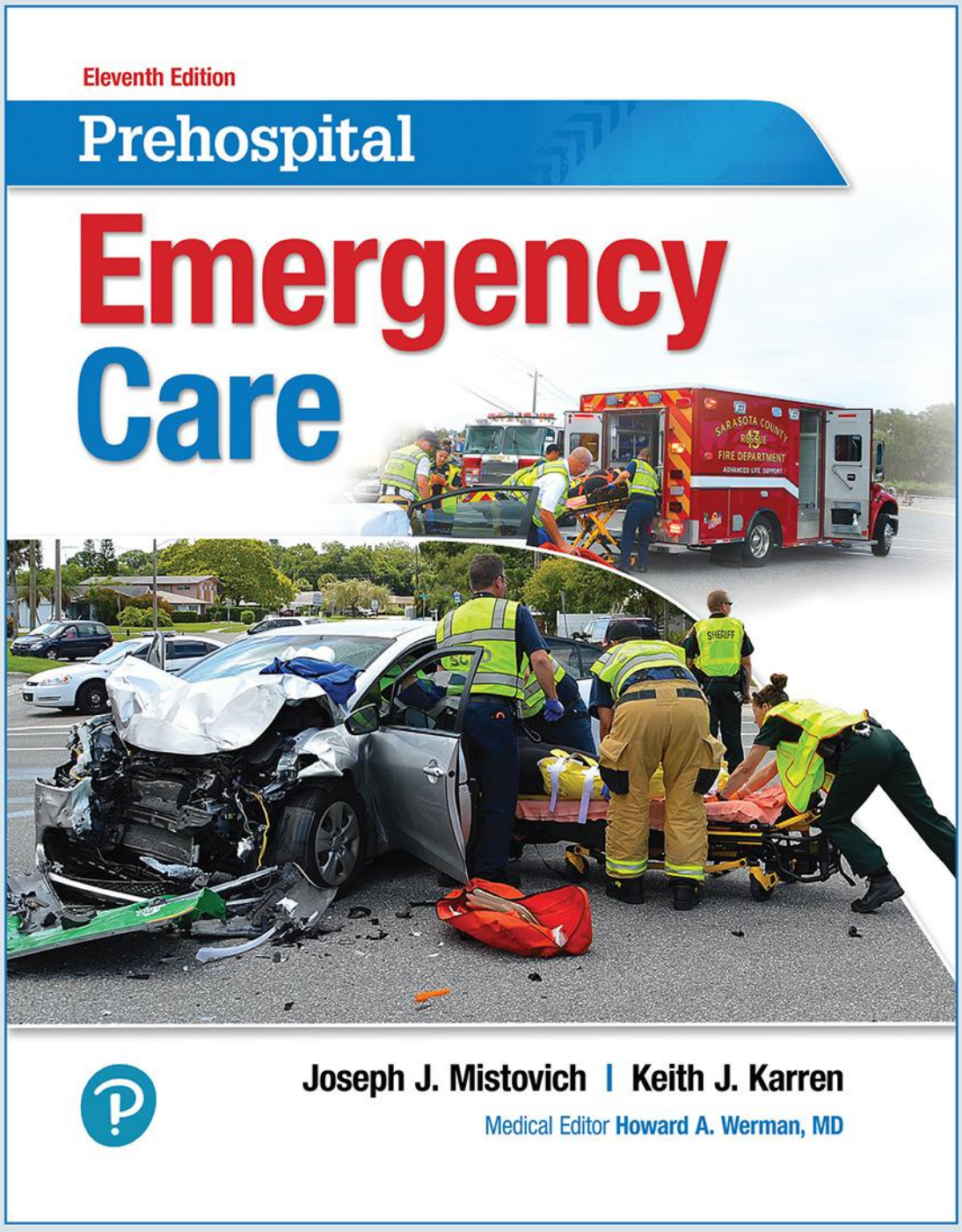
STUDENT WORKBOOK



Edward B. Kuvlesky
Craig N. Story

Pearson

WORKBOOK

PREHOSPITAL EMERGENCY CARE

11th Edition

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PREHOSPITAL EMERGENCY CARE

11th Edition

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About the Writers

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Contents

Introduction

Welcome to the *Prehospital Emergency Care, Eleventh Edition Workbook*. We have combined our writing skills and our knowledge as prehospital health care professionals and educators to produce a highly functional supplement for you. This is a self-instructional workbook, written to reinforce key concepts presented in the textbook. You can work on the chapters at your own pace and monitor your progress and understanding by checking the *Answers to Chapter Exercises* and rereading text pages indicated in the answer key.

The content of the three special sections that appear in many chapters is as follows. The *Medical Terminology* section presents a chart of chapter-relevant medical terms that are frequently used in emergency care. The chart provides a pronunciation for each term; breaks the term into a defined prefix, root, and suffix; and ends with a definition of the whole term. Questions following the chart reinforce the meanings and often highlight how the term might be used in an emergency situation. The *Documentation Exercise* presents a real-life emergency-call scenario that is longer and more detailed than the *Case Study* scenarios, including detailed vital signs and other physical exam and patient history information that you would gather on such a call. A few questions to check your understanding of the scenario follow. The final piece of the exercise is a blank prehospital care report form that you will fill out, using information from the scenario, as if you were the EMT who had responded to that call. Note that *no answers* are provided in the form of a completed PCR. There will be differences in the way that each student completes the form, especially in the narrative segment. We recommend that after you fill out the document to the best of your ability, you discuss it with fellow students and your instructor to help you sharpen your documentation skills.

Great effort has been made to provide high-quality multiple-choice questions (with a few fill-ins here and there) because this is the accepted format of most standardized tests, such as a state exam or the National Registry exam. The *Course Review Self-Test* (covering all chapters in the text) is entirely in multiple-choice format. The test items for the various chapters are in scrambled order, as they might be on a major standardized or national test. However, the chapter to which each item relates and the text page on which the information was covered can be found by consulting the *Answers to Course Review Self-Test*.

We have provided detachable *Medication Cards* containing information about the seven medications that the EMT can administer or assist the patient in administering, with on-line or off-line approval from medical direction.

The authors and the publisher have worked diligently to produce the finest study supplement possible. We welcome any comments that you may have regarding this workbook and ask that you address your suggestions to the publisher. We wish you much success in your studies and as an EMT.

Ed Kuvlesky
Craig Story

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CHAPTER 1

Emergency Medical Care Systems, Research, and Public Health

STANDARD

Preparatory (Content Areas: EMS Systems, Research); **Public Health**

COMPETENCIES

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

Uses simple knowledge of the principles of illness and injury prevention in emergency care.

OBJECTIVES

After reading this chapter, you should be able to:

1-1. Define key terms introduced in this chapter.
1-2. Describe the key historical events that have shaped the development of the emergency medical services (EMS) system.
1-3. Briefly explain each of the components of the Technical Assistance Program Assessment Standards.
1-4. Discuss the differences between 911 and non-911 EMS access systems, including the features and benefits of 911 systems.
1-5. Compare and contrast the scopes of practice for each of the nationally recognized EMS certification levels.
1-6. Explain the importance of the EMT's understanding of the health care resources available in the community.
1-7. Discuss the roles and responsibilities of the EMT and how the EMT can best meet these expectations.
1-8. Describe the expected professional attributes of the EMT.
1-9. Discuss the purposes of medical oversight, protocols, and standing orders within an EMS system.
1-10. Describe the purpose of, and the EMT's role in, quality improvement/continuous quality improvement programs in EMS.
1-11. Identify activities in EMS that pose a high risk of mistakes and injuries, and discuss how to minimize these situations.
1-12. Discuss the steps of evidence-based decision making.
1-13. Explain the purpose of and limitations to evidence-based decision making in EMS.
1-14. Describe the relationship between EMS and public health, and list the ten greatest public health achievements.
1-15. Discuss what mobile integrated health care and community paramedicine is, and why it has come to pass.

KEY IDEAS

This chapter describes the EMS system and the roles and responsibilities of the EMT. Emphasis is placed on the personal safety of the EMT and the safety of other rescuers.

- Prehospital care is provided by the emergency medical services (EMS) system. Each state manages its EMS system in its own way, using federal guidelines as a reference point.
- EMS, fire, and law enforcement services may be accessed in many areas by the universal access number 911 and in other areas by non-911 numbers.
- The four levels of emergency medical service practitioners identified in the *National EMS Scope of Practice Model* are Emergency Medical Responder (EMR), Emergency Medical Technician (EMT), Advanced Emergency Medical Technician (AEMT), and Paramedic.
- The health care system includes the EMS system; emergency departments; and specialized care facilities such as trauma, burn, obstetric, pediatric, poison, stroke, cardiac, psychiatric, spine injury, and hyperbaric centers.
- The roles and responsibilities of the EMT include ensuring personal safety; ensuring the safety of others; maintaining vehicle and equipment readiness; emergency vehicle operation; patient assessment and emergency medical care; safe lifting and moving; transport and transfer of the patient; recordkeeping and data collection; patient advocacy; providing emotional support to the patient, relatives, and others at the scene; integrating EMS with other emergency and nonemergency services; resolving the emergency incident; maintaining medical and legal standards; providing administrative support; enhancing professional development; and developing and maintaining community relations.
- As an EMT, your first priority is your own safety, then the safety of other rescuers. Once the scene is safe, the patient's needs are your priority.
- The professional attributes required of the EMT are knowledge and skills, a professional appearance, good health, a calm and reassuring demeanor, leadership abilities, good judgment, moral character, stability and adaptability, resourcefulness, an ability to listen, and an ability to cooperate with others.
- Every EMS system must have a physician medical director who is legally responsible for the clinical and patient care aspects of the system.
- The goal of quality improvement is to identify aspects of the system that can be improved and to implement programs to improve identified shortcomings.

TERMS AND CONCEPTS

1. Write the number of the correct term next to each definition.

1. EMS system
2. EMT
3. Advanced Emergency Medical Technician (AEMT)
4. Paramedic
5. Emergency Medical Responder (EMR)
6. Prehospital or out-of-hospital care

_____ a. Provides the highest level of prehospital care, including advanced assessments, formation of a field impression, and invasive and drug interventions

_____ b. The first person on the scene who has emergency care training

_____ c. An organization that coordinates emergency care as part of the continuum of health care

_____ d. Care provided prior to transport to the hospital

_____ e. Performs the responsibilities of an EMT, plus the added responsibilities of use of advanced airway devices, monitoring of blood glucose levels, initiation of intravenous and intraosseous infusions, and administration of a specific set of medications

_____ f. Provides basic emergency medical care and transportation to patients who access the EMS system, including advanced oxygen therapy and use of ventilation equipment, pulse oximetry, use of automatic blood pressure monitoring equipment, and limited medication administration

CONTENT REVIEW

1. The roles and responsibilities of the EMT include
   a. insertion of intravenous lines.
   b. controlling life-threatening situations.
   c. decompressing the chest cavity.
   d. reading and interpreting electrocardiograms.

2. The EMT's responsibilities for scene safety include
   a. personal safety first, then other rescuers'/bystanders' safety, then patient safety.
   b. other rescuers'/bystanders' safety first, then personal safety, then patient safety.
   c. personal safety first; the EMT has no responsibility for the safety of others.
   d. patient safety first, then other rescuers'/bystanders' safety, then personal safety.

3. The responsibility for maintaining an EMT's certification or licensure to practice is assigned to
   a. the system's medical director.
   b. the system's training officer.
   c. the EMT.
   d. the system's shift supervisor.

4. The risk of being struck by traffic at nighttime scenes is
   a. seldom a concern for the EMT or other emergency responders.
   b. reduced by wearing dark clothing and waving a flare from side to side.
   c. reduced by wearing reflective clothing and providing adequate scene lighting.
   d. an assumed risk that is "just a part of the job."

5. You are responding to the scene of a shooting. The dispatcher advises you that law enforcement is also responding. Upon arrival, you observe a large crowd of people who appear to be fighting. The patient is lying next to the crowd. Law enforcement has not yet arrived. What should you do next?
   a. Be alert to any threat and approach the patient.
   b. Retreat to a safe area and await law enforcement arrival.
   c. Exit the vehicle and await law enforcement arrival.
   d. Remain in the vehicle and await law enforcement arrival.

6. The process of performing internal and external reviews and audits of all aspects of an emergency medical system is called
   a. chart review.
   b. quality improvement.
   c. medical command.
   d. medical control.

7. Which of the following statements is true with regard to evidence-based medicine?
   a. It makes little or no use of previously published medical research.
   b. It focuses on research to evaluate evidence of care activities that improve patient outcomes.
   c. Because of federal regulations and mandates, it evaluates only evidence of validity.
   d. It uses only evidence from small-scale research projects.

8. During a routine physical examination, your personal physician informs you that he is interested in becoming the medical director for your EMS system. He asks you to describe the medical director's responsibilities. Which of the following best describes the important responsibilities of the medical director?
   a. Is minimally involved in EMS education programs and refresher courses
   b. Is responsible only for providing on-line medical direction
   c. Develops, establishes, and monitors EMS guidelines for EMS personnel
   d. Is responsible only for providing off-line medical direction

9. Which statement best describes the relationship between the EMT and the EMS system medical director?
   a. The prehospital care rendered by the EMT is not governed or controlled by the medical director.
   b. All care rendered by the EMT is considered an extension of the medical director's authority.
   c. The in-hospital care rendered by the EMT is considered an extension of the medical director's authority.
   d. The medical director advises the on-scene paramedic, who guides the EMT.

10. To be effective as an EMT, you must have the personality characteristics in the following list. Using a 1–5 rating system (where 5 is the highest level), rate your own personality characteristics.

   _____ Pleasant personality (ability to get along with others, reassuring and calming voice and manner)

   _____ Leadership ability (able to take control, set priorities, and give clear directions)

   _____ Good judgment (able to make appropriate decisions quickly in unsafe or stressful conditions)

   _____ Good moral character (high ethical standards)

   _____ Stability (able to deal with feelings openly and honestly)

   _____ Resourcefulness and improvisation (able to adapt to change quickly and use resources effectively)

   _____ Ability to listen (able to hear with careful attention to verbal and nonverbal clues)

   _____ Cooperativeness (able to act as a leader while working with others)

11. The EMT is responsible for the patient's privacy and valuables. The EMT should also honor patient requests, if possible. The term that best describes these responsibilities is
   a. EMS advocacy.
   b. patient's rights.
   c. EMS rights.
   d. patient advocacy.

12. Some patient care activities are considered high-risk activities that put the patient at risk for greater injury, medical mistakes, or exacerbation of an existing injury. Mark each item in the following list that is considered a high-risk activity with the letter H.

_____ Failing to provide spine motion restriction to a patient with a spinal injury

_____ Ambulance crash during transport of a patient to a medical facility

_____ Lifting and moving patients

_____ Transfer of care between emergency responders or between the receiving medical facility personnel

_____ Communication that leads to misunderstanding

13. EMS is part of the public health system and plays an integral role in carrying out this system's mission. List four roles that EMS commonly performs with regard to improving public health.

1. _____
2. _____
3. _____
4. _____

14. Which of the following is a common function of state EMS agencies?

a. Funding local EMS medical direction
b. Coordinating local response plans
c. Regulation of the statewide EMS system
d. Dispatching local response agencies

15. Cell phones are responsible for approximately what percentage of all 911 calls?

a. 40 percent
b. 50 percent
c. 60 percent
d. 70 percent

16. There are a variety of EMS providers in the United States. List five of the six types of EMS providers.

1. _____
2. _____
3. _____
4. _____
5. _____

17. In the following list, indicate with a Y for yes or a N for no if it is a service typically offered by the modern-day EMS system.

1. _____ Primary care health services
2. _____ Prearrival instructions
3. _____ Ambulance response and transport
4. _____ Triage
5. _____ Prevention programs
6. _____ General health assessments

18. Which of the following statements is most correct regarding medical oversight of EMS?
   a. Indirect oversight makes up a small segment of the medical director's responsibilities.
   b. On-line medical direction can be provided only by video technology.
   c. Credentialing of EMS providers for practice in a system is not commonly a function of medical oversight.
   d. Indirect medical oversight includes quality assurance, performance improvement, and development of protocols.

19. What is the first component in the scientific method?
   a. Conduct a literature review.
   b. Develop a hypothesis.
   c. Collect data.
   d. Pose a research question.

20. What are evidence-based guidelines (EBG)?
   a. Guidelines for care that are based on research conducted in field trials
   b. Guidelines for care that are structured on the *New England Journal of Medicine*'s practice guidelines
   c. Guidelines for care that are based on strong, valid research
   d. Guidelines for care that are based on past practices

21. Community paramedicine may include services such as
   a. major surgical care.
   b. in-hospital care.
   c. providing medical advice to 9-1-1 callers via telephone instead of dispatch resources.
   d. hospice care.

CASE STUDY

It is 1:00 in the morning, and you have been dispatched to a single-vehicle auto crash. You wipe the sleep from your eyes and prepare to respond to the call. The dispatcher informs you that law enforcement is on the scene, and there is one patient who has a possible head injury. A fire/rescue truck is also responding to the call. The car has struck a power pole just over the top of a steep hill.

1. Which organization has the primary responsibility for traffic control at this scene?
   a. Fire/rescue department
   b. EMS/ambulance service
   c. Power company
   d. Law enforcement

2. Which organization has the primary responsibility for extrication/rescue at this scene?
   a. Fire/rescue department
   b. EMS/ambulance service
   c. Power company
   d. Law enforcement

3. Which organization has the primary responsibility for patient care and transport?
   a. Fire/rescue department
   b. EMS/ambulance service
   c. Power company
   d. Law enforcement

Law enforcement is on the scene controlling traffic as you arrive. The fire/rescue crew and power company have stabilized the potential hazards. You evaluate the patient and determine that he has minor injuries and is in stable condition. While you are transporting the patient to the hospital, the patient asks you to please call his wife and let her know he is okay.

4. Which statement best describes the most appropriate action to take in response to the patient's request to call his wife and explain what has happened?
   a. Tell the patient that you cannot take the time to call her.
   b. Tell the patient that you will call her if you get a chance.
   c. Explain that this is not a part of your responsibilities.
   d. Call the patient's wife and explain what has happened.

5. Which information is *most likely* to be used by EMS system administration for quality improvement audits on this call?
   a. Prehospital care report of call
   b. Feedback from crews on scene
   c. Feedback from the patient involved
   d. Feedback from the patient's wife

6. Which of the following would create the greatest potential hazard at this scene?
   a. Highway traffic
   b. Gasoline leak
   c. Power lines
   d. Violent bystander

Workforce Safety and Wellness of the EMT

CHAPTER **2**

STANDARD

Preparatory (Content Areas: Workforce Safety and Wellness); **Medicine** (Infectious Diseases)

COMPETENCIES

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

Applies fundamental knowledge to provide basic emergency care and transportation based on assessment findings for an acutely ill patient.

OBJECTIVES

After reading this chapter, you should be able to:

2-1. Define key terms introduced in this chapter.
2-2. When provided with a description of a patient's or family member's behavior, identify the stage of grief it most likely represents.
2-3. Identify the stages of grief experienced by patients and their families, and explain principles for interacting with these individuals in situations involving death and dying.
2-4. Compare and contrast the characteristics of acute, delayed, and cumulative stress reactions.
2-5. Identify situations the EMS provider may find stressful, and be able to recognize signs and symptoms of stress in yourself and others.
2-6. Describe reactions your friends and family members may have to your work in EMS.
2-7. Describe lifestyle- and work-environment-related changes that can help EMTs minimize and manage their job-related stress.
2-8. Discuss the components of a comprehensive system of critical incident stress management.
2-9. Describe ways EMTs can protect themselves from exposure to diseases caused by pathogens, as well as from accidental and work-related injuries.
2-10. Give examples of diseases caused by the various types of pathogens.
2-11. Describe the Standard Precautions that must be taken to protect health care workers from exposure to infectious diseases.
2-12. Identify the personal protective equipment that may be used by EMS personnel.

2-13. Discuss the risks of exposure to specific infectious diseases that are inherent in EMS work, as well as the preventive measures EMTs should take (including immunizations and tuberculosis testing).
2-14. Explain the risks involved in common prehospital emergencies and the measures EMTs can take to protect themselves against these hazards.
2-15. Describe the components of physical and mental wellness.

KEY IDEAS

This chapter provides an overview of ways you can safeguard your emotional and physical well-being while providing emergency care.

- Your ability to recognize and effectively deal with stressful situations is as essential to your well-being as it is to the well-being of your patients and their family members.
- The highly charged environment of emergency care requires that you recognize the warning signs of stress and remedy them before stress results in burnout.
- Scene safety includes practicing Standard Precautions to protect yourself from communicable diseases, wearing appropriate personal protective equipment at the scene of accidents and illness, recognizing common infectious diseases, and practicing strategies to prevent work-related injuries.

TERMS AND CONCEPTS

1. Write the number of the correct term next to each definition.

1. Burnout
2. Critical incident stress management (CISM)
3. Standard Precautions
4. Sterilization
5. Personal protective equipment (PPE)

_____ a. State of exhaustion and irritability

_____ b. Strict infection control measures based on the presumption that all blood and body fluids are infectious

_____ c. Process to deal with stress encountered by the EMT

_____ d. Items worn to guard against injury or disease transmission

_____ e. Use of chemical or physical substances to kill all surface microorganisms

CONTENT REVIEW

1. Which of the following is one of the five emotional stages that dying patients may experience?
a. Repression
b. Denial
c. Regression
d. Confusion

2. Beside each of the following actions that you might take when dealing with a dying patient, family member, or bystander, write "A" for an appropriate action or "I" for an inappropriate action.

_____ a. Talk to the unresponsive patient as if the patient is fully alert.

_____ b. Always remove family members from the area or room during resuscitation efforts.

_____ c. If a critically injured or ill patient asks you, "Am I going to die?" respond by saying, "Everything is going to be OK" or "You are going to be OK."

_____ d. If a dying patient wants a message delivered to survivors, always listen carefully and deliver any message the patient conveys.

3. As an EMT, you should be alert to the warning signs of stress. Which of the following may signal stress?

a. Irritability; loss of appetite; loss of interest in work
b. Calm demeanor and renewed interest in work
c. Planning long-term recreational events with family or friends
d. Ability to get along well with coworkers and friends; able to make decisions

4. Which of the following terms describes a session held prior to a critical incident stress debriefing (CISD) that helps to vent emotions and gather information?

a. Defusing
b. Critical incident
c. Peer support
d. Follow-up service

5. Microorganisms that can spread disease when a person comes in contact with blood, inhales airborne droplets, or touches contaminated objects are generally referred to as

a. pathogens.
b. viruses.
c. bacteria.
d. fungi.

6. Which of the following is considered the single most important way to prevent the spread of infection?

a. Handwashing
b. Sterilizing reusable equipment
c. Bagging contaminated laundry
d. Placing sharp objects in a container

7. Before attempting rescue or patient care in a situation such as a hazardous materials or biological agent incident, a high-angle rescue, or a whitewater rescue, the EMT should usually

a. contact the EMS supervisor for instructions.
b. consult with law enforcement personnel prior to acting.
c. call for specialized rescue teams or experts.
d. quickly enter the emergency scene.

8. Number the following steps in the proper order from 1 to 5 for providing emergency care at a scene involving possible hazardous materials.

_____ a. Provide patient assessment and emergency care.

_____ b. Look for and compare placards or signs to *DOT Hazardous Materials: The Emergency Response Guidebook*.

_____ c. Make sure that the scene is controlled by a specialized hazardous materials team before you enter.

_____ d. Use binoculars to try to identify hazards before approaching the scene.

_____ e. Put on appropriate protective clothing, such as a self-contained breathing apparatus and a "hazmat" suit.

9. If you suspect potential violence at an emergency scene, you should
a. request law enforcement assistance before entering the scene.
b. enter cautiously and call for law enforcement assistance if needed.
c. first remove patients from the scene and then call for police assistance.
d. first secure the scene and then begin patient assessment and care.

10. If you are providing emergency care at a crime scene, you should take precautions to preserve the chain of evidence by
a. waiting to start treatment until all evidence has been collected by law enforcement.
b. not disturbing the scene unless necessary to provide care.
c. immediately removing the patient from the scene to begin care.
d. contacting medical oversight for permission to enter the scene.

11. A hepatitis B infection
a. will always cause symptoms such as fever or headache.
b. is transmitted only by direct contact such as shaking hands.
c. is a minor medical ailment that resolves itself over a few days.
d. may be prevented by obtaining a vaccination.

12. Which statement best describes the action to take if the EMT suspects exposure to the hepatitis B virus?
a. Arrange for an immediate injection of hepatitis B immunoglobulin (HBIG).
b. Arrange with your personal physician for an immediate hepatitis B vaccination.
c. Report the incident to your supervisor and follow your local exposure control policy.
d. Contact the Centers for Disease Control and Prevention for the latest treatment recommendations.

13. Tuberculosis
a. is of little consequence due to its low rate of incidence in the United States.
b. requires that self-contained breathing apparatus (SCBA) be worn by the EMT.
c. can be spread by droplets from the cough of a patient and from the patient's infected sputum.
d. is easily treated with today's modern medications.

14. The Occupational Safety and Health Administration (OSHA) respiratory protective standards for emergency response personnel include the use of a _____ when in contact with patients who have tuberculosis.
   a. self-contained breathing apparatus (SCBA)
   b. surgical mask
   c. HEPA or N-95 respirator
   d. J350 mask

15. Which of the following has been identified as a mode of transmission of the human immunodeficiency virus (HIV), which causes acquired immunodeficiency syndrome (AIDS)?
   a. Direct contact with an infected person, such as shaking hands
   b. Exposure to coughing or sneezing by an infected person
   c. Indirect contact, such as with eating utensils or sleeping on bed linens used by an infected person
   d. Sexual contact with an infected person

16. Which of the following statements is most correct regarding AIDS?
   a. It results from destruction of the body's hormonal balance.
   b. It is caused by a virus that destroys the body's ability to fight infections.
   c. It always presents with signs and symptoms.
   d. It is easier to contract via occupational exposure than is hepatitis B.

17. You are transferring a patient from one medical facility to another and notice on the patient's transfer orders that he has hepatitis C. You know that hepatitis C
   a. can be prevented by obtaining a vaccination.
   b. is the most common bloodborne infection in the United States.
   c. is easily transmitted via contact with mucous membranes.
   d. causes no symptoms in approximately 10 percent of patients.

18. You and an EMT student intern are transporting a patient with suspected severe acute respiratory syndrome (SARS) from a local hospital to a regional medical center for specialized treatment. The patient has a fever of 102°F, is coughing heavily, and generally states that he "aches all over." You and the EMT student intern are wearing gloves, eye protection, a surgical mask, and a cover gown. Which other action should you take to best protect yourself and your EMT intern?
   a. Remove the surgical mask from the patient to improve communication.
   b. Look for signs of fever and respiratory symptoms for 48 hours.
   c. Avoid touching your eyes, nose, or mouth with your gloved hands.
   d. Avoid washing your hands after glove removal to limit droplet spread.

19. You are at the station between calls watching TV with a coworker. A report comes on describing an outbreak of West Nile virus in your community. Your partner asks you about the signs and symptoms of West Nile virus infection. Which response best describes the severe signs and symptoms of this infection?
   a. Vision loss, headache, stiff neck, and muscle weakness
   b. Excessive thirst, yellow vision, and slurred speech
   c. Inability to urinate, nausea, and dizziness
   d. Dyspnea and difficulty swallowing

20. Multidrug-resistant organisms
   a. are commonly encountered in patients at health spas, resorts, and pools.
   b. are considered to be of little threat or consequence to EMTs.
   c. are never transmitted by person-to-person contact.
   d. include MRSA, VRE, PRSP, and DRSP.

21. The average onset of Ebola virus disease (EVD) is _____ after acquisition of the virus.
   a. 1 to 2 days
   b. 6 to 12 months
   c. 4 to 6 days
   d. 8 to 10 days

22. Which of the following statements best describes findings associated with Zika virus disease (ZVD)?
   a. The signs and symptoms of ZVD usually appear within 1 to 2 days of infection.
   b. EMS responders should receive the ZVD vaccine.
   c. The chief signs associated with ZVD are rapid development of pain on urination and lateral flank pain.
   d. ZVD can be spread from a pregnant mother to her unborn child, potentially causing birth defects.

23. The Centers for Disease Control and Prevention's best practice for handwashing requires that during handwashing the hands be continuously rubbed together for at least
   a. 5 seconds.
   b. 10 seconds.
   c. 15 seconds.
   d. 20 seconds.

CASE STUDY

It is early afternoon, and you have just finished cleaning out the jump kit from a prior call when the alarm bell sounds. You are called to a scene at a railroad yard, where one of the workers is trapped from the waist down between two rail cars. Specialty rescue teams are en route, and the patient's wife, who has been called by his coworker, has just arrived at the scene. The patient is responsive. He tells you that he knows that as soon as they separate the cars, he will die. He asks that you leave him alone with his wife and that you do nothing heroic to try to intervene.

1. Of the five stages of emotional response to death and dying, which stage does this patient seem to be exhibiting regarding his imminent death?
   a. Denial
   b. Anger
   c. Depression
   d. Acceptance

2. This situation described would be considered
   a. a high-stress incident.
   b. a routine part of the EMT's job.
   c. something the EMT must learn to live with.
   d. an average incident.

As predicted, as soon as the cars are separated, the patient rapidly loses responsiveness and becomes pulseless and apneic. He has sustained massive open crush injuries to his abdomen and pelvis. There is nothing that can be done to save his life, and he dies. In the days following this incident, you begin to have trouble sleeping and often have nightmares. You are having trouble concentrating, and your heart pounds every time you get dispatched on a call.

3. Your partner suggests that the EMS personnel who responded to this incident should attend a stress management session. Who should *not* participate in the session?
   a. Police personnel
   b. Communications personnel
   c. Emergency department personnel
   d. The patient's family

4. Beside each of the following actions, write "A" for an appropriate action or "I" for an inappropriate action to be taken to mitigate the potential effects of stress.

_____ a. Drink one or two beers each night when off duty to relieve stress.

_____ b. Avoid any exercise for at least two months following a high-stress incident.

_____ c. Avoid sharing details of stressful events with family, friends, or coworkers.

_____ d. Request a rotation in duty to a busier station to put the stressful event into perspective.

Medical, Legal, and Ethical Issues

CHAPTER 3

STANDARD

Preparatory (Content Area: Medical/Legal and Ethical)

COMPETENCY

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

OBJECTIVES

After reading this chapter, you should be able to:

3-1. Define key terms introduced in this chapter.
3-2. Differentiate between the concepts of scope of practice and standard of care.
3-3. Be able to recognize situations in which an EMT would have a duty to act.
3-4. Explain the duties of EMTs with respect to themselves, their partners, their patients, and their equipment.
3-5. Describe the intent of Good Samaritan laws.
3-6. Explain each of the legal protections for EMTs that are provided by state regulations.
3-7. Explain the EMT's legal obligations with respect to medical direction.
3-8. Differentiate between the concepts of ethics and morals.
3-9. Describe the ethical responsibilities of EMTs, identify common ethical dilemmas encountered in EMS, and discuss potential consequences of various decisions and actions.
3-10. List and describe each type of patient consent as it relates to prehospital care.
3-11. Compare and contrast the various types of advance directives used in health care, and explain how the EMT should interpret and apply these directives.
3-12. Discuss the actions an EMT should take when a patient refuses care.
3-13. Differentiate between criminal and civil liability.
3-14. Explain the concept of negligence.
3-15. List and describe the various types of tort claims applicable to EMS, and explain how to avoid each of these claims.
3-16. Explain patients' rights and the EMT's legal and ethical responsibilities concerning confidentiality and privacy.

3-17. Describe COBRA and EMTALA provisions as they apply to EMS, and discuss ways EMTs can protect themselves legally in transport and transfer situations.
3-18. Describe special considerations for patients who are potential organ donors.
3-19. List the presumptive signs of death, and discuss situations in which law enforcement or the medical examiner's/coroner's office should be contacted.
3-20. Discuss special considerations for responding to potential crime scenes, and identify crime situations or others in which EMTs may be mandated to make special reports.

KEY IDEAS

The EMT provides patient care in an increasingly complex legal and ethical environment. Important ethical and legal concepts are described in this chapter.

- The EMT's scope of practice—that is, the actions and care that are legally allowed by the state in which the EMT is providing care—is determined by the National Highway Traffic Safety Administration's *National EMS Scope of Practice Model*, the *National EMS Education Standards*, state law, regulations, and local policies.
- The standard of care describes the care expected of a "reasonably prudent" EMT or how an EMT with similar training in a similar situation would perform. This standard encompasses what is often called "the reasonable person standard or test." The standard of care is established by EMT textbooks, the care expected by other EMTs in the community or region, local and state protocols, the National Highway Traffic Safety Administration's *National EMS Education Standards*, and the EMS system's operating policies and procedures.
- Your legal obligation to provide service for a patient is called the "duty to act." Duties to your patient, yourself, your partner, and your equipment are also important concepts.
- Good Samaritan laws are generally designed to protect an individual from liability for acts performed in good faith unless those acts constitute gross negligence. The law provides limited protection for the EMT and varies from state to state.
- Your best defense against lawsuits is prevention. Always render care to the best of your ability, always work within your scope of practice and within the standard of care, always behave in a professional manner, and ensure that you are covered by adequate liability insurance. If you keep your patients' best interests in mind when rendering care, you will seldom, if ever, go wrong.
- The EMT's legal right to function is contingent upon medical direction.
- A conscious patient who has the capacity to understand and make an informed and rational decision has the right to accept or refuse emergency medical care.
- Permission to care for a patient is called "consent." You must obtain consent from every patient prior to treatment. There are five forms of consent: informed, expressed, implied, minor, and involuntary consent.
- Informed consent is provided when the patient is informed of the care to be provided and understands the associated risks and potential consequences of refusing treatment or transportation.
- Common types of advance directives are a living will, a "Do Not Resuscitate" (DNR) order, a health care durable power of attorney (health care proxy), and physician orders for life-sustaining treatment (POLST). As a general rule, you should consider initiating treatment immediately so that if the issue cannot be resolved, you will not be held negligent for not providing care or delaying treatment. Contact medical direction for instructions on how to proceed, and continue treatment until the problem has been resolved.
- Document refusals of care completely and accurately. Make sure that the patient is an adult who is lucid (oriented to person, place, and time), is capable of making an informed and rational decision, and is not under the influence of drugs or alcohol. Complete a thorough physical exam, consult medical direction, and try again to persuade the patient to accept treatment prior to departing the scene.

- Four items must be demonstrated in a successful negligence action: (1) The EMT had a duty to act. (2) The EMT breached that duty to act. (3) The patient suffered an injury or harm that is recognized by the law as a compensable injury. (4) The injury was the result of the breach of the duty (proximate cause).
- Common intentional torts in EMS are abandonment, assault, battery, false imprisonment or kidnapping, and defamation (slander and libel).
- The Health Insurance Portability and Accountability Act (HIPAA) of 1996 protects the privacy of patient health care information and provides the patient with control over how the information is used. Information obtained when treating a patient must be kept confidential.
- The Consolidated Omnibus Budget Reconciliation Act (COBRA) and the Emergency Medical Treatment and Active Labor Act (EMTALA) are federal regulations designed to ensure the public's access to emergency health care regardless of their ability to pay. Avoid potential liability by never making a decision to transport to a specific medical facility based on the patient's ability to pay.
- Appropriate crime scene actions include the following: take one way in and out, touch or move only what is required to care for the patient, document anything unusual, do not cut through knots or bullet or stab holes in the patient's clothing, and preserve evidence in sexual assault cases.
- Law enforcement should be notified in cases of abuse, injuries related to a crime, and drug-related injuries. Follow your state laws.
- When dealing with difficult legal or ethical issues, always put the welfare of the patient first.

TERMS AND CONCEPTS

1. Write the number of the correct term next to each definition.

1. Advance directive
2. Duty to act
3. Expressed consent
4. Implied consent
5. Minor consent
6. Scope of practice
7. Battery
8. Good Samaritan law
9. Informed consent
10. Slander
11. Tort
12. Physician orders for life-sustaining treatment (POLST)

_____ a. Permission obtained from a parent or legal guardian for emergency treatment of a patient who is younger than legal age

_____ b. The assumption that an unresponsive patient would agree to emergency treatment

_____ c. Permission that must be obtained from every conscious adult who has the capacity to make a rational decision before emergency treatment may be provided

_____ d. Instructions, written in advance, such as a living will, DNR order, or durable power of attorney.

_____ e. The obligation to care for a patient who requires it

_____ f. The actions and care that are legally allowed to be provided by a health care provider

_____ g. wrongful act, injury, or damage

_____ h. The act of touching a patient unlawfully

_____ i. Generally protects a person from liability for acts performed in good faith unless those acts constitute gross negligence

_____ j. Spoken defamation

_____ k. Permission obtained when the patient is provided information related to the care and consequences of care and has the capacity to understand this information

_____ l. Used in patients with serious or terminal illness who are not expected to survive

CONTENT REVIEW

1. Which of the following determines the EMT's scope of practice?
   a. The EMT's capability to perform medical procedures
   b. The National EMS Act of 1999
   c. National EMS Educational Standards
   d. The Federal Medical Practice Act

2. On a call, you begin to dress the severely bleeding wound of an adult patient who has told you to go away and leave her alone. The patient appears to have the capacity to understand and make an informed and rational decision. You can legally be charged with which of the following?
   a. Breach of duty
   b. Negligence
   c. Abandonment
   d. Battery

3. Which of the following provides some protection from liability for emergency care provided in good faith?
   a. Code of ethics
   b. Malpractice act
   c. Good Samaritan law
   d. Emergency care statute

4. Emergency care that is expected of any EMT under similar circumstances is known as which of the following?
   a. Standard of care
   b. Code of care
   c. Patient care guidelines
   d. Emergency care guidelines

5. Under the law, to care for a conscious adult who has the capacity to make a rational decision, you must receive which of the following?
   a. Consent from the wife or husband of the patient
   b. The patient's expressed or implied consent
   c. Prior consent from medical oversight
   d. Consent that is written and witnessed

6. A 10-year-old is critically injured. The parents cannot be located. Treatment can be initiated under which of the following forms of consent?
   a. Implied consent
   b. Expressed consent
   c. Minor consent
   d. Incapacitated consent

7. Under the law, to refuse treatment, a *patient* must
   a. be an adult who has the capacity to make a rational decision.
   b. be free of any life-threatening injuries or conditions.
   c. sign a form releasing the EMT from liability.
   d. have a witness to the refusal of treatment form.

8. Which of the following is considered a valid indication of refusal of care from an adult who has the capacity to make a rational decision.?
   a. Nodding the head "yes" before treatment begins
   b. Pushing you away after treatment has begun
   c. Shrugging the shoulders
   d. Questioning the health care provider

9. Stopping care without ensuring that another health care professional with equivalent or better training will take over is called
   a. neglect.
   b. abandonment.
   c. refusal.
   d. battery.

10. Confidential patient information may be released only under certain circumstances. Which of the following is one of these circumstances?
   a. While off duty, another EMT asks you about patient care information.
   b. Your spouse asks you what happened at a neighbor's house.
   c. A lawyer calls you and demands information related to the incident.
   d. A health care provider needs to know this information to continue medical care.

11. Your legal obligation to provide service to a patient while you are on duty (and, in some states, even while you are off duty) is known as
   a. the Good Samaritan law.
   b. duty to act.
   c. scope of practice.
   d. advance directive.

12. You are on the scene where an adult patient is refusing treatment and transport to the hospital. You are unsure whether the patient is able to make a rational decision. You should
   a. transport the patient against his or her wishes.
   b. have the patient sign a refusal of care form.
   c. contact medical direction for a consultation.
   d. have a family member sign the refusal.

13. A willful threat to a patient that can occur without actual touching is called
   a. battery.
   b. false imprisonment.
   c. slander.
   d. assault.

14. The HIPAA, as it relates to the EMT, includes which of the following general provisions?
   a. Limits on disclosure of patient information, training on specific policies, requirements for specific treatments provided, and timelines for reporting violations
   b. Limits on disclosure of patient information, training on specific policies, obtaining patient signatures, and the assignment of an EMS privacy officer
   c. Limits on patients' rights to information, patient training on specific policies, timelines for reporting violations, and the assignment of an EMS privacy officer
   d. Limits on patients' rights to information, training on specific policies, and requirements for specific treatments provided

15. COBRA and EMTALA are both federal regulations designed to
   a. reduce potential errors associated with interfacility patient transfers.
   b. help patients pay for needed emergency medical care and rehabilitation.
   c. ensure public access to emergency care regardless of ability to pay.
   d. limit the legal liability exposure of EMS systems by providing limits of liability.

16. State laws that allow a parent to relinquish custody of an unharmed infant to a proper authority are generally referred to as
   a. Abandoned Infant Acts.
   b. Jason's Act(s).
   c. Infant Relinquishment Act(s).
   d. Baby Safe-Haven law(s).

CASE STUDY 1

It's 4:00 in the morning, and you have been dispatched to care for a patient complaining of chest pain. Upon arrival, you observe a male patient who appears to be in his mid-60s. He looks pale and sweaty. However, he appears to be alert and is able to give you his name, address, day of the week, and time of day. He describes his pain as severe but refuses to be treated or transported to the hospital. You describe the need for medical care to the patient. While you are explaining this information to him, he repeatedly cups his hand behind his ear and asks, "What? What are you telling me?" Unexpectedly, your partner asks the patient to sign a refusal of care release form. The patient signs the form quickly and hands it back. Your partner looks at you and says, "Let's go!"

1. What is the most important concern you should have relating to this patient's refusal of treatment?
   a. The patient's capacity to make a rational decision
   b. The patient's understanding of the possible consequences of refusal
   c. The patient's signing the release without reading it
   d. Lack of professional courtesy if you second-guess your partner's suggestion to go

2. Your next action in this situation should be to
   a. leave as soon as the refusal form has been signed.
   b. encourage the patient to seek help if additional symptoms develop.
   c. have a witness sign the refusal form along with the patient.
   d. try again to persuade the patient to accept treatment.

CASE STUDY 2

You are employed as an EMT for a public EMS agency. Your partner, Joe, and you are dispatched to a call for a child who is choking. You are dispatched at 3:00 P.M. You have about a 10-block response to the scene. En route, your unit runs out of gas. You look at Joe. Joe gives you a blank stare and says, "I guess I forgot to fill it up!" A secondary unit responds to the call and arrives in 10 minutes. You learn later that the secondary unit arrived on scene and quickly removed a piece of hot dog from the child's airway. The child suffered permanent brain damage because of this incident.

1. The following are four items that must be demonstrated to be successful in a negligence action. Place a Y for yes or an N for no next to each item to determine if negligence occurred in this case.

_____ a. The EMTs had a duty to act.

_____ b. The EMTs breached the duty to act.

_____ c. The patient suffered an injury.

_____ d. The injury was the result of the negligence of the EMTs.

Documentation

CHAPTER
4

STANDARD

Preparatory (Content Area: Documentation)

COMPETENCY

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

OBJECTIVES

After reading this chapter, you should be able to:

4-1. Define key terms introduced in this chapter.
4-2. Describe each of the functions served by the prehospital care report (PCR).
4-3. Describe characteristics, including advantages and disadvantages, of both paper- and computer-based (electronic) PCR formats.
4-4. Explain the purposes of the U.S. Department of Transportation (DOT) minimum data set for PCRs, and list these elements of the minimum data set.
4-5. List and describe the purpose and typical contents of each section in a PCR.
4-6. Be able to recognize examples of each type of information common to the narrative portion of a PCR.
4-7. Familiarize yourself with common abbreviations and medical terminology, and use them accurately in PCRs.
4-8. Explain the legal expectations for EMTs regarding the confidentiality and distribution of the PCRs that EMTs complete for each patient.
4-9. Discuss how to handle special reporting situations with respect to the PCR and patient documentation.
4-10. Accurately and completely record pertinent patient and EMS call information using the SOAP, CHART, and CHEATED methods.

KEY IDEAS

The focus of this chapter is the written documentation of patient care. Documenting all of your encounters with patients is an essential part of your job as an EMT. Key ideas and concepts include the following:

- Documentation serves many functions. Among them are ensuring continuity of care and establishing a baseline of patient status; administrative uses, such as billing and insurance information; and acting as a legal record of assessment, care given, and patient response.
- Documentation may also be used for educational, research, and continuous quality improvement purposes. It is important to include any other information that may be a local or state requirement.
- The most traditional format for the patient care report is the written prehospital care report (PCR). An alternative format that is used and accepted widely is the computerized direct data entry report. Both are designed to provide a complete and accurate picture of your contact with the patient.
- Documentation is governed by two basic rules: "If it wasn't written down, it wasn't done," and "If it wasn't done, don't write it down."

TERMS AND CONCEPTS

1. Write the number of the correct term next to each definition.

1. Minimum data set (MDS)
2. Pertinent negatives
3. Prehospital care report (PCR)
4. Triage tag

_____ a. Document containing only key patient information, used during a multiple-casualty incident

_____ b. Signs and symptoms that might be expected in certain situations but that the patient denies

_____ c. Information that the U.S. Department of Transportation recommends all patient care reports include

_____ d. Documentation of an EMT's contact with a patient

CONTENT REVIEW

1. The *primary* reason for high-quality documentation is
a. a resource for quality improvement review.
b. to assist in the preparation of patient bills.
c. to ensure high-quality patient care.
d. as a resource in malpractice suits.

2. The documentation provided in the PCR
a. typically becomes a part of the patient's permanent medical record.
b. is of little use in a lawsuit brought against the EMT.
c. is seldom created in an electronic form.
d. may not be used for preparing bills or for submission to insurance.

3. The use of accurate and synchronous clocks is
   a. seldom important in EMS documentation.
   b. critical for proper EMS documentation.
   c. only important for dispatch purposes.
   d. only important for medical information.

4. The narrative section of the patient care report should include the patient's chief complaint, the SAMPLE history, and
   a. your diagnosis of the patient's problem.
   b. physical assessment findings.
   c. all remarks made by bystanders.
   d. your conclusions about the incident.

5. Which of the following would be considered a pertinent negative for a patient who was the unrestrained driver of a car involved in a serious motor vehicle accident?
   a. The patient complains of abdominal pain.
   b. The patient reports that it hurts to take a deep breath.
   c. The patient denies back and neck pain.
   d. The patient denies any allergies to food or drugs.

6. At least _____ set(s) of vital signs should be taken and recorded on all patient transports.
   a. one
   b. two
   c. three
   d. four

7. Under most state and federal laws, you may *not* provide confidential information about a patient
   a. when reporting to another health care provider when transferring care.
   b. in response to questions from friends of the patient.
   c. when providing information to the police as part of a criminal investigation.
   d. if you are subpoenaed to appear in court and provide information in a legal case.

8. When dealing with a patient who has refused treatment,
   a. document your explanation of possible consequences of failing to accept care, and have the patient sign the form acknowledging refusal of treatment.
   b. only discuss the situation with the patient, as required by patient privacy provisions.
   c. the call is generally less involved and easier to document.
   d. issues of patient competency are rarely a concern of the EMT.

9. Objective information is
   a. a sign.
   b. a symptom.
   c. based on an individual's perception.
   d. symptoms the patient denies having.

10. Which of the following best describes the appropriate way to correct an error on the written patient care report discovered while the report is being written?
   a. Use correction fluid to cover the incorrect entry.
   b. Use multiple heavy lines to block out the incorrect entry.
   c. Draw a single line through the incorrect entry and initial it.
   d. Report the error verbally but do not alter the report.

11. Which of the following are commonly used for patient care reports in a multiple-casualty incident?
   a. Triage tags
   b. Casualty codes
   c. Routine patient care reports
   d. Multiple-casualty forms

12. Which of the following situations may require additional, special documentation by the EMT?
   a. Suspected abuse of a child or an elderly patient
   b. Patient care provided to a patient complaining of chest pain
   c. Patient care given to patients in motor vehicle accidents
   d. Patient care provided to a patient with difficulty breathing

13. The Department of Transportation has designated certain information on the PCR to be the minimum data set. Which of the following items is *not* part of the minimum data set and would likely *not* be seen on a PCR form?
   a. Crew member names
   b. Chief complaint
   c. Patient's next of kin
   d. Pulse rate

14. When writing the PCR, you may use approved abbreviations to help document your findings. In each space, write the abbreviation that stands for the given term.

a	Pt	Rx	TID
$\overline{c}$	q	$\overline{s}$	Tx
PO	QID	STAT	x

_____ a. Four times a day
_____ b. Times
_____ c. Before
_____ d. Patient
_____ e. Prescription
_____ f. Every
_____ g. Treatment
_____ h. With

_____ i. Immediately

_____ j. Without

_____ k. Orally, by mouth

_____ l. Three times a day

15. The mnemonics SOAP, CHART, and CHEATED are often used by EMS personnel to
   a. determine the level of responsiveness or mental status.
   b. describe the patient's mechanism of injury.
   c. convey the pertinent negatives as described by the patient.
   d. organize the information on the PCR.

16. When using any of the following mnemonics—SOAP, CHART, or CHEATED—you know that the "A" refers to
   a. arrival on scene.
   b. actions on scene.
   c. absent physical findings.
   d. assessment.

CASE STUDY

You are dispatched to the local high school on a report of a fall. Upon arrival at the school, you report to the office, where you find that your patient slipped on a wet floor and "twisted his ankle." Your 50-year-old patient is Mr. Henderson, the school principal. He says, "I'm sorry you were sent out for nothing. I'm more embarrassed than hurt." You introduce yourself and ask if you can check him over anyway, so long as you're here. He agrees.

On your primary assessment, you find him to be alert and oriented, having no apparent difficulty breathing, and in no apparent distress. You see no signs of bleeding. Mr. Henderson lets your partner check his pulse, which is strong and regular. His skin is pink, warm, and dry.

During your focused physical exam, you find that Mr. Henderson's right ankle, which he reports is "a little sore," is markedly swollen, discolored, and very tender to gentle palpation. His foot is slightly pale but warm to the touch. His pedal pulse is present, and he has good sensation and motion. Vital signs: blood pressure 138/78 mmHg, pulse 68 beats per minute, and respirations 18 per minute and adequate; PaO_2 is 96% on room air. Skin is still normal, as are pupils. You complete your history and find that Mr. Henderson has no allergies and takes no medications. He denies any medical problems, loss of consciousness, or any other injuries. He had soup and a sandwich for lunch about a half hour ago. He says that he has felt fine all day but slipped on some water on the floor as he was leaving the cafeteria.

You urge Mr. Henderson to allow you to splint his ankle and transport him to the hospital so he can get X-rays to see if his ankle is broken. He refuses, saying, "Thanks for checking me out, but you guys have to be available for real emergencies. I've already called my wife, and she's on her way to take me to the doctor. She ought to be here in 10 minutes or so. Bad enough that I fell down in front of half the school. There's no way I'm going out of here on that stretcher." You agree that he's stable enough to be transported by car but remind him that he shouldn't bear any weight on his ankle until he's been seen by the doctor. You also remind him that if any problems arise or if he changes his mind, he should call 911.

1. In the space provided, write the narrative section of the patient care report for this call.

_____

_____

_____

_____

_____

_____

2. Before leaving the scene, what else should you do?
   a. Have the patient read the patient care report and sign the refusal form.
   b. Call medical control and have the patient speak to the physician.
   c. Direct the patient to contact his own physician for advice.
   d. Contact the patient's wife in an attempt to have her convince him to be transported.

3. While walking toward your ambulance, a coworker of Mr. Henderson approaches you. The coworker is visibly upset. Explaining that he is the safety officer for the school, he asks you what happened to Mr. Henderson and if he is injured. How should you respond to the safety officer?
   a. Explain that, legally, you cannot discuss the call because of patient confidentiality rights.
   b. Discreetly discuss the call only in general terms, not disclosing anything specific about the injuries.
   c. Do not discuss the call, but allow him to read the PCR because it is public information.
   d. Because he is the safety officer, you may disclose all of the information you have about the patient.

Communication

CHAPTER 5

STANDARD

Preparatory (Content Areas: EMS System Communication; Therapeutic Communication)

COMPETENCY

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

OBJECTIVES

After reading this chapter, you should be able to:

5-1. Define key terms introduced in this chapter.
5-2. Discuss the purposes and characteristics of each component of a typical EMS communication system.
5-3. Describe the responsibilities of the Federal Communications Commission.
5-4. Explain the importance of EMS system communication equipment maintenance.
5-5. Describe the standard rules and expectations for using a transmitter/receiver during radio communications.
5-6. List key times during an EMS call that the EMT should communicate with dispatch.
5-7. Discuss how to provide a concise radio report to medical direction or the receiving facility, and when to update that report while still en route.
5-8. Describe the process of receiving and confirming an order from medical direction over the radio.
5-9. Discuss the components of an oral report used to transfer care of the patient to a receiving facility or another EMS provider.
5-10. Discuss the advantages and disadvantages of using radio codes.
5-11. Convert back and forth between military time and standard clock times, and explain why it is important to communicate using commonly accepted radio terms.
5-12. Describe the components of the therapeutic communication process and the factors that can enhance or interfere with effective communication.
5-13. Identify, describe, and apply techniques used to enhance therapeutic communication with patients.
5-14. Recognize the potential messages that may be communicated via nonverbal behaviors.
5-15. Describe the uses, advantages, and disadvantages of open-ended and closed questions.

5-16. Discuss pitfalls of communication when an EMT does not follow good practices in patient-provider interviewing.

5-17. Discuss techniques an EMT could employ when interviewing a patient with a language barrier or when interviewing a patient's family.

KEY IDEAS

This chapter focuses on the role of communications in the delivery of emergency medical services. A good understanding of EMS communications skills and equipment is essential to your success as an EMT. Reliable communications systems are critical to all aspects of an EMS call. Key concepts include the following:

- Standard components of an emergency communications system include a base station and mobile or portable transmitters/receivers. Additional components, such as repeaters and digitalized encoders and decoders, cellular phones, telemetry, and mobile and satellite communications, are used to enhance communication capabilities within an EMS system.
- The Federal Communications Commission (FCC) has jurisdiction over all radio operations in the United States, including those used by EMS systems.
- Communications within an EMS system depend on adhering to basic rules of radio communication at all times.
- Effective team communication improves how the team accomplishes its goals and enhances the quality of services provided to the patients and the community.
- SBAR is a mnemonic for "situation, background, assessment, and recommendation"; it is used as a method of organizing communications with medical direction.
- Digital data terminals receive dispatch information and transmit critical information back to dispatch.
- Patients with special needs, such as hearing-impaired individuals, children, and the elderly, require special consideration to ensure effective communication at the scene of an emergency.

TERMS AND CONCEPTS

1. Write the number of the correct term next to each definition.

1. Base station
2. Decoder
3. Encoder
4. Repeater
5. Mobile (digital) data terminal
6. Open-ended question
7. Leading question
8. Haptics
9. Ethnocentrism
10. Culture
11. SBAR

_____ a. Device that converts sound waves into digital codes for transmission

_____ b. The central dispatch and coordination area of an EMS communications system

_____ c. Devices that receive low-power transmissions from one source and rebroadcast them at a higher power on another frequency

_____ d. Device that recognizes and responds to only certain codes imposed on a radio broadcast

_____ e. Receives and transmits digital dispatch information

_____ f. The study of touching

_____ g. Questions that allow the patient to give a detailed response in his or her own words

_____ h. The thoughts, communications, actions, and values of racial, ethnic, religious, or social groups

_____ i. The view that one culture's way of doing things is the right way and any other way is inferior

_____ j. Questions that suggest an answer guided by the individual who is asking the question

_____ k. Method of organizing communications with medical direction

CONTENT REVIEW

1. An EMS base station
   a. generally uses a low output of between 50 and 75 watts of transmission power.
   b. should be located in a low-lying area, free from potentially damaging high winds.
   c. does not require close proximity to the hospital that serves as the medical command center.
   d. serves as a dispatch and coordination area and is in contact with other system elements.

2. Repeaters are used within an EMS communications system to allow
   a. communications over a wide geographical area.
   b. significant reductions in operating costs.
   c. communication with medical direction.
   d. communications to be transmitted through the air via cells.

3. Cellular phones within an EMS system
   a. usually have poor sound quality.
   b. seldom become overwhelmed during disaster situations.
   c. are usually difficult to maintain and are cost prohibitive.
   d. often improve communication privacy.

4. One role of the FCC in EMS communications systems is to
   a. purchase base-station radio equipment.
   b. license base stations.
   c. serve as a repeater for base-station operations.
   d. conduct radio operations training for EMS personnel.

5. Which of the following is a "ground rule" for radio operations?
   a. Use the radio just as if you were talking on a telephone.
   b. Keep transmissions brief, organized, and to the point.
   c. Never listen for other radio traffic before transmitting.
   d. Do not waste valuable airtime by repeating back orders or information.

6. The role of dispatch in an EMS communications system is to obtain information about the nature of the emergency, direct the appropriate emergency service(s) to the scene, and
   a. notify the medical command center of the request for service.
   b. alert the local news media to provide essential information.
   c. provide the caller with instructions about what to do until help arrives.
   d. contact the medical director to provide a link for medical direction.

7. In addition to communicating with dispatch to acknowledge the dispatch information, to advise dispatch that you are en route, and again while en route to report your estimated time of arrival at the scene, number the following list in the proper order from 1 to 5 to show the other times that you should communicate with dispatch.

_____ To announce your arrival back at base

_____ To announce your arrival on scene and request further assistance

_____ To announce you are "clear" and available for another call

_____ To announce your arrival at the hospital

_____ To announce your departure from the scene and your estimated hospital arrival time

8. When communicating with medical direction, you should use a standard format that includes your unit identification and service level; the patient's age, sex, and chief complaint; a brief, pertinent history of the present illness, including scene assessment and mechanism of injury; past major illnesses; and
   a. the name of the patient's insurance provider.
   b. a detailed description of the patient's past illnesses.
   c. a comprehensive description of the findings of the physical exam.
   d. the patient's mental status.

9. After receiving an order or instructions from medical direction, dispatch, or other medical personnel, you should
   a. always say "thank you" before you sign off.
   b. repeat the instructions word for word.
   c. click your "press to talk" button twice to signal your understanding.
   d. acknowledge the instructions by saying "10-4."

10. If you receive orders from medical direction that do not appear to be appropriate, you should always
   a. question the order to clarify if there has been a misunderstanding.
   b. follow the orders as given by medical direction.
   c. double-check with your partner before following the orders.
   d. request to speak with someone else.

11. When interacting with bystanders or other EMRs when you arrive on the scene, you should
   a. obtain permission from police and fire personnel before beginning patient care.
   b. obtain complete information from on-scene emergency providers before making patient contact.
   c. ask for information about what happened and which care has been given.
   d. quickly and loudly point out any errors in treatment provided by on-scene emergency providers.

12. Your patient is a non-English-speaking traveler in your community. Which of the following is an appropriate action in this situation?
   a. See if a companion or a bystander can interpret.
   b. Talk loudly and slowly to make yourself understood.
   c. No action is necessary—nothing can be done in this circumstance.
   d. Draw pictures to communicate with the non-English speaker.

13. You are working in an EMS system that utilizes radio codes. Which statement best describes an advantage of radio codes?
   a. They provide clear, concise information.
   b. They lengthen radio airtime.
   c. They are generally understood by the patient.
   d. They are regulated by the Federal Communications Commission.

14. Which of the following statements is accurate regarding Ten-Codes?
   a. They are the primary code system used by EMS systems.
   b. They are published by the FCC.
   c. They are generally understood by the patient.
   d. They are less favored than the use of standard English.

15. To ensure accuracy and synchronicity, most EMS systems use military time rather than standard A.M. and P.M. designations. Choose the military time that correctly represents 8:32 P.M. standard time.
   a. 0832 hours
   b. 1832 hours
   c. 2032 hours
   d. 2232 hours

CASE STUDY

You were dispatched to the carousel on the playground at 1031 Bruce Road for an injured child. Your partner notifies dispatch of your arrival. You note no signs of danger as you park the ambulance and put on your personal protective equipment. As you approach the group gathered near a picnic table, you can hear the sound of a child crying. You introduce yourself to the woman holding the crying child on her lap and ask what happened and what you can do to help. The mother of your patient, Mrs. Smith, thanks you for coming so quickly and tells you that her son, Mikey, tripped while running and cut his chin. She says he did not lose consciousness. Mikey's crying has quieted, and he is watching you closely. You ask him if you can look at his chin. He nods his permission. His mother removes the washcloth that she had been using to control the bleeding. You observe an approximately 1-inch laceration. You explain what you are going to do, and then, as you gently apply a sterile dressing and bandage to Mikey's injury, you reassure him quietly. He tells you that he is 3 years old and has a dog and three big sisters. He also says he never rode in an "ambliance." You see no other signs of injury.

Your partner obtains a set of baseline vital signs. Mikey's blood pressure is 80/68 mmHg. His heart rate is strong, at 80 beats per minute. His respirations are 28 per minute, full and adequate. His skin is slightly flushed, warm, and moist. His capillary refill is less than 2 seconds. His pupils are normal and equal in size and reactivity, and the SpO_2 is 96% on room air. You obtain a history. When asked, Mikey says his chin "hurts bad." He denies neck or back pain and is alert and oriented to person, place, and time. His mother reports that he is a healthy child who takes no medications and has no known allergies. Mikey tells you that he had a Popsicle in the car on his way to the park. Mrs. Smith says that they arrived about an hour ago and that Mikey was fine before he fell as he ran to get on the carousel. You secure Mikey in the child restraint seat on the stretcher in the back of the ambulance and then help Mrs. Smith get settled and secured to the jump seat.

You perform the reassessment on Mikey, finding him still completely alert and oriented. His dressing remains dry. His vital signs are essentially unchanged. You radio the hospital with your report.

In the space provided, write the report you would give orally at the following times:

1. Arrival on scene (to dispatch):

2. En route to the hospital (to the receiving hospital):

3. At the hospital when you transfer care:

Lifting and Moving Patients

CHAPTER 6

STANDARD

Preparatory (Content Area: Workforce Safety and Wellness)

COMPETENCY

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

OBJECTIVES

After reading this chapter, you should be able to:

6-1. Define key terms introduced in this chapter.
6-2. Define the term body mechanics and explain the importance of using proper lifting techniques when working as an EMS provider.
6-3. List and demonstrate each of the four principles of body mechanics when lifting and moving patients and equipment.
6-4. Explain the roles of proper body posture and physical fitness in preventing injuries that can result from lifting and moving patients.
6-5. Discuss teamwork and communication considerations for lifting and moving patients.
6-6. Apply guidelines for lifting and moving patients who have been found in various locations of a home, business, or outdoor environments.
6-7. Discuss the advantages, disadvantages, and steps for each of the recommended lifting and moving techniques.
6-8. List and describe how to implement patient moving techniques in both emergency and non-emergency situations.
6-9. Differentiate scenarios in which emergency, urgent, and non-urgent moves are indicated.
6-10. Demonstrate the steps required to securely "package" a patient for transport.
6-11. Describe the proper use, advantages, disadvantages, and limitations for equipment used in lifting and moving patients.
6-12. Identify the positioning of patients who are unresponsive, in shock, pregnant, have a potential spinal injury or obvious physical disability, etc.
6-13. Discuss special considerations for preparing patients for air medical transport.
6-14. Discuss special considerations for using a neonatal isolette.
6-15. Describe the guidelines for carrying a patient using a backboard, portable stretcher, or flexible stretcher.

KEY IDEAS

This chapter presents proper methods of lifting and moving patients and equipment. It is not enough to know this material. You need to use the information every day and on every response.

- Proper use of body mechanics for safe lifting can greatly decrease injuries. The four basic principles of body mechanics are as follows:
  1. Keep the weight of the object close to the body.
  2. To lift a heavy object, use the leg, hip, and gluteal muscles plus contracted abdominal muscles.
  3. "Stack" shoulders over hips, hips over feet.
  4. Reduce the height or distance that an object must be lifted.
- Poor posture can fatigue your back and promote injury.
- Communication and teamwork are essential to safe lifting and moving.
- It is important to be able to perform the following techniques: power lift, squat lift, one-handed equipment-carrying technique, stair chair technique, reaching techniques, and pushing and pulling techniques.
- The greatest danger to the patient in any emergency move is the possibility of aggravating a spinal column or spinal cord injury. When performing an emergency move, make every effort to keep the patient's head and neck in a neutral position and the nose in-line with the umbilicus (navel). Always pull the patient in the direction of the long axis of the body.

TERMS AND CONCEPTS

1. Write the number of the correct term next to each definition.

1. Emergency move
2. Nonurgent move
3. Lordosis
4. Kyphosis
5. Power grip
6. Self–Extrication
7. Spine Motion Restriction

_____ a. Stomach is too anterior and the buttocks are too posterior

_____ b. Performed when no immediate threat to life exists

_____ c. Palm and fingers in complete contact with the object and fingers bent at same angle

_____ d. Shoulders are rolled forward, which results in fatigue on the lower back

_____ e. Performed when there is an immediate danger to the patient or rescuer

_____ f. technique used to rapidly gain access to a critically injured patient by asking a non-critically injured patient to keep his or her head or neck in a neutral in-line position while exiting a vehicle

_____ g. Activities or actions that limit spine movement

CONTENT REVIEW

1. You are much more likely to injure your back when performing which of the following tasks?
   a. Reaching a great distance to lift a light object
   b. Reaching a short distance to lift a heavy object
   c. Reaching up to shoulder height to lift a light object
   d. Lifting a light object while keeping it close to you

2. You are preparing to move a heavy object. Which muscles will provide the most power with the greatest degree of safety?
   a. Leg, hip, and gluteal muscles
   b. Back and shoulder muscles
   c. Chest and arm muscles
   d. Abdominal and intercostal muscles

3. The body mechanics principle called "stacking" means
   a. stacking objects to be lifted one on top of the other.
   b. keeping your shoulders, hips, and feet in vertical alignment.
   c. eliminating curvature from your spine.
   d. staying under an object being lifted overhead.

4. To help prevent injury and manage stress, you should follow a physical fitness program that includes which four ingredients?

_____

_____

_____

_____

5. When performing a power lift, which of the following is correct?
   a. Stand to the side of the object and lift the hips before the upper body.
   b. Turn the feet inward, lock the knees, and lift the hips before the upper body.
   c. Lock the back and lift the upper body before the hips.
   d. Bend forward at the waist and lift the upper body before the hips.

6. When performing the squat lift with a weak leg or ankle, you should
   a. place the weaker leg slightly behind your good leg.
   b. place the weaker leg slightly in front of the good leg.
   c. place the weaker leg beside and parallel with the good leg.
   d. not use the squat lift with a weak leg.

7. You are preparing to carry a heavy tool using the one-handed equipment-carrying technique. You know that you should avoid
   a. leaning to the opposite side.
   b. bending your knees.
   c. locking your back.
   d. bending at the hips.

8. You and your partner are preparing to navigate stairs using a stair chair. You should
   a. tilt the stair chair forward.
   b. position the patient facing the stairs.
   c. keep one hand on the railing.
   d. use a spotter to direct and navigate.

9. If you have to reach for an object that is greater than _____ from your body, you should reposition yourself closer to the object.
   a. 5 inches
   b. 10 inches
   c. 20 inches
   d. 3 feet

10. When you need to push or pull an object, which of the following is correct?
   a. Push rather than pull, and keep the load at knee level.
   b. Push rather than pull, and keep the load between the hips and shoulders.
   c. Pull rather than push, and keep the load at shoulder level.
   d. Pull rather than push, and keep the load at hip level.

11. In which of the following situations would use of the rapid extrication technique be inappropriate?
   a. The patient presents with loss of sensation and motor response to the lower extremities.
   b. The patient is bleeding severely; the vehicle appears unstable and may slide down a ravine.
   c. The patient seems uninjured, but there appears to be smoke coming from the vehicle and there is a strong smell of gasoline.
   d. The patient has stopped breathing, and a weak central pulse is palpated on the neck.

12. You and your partner have decided to utilize the two-person carry to move a patient. Which of the following is correct pertaining to the two-person carry?
   a. The stronger EMT should be placed at the foot of the stretcher.
   b. The EMT at the foot end of the patient faces the EMT at the head end.
   c. The EMT at the foot end of the stretcher walks forward while calling out obstacles.
   d. The EMT at the head is required to walk backward, which may increase the risk of injury.

13. When carrying a supine patient on stairs, you should
   a. carry the patient headfirst up the steps; therefore, the EMT at the head end moves backward up the steps.
   b. walk backward down the stairs carrying the patient headfirst, while the EMT at the feet guides the patient.
   c. utilize the stair chair or tracked stair chair device to transition the steps using a spotter to look for obstacles.
   d. allow the patient free movement of his or her hands to aid in balance while moving the patient up or down the stairs.

14. Power cots
   a. typically weigh less than a traditional stretcher.
   b. are not capable of being outfitted with a power loading system.
   c. increase the spinal loading associated with repetitive movements.
   d. decrease the spinal loading associated with repetitive movements.

15. The use of a backboard can
   a. reduce the incidence of pressure sores.
   b. increase body core temperature in a cold environment.
   c. reduce pain.
   d. reduce the patient's ability to breathe effectively.

16. Depending on the local protocol, a patient with suspected spinal injury can be
   a. placed on a long backboard, on a vacuum mattress, or on a stretcher mattress for transport.
   b. placed on a long backboard or a vacuum mattress for transport.
   c. placed on a long backboard for transport.
   d. placed on a vacuum mattress for transport.

CASE STUDY

You and your partner, Kyle, work in an East Coast community and are dispatched to a guarded beach for an injured surfer. As you and Kyle approach the scene, you are met by the lifeguard captain, Vicky. She explains that the patient has deeply lacerated his leg and will need to be carried across the beach and over the dune line to the parking lot. Fortunately, there is a ramp that leads to a boardwalk, and a set of stairs connects the boardwalk to the parking lot. Vicky says that she has three lifeguards who can assist with moving the patient. Kyle suggests a four-corner carry with the wheeled stretcher in the up position (legs fully extended), which will reduce the chance of dropping the patient. If the carriers need a break, this position will allow the stretcher to rest on the extended wheels without lowering the patient to ground level, thereby reducing the chance of injury. You commend Kyle for his foresight and planning.

1. After the patient has been loaded and you are ready to move him, you instruct the rescuers on the corners of the stretcher to
   a. keep their backs leaning to the opposite side of the patient to compensate for the weight.
   b. keep their backs locked and stay as close to the stretcher as possible, avoiding leaning.
   c. relax their back muscles and bend at the waist to keep the stretcher moving forward.
   d. grip the stretcher handles with only their fingers, avoiding contact between palms and handles.

2. As you and the team reach the boardwalk, you instruct them to
   a. continue to carry the stretcher because once you are in motion, stopping will result in fatigue.
   b. continue to carry the stretcher because it is important that the patient receive a smooth ride.
   c. lower the stretcher onto its wheels so the stretcher does part of the work, with the rescuers at the back pushing it along the boardwalk.
   d. lower the stretcher onto its wheels so the stretcher does part of the work, with the rescuers at the front pulling it along the boardwalk.

3. As you reach the stairs, your team takes a brief break. You instruct your team to lower the stretcher (legs retracted) so the wheels won't catch on the stairs. You should also instruct them to
   a. have a spotter at the bottom to help guide them.
   b. flex the body at the hips and not the waist.
   c. keep the weight and arms close to the body.
   d. All of these

4. You and Kyle will use the power-lift technique to lift the stretcher into the up position. Regarding the power lift, which of the following is *not* correct?
   a. This technique is not recommended for use with heavy patients.
   b. This technique offers you the best defense against injury.
   c. This technique protects the patient with a safe and stable move.
   d. This technique is useful for rescuers with weak knees or thighs.

Anatomy, Physiology, and Medical Terminology

CHAPTER 7

STANDARDS

Anatomy and Physiology; Medical Terminology

COMPETENCIES

Applies fundamental knowledge of the anatomy and function of all human systems to the practice of EMS.

Uses foundational anatomic and medical terms and abbreviations in written and oral communication with colleagues and other health professionals.

OBJECTIVES

After reading this chapter, you should be able to:

7-1. Define key terms introduced in this chapter.
7-2. Explain the importance of anatomy and physiology knowledge to patient assessment and care.
7-3. Define the terms *anatomy* and *physiology*, and discuss how they relate to each other.
7-4. List and describe each of the terms used for describing the positioning of the patient.
7-5. List and discuss the various medical terms used to identify landmarks or describe locations on the patient's body.
7-6. State the function of each of the structures that make up the musculoskeletal system.
7-7. List and identify the components of the human skeleton that make up the axial and appendicular skeletal systems.
7-8. Define each type of joint movement, and identify the types of joints that make up the human skeleton.
7-9. Differentiate between skeletal (voluntary), smooth (involuntary), and cardiac muscle.
7-10. Identify the basic functions of the respiratory system and the structures that make up the upper and lower airways, including the associated muscles and pleural linings.
7-11. Identify important anatomic and physiologic differences in children's respiratory systems as they relate to oxygenation, airway maintenance, and ventilation skills.

7-12. Describe the basic mechanics and physiology of normal ventilation, respiration, and oxygenation.
7-13. Identify characteristics of both adequate and inadequate breathing.
7-14. Describe the anatomy and physiology of the heart.
7-15. Discuss the anatomy and physiology of the circulatory system, blood, perfusion/capillary exchange, and metabolism.
7-16. Describe the basic functions of the nervous system.
7-17. Differentiate between the structural and functional components of the central and peripheral nervous systems.
7-18. Differentiate between the two functional divisions of the peripheral nervous system (somatic and autonomic).
7-19. Describe the basic role of the reticular activating system (RAS) and cerebral hemispheres in consciousness and unconsciousness.
7-20. Explain the overall function of the endocrine system, and discuss the locations and general functions of each component that comprises the endocrine system.
7-21. Describe the general actions of epinephrine and norepinephrine on $beta_1$, $beta_2$, $alpha_1$, and $alpha_2$ receptors.
7-22. Identify the general functions of the integumentary system, and identify the layers and structures of the integumentary system.
7-23. List and describe the anatomy and physiology of each major component that makes up the digestive system.
7-24. List and describe the anatomy and physiology of each major component that makes up the urinary or renal system.
7-25. State the basic structure and function of the organs of the male and female reproductive systems.
7-26. Explain the importance of using accurate medical terminology when communicating with fellow health care team members.
7-27. Use knowledge of common prefixes, suffixes, and roots to interpret medical terms.

KEY IDEAS

This chapter introduces basic terminology and concepts of the anatomy and physiology of the human body—information that you will need to help you determine when the body is functioning normally and when it is not, and to help you communicate with other health care providers.

- The EMT must be able to identify the following positions: normal anatomic position, supine, prone, lateral recumbent, Fowler's.
- The EMT must be able to define descriptive terms such as *midline*, *midclavicular line*, *midaxillary line*, *plantar*, and *palmar*.
- The EMT must be able to define the terms *anterior*, *superior, dorsal*, *lateral*, and *distal* and their opposites—*posterior*, *inferior*, *ventral*, *medial*, and *proximal*.
- The EMT must be able to understand and describe the anatomy and physiology of the following body systems: musculoskeletal, respiratory, circulatory, nervous, endocrine, and skin.
- The EMT must be able to identify and locate the central and peripheral pulse points.

MEDICAL TERMINOLOGY

Term	Prefix	Word Root Combining Form	Suffix	Definition
cerebrospinal (SAIR-uh-bro-SPI-nul)		cerebr/o (cerebrum, brain); spin (spine)	-al (pertaining to)	Referring to the brain and spinal cord. Example: *cerebrospinal fluid*, a cushion of fluid around the brain and spinal cord.
dermis (DER-mis)		derm/a/is (skin)		The middle layer of the skin. (The layers of the skin from outermost to innermost are the epidermis, the dermis, and the subcutaneous layer.)
epidermis (EP-uh-DER-mis)	epi- (upon, over, above)	derm/a/is (skin)		The outermost layer of the skin above the dermis.
epiglottis (EP-uh-GLOT-is)	epi- (upon, over, above)	glottis (the sound-producing area of the larynx)		A small, leaf-shaped flap of tissue located above the glottis, which covers the entrance of the larynx.
hypoperfusion (HY-po-per- FYU-zhun)	hypo- (below, under, deficient)	perfusion (delivery of oxygen and other nutrients to the cells)		The insufficient delivery of oxygen and other nutrients to the body's cells. Also called *shock.*
interpleural (in-ter-PLUR-ul)	inter- (between)	pleur (relating to the pleura, the membranes that line the lungs and thorax)	-al (pertaining to)	Pertaining to the area between the visceral and parietal pleura. Example: *interpleural space*, a tiny space with negative pressure, which allows the lungs to stay inflated.
intervertebral (in-ter-VER- tuh-brul)	inter- (between)	vertebra (segment of the spinal column)	-al (pertaining to)	Pertaining to the area between two vertebrae. Example: *intervertebral disk*, a fluid-filled pad between two vertebrae.
midaxillary (mid-AX-uh-lair-e)	mid- (center)	axil (armpit)	-ary (pertaining to)	Refers to the center of the armpit. Example: *midaxillary line*, an imaginary line extending downward from the center of either armpit.

Term	Prefix	Word Root Combining Form	Suffix	Definition
midclavicular (mid-klav-IK- yu-ler)	mid- (center)	clavicle (collarbone)	-ular (pertaining to)	Refers to the center of the collarbone (clavicle). Example: *midclavicular line*, an imaginary line extending downward from the center of either collarbone.
myocardium (MY-o-KAR-de-um)		my/o (muscle); card/ium (heart)		The cardiac muscle that makes up the middle layer of the walls of the heart.
nasopharynx (NA-zo-FAIR-inks)		nas/o (nose); pharynx (throat)		Nasal portion of the pharynx, situated above the soft palate.
pericardium (PAIR-uh-KAR-de-um)	peri- (around)	card/ium (heart)		Double-walled sac that encloses and supports the heart.
physiology (FIZ-e-OL-uh-je)		physi/o (nature)	-logy (study of)	The study of the function of the living body and its parts.
subcutaneous (SUB-kyu-TAY-ne-us)	sub- (below, under, beneath)	cut (skin)	-aneous (pertaining to)	Pertaining to the layer of fatty tissue just below the dermis.

1. The word root *physi/o* in the medical term *physiology* means
   a. nature.
   b. study of.
   c. lung.
   d. spleen.

2. The prefix *inter-* in the medical term *intervertebral* translates to
   a. above.
   b. below.
   c. between.
   d. under.

3. The prefix *epi-* in the medical term *epiglottis* means
   a. leaf-shaped.
   b. over, above.
   c. two, double.
   d. separation.

4. A medical term that ends with the suffix *-logy,* as in *physiology,* indicates
   a. study of.
   b. tension.
   c. condition.
   d. pertaining to.

5. The medical term *subcutaneous* contains the word root *cut.* This relates to the
   a. brain.
   b. finger.
   c. breast.
   d. skin.

6. In each space, write the prefix, word root, or suffix that matches the definition.

axil	my/o
card/ium	perfusion
glottis	peri
hypo	pleur
inter	vertebra

_____ a. Delivery of oxygen and other nutrients to the cells
_____ b. Relating to muscle
_____ c. The sound-producing area of the larynx
_____ d. Segment of the spinal column
_____ e. Below, under, deficient
_____ f. Relating to the heart
_____ g. Around (an object)
_____ h. Referring to the armpit
_____ i. Referring to the lining of the lung and thorax
_____ j. Between (objects)

TERMS AND CONCEPTS

1. In each space, write the term described by the statement. Not all terms will be used.

Anterior	Midline
Distal	Normal anatomic position
Inferior	Posterior
Lateral	Prone

Medial	Superior
Midaxillary	Transverse line
Midclavicular	Frontal or coronal plane
Sagittal plane	Midsagittal plane
Transverse plane	

_____ a. An imaginary line drawn horizontally through the waist to divide the body into superior and inferior planes

_____ b. The back or toward the back

_____ c. Lying on the stomach

_____ d. Above, toward the head

_____ e. Position in which the patient is standing erect, facing forward, with arms down at the sides and palms forward

_____ f. The center of the armpit

_____ g. Below, toward the feet

_____ h. The side, left, or right of the midline, or away from the midline of the body

_____ i. The front or toward the front

_____ j. Distant or far from the point of reference

_____ k. An imaginary line drawn vertically through the middle of the patient's body, dividing it into right and left planes

_____ l. A vertical plane that runs lengthwise and divides the body into right and left halves

_____ m. The plane that divides the body into two equal halves

_____ n. The plane that divides the body into front and back halves

_____ o. The plane that is parallel with the ground and divides the body into upper and lower halves

CONTENT REVIEW

1. When you are describing an injury to the right chest, *right* refers to
   a. your right, while facing the patient.
   b. your right, while facing away from the patient.
   c. the patient's right, regardless of position.
   d. your right, while in a prone position.