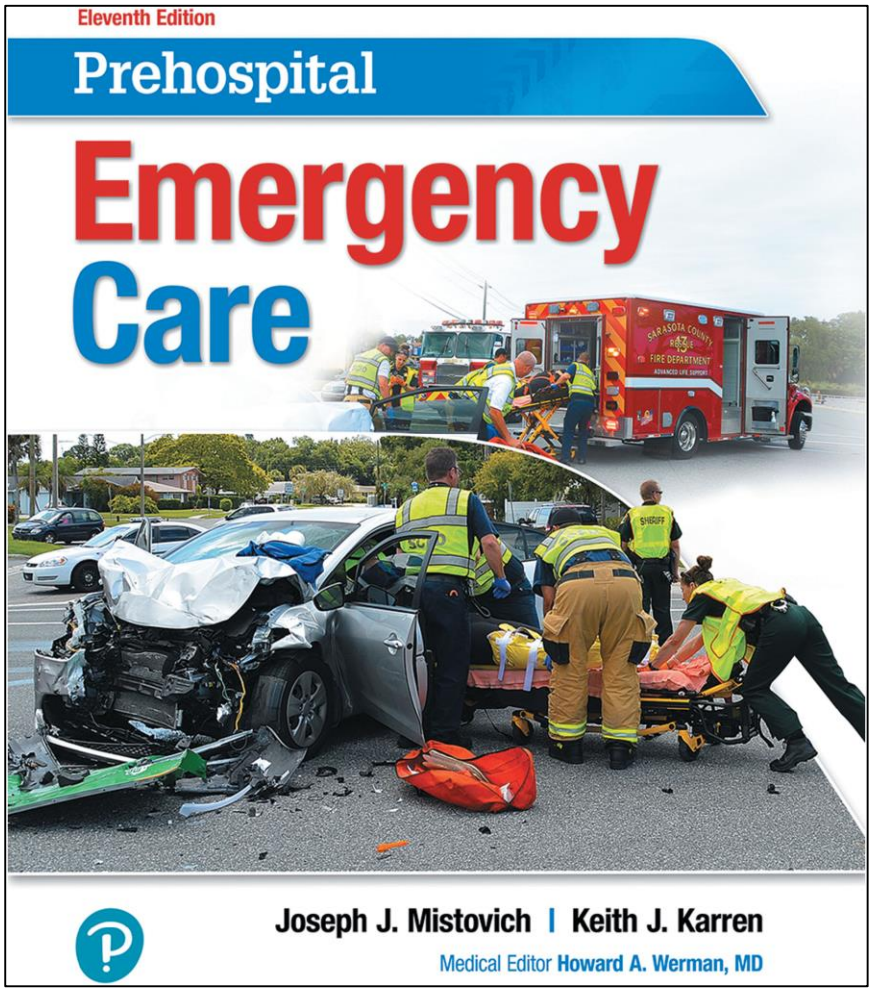
Prehospital: Emergency Care

Eleventh Edition



Chapter 1

Emergency Medical Care Systems, Research, and Public Health

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Introduction

- Sudden loss of life and disability from catastrophic accidents and illnesses is a major public health problem.
- Thousands of people die or suffer permanent harm yearly because of a lack of access to EMS.
- EMTs can make a positive difference.

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The EMS System: History (1 of 6)

- What happens to an injured or ill patient before he reaches the hospital can make a critical difference.
- Lessons learned from observations in the Korean and Vietnam wars have impacted the development of modern EMS systems.

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The EMS System: History (2 of 6)

- In the past, care did not begin until the patient reached the hospital.
- **In 1966, the EMS "white paper" identified deficiencies in prehospital medical care, including lack of EMT training and lack of organized systems.**

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The EMS System: History (3 of 6)

- Modern EMS is part of a continuum of care that begins at the scene of the emergency and continues through hospital discharge and rehabilitation.
- Several significant developments helped lead to this EMS system.

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The EMS System: History (4 of 6)

- Introduction of cardiopulmonary resuscitation (CPR) in the 1960s
- The Highway Safety Act of 1966
- The EMS System Act of 1973
- **National Emergency Medical Services Education and Practice Blueprint** in 1993 by the National Registry of EMTs

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The EMS System: History (5 of 6)

- NHTSA documents
  - 1996 **EMS Agenda for the Future**
  - 2000 **EMS Education Agenda for the Future: A Systems Approach**
  - 2005 **National EMS Core Content**
  - 2006 **National EMS Scope of Practice Model**
    - National EMS Education Standards

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The EMS System: History (6 of 6)

- The 2006 Institute of Medicine (IOM) report **The Future of EMS Care: EMS at the Crossroads** recommends:
  - Common scopes of practice to allow reciprocity between states
  - National accreditation for all paramedic educational programs
  - National certification as a prerequisite for state licensure and local credentialing

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The EMS System: Standards (1 of 3)

- NHTSA provides a set of recommended state standards, the Technical Assistance Program Assessment Standards.
- There are ten components:

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The EMS System: Standards (2 of 3)

1. Regulation and policy
2. Resource management
3. Human resources and training
4. Transportation
5. Facilities
6. Communications
7. Public information and education
8. Medical direction
9. Trauma systems
10. Evaluation

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The EMS System: System Goals

- **Emergency Medical Services: Clinical Practice and Systems Oversight, 2015**

1. Clinical quality
2. Service quality
3. Economic efficiency
4. Accountability
5. Improvement
6. Resilience

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EMS System Access (1 of 4)

- The most common way for the public to access EMS is by dialing 911.
- Enhanced 911 (E-911) allows:
  - Automatic number identification
  - Automatic location information

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Communications Play a Vital Role in the Emergency Medical Services (EMS) System

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EMS System Access (2 of 4)

- Benefits of 911
  - The number is easy to remember and use.
  - Public safety answering point (PSAP) is staffed by specially trained dispatchers.
  - All emergency services—police, fire, and EMS—are accessible by dialing one number.

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EMS System Access (3 of 4)

- Cell phones pose some challenges to 911 systems:
  - They are not identified with a fixed site, so the location is identified as the closest cell tower.
  - Calls near geographic boundaries can go to a different PSAP.
  - FCC rules are being implemented to improve cellular access to 911.

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EMS System Access (4 of 4)

- Voice over Internet Protocol (VoIP) also poses challenges addressed by FCC rules.
  - 911 service must be a standard feature.
  - Must give the physical location of where the service will be used.
  - The provider must transmit all 911 calls to the appropriate PSAP.

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Types of EMS Systems

- A variety of EMS system types exist in the United States:
  - Fire Department EMS
  - Municipal EMS
  - Private EMS
  - Hospital based EMS
  - Law enforcement EMS

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Levels of Providers

- The **National EMS Scope of Practice Model** identifies four levels of EMS practitioners:
  - Emergency Medical Responder (EMR)
  - Emergency Medical Technician (EMT)
  - Advanced Emergency Medical Technician (AEMT)
  - Paramedic

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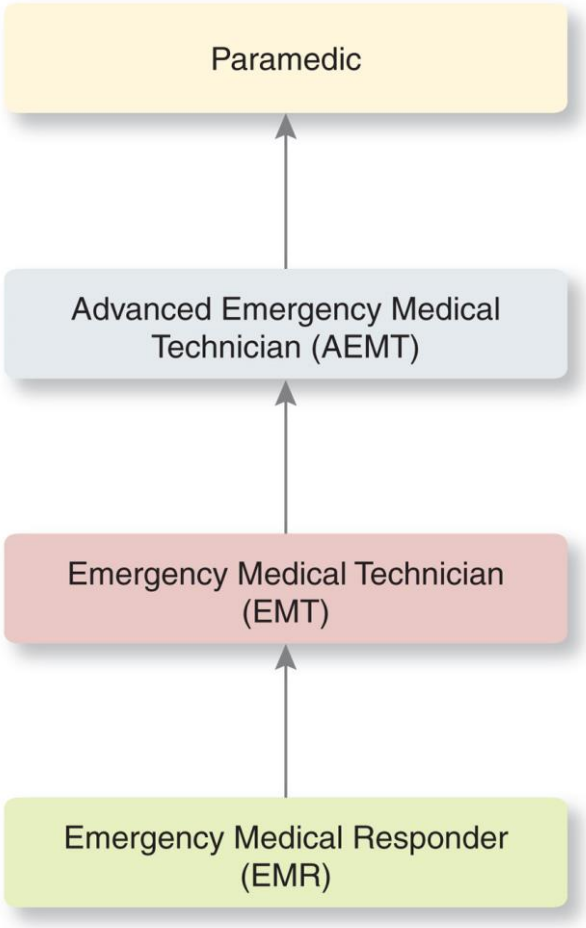
The Four Levels of EMS Practitioners



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The Health Care System (1 of 5)

- A health care system is a network of medical care that begins in the field and extends to hospitals and other treatment centers, including:
  - "Prehospital" care
  - "Out-of-hospital" care

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The Health Care System (2 of 5)

- The different health care facilities to which EMT s may transport patients have different capabilities.
  - Trauma center
  - Burn center
  - Obstetrical center
  - Pediatric center
  - Poison center
  - Stroke center
  - Cardiac center
  - Hyperbaric center
  - Spine injury center
  - Psychiatric center

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EMT Responsibilities (1 of 10)

- All EMTs share a common set of roles and responsibilities.

Table 1-1 Roles and Responsibilities of the Emergency Medical Technician

- Maintain vehicle and equipment readiness.
- Ensure safety of the EMS crew, the patient, and bystanders at the scene.
- Operate the emergency vehicle.
- Assess the patient.

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EMT Responsibilities (2 of 10)

- Provide emergency care.
- Safely lift and move the patient.
- Prepare oral and written reports.
- Safely transport the patient.
- Transfer patient care.
- Perform record keeping and data collection.
- Serve as the patient's advocate.

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EMT Responsibilities (3 of 10)

- Provide emotional support to the patient, relatives, and others at the scene.
- Integrate the EMS service with other emergency and nonemergency services.
- Resolve the emergency incident.
- Maintain medical and legal standards.
- Provide administrative support.
- Enhance professional development.
- Develop and maintain community relations.

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EMT Responsibilities (4 of 10)

- You cannot help the patient, other rescuers, or yourself if you are injured.
  - Use safe driving habits.
  - Do not enter or stay on an unsafe scene.
  - Be alert to situations with a risk for violence.
  - Wear reflective clothing and protective clothing as indicated.

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EMT Professional Attributes (1 of 4)

- EMS has professional attributes that are important to maximize effectiveness of the EMT.

Table 1-2 Characteristics of Professional Behavior for EMTs

- Integrity
- Empathy
- Self-motivation
- Professional appearance and hygiene
- Self-confidence

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EMT Professional Attributes (2 of 4)

- Effective time management
- Good verbal and written communication skills
- Teamwork and diplomacy
- Respect for patients, coworkers, and other health care professionals
- Patient advocate
- Careful delivery of service

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EMT Professional Attributes (3 of 4)

1. Appearance
2. Knowledge and skills
3. Physical demands
4. Personal traits
5. Leadership ability
6. Good judgement

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EMT Professional Attributes (4 of 4)

7. Good moral character
8. Stability and adaptability
9. Ability to listen
10. Resourcefulness
11. Cooperative
12. Maintenance of certification/licensure

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EMS System Organization and Standards (1 of 4)

- State EMS agency role:
  - State EMS agencies are responsible for planning and coordinating EMS.
  - Every state and territory in the US has a lead EMS agency.

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EMS System Organization and Standards (2 of 4)

- Medical Oversight of EMS
  - Every EMS system must have a physician medical director.
    - Direct medical oversight
    - Indirect medical oversight
    - On and off-line medical direction
    - Standing orders

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Medical Direction

- Medical directors participate in EMS provider education and EMS system quality assurance.
- A primary charge of medical direction is developing and establishing the guidelines under which the emergency medical service personnel function.

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EMS System Organization and Standards (3 of 4)

- Quality improvement (QI)
  - Is a system of internal and external reviews and audits of all aspects of an emergency medical system.
  - May also be known as continuous quality improvement (CQI).

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Quality Improvement

- The EMT also has roles in QI

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EMS System Organization and Standards (4 of 4)

- Issues in Patient Safety
  - Certain aspects of prehospital care are high-risk in terms of patient safety.
    - Transfer of care from one provider to another
    - Communications with other providers
    - Carrying and moving patients
    - Ambulance transport destinations
    - Spine motion restriction decisions

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Issues in Patient Safety

- Errors during patient care can cause harm, and usually result from:
  - Improper skill performance
  - Not following the rules
  - Lack of knowledge

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EMS Research

- Research in EMS
  - Evidence-based medicine (EBM) uses research to provide evidence that certain procedures, medications, and equipment improve the patient's outcome.

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Research in EMS (1 of 3)

- There are four steps in evidence-based decision-making:
  1. Formulate a question that needs to be answered.
  2. Search medical literature for applicable data.

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Research in EMS (2 of 3)

- There are four steps in evidence-based decision-making:
  3. Appraise the data for validity and reliability.
  4. If the evidence supports a change in practice, change protocols and implement the change in prehospital emergency care.

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Research in EMS (3 of 3)

- Research does not exist to support many practices in EMS.
- Research in hospital settings does not always transfer well to EMS settings.
- If the opportunity arises, every EMT has an obligation to participate in research that contributes to the profession.

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Public Health (1 of 6)

- EMTs are part of the public health team.
- Public health deals with protecting the health of an entire population.
- EMTs can play a role in identifying public health problems and in attempts to reduce injury and illness and promote health.

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Public Health (2 of 6)

- The 10 greatest public health achievements in the United States in the 20th century were:
  1. Vaccinations
  2. Motor vehicle safety
  3. Workplace safety
  4. Control of infectious diseases
  5. Reduction in deaths from coronary heart disease and stroke

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Public Health (3 of 6)

- The 10 greatest public health achievements in the United States in the 20th century were:
  6. Safer and more healthful foods
  7. Decline in maternal and infant mortality
  8. Use of barrier devices during sex
  9. Fluoridation of drinking water
  10. Reduction in the use of tobacco products

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Public Health (4 of 6)

- Roles of EMS in public health include health prevention and promotion

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Public Health (5 of 6)

- Roles of EMS in public health include disease surveillance

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Public Health (6 of 6)

- Roles of EMS in public health include education and injury prevention

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Mobile Integrated Healthcare and Community Paramedicine (1 of 2)

- Mobile Integrated Healthcare
  - Integrates services provided by a variety of health care entities and practitioners into EMS
- Community Paramedicine
  - Services provided by the EMS agency and its EMS personnel

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Mobile Integrated Healthcare and Community Paramedicine (2 of 2)

- MIH-CP may include services such as:
  - Increasing access to underserved areas
  - Providing advice to 911 callers via phone rather than dispatching resources
  - Use of specially trained EMS providers to help individuals manage chronic diseases and follow up care

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Lesson Summary (1 of 3)

- The shape of the modern EMS system has been influenced by many events throughout history.
- EMS systems must address 10 specific areas as defined by NHTSA.
- 911 is the access number for EMS in the United States.

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Lesson Summary (2 of 3)

- There are four nationally recognized levels of EMS providers in the United States.
- EMTs have several specific responsibilities.
- Medical direction and QI are essential components of all EMS systems.

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Lesson Summary (3 of 3)

- EMS practices change over time, based on research findings.
- EMS is part of the public health system and can make an impact on the health of the community.

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