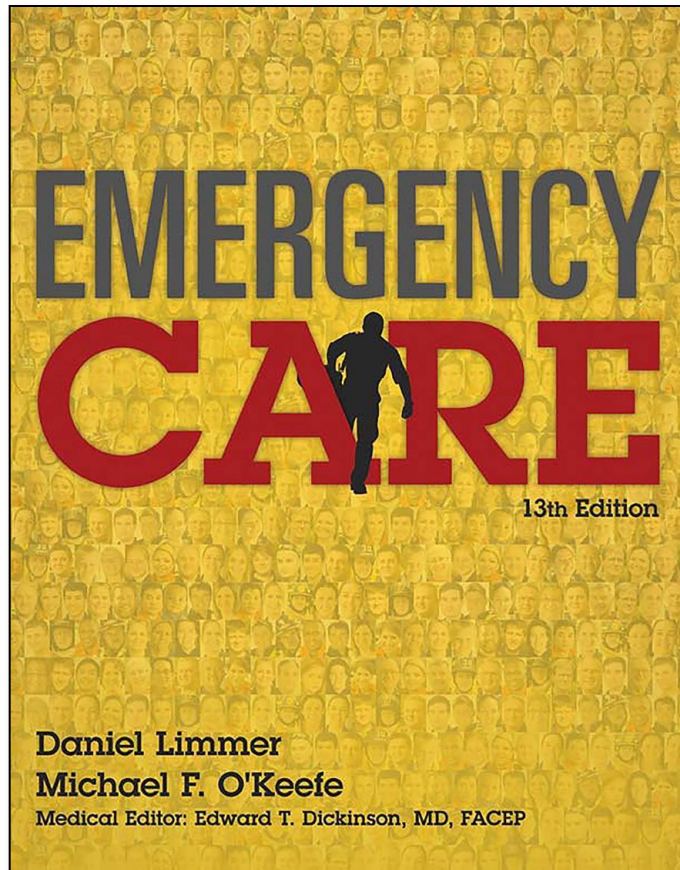


Emergency Care

THIRTEENTH EDITION



CHAPTER 1

Introduction to Emergency Medical Care

The Emergency Medical Services System

[Back to Topics](#)

How It Began

- 1790s
 - Napoleonic Wars
- Civil War
- World War I
 - Volunteer ambulance corps
- Korea/Vietnam
 - MASH-type units and helicopter transport from battlefield

continued on next slide

How It Began

- Nonmilitary ambulance services began operating in early 1900s in U.S.
- Operated by hospitals, fire departments, or funeral homes
- No requirements or standards for equipment, crew training, or ambulance design

EMS Today

- 1966
 - Department of Transportation charged with developing EMS standards
- 1970
 - Founding of the National Registry of EMTs (NREMT)

continued on next slide

EMS Today

- 1973
 - National Emergency Medical Service Systems Act (NEMSSA) passed by Congress

NHTSA Standards for EMS Systems

1. Regulation and policy
 - Each state establishes laws, policies, and regulations.
2. Resource management
 - Centralized coordination of emergency treatment and transport resources

continued on next slide

NHTSA Standards for EMS Systems

3. Human resources and training
 - Assure EMS personnel are trained and certified to minimum standards
4. Transportation
 - Provide safe, reliable transportation

continued on next slide

NHTSA Standards for EMS Systems

5. Facilities

- Transport to closest appropriate facility

6. Communications

- Universal system access number (911), dispatch-to-ambulance, ambulance-to-ambulance, ambulance-to-hospital, hospital-to-hospital communications

continued on next slide

NHTSA Standards for EMS Systems

7. Public information and education
 - Educate public about role of EMS, access to EMS, participate in injury prevention programs
8. Medical direction
 - Medical Director is accountable for EMS personnel within system

continued on next slide

NHTSA Standards for EMS Systems

9. Trauma systems

- Develop trauma triage, transport, and treatment protocols

10. Evaluation

- Establish program for evaluating and improving effectiveness (QI, QA, TQM)

Components of the EMS System

[Back to Topics](#)

Components of the EMS System

- Emergency Medical Dispatchers
- EMS responders
- Emergency Department/Hospital
 - Doctors, nurses, allied health personnel
- Specialty centers

continued on next slide

Components of the EMS System

- Other specialized care facilities
 - Trauma centers
 - Burn centers
 - Pediatric centers
 - Cardiac centers
 - Stroke centers

Components of the EMS System



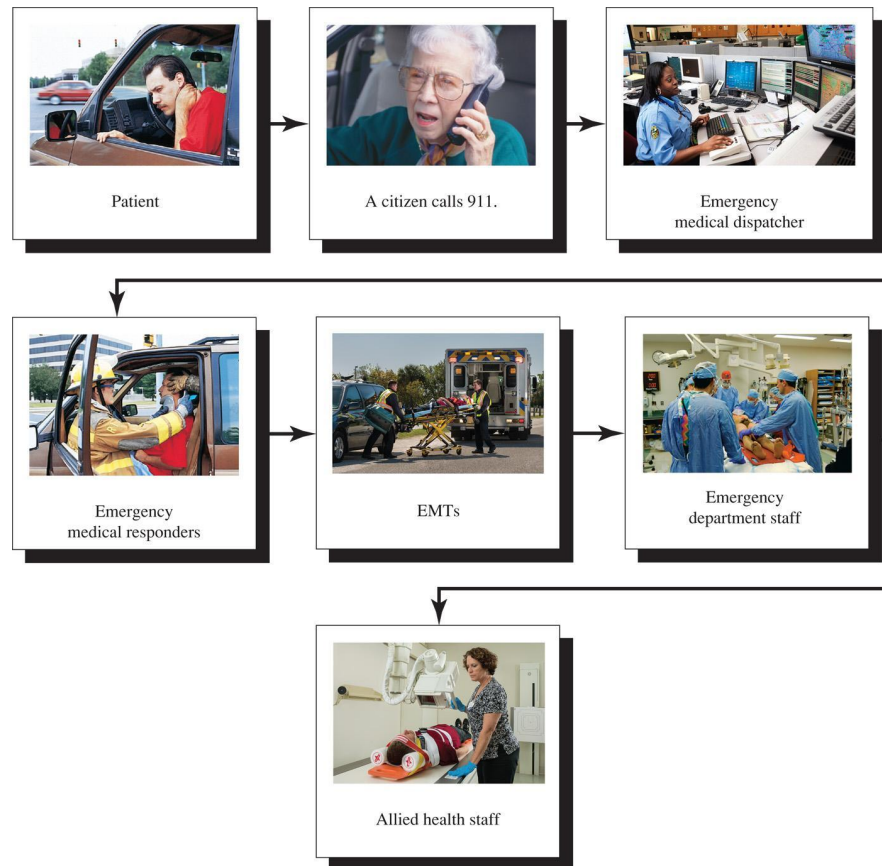
Emergency department staff

Photo: © Edward T. Dickinson, MD

Think About It

- What medical services are available in your community?
- How important is it that EMS personnel know the capabilities of community medical facilities?
- What are the possible consequences of transporting a patient to a facility not equipped to handle the problem?

Accessing the EMS System



The chain of human resources making up the EMS system.
Emergency Department staff photo: © Edward T. Dickinson, MD

Accessing the EMS System

- 911 telephone access
 - Available in most communities
- Enhanced 911
 - Provides caller number and location for landline phones

Accessing the EMS System

- Emergency medical dispatchers
 - Can provide instructions to callers on how to provide emergency care until EMS personnel arrive
 - EMD certification required in some jurisdictions

Accessing the EMS System



Emergency medical dispatchers
Photo: © Edward T. Dickinson, MD

Critical Decision Making

- Critical decision making is a very important concept in EMS.
- Information must be gathered, patients assessed, and determination made on treatment and transport options.
- Decisions often time-critical

Examples of Critical Decisions

- Is it better to take patient to closest hospital or to one farther away but more appropriate for the condition?
- Is patient stable enough for further evaluation on scene, or should patient be transported immediately?
- Will this treatment make patient better or worse?

Levels of EMS Training

- Emergency Medical Responder (previously called first responder)
- Emergency Medical Technician (previously called EMT-Basic)
- Advanced Emergency Medical Technician (previously called EMT-Intermediate)
- Paramedic (previously called EMT-Paramedic)

Roles and Responsibilities of EMTs

- Personal safety
- Safety of crew, patient, and bystanders
- Patient assessment
- Patient care
- Lifting and moving
- Transport
- Transfer of care
- Patient advocacy

Think About It

- How would it impact an older adult patient if they were transported to the hospital without glasses, hearing aid, or dentures?
- On a routine call, would taking the time to gather these items have a negative effect on the patient's care?
- How about assuring the home is secure and locked before leaving?

continued on next slide

Think About It

- Could the concept of patient advocacy also extend to the community (fall prevention programs for elderly, poisoning awareness, pool and water safety programs for children)?

Physical Traits of a Good EMT

- Ability to lift and carry equipment and patients up to 125 pounds
- Good eyesight (distance and reading)
- Awareness of any problems with color vision
- Good communication skills (oral and written)

Personal Traits of a Good EMT

- Pleasant
- Sincere
- Cooperative
- Resourceful

continued on next slide

Personal Traits of a Good EMT



A professional appearance inspires confidence.

Personal Traits of a Good EMT

- Self-starter
- Emotionally stable
- Able to lead
- Neat and clean
- Of good moral character and respectful of others

continued on next slide

Personal Traits of a Good EMT

- In control of personal habits
- Controlled in conversation and able to communicate properly
- Able to listen to others
- Nonjudgmental and fair

Education

- Maintain up-to-date knowledge and skills
- Refresher courses
- Continuing education courses
- Conferences, seminars, and lectures

Education



Many EMS/rescue operations adopt new procedures and equipment on the basis of research providing evidence that they are effective.

Think About It

- How will you refresh your knowledge and stay current once you are out of the classroom?
- What qualities would you like to see in an EMT who is caring for you? How can you come closer to being this kind of EMT?

Where Will You Become a Provider?

- Ambulance services
- Fire departments
- Rural/wilderness teams
- Urban/industrial settings
- Volunteering

Where Will You Become a Provider?



There is a wide variety of career opportunities for EMTs, including work in rural/wilderness settings.

Photo © Edward T. Dickinson, MD

National Registry of Emergency Medical Technicians

- Registration for EMRs, EMTs, AEMTs, and paramedics who successfully complete NREMT examinations
- May help in reciprocity (transferring to another state or region)
- Beneficial when applying for employment

Quality Improvement

- Continuous self-review with the purpose of identifying aspects of the system that require improvement
- Develop plans to correct deficiencies and improve performance

continued on next slide

Quality Improvement

- Everyone in organization has a role.
 - Preparing carefully written documentation
 - Becoming involved in the quality process
 - Obtaining feedback from patients and hospital staff
 - Maintaining your equipment
 - Continuing your education

Medical Direction

- All patient care performed under direction of Medical Director
 - Ultimate responsibility for patient care
 - Oversees training
 - Develops treatment protocols
 - Issues off-line medical direction (standing orders)
 - Provides on-line medical direction

EMS Role in Public Health

- Injury prevention for geriatric patients
- Injury prevention for youth
- Public vaccination programs
- Disease surveillance



Research

[Back to Topics](#)

Research

- Focus on improving patient outcomes and through evidence-based techniques
- Evidence-based process
 - Forming a hypothesis
 - Reviewing literature
 - Evaluating the evidence
 - Adopting the practice if evidence supports it

The Basics of EMS Research

- Not all research is created equal.
- Rely on the scientific method.
- Exacting and comprehensive studies are both difficult and time consuming.
- Obtain an objective opinion.

continued on next slide

The Basics of EMS Research

- Methods of reducing bias
 - Prospective versus retrospective
 - Randomization
 - Control groups
 - Study group similarity

continued on next slide

The Basics of EMS Research

- Types of medical research
 - Case studies/case reports
 - Cohort/concurrent control/case-control studies
 - Randomized controlled trials (RCTs)
 - Systematic review
 - Meta-analysis

continued on next slide

The Basics of EMS Research

- "Level of Evidence" designation by American Heart Association
 - Level of Evidence 1
 - Level of Evidence 2
 - Level of Evidence 3
 - Level of Evidence 4
 - Level of Evidence 5

The Basics of EMS Research

- Questions to ask when evaluating a study
 - Assists in identifying bias or flaws in methodology
- Questions to ask before participating in a study
 - Assists in understanding the study and providing needed information

Questions to Ask Before Participating in EMS Research

- What is the title of the study?
- Who are the principal investigator and primary contact?
- What is the research question or hypothesis?
- What are the study's inclusion criteria?
- What are the study's exclusion criteria?

continued on next slide

Questions to Ask Before Participating in EMS Research

- What EMS data is needed?
- How will informed consent be handled?
- If a treatment is going to be randomized, how will that happen?
- What samples will need to be collected?
- What are the potential benefits to the patient?

continued on next slide

Questions to Ask Before Participating in EMS Research

- What are the potential risks to the patient?
- What institutional review board has approved the study?
- Has the EMS agency's Medical Director approved the study?
- Has the EMS agency's administration approved the study?

Special Issues

[Back to Topics](#)

Special Issues

- Throughout the course we will discuss:
 - Local issues
 - Administrative matters
 - Course description
 - Class meeting times
 - Requirements for certification as an EMT

continued on next slide

Special Issues

- The Americans with Disabilities Act (ADA) has set strict guidelines preserving the rights of Americans with disabilities.

Chapter Review

Chapter Review

- The EMS system has been developed to provide prehospital as well as hospital emergency care.
- The EMS system includes 911 or another emergency access system, dispatchers, EMTs, hospital emergency department, physicians, nurses, physician's assistants, and other health professionals.

continued on next slide

Chapter Review

- The EMT's responsibilities include safety; patient assessment and care; lifting, moving, and transporting patients; transfer of care; and patient advocacy.

continued on next slide

Chapter Review

- An EMT must have certain personal and physical traits to ensure the ability to do the job.
- Education (including refresher training and continuing education), quality improvement procedures, and medical direction are all essential to maintaining high standards of EMS care.

Remember

- EMS dates back to Napoleonic times.
- Modern EMS standards come from 1960s–1970s and National Emergency Medical Service Systems Act (NEMSSA).
- There is a chain of human resources involved in EMS.
 - Critical decisions are made by each member of the chain.

continued on next slide

Remember

- There are certain personal and physical traits that help you to be a successful EMS provider.
- An EMS provider should actively pursue opportunities to improve personal knowledge and abilities as well as the unit's overall quality.

Questions to Consider

- What innovation was introduced in the Korean and Vietnam wars that is now common in many EMS systems?
- What are the four levels of EMS providers?
- Requesting orders from a physician by radio is an example of what kind of medical control?

Critical Thinking

- Your patient is hesitant to go to the hospital because she is worried about her dog. What can you do to assist in this situation? What part of your role as an EMT is this an example of?