelms the existing emergency medical response capabilities of the community
   c. An event with > 100 casualties
   d. An event is only a disaster if federal aid is needed

2. **Which of the following is not a component of the incident command system?**
   a. Planning
   b. Operations
   c. Logistics
   d. Finance
   e. Public information

3. **Which of the following patients require emergency medical treatment and priority transport following a disaster?**
   a. 35 year old male with superficial laceration to right forearm
   b. 90 year old female with no pulses and no spontaneous respirations after opening her airway
   c. 44 year old male who is non-ambulatory but has normal vital signs and mental status
   d. 51 year female with a respiratory rate of 30, a heart rate of 120, and altered mental status

4. **A local community has conducted a hazard vulnerability analysis, created a disaster plan, discussed when to activate the plan, and worked with local agencies and the state government to determine mutual aid agreements. Which phase of disaster management best describes the above actions?**
   a. Planning
   b. Mitigation
   c. Recovery

d. Response

5. **Which of the following statements is correct regarding tagging of triaged victims?**
   a. Yellow: requires urgent interventions but only after higher acuity patients are attended
   b. Green: unable to ambulate and have abnormal mental status
   c. Black: all resources should be used in resuscitation until return of spontaneous circulation
   d. Red: able to ambulate, have normal vital signs and no mental status changes

Chapter XV Questions

1. **Development of EMSC programs at the local, regional or state level often starts with which of the following?**
   a. Legislation in support of EMSC in that area
   b. Developing pediatric-specific guidelines
   c. A needs assessment
   d. Applying for grant funding

2. **The EMS medical director should regularly review the pre-hospital care of pediatric patients with EMS providers via quality assurance and improvement meetings for which of the following reasons?**
   a. To review of established protocols
   b. To assess whether protocols were followed, as well as the success or failure of any procedures that were required
   c. To provide a mechanism for early recognition of potential problems and determine the effectiveness of corrective action
   d. All of the above

3. **The Institute of Medicine's (IOM) Committee on the Future of Emergency Care in the United States Health System recommended which of the following for improving pediatric emergency and trauma care in 2006?**
   a. Congress and federal agencies involved in emergency and trauma care research should conduct a study to examine the gaps and opportunities in emergency care research
   b. The Secretary of Health and Human Services should recommend a strategy for the optimal organization and funding of a research effort that would involve the development of multicenter research networks and improved research coordination through a dedicated center or institute
   c. The American College of Surgeons should include standard pediatric-specific data elements and provide the data to the National Trauma Data Bank
   d. Administrators of state and national trauma registries should establish a multidisciplinary pediatric specialty committee to continuously evaluate pediatric-specific data elements for the National Trauma Data Bank and identify areas for pediatric research

4. **Which of the following was NOT a model pediatric prehospital protocol developed by the National Association of EMS Physicians in collaboration with EMSC?**
   a. Hypoglycemia and metabolic disorders
   b. Asthma
   c. Altered mental status
   d. Trauma

5. **Pediatric Disaster Planning and Preparedness provided by the EMSC National Resource Center (NRC) primarily targets which of the following:**
   a. Teachers of special needs children
   b. Local government officials
   c. Families with small children
   d. Emergency management officials

Chapter XVI Questions

1. **EMS has a duty to triage patients.**
   a. True
   b. False

2. **The primary goals of triage are:**
   a. Rapid patient assessment
   b. Ascertaining the severity of illness or injury
   c. EMS patient transport to the closest, most appropriate medical destination capable of treating the medical emergency at hand
   d. All of the above

3. **The two general types of triage are:**
   a. Nondisaster/basic and Disaster/masscasualty triage
   b. Urgent and Non-urgent triage
   c. Paramedic triage and non-paramedic triage
   d. General and utilitarian triage

4. **According to Ohio's trauma triage criteria, patients with which types of injuries are considered trauma patients?**
   a. Blunt or penetrating injury
   b. Exposure to electromagnetic, chemical, or radioactive energy
   c. Drowning, suffocation, or strangulation
   d. A deficit or excess of heat
   e. All of the above

5. **According to Ohio law, the age cut-offs for pediatric and geriatric trauma triage criteria respectively are:**
   a. Less than or equal to 15 years and greater than or equal to 70 years of age
   b. Less than 16 and greater than or equal to 70 years of age
   c. Less than 18 and greater than or equal to 69 years of age
   d. Less than 21 and greater than 69 years of age

6. **The five exception to transporting trauma patients directly to trauma centers in Ohio are related to which factors:**
   a. Medical necessity
   b. Adverse geographic conditions
   c. Excessive transport time
   d. Shortage of local EMS providers
   e. Patient request
   f. All of the above

7. **EMS should follow their agency standard operating procedures with regards to triage in their jurisdictions.**
   a. True
   b. False

8. **In metropolitan areas, STEMI and acute stroke patients should be triaged to hospitals that are accredited chest pain or stroke centers respectively, even if it means that EMS has to bypass another.**
   a. True
   b. False

9. **Ohio law requires that EMS receive trauma triage education only once in their career.**
   a. True
   b. False

10. Patients are only triaged once per EMS run; the first-assigned triage category must stay unchanged until patient gets to the hospital.

a. True
b. False

Chapter XVII Questions

1. EMS personnel on the fireground may be responsible for all of the following except:

a. Care and transport of injured firefighters
b. Care and transport of fire victims
c. Establishing and operating a rehabilitation sector
d. Establishing and operating a hazardous materials zone

2. Standard firefighting protective equipment offers sufficient protection during incidents involving hazardous materials.

a. True
b. False

3. Which level of training is required for EMS providers who are involved with patient care prior to decontamination during HAZMAT incidents?

a. NFPA 472
b. Operations Level Training
c. Awareness Level Training
d. Paramedic Certification

4. The appropriate location for EMS apparatus at a fire scene is:

a. Directly in front of the involved structure
b. On the back side of the structure
c. Well away from the structure
d. EMS apparatus should remain block away until asked to respond

5. In the Incident Command System (ICS, the EMS operations are usually a branch under which sector?

a. Operations
b. Planning
c. Logistics
d. EMS is a separate sector

6. Which of the following is not a section under the EMS branch of the ICS?

a. Disposition/Transport
b. Triage
c. Treatment
d. Decontamination

7. Which of the following is critical to ensuring EMS personnel's safety on the fireground?

a. Monitoring fireground radio traffic
b. Proper vehicle positioning
c. Personal awareness
d. Proper protective equipment
e. All of the above

8. The leading cause of fireground firefighter deaths is:

a. Stroke
b. Falls
c. Acute MI
d. Burns

9. **On the fireground, the first arriving EMS officer will usually be appointed to what role by the IC?**
   a. EMS Sector Chief
   b. Operations Chief
   c. Triage Officer
   d. None of the above

10. **The same EMS crew responsible for EMS operations on the fireground may also be responsible for the rehabilitation sector.**
   a. True
   b. False

Chapter XVIII Questions

1. **What is the funding source for Ohio EMS grants?**
   a. Alcohol related crimes
   b. Seatbelt fines
   c. Corporate foundations
   d. State income taxes

2. **Grants may be obtained through the state of Ohio EMS Board for which of the following purposes?**
   a. Personnel training
   b. Training equipment
   c. Research projects
   d. All of the above

3. **Which of the following may serve as a potential source of funding for an EMS activity?**
   a. Ohio EMS grant program
   b. Community service block grants
   c. Foundations
   d. All of the above

OHIO CHAPTER ACEP EMS MEDICAL DIRECTORS' COURSE POST-TEST ANSWER SHEET

Name_____ Credentials_____
MD, DO, FACEP, Other

E-mail_____ Phone_____

Upon completion, please return to Ohio ACEP at 5980 Venture Dr., Suite B, Dublin, OH 43017

A minimum passing score of 75% is required in order to receive a completion certificate.
Your certificate will be e-mailed to you within 2 weeks of submission.

Chapter I
1. a b c d
2. a b c d
3. a b c d
4. a b c d e
5. a b c d

Chapter II
1. a b c d
2. a b c d
3. a b c d
4. a b c d
5. a b c d

Chapter III
1. a b c d
2. a b c d
3. a b c d
4. True False

Chapter IV
1. a b c d
2. a b c d
3. a b c d
4. a b c d
5. a b c d

Chapter V
1. a b c d
2. a b c d
3. a b c d e
4. a b c d

Chapter VI
1. a b c d
2. a b c d e
3. a b c d
4. a b c d
5. a b c d e

Chapter VII
1. a b c d e
2. a b c d e f
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4. a b c d e
5. a b c d

Chapter VIII
1. a b c d
2. a b c d
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Chapter IX
1. a b c d
2. a b c d
3. a b c d
4. a b c d
5. a b c d

Chapter X
1. a b c d e
2. a b c d
3. True False
4. a b c d
5. True False

Chapter XI
1. a b c d e
2. True False
3. True False

Chapter XII
1. a b c d
2. a b c d
3. a b c d
4. True False

Chapter XIII
1. a b c d
2. a b c d
3. a b c d
4. a b c d

Chapter XIV
1. a b c d
2. a b c d e
3. a b c d
4. a b c d
5. a b c d

Chapter XV
1. a b c d
2. a b c d
3. a b c d
4. a b c d
5. a b c d

Chapter XVI
1. True False
2. a b c d
3. a b c d
4. a b c d e
5. a b c d
6. a b c d e f
7. True False
8. True False
9. True False
10. True False

Chapter XVII
1. a b c d
2. True False
3. a b c d
4. a b c d
5. a b c d
6. a b c d
7. a b c d e
8. a b c d
9. a b c d
10. True False

Chapter XVIII
1. a b c d
2. a b c d
3. a b c d