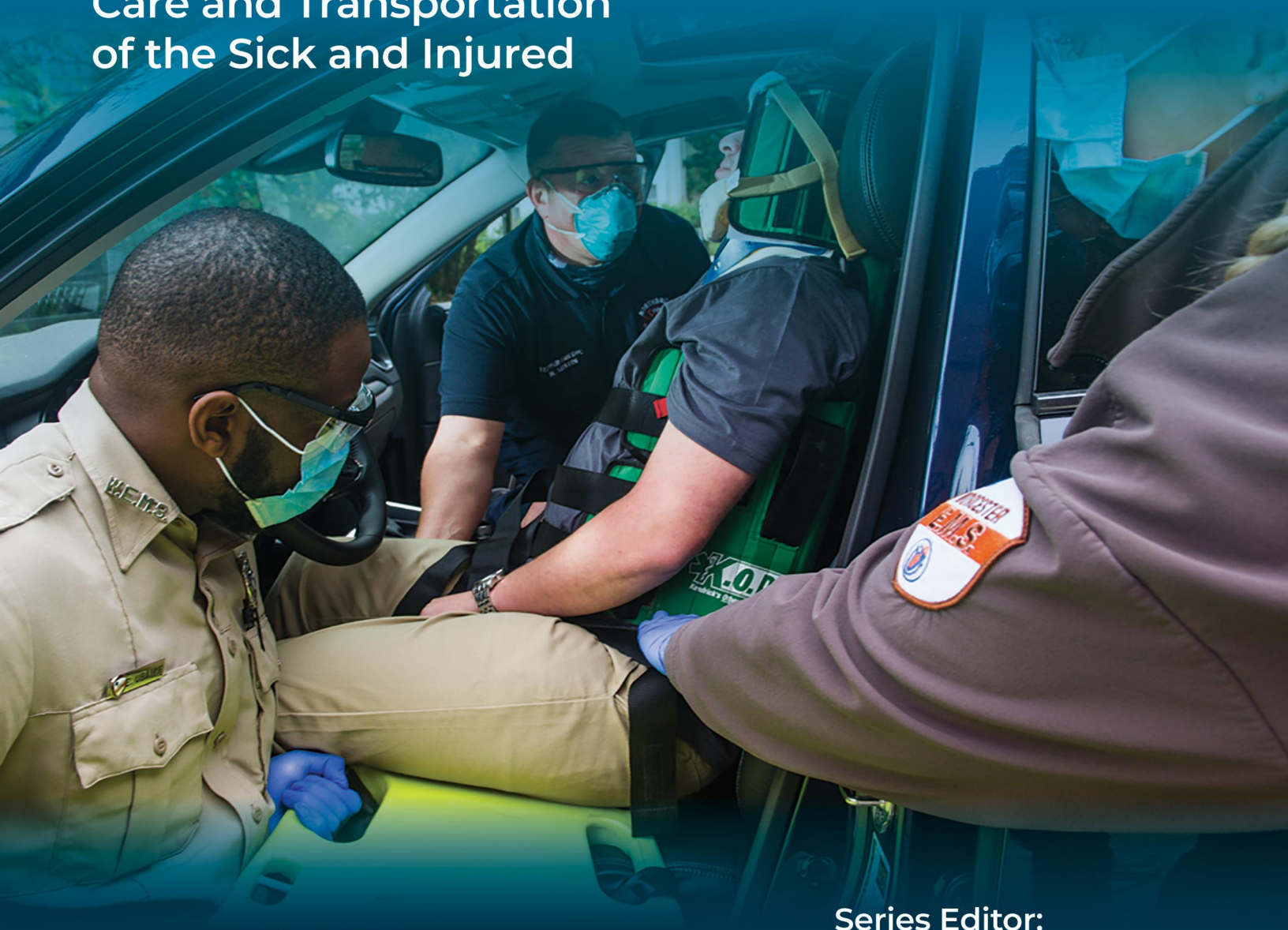
AAOS
American Academy of Orthopaedic Surgeons

FOURTH EDITION

ADVANCED Emergency

Care and Transportation of the Sick and Injured



Series Editor:
Alfonso Mejia, MD, MPH

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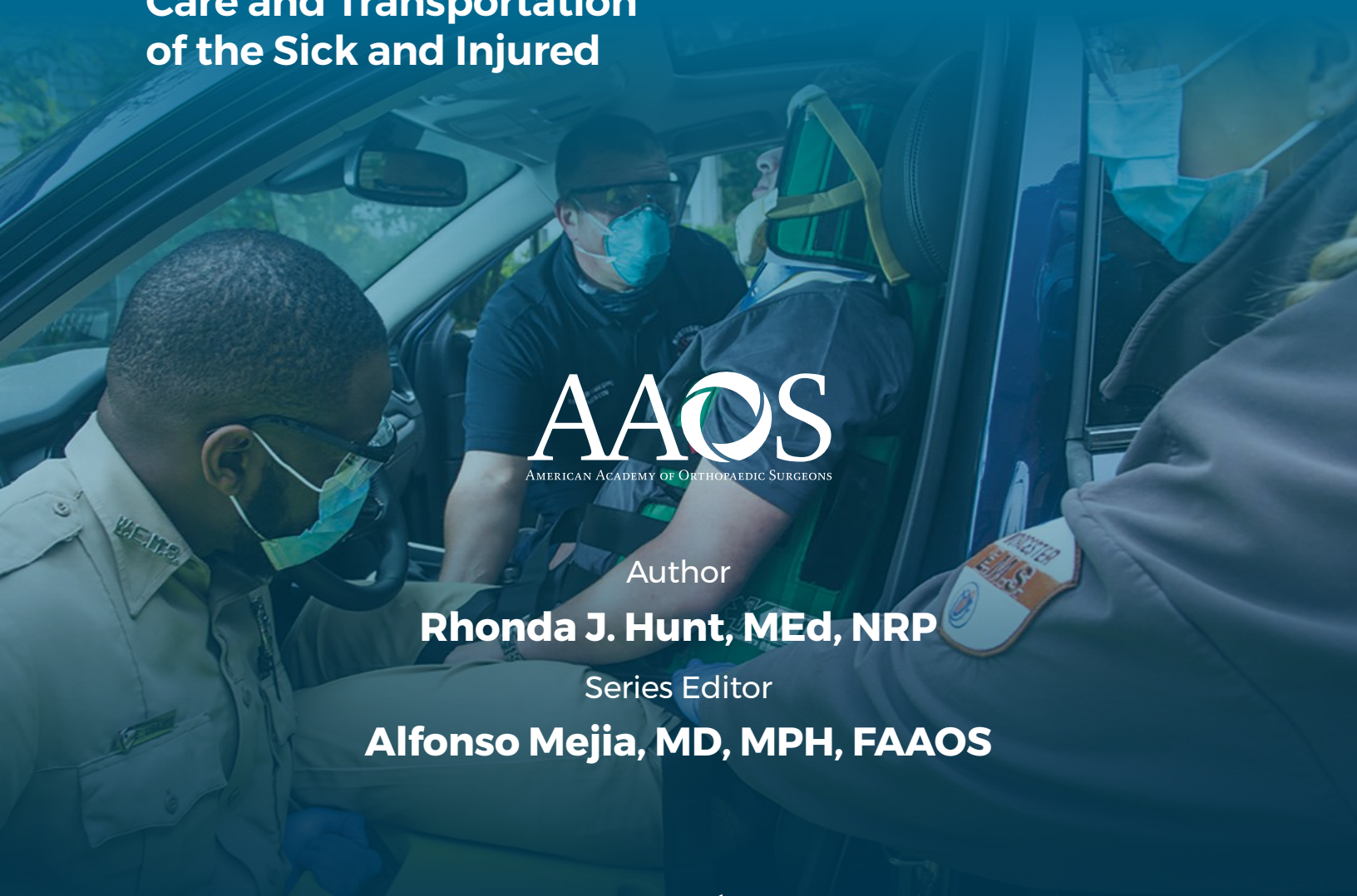

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COVID-19 Disclaimer

At the time of this edition's development, we find ourselves in the middle of a 100-year event: the COVID-19 pandemic. Although we are perhaps more mindful than ever of the importance of personal protective equipment (PPE) in our profession, readers will still notice some variability throughout this textbook with regard to the types of PPE worn by EMS providers and others as they care for patients. They may also question the inclusion of skills and techniques that are discouraged in the context of COVID-19. There are several explanations for these inconsistencies.

Prior to 2020, the level of PPE commonly worn by all providers during patient encounters typically included gloves. Eye protection was added during situations in which the risk of a splash was high or when there was significant risk of aerosolization of material that could potentially come in contact with the eyes. For example, eye protection was typically worn while caring for patients who were bleeding significantly, when performing airway-related procedures, and during maternity calls. It was added on calls when there was a perceived high risk of being splashed with a potentially contaminated body fluid. In the COVID-19 era and beyond, however, use of eye protection has become more common.

In addition, masks are now standard equipment for all interpersonal encounters, not just patient encounters. At various times throughout the pandemic, masks have been required in public places, such as grocery stores. Simple face masks or cloth masks decrease the risk of infection for the person wearing the mask and decrease the risk associated with viral shedding that is a known consequence of infection, even in asymptomatic hosts. In other words, people without symptoms can still be infected with the virus and thus transmit it to others. Asking everyone to wear a mask in public can make the environment safer.

Furthermore, it is recommended that providers caring for COVID-19 patients or those who have overt symptoms such as fever or cough wear a higher level of protection, such as an N95 respirator. There is variability in that recommendation also, as many agencies are using N95 respirators for all patient encounters, given the increased level of protection afforded and the pervasiveness in the population of asymptomatic individuals who could transmit the disease.

We have tried throughout the text to apply the best current knowledge and practices available. However, that science is developing rapidly, as is clinical practice. Some information in this textbook relating to PPE recommendations may become outdated in the coming years. We will attempt to make supplemental material available that reflects the most updated knowledge.

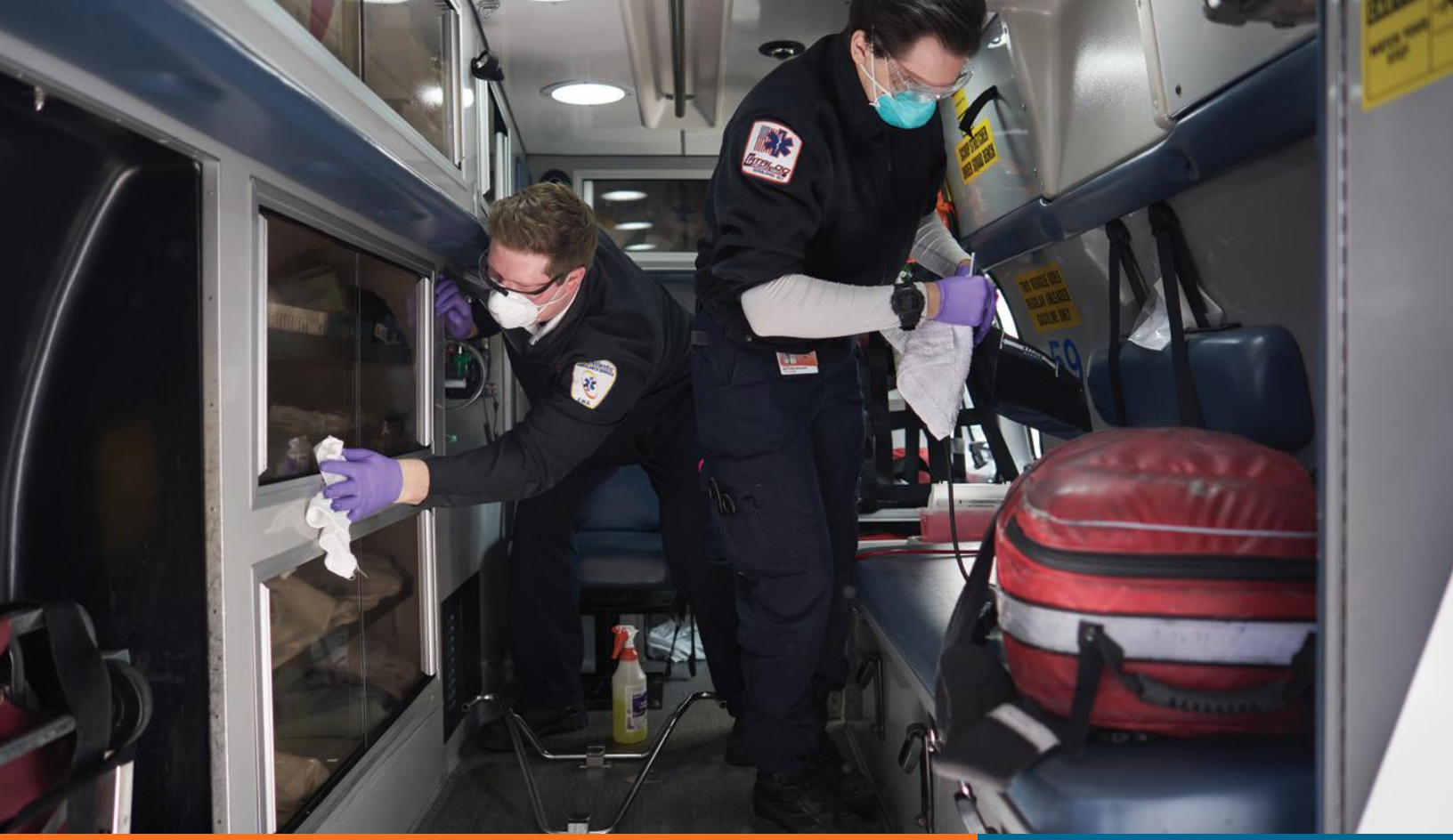

PHOTO: © David Degner/Contributor/Getty Images News/Getty Images.

SECTION

1

Preparatory

Chapter 1

EMS Systems

NATIONAL EMS EDUCATION STANDARD COMPETENCIES

Preparatory

Applies fundamental knowledge of the EMS system, safety/well-being of the AEMT, medical/legal and ethical issues to the provision of emergency care.

EMS Systems

- EMS systems (p 3)
- History of EMS (pp 7–8)
- Roles/responsibilities/professionalism of EMS personnel (p 8)
- Quality improvement (p 18)
- Patient safety (pp 18–19)

Research

- Impact of research on emergency medical responder (EMR) care (p 12)
- Data collection (pp 13–15)
- Evidence-based decision making (p 24)

Public Health

Uses simple knowledge of the principles of the role of EMS during public health emergencies.

KNOWLEDGE OBJECTIVES

1. Define emergency medical services (EMS). (p 3)
2. Discuss the four levels of EMS training and licensure. (p 4)
3. Describe licensure criteria for advanced emergency medical technicians (AEMTs). (pp 6–7)
4. Describe how the Americans with Disabilities Act (ADA) applies to employment as an AEMT. (p 7)
5. Discuss the history of the development of the EMS system. (pp 7–8)
6. Describe the levels of EMS training in terms of skill sets needed for each of the following: emergency medical responder (EMR), emergency medical technician (EMT), AEMT, and paramedic. (pp 8–11)
7. Discuss the possible presence of other responders at a scene with EMR training, some knowledge of first aid, or merely good intentions, and their need for direction. (pp 12–13)
8. Describe the components of the EMS system. (pp 13–16)
9. Describe how medical direction of an EMS system works and your role in the process. (pp 16–17)
10. Describe the goals of Mobile Integrated Healthcare (MIH) and community paramedicine. (p 18)
11. Discuss the purpose of the EMS continuous quality improvement (CQI) process. (p 18)
12. Describe ways to limit or eliminate human error and improve patient safety. (pp 18–19)
13. Characterize the EMS system's role in prevention and public education in the community. (pp 21–22)
14. Discuss the signs of human trafficking that you may encounter during an emergency response. (p 23)

15. Describe situations in which transport to a specialty center is warranted. (pp 24–25)
16. Describe your roles and responsibilities as an AEMT. (pp 25–26)
17. Describe the attributes you are expected to possess. (p 26)
18. Discuss the impact of the Health Insurance Portability and Accountability Act (HIPAA) on patient privacy. (p 27)

SKILLS OBJECTIVES

There are no skills objectives for this chapter.

Introduction

This textbook is designed to serve as the text and primary resource for the advanced emergency medical technician (AEMT) course. This chapter describes the content and objectives of the AEMT course. It discusses what is expected of you during the course and what other requirements you need to meet to be licensed or certified as an AEMT in most states.

Emergency medical services (EMS) is a multidisciplinary system of professionals and agencies working together to provide prehospital emergency care to sick and injured people. This chapter overviews the different types of providers and the different levels of care that compose this system. It also discusses administration, medical direction, quality control, and regulation of EMS systems. The chapter concludes with a detailed discussion of the roles and responsibilities of AEMTs as health care professionals.

Course Description

As an AEMT, you will be a critical part of the EMS system and will play a significant role in your patients' lives (**FIGURE 1-1**). Although not every call for care will involve a life-threatening emergency, the compassion, professionalism, and skill you bring will have a tremendous positive impact on each patient you encounter.

Each emergency medical service is part of a local or regional EMS system that provides the prehospital and hospital components required for the delivery of proper emergency medical care. The standards for prehospital emergency care and the people who provide it are governed by the laws in each state and are typically regulated by a state office of EMS.

The people who provide emergency medical care in the field are trained and, except for licensed physicians, must be either certified EMS personnel or state-licensed. A **certification** exam is used to ensure all health care providers have at least the same basic level of knowledge and skill. These exams are typically conducted or regulated by a state or military agency or by the National Registry of Emergency Medical Technicians (NREMT). The NREMT is a nongovernmental, not-for-profit organization whose mission is to provide a valid, uniform process to assess the knowledge, skills, and abilities (KSAs) for competent EMS practice. Almost all states require NREMT certification for candidates to be eligible for a license to practice. After you pass this exam, you are eligible to apply for state licensure.

FIGURE 1-1 As an AEMT, you will be part of a larger team that responds to a variety of calls and provides a wide range of prehospital emergency care.

Licensure is the process by which states ensure applicant competency in an examination setting. This allows states to manage who can function as a health care provider. The ways in which these terms are used may vary by state. For the purpose of this textbook, the term *licensure* will be used.

Obtaining licensure in a state does not grant an AEMT an unrestricted right to practice. The

Words of Wisdom

Although not all states use the NREMT testing process, EMS certification exams may be informed by the NREMT's EMS Practice Analysis. Approximately every 5 years, the NREMT surveys EMS providers of all levels from across the United States to understand the current real-world practice of prehospital emergency care and to help create a blueprint for valid certification exams. In 2019, the Practice Analysis also pulled data from the National EMS Information System (NEMSIS) to get a real picture of the types of calls and interventions EMS personnel in the United States encounter in actual practice. In effect, the Practice Analysis attempts to answer the question, "What is most important for EMS providers to know and be able to do to deliver safe and effective care?" From this information, the current Practice Analysis determines the certification test plan for each level of EMS provider. The test plan lays out an approximate percentage of questions on each topic that students will encounter on NREMT certification exams.

next phase of becoming a health care provider is **credentialing**. Credentialing is the verification process of a health care provider's qualifications. Credentialing may be a local or regional process, and it is typically directed and overseen by a physician medical director. In some cases, AEMTs may be specifically credentialed to perform either fewer or additional techniques in their area or to work in certain types of care systems.

In most states, providers are categorized into four different training and licensure levels: **emergency medical responder (EMR)**, **emergency medical technician (EMT)**, **advanced emergency medical technician (AEMT)**, and **paramedic**. **TABLE 1-1** shows some of the responsibilities and requirements of these roles. The **National EMS Scope of Practice Model** describes the four levels of EMS practice. The National EMS Education Standards outline the knowledge and competencies that should be taught to students in each of these four levels of EMS practice. This education incorporates all the KSAs needed to become a competent entry-level AEMT. For any role in emergency services and health care, education must continue throughout the provider's career.

Words of Wisdom

In some states, AEMT is the introductory level and may not require prerequisites.

Although the specific training and licensure requirements vary from one state to another, almost every state's requirements follow or exceed the guidelines recommended in the current National Highway Traffic Safety Administration (NHTSA) EMS Education Standards. In the United States, NHTSA is the federal administrative source for education standards and related documents.

This textbook covers the practice and skills identified in the 2021 *National EMS Education Standards*. It also covers the information required for AEMTs to perform the skills outlined in the 2019 National EMS Scope of Practice Model.

TABLE 1-1 EMS Responsibilities and Requirements

Training/Licensure Level	Responsibilities and Requirements[a]
Emergency medical responder (EMR)	First medically trained professional to arrive on scene; provides initial care before the ambulance arrives; assists more-advanced responders
Emergency medical technician (EMT)	Trained in **basic life support (BLS)**, including the use of automated external defibrillators and airway adjuncts; assists with administering certain medications
Advanced emergency medical technician (AEMT)	Advanced training in specific aspects of **advanced life support (ALS)** (eg, intravenous [IV] therapy); administers certain emergency medications and certain types of advanced airway management
Paramedic	Trained in ALS, endotracheal intubation, emergency pharmacology, cardiac monitoring, and other advanced assessment and emergency medical treatment skills

a: Responsibilities and requirements vary by state.

Words of Wisdom

Individual states have the option to allow providers to perform certain skills outside of the National EMS Scope of Practice.

In addition to the required core content, this text includes additional information to help you understand and apply the material and skills included in the AEMT course.

Words of Wisdom

Study Tips for Using This Text

Complete each assignment diligently and carefully.
Read the textbook like a textbook, not like a blog, magazine, or novel.
Read each chapter several times, and underline key points. Take notes!
Note the chapter's objectives so you can effectively measure your knowledge.
Ask your instructor to clarify any questions you have.
Take additional notes when the assigned material is expanded on in class.
Use supporting materials (eg, assessments, animations, videos, and workbooks) to enhance your learning experience.
Remember: The only dumb question is the one you fail to ask.

AEMT Training: Focus and Requirements

As an AEMT, some of the patients you treat will have life-threatening conditions, whereas others require only supportive care. The skills needed to safely deliver this care are found within this textbook. Some of the main subjects that will be discussed include the following:

- **Scene size-up.** During scene size-up, you must gain a big-picture perspective of the call, determine if it is safe to proceed, determine whether additional resources are needed, and identify the initial approach to mitigate the emergency scene. EMS operates in a wide variety of environments that can create situations where EMS personnel can be injured. A primary role of any EMS provider is to ensure personal safety.
- **Patient assessment.** Patient assessment is the foundation of any EMS call. You must determine what is wrong with the patient. Patients can have many complaints, and you will learn to determine which complaints are life threatening.
- **Treatment.** As an AEMT, ensure the patient is oxygenated, administer certain medications, and administer IV therapy if needed. Control bleeding and assist patients during childbirth. In addition to hands-on skills, you will learn how to manage patients who are in emotional crisis and to calm patients and relieve some of their anxieties.
- **Packaging.** In EMS, packaging refers to the act of preparing a patient for movement as a unit by means of a backboard or similar stabilization device. Most patients need to be transported to a facility. This could mean a hospital, clinic, or other medical care facility. You will learn how to transport patients with a wide variety of illnesses and injuries.
- **EMS as a career.** Many of you are taking this course because you want to help people. To ensure all EMS providers have a long, healthy career, it is important for you to learn how to take care of yourself. We will discuss job stressors and successful ways to cope with stress.

YOU are the Provider

Part 1

You were just hired as an AEMT and report to your first day on the job with the local ambulance service. As you begin your orientation, the EMS director asks you two initial questions:

1. What is emergency medical services (EMS)?
2. Why was the National Registry of Emergency Medical Technicians (NREMT) established?

Words of Wisdom

The Star of Life

The NHTSA recognized the need for a symbol that would represent EMS as a critical public service and created the *Star of Life*. NHTSA holds priority rights to the use of this registered certification mark.

Adapted from the personal Medical Identification Symbol of the American Medical Association, each bar on the Star of Life represents an EMS function:

1. Detection
2. Reporting
3. Response
4. On-scene care
5. Care in transit
6. Transfer to definitive care

The serpent and staff in the symbol portray the staff of Asclepius, an ancient Greek god of medicine. Overall, the staff represents medicine and healing, with the skin-shedding serpent being indicative of renewal.

The Star of Life has become synonymous with emergency medical care around the globe. This symbol can be seen as a means of identification on ambulances; emergency medical equipment; patches or apparel worn by EMS providers; and materials such as books, pamphlets, manuals, reports, and publications that either have a direct application to EMS or were generated by an EMS organization. It also appears on road maps and highway signs indicating the location of or access to qualified emergency medical care.

Adapted from US National Highway Traffic Safety Administration. http://www.ems.gov.

Licensure Requirements

To be recognized and to function as an AEMT, you must meet certain requirements. The specific requirements differ from state to state. Ask your instructor or learning institute, or contact your state EMS official to find out about the requirements in your state. Generally, the criteria to be licensed and employed as an AEMT will include the following:

- High school diploma or equivalent
- Proof of immunization against certain communicable diseases
- Successful completion of a background check and drug screening
- Valid driver's license
- Successful completion of a recognized health care provider's basic life support (BLS)/cardiopulmonary resuscitation (CPR) course
- Successful completion of a state-recognized AEMT course
- Successful completion of a state-recognized written certification examination
- Successful completion of a state-recognized practical certification examination
- Demonstration that you can meet the psychological and physical criteria necessary to perform safely and properly all the tasks and functions described in the defined role of an AEMT
- Compliance with other state, local, and employer provisions

The state-recognized written and practical examination may be the NREMT Exam based on the individual state. The NREMT was established in 1970 to certify and register EMS professionals through a valid and uniform process that assesses their knowledge and skills to ensure competent practice. The NREMT requires recertification every 2 years to ensure continued competence. Because most states now recognize NREMT certification, it is easy for an AEMT to move to another state and continue to work without attending another course and taking another certification exam for that area. If you move to a different state, you may be allowed to apply for reciprocity rather than starting your

Words of Wisdom

In 2020, the NREMT launched the National EMS-ID number system. An EMS-ID is a 12-digit identification number issued at no charge to all EMS professionals, from EMR to paramedic, and to students entering the profession. The number is automatically generated by the National Registry when a person creates an account. For EMS providers with an existing account, an EMS-ID is retroactively created. Unlike the number issued by the National Registry (NR Number) when an individual becomes certified, EMS-IDs do not change as the person's certification level changes. Thus, the various certification numbers professionals may obtain in their career are all tied back to the single EMS-ID.

training all over or taking the new state's certification exam. **Reciprocity** is the recognition by one state of another state's licensure, allowing a health care professional from another state to practice in the new state.

The **Americans With Disabilities Act (ADA)** of 1990 protects people who have a disability from being denied access to programs and services that are provided by state or local governments and prohibits employers from failing to provide full and equal employment to people with disabilities. In addition, Title I of the ADA protects those with disabilities seeking gainful employment under many circumstances. Employers with 15 or more employees are required to adjust processes so a candidate with a disability can be considered for the position and, when possible, to modify the work environment or how the job is normally performed.[1] This allows many people who can perform the functional job skills the opportunity to pursue a career in EMS. To obtain further information about the Americans with Disabilities Act and employment as an AEMT, contact your state EMS office.

One of the primary responsibilities of each state is to ensure the safety of its residents. As such, states have requirements prohibiting people with certain legal infractions from becoming EMS providers. The specific legal exclusions vary from state to state. States may exclude from certification persons with a history of a health problem that could make their performance of AEMT tasks dangerous to themselves or others. Contact your state EMS official for more information.

Overview of the EMS System

History of EMS

As an AEMT, you will join a long tradition of people who have provided emergency medical care to their fellow human beings. Early efforts to systematize prehospital care include the field treatments and transport innovated during the Civil War. Civilian ambulatory services soon followed. With the use of motor vehicles in warfare, volunteer ambulance squads were organized and went overseas to provide care for the wounded in World War I. In World War II, the military trained special corpsmen to provide care in the field and bring the casualties to aid stations staffed by nurses and physicians. In the Korean conflict, the care system evolved to the field medic and rapid helicopter evacuation to nearby Mobile Army Surgical Hospital units, where immediate surgical intervention was provided. Many advances in the immediate care of trauma patients resulted from the casualty experiences in the Korean and Vietnam conflicts. More recent military engagements, such as conflicts in the Middle East, and responses to terrorism continue to influence EMS practices.

Unfortunately, emergency medical care of people injured and ill at home or elsewhere outside a hospital had not progressed to a similar level. As late as the early 1970s, emergency ambulance service and care across the United States varied widely. In some places, care was provided by well-trained, advanced first aid squads that had well-equipped, modern ambulances. In a few urban areas, it was provided by hospital-based ambulance services that were staffed with interns and early forms of prehospital care providers. In many places, the only emergency medical care and ambulance service was provided by the local funeral home using a hearse that could be converted to carry a cot and serve as an ambulance. In other places, the police or fire department used a station wagon that carried a cot and a first aid kit. In most cases, both were staffed by a driver and an attendant who had some first aid training. In the few areas where a commercial ambulance was available to transport ill and injured people, it was usually similarly staffed and served primarily to transport the patient to the hospital.

Words of Wisdom

As an AEMT, you will continue a long tradition of people who have provided emergency medical care to their fellow human beings. The AEMT is an important contributor to the overall health care community and ultimately helps reduce mortality and morbidity.

Many communities had no formal provision for prehospital emergency care or transportation. Injured people were given first aid by police or fire personnel at the scene and were transported to the hospital in a police or fire officer's car. Customarily, patients with an acute illness were transported to the hospital by a relative or neighbor and were met by their family physician or an on-call hospital physician who assessed them and then summoned any specialists and operating room staff who were

needed. Except in large urban centers, most hospitals did not have the staffed emergency departments (EDs) that we are accustomed to today.

EMS as we know it today had its origins in 1966 with the publication of *Accidental Death and Disability: The Neglected Disease of Modern Society.* This report, known more commonly as The White Paper, prepared jointly by the Committees on Trauma and Shock of the National Academy of Sciences/National Research Council, revealed to the public and Congress the serious inadequacy of prehospital emergency care and transportation in many areas.

As a result, Congress mandated that two federal agencies address these issues. The NHTSA of the Department of Transportation (DOT), through the Highway Safety Act of 1966, and the Department of Health, Education, and Welfare (now known as the Department of Health and Human Services), through the Emergency Medical Services Development Act of 1973, created funding sources and programs to develop improved systems of prehospital emergency care.[2] They also required states to focus on EMS personnel training and the legislation and regulation of EMS personnel levels.

In the early 1970s, the DOT developed and published the first National Standard Curriculum to serve as the guideline for the training of EMTs.[3] To support the EMT course, the American Academy of Orthopaedic Surgeons prepared and published the first EMT textbook—*Emergency Care and Transportation of the Sick and Injured*—in 1971. This textbook is the AEMT adaptation of that publication. Through the 1970s, following the recommended guidelines, each state developed the necessary legislation, and the EMS system was developed throughout the United States. During this same period, emergency medicine became a recognized emergency medical specialty, and fully staffed EDs became the accepted standard of care.

In the late 1970s, the DOT developed a recommended National Standard Curriculum for the training of paramedics and identified a part of the course to serve as training for AEMTs.

During the 1980s, many areas enhanced the EMS National Standard Curriculum by adding providers with higher levels of training who could provide key components of advanced life support (ALS) care. The availability of paramedics and ALS-level care on calls that require or benefit from advanced care has grown steadily in recent years. In addition, with the evolution in training and technology, EMTs and AEMTs can now perform several important advanced skills in the field that were formerly reserved for paramedics.

This growth and sophistication of the EMS system did not come without drawbacks. As each state sought to create a system that would meet the needs of its citizens, the roles and responsibilities of EMS providers began to vary from state to state. For example, in some states, EMTs were allowed to administer medications; in other states they were not.

In the 1990s, NHTSA began an examination of EMS from a national perspective. With the counsel of EMS providers, physicians, fire chiefs, nurses, state administrators, educators, and other interested professionals, NHTSA created the *EMS Agenda for the Future*. This important document creates a plan to standardize the levels of EMS education and EMS providers in an effort to ensure a more seamless delivery of EMS care across the United States. In 2019, NHTSA revised this document and published *EMS Agenda 2050*. This revision places greater emphasis on patient-centered care in hopes of better attending to the patient's perspective and meeting the needs of patients' loved ones, communities, and the clinicians who provide care.

The skills you learn and the scope of practice that AEMTs now enjoy are part of this national movement toward an EMS system that meets the needs of an ever-changing health care industry and meets those needs through a safe and efficient method.

Levels of Training

As discussed earlier, licensure of AEMTs is a state function, subject to the laws and regulations of the state in which the AEMT practices. Each state is granted the ability to control the functions of its licensed providers. For this reason, there remains some variation from state to state on the scope of AEMT practice, as well as training and recertification requirements. Here is how the system is supposed to work from the federal level down to the local level.

At the federal level, NHTSA brought in experts from around the United States to create the National EMS Scope of Practice Model. This document provides overarching guidelines for the minimum skills each level of EMS providers should be able to perform. **TABLE 1-2** shows the guidelines from

that model. Some items in the table are flagged, and corresponding notes are provided to show areas where current practice has evolved. For example, certain skills listed in the table are no longer practiced or have been aligned with a different skill level. Because licensure is a state function, at the state level laws are enacted to regulate how EMS providers will operate and are then executed by the

TABLE 1-2 The Interpretive Guidelines: National EMS Scope of Practice Model

An EMT also provides the skills listed in the EMR level.
An AEMT also provides the skills listed in the EMR and EMT levels.
A paramedic also provides the skills listed in the EMR, EMT, and AEMT levels.

EMR	EMT	AEMT	Paramedic
	Airway and Breathing Minimum Psychomotor Skill Set		
Oral airway	Humidifiers	Supraglottic airway	BPAP/CPAP
Bag-mask device	Partial rebreathing mask		Needle chest decompression
Sellick maneuver[a]	Venturi mask		Chest tube monitoring
Head tilt–chin lift	Manually triggered ventilators		Percutaneous cricothyrotomy
Jaw-thrust maneuver	Automatic transport ventilators		$ETCO_2$/capnography
Modified chin lift	Oral and nasal airways		NG/OG tube
Obstruction, manual			Nasal and oral endotracheal intubation
Oxygen therapy			Airway obstruction removal by direct laryngoscopy
Nasal cannula			Positive end-expiratory pressure
Nonrebreathing mask			
Upper airway suctioning			
	Assessment Minimum Psychomotor Skill Set		
Manual BP	Pulse oximetry	Blood glucose monitoring[b]	ECG interpretation
	Manual and automatic BP		Interpretive 12-lead
			Blood chemistry analysis
	Pharmacologic Intervention Minimum Psychomotor Skill Set		
Medication Administration Routes • Unit dose auto-injector for self or peer care (MARK 1)[c]	*Assisted Medications* • Assisting a patient in administering their own prescribed medications, including auto-injector	• Peripheral IV insertion • IV fluid infusion • Pediatric IO insertion	• Central line monitoring • IO insertion • Venous blood sampling

(*continues*)

TABLE 1-2 The Interpretive Guidelines: National EMS Scope of Practice Model (*continued*)

EMR	EMT	AEMT	Paramedic
	Medication Administration Routes • Buccal • Oral	*Medication Administration Routes* • Aerosolized • Subcutaneous • IM • Nebulized • SL • IN • IV push for D_{50} and narcotic antagonist only	*Medication Administration Routes* • Endotracheal • IV (push and infusion) • NG • Rectal • IO • Topical • Accessing implanted central IV port
	Medications to Be Administered • Physician-approved over-the-counter medications (oral glucose, aspirin for chest pain or suspected ischemic origin)	*Medications to Be Administered* • SL nitroglycerin for chest pain of suspected ischemic origin • Subcutaneous[d] and IM epinephrine for anaphylaxis • Glucagon and IV D_{50} for hypoglycemia • Inhaled beta agonist for dyspnea and wheezing • Narcotic antagonist • Nitrous oxide for pain relief	*Medications to Be Administered* • Physician-approved medications • Maintenance of blood administration • Initiation of thrombolytics
	Emergency Trauma Care Minimum Psychomotor Skill Set		
Manual cervical stabilization	Spinal motion restriction		Morgan lens
Manual extremity stabilization	Seated spinal motion restriction		
Eye irrigation	Long backboard		
Direct pressure	Extremity splinting		
Hemorrhage control	Traction splinting		
Emergency moves for endangered patients	Mechanical patient restraint		
	Tourniquet[e]		
	MAST/PASG[f]		
	Cervical collar		
	Rapid extrication		

EMR	EMT	AEMT	Paramedic
	Medical/Cardiac Care Minimum Psychomotor Skill Set		
CPR	Mechanical CPR		Cardioversion
AED	Assisted complicated delivery of an infant		Carotid massage
Assisted normal delivery of an infant			Manual defibrillation
			TC pacing

Abbreviations: AED, automated external defibrillator; AEMT, advanced emergency medical technician; BPAP, bilevel positive airway pressure; BP, blood pressure; CPAP, continuous positive airway pressure; CPR, cardiopulmonary resuscitation; D_{50}, 50% dextrose; ECG, electrocardiogram; EMR, emergency medical responder; EMT, emergency medical technician; $ETCO_2$, end-tidal carbon dioxide; IM, intramuscular; IN, intranasal; IO, intraosseous; IV, intravenous; MAST, military antishock trousers; NG, nasogastric, OG, orogastric; PASG, pneumatic antishock garments; SL, sublingual; TC, transcutaneous

Note: The 2019 National EMS Scope of Practice Model serves as a foundation for states to build their own model. It is intended to illustrate the operation of each level of EMS provider and the progression from one level to another. It is not inclusive of every skill a state may allow.

[a]The Sellick maneuver is no longer recommended.

[b]Blood glucose monitoring is now considered an EMT-level skill.

[c]Mark 1 has been replaced by the DuoDote and the Antidote Treatment Nerve Agent Auto-Injector (ATNAA).

[d]Subcutaneous epinephrine administration is typically considered a paramedic-level skill now.

[e]Tourniquet use has evolved to be practiced by all providers, including the EMR level.

[f]MAST/PASG has very specific indications, including stabilizing bilateral femur fractures or pelvic fractures. See Chapter 27, Bleeding, for further information.

state-level EMS administrative offices that control licensure. Finally, the local medical director decides the day-to-day limits of EMS personnel. For example, the medications that will be carried on an ambulance or where patients are transported are the day-to-day operational concerns about which the medical director will have direct input.

The national guidelines are intended to create more consistent delivery of EMS across the United States. A medical director can allow an AEMT to perform a skill only if the state has already approved performance of that skill. The medical director can limit the scope of practice but cannot expand it beyond state law. Expanding the scope of practice requires state approval.

The EMT, AEMT, and paramedic education standards and instructional guidelines can be downloaded from www.ems.gov. In addition, the NREMT is a nongovernmental agency that provides national standardized testing for EMS certification in much of the United States. Many states use the National Registry standards to certify their AEMTs and grant licensing reciprocity to NREMT-certified AEMTs. However, it is important to remember EMS is regulated entirely by the state in which you are licensed.

Public Basic Life Support and Immediate Aid

With the development of EMS and increased awareness of the need for immediate emergency medical care, millions of laypeople have been trained in BLS/CPR. In addition to CPR, many people have taken short basic first aid courses that include control of bleeding and other simple skills that may be required to provide immediate essential care. These courses are designed to train people so that people in the workplace, such as teachers, coaches, babysitters, and others, can provide the necessary critical care in the minutes before AEMTs or other responders arrive at the scene.

One of the most dramatic recent developments in prehospital emergency care is the use of an **automated external defibrillator (AED)**. These remarkable devices, some no larger than a cell phone, detect treatable life-threatening cardiac dysrhythmias (ventricular fibrillation and ventricular tachycardia) and deliver the appropriate electrical shock to the patient. Designed to be used by an untrained layperson, they are now included at every level of prehospital emergency training.

Emergency Medical Responder

Because the presence of a person who is trained and able to initiate BLS and other urgent care cannot be ensured, the EMS system includes immediate care by EMRs, such as law enforcement officers, firefighters, park rangers, ski patrollers, or other organized rescuers who often arrive at the scene before the ambulance and providers (**FIGURE 1-2**). EMR training provides these people with the skills necessary to initiate immediate care and then assist other EMS providers on their arrival. The course focuses on providing immediate BLS and urgent care with limited equipment. It also familiarizes students with the additional procedures, equipment, and packaging techniques that other EMS providers may use and with which the EMR may be called on to assist.

FIGURE 1-2 Emergency medical responders, such as law enforcement officers, are trained to provide immediate basic life support until providers arrive on the scene.

Courtesy of Captain David Jackson, Saginaw Township Fire Department.

Street Smarts

In addition to professional EMRs, AEMTs often encounter a variety of people on the scene eager to help. You will encounter Good Samaritans trained in first aid and CPR, physicians and nurses, and other well-meaning people with or without prior training and experience. If identified and used properly, these people can provide valuable assistance when you are shorthanded. At other times, they can interfere with operations and even create problems or a danger to themselves or others. It will be your task in your initial scene size-up to identify the various people on the scene and orchestrate well-meaning attempts to assist.

Emergency Medical Technician

The EMT course requires a minimum of 150 hours of instruction and provides the essential knowledge and skills required to provide basic emergency medical care in the field. The course serves as the foundation on which additional knowledge and skills are built in AEMT training. On arrival at the scene, you and the other providers who have responded with the ambulance should assume responsibility for the assessment and care of the patient, followed by proper packaging and transport of the patient to the ED if appropriate.

YOU are the Provider

Part 2

The director continues to explain that the service uses the National EMS Scope of Practice Model as the framework for what its providers can do in the field. He also mentions that the local 9-1-1 center hires only dispatchers who have completed the Emergency Medical Dispatch (EMD) course.

3. What is the National EMS Scope of Practice Model?
4. How does the EMD system work?

FIGURE 1-3 AEMTs have EMT training and various advanced skills such as performing intravenous therapy.

TABLE 1-3 EMS Agenda 2050 Components of an EMS System

A People-Centered EMS System
1. Comprehensive, quality, convenient care
2. Evidence-based clinical care
3. Efficient, well-rounded care
4. Preventive care
5. Comprehensive and easily accessible patient records

Advanced Emergency Medical Technician

The AEMT course and training are designed to add knowledge and skills in specific aspects of ALS to providers who have been trained and have experience in providing emergency medical care as EMTs. Additional skills above the EMT level include IV therapy, use of advanced airway adjuncts, and the knowledge and skills necessary for the administration of a limited number of medications (**FIGURE 1-3**). The AEMT course is a minimum of 200 hours beyond EMT requirements. The purpose of this level of EMS provider is to deliver an expanded range of skills beyond the EMT. In some parts of the United States, the availability of paramedics is limited. AEMTs help to fill the gap by providing limited ALS care to regions where paramedics are not available.

Paramedic

The paramedic has completed an extensive course of training that substantially increases knowledge and mastery of basic skills and covers a wide range of ALS skills. This curriculum ranges approximately 800 to 1,100 hours beyond EMT requirements, usually equally divided between classroom and internship training. Increasingly, this training is offered within the context of an associate or bachelor's degree college program.

Components of the EMS System

EMS Agenda 2050 is a multidisciplinary, national review of all aspects of EMS delivery. The goal is to develop a more cohesive and consistent system across the country. The document features five key aspects of a people-centered EMS system, as outlined in **TABLE 1-3**.

The vision of EMS Agenda 2050 is that a people-centered EMS system is one in which people receive comprehensive, quality care in the most comfortable and convenient place. This care is based on sound research focused on producing the right outcomes. In this people-centered system, patients who need it will receive transport that is safe and efficient (not necessarily at a high rate of speed or with lights and siren). Care in a people-centered system will focus not only on life-saving interventions, but also on reducing physical, emotional, and psychological suffering. Such EMS systems will be an integrated part of a larger health care system focused on proactively preventing injuries and illnesses rather than reactively responding to treat them. EMS clinicians will have access to and be able to contribute to a patient's comprehensive medical record, allowing not only improvements of treatment for individual patients, but also updates in prevention, diagnosis, and treatments as our understanding and technology advance.

The EMS Agenda 2050 guiding principles include an EMS system with the following characteristics:

- Inherently safe and effective, so the entire system from start to finish is designed to minimize exposure to injury, infections, illness, or stress
- Integrated and seamless, where EMS is fully integrated with all other aspects of health care and is engaged with other emergency services

and within the communities in which they operate
- Reliable and prepared, ensuring EMS care is delivered consistently and compassionately and is guided by sound research at all times, by all EMS providers, at all levels, or from all agencies
- Socially equitable, so that access to care and the quality of care are not determined by a patient's age, socioeconomic status, gender, ethnicity, or where they live
- Sustainable and efficient, meaning systems must be fiscally responsible, providing value to the community with a minimum of waste and a maximum of accountability
- Adaptable and innovative, evolving to meet the changing needs of the people whom they serve by continuously evaluating new tools and techniques, education programs, and system designs

Public Access

Easy access to help in an emergency is essential. In most of the United States, an emergency communications center that dispatches fire, police, rescue, and EMS units can be reached by dialing 9-1-1. At the communications center, trained dispatchers obtain the necessary information from the caller and, following dispatch protocols, dispatch the ambulance crew and other equipment and responders who might be needed. This communications center is called a **public safety access point**, or sometimes public safety answering point.

In an enhanced 9-1-1 system, the address of the caller is displayed on a screen. The address remains on the screen until the dispatcher releases it so that if the caller is unable to speak or hangs up, the caller's location remains displayed. Most emergency communications centers also include special equipment that allows people with speech or hearing disabilities to communicate with the dispatcher via a keyboard and printed messages. In some areas, rather than 9-1-1, a different special published emergency number may be used to call for EMS. Social media may play an evolving role in allowing laypeople trained in CPR to be alerted of a cardiac arrest in their area. Training the public in how to summon an EMS unit is an important part of the public education responsibility of each EMS service.

Enhanced 9-1-1 systems for cell phones are now available that identify not only the cellular phone number from which an emergency call is being placed, but also the exact geographic coordinates of the phone at the time the call is made. Such systems use GPS (global positioning system) technology. Because cell phones capable of transmitting a GPS signal and a system capable of receiving that signal are both required, the technology will require additional time and resources to implement.

A system called **emergency medical dispatch (EMD)** was developed to assist dispatchers in providing callers with vital instructions to help them manage medical emergencies until EMS crews arrive. Dispatchers are trained and provided with scripts to help them relay relevant instructions to callers. The system helps dispatchers select appropriately resourced units to respond to a request for assistance. It is the dispatcher's duty to relay all relevant and available information to the responding crews in a timely manner. Keep in mind, however, current technology does not allow the dispatcher to see what is actually occurring at the scene and that it is not uncommon for you to find the reality of the call quite different from the dispatch information. The dispatchers can relay only the information provided to them by the caller.

Communication Systems

With the information provided by the caller, the dispatcher will select the appropriate parts of the emergency system that need to be activated. According to the National Fire Protection Association, 45% of fire departments nationwide provide BLS care and 17% of fire departments provide ALS care. Nationwide, 38% of fire departments do not provide emergency medical services.[4]

In most municipalities, EMS is a part of the fire department. In others, it is a part of the police department or is an independent public or private safety service. In some areas, a contractor may provide BLS or ALS service, whereas in other areas, a hospital-based program, possibly covering several towns, may provide the ambulance services.

New technologies are constantly being developed that can assist responders in locating their patients. As previously described, cellular telephones can be linked to GPS units to display their location. Responding units can transmit their

position to dispatch, and dispatch can transmit the location of a call to a moving digital map in the unit, complete with turn-by-turn directions. Medical databases can be queried and patient information can be directly downloaded to your computer or uploaded from your laptop to the database. The pace of technological developments in communications makes the latest device soon obsolete, so constant training and education are required to keep your knowledge up-to-date.

Being active in your community will keep you abreast of the best local resources. When you are developing a potential care plan, ask yourself, "Does the receiving facility have the resources needed for this patient?" When you are active in your community, you will know the answer. If the answer is no, the next question, "Is there an appropriate facility within a reasonable distance?" will also be a part of your community knowledge. And of course, remember, your patients have the ultimate decision regarding where they go, as long as they are in stable condition, alert, and oriented.

Clinical Care

As an AEMT, you will use a wide range of emergency equipment. During the AEMT course, you will learn how to use a variety of the appliances and devices that you may need to use on a call. Clinical care describes the various pieces of equipment and scope of practice for using that equipment. You will learn when the use of the equipment or practice is indicated and when it is contraindicated because it will not be of benefit or may cause harm. Although the use of different models and brands of a given device will follow the same generic principles and methods, some variations and peculiarities exist from one model to another. When you join a service, check each key piece of equipment before going on duty to ensure it is in its assigned place, it works properly, and you are familiar with the specific model carried on your ambulance.

Each AEMT may be called on to drive the ambulance. Therefore, you must familiarize yourself with the roads in your **primary service area (PSA)** or sector. The PSA is the main area in which an EMS agency operates. Before you go on duty, check all the medical equipment and supplies and the communications equipment that the ambulance carries, and ensure that the ambulance is fully fueled, that it has sufficient oil and other key fluids, and that the tires are in good condition and inflated properly. You should test each of the driver's controls and each built-in unit and control in the patient compartment. If you have not driven the specific ambulance before, it is a good idea to take it out and become familiar with it before you respond to a call. Maintenance and safe driving of the ambulance are discussed in detail in Chapter 39, *Transport Operations*.

Words of Wisdom

An *indication* is a reason for performing an action or giving a medication. A *contraindication* is a reason not to. For example, a fall is an indication for cervical spine immobilization, and hypersensitivity to a medication is a contraindication to giving that medication.

Human Resources

This component of EMS examines the profession. Human resources deals with the people within EMS systems. Who delivers the care? How are these people compensated for their time and energy? How do other members of the medical community interact and participate within the EMS world? These are some of the questions discussed within the component of human resources. The overarching concept is to encourage the creation of EMS systems that provide an environment where talented people want to work and can turn their passion into a rewarding career.

EMS Agenda 2050 encourages the creation of systems that help to protect the well-being of EMS providers. It also encourages systems to develop career ladders, allowing talented EMS providers ways to use their talent for many years.

Several objectives need to be accomplished to help make a career in EMS a lasting one. As discussed, efforts are being made to ensure EMS providers can relocate from one state to another more seamlessly. From a global point of view, one of the core functions of a state is to provide for and protect its citizens. This obligation has led to the creation of EMS levels that are unique to a specific state. Though effective for any one state, these idiosyncratic EMS levels complicate movement from

one state to another. One of the functions of the National EMS Scope of Practice Model is to create stable foundations on which each level of EMS provider is grounded. The net effect is to encourage a more consistent definition of "what is an EMT" so providers can serve more freely throughout the United States.

National Registry certification often facilitates licensure in other states. The Interstate Commission for EMS Personnel Practice aims to increase the ability of EMS providers to practice in other states through the Recognition of EMS Personnel Licensure Interstate CompAct (REPLICA). REPLICA is not a form of EMS licensure reciprocity. It simply extends a privilege for EMS personnel from member states to practice on a short-term or intermittent basis under approved circumstances in other member states.

Medical Direction and Control

Each EMS system has a physician **medical director** who authorizes the providers in the service to provide medical care in the field. The appropriate care for each injury, condition, or illness that you will encounter in the field is determined by the medical director and is described in a set of written standing orders and protocols. Protocols are described in a comprehensive guide delineating the scope of practice for AEMTs. Standing orders are part of protocols and designate what an AEMT is required to do for a specific complaint or condition. Providers are not required to consult medical control before implementing standing orders.

The medical director is the ongoing working liaison among the medical community, hospitals, and the AEMTs in the service. If treatment problems arise or different procedures should be considered, these are referred to the medical director for decision and action. To ensure that proper training standards are met, the medical director determines and approves the continuing education and training that are required of each AEMT in the service and approves any obtained elsewhere.

Medical control is off-line (indirect) or online (direct), as authorized by the medical director. Online medical control consists of direction given over the phone or radio directly from the medical director or designated physician. The medical direction can be communicated by the physician's designee; it does not have to be communicated personally by the physician. Off-line medical control consists of standing orders, training, and supervision authorized by the medical director. You must know and follow the protocols developed by your medical director.

FIGURE 1-4 Online or direct medical control is provided by a physician.

The service's protocols will identify an EMS physician who can be reached by radio or telephone for medical control during a call (**FIGURE 1-4**). This is a type of direct online medical control. On some calls, once the squad has initiated any immediate urgent care and given its radio report, the online medical control physician may confirm or modify the proposed treatment plan or may prescribe additional special orders that you are to follow for that patient. The point at which you should give your radio report or obtain online medical direction will vary based on the patient's condition. For example, once the patient has been assessed and you believe that the patient needs a treatment that requires medical control's permission, you would contact medical control.

Legislation and Regulation

Although each EMS system, medical director, and training program has vast latitude, their training, protocols, and practices must conform to the EMS legislation, rules, regulations, and guidelines adopted by each state. Medical directors, along with EMS supervisors and others, develop protocols for individual service areas based on the training levels of the EMS providers in that area. The state

EMS office is responsible for authorizing, auditing, and regulating all EMS systems, training institutions, courses, instructors, and providers within the state. In most states, the state EMS office obtains input from an advisory committee made up of representatives of the services, service medical directors, medical associations, hospitals, training programs, instructors' associations, EMT associations, and the public in that state.

EMS is usually administered by a senior EMS official. Daily operational and overall direction of the service is provided by an appointed chief executive officer and several other officers who serve under this person. When the EMS unit is a part of a fire or police department, the department chief will usually delegate the responsibility for directing EMS to an assistant chief or other officer whose sole responsibility is to manage the EMS activities of the department. To provide clear guidelines, most services have written standard operating procedures and policies. When you join a service, you will be expected to learn and follow its protocols.

The chief executive of the service is in charge of the necessary administrative tasks (such as scheduling, personnel, budgets, purchasing, and vehicle maintenance) and the daily operations of the ambulances and crews. Except for medical matters, this person operates as the chief (similar to a fire chief or police chief) of EMS for the service and the PSA that it covers.

Integration of Health Services

EMS does not work in a vacuum. EMS personnel travel to people's homes and to incident locations. Once on scene, they deliver care and transport the patient to a care facility. Integration of health services means the prehospital care you administer is coordinated with the care administered at the hospital. When you deliver a patient to the ED, you are simply transferring that patient to another care provider. The excellent care that you began should be continued in the ED. This component helps to decrease errors, to increase efficiencies, and, most of all, to ensure the patient receives comprehensive continuity of care.

Words of Wisdom

Accurate, comprehensive documentation is a must for the integration of health services to work effectively. Each component of the system must know what care the previous component provided (eg, medications given) to offer optimal care for the patient. Failure to document a medication that was provided could result in a repeat dosage by the next provider, resulting in an overdose to the patient.

Some EMS systems have collaborated with local hospitals to improve patient outcomes associated with time-sensitive treatment like heart attacks, trauma, and stroke. This is accomplished through special training in the EMS system and certain hospital departments. For example, when paramedics determine a patient is having a heart attack, they alert the ED. The personnel in the ED notify the cardiac catheterization team, or you may be directed to transport the patient to a cardiac specialty center. As a result, the key personnel are ready to begin critical treatments as soon as the patient arrives at the hospital. Similar activities take place for stroke and trauma patients.

YOU are the Provider

Part 3

Midway through your first day of orientation, you are introduced to the medical director. He explains to you his roles and responsibilities as medical director of the service. He further tells you specific rules and regulations that you, as an AEMT, must follow on every call to maintain your certification.

5. What dictates the skills that you, as an AEMT, may perform in the course of your duties?
6. What are the two types of medical control?

Mobile Integrated Healthcare and Community Paramedicine

Mobile Integrated Healthcare (MIH) is a system of delivering health care that utilizes the prehospital spectrum. It has evolved as a result of the Patient Protection and Affordable Care Act (more commonly known as the Affordable Care Act), with the goal to facilitate improved access to health care at an affordable price. In the MIH model, health care is provided within the community, rather than at a physician's office or hospital. An integrated team of health care professionals, including EMS providers, delivers health care services in the community and connects patients with other valuable resources such as social services. An advantage of this model is that it offers access to care to patients who live in communities with limited medical resources and leads to better service for those who are homebound or disabled.

This new branch of health care is causing the evolution of additional training levels for EMS providers. One training aspect is **community paramedicine**, in which experienced paramedics receive advanced training to equip them to provide services within a community. In addition to the patient care services a paramedic would typically provide, services provided by community paramedics may include performing health evaluations, monitoring chronic illnesses or conditions, obtaining laboratory samples, administering immunizations, and serving as a patient advocate.

Street Smarts

Community paramedicine and MIH teams may be the best example of the team concept of continuum of care. In the MIH model, health care is provided within the community rather than at a physician's office or hospital. The success of MIH programs have shown that EMS providers, working as a unified team with in-hospital and other community health care providers, can improve patient outcomes, increase patient satisfaction, and reduce health care costs.

Evaluating Quality and Safety

The medical director is responsible for maintaining **quality control** to ensure all staff members who are involved in caring for patients meet appropriate medical care standards on each call. To provide the necessary quality control, the medical director and other involved staff review patient care reports (PCRs), audit administrative records, and survey patients.

Continuous quality improvement (CQI), which may also be known as quality assurance (QA), is a dynamic, circular system of continuous internal and external reviews and audits of all aspects of an EMS call. To provide CQI, periodic run review meetings are held in which all staff involved in patient care review the run reports and discuss any areas of care that seem to need change or improvement. Positive feedback is also discussed. If a problem seems to be repeated by a specific AEMT or crew, the medical director will discuss the details with the providers involved and, if necessary, assign remedial training or some other educational activity. The medical director also ensures the appropriate continuing education and training are available.

Information and skills in emergency medical care change constantly. You will need refresher training or continuing education as new modalities of care, equipment, and understanding of critical illnesses and trauma develop. In addition, when you have not performed a particular procedure for some time, skill decay may occur. Therefore, your medical director might establish a CQI process to correct the deficit. For example, an ED physician noted that despite their assessments, many AEMTs were missing a high number of closed long bone fractures, resulting in inadequate prehospital care. A subsequent audit of calls led to a review and retraining session for assessment and care of fractures. This same process can apply to CPR or any other type of skill that you do not use often. You may also choose to follow up on specific patients delivered to the hospital. By doing so, you have the opportunity to critique your prehospital care and, in turn, improve any weak areas. As an AEMT, you have an ongoing commitment to ensure your skills and knowledge are current.

Another function of the evaluation process is to determine ways to limit or eliminate human error and improve patient safety. During the delivery of EMS, as with any occupation, there are times when errors can occur. Communicating with other AEMTs or transferring the patient to the ED presents circumstances where errors can happen. Driving to the scene can be hazardous. A patient can be dropped during lifting and moving. Remember,

errors can occur at any point during the call that can result in harm to the patient, public, and you.

It is important that you strive to eliminate errors as much as possible. Understanding the circumstances of the errors helps to minimize them. There are three main sources of errors. Errors can occur as a result of a *rules-based failure*, a *knowledge-based failure*, or a *skills-based failure* (or any combination of these). For example, does an AEMT have the legal right to administer the particular medication needed by the patient? If not, a rules-based failure has occurred if an AEMT assists with the administration. Does an AEMT know all pertinent information about the medication being administered? If not, a breakdown at this point, such as the administration of the wrong medication, would be referred to as a knowledge-based failure. Finally, is the equipment operating and being used properly? If not, a skills-based error has occurred. Any error can come from multiple sources.

Agencies need to have clear protocols, which are detailed plans that describe how certain patient issues, such as chest pain or shortness of breath, are to be managed. These protocols need to be understood by all AEMTs within the service. Limiting errors requires the efforts of both the EMS agency and EMS personnel.

The environment can also contribute to errors. Are there ways to limit distractions and minimize interruptions? Can you find what you need in a timely manner? Sometimes the solution is as easy as ensuring flashlights are available on all ambulances or ensuring all medications and equipment are properly labeled and organized.

When you are about to perform a skill, ask yourself, "Why am I doing this?" Consider the reason for your actions, and allow yourself time to reflect and make an informed decision. If you have considered what to do and cannot come up with a solution, ask for help. Talk with your partner, contact medical control, or call your EMS supervisor.

Another way to help limit medical errors is to use checklists, reference material, and "cheat sheets." Have a copy of your protocol book with you. Emergency physicians have many reference materials available to them. Physicians recognize they cannot memorize everything, so referencing a book or a reliable Internet resource helps ensure the use of accurate information. Apps are also available for reference.

Use downtime to refresh the skills used less often. Use decision-making aids, such as algorithms, and reflect on what has been done as an informal critique for future improvement of performance. Finally, after a troublesome call, sit down and talk. Talk with your partner and/or your supervisor. Discussing the events that just happened provides an excellent avenue for learning. Your discussions can help lead to changes in protocol, how equipment is stocked, or even the purchase of new equipment.

Street Smarts

Short routine debriefings with your partner after each run can identify problems before they build up. Questions to consider might include the following:

- What did we do?
- Were there any equipment problems?
- What went well?
- What could have gone better?

Information Systems

EMS is not dissimilar to any other profession in today's world. Without computers, the job would be much more difficult. An information system allows EMS providers to efficiently document the emergency medical care that has been delivered. Once that information is stored electronically, it can be used to improve care. For example, how many times has a department seen patients with chest pain? What is the average on-scene time for major trauma patients? How many AED runs has the department had? These questions and many more can be answered using the information gathered from computerized medical records.

This information is used for a variety of purposes. It is used to construct educational sessions for the department. Data from ambulance activity logs are used to justify hiring more personnel. Examining the types of patients and their frequency can provide the foundation for the purchase of new equipment and guide continuing education sessions. This information can also be combined with other database resources, such as from a hospital, to determine patient outcome. Departments from around the United States are sending information

to Washington, DC, so a national snapshot of EMS activities can be obtained. Information gathered by NEMSIS can be found at www.nemsis.org.[5] This information will be used to better plan for the needs of EMS systems today and in the future.

System Finance

All EMS departments need a funding system that allows them to continue to provide care; however, the type of system needed depends on many variables. There are several types of EMS departments in the United States. The *Journal of Emergency Medical Services* reports annually on how EMS is delivered in the 200 largest cities within the United States. The 2013 survey included more participation from the 15 largest cities, so the results may vary from previous years. **TABLE 1-4** provides the breakdown of types of EMS services within the United States for the year 2013.

These departments may have paid or volunteer personnel, or a mix of both. Financial resources are available for EMS departments through taxation, fee for service, paid subscription, donations, federal/state/local grants, fund-raisers, or combinations of same. Which financial system is used depends on the needs and makeup of each EMS department.

How are AEMTs involved with the financial side of EMS? You may be asked to gather insurance information from patients, secure signatures on certain documents such as HIPAA (Health Insurance Portability and Accountability Act; discussed later in the chapter) notifications, or obtain written permission from patients to bill their health insurance companies. These steps are important to the health care process. When you do not provide needed information, the patient may be billed, rather than the insurance company.

TABLE 1-4 Types of EMS Services That Transport Patients in the 200 Largest Cities Within the United States

Organization Type	Percentage of Service Provided
EMS	28.1%
Fire department	44.9%
Hospital/private/volunteer	27.0%

Abbreviation: EMS, emergency medical services

Street Smarts

Proper documentation by the EMS provider can substantially affect an agency's ability to process medical insurance claims, provide eligibility for financial grants for training or equipment, and provide evidence of competent practices.

As the health care system in the United States evolves, billing is changing at every level. In 2020, the Centers for Medicare and Medicaid Services (CMS) implemented a pilot program in a small group of EMS agencies, known as Emergency Triage, Treat, and Transport (ET3). Rather than an EMS system getting paid only for transportation to an ED, ET3 strives to reimburse EMS systems for providing the right patient with the right care at the right time. This program allows transport to EDs for patients who need that level of care, but also sets up a payment model for patient transport to alternative destinations, such as urgent care centers or doctors' offices, or on-scene treatment with no transport.

Education Systems

Your training will be conducted by many knowledgeable EMS educators. In most states, the instructors who are responsible for coordinating and teaching the AEMT course and continuing education courses are approved and licensed by the state EMS office or agency. Most EMS training programs must adhere to national standards established by the accrediting organizations CoAEMSP (Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions) and CAAHEP (Commission on Accreditation of Allied Health Education Programs). To be licensed in some states, an instructor must have extensive emergency medical and educational training and teach for a designated period while being observed and supervised by an experienced instructor. ALS-level instructors and directors must hold a 4-year degree.

Generally, ALS training is provided either in a college/university, adult career center, or hospital setting. In most states, educational programs that provide ALS training must be approved by the state and have their own medical director. In these

courses, many of the lectures and small group sessions are presented by the medical director or other physicians, nurses, and EMS instructors. In clinical sessions, in which supervised practice is obtained in the ED or other in-hospital settings, students are supervised directly by physicians and nurses.

The quality of care you provide depends on your ability and the quality of your training. Therefore, your instructor and the many others who develop and participate in your training program are key members of the emergency care team.

When you no longer have the structured learning environment that is provided in your initial training course, you must assume responsibility for directing your own study and learning. As an AEMT, you are required to attend a certain number of hours of continuing education approved for AEMTs each year to maintain, update, and expand your knowledge and skills. In many services, the required hours are provided by the training officer and medical director. In addition, most EMS education programs and hospitals offer a number of regular continuing education opportunities in each region. You may also attend state and national EMS conferences to help you stay current about local, state, and national issues affecting EMS. Because there are many levels of licensing, you should ensure the continuing education you receive is approved for AEMTs. Whether you take advantage of these opportunities depends on you. You may decide to remain an AEMT or you may want to achieve a higher level of training and certification, but whatever you choose, the key to being a good AEMT and providing high-quality care is your commitment to continual learning and increasing your knowledge and skills.

AEMTs possess special knowledge and skills that are directed to the care of patients in emergency situations. The authority that is delegated to you to care for patients is a very special one. Maintaining your knowledge and skills is a substantial responsibility. Knowledge and skills that are learned in any profession weaken when they are not used on a continual basis. Consider the steps involved in CPR, for example. If you have not used these skills since your original training, it is unlikely you will perform CPR proficiently. Frequent continuing education, refresher courses, and computer-based or manikin-based self-education exercises are measures you can take to maintain your skills and knowledge.

Prevention and Public Education

Prevention and public education are often closely associated with each other. They are components of the EMS system where the focus is on public health. **Public health** examines the health needs of entire populations with the goal of preventing health problems and works to prevent illness and injury by being proactive. Significant accomplishments of the public health systems include vaccination programs, helmet and seat belts laws, tobacco use laws, prenatal screenings, and the formation of the Food and Drug Administration.

Health care in the United States is currently in a state of flux. The high-tech, on-demand style of care that is prevalent has two major drawbacks. One, it is very expensive. In the United States, more than 17.14% of the gross domestic product is accounted for by health care.[6] Two, it may not deliver a better product. The Centers for Disease Control and Prevention (CDC) reports people born in the United States have an average life expectancy of almost 79 years.[7] There are 35 other countries in which people are living longer.

EMS can work with public health agencies on both primary and secondary prevention strategies. **Primary prevention** focuses on strategies that will

YOU are the Provider

Part 4

The final speaker for your first day of orientation is the service's QA/CQI officer. He explains to you the required format for documenting your calls, as well as what can be expected of him.

7. What is the purpose of a QA/CQI meeting?

8. How can a QA/CQI review make you a better provider?

Words of Wisdom

A good example of public health at work is the common product, salt. The next time you buy salt, look at the contents. In the United States, most salt is sold with the additive iodine. It was discovered years ago that certain thyroid diseases, such as goiter (abnormally large thyroid gland), are caused by a decrease in iodine levels within people's diets. The solution was to add this important element into a commonly used food source. Today, goiter is rare within the United States.

prevent an event from ever happening. For example, in the early 1900s, polio was a devastating disease causing death and disability for thousands of Americans. It was discovered that a vaccine could be developed to prevent the disease. In the span of one generation, the disease was virtually eliminated. Vaccinations are a good example of primary prevention within public health.

In June 2009, the World Health Organization (WHO) declared the swine flu (H1N1) virus to be at pandemic levels, which meant the virus had spread throughout the world. The CDC estimated that between April 2009 and April 2010, there were approximately 60.8 million cases and 12,469 deaths in the United States.[8] By August 2010, the WHO declared an end to the pandemic. More recently, coronavirus disease 2019 (COVID-19), first identified in China in 2019, rapidly spread as a pandemic, with the first documented case in the United States on January 20, 2020.[9] EMS providers were forced into many unconventional roles due to the rapid spread of the virus and inadequate number of providers. As vaccination proceeds and expands beyond hospital settings where the first COVID-19 vaccinations occurred, EMS providers may be called on to assist in the administration of the vaccine

Other examples of primary prevention include ensuring people know the dangers of drinking and driving, and the harmful effects of using tobacco and other drugs. There are several ways you can contribute to primary prevention strategies. Become involved in programs that educate the community. Small actions can lead to big differences.

In a **secondary prevention** strategy, the event has already happened. The question then becomes, how can we decrease the effects of the event? Helmets and seat belts do not prevent the accident from happening, yet they prevent serious injuries from occurring as a result of the accident. The next time you drive down a major roadway, take note of the construction of the guardrails. There have been significant changes in guardrail construction over the years as more information has become available on what happens during a vehicle collision.

You may also be involved in the surveillance of illnesses and injuries. The PCRs that are generated by EMS personnel can be used to determine if a serious, widespread condition exists. For example, EMS is in a perfect position to provide statistical information to the local government about collisions. Injury surveillance data can be used to determine ways to improve a dangerous intersection, to prevent crashes from ever happening, or to limit the severity of injuries to drivers.

As discussed, you can help educate the public. People may not understand why an incident has happened. A parent allows her 15-month-old child to play outside with other children unsupervised. The child falls and cuts her hand. EMS arrives and determines the cause of the injury is obvious. You can work professionally, respectfully, and kindly with the parents to help educate them on how to prevent this injury from occurring in the future.

The public may not understand the education that EMS providers have and what services they can provide. You can go to local schools and teach children to call 9-1-1 when there is a medical emergency. EMS personnel can work with local health care institutions to inform local residents when to call for an ambulance and when other transportation methods are more appropriate. Efforts to use social media to alert the public of a cardiac arrest are also developing. Consider advocating for social-media-directed or mobile phone dispatch systems that encourage laypeople trained in CPR to respond to episodes of cardiac arrest that occur close to them.

Teaching people how to perform CPR, how to help a choking victim, and even how to assist in the delivery of a baby are all aspects of public education. Educating the public on the benefits of compression-only CPR is another example. One of the important effects of public education is an increase in public respect for EMS. When people understand what it means to work on an ambulance and provide care to the sick and injured, they are more likely to consider EMS a vital part of the

Words of Wisdom

Human Trafficking

Human trafficking is a type of modern-day slavery. Through the use of force, fraud, and/or coercion, perpetrators establish control over other human beings and exploit them for profit. The number of victims of human trafficking is unknown due to its underground nature. According to the International Labor Organization, it is estimated that 40.3 million people were victims of modern slavery in 2016 and there is an average of 5.4 victims of human trafficking for every 1,000 people in the world.[10]

Trafficking exists in multiple forms, including child and forced labor, child soldiers, and the commercial sexual exploitation of children. Those individuals most at risk of exploitation include individuals from low socioeconomic backgrounds and marginalized communities, immigrants, members of minority cultures (such as the LBGTQ community), children in foster care, individuals who are homeless or have run away from home, individuals with disabilities, and victims of natural disasters. Although members of virtually any demographic group could be included on this list, women and children top the list.

Though some victims are sold into slavery, and others are forcibly kidnapped, the most common scenario involves traffickers who take advantage of an individual's vulnerability, including offers of a better life, romance, or drugs. Physical force is often used in establishing dominance, along with threats of violence against family members or loved ones. Victims are frequently exposed to harsh physical conditions, starvation, health risks, rape, and substance abuse. The severity of the treatment may also lead to various mental health issues, including posttraumatic stress disorder.

Trafficked persons are often reluctant to report or seek help for numerous reasons, including the following:

- They do not recognize the situation they are in.
- They have no idea where or how to seek help.
- They have a bond with their trafficker and thus a sense of obligation to "help" the person.
- They or their families are in debt to the trafficker (often from the purchase of drugs).
- They are fearful of deportation.
- They are addicted to drugs.
- They feel they or their families will be harmed if they seek help.
- They are unfamiliar with their surroundings (especially when held in a country other than their own) and do not know whom to trust.
- They are fearful of law enforcement.
- They are earning much-needed money to send to their families.

Contrary to popular belief, human trafficking often occurs in plain sight. While there are many indicators that a person may be the victim of trafficking, the following is a brief list of signs you may encounter when responding to a routine EMS call:

- The patient shows signs of physical abuse or injury.
- The patient is accompanied everywhere by a person who speaks for the patient or will not allow the patient to speak when addressed directly.
- The patient appears fearful or under the control of another person.
- The patient has ongoing health issues that have not been addressed.
- The patient is unfamiliar with the neighborhood in which the scene is located.
- The patient appears to be traveling with a minimal or inappropriate amount of luggage or belongings.
- The patient has a lack of identification documents or does not have control over personal identification documents.
- The patient is a juvenile engaged in a commercial sex act.

You should report any such red flags to the National Human Trafficking Hotline at 1-888-373-7888. Follow local protocols for further reporting of suspicious situations.

public health care system. This change in attitude can be powerful and lead to increased EMS funding and greater respect for EMS as a profession.

EMS Research

Traditional medical practice is based on medical knowledge, intuition, and judgment. In the early years of EMS, many standards relating to professionalism, protocols, training, and equipment were developed from EMS providers' direct experience. Now, ongoing EMS research provides a scientific basis for standards, in a way similar to research in any other health care profession.

In the early days of EMS, it was believed major trauma patients needed to be stabilized on the scene before they were transported. Paramedics would start IV lines and use advanced airways.

There was no foundation to support this behavior; it was just assumed that this care needed to be done. After compiling substantial prehospital EMS research, it was determined major trauma patients needed to be transported to an operating room more than they needed IV fluids. This is the power of EMS research.

Virtually all aspects of health care today use **evidence-based medicine (EBM)**. EBM is focused on procedures that have proven useful in improving patient outcomes and on individual patient characteristics and values. Although not every aspect of EMS has enough research to be truly evidence-based, many EMS systems and states now consult the *National Model EMS Clinical Guidelines* from the National Association of State EMS Officials. These treatment guidelines are based on a review of current research and expert consensus. All aspects of the AEMT role are currently being researched, not only within the academic community, but increasingly within the practitioner community, as every AEMT has something to contribute to improving the role.

EMS research may be performed by EMS providers or other people who are studying a particular branch of medicine. AEMTs will be involved in research typically through gathering data. You may be part of a study to determine how much oxygen should be given to patients with shortness of breath. You may be involved in a study to track the time it takes to transport serious trauma patients to the ED. Your job is to ensure all information about patients is recorded carefully. The information gathered is analyzed by others to answer these questions, and the results are shared with the rest of the EMS community to improve patient care practices. Traditional medical practice is based on such research.

Research can also be conducted at each EMS facility. EMS personnel can examine patient care records to determine where the department can improve. This information can be used to generate educational sessions for AEMTs or can be used to plan public education/public prevention strategies. High-quality patient care should focus on procedures useful in improving patient outcomes through sound research. It is important for EMS providers to stay current on the latest advances in health care. In the past, the American Heart Association (AHA), in concert with the International Liaison Committee on Resuscitation (ILCOR), revised the *Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care* every 5 years. As of 2015, it was determined a 5-year cycle is insufficient to keep pace with the rapidly evolving research in resuscitation science, so it is planned for the guidelines to be updated on a more regular basis. The ILCOR guidelines are an excellent example of evidence-based medical decision making in progress. These changes occur because more information is known.

One word of caution: When reading new research results, make sure you understand what the results mean. Research information can be powerful, but it is often powerful within a very limited setting. A manufacturer of a defibrillator boasts its new machine will terminate ventricular fibrillation on the first shock 95% of the time. On the basis of this information, you may immediately want to buy this new product. Terminating ventricular fibrillation is certainly a positive result, but does this defibrillator save more lives than other defibrillators? In this example, the manufacturer is reporting that the defibrillator can terminate ventricular fibrillation, not that the defibrillator can save more lives. People who do not examine the research will often make hasty conclusions.

Be skeptical when reading research. Ask questions and conduct your own research. Conclusions that seem too good to be true are usually not true.

Street Smarts

Remember, each patient is unique and has different needs. An algorithm, or treatment plan, should be altered to meet the needs of each individual patient as opposed to using an "across-the-board" approach.

Transport Considerations and Communication

Transport to Specialty Centers

In addition to hospital EDs, many EMS systems include specialty centers that focus on specific types of care (such as trauma, burns, poisoning, or psychiatric conditions) or specific types of patients (for example, children). Specialty centers require in-house staffs of surgeons and other specialists; other facilities must page operating teams, surgeons, or other specialists from outside the hospital. Typically, only a few hospitals in a region are designated as specialty centers. Transport time to a specialty center

may be slightly longer than the time to an ED, but patients will receive definitive care more quickly at a specialty center. You must know the location of the centers in your area and when, according to your protocol, you must transport the patient directly to one. Sometimes, air medical transport will be necessary. Local, regional, and state protocols will guide your decision in these instances.

Interfacility Transports

Many EMS systems provide interfacility transportation for nonambulatory patients or patients with acute and chronic medical conditions requiring medical monitoring (**FIGURE 1-5**). This transportation may include transferring patients to and from hospitals, skilled nursing facilities, board and care homes, or even their own residence.

During ambulance transportation, the health and well-being of the patient is the responsibility of AEMTs. You should obtain the patient's medical history, chief complaint, and latest vital signs and provide ongoing patient assessment. In certain circumstances, depending on local protocols, a nurse, physician, respiratory therapist, or medical team will accompany the patient, especially when the patient requires care that extends beyond the scope of practice of AEMTs.

Working With Hospital Staff

You should become familiar with the hospital by observing hospital equipment and how it is used, the functions of staff members, and the policies and procedures in all emergency areas of the hospital. You will also learn about advances in emergency medical care and how to interact with hospital personnel. This experience helps you understand how your care influences a patient's recovery and will emphasize the importance and benefits of proper prehospital care. It will also show you the consequences of delayed care, inadequate care, or poor judgment.

Physicians are not likely to be in the field with you to provide personal, on-the-spot instructions. However, you may consult with appropriate medical staff by using the radio through established medical control procedures.

A physician or nurse may serve as an instructor for medical subjects in your training program. Through these experiences, you will become more comfortable using medical terms, interpreting patient signs and symptoms, and developing patient management skills. The best patient care occurs when all emergency care providers have close rapport. This rapport allows you and hospital staff the opportunity to discuss mutual problems and to benefit from each other's experiences.

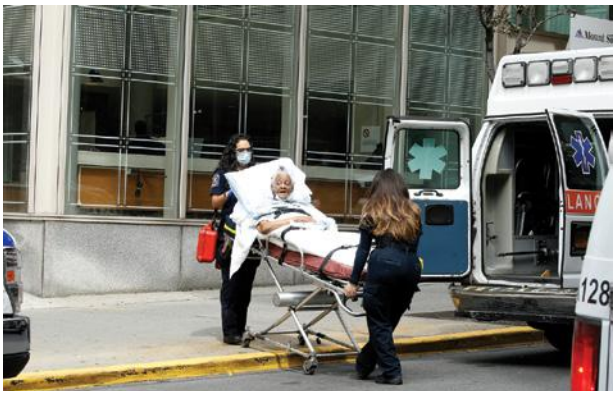

FIGURE 1-5 As an AEMT, part of your job may be transporting patients from one facility to another.

Working With Public Safety Agencies

Some public safety workers have EMS training. As an AEMT, you must become familiar with all the roles and responsibilities of these workers. Personnel from certain agencies are better prepared than you are to perform certain functions. For example, employees of a utility company are better equipped to control downed power lines. Law enforcement personnel are better able to handle violent scenes and traffic control. Recognize that each person has special training and a job to do at the scene. Remember, the best, most efficient patient care is achieved through cooperation among agencies.

Roles and Responsibilities of AEMTs

You will be one of the first health care professionals to assess and treat the patient; as such, you have certain roles and responsibilities (**TABLE 1-5**). Often, patient outcomes are determined by the care that you provide in the field and your identification of patients who need prompt transport. You are responsible for all aspects of EMS, from the preparation of the equipment, to the delivery of care, to providing a good example for others within the community.

TABLE 1-5 Roles and Responsibilities of AEMTs

- Keep vehicles and equipment ready for an emergency.
- Ensure the safety of yourself, your partner, the patient, and bystanders.
- Properly and safely operate the emergency vehicle.
- Be an on-scene leader.
- Perform an evaluation of the scene.
- Call for additional resources as needed.
- Gain patient access.
- Perform a patient assessment.
- Give emergency medical care to the patient.
- Properly and safely move patients.
- Communicate effectively with the patient and advise the patient of any procedures you will perform.
- Give emotional support to the patient, the patient's family, and other responders.
- Maintain continuity of care by working with other health care professionals.
- Resolve emergency incidents.
- Uphold medical and legal standards.
- Ensure and protect patient privacy.
- Give administrative support.
- Constantly continue your professional development.
- Cultivate and sustain community relations.
- Give back to the profession.

Professional Attributes

As an AEMT, you are expected to have certain professional attributes (**TABLE 1-6**). Whether you are paid or a volunteer, you are a health care professional. A professional is skilled and trained for work by extended study or practice. Part of your responsibility is to ensure patient care is given a high priority without endangering your own safety or the safety of others. Another part of your responsibility to yourself, other emergency care providers, the patient, and other health care professionals is to maintain a professional appearance and manner at all times (**FIGURE 1-6**).

Appearance, including uniforms, hair length, and tattoos, is usually regulated by the policies of your department. Your attitude and behavior must reflect your knowledge, proficiency, and sincere dedication to serving anyone who is injured or experiencing an acute medical emergency. A professional appearance and manner help to build confidence and ease the patient's anxiety. You will be expected to perform under pressure with composure and self-confidence. Patients and families

TABLE 1-6 Professional Attributes of AEMTs

Attribute	Description
Integrity	Consistent actions, adheres firmly to a code of honest behavior
Empathy	Shows awareness and consideration about the needs of others
Self-motivation	Discovers problems and solves them without direction
Appearance and hygiene	Uses persona to project a sense of trust, professionalism, knowledge, and compassion
Self-confidence	Knows what you know and what you do not know; asks for help when needed
Time management	Performs or delegates multiple tasks while ensuring efficiency and safety
Communication	Understands others and ensures they understand you
Teamwork and diplomacy	Works with others; knows your place within a team; communicates while giving respect to the listener
Respect	Places others in high regard or importance; understands others are more important than you
Patient advocacy	Constantly keeps the needs of the patient at the center of care; supports patients' rights
Careful delivery of care	Pays attention to detail; ensures what is being done for the patient is done as safely as possible

Street Smarts

It is imperative that you treat all patients with respect and compassion. This extends to concerned relatives on scene as well. Taking a few moments to reassure a distraught spouse or anxious parent goes a long way and requires little effort on your part.

FIGURE 1-6 A professional appearance and manner help to build confidence and ease patient anxiety.

who are under stress need to be treated with understanding, respect, and compassion.

Most patients will treat you with respect and appreciation, but some will not. Some patients are uncooperative, demanding, unpleasant, ungrateful, and verbally abusive. You must be nonjudgmental and overcome your instincts to react poorly to such behavior. Remember, when people are hurt, ill, under stress, frightened, despondent, under the influence of alcohol or drugs, or if they feel threatened, they will often react with inappropriate behavior, even toward the people who are trying to help and care for them. All patients, regardless of their attitudes or beliefs, are entitled to compassion, respect, and the best care that you can provide; this includes patients with special needs, alternative lifestyles, and culturally diverse backgrounds. Personal prejudices or biases should not interfere with appropriate medical care.

Many people in the United States can obtain proper routine medical care when they are ill and are surrounded by relatives and friends who will help to take care of them. However, when you are called to a home for a medical problem that is clearly not an emergency, remember, for some people, calling an ambulance and being transported to the ED is their only way to obtain medical care. You may find yourself in the role of patient advocate in these cases. The issue may arise from lack of funds, special needs, or other problems. If there is an issue that is not addressed, your job as a professional is to bring it to the attention of the professionals who are designated to find assistance for patients in need. It may be as simple as providing transportation or as complex as investigating a possible abuse or neglect case.

Street Smarts

Studies have shown that when the provider pays attention to detail, patients are more likely to feel that the provider cares for them as individuals.

As a new AEMT, you will be given a lot of advice and training from the more experienced providers with whom you serve. Some may voice a callous disregard for some patients. You should not be influenced by this unprofessional attitude, regardless of how experienced or skilled they appear.

As a health care professional and an extension of physician care, you are bound by patient confidentiality. Do not discuss your findings or any disclosures made by the patient with anyone but other providers who are treating the patient or, as required by law, the police or other social agencies. If you must discuss a call with other providers, you should be careful to avoid any information that might disclose the name or identity of patients you have treated. Do not gossip about calls and patients with others, even in your own home. The protection of patient privacy has drawn national attention with the passage of the **Health Insurance Portability and Accountability Act (HIPAA)**, which was enacted in 1996 to limit the availability of patients' health care information and penalize violations of patient privacy. You should be familiar with the requirements of this legislation, especially as it applies to your particular practice. For more information on the HIPAA, see Chapter 3, *Medical, Legal, and Ethical Issues*.

YOU are the Provider SUMMARY

1. What is emergency medical services (EMS)?

EMS consists of a team of health care professionals who are responsible for and provide prehospital emergency care and transportation for sick and injured people. Each EMS agency is part of a local or regional EMS system that provides the prehospital components required to delivery proper emergency medical care.

2. Why was the National Registry of Emergency Medical Technicians (NREMT) established?

The NREMT was established to certify and register EMS professionals through a valid and uniform process that assesses their knowledge and skills to ensure competent practice. The NREMT requires a reregistration process every 2 years to ensure continued competence.

3. What is the National EMS Scope of Practice Model?

At the federal level, NHTSA brought in experts from around the country to create the National EMS Scope of Practice Model. This document provides overarching guidelines for the minimum skills each level of EMS provider should be able to accomplish. Because licensure is a state function, at the state level laws are enacted to regulate how EMS providers will operate and are then executed by the state-level EMS administrative offices that control licensure. Finally, the local medical director decides the day-to-day limits of EMS personnel. For example, the medications that will be carried on an ambulance or where patients are transported are both day-to-day operational concerns in which the medical director will have direct input.

The national guidelines are intended to create more consistent delivery of EMS across the country. The only way a medical director can allow an AEMT to perform a skill is if the state has already approved performance of that skill. The medical director can limit the scope of practice but cannot expand it beyond state law. Expanding the scope of practice requires state approval.

4. How does the EMD system work?

Emergency medical dispatch was developed to assist dispatchers in providing callers with vital instructions to help them deal with an emergency until the arrival of EMS crews. Dispatchers are trained and provided with scripts to help them relay relevant instructions to the callers. The system helps the dispatchers select appropriately resourced units to respond to a request for assistance. It is the dispatcher's duty to relay all relevant and available information to the responding crews in a timely manner. Keep in mind, however, that current technology does not allow the dispatcher to see what is actually going on at the scene and that it is not uncommon for you to find the reality of the call quite different from the dispatch information. A dispatcher can only relay the information provided by the caller.

5. What dictates the skills that you, as an AEMT, may perform in the course of your duties?

Each EMS system has a physician medical director who authorizes the providers in the service to provide emergency medical care in the field. The appropriate care for each injury, condition, or illness that you will encounter in the field is determined by the medical director and is described in a set of written standing orders and protocols. Protocols are described in a comprehensive guide delineating the scope of practice of AEMTs. Standing orders are part of protocols and designate what AEMTs are required to do for a specific complaint or condition.

6. What are the two types of medical control?

Medical control is off-line (indirect) or online (direct), as authorized by the medical director. Online medical control consists of direction given over the phone or radio directly from the medical director or designated physician. Off-line medical control consists of standing orders, training, and supervision authorized by the medical director.

7. What is the purpose of a QA/CQI meeting?

A QA/CQI meeting is part of a circular system of continuous internal and external reviews and audits of all aspects of an EMS call. Periodic run review meetings are held in which all involved in patient care review the run reports and discuss any areas of care that seem to need change or improvement.

8. How can a QA/CQI review make you a better provider?

A QA/CQI review can identify overall problems within a service or EMS system and individual or team performance problems. The review helps to identify the source of the problem and possible solutions. The potential solutions can be evaluated by discussing their potential benefits and risks and by trying the most likely beneficial solutions in a safe setting, such as role playing, and/or in practice, depending on the nature of the problem and solution. You can learn about how to clearly identify problems and to propose and evaluate solutions by participating in QA/CQI meetings. You can also learn new information and techniques by participating in the meetings and by receiving feedback from the meetings.

Prep Kit

Ready for Review

- EMS is the system that provides the emergency medical care needed by people who have been injured or have an acute medical emergency.
- The standards for prehospital emergency care and the people who provide it are governed by the laws in each state and are typically regulated by a state office of EMS.
- The AEMT course you are now taking provides the information and skills you need to pass the examination required to become a licensed AEMT.
- The EMS ambulance is staffed by providers who have been trained to the EMT, AEMT, or paramedic level according to recommended national standards and have been licensed by the state.
- An EMT has training in basic emergency medical care skills, including automated external defibrillation, use of airway adjuncts, and assisting patients with certain medications.
- An AEMT has training in specific aspects of ALS, such as intravenous therapy and the administration of certain emergency medications.
- A paramedic has extensive training in advanced life support, including endotracheal intubation, emergency pharmacology, cardiac monitoring, and other advanced assessment and treatment skills.
- Key components of an AEMT's job include scene size-up, patient assessment, treatment, and packaging. After assessing the scene and the patient, you will provide the emergency care and transport that is indicated by your findings and ordered by your medical director in the service's standing order protocols or the physician who is providing online medical direction.
- The National EMS Scope of Practice Model provides overarching guidelines for the minimum skills each level of EMS provider should be able to accomplish.
- The *EMS Agenda for the Future* is a multidisciplinary, national review outlining the aspects of EMS delivery. There are 14 EMS attributes described in this document.
- When the dispatcher at the 9-1-1 emergency communications center receives a call for emergency medical care, this person dispatches to the scene the designated EMS ambulance squad and any fire, rescue, or police units that may be needed.
- As an AEMT, you will work in a primary service area and be responsible for ensuring all equipment and supplies are functional and ready for use.
- Each EMS system has a physician medical director who authorizes the providers in the service to provide emergency medical care in the field. Medical control is off-line (indirect) or online (direct).
- In the MIH model, health care is provided within the community, rather than at a physician's office or hospital.
- Community paramedicine allows experienced paramedics to receive advanced training to equip them to provide services within a community.
- CQI is a circular system of continuous internal and external reviews and audits of all aspects of an EMS call.
- It is important to determine ways to reduce human error by ensuring you understand your protocols, ensuring your environment is organized and functional, and acting as a patient advocate.
- EMS research and evidence-based decision making are beginning to have a role in functioning as an EMS provider. Stay aware of research, and focus patient care on procedures that have proven effective in improving patient outcomes.
- EMS systems should implement prevention and public education efforts to help reduce the

incidence of illness and injury in communities and to prepare members of the public to respond to common emergencies. These efforts also can raise community awareness of problems such as human trafficking.
- As an AEMT, you will work with many other professionals, including hospital staff and public safety personnel. Remember, the best, most efficient patient care is achieved through cooperation among agencies.
- AEMT attributes include compassion and motivation to reduce suffering, pain, and death in patients who are injured or acutely ill; a desire to provide each patient with the best possible care; commitment to obtain the knowledge and skills that this requires; and the drive to continually increase your knowledge, skills, and ability.
- As a health care professional and an extension of physician care, you are bound by patient confidentiality.

Vital Vocabulary

advanced emergency medical technician (AEMT) An individual trained in specific aspects of advanced life support, such as intravenous therapy and administration of certain emergency medications.

advanced life support (ALS) Advanced life-saving procedures used to treat medical conditions, such as cardiac monitoring, administration of intravenous fluids and medications, and the use of advanced airway adjuncts. EMTs and AEMTs may be trained in some of these areas.

Americans With Disabilities Act (ADA) Comprehensive legislation that is designed to protect people with disabilities against discrimination.

automated external defibrillator (AED) A device that detects treatable life-threatening cardiac dysrhythmias (ventricular fibrillation and ventricular tachycardia) and delivers the appropriate electrical shock to the patient.

basic life support (BLS) Noninvasive emergency life-saving care used to treat medical conditions, including airway obstruction, respiratory arrest, and cardiac arrest.

certification A process in which a person, an institution, or a program is evaluated and recognized as meeting certain predetermined standards to provide safe and ethical patient care.

community paramedicine A health care model in which experienced paramedics receive advanced training to allow them to provide additional services in the prehospital environment, such as health evaluations, monitoring of chronic illnesses or conditions, and patient advocacy.

continuous quality improvement (CQI) A system of internal and external reviews and audits of all aspects of an emergency medical services system.

credentialing An established process to determine the qualifications necessary to be allowed to practice a particular profession, or to function as an organization.

emergency medical dispatch (EMD) A system that assists dispatchers in selecting appropriate units to respond to a particular call for assistance and provides callers with vital instructions until the arrival of emergency medical services crews.

emergency medical responder (EMR) The first trained person, such as a police officer, firefighter, lifeguard, or other rescuer, to arrive at the scene of an emergency to provide initial medical assistance.

emergency medical services (EMS) A multidisciplinary system that represents the combined efforts of several professionals and agencies to provide prehospital emergency care to sick and injured people.

emergency medical technician (EMT) An individual trained in basic emergency medical care skills, including automated external defibrillation, use of a definitive airway adjunct, and assisting patients with certain medications.