SECONDARY COURSE DESCRIPTION

SECTION A: COURSE CLASSIFICATION

ALAMEDA UNIFIED SCHOOL DISTRICT
Excellence & Equity For All Students

1. Course Title: Sports Medicine 2	6. Prerequisite(s): Sports Medicine 1
2. Action: ___ New Course __x_ Course Revision _x__ Title Change	7. Grade Level: 11 & 12
3. Transcript Title/Abbreviation: Sports Med 2 (For Educational Services)	8. Elective/Required: Elective
4. Transcript Course Code/Course Number: VOAX (For Educational Services)	9. Subject Area: Career Technical Education
5. CBEDS Code: (For Educational Services) 7922	10. Department: CTE

11. Length /Credits:
___ 0.5 (half year or semester equivalent) _x__ 1.0 (one year equivalent)
___ 2.0 (two year equivalent)

12. Was this course previously approved by UC? ___ Yes __x_ No
If so, year removed from list: _____

13. Meets the "_____" requirements in the a-g university/college entrance requirement. Approval date:
_____-

14. School Contact Information
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16. Signatures:
Department Chair: _____
Principal: _____
Acknowledged by Other Principals: _____
_____
_____
Educational Services: _____

16. BOE Approval
Signature of Superintendent:_____ Date of Approval_____

Sports Medicine 2 Course Outline
Career Technical Education
Submitted by Anderson Zhang, Teacher
Revised in School Year 2019-20

Chapter 1
EMS Systems

Unit Summary

After students complete this chapter and the related coursework, they will understand the scope and goals of the emergency medical responder training and the structure of emergency medical care delivery systems. The emergency medical responder's roles, responsibilities, and relationship to the emergency medical services (EMS) system are explained, and a description of other levels of EMS providers is included. The importance of medical oversight is stressed.

National EMS Education Standard Competencies

Preparatory

Uses simple knowledge of the emergency medical services (EMS) system, safety/well-being of the emergency medical responder (EMR), and medical/legal issues at the scene of an emergency while awaiting a higher level of care.

EMS Systems

- EMS systems (pp 3-6)
- Roles/responsibilities/professionalism of EMS personnel (p 9; p 11)
- Quality improvement (p 12)

Research

- Impact of research on EMR care (p 6; p 12)
- Data collection (p 12)

Public Health

Have an awareness of local public health resources and the role EMS personnel play in public health emergencies.

CTE Standards

PS-ER:

B1.1 Understand the responsibilities, requirements, and advancement opportunities in emergency response carriers

B1.2 List the standards for emergency response employee qualifications, training, and certification

B1.3 Outline a realistic program of study based on career choice, job entry requirements, and personal commitment

B1.4 Describe the roles and responsibilities of emergency response agencies

B1.5 Summarize the laws, regulations, and organizational protocols that define the guidelines governing selected emergency agencies and services

B2.1 Describe the mechanisms by which emergency management stakeholder agencies and resources are coordinated for mutual aid

B2.2 Understand the importance of an organized Command and Control System to provide for interoperability, efficiency, and effectiveness

B2.4 Recognize multiagency coordination; unified command, training, identification and management of resources; qualification and certification; and the collection, tracking, evaluation, and dissemination of information

B3.1 Identify the characteristics of successful teams, including leadership, cooperation, collaboration, and effective decision-making skills as applied in emergency services

B3.2 Understand the characteristics and benefits of teamwork, leadership, and citizenship in community and workplace settings.

Knowledge Objectives

1. Describe the different elements of an emergency medical services (EMS) system. (pp 3-6)
2. Discuss the four levels of EMS training and licensure. (p 4)
3. Describe the role of public health resources and how this role applies to EMS providers. (p 5)
4. Discuss the historic background of the development of the EMS system. (pp 5-6)
5. List the 10 standard components of an EMS system. (p 6)
6. Describe how the seriousness of the patient's condition is used to determine the urgency of transport to an appropriate medical facility. (pp 6-7)
7. Describe the four general goals of emergency medical responder (EMR) training. (pp 8-9)
8. Define the roles and responsibilities of EMR. (p 9; p 11)
9. Explain the importance of documentation. (p 11)
10. Describe the attributes that EMRs are expected to possess. (p 11)

11. Define medical oversight. (p 12)
12. Discuss the EMR's role in relation to medical oversight. (p 12)
13. Explain the quality improvement process and why quality improvement is important for good patient care. (p 12)
14. Describe the impact of research on evidence-based patient care. (p 12)

Skills Objectives

There are no skills objectives for this chapter.

Readings and Preparation

Review all instructional materials, including *Emergency Medical Responder*, Sixth Edition**,** Chapter 1, and all related presentation support materials.

- Review local EMS system certification/license policies.
- Include an overview of the local EMS system when discussing the components.

Support Materials

- Lecture PowerPoint presentation
- Slides/overheads of local EMS delivery system organization
- Any written materials pertaining to
    - Course requirements, grading, and institutional policies
    - Local or state EMS agency requirements or certification/registration
    - Local EMR treatment guidelines or protocols
    - Local skill evaluation tools

Unit Activities

Writing assignments: Assign each student a research paper on the history of modern EMS.

Student presentations: Each student should give a brief presentation explaining his or her reason for taking the EMR course and expectations of the course.

Group activities: Form groups and ask each group to describe a component of the EMS system.

Medical terminology review: Ask each student to describe the goals of EMR training.

Summary

A. The EMR is often the first medically trained person to arrive on the scene. The initial care provided is essential because it is available sooner than more advanced emergency medical care and could mean the difference between life and death.

B. EMRs should understand their roles in the EMS system. The typical sequence of events of the EMS system is reporting, dispatch, emergency medical response, EMS vehicle response, and hospital care.

C. The four basic goals of EMR training are to know what not to do, how to use your EMR life support kit, how to improvise, and how to assist other EMS providers.

D. As an EMR, your primary goal is to provide immediate care for a sick or injured patient. As more highly trained personnel (EMTs or paramedics) arrive on the scene, you will assist them in treating and preparing the patient for transportation.

E. Once your role in treating the patient is finished, you must record your observations about the scene, the patient's condition, and the treatment you provided. Documentation should be clear, concise, accurate, and in accordance with the accepted policies of your organization.

F. Medical information about a patient is confidential and should be shared only with other medical personnel who are involved in the care of that particular patient.

G. The overall leader of the medical care team is the physician or medical director. To ensure that the patient receives appropriate medical treatment, it is important that EMRs receive direction from a physician.

H. Quality improvement helps to determine the level of care rendered by an EMS service. It measures care in six component areas: safety, effectiveness, patient-centeredness, timeliness, efficiency, and equitability. EMS systems should have an ongoing quality improvement program.

Chapter 2
Workforce Safety and Wellness

Unit Summary

After students complete this chapter and the related coursework, they will understand the importance of meeting their own emotional needs; assisting patients and families with the emotional aspects of injuries, illness, and/or death; and taking appropriate preventive action to ensure personal safety. The purpose of this chapter is to better prepare emergency medical responders (EMRs) for the stress and tension they will encounter in their work.

National EMS Education Standard Competencies

Preparatory

Uses simple knowledge of the emergency medical services (EMS) system, safety/well-being of the emergency medical responder (EMR), and medical/legal issues at the scene of an emergency while awaiting a higher level of care.

Workforce Safety and Wellness

- Standard safety precautions (pp 23-29)
- Personal protective equipment (pp 24-25)
- Stress management (pp 19-21)
- Dealing with death and dying (p 18)
- Prevention of response-related injuries (pp 25-29)

Medicine

Recognizes and manages life threats based on assessment findings of a patient with a medical emergency while awaiting additional emergency response.

Infectious Diseases

Awareness of

- A patient who may have an infectious disease (pp 23-26)
- How to decontaminate equipment after treating a patient (p 29)

CTE Standards

PS-ER:

B4.1 Describe the basic elements of safety and survival for emergency response personnel

B4.2 Know and use the appropriate personal protective equipment (PPE) required for emergency services duties

B4.3 Know how to establish situational awareness, identify hazards, and assess personal, team, or environmental risks

B4.4 Understand and adhere to comprehensive and systematic risk management strategies to reduce injury and fatalities for self, team, and community

B4.5 Demonstrate strategies to identify and eliminate hazards

B5.1 Understand that physical fitness and proper nutrition are needed to perform the duties of emergency response personnel

B5.2 Recognize the different physical strength and agility assessments required for entrance into emergency response employment

B5.3 Apply the skills and techniques necessary for success in strength and agility testing

B5.4 Design and implement a personal plan for achieving and maintaining an acceptable level of nutrition, strength and agility, and a lifetime fitness mindset

B5.5 Recognize and understand the importance of maintaining psychological health and well-being in emergency response occupations

B7.1 Describe commonly encountered hazardous materials

B7.2 Describe the hazardous materials labeling system and identify definitions associated with various hazardous materials

B7.3 Describe the type of damage and injury that can occur if hazardous materials are handled improperly

B7.4 Explain the steps taken, including appropriate personnel and safety measures, for a hazardous-material release

B7.5 Research and report on the most common incidents involving hazardous materials

Knowledge Objectives

1. Describe the emotional aspects of emergency care encountered by patients, patients' families, and emergency medical responders (EMRs). (p 17)
2. Describe the five stages a person may experience when dealing with grief or death. (p 18)
3. Explain how to confront death and dying with integrity, empathy, respect, and careful delivery of service. (p 18)
4. Describe reactions to stress and grief that EMRs must face concerning care of the dying patient, death, and the grieving process of family members. (p 18)
5. List six signs and symptoms of stress. (p 19)
6. Describe the steps that contribute to wellness and their importance in managing stress. (pp 19-21)
7. Explain the types of actions EMRs can take to reduce or alleviate stress. (p 21)
8. List hazards commonly encountered by EMRs. (p 23)
9. Describe three routes of disease transmission. (pp 23-24)
10. Describe the standard precautions for preventing infectious diseases from airborne and blood-borne pathogens. (pp 24-25)
11. Discuss the importance of standard precautions. (p 23)
12. Explain proper handwashing techniques. (p 24)
13. Explain how to remove gloves properly. (pp 25-26)

14. List the steps to take if clothing comes in contact with body fluid from a patient. (p 25)
15. Describe the safety equipment that EMRs should have available for their protection. (p 27)
16. Describe three phases of safety when responding to the scene. (p 25; p 27)
17. Describe 11 types of hazards to look for when assessing the scene for unsafe conditions. (pp 27-29)

Skills Objectives

1. Demonstrate integrity, empathy, respect, and careful delivery of service when confronted with the death of a patient. (p 18)
2. Demonstrate proper handwashing techniques. (p 24)
3. Demonstrate the safe removal of medical gloves. (p 26)
4. Demonstrate proper treatment of clothing that has come into contact with a patient's body fluid. (p 25)
5. Demonstrate the proper use of safety equipment needed for EMRs. (p 27)
6. Demonstrate scene assessment of a real or simulated rescue event for safety hazards. (pp 27-29)

Readings and Preparation

Review all instructional materials including ***Emergency Medical Responder*, Sixth Edition,** Chapter 2, and all related presentation support materials.

• The Centers for Disease Control and Prevention (CDC) is a useful source.

• Review hazardous materials in the DOT's *Emergency Response Guidebook*.

• Review National Fire Protection Association (NFPA) Standard 473, *Standard for Competencies for EMS Personnel Responding to Hazardous Materials/Weapons of Mass Destruction Incidents.*

• Review NFPA Standard 1999, *Standard on Protective Clothing for Emergency Medical Operations.*

• Review US Department of Labor, Occupational Safety and Health Administration (OSHA) regulations.

Support Materials

• Lecture PowerPoint presentation

• Skill Drill PowerPoint presentation

– Skill Drill 2-1, *Proper Removal of Medical Gloves* PowerPoint presentation

• Sample of clothing and protective equipment

• *Hazardous Materials: The Emergency Response Guidebook* (most current edition), US Department of Transportation

• Medical exam gloves

• EMR life support kit

• Skill Evaluation Sheets

– Skill Drill 2-1, Proper Removal of Medical Gloves

Unit Activities

Writing assignments: Assign students a research paper on the religious beliefs of various groups when confronted with death and dying.

Student presentations: Ask each student to give a brief presentation on a particular piece of personal protective equipment (PPE), explaining how it helps to prevent contamination.

Group activities: Assign students to small groups and ask them to present scenarios that deal with death of a loved one, focusing on communicating with the grieving family.

Visual thinking: Provide students with images of PPE, and ask them to explain to the class or in writing how these items can keep them safe.

Summary

A. EMRs should understand the role that stress plays in the lives of emergency care providers and patients who have experienced a sudden illness or accident. Stress is a normal part of an EMR's life.

B. The five stages of the grief process when dealing with death and dying are denial, anger, bargaining, depression, and acceptance. Patients and rescuers move through these stages at different paces.

C. Stress management consists of recognizing, preventing, and reducing critical incident stress.

D. Scene safety is an important part of your job. You should understand how airborne and blood-borne diseases are spread and how standard precautions prevent the spread of infection.

E. As you arrive on the scene of a collision or illness, you must assess the scene for a wide variety of hazards, including traffic, crime, crowds, unstable objects, sharp objects, electrical problems, fire, hazardous materials, animals, environmental conditions, special rescue situations, and infectious disease exposure. You should understand the safety equipment and precautions that are needed for the various types of rescue situations.

Chapter 3
Lifting and Moving Patients

Unit Summary

After students complete this chapter and the related coursework, they will understand the mechanics of patient movement, types of patient-moving devices, patient movements for emergency and nonemergency situations, techniques for moving patients as a team, and ways to protect themselves from injury when moving patients.

National EMS Education Standard Competencies

Preparatory

Uses simple knowledge of the emergency medical services (EMS) system, safety/well-being of the EMR, and medical/legal issues at the scene of an emergency while awaiting a higher level of care.

Workforce Safety and Wellness

• Standard safety precautions (p 34)

• Personal protective equipment (Chapter 2, *Workforce Safety and Wellness*)

• Stress management (Chapter 2, *Workforce Safety and Wellness*)

  • Dealing with death and dying (Chapter 2, *Workforce Safety and Wellness*)

• Prevention of response-related injuries (pp 34-35)

• Lifting and moving patients (pp 35-42; pp 44-56)

EMS Operations

Knowledge of operational roles and responsibilities to ensure safe patient, public, and personnel safety.

CTE Standards

PS-ER:

B8.7 Apply principles of proper body mechanics, including ergonomics, equipment use, and techniques to prevent personal injury

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

Knowledge Objectives

1. Describe the general guidelines for moving patients. (p 34)
2. Explain the purpose and indications for use of the recovery position. (pp 34-35)
3. Discuss the components of good body mechanics. (p 35)
4. Explain how emergency medical responders should decide when emergency movement of a patient is necessary. (p 35)
5. Describe the purpose of each of the following pieces of equipment:
    - Wheeled ambulance stretcher (p 44)
    - Portable stretcher (p 44)
    - Stair chair (p 44)
    - Long backboard (p 45)
    - Short backboard (p 45)
    - Scoop stretcher (p 46)

Skills Objectives

1. Demonstrate the components of good body mechanics. (p 35)
2. Demonstrate the steps needed to perform the following emergency patient drags:
    - Clothes drag (p 35)
    - Blanket drag (p 36)
    - Arm-to-arm drag (p 36)
    - Fire fighter drag (p 36)
    - Emergency drag from a vehicle (p 37)
3. Demonstrate the steps needed to perform the following carries for nonambulatory patients:
    - Two-person extremity carry (p 38)
    - Two-person seat carry (p 38)
    - Cradle-in-arms carry (p 39)
    - Two-person chair carry (p 39)

- Pack-strap carry (p 39)
- Direct ground lift (pp 40-41)
- Transfer from a bed to a stretcher (pp 40-41)

4. Demonstrate the steps needed to perform the following walking assists for ambulatory patients:
   - One-person walking assist (pp 41-42)
   - Two-person walking assist (pp 41-42)
5. Demonstrate the steps in each of the following procedures for patients with suspected spinal injuries:
   - Applying a cervical collar (pp 47-48)
   - Moving the patient using a long backboard (p 45)
   - Assisting with a short backboard device (pp 45-46; pp 49-50)
   - Log rolling (pp 49-52)
   - Straddle lifting (p 52)
   - Straddle sliding (p 52)
   - Strapping (pp 52-53)
   - Immobilizing the patient's head (pp 53-54)

Readings and Preparations

Review all instructional materials, including ***Emergency Medical Responder*, Sixth Edition,** Chapter 3, and all related presentation support materials.

• Review the local protocol for the use of restraints.

• Practice patient moves prior to teaching this lesson. Ensure you are familiar with the proper and safe operation of all equipment used for this lesson.

Support Materials

• Lecture PowerPoint presentation

• Skill Drill PowerPoint presentations

- Skill Drill 3-1, Direct Ground Lift PowerPoint presentation
- Skill Drill 3-2, Using a Scoop Stretcher PowerPoint presentation
- Skill Drill 3-3, Applying a Short Backboard Device PowerPoint presentation
- Skill Drill 3-4, Four-Person Log Roll PowerPoint presentation
- Skill Drill 3-5, Preparing a Blanket Roll PowerPoint presentation

- Skill Drill 3-6, Applying the Blanket Roll to Stabilize the Patient's Head and Neck PowerPoint presentation

• Patient-moving devices available in the local area (wheeled stretcher, stair chair, scoop stretcher, flexible stretcher, long backboard, short backboard)

• Patient-securing devices (eg, straps, cravats, tape, belt)

• Cervical collars (assorted sizes)

• Bed sheets and blankets

• EMR life support kit

• Skill Evaluation Sheets

- Skill Drill 3-1, Direct Ground Lift
- Skill Drill 3-2, Using a Scoop Stretcher
- Skill Drill 3-3, Applying a Short Backboard Device
- Skill Drill 3-4, Four-Person Log Roll
- Skill Drill 3-5, Preparing a Blanket Roll
- Skill Drill 3-6, Applying the Blanket Roll to Stabilize the Patient's Head and Neck

Unit Activities

• **Writing assignments:** Assign a muscle to each student or group and have them research:

- How to increase strength and flexibility in this muscle
- How this muscle can help in lifting and moving patients or equipment

• **Student presentations:** Have students present the muscle research paper to the class and come up with at least two exercises for strengthening or stretching that muscle (they should be able to perform the exercise in class).

• **Group activities:** Have students pantomime a patient lift, equipment lift, or move, and have the rest of the class identify:

- Proper or improper technique
- Muscles used
- Exercises that might be used to develop more strength and flexibility for this lift

• **Medical terminology review:** Assign student groups to prepare a "commercial" to present one of the pieces of equipment from this chapter. Allow 15 minutes for groups to create their commercials. The guidelines should be that they have to demonstrate all ranges of motion for the equipment and all moving parts, positions, and straps. In addition, they should use the vocabulary list to incorporate as many terms as possible.

• **Visual thinking:**

- Present pictures to each group or PowerPoint slides to the whole class showing a variety of locations where the patient or the patient's surroundings may make getting into a proper lift position more difficult and create challenges for safe lifting and moving (eg, furniture-cluttered rooms, narrow stairways, dark locales, construction pits, a rowboat, bathtubs). The groups should brainstorm for a few minutes to identify ways to possibly lift and move the patient while maintaining healthy and safe body mechanics. Have groups present their ideas to the whole class or as a brief list for a homework assignment that can then be displayed for sharing and discussion.
- Prepare index cards ahead of time, listing one type of lift on each card. Divide students into groups of four or five, and give the team "leader" the card. Without speaking, the leader must direct all team members to correctly perform the lift on the card. The entire set of directions must be acted out without using any verbal communication. Team members will need to watch their leader carefully for instructions. The other groups should watch for errors.

Summary

A. In most situations, you can treat the patient in the position found and later assist other EMS personnel in moving the patient. In some situations, however, the patient's survival may depend on your knowledge of emergency movement techniques.

B. Every time you move a patient, keep the following general guidelines in mind:

1. Do no further harm to the patient.
2. Move the patient only when necessary.
3. Move the patient as little as possible.
4. Move the patient's body as a unit.
5. Use proper lifting and moving techniques to ensure your own safety.
6. Have one rescuer give commands when moving a patient.

C. Always use good body mechanics when you move patients.

1. Know your own physical limitations and capabilities.
2. Keep yourself balanced when lifting or moving a patient.
3. Maintain a firm footing.
4. Lift and lower the patient by bending your legs, not your back. Keep your back as straight as possible at all times and use your leg muscles to do the work.
5. Try to keep your arms close to your body for strength and balance.
6. Move the patient as little as possible.

D. Unconscious patients who have not sustained trauma should be placed in the recovery position.

E. If a patient is on the floor or ground during an emergency situation, you may have to drag the person away from the scene instead of trying to lift and carry the person. Make every effort to pull the patient in the direction of the long axis of the body to provide spinal protection.

F. Do not lift or move a patient if you suspect a spinal injury, unless it is necessary to remove the patient from a life-threatening situation.

G. EMS services typically use wheeled ambulance stretchers, portable stretchers, stair chairs, long backboards, short backboards, and scoop stretchers to immobilize and move patients.

H. Anytime a patient has sustained a traumatic injury, suspect injury to the head, neck, or spine. Keep the patient's head in a neutral position and immobilized. Use a cervical collar prevent excessive movement of the head and neck.

I. Log rolling is the primary technique used to move a patient onto a backboard. Every patient who is on a backboard should be strapped down to prevent him or her from sliding or slipping off the backboard.

J. Once a patient has been secured to the backboard, the head and neck must be immobilized using commercially prepared devices or improvised devices.

Chapter 4
Medical, Legal, and Ethical Issues

Unit Summary

After students complete this chapter and the related coursework, they will understand the legal, medical, and ethical issues associated with the provision of emergency medical care. The emergency medical responder (EMR)'s role and responsibilities regarding the quality administration of emergency medical care and the protection of the patient's rights and confidentiality are explained.

National EMS Education Standard Competencies

Preparatory

Uses simple knowledge of the emergency medical services (EMS) system, safety/well-being of the emergency medical responder (EMR), and medical/legal issues at the scene of an emergency while awaiting a higher level of care.

Medical/Legal and Ethics

- Consent/refusal of care (pp 63-64)
- Confidentiality (p 67)

- Advance directives (p 64)
- Tort and criminal actions (p 62)
- Evidence preservation (p 68)
- Statutory responsibilities (pp 62-65; pp 67-69)
- Mandatory reporting (pp 68-69)
- Ethical principles/moral obligations (p 63)
- End-of-life issues (pp 64-65)

CTE Standards

PS-ER:

B3.1 Identify the characteristics of successful teams, including leadership, cooperation, collaboration, and effective decision-making skills as applied in emergency services

B3.2 Understand the characteristics and benefits of teamwork, leadership, and citizenship in community and workplace settings

B3.3 Employ active listening, concise reporting, and familiarity with emergency response communication equipment to interact efficiently and effectively

B3.4 Describe emergency response techniques and methods of active listening to obtain and clarify information in oral communications

B3.5 Demonstrate a variety of appropriate and effective methods of communicating with the public, including techniques such as professional demeanor, active listening, empathy, projecting a confident tone of voice, paraphrasing, and the proper use of nonverbal body language

B3.6 Adhere to Health Insurance Portability and Accountability Act (HIPAA) regulations and agency guidelines regarding public and media communications

B3.7 Use appropriate terminology in clear, concise, and legible report entries when preparing and submitting required reports

B3.8 Use and maintain a variety of communication equipment, understanding the importance of using current and up-to-date technology and communication equipment

B3.9 Practice verbal and nonverbal emergency terminology and communication techniques to be used when interacting with emergency response personnel in a variety of emergency situations

B3.10 Gather information and ideas from primary and secondary sources accurately and coherently

Knowledge Objectives

1. Describe the legal "duty to act" for an EMR (p 62)
2. Explain how to comply with the standard of care. (p 62)
3. Discuss the ethical responsibilities of an EMR. (p 63)
4. Define consent, and describe how it relates to decision-making. (p 63)
5. Differentiate between expressed consent and implied consent. (p 63)
6. Discuss consent as it relates to minors who require treatment or transport. (p 63)
7. Discuss consent as it relates to patients with a mental illness. (pp 63-64)
8. Discuss the EMR's role and obligations if a patient refuses treatment or transport. (p 64)
9. Discuss the different types of advance directives and how they impact patient care. (p 64)
10. Explain the legal concepts of abandonment, people dead at the scene, negligence, and confidentiality. (p 65; p 67)
11. Recognize that most patient information is confidential and protected by the Health Insurance Portability and Accountability Act (HIPAA). (p 67)
12. Describe the role of Good Samaritan laws. (p 68)
13. Explain the requirements for reportable events, including crimes and certain infectious diseases. (p 68)
14. Explain the reasons for documentation. (pp 68-69)

Skills Objectives

There are no skills objectives for this chapter.

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*****, Sixth Edition,** Chapter 4, and all related presentation support materials.

• Review state and local certification/registration policies for EMRs.

• Review any related legal documents, such as statutes and regulations that pertain to prehospital care services and personnel.

• Review any recent case studies or legal proceedings that may provide updated information on medicolegal issues. The local law librarian is a good reference source to assist in gathering this type of information.

Support Materials

- Lecture PowerPoint presentation
- Slides/overheads of local EMS delivery system organization
- Any written materials pertaining to
  - Course requirements, grading, and institutional policies
  - Local or state EMS agency requirements for certification/registration
  - State and local treatment guidelines and/or protocols for EMRs
  - Any pertinent state and/or local requirements or specifications regarding chapter content

Unit Activities

Writing assignments: Assign students a research paper on the topic of lawsuits against EMS. Ask them to explain what could have been done differently to minimize the potential for litigation.

Student presentations: Ask students to give a presentation to the class on a recent lawsuit that has been settled against EMS with regard to negligence.

Group activities: Ask students to create scenarios that present difficult situations regarding consent or end-of-life issues.

Medical terminology review: Present definitions of important terms found in this chapter, asking students to choose the correct term to go with the definition.

Summary

A. As an EMR, you have a duty to act when you are dispatched on a medical call as a part of your official duties.

B. You are held to a certain standard of care, which is related to your level of training, and you are expected to perform to the level to which a similarly trained person would perform under similar circumstances.

C. You should understand the differences between expressed consent, implied consent, consent for minors, consent of patients with mental illness, and the right to refuse care.

D. Advance directives give a patient the right to have care withheld. Because EMRs cannot determine the validity of these documents, it is best to begin treatment for these patients.

E. You should understand the concepts of abandonment, negligence, and confidentiality, as well as the purpose of Good Samaritan laws.

F. You must understand the various federal and state regulations that govern your performance as an EMR. You must also understand your department's operational regulations. Certain events that deal with contagious diseases, abuse, or illegal acts must be reported to the proper authorities; you should know how to deal with these reportable events.

G. Crime scene operations are a complex environment. Following proper procedures ensures that the patient receives good medical care and that the crime scene is not compromised for the law enforcement investigation.

H. Your job is not complete until the paperwork is done. It is important that EMRs document their findings and treatment. This provides good patient care and adequate legal documentation.

I. By understanding and following these legal concepts, you will build the foundation for the skills you need to be a good EMR.

Chapter 5
Communications and Documentation

Unit Summary

After students complete this chapter and the related coursework, they will understand the importance of effective communication and documentation skills as they relate to quality emergency medical care. Different types of communication systems are explained, and the techniques and procedures for effective use of these systems are outlined. Students will also learn the purpose of the written report and the information that is necessary to make the report complete.

National EMS Education Standard Competencies

Preparatory

Uses simple knowledge of the emergency medical services (EMS) system, safety/well-being of the emergency medical responder (EMR), and medical/legal issues at the scene of an emergency while awaiting a higher level of care.

Documentation

• Recording patient findings (p 85)

EMS System Communication

Communication is needed to

• Call for resources (pp 76-77)

• Transfer care of the patient (p 77)

• Interact within the team structure (pp 74-78)

Therapeutic Communication

Principles of communicating with patients in a manner that achieves a positive relationship:

• Interviewing techniques (pp 78-83)

Medical Terminology

Uses simple medical and anatomic terms

CTE Standards

PS-ER:

B3.3 Employ active listening, concise reporting, and familiarity with emergency response communication equipment to interact efficiently and effectively

B3.4 Describe emergency response techniques and methods of active listening to obtain and clarify information in oral communications

B3.5 Demonstrate a variety of appropriate and effective methods of communicating with the public, including techniques such as professional demeanor, active listening, empathy, projecting a confident tone of voice, paraphrasing, and the proper use of nonverbal body language

B3.6 Adhere to Health Insurance Portability and Accountability Act (HIPAA) regulations and agency guidelines regarding public and media communications

B3.7 Use appropriate terminology in clear, concise, and legible report entries when preparing and submitting required reports

B3.8 Use and maintain a variety of communication equipment, understanding the importance of using current and up-to-date technology and communication equipment

B3.9 Practice verbal and nonverbal emergency terminology and communication techniques to be used when interacting with emergency response personnel in a variety of emergency situations

B3.10 Gather information and ideas from primary and secondary sources accurately and coherently

Knowledge Objectives

1. Describe the importance of communication and documentation for emergency medical responders (EMRs). (p 74)
2. Describe the different types of equipment used by EMRs in voice, radio, telephone, and data systems. (pp 74-76)
3. Summarize the functions of radio communications during the following phases of a response:
    a. Dispatch (p 76)
    b. Response to the scene (p 76)
    c. Arrival at the scene (p 76)
    d. Update of responding emergency medical services (EMS) units (pp 76-77)
    e. Transfer of patient care to other EMS personnel (p 77)
    f. Postrun activities (p 77)

4. Describe the guidelines for radio communication. (p 78)
5. Discuss the techniques of effective verbal communication. (pp 78-80)
6. Describe guidelines for effective communication with patients. (p 78)
7. Explain the skills that will help EMRs communicate with
    a. Patients who are hard of hearing or deaf (pp 80-81)
    b. Patients who are visually impaired (p 81)
    c. Non–English-speaking patients (pp 81-82)
    d. Geriatric patients (p 82)
    e. Pediatric patients (p 82)
    f. Patients with a developmental disability (p 82)
    g. Persons displaying disruptive behavior (pp 82-83)
8. Explain the role of medical terminology. (p 83)
9. Describe the legal significance of documentation. (p 85)
10. List the items that EMRs should include in a patient care report to ensure proper documentation. (p 85)

Skills Objectives

1. Demonstrate proper radio communications. (p 78)
2. Demonstrate an understanding of the rules of communication with colleagues, patients, and bystanders as an EMS professional. (pp 79-80)
3. Demonstrate the techniques for successful cross-cultural communication. (p 80)
4. Demonstrate completion of a patient care report. (p 85)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*****, Sixth Edition,** Chapter 5, and all related presentation support materials.

• Review local radio protocols and procedures for conducting both dispatch and medical communications.

• Review local protocols and procedures for operating radio/telephonic communication equipment, including procedures in the event of equipment failure.

Support Materials

- Lecture PowerPoint presentation
- Copies of locally approved prehospital care report forms and refusal of treatment forms
- Display of radio/telephonic equipment used in the local area

Unit Activities

Writing assignments: Assign each student a research paper on the topic of aging and the challenges he or she may face as an EMT when responding to calls involving older patients.

Student presentations: Have each student make a presentation to the class regarding appropriate ways to communicate with an elderly patient or a non–English-speaking patient who is in distress.

Group activities: Ask each student to prepare scenarios for patients of various ages with various complaints. Working in small groups, ask students to play out the scenario, reinforcing the importance of communication.

Summary

A. Communications systems allow you to relay information from one location to another when it is impossible to communicate face to face. Excellent communication skills are crucial during every phase of a call.

B. It is important for you to have a basic idea of how your department's communications system works.

C. You must be familiar with two-way radio communications and have a working knowledge of mobile and hand-held portable radios. You must know when to use them and which types of information you can transmit.

D. Throughout the different phases of an EMS call, communication systems are used for different functions. The phases of an EMS call include dispatch, response to the scene, arrival at the scene, updating the responding EMS units, transferring care of the patient to other personnel, and postrun activities.

E. The protocols for communicating with others during each phase of an EMS call vary from one system to another. It is important that you learn and follow the standard procedures and protocols used by your department.

F. In addition to radio and oral communications, you must have excellent person-to-person communication skills. You should be able to effectively interact with the patient and any family members, friends, or bystanders.

G. People who are sick or injured may not understand what you are doing or saying. For this reason, your body language and attitude are very important in gaining the trust of both the patient and the family. You must also take special care of individuals such as children, geriatric patients, patients who are hard of hearing or deaf, patients who are visually impaired, non–English-speaking patients, patients with a developmental disability, and patients displaying disruptive behavior.

H. Along with your radio report and oral report, you must complete a formal written hand-off report that will be given to other EMS professionals at the scene. Documentation provides a legal record of the actions you took and offers a basis to evaluate the quality of care given. Remember that the call is not over until the paperwork is completed.

Chapter 6
The Human Body

Unit Summary

After students complete this chapter and the related coursework, they will understand the basic components of human body systems and will be able to describe, identify, and locate anatomical features using directional terms and planes of the body. Students will gain a basic understanding of the anatomy and physiology of the major human body systems.

National EMS Education Standard Competencies

Anatomy and Physiology

Uses simple knowledge of the anatomy and function of the upper airway, heart, vessels, blood, lungs, skin, muscles, and bones as the foundation of emergency care.

Life Span Development

Uses simple knowledge of age-related differences to assess and care for patients.

CTE Standards

PS-ER:

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

Knowledge Objectives

1. Know the basic topographic anatomy terms to describe locations on the human body, including the anatomic position and the planes of the body. (p 90)
2. Discuss the anatomy and function of the respiratory system. (pp 91-92)
3. Discuss the anatomy and function of the circulatory system. (pp 92-93)
4. Identify the anatomy and function of the skeletal system. (pp 93-95)
5. Describe the anatomy and function of the muscular system. (p 95-96)

6. Discuss the anatomy and function of the nervous system. (p 96)
7. Discuss the anatomy and function of the digestive system. (p 96)
8. Describe the anatomy and function of the genitourinary system. (p 97)
9. Name the three major functions of the skin. (p 97)
10. Describe changes that occur in during growth and development at different ages. (p 99)
11. Name the factors that can influence or change vital signs. (p 100)

Skills Objectives

1. Identify selected topographic anatomy on a live or simulated patient. (p 90)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder,*** **Sixth Edition,** Chapter 6, and all related presentation support materials.

• Consider a quick read of www.brainrules.net, taken from John Medina's *New York Times* best-seller, *Brain Rules*. Scroll down on the site to read "The 12 Rules." Rule 10 is about the importance of visuals in learning. Visuals will add greater understanding, student-centered activity, and fun to this chapter.

Support Materials

• Lecture PowerPoint presentation

• Several copies of a human body diagram (anterior, posterior, and lateral if possible) for distribution in activities and assessments. Have several copies available for each student, as they can serve as a template for many activities and assessments.

• Anatomic charts, diagrams, and models of the human body

• Full-size human skeleton model for demonstration

• Large (human body size) paper. Leftover newsprint paper works well if you have access to a newsprint facility, or consider taping several large pieces of paper together.

Unit Activities

Writing assignments: Using the systems researched in the following Group Activities section, or selecting another system, structure, or organ, have each student or group of students write one or two paragraphs on one illness and one injury that could directly affect this organ/structure. What would they expect to see? Open up the presentations to class discussion if time allows.

Student presentations: Ask students to present their writing assignment to the class, requiring them to also prepare a one-page self-assessment to be distributed with the presentation.

Group activities:

• "Tracings"—Ask each group to use large paper or sidewalk chalk and the floor to trace outlines of group members. Ask each group to sketch a specific system or segment of the body within each body outline.

• "The Visible System"—Assign a body system to each group with instructions to create a presentation for the whole class on that system. Each group should be given the same guidelines and questions that must be answered within the presentation. Guidelines may include the following:

- Each group must make a visual representation of its system. Suggestions include a life-size cardboard cutout of a student labeled with that system's components. Another suggestion might include each group member making a cardboard or paper cutout of one of the organs or structures in that group's system and "wearing" it or taping it to their clothing in the appropriate place as the group presents its project to the class. Questions to consider include:
  - Which structures are found within this system?
  - How does each structure work independently? How does each structure interact with the other parts of this system?
  - Which other systems interact with this system? Describe at least one function that involves another system.

Medical terminology review: Distribute a body diagram drawn on an 8.5" × 11" piece of paper. With a prepared list of terms such as directional terms, have students write the number of the term on the corresponding area of the diagram. For example, one clue might read, "The patient has an injury to the distal end of the left radius. Place an *X* on this location of your body diagram." Prepare such statements for each term. Students can discuss the results with their groups, or this exercise can be reviewed as a whole-class activity.

Summary

A. This chapter covers human anatomy and the function of body systems. To understand the location of specific signs or symptoms, it is necessary to examine topographic anatomy.

B. The respiratory system consists of the lungs and the airway. This system functions to take in air through the airway and transport it to the lungs. In the lungs, red blood cells absorb the oxygen and release carbon dioxide so that this waste product can be expelled from the body.

C. The circulatory system consists of the heart (the pump), the blood vessels (the pipes), and blood (the fluid). Its role is to transport oxygenated blood to all parts of the body and to remove waste products, including carbon dioxide.

D. The skeletal system consists of the bones of the body. These bones function to provide support to the body, to protect vital structures, and to manufacture red blood cells.

E. The muscular system consists of three kinds of muscles: voluntary (skeletal) muscles, smooth (involuntary) muscles, and cardiac (heart) muscles. Muscles provide both support and movement. The skeletal system works with the muscular system to provide motion. Collectively, these two systems are called the musculoskeletal system.

F. The nervous system consists of the brain, the spinal cord, and individual nerves. The brain serves as the body's central computer, and the nerves transmit messages between the brain and the body.

G. The digestive system consists of the mouth, esophagus, stomach, intestines, liver, gallbladder, and pancreas. This system breaks down usable food for use by the body and eliminates solid waste.

H. The genitourinary system consists of the organs of reproduction together with the organs involved in the production and excretion of urine.

I. The skin covers all parts of the body. It protects the body from the environment, regulates the internal temperature of the body, and transmits sensations from the skin to the nervous system.

J. A basic understanding of the body systems provides you with the background you need to treat the illnesses and injuries you will encounter as an EMR.

K. An understanding of some of the changes that occur at different stages within the life cycle will help you understand and treat the wide variety of patients you will encounter.

L. Vital signs change at different points of the life cycle. You must understand these changes so that you will appreciate the differing values you encounter in patients of different ages.

Chapter 7
Airway Management

Unit Summary

After students complete this chapter and the related coursework, they will understand the need for proper airway management. Topics covered in airway management include recognizing adequate and inadequate breathing; maintaining an open airway; providing artificial ventilation; and understanding the use of airways, suction equipment, ventilation devices, and techniques for relieving airway obstruction.

National EMS Education Standard Competencies

Airway Management, Respiration, and Artificial Ventilation

Applies knowledge (fundamental depth, foundational breadth) of general anatomy and physiology to assure a patent airway, adequate mechanical ventilation, and respiration while awaiting additional emergency medical services (EMS) response for patients of all ages.

Airway Management

Within the scope of practice of the emergency medical responder (EMR):

- Airway anatomy (pp 108-109)
- Airway assessment (p 111)
- Techniques of ensuring a patent airway (pp 111-114)

Respiration

- Anatomy of the respiratory system (pp 108-110)
- Physiology and pathophysiology of respiration (pp 108-110)
    - Pulmonary ventilation (pp 108-109)
    - Oxygenation (pp 108-110)
    - Respiration (pp 108-110)
        - External (pp 108-110)
        - Internal (pp 108-110)
        - Cellular (pp 108-110)
- Assessment and management of adequate and inadequate respiration (p 119)
- Supplemental oxygen therapy (pp 132-134)

Artificial Ventilation

Assessment and management of adequate and inadequate ventilation

- Artificial ventilation (pp 119-127)
- Minute ventilation (pp 108-109)
- Alveolar ventilation (pp 108-109)
- Effect of artificial ventilation on cardiac output (pp 108-109)

Pathophysiology

Uses simple knowledge of shock and respiratory compromise to respond to life threats.

Medicine

Recognizes and manages life threats based on assessment findings of a patient with a medical emergency while awaiting additional emergency response.

Respiratory

Anatomy, signs, symptoms, and management of respiratory emergencies including those that affect the

- Upper airway (pp 119-132)
- Lower airway (pp 119-132)

CTE Standards

PS-ER:

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

Knowledge Objectives

1. Identify the anatomic structures of the respiratory system, including the function of each structure. (pp 108-110)
2. State the differences in the respiratory systems of infants, children, and adults. (p 110)
3. Explain how to check a patient's level of responsiveness. (p 111)
4. Describe how to perform the head tilt–chin lift maneuver. (p 111)
5. Describe how to perform the jaw-thrust maneuver. (pp 111-112)
6. Explain how to check for fluids, foreign bodies, or dentures in a patient's mouth. (p 112)
7. List the steps needed to clear a patient's airway using finger sweeps and suction. (pp 112-114)
8. Describe the steps required to maintain a patient's airway using the recovery position, oral airways, and nasal airways. (pp 114-117)
9. Describe the signs of adequate breathing, the signs of inadequate breathing, the causes of respiratory arrest, and the major signs of respiratory arrest. (p 119)
10. Describe how to check a patient for the presence of breathing. (p 119)
11. Describe how to perform rescue breathing using a mouth-to-mask device, a mouth-to-barrier device, mouth-to-mouth techniques, and a bag-valve mask. (pp 119-125)

12. List the steps for recognizing respiratory arrest and performing rescue breathing in infants, children, and adults. (pp 125-127)
13. Describe the differences between the signs and symptoms of a mild airway obstruction and those of a severe or complete airway obstruction. (pp 125-127)
14. List the steps in managing a foreign body airway obstruction in infants, children, and adults. (pp 128-132)
15. Describe the special considerations of airway care and rescue breathing in children and infants. (pp 126-127)
16. Describe the indications for using supplemental oxygen. (p 132)
17. Describe the equipment used to administer oxygen. (pp 132-133)
18. Describe the safety considerations and hazards of oxygen administration. (pp 133-134)
19. Explain the steps in administering supplemental oxygen to a patient. (pp 133-134)
20. Describe the function and operation of a pulse oximeter. (pp 134-135)
21. List the special considerations needed to perform rescue breathing in patients with stomas. (pp 135-136)
22. Define gastric distention. (p 136)
23. Describe the hazards that dental appliances present during the performance of airway skills. (p 136)
24. Describe the steps in providing airway care to a patient in a vehicle. (p 136)

Skills Objectives

1. Demonstrate how to check a patient's level of responsiveness. (p 111)
2. Demonstrate the head tilt–chin lift maneuver for opening blocked airways. (p 111)
3. Demonstrate the jaw-thrust maneuver for opening blocked airways. (pp 111-112)
4. Demonstrate how to check for fluids, solids, and dentures in a patient's airway. (p 112)
5. Demonstrate how to correct a blocked airway using finger sweeps and suction. (pp 112-114)
6. Demonstrate how to place a patient in the recovery position. (p 115)
7. Demonstrate the insertion of oral and nasal airways. (pp 115-117)
8. Demonstrate how to check for the presence of breathing. (p 119)

9. Demonstrate how to perform rescue breathing using a mouth-to-mask device, a mouth-to-barrier device, mouth-to-mouth, and a bag-valve mask. (pp 119-125)
10. Demonstrate the steps in recognizing respiratory arrest and performing rescue breathing on an adult, a child, and an infant. (pp 125-127)
11. Demonstrate the steps needed to remove a foreign body airway obstruction in an infant, a child, and an adult. (pp 128-132)
12. Demonstrate administration of supplemental oxygen using a nasal cannula and a nonrebreathing mask. (pp 133-134)
13. Demonstrate the operation of a pulse oximeter. (pp 134-135)
14. Demonstrate rescue breathing on a patient with a stoma. (pp 135-136)
15. Demonstrate airway management on a patient in a vehicle. (p 136)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*****, Sixth Edition,** Chapter 7, and all related presentation support materials.

• Instruct students to review respiratory system notes from Chapter 6, "The Human Body," to better prepare for reading Chapter 7, "Airway Management," and expanding on existing knowledge.

• Review the local protocols for airway management. In particular, note any specific equipment that may be mandated or prohibited locally.

• Review current airway management techniques and/or equipment presented in a locally approved cardiopulmonary resuscitation (CPR) training course.

• Review the most current CPR and emergency cardiovascular care (ECC) guidelines.

• Review operation of airway adjuncts, suction machines, and ventilation devices used in this chapter.

Support Materials

• Lecture PowerPoint presentation

• Skill Drill PowerPoint presentations

- Skill Drill 7-1, Clearing the Airway Using Finger Sweeps PowerPoint presentation
- Skill Drill 7-2, Inserting an Oral Airway PowerPoint presentation
- Skill Drill 7-3, Inserting a Nasal Airway PowerPoint presentation
- Skill Drill 7-4, Performing Mouth-to-Mask Rescue Breathing PowerPoint presentation

- Skill Drill 7-5, Performing Mouth-to-Barrier Rescue Breathing PowerPoint presentation
- Skill Drill 7-6, Using a BVM With One Rescuer PowerPoint presentation
- Skill Drill 7-7, Performing Infant Rescue Breathing PowerPoint presentation
- Skill Drill 7-8, Managing Airway Obstruction in a Conscious Patient PowerPoint presentation

• Airway training manikins (adult, child, and infant)

• Assorted airways (oral/nasal, adult/pediatric) and lubricant

• Rescue breathing devices

• Suctioning unit and assorted catheters

• EMR life support kit

• Skill Evaluation Sheets

- Skill Drill 7-1, Clearing the Airway Using Finger Sweeps
- Skill Drill 7-2, Inserting an Oral Airway
- Skill Drill 7-3, Inserting a Nasal Airway
- Skill Drill 7-4, Performing Mouth-to-Mask Rescue Breathing
- Skill Drill 7-5, Performing Mouth-to-Barrier Rescue Breathing
- Skill Drill 7-6, Using a BVM With One Rescuer
- Skill Drill 7-7, Performing Infant Rescue Breathing
- Skill Drill 7-8, Managing Airway Obstruction in a Conscious Patient

Unit Activities

Writing assignments

• Assign students a brief respiratory assessment of a fictitious patient and have each student write a short scenario of the situation leading to this breathing problem. Include such facts as respiratory rate, depth, and any additional sounds (or absence of sounds). Keep in mind that students will learn more about respiratory emergencies in subsequent chapters. Your provided information might, for example, include the following statements: “A 35-year-old man is found in a restaurant with inadequate, weak breathing. His lips are blue and he is lethargic.” Student responses might vary from “He was eating shrimp and is now having an allergic reaction” to “He was eating a piece of bread and now has an obstructed airway.” Have students make a possible list of clues to look for to aid in the diagnosis and treatment.

Student presentations: Ask students to give a presentation to the class on each airway adjunct, describing its use, indications, and contraindications.

Group activities: Have students work in teams of four. Provide each student group with a manikin and airway equipment, including various sizes of oral and nasal airways, oxygen tubing, masks, a bag-valve mask, a pocket mask, and an oxygen regulator and tank. One student in each group is the blindfolded provider, and another student is the helper. The manikin is the patient. The remaining members of the group act as observers to evaluate the effectiveness of the blindfolded provider's treatment. The blindfolded provider must approach the manikin and check for breathing. The helper informs the provider, "The patient (manikin) is not breathing." The blindfolded provider must measure, select, and properly insert an oropharyngeal airway, assemble the bag-valve mask, and provide adequate ventilations. Upon completion of 2 minutes of effective ventilation, the blindfolded provider should demonstrate proper removal of the oropharyngeal airway. Allow each student a turn at being the blindfolded provider.

Medical terminology review:

• Give students a handout of airway anatomy, and instruct them to label each portion of the airway and to relate its importance.

• After students complete the reading, evenly divide the words/terms from the chapter vocabulary and any student-generated terminology lists among student groups. Ask each group to devise a way to remember the words; examples might include making index cards, a crossword puzzle, or cards with the word and a diagram to link understanding to the word or term.

Summary

A. The main purpose of the respiratory system is to provide oxygen and to remove carbon dioxide from the red blood cells as they pass through the lungs. The structures of the respiratory system in children and infants are smaller than the corresponding structures in adults. As a consequence, the air passages of children and infants may be more easily blocked by secretions or by foreign objects.

B. When a patient experiences possible respiratory arrest, check for responsiveness; open the blocked airway using the head tilt–chin lift or jaw-thrust maneuver; check for fluids, solids, or dentures in the mouth; and correct the airway, if needed, using finger sweeps or suction.

C. Maintain the airway by continuing to manually hold the airway open, by placing the patient in the recovery position, or by inserting an oral or a nasal airway. Check for breathing by looking, listening, and feeling for air movement, and correct any problems by using a mouth-to-mask or mouth-to-barrier device, by using a bag-valve mask, or by performing mouth-to-mouth rescue breathing. It is important to use the correct sequence for adults, children, and infants.

D. If the airway is obstructed in a conscious adult or child, kneel or stand behind the patient and perform the Heimlich maneuver. Give abdominal thrusts until the obstruction is relieved or the patient becomes unconscious. For an unconscious adult or child with an airway obstruction, perform chest compressions. Move to the head, open the airway, and look in the patient's mouth. Do not perform a finger sweep—regardless

of the patient's age—unless you can see the object. Attempt rescue breathing. If the airway is still obstructed, repeat chest compressions, visualization of the mouth, and ventilation attempts until the obstruction is relieved.

E. Administering supplemental oxygen to patients who show signs and symptoms of shock increases the amount of oxygen delivered to the cells of the body and often makes a positive difference in the patient's outcome. Patients who have experienced a heart attack or stroke or patients who have chronic heart or lung disease may also benefit from receiving supplemental oxygen.

F. Pulse oximetry is used to assess the amount of oxygen saturated in the red blood cells.

Chapter 8
Professional Rescuer CPR

Unit Summary

After students complete this chapter and the related coursework, they will understand the basic life support procedures for adults, children, and infants.

National EMS Education Standard Competencies

Shock and Resuscitation

Uses assessment information to recognize shock, respiratory failure or arrest, and cardiac arrest based on assessment findings and manages the emergency while awaiting additional emergency response.

Assessment

Uses scene information and simple patient assessment findings to identify and manage immediate life threats and injuries within the scope of practice of the emergency medical responders (EMR).

Primary Assessment

- Primary assessment for all patient situations (p 144)
    - Level of consciousness (p 146; p 149)
    - Airway, breathing, and circulation (ABCs) (pp 144-145)

- Identifying life threats (p 144)

- Assessment of vital functions (pp 144-145)
- Begin interventions needed to preserve life (p 144)

Anatomy and Physiology

Uses simple knowledge of the anatomy and function of the upper airway, heart, vessels, blood, lungs, skin, muscles, and bones as the foundation of emergency care.

Pathophysiology

Uses simple knowledge of shock and respiratory compromise to respond to life threats.

CTE Standards

PS-ER:

B4.6 Complete certification in emergency care as appropriate—for example, cardiopulmonary resuscitation (CPR), automated external defibrillator (AED), and first aid

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

Knowledge Objectives

1. Describe the anatomy and function of the circulatory system. (pp 142-144)
2. Describe some of the causes of cardiac arrest. (p 144)
3. Describe the components of cardiopulmonary resuscitation (CPR). (pp 144-145)
4. List the five links in the cardiac chain of survival. (p 145)
5. Describe the conditions under which emergency medical responders (EMRs) should start and stop CPR. (pp 145-146)
6. Describe how to perform the techniques of external chest compressions on the following patients:
    - Adults (pp 144-148)
    - Infants (p 148)
    - Children (p 149)
7. Explain the steps in performing one-rescuer adult CPR. (pp 149-151)

8. Explain the steps in performing two-rescuer adult CPR. (pp 151-153)
9. Describe how to switch rescuer positions during two-rescuer adult CPR. (p 153)
10. Explain the steps in performing one-rescuer infant CPR. (pp 153-154)
11. Explain the steps in performing two-rescuer infant CPR. (p 155)
12. Explain the steps of child CPR. (pp 155-156)
13. List the four signs of effective CPR. (p 156)
14. Describe the complications of performing CPR (pp 156-157)
15. Explain the importance of creating sufficient space to perform CPR. (p 157; p 159)
16. Describe the indications for the use of automated external defibrillation by EMRs. (p 159)
17. Explain the steps in performing automatic external defibrillation. (pp 159-161)
18. Explain the importance of CPR training. (p 162)
19. Discuss the legal implications of performing CPR. (p 162)

Skills Objectives

1. Demonstrate chest compressions on an adult. (pp 146-148)
2. Demonstrate chest compressions on an infant. (p 148)
3. Demonstrate chest compressions on a child. (p 149)
4. Demonstrate one-rescuer adult CPR. (pp 149-151)
5. Demonstrate two-rescuer adult CPR. (pp 151-153)
6. Demonstrate how to switch rescuer positions during two-rescuer adult CPR. (p 153)
7. Demonstrate one-rescuer infant CPR. (pp 153-154)
8. Demonstrate two-rescuer infant CPR. (p 155)
9. Demonstrate child CPR. (pp 156-157)
10. Demonstrate creating sufficient space to perform CPR. (p 157; p 159)
11. Demonstrate automated external defibrillation. (pp 159-161)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder,*** **Sixth Edition,** Chapter 8, and all related presentation support materials.

• Review current American Heart Association standards for basic life support (CPR) for adults, children, and infants.

• Review local protocols for automated external defibrillator (AED) training and authorization and locally approved equipment.

Support Materials

• Lecture PowerPoint presentation

• Skill Drill PowerPoint presentations

- Skill Drill 8-1, Performing Adult Chest Compressions PowerPoint presentation
- Skill Drill 8-2, Performing One-Rescuer Adult CPR PowerPoint presentation
- Skill Drill 8-3, Performing Two-Rescuer Adult CPR PowerPoint presentation
- Skill Drill 8-4, Procedure for Automated External Defibrillation PowerPoint presentation
- Skill Drill Performing One-Rescuer Infant CPR PowerPoint presentation

• Personal protective equipment (eg, gloves, masks)

• EMR life support kit

• CPR manikins (adult, child, infant)

• AEDs approved for use in local area

• Rescue breathing devices

• Suction equipment

• Local and state statutes, regulations, or policies related to automated defibrillation

• Skill Evaluation Sheets

- Skill Drill 8-1, Performing Adult Chest Compressions
- Skill Drill 8-2, Performing One-Rescuer Adult CPR
- Skill Drill 8-3, Performing Two-Rescuer Adult CPR
- Skill Drill 8-4, Procedure for Automated External Defibrillation
- Skill Drill Performing One-Rescuer Infant CPR

Unit Activities

Writing assignments: Assign students to complete a research paper on the topic of different techniques while performing CPR on an adult, a child, and an infant.

Student presentations: Ask students to give a presentation to the class discussing one link in the cardiac chain of survival.

Group activities: Ask each group to develop a cardiac arrest scenario and practice the management for their scenario.

Summary

A. The circulatory system transports oxygenated blood from the lungs to the rest of the body. Each beat of the heart produces a pulse, which can be felt at various sites on the body, such as the inside of the wrist (radial), the neck (carotid), the inside of the upper arm (brachial), and the groin (femoral).

B. Cardiac arrest occurs when the heart stops contracting and no blood is pumped through the blood vessels. Brain damage begins within 4 to 6 minutes after the patient has experienced cardiac arrest. Within 8 to 10 minutes, the damage to the brain may become irreversible.

C. The chain of survival—recognition/activation of EMS, immediate high-quality CPR, rapid defibrillation, basic and advanced EMS, ALS and postarrest care—includes steps essential to successful emergency cardiac care.

D. When you arrive at an emergency scene, you must first assess the area for potential safety hazards. If the scene is unsafe, make it as safe as possible for yourself and the patient. As you approach the patient, look for possible causes of illness or injury. Next, assess the patient by checking responsiveness and CAB:

1. Circulation
2. Airway
3. Breathing

E. If the patient is not breathing, you must breathe for him or her. Check for a pulse. If it is absent, begin CPR.

F. Basic life support for adults and children follows the same general steps: Check responsiveness, airway, breathing, and circulation. Intervene at any point where the patient's airway is obstructed, the patient is not breathing, or the patient has no circulation.

G. Use the jaw-thrust maneuver to open the airway if you suspect a spinal injury and the head tilt–chin lift maneuver if you do not suspect a spinal injury.

H. Rescue breathing should be performed at a rate of one breath every 5 to 6 seconds (10 to 12 breaths per minute) for adults and one breath every 3 to 5 seconds (12 to 20 breaths per minute) for children and infants.

I. Chest compressions should be performed at a rate of 100-120 compressions per minute for adults and children. Perform 30 compressions and two breaths for adults and for all one-rescuer CPR. Perform 15 compressions and two breaths for two-rescuer child CPR.

J. Basic life support for infants is similar to that provided for adults and children. The techniques may vary somewhat, but the same general steps apply: Check responsiveness, airway, breathing, and circulation. Intervene at any point if the infant's airway is obstructed or if the infant is not breathing.

K. Open an infant's airway by using the head tilt–chin lift maneuver if you do not suspect a spinal injury. Be careful not to hyperextend the neck; this could obstruct the airway.

If the infant is not breathing, provide two initial breaths. If these breaths produce visible chest rise, check for a brachial pulse.

L. If an infant does not have a pulse, or if the pulse rate is less than 60 beats per minute with poor perfusion (circulation), begin CPR. If you are alone, use two fingers to compress the chest 30 times, at a rate of 100-120 compressions per minute, to a depth equal to at least one third the depth of the chest. After 30 compressions, give two breaths. If two rescuers are present, use the two-thumb technique with the hands encircling the chest and provide 15 compressions to two breaths.

M. The single most important cardiac arrest survival factor is early defibrillation. The indications for using an AED are that the patient is unresponsive, not breathing, and pulseless.

N. Once turned on and attached to the patient's bare chest, the AED will analyze the heart rhythm and advise whether a shock is indicated. If a shock is advised, ensure that no one is touching the patient, deliver the shock, and immediately perform CPR for 2 minutes before reanalyzing the patient's rhythm. If no shock is advised, perform CPR for 2 minutes and then reanalyze the patient's rhythm. Continue CPR and rhythm analysis until ALS personnel arrive.

Chapter 9
Patient Assessment

Unit Summary

After students complete this chapter and the related coursework, they will understand the scope, sequence, and phases of patient assessment. This chapter is divided into five sections: Scene size-up, initial assessment, physical examination, Patient's medical history, and ongoing assessment. Mastery of the skills in this chapter is essential to provide a foundation for learning subsequent skills presented in this book.

National EMS Education Standard Competencies

Assessment

Use scene information and simple patient assessment findings to identify and manage immediate life threats and injuries within the scope and practice of the emergency medical responder (EMR).

Scene Size-Up

- Scene safety (p 172)
- Scene management (pp 172-173)
    - Impact of the environment on patient care (p 172)

- Addressing hazards (pp 172-173)
- Violence (p 172)
- Need for additional or specialized resources (p 173)
- Standard precautions (p 173)

Primary Assessment

• Primary assessment for all patient situations (pp 174-177)
- Level of consciousness (p 175)
- ABCs (pp 175-177)
- Identifying life threats (pp 175-177)
- Assessment of vital functions (pp 176-177)

• Begin interventions needed to preserve life (pp 176-177)

History Taking

• Determining the chief complaint (pp 178-179)

• Mechanism of injury (MOI)/nature of illness (NOI)(pp 172-173)

• Associated signs and symptoms (pp 178-179)

Secondary Assessment

• Performing a rapid full-body scan (pp 181-187)

• Focused assessment of pain (p 187)

• Assessment of vital signs (pp 187-191)

Reassessment

• How and when to reassess patients (pp 192-193)

CTE Standards

PS-ER:

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

B9.2 Know the common acronyms used in fire and emergency services

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

B9.4 Follow instructions for immediate care procedure as transmitted by an emergency medical dispatcher during transport

B9.5 Demonstrate administration of a limited number of drugs appropriate to the scope of practice

B9.6 Manage an incident scene as the first responder, using emergency response skills appropriate to training and certification

B9.7 Execute protocols in emergency management response when working with an on-scene accident

B9.8 Demonstrate the ability to assess the nature and extent of an illness or injury to establish and prioritize medical response

B9.9 Communicate with treatment-center staff to arrange reception of victims and to get instructions for further treatment

B9.10 Demonstrate the ability to receive and provide patient-care information to other medical providers

B9.11 Describe the function of emergency vehicles, use of medical and communication equipment, and the necessity of maintaining inventory as required for emergency services practices and procedures

Knowledge Objectives

1. Discuss the importance of each of the following steps in the patient assessment sequence:
    - Step 1. Scene size-up (pp 171-173)
    - Step 2. Primary assessment (pp 174-177)
    - Step 3. History taking (pp 178-180)
    - Step 4. Secondary assessment (pp 181-191)
    - Step 5. Reassessment (pp 192-193)
2. Discuss the components of a scene size-up. (pp 171-173)
3. Explain why it is important to get an idea of the number of patients at an emergency scene as soon as possible. (p 173)
4. List and describe the importance of the following steps of the primary assessment:
    - Forming a general impression of the patient (p 174)
    - Determining the patient's level of responsiveness (p 175)
    - Performing a rapid scan, including
        - Assessing the patient's airway (p 176)
        - Assessing the patient's breathing (p 176)

- Assessing the patient's circulation (pp 176-177)
- Updating responding emergency medical services (EMS) units (p 177)

5. Describe the differences in checking airway, breathing, and circulation when the patient is an adult, a child, or an infant. (pp 176-177)
6. Explain the purpose for obtaining a patient's medical history. (p 178)
7. Discuss the SAMPLE approach to obtaining a patient's medical history. (pp 179-180)
8. Explain the difference between a sign and a symptom. (p 181)
9. Describe the sequence used to perform a secondary assessment of the entire body. (p 182)
10. List the areas of the body that should be examined during the secondary assessment. (pp 182-187)
11. Explain the significance of the following signs: respiration, circulation, blood pressure, skin condition, pupil size and reactivity, and level of consciousness. (pp 187-191)
12. List the information that should be obtained during reassessment. (pp 192-193)
13. List the information about the patient's condition that should be addressed in your hand-off report. (p 193)
14. Explain the differences between performing a patient assessment on a medical patient and performing one on a trauma patient. (p 195)

Skills Objectives

1. Demonstrate the following five steps of the patient assessment sequence:
   a. Step 1. Scene size-up (pp 171-173)
   b. Step 2. Primary assessment, including
      i. Forming a general impression of the patient (p 174)
      ii. Assessing the patient's level of responsiveness (p 175)
      iii. Assessing the patient's airway (p 176)
      iv. Assessing the patient's breathing (p 176)
      v. Assessing the patient's circulation (including severe bleeding) (pp 176-177)
      vi. Updating responding EMS units (p 177)
   c. Step 3. Obtaining the patient's medical history using the SAMPLE format (pp 179-180)
   d. Step 4. Performing a secondary assessment, including
      i. Performing a secondary assessment of the entire body (pp 182-187)

ii. Identifying and measuring a patient's vital signs (pp 187-191)

e. Step 5. Performing an ongoing reassessment (pp 192-193)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*, Sixth Edition,** Chapter 9, and all related presentation support materials.

• Review any local protocols on patient assessment for EMR personnel.

• Practice your own assessment skills, paying particular attention to the DOT (stands for deformities, open wounds, tenderness and swelling) progression, prior to teaching this lesson.

• This EMS1 web site includes an article written by Brian Potter on patient assessment for new providers:

- www.ems1.com/ems-products/education/articles/507226-Patient-Assessment-Tips-from-the-Field-for-NewProviders/

Support Materials

• Lecture PowerPoint presentation

• Skill Drill PowerPoint presentations

- Skill Drill 9-1, Performing a Secondary Assessment PowerPoint presentation

• Equipment needed to perform the psychomotor skills presented in this chapter.

• Patient assessment template from the beginning of Chapter 8 of the text (several copies)

• Skill Evaluation Sheets

- Skill Drill 9-1, Performing a Secondary Assessment

Unit Activities

Writing assignments: Distribute a patient assessment template to each student and assign him or her a specific medical condition or trauma scenario. Students will then need to research the assigned condition and fill out the assessment with appropriate findings one would expect with such a patient. Collect the completed templates, review them, and use them for the activity described in the group activities section.

Student presentations: As an alternative to the written assignment, distribute completed assessment scenarios, one to each student group, allowing each group a few minutes to discuss roles and approach. Groups will then take turns presenting their scenarios to the class. The observing students will use blank templates to evaluate the thoroughness of the assessment of each presenting group. Stress the importance of constructive comments only, and ask students to hold all comments until the scenario is completed.

Group activities: Prepare several manikins (one for each group) ahead of time by dressing them in old (unwanted) clothing *after* securing various index cards to the body indicating injuries and/or assessment findings. Write each finding on a separate card, fold it, number it in order of required discovery, and tape it in place. Dress the manikin, covering as many of the cards as is reasonable. Students must "discover" each symptom or sign as they perform the assessment. Students may not take clues out of order even if they are visualized. Also, students may not take clues without completing that part of the assessment in which the findings would be expected to be discovered. For example, if the student does not verbalize or perform auscultation of lung sounds, he or she should not be allowed to take the index card indicating lung sound findings. Be sure to place the cards on body parts that would necessitate log roll or exposure to find them.

Medical terminology review: Prepare a patient assessment narrative ahead of time using longer descriptive definitions in place of correct medical terminology. Distribute the narrative to student groups for a timed exercise in which they need to replace the definitions with correct medical terminology. For example, the assessment narrative might state, "While examining the patient, a grinding, grating sensation was palpated over the proximal tibia" or "The delicate membrane that lines the patient's eyelids was found to be very pale." Underlined words must be replaced with the correct terminology (ie, *crepitus* and *conjunctiva,* respectively).

Visual thinking:

• Have students create a life-size "patient" by outlining a team member using several large pieces of poster paper. Assign a disease or trauma scenario to each group, and have the team display the picture of their patient on the wall. Each group should label its patient's signs and symptoms in the proper body location. Students can add to these posters as they learn more about each condition in subsequent lessons.

• Collect several photos of accident scenes, interiors of homes, large events, and so forth from the Internet or other source. Arrange the photos in a PowerPoint presentation. Have students write down scene hazards, possible MOI/NOI, and their general impression for each photo. Display each photo for a limited amount of time (10–20 seconds). Discuss the findings and importance of good observation skills.

Summary

A. A complete patient assessment consists of five steps: perform a scene size-up, perform a primary assessment, obtain a patient's medical history, perform a secondary assessment, and provide reassessment.

B. The scene size-up is a general overview of the incident and its surroundings. On the basis of this information, you can make decisions about the safety of the scene, the type of incident, the mechanism of injury or illness, the number of patients, and the need for additional resources.

C. During the primary assessment, determine and correct any life-threatening conditions. The steps of the primary assessment are to form a general impression of the patient,

assess responsiveness, and perform a rapid scan that consists of checking and correcting problems with the patient's airway, breathing, and circulation. Finally, update responding EMS units.

D. The purpose of obtaining a medical history is to gather a systematic account of the patient's past medical conditions, illnesses, and injuries to determine the signs and symptoms attributable to the current condition. The SAMPLE history provides a framework to ask further questions of the patient.

E. The secondary assessment of the patient consists of a secondary assessment of the entire body used to assess non–life-threatening conditions. It is done only after completing the primary assessment and stabilizing any life-threatening conditions. This assessment helps you locate and begin management of the signs and symptoms of illness or injury. After completing the secondary assessment of the entire body, assess the patient's vital signs.

F. Watch all patients carefully for changes in their status. If the patient is stable, repeat the vital signs every 15 minutes. If the patient is unstable, repeat the vital signs every 5 minutes. If the patient's condition changes, repeat the primary assessment and identify any changes in the patient's condition.

G. Provide a concise and accurate hand-off report to EMS personnel.

H. Patients can generally be classified into two main categories: medical and trauma. When examining medical patients, follow the patient assessment sequence:

1. Size-up the scene.
2. Perform a primary assessment.
3. Obtain the patient's medical history using the SAMPLE format.
4. Perform a secondary assessment. Examine the patient from head to toe and assess vital signs.
5. Provide ongoing reassessment.

I. When examining trauma patients, perform the secondary assessment before obtaining the patient's medical history.

Chapter 10
Medical Emergencies

Unit Summary

After students complete this chapter and the related coursework, they will know the signs and symptoms of medical emergencies they are likely to encounter in the field, including altered mental status (AMS), seizures, heat and cold emergencies, cardiac emergencies, respiratory emergencies, stroke, diabetic emergencies, and acute abdomen. Students will also know the appropriate treatments for patients suffering from these conditions.

National EMS Education Standard Competencies

Medicine

Recognizes and manages life threats based on assessment findings of a patient with a medical emergency while awaiting additional emergency response.

Medical Overview

Assessment and management of a

• Medical complaint (pp 203-204)

Neurology

Anatomy, presentations, and management of

• Decreased level of responsiveness (p 204)

• Seizure (pp 204-206)

• Stroke (pp 210-211)

Abdominal and Gastrointestinal Disorders

Anatomy, presentations, and management of shock associated with abdominal emergencies

• Gastrointestinal bleeding (pp 214-215)

Endocrine Disorders

Awareness that

• Diabetic emergencies cause altered mental status (AMS) (pp 213-214)

Cardiovascular

Anatomy, signs, symptoms, and management of

• Chest pain (p 207)

• Cardiac arrest (pp 207-209)

Respiratory

Anatomy, signs, symptoms, and management of respiratory emergencies including those that affect the

• Upper airway (Chapter 7, *Airway Management*)

• Lower airway (pp 209-210)

Genitourinary/Renal

• Blood pressure assessment in hemodialysis patients (p 215)

CTE Standards

PS-ER:

PS-ER:

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

B9.2 Know the common acronyms used in fire and emergency services

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

B9.4 Follow instructions for immediate care procedure as transmitted by an emergency medical dispatcher during transport

B9.5 Demonstrate administration of a limited number of drugs appropriate to the scope of practice

B9.6 Manage an incident scene as the first responder, using emergency response skills appropriate to training and certification

B9.7 Execute protocols in emergency management response when working with an on-scene accident

B9.8 Demonstrate the ability to assess the nature and extent of an illness or injury to establish and prioritize medical response

B9.9 Communicate with treatment-center staff to arrange reception of victims and to get instructions for further treatment

B9.10 Demonstrate the ability to receive and provide patient-care information to other medical providers

B9.11 Describe the function of emergency vehicles, use of medical and communication equipment, and the necessity of maintaining inventory as required for emergency services practices and procedures

Knowledge Objectives

1. Describe the general approach to a medical patient. (p 203)
2. Explain the causes, signs, symptoms, and treatment of a patient with AMS. (p 204)
3. Explain the causes, signs, symptoms, and treatment of a patient with seizures. (pp 204-206)
4. Describe how to place an unconscious patient in the recovery position. (p 205)
5. Explain the causes of angina pectoris. (p 207)
6. Describe the signs, symptoms, and initial treatment of a patient with angina pectoris. (p 207)
7. Describe how to assist a patient with administering his or her nitroglycerin pills or spray. (p 207)
8. Explain the major causes of a heart attack. (p 207)
9. Describe the signs, symptoms, and initial treatment of a patient with a heart attack. (pp 207-209)
10. Explain the cause of congestive heart failure. (p 209)
11. Describe the signs, symptoms, and initial treatment of a patient with congestive heart failure. (pp 209-210)
12. Explain the causes of dyspnea. (p 210)
13. Describe the signs, symptoms, and initial treatment of a patient with dyspnea. (p 210)
14. Explain the causes of asthma. (p 210)
15. Describe the signs, symptoms, and initial treatment of a patient experiencing an asthma attack. (p 210)
16. Explain the major cause of a stroke. (p 211)
17. Describe the signs, symptoms, and initial treatment of a patient with a stroke. (p 211)
18. Explain the use of the Cincinnati Prehospital Stroke Scale as a stroke assessment tool. (p 211)
19. Explain the causes of diabetes. (p 213)
20. Describe the signs and symptoms of hypoglycemia. (p 213)
21. Describe the initial treatment of a patient with hypoglycemia. (p 213)

22. Describe the signs and symptoms of a patient in a diabetic coma. (p 214)
23. Describe the initial treatment of a patient in a diabetic coma. (p 214)
24. Describe the causes, signs, and symptoms of an abdominal condition. (pp 214-215)
25. Describe the initial treatment of a patient with abdominal pain. (p 215)
26. Explain how to measure blood pressure in a dialysis patient. (p 215)
27. Discuss potential complications for dialysis patients. (p 215)

Skills Objectives

1. Demonstrate a patient assessment on a medical patient. (pp 203-204)
2. Demonstrate placing an unconscious patient in the recovery position. (p 205)
3. Demonstrate how to protect a patient who is seizing from sustaining further harm. (p 206)
4. Demonstrate how to assist a patient with administering his or her nitroglycerin pills or spray. (p 207)
5. Demonstrate how to support a patient experiencing a heart attack. (p 208)
6. Demonstrate care of a patient with congestive heart failure. (pp 209-210)
7. Demonstrate the steps to treat a patient with dyspnea. (p 210)
8. Demonstrate the use of the Cincinnati Prehospital Stroke Scale as a stroke assessment tool. (p 211)
9. Demonstrate treatment of a patient with hypoglycemia. (p 213)
10. Demonstrate treatment of a patient in a diabetic coma. (p 214)
11. Demonstrate treatment of a patient with abdominal pain. (p 215)
12. Demonstrate how to measure blood pressure in a dialysis patient. (p 215)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*****, Sixth Edition,** Chapter 10, and all related presentation support materials.

• Review any local protocols on treatment of medical emergencies.

Support Materials

• Lecture PowerPoint presentation

• Samples of oral glucose containers and nitroglycerin tablets and spray for examination and practice

Unit Activities

Writing assignments: Assign students to research diabetes, stroke, and/or dyspnea in more detail. Ask students to write three to four paragraphs on what they find during research.

Student presentations: Set up scenarios in which students present with some of the medical emergencies covered in this chapter, including the appropriate vital signs and SAMPLE history, and ask other students to interview and treat the patient correctly. Their role will be similar to that of a detective trying to solve a mystery!

Group activities: Form groups and assign each group a type of medical emergency (eg, respiratory, cardiovascular, neurologic). Ask each group to provide examples of conditions that fall under their type of medical emergency. For example, if the type of medical emergency is "respiratory," conditions may include asthma and chronic bronchitis.

Medical terminology review: Ask students to define a medical emergency and describe how it differs from a trauma emergency.

Summary

A. General medical conditions may have different causes, yet result in similar signs and symptoms. EMRs who are skilled at recognizing the signs and symptoms of various general medical conditions and knowledgeable about general treatment guidelines will be able to provide immediate care for patients even if they cannot determine the exact cause of the problems.

B. With a patient who has a general medical complaint, follow the systematic patient assessment sequence. Usually, it is best to collect a medical history—using the SAMPLE format—on the patient experiencing a medical problem before you perform a physical examination.

C. AMS is a sudden or gradual decrease in level of responsiveness. When assessing AMS in a patient, use the AVPU scale. You should complete the patient assessment sequence to ensure scene safety and proper assessment. Initial treatment seeks to maintain the patient's ABCs and normal body temperature and to keep the patient from incurring any additional harm. If the patient is unconscious and has not sustained trauma, place the patient in the recovery position or use an airway adjunct to help maintain an open airway.

D. Seizures are caused by sudden episodes of uncontrolled electrical impulses in the brain. Usually, the seizure will be over by the time you arrive at the scene. If it has not ended, focus on protecting the patient from injury. Do not restrain the patient's movements. Once the seizure has stopped, ensure that the patient has an open airway. You can then place the patient in the recovery position and arrange for transport to an appropriate medical facility.

E. Some specific medical conditions typically encountered by the EMR include angina pectoris, heart attack, congestive heart failure, dyspnea, stroke, hypoglycemia, diabetic coma, and abdominal pain. By learning the causes and knowing the signs and

symptoms of these conditions, you may be able to provide more specific care for the patient. Although these conditions must be diagnosed and treated by a physician, you can greatly improve the patient's chances of survival by taking some simple actions until more highly trained EMS personnel arrive on the scene to assist you.

Chapter 11
Poisoning and Substance Abuse

Unit Summary

After students complete this chapter and the related coursework, they will be familiar with various poisoning emergencies, including those caused by ingested, inhaled, absorbed, and injected poisons, as well as the assessment and treatment for poisoning emergencies.

National EMS Education Standard Competencies

Medicine

Recognizes and manages life threats based on assessment findings of a patient with a medical emergency while awaiting additional emergency response.

Toxicology

Recognition and management of

• Carbon monoxide poisoning (pp 223-225)

• Nerve agent poisoning (p 228; 230)

How and when to contact a poison control center (pp 222-223; p 228)

Immunology

Recognition and management of shock and difficulty breathing related to

• Anaphylactic reactions (pp 225-227)

Pharmacology

Uses simple knowledge of the medications so that the EMR may self-administer or administer to a peer in an emergency.

Medication Administration

Within the scope of practice of the EMR, how to

• Self-administer medication (p 223; pp 225-228; pp 231-233)

• Peer-administer medication (p 223; pp 225-228; pp 231-233)

Emergency Medications

Within the scope and practice of the EMR

• Names (p 223; pp 225-228; pp 231-233)

• Effects (p 223; pp 225-228; pp 231-233)

• Indications (p 223; pp 225-228; pp 231-233)

• Routes of administration (p 223; pp 225-228; pp 231-233)

• Dosages for the medication administered (p 223; pp 225-228; pp 231-233)

CTE Standards

PS-ER:

PS-ER:

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

B9.2 Know the common acronyms used in fire and emergency services

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

B9.4 Follow instructions for immediate care procedure as transmitted by an emergency medical dispatcher during transport

B9.5 Demonstrate administration of a limited number of drugs appropriate to the scope of practice

B9.6 Manage an incident scene as the first responder, using emergency response skills appropriate to training and certification

B9.7 Execute protocols in emergency management response when working with an on-scene accident

B9.8 Demonstrate the ability to assess the nature and extent of an illness or injury to establish and prioritize medical response

B9.9 Communicate with treatment-center staff to arrange reception of victims and to get instructions for further treatment

B9.10 Demonstrate the ability to receive and provide patient-care information to other medical providers

HS-PC:

B2.1 Know basic human body structure and function in relationship to specific care between prevention, diagnosis, pathology, and treatment

B2.3 Recognize common disease and disorders of the human body

B2.4 Compare normal function of the human body to the diagnosis and treatment of disease and disorders

Knowledge Objectives

1. Define poison. (p 221)
2. Describe the signs and symptoms of ingested poisons. (p 222)
3. Explain how to treat a patient who has ingested a poison. (pp 222-223)
4. Describe the signs and symptoms of inhaled poisons. (p 224)
5. Explain how to treat a patient who has inhaled a poison. (p 225)
6. Describe the signs and symptoms of injected poisons. (p 226)
7. Explain how to treat a patient who has been injected with a poison. (pp 226-227)
8. Explain how to assist a patient with an auto-injector. (p 226)
9. Describe the signs and symptoms of absorbed poisons. (p 228)
10. Explain how to treat a patient who has absorbed a poison. (p 228)
11. Describe how to brush off a dry chemical from a patient and then flush with water. (p 228)
12. Describe how to use water to flush a patient who has come in contact with liquid poison. (p 228)
13. Describe the signs and symptom of exposure to a nerve agent. (p 228)
14. Describe the role of emergency medical responders (EMRs) in an incident involving exposure to a nerve agent. (p 228)
15. Explain how to administer a nerve agent auto-injector kit. (p 230)
16. Describe the signs and symptoms of a drug overdose caused by amphetamines, opioids, hallucinogens, and inhalants. (pp 231-232)
17. Explain the general treatment of a patient who has experienced a drug overdose. (p 223)
18. Explain how to administer intranasal naloxone for an opioid overdose. (pp 231-232)

Skills Objectives

1. Demonstrate treatment of a patient who has ingested a poison. (pp 222-223)

2. Demonstrate treatment of a patient who has inhaled a poison. (p 225)
3. Demonstrate treatment of a patient who has been injected with poison. (pp 226-227)
4. Demonstrate how to assist a patient with an auto-injector. (p 227)
5. Demonstrate treatment of a patient who has absorbed a poison. (p 228)
6. Demonstrate how to brush off a dry chemical from a patient and then flush with water. (p 228)
7. Demonstrate how to use water to flush a patient who has come in contact with liquid poison. (p 228)
8. Demonstrate administration of nerve agent auto-injector kits. (p 228)
9. Demonstrate treatment of a patient who has experienced a drug overdose. (p 233)
10. Demonstrate administration of intranasal naloxone for an opioid overdose. (pp 231-232)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*****,** Sixth Edition**,** Chapter 11, and all related presentation support materials.

• Review local EMT treatment protocols for the emergency care of patients with poisoning and overdose.

Support Materials

• Lecture PowerPoint presentation

• Examples of various forms of unit doses of activated charcoal

• Poison control stickers and brochures

• Local toxicology guidelines and protocols for administration of activated charcoal and various forms of unit doses of activated charcoal

• EpiPen trainer

Unit Activities

Writing assignments: Assign each student the name of a specific street drug to research and write a short essay about, including the category of the drug, the common effects, and so on.

Group activities: Create a "game show," such as *Jeopardy*, using questions and answers pertinent to the chapter. Divide the class into two teams and engage in a friendly competition.

Medical terminology review: Create flash cards with pertinent terminology. Divide the class into groups of three or four and have the students quiz one another using the flash cards.

Visual thinking: Create blank charts titled “opioids,” “sedative-hypnotic drugs,” and so on. Write the names of specific drugs on strips of paper, turn the strips face-down, and mix them up. Have each student choose a strip of paper and attach it to the appropriately titled chart.

Summary

A. EMRs should be familiar with the signs, symptoms, and treatment of patients who have experienced accidental or intentional poisoning.

B. The four primary routes by which poisons enter the body are ingestion, inhalation, injection, and absorption.

C. An ingested poison is taken by mouth. Often, chemical burns, odors, or stains are found around the mouth. The person may also experience nausea, vomiting, abdominal pain, or diarrhea.

D. An inhaled poison is breathed in and absorbed through the lungs. Some toxic substances, such as carbon monoxide, are very poisonous but not irritating to the respiratory tract. Other toxic gases, such as chlorine gas and ammonia, are very irritating and will cause coughing and severe respiratory distress.

E. The two major causes of poisoning by injection are (1) animal bites and stings and (2) toxic injection.

F. Poisoning by absorption occurs when a poisonous substance enters the body through the skin. A person experiencing absorption poisoning may have both localized and systemic signs and symptoms.

G. Many nerve agents are the same types of chemicals as insecticides. Your role in incidents involving nerve agents is to keep yourself and others from becoming exposed.

H. It is important to pay special attention to scene safety and not enter a hazardous environment without the proper training and equipment.

I. Naloxone (Narcan) is a medication that can rapidly reverse the effects of opioid drugs on the CNS.

Chapter 12
Behavioral Emergencies

Unit Summary

After students complete this chapter and the related coursework, they will understand the significance and characteristics of various types of behavioral emergencies, the broad categories of causes, the phases of a situational crisis, and the techniques for dealing with behavioral emergencies. Critical incident stress debriefing is also explained.

National EMS Education Standard Competencies

Medicine

Recognizes and manages life threats based on assessment findings of a patient with a medical emergency while awaiting additional emergency response.

Psychiatric

Recognition of

• Behaviors that pose a risk to the emergency medical responder (EMR), patient, or others (p 244; pp 246-248)

Special Patient Populations

Recognizes and manages life threats based on simple assessment findings for a patient with special needs while awaiting additional emergency response.

Patients With Special Challenges

• Recognizing and reporting abuse and neglect (p 244; pp 248-249)

CTE Standards

PS-ER:

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

B9.2 Know the common acronyms used in fire and emergency services

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

B9.4 Follow instructions for immediate care procedure as transmitted by an emergency medical dispatcher during transport

B9.5 Demonstrate administration of a limited number of drugs appropriate to the scope of practice

B9.6 Manage an incident scene as the first responder, using emergency response skills appropriate to training and certification

B9.7 Execute protocols in emergency management response when working with an on-scene accident

B9.8 Demonstrate the ability to assess the nature and extent of an illness or injury to establish and prioritize medical response

B9.9 Communicate with treatment-center staff to arrange reception of victims and to get instructions for further treatment

B9.10 Demonstrate the ability to receive and provide patient-care information to other medical providers

HS-PC:

B2.1 Know basic human body structure and function in relationship to specific care between prevention, diagnosis, pathology, and treatment

B2.3 Recognize common disease and disorders of the human body

B2.4 Compare normal function of the human body to the diagnosis and treatment of disease and disorders

Knowledge Objectives

1. Identify the signs and symptoms of a patient experiencing a behavioral crisis. (p 240)
2. List the five factors that may contribute to behavioral emergencies. (p 240)
3. List the phases of a situational crisis. (p 240)
4. Explain the role of an emergency medical responder (EMR) in caring for a patient experiencing a behavioral emergency. (p 241)
5. List the steps for assessing a patient experiencing a behavioral emergency. (p 242)
6. Explain how to calm a patient experiencing a behavioral emergency. (p 242)
7. Explain the following communication skills:
    - Restatement (pp 242-243)
    - Redirection (p 243)
    - Empathy (p 243)
8. Recognize the signs and symptoms of an abused patient. (p 244)
9. Describe the method for dealing with domestic violence situations. (p 244)
10. Describe the method for assessing potentially violent patients. (p 244; p 246)
11. Describe the safety precautions that should be taken when dealing with a potentially violent patient. (p 246)
12. Describe the EMR's role in dealing with an armed or potentially violent patient. (p 246)
13. Explain the medical and legal considerations related to dealing with behavioral emergencies. (p 247)
14. Describe the approaches to be used when dealing with

- Attempted suicide (p 247)
- Posttraumatic stress disorder (p 248)
- Sexual assault (pp 248-249)
- Death and dying (p 249)

15. Explain the purpose of critical incident stress debriefing. (p 249)

Skills Objectives

1. Demonstrate how to calm a patient experiencing a behavioral crisis. (p 242)
2. Demonstrate the following communication techniques:
   - Restatement (pp 242-243)
   - Redirection (p 243)
   - Empathy (p 243)
3. Demonstrate management of the following crises:
   - Suicide attempt (p 247)
   - Posttraumatic stress disorder (p 248)
   - Sexual assault (pp 248-249)
   - Death and dying (p 249)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*****, Sixth** Edition**,** Chapter 12, and all related presentation support materials.

- Review local protocols relating to treatment and transport of patients suffering from behavioral emergencies.

Support Materials

- Lecture PowerPoint presentation
- One ambulance stretcher per six students

Unit Activities

Writing assignments: Instruct each student to put together a scenario for a specific psychiatric or behavioral emergency.

Student presentations: Divide students into groups. Instruct each group to act out the psychiatric or behavioral emergencies (developed for the writing assignment) for the rest of the class.

Group activities: Discuss and critique each student presentation as a group. Discuss problems regarding scene safety, the EMR's apparent approach to the patient, and other issues.

Medical terminology: Ask each student to determine the differences between a behavioral crisis and a psychiatric emergency. This can be a written or an oral assignment.

Summary

A. Only a small percentage of the patients you treat will be severely mentally disturbed, but almost every patient you care for will be experiencing some degree of mental and emotional crisis. No matter which type of incident or crisis is taking place, your response must be to help the patient.

B. Behavioral emergencies are situations in which persons exhibit abnormal, unacceptable behavior that cannot be tolerated by the patients themselves or by family, friends, or the community.

C. Five major factors cause behavioral crises: medical conditions, physical trauma conditions, psychiatric illnesses, mind-altering substances, and situational stresses.

D. The four emotional phases to crisis are high anxiety or emotional shock, denial, anger, and remorse or grief. Although a person may not experience every phase during a crisis, he or she will certainly experience one or more of the phases.

E. Your role as an EMR consists of assessing the patient and providing physical and emotional care. Your most important assessment skill may be your ability to communicate with the patient.

F. You must understand the laws of your state and community that relate to caring for emotionally disturbed patients. If an emotionally disturbed patient agrees to be treated, few legal issues should arise. However, if a patient who appears to be disturbed refuses to accept treatment, it may be necessary to provide care against the patient's will. To do so, you must have a reasonable belief that the patient would harm self or others. Usually, if patients are a threat to self or to others, it is possible to treat and transport them without their consent.

G. Even when you have thoroughly mastered the processes and tools for managing behavioral crises, it is important to remember that sometimes the best approach is to ask yourself, "How would I like to be treated if I were in this situation?"

Chapter 13
Environmental Emergencies

Unit Summary

After students complete this chapter and the related coursework, they will have learned the proper assessment and management of general and specific types of environmental emergencies, including hypothermia, local cold injuries such as frostbite, and heat exposure illnesses such as heatstroke. They will also learn the associated signs and symptoms and emergency treatment for drowning, submersion, and lightning injuries.

National EMS Education Standard Competencies

Trauma

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

Environmental Emergencies

Recognition and management of

- Submersion incidents (pp 261-262)
- Temperature-related illness (pp 256-259)

CTE Standards

PS-ER:

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

B9.2 Know the common acronyms used in fire and emergency services

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

B9.4 Follow instructions for immediate care procedure as transmitted by an emergency medical dispatcher during transport

B9.5 Demonstrate administration of a limited number of drugs appropriate to the scope of practice

B9.6 Manage an incident scene as the first responder, using emergency response skills appropriate to training and certification

B9.7 Execute protocols in emergency management response when working with an on-scene accident

B9.8 Demonstrate the ability to assess the nature and extent of an illness or injury to establish and prioritize medical response

B9.9 Communicate with treatment-center staff to arrange reception of victims and to get instructions for further treatment

B9.10 Demonstrate the ability to receive and provide patient-care information to other medical providers

B9.11 Describe the function of emergency vehicles, use of medical and communication equipment, and the necessity of maintaining inventory as required for emergency services practices and procedures

HS-PC:

B2.1 Know basic human body structure and function in relationship to specific care between prevention, diagnosis, pathology, and treatment

B2.3 Recognize common disease and disorders of the human body

B2.4 Compare normal function of the human body to the diagnosis and treatment of disease and disorders

Knowledge Objectives

1. Describe the signs and symptoms of a patient experiencing heat cramps. (p 256)
2. Describe the treatment of a patient experiencing heat cramps. (p 256)
3. Describe the signs and symptoms of a patient experiencing heat exhaustion. (p 256)
4. Describe the treatment of a patient experiencing heat exhaustion. (p 256)
5. Describe the signs and symptoms of a patient experiencing heatstroke. (pp 256-257)
6. Describe the treatment of a patient experiencing heatstroke. (pp 256-257)
7. Describe the signs and symptoms of a patient experiencing frostbite. (pp 257-258)
8. Describe the treatment of a patient experiencing frostbite. (pp 257-258)
9. Describe the signs and symptoms of a patient experiencing hypothermia. (p 259)
10. Describe the treatment of a patient experiencing hypothermia. (p 259)
11. Discuss the relationship between hypothermia and cardiac arrest. (p 259)
12. Describe the signs and symptoms of a patient who sustained a submersion injury. (p 261)
13. Describe the treatment of a patient who sustained a submersion injury. (p 261)

14. Describe the signs and symptoms of a patient who has been struck by lightning. (p 262)
15. Describe the treatment of a patient who has been struck by lightning. (p 262)

Skills Objectives

1. Demonstrate patient assessment on a patient who has sustained an injury or illness from exposure to heat, exposure to cold, or submersion. (p 255)
2. Demonstrate cooling a patient who has experienced exposure to heat. (p 256)
3. Demonstrate treating a patient who has experienced exposure to cold. (pp 257-258)
4. Demonstrate treating a patient who has a submersion injury. (p 261)
5. Demonstrate treating a patient who has a lightning injury. (p 262)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*, Sixth Edition,** Chapter 13, and all related presentation support materials.

• Review any local protocols on treatment of medical emergencies.

Support Materials

• Lecture PowerPoint presentation

• Equipment needed to perform the psychomotor skills presented in this chapter.

• A variety of pictures showing stages of frostbite, heatstroke, hypothermia, and other environmental emergencies

Unit Activities

Writing assignments: Have students research the signs, symptoms, and treatment for heatstroke, heat exhaustion, and heat cramps. Ask students to write an essay about their findings.

Group activities: Break students into two groups. Pass around cold packs to the first group and heat packs to the second group. Have students hold the packs in their hands and ask them to observe how their body responds. Have each group present its findings to the other group.

Medical terminology review: Create a terminology *Jeopardy* game with questions that include important medical terms and terms about environmental injuries and treatment. There are *Jeopardy* game templates available on the Internet.

Summary

A. Your approach to a patient who has experienced an environmental emergency should follow the patient assessment sequence.

B. Heat cramps are caused by electrolyte imbalance and dehydration. They usually involve muscles in the calf, leg, or abdomen. Usually the cramps disappear with rest and the administration of water.

C. A person experiencing heat exhaustion sweats profusely and becomes light-headed, dizzy, and nauseated. Predisposing factors may make some people more susceptible to heat-related illnesses.

D. Heatstroke results when a person has been in a hot environment for a long period, overwhelming the body's sweating mechanism. The patient's body temperature rises until it reaches a level at which brain damage occurs.

E. The body parts most susceptible to frostbite are the face, ears, fingers, and toes. Warming the frostbitten part must be done quickly and carefully.

F. Hypothermia occurs when a person's body is not able to produce enough heat to keep the internal (core) body temperature at a satisfactory level.

G. The initial signs of hypothermia include feeling cold, shivering, decreasing level of consciousness, and sleepiness. Signs of increasing hypothermia include a lack of coordination, mental confusion, and slowed reactions.

H. Hypothermic patients should never be considered dead until they have been warmed in an appropriate medical facility.

I. Drowning can occur in a variety of settings around a home and outdoors. Signs and symptoms of a submersion injury include coughing, vomiting, difficulty breathing, respiratory arrest, cardiac arrest, and trauma.

J. Lightning injuries are caused by a powerful jolt of electrical current that passes through part of the body. They may cause irregular heart rhythms or cardiac arrest. They also cause an electrical type of burn that damages tissue within the body.

Chapter 14
Bleeding, Shock, and Soft-Tissue Injuries

Unit Summary

After students complete this chapter and the related coursework, they will understand the significance and characteristics of bleeding; the importance of standard precautions when treating a bleeding patient; the types and causes of shock; the signs and symptoms of shock; the types of soft-tissue injuries and how to treat them; the use of bandages and dressings; and the assessment and care of different types of burns.

National EMS Education Standard Competencies

Pathophysiology

Uses simple knowledge of shock and respiratory compromise to respond to life threats.

Shock and Resuscitation

Uses assessment information to recognize shock, respiratory failure or arrest, and cardiac arrest based on assessment findings and manages the emergency while awaiting additional emergency response.

Trauma

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

Bleeding

Recognition and management of

• Bleeding (pp 276-282)

Head, Facial, Neck, and Spine Trauma

Recognition and management of

• Life threats (pp 288-290)

Chest Trauma

Recognition and management of

• Blunt versus penetrating mechanisms (pp 289-290)

• Open chest wound (pp 289-290)

• Impaled object (p 290)

Abdominal and Genitourinary Trauma

Recognition and management of

• Blunt versus penetrating mechanisms (pp 291-293)

• Evisceration (p 291)

• Impaled object (p 290)

Soft-Tissue Trauma

Recognition and management of

• Wounds (pp 282-286; pp 288-293)

• Burns (pp 293-297)

  • Electrical (pp 296-297)

  • Chemical (p 296)

  • Thermal (p 295)

• Chemicals in the eye and on the skin (p 296)

Multi-system Trauma

Recognition and management of

• Multi-system trauma (p 297)

Medicine

Recognizes and manages life threats based on assessment findings of a patient with a medical emergency while awaiting additional emergency response.

Immunology

Recognition and management of shock and difficulty breathing related to

• Anaphylactic reactions (pp 273; pp 275-276)

Diseases of the Eyes, Ears, Nose, and Throat

Recognition and management of

• Nosebleed (p 288)

CTE Standards

PS-ER:

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

B9.2 Know the common acronyms used in fire and emergency services

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

B9.4 Follow instructions for immediate care procedure as transmitted by an emergency medical dispatcher during transport

B9.5 Demonstrate administration of a limited number of drugs appropriate to the scope of practice

B9.6 Manage an incident scene as the first responder, using emergency response skills appropriate to training and certification

B9.7 Execute protocols in emergency management response when working with an on-scene accident

B9.8 Demonstrate the ability to assess the nature and extent of an illness or injury to establish and prioritize medical response

B9.9 Communicate with treatment-center staff to arrange reception of victims and to get instructions for further treatment

B9.10 Demonstrate the ability to receive and provide patient-care information to other medical providers

B9.11 Describe the function of emergency vehicles, use of medical and communication equipment, and the necessity of maintaining inventory as required for emergency services practices and procedures

HS-PC:

B2.1 Know basic human body structure and function in relationship to specific care between prevention, diagnosis, pathology, and treatment

B2.3 Recognize common disease and disorders of the human body

B2.4 Compare normal function of the human body to the diagnosis and treatment of disease and disorders

Knowledge Objectives

1. Describe the function and relationship among the following parts of the circulatory system:
   - Pump (heart) (p 271)
   - Pipes (blood vessels) (p 271)
   - Fluid (blood) (p 271)
2. Describe how and where to locate a patient's pulse. (pp 271-272)
3. Explain how shock is caused by pump failure, pipe failure, and fluid loss. (pp 272-273)
4. List three types of shock caused by pipe failure. (p 273)
5. List signs and symptoms of shock. (p 273)
6. Describe the general treatment for shock. (pp 273-274)
7. Describe the treatment for shock caused by pump failure. (p 275)
8. Describe the treatment for shock caused by pipe failure. (pp 275-276)
9. Describe the treatment for shock caused by fluid loss. (p 276)
10. Explain how to control external blood loss. (pp 276-281)
11. Describe the indications for use of a tourniquet.(p 278)
12. Describe how to use the femoral and brachial artery pressure points to control bleeding. (pp 279-281)

13. List the four types of soft-tissue injuries. (pp 282-284)
14. Discuss the treatment of avulsions and amputations. (pp 283-284)
15. Describe the principles of treatment for open soft-tissue injuries. (p 283)
16. Explain the functions of dressings and bandages. (pp 284-285)
17. Explain the relationship between standard precautions and soft-tissue injuries. (p 286)
18. Discuss the emergency medical care for patients with the following injuries:
    - Face and scalp wounds (p 288)
    - Nosebleeds (p 288)
    - Eye injuries (pp 288-289)
    - Neck wounds (p 289)
    - Chest and back wounds (pp 289-290)
    - Impaled objects (p 290)
    - Closed abdominal wounds (p 291)
    - Open abdominal wounds (pp 291-292)
    - Genital wounds (p 292)
    - Extremity wounds (p 292)
    - Gunshot wounds (pp 292-293)
    - Bites (p 293)
19. Describe how the seriousness of a burn is related to the depth of the burn. (p 293)
20. Describe how the seriousness of a burn is related to the extent of the burn. (p 294)
21. Describe the signs, symptoms, possible complications, and treatment associated with each of the following types of burns:
    - Thermal (p 295)
    - Respiratory (p 295)
    - Chemical (p 296)
    - Electrical (p 296)
22. Explain the concept of multi-system trauma and how it affects your assessment and treatment. (p 297)

Skills Objectives

1. Demonstrate how and where to locate a patient's pulse. (pp 271-272)
2. Demonstrate the general treatment for shock. (pp 274-275)

3. Demonstrate the treatment for shock caused by pump failure. (p 275)
4. Demonstrate the treatment for shock caused by pipe failure. (pp 275-276)
5. Demonstrate the treatment for shock caused by fluid loss. (p 276)
6. Demonstrate how to use the femoral and brachial pressure points to control blood loss. (pp 279-281)
7. Demonstrate treatment of avulsions and amputations. (pp 283-284)
8. Demonstrate treatment of soft-tissue injuries. (pp 283-286)
9. Demonstrate the emergency medical care for patients with the following injuries:
    - Face and scalp wounds (p 288)
    - Nosebleeds (p 288)
    - Eye injuries (pp 288-289)
    - Neck wounds (p 289)
    - Chest and back wounds (pp 289-290)
    - Impaled objects (p 290)
    - Closed abdominal wounds (p 291)
    - Open abdominal wounds (pp 291-292)
    - Genital wounds (p 292)
    - Extremity wounds (p 292)
    - Gunshot wounds (pp 292-293)
    - Bites (p 293)
10. Demonstrate treatment of the following types of burns:
    - Thermal (p 295)
    - Respiratory (p 295)
    - Chemical (p 296)
    - Electrical (p 296)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*****, Sixth Edition,** Chapter 14, and all related presentation support materials.

• Review local protocols for patients in shock, particularly patients with hypovolemic or anaphylactic shock.

• Review local protocols for the treatment of soft-tissue injuries.

Support Materials

- Lecture PowerPoint presentation
- Skill Drill PowerPoint presentations
    - Skill Drill 14-1, Controlling Bleeding With a Tourniquet PowerPoint presentation
- Assorted bandaging materials (eg, gauze pads/rolls, triangular bandages)
- Splints (assorted, including air splints)
- Personal protective equipment (gloves, masks, goggles, gowns)
- Burn sheets
- Skill Evaluation Sheets
    - Skill Drill 14-1, Controlling Bleeding With a Tourniquet

Unit Activities

Writing activities: Using the burn diagrams in the following visual thinking activity, have students—working alone or in groups—create burn scenarios based on the diagram injuries noted.

Student presentations: Assign a topic from the chapter for each student to research further and report on to the class. Additional information should be easy to find, and topics should be clearly assigned. For example, instead of "animal bites," assign a specific animal to each student: "Emergency care of dog bites: What should the EMR do? Do all patients need to go to the hospital?" or "Wild animal bites: What risks are there to the patient? What risks are there to the EMR?" Allow time for students to present or display their work.

Group activities: Give each group an injury card—an index card labeled with an injury type (eg, abrasion, laceration). Students should discuss several mechanisms of injury that might potentially cause this injury, drawing or listing these mechanisms on the other side of the card. Allow time for groups to share and discuss their learning with the whole class.

Medical terminology review: Ask each student to explain the different open and closed soft-tissue injuries. Provide photographs of each of the injuries described in the chapter and have the students identify the proper term on the back of the photo.

Visual thinking: Distribute line-drawing diagrams of bodies to apply the rule of nines. Hand out different colors of plastic wrap, each color designated ahead of time to represent first-, second-, or third-degree burns. Instruct students to add pieces of plastic wrap to each diagram. The amount and color of the plastic superimposed on the diagram represents a burn percentage and degree. Students should then exchange diagrams and calculate burn percentage and degree to calculate the level of severity. Students should also take into account the location of the burn when calculating the severity. If time permits, have students write a scenario to accompany each diagram and indicate the age, medical history, and other factors related to the patient as well as information about the burn.

Summary

A. This chapter covers the knowledge and skills you need to treat patients who are experiencing shock, bleeding, and soft-tissue injuries.

B. You must take appropriate standard precautions to prevent contact with the patient's body fluids.

C. The three parts of the circulatory system are the pump (heart), the pipes (arteries, veins, and capillaries), and the fluid (blood cells and other blood components).

D. Shock is a state of collapse of the cardiovascular system that results in inadequate delivery of blood to the organs. The three primary causes of shock are pump failure, pipe failure, and fluid loss. The general treatment for shock is positioning the patient correctly, maintaining the patient's ABCs, and treating the cause of shock, if possible.

E. Three types of external blood loss are possible: capillary (blood oozes out), venous (bleeds at a steady flow), and arterial (blood spurts or surges). Most external bleeding can be controlled by applying direct pressure to the wound.

F. A wound is an injury caused by any physical means that leads to damage of a body part. Wounds are classified as closed (skin remains intact) or open (skin is disrupted). Open wounds are classified as abrasions, punctures, lacerations, and avulsions or amputations.

G. Control bleeding by covering an open wound with a dry, clean, or sterile dressing and apply pressure to the dressing with your hand. Additional ways to control bleeding include elevating an extremity, applying a tourniquet, and using pressure points.

H. Three classes of burns are distinguished based on the burn depth: superficial (first-degree) burns, partial-thickness (second-degree) burns, and full-thickness (third-degree) burns. Burns may be caused by heat, chemicals, or electricity.

I. By learning to recognize and provide initial emergency treatment for patients experiencing shock, bleeding, and soft-tissue injuries, you will be able to provide physical and emotional assistance to these patients in their time of need. At times, your prompt recognition and treatment will make a real difference in the outcome.

J. Injuries that affect more than one body system are called multi-system trauma. Multi-system trauma may be a result of an injury to one part of the body or it can be caused by injuries to different parts of the body.

Chapter 15
Injuries to Muscles and Bones

Unit Summary

After students complete this chapter and the related coursework, they will understand the general and specific types of, as well as patient assessment and treatment for, musculoskeletal injuries. General principles of splinting and the skills needed to splint specific injuries are covered. Standard precautions when treating musculoskeletal injuries are also discussed.

National EMS Education Standard Competencies

Trauma

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

Orthopedic Trauma

Recognition and management of

- Open fractures (pp 307-325)
- Closed fractures (pp 307-325)
- Dislocations (p 308; pp 315-316; pp 319-320)
- Amputations (p 318)

Head, Facial, Neck, and Spine Trauma

Recognition and management of

- Life threats (pp 327-334)
- Spine trauma (pp 330-334)

CTE Standards

PS-ER:

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

B9.2 Know the common acronyms used in fire and emergency services

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

B9.4 Follow instructions for immediate care procedure as transmitted by an emergency medical dispatcher during transport

B9.5 Demonstrate administration of a limited number of drugs appropriate to the scope of practice

B9.6 Manage an incident scene as the first responder, using emergency response skills appropriate to training and certification

B9.7 Execute protocols in emergency management response when working with an on-scene accident

B9.8 Demonstrate the ability to assess the nature and extent of an illness or injury to establish and prioritize medical response

B9.9 Communicate with treatment-center staff to arrange reception of victims and to get instructions for further treatment

B9.10 Demonstrate the ability to receive and provide patient-care information to other medical providers

B9.11 Describe the function of emergency vehicles, use of medical and communication equipment, and the necessity of maintaining inventory as required for emergency services practices and procedures

HS-PC:

B2.1 Know basic human body structure and function in relationship to specific care between prevention, diagnosis, pathology, and treatment

B2.3 Recognize common disease and disorders of the human body

B2.4 Compare normal function of the human body to the diagnosis and treatment of disease and disorders

Knowledge Objectives

1. Discuss the anatomy and function of the musculoskeletal system. (pp 305-306)
2. Describe the mechanisms of injury (MOIs) for musculoskeletal injuries. (p 307)
3. Explain the characteristics of the following types of injuries:
   - Fractures (pp 307-308)
   - Dislocations (p 308)
   - Sprains and strains (p 308)
4. Explain the need for standard precautions when assessing or treating patients with musculoskeletal injuries. (p 308)
5. Explain how to assess a patient with a musculoskeletal injury. (p 308)

6. Explain how to check circulation, sensation, and movement in an injured extremity. (pp 309-312)
7. Describe how to splint the following injuries:
    - Shoulder girdle injury (p 315)
    - Shoulder dislocation (pp 315-316)
    - Elbow injury (p 316)
    - Forearm injury (pp 316-319)
    - Hand, wrist, or finger injury (pp 318-319)
    - Pelvic fracture (p 319)
    - Hip injury (pp 319-320)
    - Thigh injury (pp 321-323)
    - Knee injury (p 323)
    - Leg injury (pp 323-324)
    - Ankle or foot injury (pp 324-325)
8. List the signs and symptoms of open and closed head injuries. (p 328)
9. Describe the treatment of head injuries. (pp 328-329)
10. Describe the treatment of facial injuries. (pp 329-330)
11. Discuss the mechanism of spinal injuries. (pp 330-331)
12. List the signs and symptoms of spinal injury. (p 331)
13. Describe the treatment of spinal injury. (p 331)
14. Explain how to remove the mask on a sports helmet. (pp 332-333)
15. Explain how to remove a helmet. (pp 333-334)
16. Describe the signs, symptoms, and treatment of the following injuries:
    - Fractured ribs (p 335)
    - Flail chest (pp 335-336)
    - Penetrating chest wound (p 336)

Skills Objectives

1. Demonstrate use of standard precautions when assessing or treating patients with musculoskeletal injuries. (p 308)
2. Demonstrate assessment of a patient with a musculoskeletal injury. (p 309)
3. Demonstrate how to check circulation, sensation, and movement in an injured extremity. (pp 309-312)

4. Demonstrate how to splint the following injuries:
    - Shoulder girdle injury (p 315)
    - Shoulder dislocation (pp 315-316)
    - Elbow injury (p 316)
    - Forearm injury (pp 316-319)
    - Hand, wrist, or finger injury (pp 318-319)
    - Pelvic fracture (p 319)
    - Hip injury (pp 319-320)
    - Thigh injury (pp 321-323)
    - Knee injury (p 323)
    - Leg injury (pp 323-324)
    - Ankle or foot injury (pp 324-325)
5. Demonstrate the treatment of head injuries. (pp 328-329)
6. Demonstrate the treatment of facial injuries. (pp 329-330)
7. Demonstrate the treatment of spinal injury. (pp 330-331)
8. Demonstrate how to remove the mask on a sports helmet. (pp 332-333)
9. Demonstrate how to remove a helmet. (pp 333-334)
10. Demonstrate treatment of the following injuries:
    - Fractured ribs (p 335)
    - Flail chest (pp 335-336)
    - Penetrating chest wound (p 336)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*****, Sixth Edition,** Chapter 15, and all related presentation support materials.

• Review the local protocol for splinting and realignment of injuries. Make sure splinting equipment is in working order.

Support Materials

• Lecture PowerPoint presentation

• Skill Drill PowerPoint presentations

- Skill Drill 15-1, Checking Circulation, Sensation, and Movement in an Injured Extremity PowerPoint presentation

    - Skill Drill 15-2, Applying a Vacuum Splint PowerPoint presentation
    - Skill Drill 15-3, Applying a SAM Splint PowerPoint presentation
    - Skill Drill 15-4, Applying a Zippered Air Splint PowerPoint presentation
    - Skill Drill 15-5, Applying an Unzippered Air Splint PowerPoint presentation
    - Skill Drill 15-6, Applying a Traction Splint PowerPoint presentation
    - Skill Drill 15-7, Applying an Air Splint to the Leg PowerPoint presentation
    - Skill Drill 15-8, Applying a Pillow Splint for Ankle or Foot Injury PowerPoint presentation
    - Skill Drill 15-9, Stabilizing the Cervical Spine and Maintaining an Open Airway PowerPoint presentation
    - Skill Drill 15-10, Removing the Mask on a Sports Helmet PowerPoint presentation
    - Skill Drill 15-11, Removing a Helmet PowerPoint presentation
- Medical exam gloves
- Blankets
- EMR life support kit
- Bandaging materials
- Human skeleton
- Triangular bandages for swathes and slings
- Rigid splints
- Soft splints
- Improvised splints
- Backboard
- Traction splint
- Football or motorcycle helmet
- Occlusive dressings
- Skill Evaluation Sheets
    - Skill Drill 15-1, Checking Circulation, Sensation, and Movement in an Injured Extremity
    - Skill Drill 15-2, Applying a Vacuum Splint
    - Skill Drill 15-3, Applying a SAM Splint
    - Skill Drill 15-4, Applying a Zippered Air Splint
    - Skill Drill 15-5, Applying an Unzippered Air Splint
    - Skill Drill 15-6, Applying a Traction Splint

- Skill Drill 15-7, Applying an Air Splint to the Leg
- Skill Drill 15-8, Applying a Pillow Splint for Ankle or Foot Injury
- Skill Drill 15-9, Stabilizing the Cervical Spine and Maintaining an Open Airway
- Skill Drill 15-10, Removing the Mask on a Sports Helmet
- Skill Drill 15-11, Removing a Helmet

Unit Activities

Writing activities: Assign students research projects on pertinent orthopedic topics, such as "How to prevent infections in open fractures" or "Long-term effects of the poor stabilization of fractures in the field."

Group activities: Facilitate a group discussion on the differences between pediatric and geriatric care of musculoskeletal injuries.

Medical terminology review: Create a crossword puzzle that includes important medical terms, injuries, and treatment.

Visual thinking: Provide students with handouts of images or project images on-screen. Images could include open or closed fractures. Ask the students to explain these injuries to the class.

Summary

A. Musculoskeletal injuries are caused by three types of mechanism of injury: direct force, indirect force, and twisting force.

B. A fracture is a broken bone. Fractures can be closed (the bone is broken but there is no break in the skin) or open (the bone is broken and the overlying skin is lacerated).

C. A dislocation is a disruption that tears the supporting ligaments of the joint.

D. A sprain is a joint injury caused by excessive stretching of the supporting ligaments.

E. Follow three steps in examining a patient with a limb injury:

1. Perform a general assessment of the patient.
2. Examine the injured part.
3. Evaluate the circulation, sensation, and movement in the injured limb.

F. Regardless of the extent or severity, all limb injuries are treated the same way in the field. For all open extremity wounds, first cover the entire wound with a dry, sterile dressing and then apply firm but gentle pressure to control bleeding, if necessary. The injured limb should then be splinted.

G. The three basic types of splints are rigid, soft, and traction.

H. It takes two people to splint most limb injuries adequately: one to stabilize and support the extremity and one to apply the splint.

I. Severe head and spinal cord injuries can result from many different kinds of trauma. These injuries are common causes of death; if not fatal, they may lead to irreversible paralysis and permanent brain damage.

J. Injuries of the head are classified as open or closed. In a closed head injury, bleeding and swelling within the skull may increase pressure on the brain, leading to irreversible brain damage. An open injury of the head usually bleeds profusely.

K. When a sign or symptom of a head injury is present, immobilize the head and stabilize the patient's neck; maintain an open airway; support breathing; monitor circulation; determine whether cerebrospinal fluid or blood is seeping; control bleeding with dry, sterile dressings; treat other serious injuries; and arrange for prompt transport.

L. Airway obstruction is the primary danger in severe facial injuries.

M. When facial injuries are present, immobilize the head and stabilize the patient's neck; maintain an open airway; support breathing; monitor circulation; control bleeding with a dry, sterile dressing and apply direct pressure; treat other serious injuries; and arrange for prompt transport.

N. When you suspect a spinal injury, do not move the patient during the examination, and do not allow the patient to move.

O. When a sign or symptom of spinal injury is present, place the patient's head and neck in a neutral position; stabilize the head and prevent movement of the neck; maintain an open airway; support breathing; monitor circulation; assess pulse, movement, and sensation; examine and treat other serious injuries; assist in immobilizing the patient using a long or short backboard; and arrange for prompt transport.

P. The most common chest injuries are rib fractures, flail chest, and penetrating wounds.

Chapter 16
Childbirth

Unit Summary

After students complete this chapter and the related coursework, they will understand the characteristics of normal childbirth; their role in assisting with delivery and aftercare of the mother and newborn; and steps to manage complications of childbirth.

National EMS Education Standard Competencies

Special Patient Populations

Recognizes and manages life threats based on simple assessment findings for a patient with special needs while awaiting additional emergency response.

Obstetrics

Recognition and management of

- Normal delivery (pp 346-351)
- Vaginal bleeding in the pregnant patient (pp 353-354; p 356)

Neonatal care

• Newborn care (p 352)

• Neonatal resuscitation (pp 352-353)

Medicine

Recognizes and manages life threats based on assessment findings of a patient with a medical emergency while awaiting additional emergency response.

Gynecology

Recognition and management of shock associated with

• Vaginal bleeding (pp 353-354; p 356)

Trauma

Uses simple knowledge to recognize and manage life threats based on assessment findings of an acutely injured patient while awaiting additional emergency medical response.

Special Considerations in Trauma

Recognition and management of trauma in

- Pregnant patient (p 356)
- Pediatric patient (Chapter 17, *Pediatric Emergencies*)
- Geriatric patient (Chapter 18, *Geriatric Emergencies*)

CTE Standards

PS-ER:

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

B9.2 Know the common acronyms used in fire and emergency services

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

B9.4 Follow instructions for immediate care procedure as transmitted by an emergency medical dispatcher during transport

B9.5 Demonstrate administration of a limited number of drugs appropriate to the scope of practice

B9.6 Manage an incident scene as the first responder, using emergency response skills appropriate to training and certification

B9.7 Execute protocols in emergency management response when working with an on-scene accident

B9.8 Demonstrate the ability to assess the nature and extent of an illness or injury to establish and prioritize medical response

B9.9 Communicate with treatment-center staff to arrange reception of victims and to get instructions for further treatment

B9.10 Demonstrate the ability to receive and provide patient-care information to other medical providers

B9.11 Describe the function of emergency vehicles, use of medical and communication equipment, and the necessity of maintaining inventory as required for emergency services practices and procedures

HS-PC:

B2.1 Know basic human body structure and function in relationship to specific care between prevention, diagnosis, pathology, and treatment

B2.3 Recognize common disease and disorders of the human body

B2.4 Compare normal function of the human body to the diagnosis and treatment of disease and disorders

Knowledge Objectives

1. Describe the anatomy and function of the female reproductive system. (p 345)
2. Explain the three stages of the labor process. (p 346)
3. Discuss how to determine whether there is time to transport the woman to the hospital for delivery. (p 246)
4. Describe preparation for delivery of a newborn. (p 347)
5. Discuss the use of standard precautions in childbirth. (pp 347-349)
6. List the equipment emergency medical responders (EMRs) should have for an emergency childbirth situation. (p 349)
7. Explain how to assist with delivery of a newborn. (pp 349-351)
8. Discuss the delivery of the placenta. (p 351)
9. List the steps in resuscitating a newborn. (pp 352-353)
10. Describe the signs and symptoms and treatment for the following complications of childbirth:
    - Ectopic pregnancy and shock (pp 353-354)
    - Miscarriage and vaginal bleeding (p 354)

- Premature birth (p 354)
- Unbroken bag of waters (p 354)
- Prolapse of the umbilical cord (p 354; p 356)
- Breech birth (p 356)
- Stillborn delivery (p 356)
- Multiple births (p 356)
- Excessive bleeding after delivery (p 356)

11. Explain how to care for a pregnant woman who has been in a motor vehicle crash. (p 356).

Skills Objectives

1. Describe preparation for delivery of a newborn. (p 347)
2. Demonstrate the use of standard precautions in childbirth. (pp 347-349)
3. Demonstrate how to assist with delivery of a newborn. (pp 349-351)
4. Demonstrate delivery of the placenta. (p 351)
5. Demonstrate resuscitation of a newborn. (pp 352-353)
6. Demonstrate treatment for the following complications of childbirth:
    - Ectopic pregnancy and shock (pp 353-354)
    - Miscarriage and vaginal bleeding (p 354)
    - Premature birth (p 354)
    - Unbroken bag of waters (p 354)
    - Prolapse of the umbilical cord (p 354; p 356)
    - Breech birth (p 356)
    - Stillborn delivery (p 356)
    - Multiple births (p 356)
    - Excessive bleeding after delivery (p 356)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*, Sixth Edition,** Chapter 16, and all related presentation support materials.

• Review local treatment and transport protocols for childbirth and neonatal resuscitation.

Support Materials

- Lecture PowerPoint presentation
- Skill Drill PowerPoint presentations
    - Skill Drill 16-1, Putting on Sterile Gloves PowerPoint presentation
    - Skill Drill 16-2, Resuscitating a Newborn PowerPoint presentation
- Childbirth training videos
- A variety of pictures showing stages of labor, developing fetus, and other relevant images
- EMR life support kit
- Medical exam gloves
- Neonatal CPR manikins
- Blankets
- Skill Evaluation Sheets
    - Skill Drill 16-1, Putting on Sterile Gloves
    - Skill Drill 16-2, Resuscitating a Newborn

Unit Activities

Writing activities: Assign students research projects on pertinent topics, such as teenage pregnancy, birth defects, and different birth techniques.

Group activities: Facilitate a group discussion on the differences between therapeutic (induced) abortions and spontaneous abortions.

Medical terminology review: Create a *Jeopardy* game with questions that include important medical terms, complicated deliveries, and treatment. *Jeopardy* game templates are available on the Internet.

Visual thinking: Provide each student with an image of the birthing process, a birth defect, newborn distress, or some other pertinent issue. Ask each student to describe his or her photo while the rest of the class asks questions.

Summary

A. This chapter presents the skills and knowledge you need to assist in the birth of a newborn.

B. The key indicators when estimating how soon a delivery will occur are crowning and the time between contractions. By assessing these two factors, you can determine whether a woman should be transported to a medical facility or whether the birth will occur outside the hospital.

C. Normal labor consists of three distinct stages:

1. Stage one is characterized by the following conditions: initial contractions occur; the bag of waters breaks; the bloody show occurs; but the newborn's head does not appear.
2. Stage two involves the actual birth. You will see the newborn's head crowning during contractions, at which time you must prepare to assist the woman with delivery.
3. Stage three involves delivery of the placenta. You must assist in stabilizing the condition of the mother and newborn and delivering the placenta.

D. Exercise standard precautions when assisting with a delivery.

E. After the delivery, you have two patients to care for—the mother and the newborn.

F. If the newborn does not breathe on its own within the first minute after birth, proceed with the steps to resuscitate the newborn.

G. Although most pregnancies and births are uneventful, you should be aware of possible complications, including ectopic pregnancies and shock, vaginal bleeding and miscarriage, premature births, an unbroken bag of waters, a prolapsed umbilical cord, breech birth, a stillborn delivery, multiple births, and excessive bleeding after delivery.

H. Keep in mind that childbirth is usually a happy event. You are there to assist in the delivery, which in most cases has a happy, healthy outcome.

Chapter 17
Pediatric Emergencies

Unit Summary

After students complete this chapter and the related coursework, they will be able to recognize and provide emergency medical care for sudden illnesses and medical emergencies that are common in children. Recognition and treatment of mild and severe airway obstructions in children are also covered. The differences in the patterns of pediatric injury and signs and symptoms of shock are stressed. Information about child abuse and sexual assault of children is provided.

National EMS Education Standard Competencies

Special Patient Populations

Recognizes and manages life threats based on simple assessment findings for a patient with special needs while awaiting additional emergency response.

Pediatrics

Age-related assessment findings and age-related assessment and treatment modifications for pediatric-specific major diseases and/or emergencies

• Upper airway obstruction (pp 369-371)

• Lower airway reactive disease (p 373)

• Respiratory distress/failure/arrest (pp 371-372)

• Shock (p 379)

• Seizures (p 375)

• Sudden infant death syndrome (p 378)

Patients With Special Challenges

• Recognizing and reporting abuse and neglect (pp 380-381)

Medicine

Recognizes and manages life threats based on assessment findings of a patient with a medical emergency while awaiting additional emergency response.

Respiratory

Anatomy, signs, symptoms, and management of respiratory emergencies including those that affect the

• Upper airway (pp 366-372; pp 373-374)

• Lower airway (p 373)

Trauma

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

Special Considerations in Trauma

Recognition and management of trauma in

• Pregnant patient (Chapter 16, *Childbirth*)

• Pediatric patient (pp 378-379)

• Geriatric patient (Chapter 18, *Geriatric Emergencies*)

Anatomy and Physiology

Uses simple knowledge of the anatomy and function of the upper airway, heart, vessels, blood, lungs, skin, muscles, and bones as the foundation of emergency care.

CTE Standards

PS-ER:

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

B9.2 Know the common acronyms used in fire and emergency services

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

B9.4 Follow instructions for immediate care procedure as transmitted by an emergency medical dispatcher during transport

B9.5 Demonstrate administration of a limited number of drugs appropriate to the scope of practice

B9.6 Manage an incident scene as the first responder, using emergency response skills appropriate to training and certification

B9.7 Execute protocols in emergency management response when working with an on-scene accident

B9.8 Demonstrate the ability to assess the nature and extent of an illness or injury to establish and prioritize medical response

B9.9 Communicate with treatment-center staff to arrange reception of victims and to get instructions for further treatment

B9.10 Demonstrate the ability to receive and provide patient-care information to other medical providers

B9.11 Describe the function of emergency vehicles, use of medical and communication equipment, and the necessity of maintaining inventory as required for emergency services practices and procedures

HS-PC:

B2.1 Know basic human body structure and function in relationship to specific care between prevention, diagnosis, pathology, and treatment

B2.3 Recognize common disease and disorders of the human body

B2.4 Compare normal function of the human body to the diagnosis and treatment of disease and disorders

Knowledge Objectives

1. Describe the differences between a child's and an adult's anatomy. (pp 363-364)
2. Discuss the examination process for a child. (pp 364-366)
3. Describe how to implement the pediatric assessment triangle (PAT). (pp 364-365)
4. Discuss the normal rates of respiration and pulse for a child. (p 366)
5. Discuss the symptoms and effects of high body temperature in a child. (p 366)
6. Explain the differences between performing the following skills on a child and on an adult:
   - Opening the airway (p 367)
   - Basic life support (p 367)
   - Suctioning (pp 367-368)
   - Inserting an oral airway (p 368)
7. Describe how to treat a child and an infant with
   - A mild (partial) airway obstruction (p 369)
   - A severe (complete) airway obstruction (pp 369-372)
   - A swallowed object (p 371)
   - Respiratory distress (p 371)
   - Respiratory failure (pp 371-372)
   - Circulatory failure (p 372)
8. Describe how to treat the following illnesses and medical emergencies:
   - Altered mental status (pp 372-373)
   - Asthma (p 373)
   - Croup (pp 373-374)
   - Epiglottitis (p 374)
   - Drowning (pp 374-375)
   - Heat illnesses (p 375)
   - High fever (p 375)
   - Seizures (p 375)
   - Vomiting and diarrhea (p 377)
   - Abdominal pain (p 377)
   - Poisoning (pp 377-378)
   - Sudden infant death syndrome (p 378)

9. Describe the patterns of pediatric injury. (pp 378-379)
10. Describe the signs and symptoms of shock in pediatric patients. (p 379)
11. Discuss the effects of child restraint laws and car seat use on pediatric trauma. (pp 379-380)
12. Explain the steps you should take to care for a child who has signs of child abuse or sexual assault. (p 380)
13. Describe the need for emergency medical responder (EMR) critical incident stress debriefing. (pp 380-381)

Skills Objectives

1. Demonstrate the examination process for a child. (pp 364-365)
2. Demonstrate implementation of the PAT. (pp 364-365)
3. Demonstrate how to determine the respiration and pulse rates for a child. (p 366)
4. Demonstrate performance of the following skills on a child:
   - Opening the airway (p 367)
   - Basic life support (p 367)
   - Suctioning (pp 367-368)
   - Inserting an oral airway (p 368)
5. Demonstrate how to treat a child and an infant with
   - A mild (partial) airway obstruction (p 369)
   - A severe (complete) airway obstruction (pp 369-372)
   - A swallowed object (p 371)
   - Respiratory distress (p 371)
   - Respiratory failure (pp 371-372)
   - Circulatory failure (p 372)
6. Demonstrate how to treat the following illnesses and medical emergencies:
   - Altered mental status (pp 372-373)
   - Asthma (p 373)
   - Croup (pp 373-374)
   - Epiglottitis (p 374)
   - Drowning (pp 374-375)
   - Heat illnesses (p 375)
   - High fever (p 375)

- Seizures (p 375)
- Vomiting and diarrhea (p 377)
- Abdominal pain (p 377)
- Poisoning (pp 377-378)
- Sudden infant death syndrome (p 378)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*, Sixth Edition,** Chapter 17, and all related presentation support materials.

- Review the local protocol for splinting and realignment of injuries.

Support Materials

- Lecture PowerPoint presentation
- Skill Drill PowerPoint presentations
    - Skill Drill 17-1, Inserting an Oral Airway in a Child PowerPoint presentation
- Blankets
- EMR life support kit
- Trauma teddy bear
- Infant and child manikins
- Rescue breathing devices
- Infant car seat
- Skill Evaluation Sheets
    - Skill Drill 17-1, Inserting an Oral Airway in a Child

Unit Activities

Writing assignments: Ask students to write a brief essay outlining the three elements of the PAT.

Student presentations: Ask each student to present information about a specific pediatric emergency, including the assessment and treatment of that emergency. Examples include poisoning, seizures, fever, altered mental status, and shock.

Group activities: Form groups of three to four students, and ask each group to outline the developmental differences between various age groups, including how the assessment process may differ for each age group.

Medical terminology: Provide students with a list of the terminology presented in Chapter 16 and ask them to define each term. Another option is to create a matching activity with the terms on the left side of the page and the definitions scrambled on the right side of the page. The students would then indicate the appropriate definition for each term.

Summary

A. Sudden illnesses and medical emergencies are common in children and infants. Because the anatomy of children and infants differs from that of adults, special knowledge and skills are needed to assess and treat pediatric patients.

B. Managing a pediatric emergency can be a stressful situation for emergency medical responders. Because both the child and the parents may be frightened and anxious, you must behave in a calm, controlled, and professional manner.

C. A child's airway is smaller in relation to the rest of the body compared to an adult's airway, so secretions and swelling from illnesses or trauma can more easily block the child's airway. Because the tongue is relatively larger than the tongue of an adult, a child's tongue can more easily block the airway. Hyperextension of a child's neck can occlude the airway.

D. The child who is unresponsive, is lackluster, and appears ill should be evaluated carefully because the lack of activity and interest signal serious illness or injury. After conducting the primary assessment, carry out the routine patient examination, paying special attention to mental awareness, activity level, respirations, pulse rate, body temperature, and color of the skin.

E. The PAT is designed to give you a quick general impression of the child using only your senses of sight and hearing. The three components of the PAT are overall appearance, work of breathing, and circulation to the skin.

F. It is important to open and maintain the patient's airway and to ventilate adequately any child with respiratory problems. Otherwise, the child may experience respiratory arrest, followed by cardiac arrest.

G. Cardiopulmonary resuscitation for children and infants differs from adult cardiopulmonary resuscitation in several important ways. You should be certain that you understand these differences and are able to perform the appropriate steps confidently in the field.

H. Suctioning removes foreign substances that you cannot remove with your gloved fingers from the airway of a child. Oral airways can be used to maintain an open airway after you have opened the child's airway by manual means.

I. Young children often obstruct their upper and lower airway with foreign objects, such as small toys or candy. If the object is only partially blocking the airway, the child should be able to pass some air around it. You should attempt to remove the object only if it is clearly visible and you can remove it easily.

J. In complete or severe airway obstruction in a conscious child, you should perform the Heimlich maneuver (abdominal thrusts). If the child becomes unresponsive, begin cardiopulmonary resuscitation.

K. To relieve an airway obstruction in an infant, use a combination of back slaps and chest thrusts.

L. Children in respiratory distress require immediate medical attention. Signs of respiratory distress include a rapid or slow breathing rate, nasal flaring, retraction of the skin between the ribs and around the neck muscles, stridor, cyanosis, altered mental status, and combativeness. Respiratory distress can lead to respiratory failure, which in turn can lead to circulatory failure.

M. Three serious respiratory problems in pediatric patients are asthma, croup, and epiglottitis. A child who has asthma is usually already being treated for the condition by a physician; your primary treatment consists of calming and reassuring the parents and the child. Croup is an upper airway infection that results in a barking cough. Although epiglottitis resembles croup, it is a serious respiratory emergency; you must arrange for prompt transport in such cases.

N. Other pediatric medical emergencies include drowning, heat-related illnesses such as heatstroke, high fevers, seizures, vomiting and diarrhea, and abdominal pain.

O. Children's natural curiosity may lead them to sample medications or household items that contain poisonous substances. The two most common types of poisonings in children are caused by ingestion (taken by mouth) and absorption (entering through the skin).

P. Sudden infant death syndrome, also called crib death, is the unexpected death of an apparently healthy infant. You should know your local guidelines for the management of sudden infant death syndrome. Remember that the parents could do nothing to prevent the death.

Q. When caring for pediatric trauma patients, remember that you may have to adapt materials and equipment to the child's size. Also remember that children do not show signs of shock as early as adults do, although they can progress into severe shock quickly.

R. Major trauma in children usually results in multiple system injuries. Your first priority is always to check the ABCs and then stop severe bleeding, treat for shock, and proceed with the physical examination.

S. If you suspect child abuse or sexual assault, you must transport the child to an appropriate medical facility.

Chapter 18
Geriatric Emergencies

Unit Summary

After students complete this chapter and the related coursework, they will understand the physiologic changes associated with aging; illnesses common to geriatric patients; the use of advance directives; and the indications, signs, and symptoms of elder abuse.

National EMS Education Standard Competencies

Trauma

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

Special Considerations in Trauma

Recognition and management of trauma in

- Pregnant patient (Chapter 16, *Childbirth*)
- Pediatric patient (Chapter 17, *Pediatric Emergencies*)
- Geriatric patient (pp 390-391)

Special Patient Populations

Recognizes and manages life threats based on simple assessment findings for a patient with special needs while awaiting additional emergency response.

Geriatrics

- Impact of age-related changes on assessment and care (pp 388-389)

Patients With Special Challenges

- Recognizing and reporting abuse and neglect (p 397)

CTE Standards

PS-ER:

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services

B9.2 Know the common acronyms used in fire and emergency services

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock

management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

B9.4 Follow instructions for immediate care procedure as transmitted by an emergency medical dispatcher during transport

B9.5 Demonstrate administration of a limited number of drugs appropriate to the scope of practice

B9.6 Manage an incident scene as the first responder, using emergency response skills appropriate to training and certification

B9.7 Execute protocols in emergency management response when working with an on-scene accident

B9.8 Demonstrate the ability to assess the nature and extent of an illness or injury to establish and prioritize medical response

B9.9 Communicate with treatment-center staff to arrange reception of victims and to get instructions for further treatment

B9.10 Demonstrate the ability to receive and provide patient-care information to other medical providers

B9.11 Describe the function of emergency vehicles, use of medical and communication equipment, and the necessity of maintaining inventory as required for emergency services practices and procedures

HS-PC:

B2.1 Know basic human body structure and function in relationship to specific care between prevention, diagnosis, pathology, and treatment

B2.3 Recognize common disease and disorders of the human body

B2.4 Compare normal function of the human body to the diagnosis and treatment of disease and disorders

Knowledge Objectives

1. Define geriatric patient. (p 388)
2. Discuss some of the physiological changes that occur with aging. (pp 388-391)
3. Explain how to ensure more effective communication with geriatric patients who have hearing or vision impairment. (pp 389-390)
4. Explain why geriatric patients are at high risk for broken bones. (p 390)
5. Describe the types of cardiovascular and respiratory diseases that are prevalent among geriatric patients. (p 391)
6. List possible causes of altered mental status in geriatric patients. (pp 391-392)

7. Describe the general signs and symptoms of an infectious disease. (p 392)
8. Describe how to approach the assessment and treatment of patients who require long-term care. (p 392; p 394)
9. Explain the responsibility of emergency medical responders (EMRs) in caring for patients who show signs of depression, suicide, or dementia. (pp 395-396)
10. Describe the purpose of hospice care. (p 396)
11. Explain the purpose of advance directives and do not resuscitate orders. (p 396)
12. Describe the signs and symptoms of elder abuse. (p 397)

Skills Objectives

1. Demonstrate effective communication with geriatric patients who have hearing or vision impairment. (pp 389-390)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*****, Sixth** Edition**,** Chapter 18, and all related presentation support materials.

- Review the local protocol for care and treatment of older patients.
- Review local protocols and procedures for reporting suspected elder abuse.

Support Materials

- Lecture PowerPoint presentation
- Variety of pictures showing the stages of age

Unit Activities

Writing activities: Assign students research projects on pertinent topics, such as elder abuse signs and symptoms, elder depression, and advance directives and living wills.

Student presentations: Ask students to present the results of their writing activity to the class.

Group activities: Facilitate a group discussion on patients' right to die and the differences between delirium and dementia.

Medical terminology review: Create a *Jeopardy* game with questions that include important medical terms, injuries, and treatment relating to the geriatric patient. *Jeopardy* templates are available on the Internet.

Summary

A. This chapter describes the special considerations and skills needed when caring for geriatric patients.

B. The natural aging process results in a decline in the functioning of all body systems, including sensory and musculoskeletal changes.

C. Fractures occur often in older people because of the loss of bone density that can lead to osteoporosis. A simple fall at home can result in multiple severe fractures in an older patient who has weakened bones. Fractures of the wrist, spine, and hip are particularly common.

D. Common medical concerns for geriatric patients include cardiovascular and respiratory diseases.

E. Many of the medical conditions that commonly occur in older patients can result in altered mental status. Three common causes of altered mental status are lack of adequate oxygen to the brain, low blood glucose level, and hypothermia.

F. You may be called to assist with patients who require long-term care for a variety of reasons, ranging from trauma or illness to mechanical failures or transport needs. What may be a minor illness for a healthy person can be life threatening for a patient with a chronic condition.

G. Do not overlook signs of mental health problems in older patients. Three types of mental problems seen frequently in older people are depression, suicidal thoughts, and dementia.

H. Older people who are physically weak or mentally compromised are at high risk for abuse by a spouse, other family members, friends, or caregivers. As an EMR, you may be in a position to recognize abuse in geriatric patients. Elder abuse may take the form of physical abuse, sexual abuse, emotional abuse, financial abuse, or neglect.

Chapter 19
Transport Operations

Unit Summary

After students complete this chapter and the related coursework, they will understand the concept of preparing for a call, the phases of response, and guidelines for safe helicopter operations.

National EMS Education Standard Competencies

EMS Operations

Knowledge of operational roles and responsibilities to ensure safe patient, public, and personnel safety.

Principles of Safely Operating a Ground Ambulance

• Risks and responsibilities of emergency response (pp 403-405)

Air Medical

• Safe air medical operations (pp 407-408)

• Criteria for utilizing air medical response (p 405)

CTE Standards

PS-ER:

B9.7 Execute protocols in emergency management response when working with an on-scene accident

B9.8 Demonstrate the ability to assess the nature and extent of an illness or injury to establish and prioritize medical response

B9.9 Communicate with treatment-center staff to arrange reception of victims and to get instructions for further treatment

B9.10 Demonstrate the ability to receive and provide patient-care information to other medical providers

B9.11 Describe the function of emergency vehicles, use of medical and communication equipment, and the necessity of maintaining inventory as required for emergency services practices and procedures.

Knowledge Objectives

1. Summarize the different phases of an emergency response. (pp 404-405)
2. Explain the importance of preparing for an emergency call. (p 403)
3. List the medical and nonmedical equipment needed to respond to a call. (p 403)
4. Explain the importance of reviewing dispatch information. (p 404)
5. Explain the safety precautions needed to ensure a safe emergency response. (p 404)
6. Describe the actions Emergency Medical Responders (EMRs) should take on arrival at an emergency scene. (pp 404-405)
7. Describe the importance of transferring care to other emergency medical services (EMS) personnel. (p 407)
8. Explain the postrun tasks that follow the completion of an emergency response. (p 405)
9. Describe the guidelines for safe helicopter operations. (pp 407-408)
10. Describe the steps of setting up a helicopter landing zone. (p 407)

11. Describe the steps of loading patients into a helicopter. (pp 407-408)

Skills Objectives

1. Demonstrate how to set up a helicopter landing zone. (p 407)
2. Demonstrate how to assist with loading a patient into a helicopter. (pp 407-408)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*****, Sixth Edition,** Chapter 19, and all related presentation support materials.

• Review local protocol for the use of air ambulances.

Support Materials

• Lecture PowerPoint presentation

• Handouts summarizing hand signals used for helicopter operations

Unit Activities

Writing assignments: Have each student find an article on a recent ambulance crash or crew member fatality to illustrate the dangers involved in transport.

Student presentations: Have students find statistics on emergency vehicle crashes in the past five years. Ask them to present these to the class as lessons learned.

Group activities: Assign a specific phase of an emergency call to each group with instructions to create an in-class presentation. Each group should be given the same guidelines and questions to be answered within the presentation. Have students discuss the elements of each phase and explain why each is important. Consider asking the following questions:

• What supplies do we carry and why?

• Are there any specific pieces of equipment that are carried for this region or particular to this system?

• What are some of the policies for calling a helicopter?

Medical terminology review: Create flashcards with terminology relevant to EMS transport operations. Divide the class into groups of three or four students and have the students quiz one another using the flashcards.

Visual thinking: Project an image of an emergency vehicle crash, and present the story of the incident to the class. Discuss what went wrong and which safe driving practices could have been followed to prevent the accident.

Summary

A. In preparing yourself for a call, you must understand your role as a member of the emergency medical system and be prepared to respond promptly.

B. As an EMR, you need the proper equipment on an emergency call, including the medical equipment in your life support kit, your personal safety equipment, and equipment to safeguard the accident scene.

C. The six phases of an emergency call are preparation, dispatch, response to the scene, arrival at the scene, transferring care of the patient to other EMS personnel, and postrun activities.

D. If you will be working with a medical helicopter, you need to know proper safety precautions and loading procedures for helicopter transport.

E. By learning the simple but important skills involving EMS operations, you can become an effective member of the EMS system in your community.

Chapter 20
Vehicle Extrication and Special Rescue

Unit Summary

After students complete this chapter and the related coursework, they will be able to describe and apply, in context, the seven steps of vehicle extrication. Additionally, they will understand the characteristics of emergencies related to water immersion, diving problems, confined spaces, farm accidents, and bus accidents.

National EMS Education Standards Competencies

EMS Operations

Knowledge of operational roles and responsibilities to ensure patient, public, and personnel safety.

Vehicle Extrication

- Safe vehicle extrication (pp 412-421)
- Use of simple hand tools (pp 416-419)

CTE Standards

PS-ER:

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management

B9.4 Follow instructions for immediate care procedure as transmitted by an emergency medical dispatcher during transport.

Knowledge Objectives

1. Discuss the role of emergency medical responders (EMRs) during extrication. (p 412)
2. Identify the seven steps in the extrication process. (p 412)
3. List the various methods of gaining access to a patient. (p 416)
4. Describe the simple extrication procedures that an EMR can perform. (pp 416-419)
5. Identify the complex extrication procedures that require specially trained personnel. (p 420)
6. Discuss the role of EMRs in special rescue situations, including the following:
    - Water rescue (pp 421-423)
    - A patient with diving injuries (p 424)
    - Ice rescue (pp 424-425)
    - Confined space rescue (p 425)
    - Farm rescue (pp 427-428)
    - Bus rescue (p 428)

Skills Objectives

1. Demonstrate how to gain access to a patient through a vehicle window. (pp 418-419, Skill Drill 20-1)
2. Demonstrate how to provide airway management to a patient who is trapped in a vehicle. (pp 419-420, Skill Drill 20-2)
3. Demonstrate the role of EMRs in special rescue situations. (pp 412-413; pp 421-425; 427-428)
4. Demonstrate the steps EMRs can take in assisting with a water rescue. (pp 421-423)
5. Demonstrate the initial treatment of a patient in the water. (pp 422-424)

6. Demonstrate the initial treatment of a patient with diving injuries. (p 424)
7. Demonstrate the steps EMRs can take in assisting with an ice rescue. (pp 424-425)
8. Demonstrate the steps EMRs can take in assisting with a confined space rescue. (p 425)
9. Demonstrate the steps EMRs can take in assisting with farm rescue incidents. (pp 427-428)
10. Demonstrate the steps EMRs can take in assisting with bus crashes. (p 428)

Readings and Preparations

Review all instructional materials, including ***Emergency Medical Responder*****, Sixth Edition,** Chapter 20, and all related presentation support materials.

Support Materials

• Lecture PowerPoint presentation

• Training video on stabilizing spinal injuries in the water (contact local lifeguards or water rescue team for a poolside demonstration)

• Skill Drill PowerPoint presentations

- Skill Drill 20-1: Assessing the Vehicle Through the Window PowerPoint presentation
- Skill Drill 20-2: Airway Management in a Vehicle PowerPoint presentation
- Skill Drill 20-3: Turning a Patient in the Water PowerPoint presentation

• Skill Evaluation Sheets

- Skill Drill 20-1: Assessing the Vehicle Through the Window
- Skill Drill 20-2: Airway Management in a Vehicle
- Skill Drill 20-3: Turning a Patient in the Water

Unit Activities

• **Writing assignments:** Have each student pick a certain rescue operation and detail which training is required for such an operation as well as how EMS is involved.

• **Student presentations:** Break the class into small groups and have students research a recent disaster that involved some aspect of technical rescue and the EMS role, as well as some of the lessons learned. Examples include

- Hurricane Katrina
- Earthquake in Haiti
- Northridge earthquake

- Red River floods
- Local automobile accidents with multiple fatalities requiring extrication

• **Group activities:** Discuss the seven phases of extrication and what each one entails. What are some of the tools an ambulance may carry and use, and which training is required to use these tools?

• **Medical terminology:** Create a matching activity using the terms and definitions found in the Vital Vocabulary section of the chapter.

Summary

A. You should be able to perform the first four steps in the extrication process and assist other rescuers with steps five through seven.

B. Ice rescue, water rescue, underwater diving accidents, confined space rescue, farm rescue, and bus crashes are situations that require extensive skills and special training. It is important to help the patients, but not at the expense of your own safety.

C. In water and ice rescue situations, you can take some simple steps to help the person without endangering yourself, including reaching out to the person with an object, throwing a flotation device to the person, or rowing to the person in a boat.

D. You may not be able to distinguish between the two major medical emergencies created by underwater diving incidents (air embolism and decompression sickness), but you can provide basic care and summon appropriate assistance.

E. In confined space rescue, your primary goals are to call for additional assistance and to prevent other people, including yourself, from becoming victims.

F. Farm emergencies and bus crashes are complex rescue situations. However, if you follow simple steps, you can often stabilize these situations and provide initial aid to patients.

Chapter 21
Incident Management

Unit Summary

After students complete this chapter and the related coursework, they will understand the general approach to hazardous materials (HazMat) incidents, the process of triage at mass-casualty incidents, and the principles of the National Incident Management System (NIMS). They will also have an increased awareness of terrorism and the types of agents that might be used in a terrorist event. The role of EMRs at terrorist incidents is explained and the importance of safety, preparedness, and the use of incident command is stressed.

National EMS Education Standard Competencies

EMS Operations

Knowledge of operational roles and responsibilities to ensure patient, public, and personnel safety.

Incident Management

• Establish and work within the incident management system. (pp 439-442)

Mass-Casualty Incidents

• Triage principles (pp 437-440)

• Resource management (pp 436-437; pp 439-442)

Hazardous Materials Awareness

• Risks and responsibilities of operating in a cold zone at a HazMat or other special incident. (pp 434-435)

Mass-Casualty Incidents due to Terrorism and Disaster

• Risks and responsibilities of operating on the scene of a natural or man-made disaster. (pp 439-443; pp 445-449)

CTE Standards

PS-ER:

B2.5 Describe the principles and responsibilities of the Incident Command System (ICS) and the National Incident Management System (NIMS)

B6.1 Describe steps for each potential catastrophic event

B6.2 Analyze the history and outcomes of catastrophic events and the appropriate emergency responses

B6.3 Review a hazard mitigation plan to reduce death and injury for potential man-made and natural hazards

B6.4 Prepare an emergency preparedness and response plan that includes the roles of emergency response personnel for a potential catastrophic event in the community

B6.5 Recognize the importance and variety of recovery strategies to support individuals and communities impacted by a catastrophic event

B9.6 Manage an incident scene as the first responder, using emergency response skills appropriate to training and certification

Knowledge Objectives

1. State the responsibilities of emergency medical responders (EMRs) in incidents where HazMat are present. (pp 434-435)
2. Describe the actions EMRs should take in HazMat incidents before the arrival of specially trained personnel. (pp 434-435)
3. Discuss the different areas of a HazMat scene. (p 435)
4. Define a mass-casualty incident. (pp 435-436)
5. Describe the role of EMRs in a mass-casualty incident. (pp 435-440)
6. Explain the steps in the START triage system. (pp 438-440)
7. Describe the purpose of the National Incident Management System (NIMS). (p 441)
8. Define terrorism and weapons of mass destruction (WMD). (p 442)
9. Describe potential terrorist targets and risks. (pp 442-443)
10. Explain the risks posed by explosives and incendiary devices. (p 443; p 445)
11. Explain the risks posed by the following chemical agents:
    - Pulmonary agents (p 445)
    - Metabolic agents (p 445)
    - Insecticides (pp 445-446)
    - Nerve agents (p 446)
    - Blister agents (p 446)
12. Explain the risks posed by biologic agents. (pp 446-447)
13. Explain the risks posed by radiologic agents. (p 448)
14. Describe the role of EMRs in a terrorist event. (p 449)

Skills Objectives

1. Demonstrate the actions EMRs should take in HazMat incidents before the arrival of specially trained personnel. (pp 434-435)
2. Demonstrate triage of a mass-casualty incident using the START triage system. (pp 437-439)

Readings and Preparation

Review all instructional materials, including ***Emergency Medical Responder*, Sixth Edition,** Chapter 21, and all related presentation support materials.

• To properly put NIMS in perspective, it is important to understand what drives it and its foundation. The following two sites outline the history behind the Incident Command System (ICS) as well as the executive order that promotes it:

  • US Department of Homeland Security: www.dhs.gov/xabout/laws/gc_1214592333605.shtm

  • National Wildfire Coordinating Group: www.nwcg.gov/pms/forms/compan/history.pdf

• Review the locally approved ICS and incident management system organization.

• Review the local multiple-patient/mass-casualty incident protocols and triage system.

Support Materials

• Lecture PowerPoint presentation

• Locally approved triage tags

• Locally approved ICS organization charts

• Current edition of the *Emergency Response Guidebook*

• START triage information

Unit Activities

Writing activities: You may wish to direct your students to the various operations courses offered by FEMA.

1. ICS—100A An Introduction to Incident Command System: http://training.fema.gov/EMIWeb/IS/IS100a.asp
2. ICS—200 ICS for Single Resources and Initial Action Incidents: http://training.fema.gov/EMIWeb/IS/IS200a.asp
3. ICS—700 NIMS, An Introduction: http://training.fema.gov/EMIWeb/IS/IS700a.asp
4. ICS—800 National Response Framework, An Introduction: http://training.fema.gov/EMIWeb/IS/is800b.asp

Student presentations: Break the class into small groups and provide each group with an index card containing patient scenario information. Ask each group to assign their patient to a triage category (minimal, delayed, immediate, expectant). This category should be based on the START triage method and on the patient information provided on the card. Have the students compare their triage tags with the other groups, and have them justify or explain their rationale.

Group activities: Facilitate a group discussion of transportation elements and the various formats of triage.

Medical terminology review: Create a matching activity using the Vital Vocabulary terms and definitions at the end of Chapter 21. Ask students to complete the activity alone or in groups of two. *Jeopardy* templates are available on the Internet.

Visual thinking: Bring a copy of the *Emergency Response Guidebook (ERG)* to class or access it online. The web link is www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/erg2008_eng.pdf. Introduce students to the *ERG*, including how it is organized, when it is used, and how it is used. Finally, quiz students on basic information found in the *ERG*.

Summary

A. Because you may be the first trained person on the scene of an incident involving hazardous materials, you must be able to identify the potential problem and respond appropriately.

B. During a HazMat incident, your top priority is to recognize that a hazard is present and to protect yourself and bystanders from exposure and contamination from the hazardous material.

C. You should understand the role of an EMR during the first few minutes of a mass-casualty incident.

D. The START system is a simple triage system that you can use at mass-casualty incidents. It sorts patients in groups so that the most seriously injured patients are treated and transported first.

E. The National Incident Management System is designed to provide a unified approach to emergency incidents of any size that involve multiple agencies anywhere in the United States. All emergency responders need to have some understanding of this system.

F. Terrorist attacks, although rare, are a concern for emergency providers. The goal of terrorists is to intimidate a population or government so as to achieve a goal. Terrorists may use many different approaches to incite terror, including explosives, fire, chemicals, viruses, bacteria, and radiation.

G. Chemical agents are man-made substances that can have devastating effects on living organisms. They include pulmonary, metabolic, insecticides, nerve, and blister agents.

H. Biologic agents are organisms that cause disease. They are generally found in nature and can be weaponized to maximize the number of people exposed to the germ.

I. Radiologic weapons can create a massive amount of destruction. They include radiologic dispersal devices, also known as dirty bombs.

J. EMRs need to consider their safety, the safety of other rescuers, and the safety of bystanders whenever dealing with a terrorist-related event. Identifying potential threats, ensuring safety, and calling for specially trained personnel to deal with these threats are the EMR's responsibilities in many of these situations.

Textbook: Emergency Medical Responder, 6th Edition
By American Academy of Orthopaedic Surgeons (AAOS)

Instructional Methods/Strategies
The class is taught in such a way that there will be several different ways to help students learn. During lectures, the presentations will use as few words as possible and will include at least one picture that relates to the topic. Videos will also be used. As a skill-based class, students will be given step-by-step demonstrations and will be allowed time in class to master the skills (time depends on the complexity of the skill).
Accommodations listed on student IEPs or 504s will be respected and offered (such as special seating arrangements and testing accommodations).
Students will be working in groups that are sorted randomly using a randomizer. This will help facilitate a good learning environment, making sure classmates interact with each other (building relationships and culture), and fairness (avoiding thoughts of favoritism). The only exception would be to increase understanding, which may require switching group members by the teacher. Although this is not ideal, it is sometimes unavoidable to break up groups that are constantly off-task and putting together higher performing students with those who are struggling.

Assessment
Student assessments will come in the form of written and practical exams. As a CTE class, much of what the students learn is skill-based, requiring the use of practical exams.

Grading Policy
The grades will be assigned using a standard grading scale where students can earn A+ (97-100+%), A (93-96%), A- (90-92%), B+ (87-89%), B (83-86%), B- (80-82%), C+ (77-79%), C (73-76%), C- (70-72%), D+ (67-69%), D (63-66%), D- (60-62%), or F (0-59%).
Each student's grade will be determined with a combination of exams (20%), assignments (15%), fieldwork (25%), projects (20%), and final exams (20%). Fieldwork is worth more for this class to emphasize the importance of gaining valuable experience from the field (observing sporting events and/or shadowing medical staff). OPTIONAL: Students may have the opportunity to participate in ride alongs with the Alameda Fire Department as part of the field experience. Parental consent must be obtained and all rules and regulations for the AUSD and the AFD must be followed.