After completing this section, the medical director will be able to:

1. Explain the development of EMS
2. Understand the impact of national EMS initiatives on EMS agencies
3. Identify the generic provider levels and types of agency design types
Section 2 Overview

After completing this section, the medical director will be able to:

4. Explain in general terms, the types of staffing models found in EMS agencies

5. Identify the most common types of response resources, deployment models and emergency response components commonly found throughout the U.S.
Objective 2.1
Explain the development of EMS
• EMS patients include those entering the health care system due to an acute illness or emergency as well as patients being moved between health care facilities

• An EMS agency is a coordinated arrangement of personnel, equipment and facilities organized to respond to medical emergencies regardless of cause
• EMS can trace its roots to the early 20th century
  – Funeral homes often provided emergency transport as hearses were the only vehicles designed to transport patients
• Rescue squads began to develop in an inconsistent manner across America’s communities
• Military campaigns have been a source for many of the advancements in the civilian EMS environment
  – The development of the combat medic in WWII, equipped with medications and trained to perform specific emergency procedures
  – Emphasis on the battleground to rapidly treat and evacuate wounded soldiers
  – Battleground equipment and techniques were introduced into the civilian EMS environment
• Influence of military campaigns continued

  – World War II combat medic administered medications in the field, serving as the original model for civilian advanced life support provider

  – Utilization of helicopters during the Korean and Vietnam Wars were replicated in the civilian environment
• Early EMS lacked consistent standards and training programs, and equipment was sporadically available

• The National Academy of Sciences produced a report titled *Accidental Death and Disability: The Neglected Disease of Modern Society* in 1966
  – Called attention to the poor condition of emergency medical care in America by focusing on roadway trauma and deaths
• President Johnson reacted by signing the *National Traffic and Motor Vehicle Safety Act of 1966*
  – Focused on development of standards for highway accident victims
  – Foundation to address fundamental deficiencies in EMS agencies
  – Federal funding became available
  – EMS systems quickly developed across the United States
• National Highway Safety Bureau, the predecessor of the National Highway Traffic Safety Administration (NHTSA) was created
  – Responsible for the development and implementation of EMS legislation, training standards and agency funding
• National Registry of Emergency Medical Technicians (NREMT) was founded in 1970
  – Created a national certification agency
• The *EMS System Act of 1973* (Public Law 93-154) was passed by Congress
  – Provided funding for several hundred EMS systems across the nation
  – Defined an EMS system and its essential components
  – Identified 14 critical components of an EMS system
• In 1981, direct federal funding established by the Highway Safety Act of 1966 was switched to state block grants
  – Block grants were not strictly tied to EMS system development which resulted in some states electing to divert funding to other public health initiatives
  – EMS systems continued to develop inconsistently
In 1985 the National Association of EMS Physicians (NAEMSP) was formed – Recognized the importance of physician involvement in EMS and provided a forum for EMS physicians to collaborate on research, education, and professional development
In 1996 NHTSA and the Department of Health and Human Services’ Health Resources and Services Administration published another EMS landmark report titled *EMS Agenda for the Future*.

- Strived to establish a common vision and road map for continued development of EMS systems.
- Road map was applicable to all levels of EMS agencies at the national, state and local levels.
In 2000 NHTSA released a follow-up report titled *The EMS Education Agenda for the Future: A Systems Approach*

- Identified the need to develop an educational certification and licensure system that would achieve national consistency for entry-level EMS personnel.
• In 2006, the Institute of Medicine’s (IOM) released a report titled *Emergency Medical Services at the Crossroads*
  
  – Recognized that the EMS system remains fragmented, overburdened, and underfunded
  
  – Made a series of recommendations to facilitate the evolution of EMS systems into coordinated and accountable systems that could function on a regional basis versus operating independently or in a vacuum
Objective 2.2
Understand the impact of national EMS initiatives on EMS agencies
• Nearly 20 million patients a year are treated by EMS providers
  – The response, care and transport of patients require considerable provider knowledge, skills, and abilities
  – Practicing high quality patient care in the out-of-hospital environment presents numerous challenges to providers and to agencies
• **National EMS Scope of Practice Model** identifies what procedures an EMS provider is authorized to perform by the level of provider certification or licensure

  – The *Model* is not accepted by all states

  – In states where the *Model* is not accepted, there may be other governmental authorities (state, regional or local) that establish and define EMS provider scope of practice
• The *National EMS Scope of Practice Model* defines medical procedures and interventions
  – Does not identify the standard of care

• Standard of care is established by identifying the level of care provided by equally trained personnel given the same situation
  – The medical director must work cooperatively as part of the agency’s leadership to establish an agency standard of care
• Standard of care continued
  – Establish the patient care culture through policies, procedures and protocols, training, continuing education and continuous quality improvement programs
EMS personnel typically provide medical care following their agency’s protocols and procedures as approved by their medical director.

Protocols are written medical standards for EMS practice, as well as the expected patient care procedures to be performed in a variety of situations.
• The medical director may establish local protocols or assimilate regional or state structured protocols for their agency

  – The latitude a medical director may have in writing and establishing their own patient care protocols varies by region and state
• Medical direction can also be administered on-line, through real-time electronic telecommunications between a physician and on-scene or in-transit EMS personnel
• To clarify these components, a football analogy may be helpful
  – Protocols are to providers as the playbook is to players
  – The medical director is the head coach
  – As protocols are put into play, there may be times the quarterback needs to quickly confer with the coach or assistant coach about a specific play in the field, and that is done using a radio in the same manner EMS providers use on-line medical direction
Objective 2.3
Identify the generic provider levels and types of agency design types
• There are different configurations of EMS systems in the United States
  – There is minimal evidence and considerable debate as to which approach may be the most effective
• EMS system may vary based on locale and a particular community’s risk tolerance levels
  – Most systems are designed by state statute and local agency leaders
  – Systems vary in clinical sophistication, performance measures, and economic efficiency
• Emergency response resource deployment is dependent upon a community’s system configuration
• Many communities deploy first responders from municipal fire or police departments
• Ambulances may also be deployed from fire departments, hospitals, third service, or private provider locations
• Typically there are at least two EMS provider levels
  – Basic life support (BLS)
  – Advanced life support (ALS)
• BLS response units
  – Equipment addresses initial patient care intervention
  – Examples: oxygen, fundamental airway support devices, bandaging and splinting devices, as well as automated external defibrillators (AED)
• ALS response units
  – Have more highly trained and certified EMS providers and carry all the BLS equipment
  – Additionally carry complex patient intervention equipment
    • Examples: advanced airway devices, intravenous fluids, medications, and cardiac monitors
Some EMS agencies may not be responsible for initial 9-1-1 responses

- Examples include special circumstances such as supplemental transport services
  - Aeromedical units
  - Critical or neonatal care units
  - Interfacility transport needs

Based on the agency configuration, they may offer BLS, ALS or both levels of care
• The following are brief descriptions of the most common agency types in the United States

• Important to note the descriptions are generic in nature
  – There are exceptions and one agency may fit into multiple categories
• Cross-trained personnel to provide various services
  – Common example is a fire-based EMS agency
  – In fire-based EMS agencies, medical responses are provided by fire department personnel trained as emergency responders, emergency medical technicians (EMT) or paramedics
• There are also multiple role EMS agencies which provide rescue services, but not fire suppression

• Combined public-safety agencies are less common
  – Provide cross train personnel to provide all three services of law enforcement, fire, and EMS services
• A single role EMS agency provides EMS services only and personnel are not cross trained to provide fire fighting or other additional services
  – May be municipality based or privately owned and work closely and cooperatively with other public safety agencies
• Hospital has oversight and operational responsibility of the EMS agency

• May be public or private, and vary in how EMS care is deployed
  – May operate in combination with the other community emergency responders (e.g., fire department)
  – May provide a separate and independent EMS agency
• Traditionally hospital-based agencies are private and may be either for-profit or not for-profit entities
  – Often connected with large teaching hospitals
  – Provider base may also function within other areas of the hospital at times
• Individually or corporately owned and operated companies
  – Can be for-profit or not-for-profit
• May provide non-emergent or emergent transport services
  – In non-emergent setting, private EMS agencies often provide extensive scheduled intra-facility services to a community or region
• An entity provides EMS service in a separate manner but alongside the fire and police public safety personnel in the community
  
  – Community may have fire department provide the first response to initiate immediate patient care, followed by the arrival of a separate governmental based EMS agency or a private EMS service to provide the transport
• Local government will regulate, oversee and coordinate the provision of EMS throughout the community
  – Responsible for the entire agency performance and may own the equipment, apparatus, and perform insurance billing but will contract with a separate entity for the personnel requirements
Objective 2.4

Explain in general terms, the types of staffing models found in EMS agencies
• Teamwork is an integral component of successful EMS delivery
  – The medical director must understand how an agency’s culture, procedures, protocols, and state regulations affect the service delivery
• Agency types vary from community to community and factors that can impact agency type include:
  – Agency history and evolution
  – Funding resources
  – Geographic and population densities
  – Community risk tolerances and expectations
• EMS agencies may be made up entirely of career (paid) personnel, volunteers, or a combination of the two

• The medical director will interact with the administrative, operational, and provider level personnel of an agency
  – Developing a balanced set of skills to perform as an educator, an advisor, a coach, a mentor, a leader, and a technical expert is a constant challenge for the medical director
• Career based EMS agencies pay their providers for performing their role as an EMS provider

• Career based EMS agencies can achieve a great deal of standardization and consistency of staffing levels
  – Agency leaders can manage the workforce through employer oversight and mandated activities
• EMS agencies in urban areas typically have career personnel
  – Strong trend for municipal fire department to provide both EMS and fire suppression services, either as a single or multi-role provider format
  – Other urban delivery models include single role EMS personnel employed by a municipality, hospital, or with private ambulance companies
• Volunteer agencies rely on personnel who participate with the service without typically being compensated for their time
  – Although some urban agencies have active involvement from volunteer EMS providers, the majority of volunteer based EMS agencies are located in suburban and rural settings
  – Amount of volunteer activity within EMS makes it unique when compared to other types of health care occupations
Volunteer EMS agencies may experience more variability in their staffing level consistency

- Challenges in managing a force that is confronted with competing time commitments and increasing demands of training and continuing education requirements, particularly at the ALS certification levels
• Combination agency will utilize both career and volunteer personnel
  – Attempt to achieve some cost savings by utilizing volunteers, thereby reducing the amount of salaried employees

• The viability of a combination agency is strongly dependent on the community’s ability to supply and sustain a pool of interested and engaged volunteers
• Many agencies experience an evolutionary process
  – Agency may transition from a complete volunteer agency to a combination agency, and then into a full career agency

• Regardless of the EMS agency staffing type, all providers must be held to the same standard of patient care excellence
Objective 2.5

Identify the most common types of response resources, deployment models and emergency response components commonly found throughout the U.S.
• To match resources with the community’s needs and expectations, agencies may offer only one service level response and transport or be tiered to offer both BLS and ALS services

• It is critical the medical director become familiar with all the organizations involved with the EMS agency
  – Understand how these entities contribute to the structure and design of that agency
• Single-tier agency design
  – Every EMS response regardless of call type receives the same level of personnel expertise and equipment allocation
• These agencies provide initial response and transport at one level of care, which may be all BLS or all ALS
• Tiered agency design
  – Levels of response are broken down into layers or tiers
  – Example: First responders provide the BLS tier and a paramedic staffed ambulance provides the ALS tier
  – Call triage performed by 9-1-1 call taker becomes a key element in matching dispatched resources to the caller’s needs
• Tiered agencies often utilize various vehicle types
  – Examples: First response sedans or SUVs, fire apparatus, and ambulance
In addition to whether an agency has a tiered approach to service delivery, deployment of resources is another consideration in agency design.

Typically two types of resource deployment:
- Fixed
- Dynamic
• EMS response vehicles are dispatched from a static location within a response area
  – Location is strategically positioned within the community for efficient response
  – Examples: Fire or EMS station
• Also referred as *system status management*

• Response vehicles are positioned at various locations within a given response area
  – Call data is analyzed to identify vehicle posting sites
  – Positions may change based on real time factors influencing the system
  – Examples: Parking lots, buildings, or park along a street location
• Local emergency response agencies often provide an “all hazards” response capability
  – Agency’s resources will respond to any and all types of natural or man-made incidents
• EMS resources need to function in a collaborative manner with other response agencies

– Utilize incident management system – an organizational structure that integrates resources in a hierarchal organization to improve coordination, effectiveness and efficiency in the management of an event
The National Incident Management System (NIMS) is used in the United States for the coordination of federal, state and local agencies.

- Federal Emergency Management Agency (FEMA) has developed NIMS training programs.
- Level of the training program requirements based on an individual’s level of responsibility.
- Medical directors must become trained and operationally familiar with NIMS.
• Medical directors must have comprehensive understanding of EMS agency’s role and responsibility before, during and following incident response, stabilization and resolution
• Providers may operate in difficult conditions, remote areas or need to perform specialized skills
  – Oversight of unique environments that require specialized skills and training will require specialized medical direction
  – Frequency of engagement will influence amount of specific knowledge and involvement by the medical director
• Examples of unique environments requiring specialized medical direction
  – Disasters or Multiple and Mass Casualty Incidents (MCIs)
  – Technical Rescue or Medical Search and Rescue
  – Special or Mass Gatherings Events
  – Hazardous Materials
  – Wildland
  – Tactical EMS