Chapter 15

Medical Overview

Unit Summary

After students complete this chapter and the related course work, they will understand the need for proper assessment techniques when called to patients with a chief complaint of a medical nature.

National EMS Education Standard Competencies

Medicine

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

Medical Overview

Assessment and management of a

• Medical complaint (pp 605–613)

Pathophysiology, assessment, and management of medical complaints to include:

• Transport mode (pp 611–613)

• Destination decisions (p 613)

Infectious Diseases

Awareness of

• A patient who may have an infectious disease (pp 613–621)

Assessment and management of

• A patient who may have an infectious disease (pp 613–621)

Knowledge Objectives

1. Differentiate between medical emergencies and trauma emergencies, remembering that some patients may have both. (p 605)

2. Name the various categories of common medical emergencies and give examples. (pp 605–605)

3. Describe the evaluation of the nature of illness (NOI). (p 606)

4. Discuss the assessment of a patient with a medical emergency. (pp 605–611)

5. Explain the importance of transport time and destination selection for a medical patient. (pp 611–613)

6. Define infectious disease and communicable disease. (p 613)

8. Discuss diseases of special concern and their routes of transmission, including influenza, herpes simplex, human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS), hepatitis, meningitis, tuberculosis, whooping cough, methicillin-resistant *Staphylococcus aureus* (MRSA), Middle East respiratory syndrome coronavirus (MERS-CoV), 2019 novel coronavirus (2019-nCoV), and Ebola. (pp 614–620)

Skills Objectives

There are no skills objectives for this chapter.

Readings and Preparation

Review all instructional materials including ***Emergency Care and Transportation of the Sick and Injured***, **Twelfth Edition**, Chapter 15, and all related presentation support materials.

Support Materials

• Lecture PowerPoint presentation

• Case Study PowerPoint presentation

Enhancements

• Direct students to visit Navigate.

• **Content connections:** Chapter 2, “Workforce Safety and Wellness,” discusses the routes of transmission and standard precautions that responders need to take to reduce risk and increase prevention of infectious and communicable diseases. Chapter 15, “Medical Overview,” discusses the management, awareness, and assessment of a patient who may have a communicable or infectious disease. Chapter 37, “Transport Operations,” discusses decontamination techniques for transport.

Teaching Tips

• You should attempt to find as many opportunities as possible for the students to have personal observations of patients presenting with medical complaints. You will need to ensure that the students complete ride-alongs and hospital observation shifts as often as possible.

Unit Activities

**Writing assignments:** Assign students to research the risk of an EMS provider contracting hepatitis after transporting a patient that has hepatitis C. Ask students to write three to four paragraphs on what they find during research.

**Student presentations:** Ask each student to give a 3- to 5-minute presentation on a particular common or serious communicable disease that he or she may encounter.

**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. Refer to Table 15-1 in the text.

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

Pre-Lecture

### You are the Provider

“You are the Provider” is a progressive case study that encourages critical thinking skills.

### Instructor Directions

**1.** Direct students to read the “You are the Provider” scenario found throughout Chapter 15.

**2.** You may wish to assign students to a partner or a group. Direct them to review the discussion questions at the end of the scenario and prepare a response to each question. Facilitate a class dialogue centered on the discussion questions and the Patient Care Report.

**3.** You may also use this as an individual activity and ask students to turn in their comments on a separate piece of paper.

Lecture

I. Introduction

A. Patients who need EMS assistance generally have experienced a medical emergency, a trauma emergency, or both.

1. Trauma emergencies involve injuries resulting from physical forces applied to the body.

2. Medical emergencies involve illnesses or conditions caused by disease.

3. It is important to remember that patients may have a combination of medical and trauma conditions.

B. Types of medical emergencies

1. Respiratory emergencies occur when patients have trouble breathing or when the amount of oxygen supplied to the tissues is inadequate.

2. Cardiovascular emergencies are caused by conditions affecting the circulatory system.

3. Neurologic emergencies involve the brain.

4. Gastrointestinal conditions include appendicitis, diverticulitis, pancreatitis, and many others.

5. A urologic emergency can involve kidney stones or a bladder infection.

6. The most common endocrine emergencies are caused by complications of diabetes mellitus.

7. Hematologic emergencies may be the result of sickle cell disease or various types of blood-clotting disorders such as hemophilia.

8. Immunologic emergencies involve the body’s response to foreign substances and can range from fairly minor to life threatening.

9. Toxicologic emergencies, including poisoning and substance abuse, result in other types of medical emergencies.

10. Some medical emergencies are caused by psychological or behavioral problems and may be especially difficult to deal with because patients often do not present with typical signs and symptoms.

11. Gynecologic conditions involve the female reproductive organs.

II. Patient Assessment

A. Assessment of the medical patient is similar to assessment of the trauma patient, but with a different focus.

1. Medical patient assessment is focused on:

a. Nature of illness (NOI)

b. Symptoms

c. Chief complaint

2. Establish an accurate medical history.

3. Use dispatch information to guide your initial response, but do not get locked into a preconceived idea of the patient’s condition.

a. Injuries may distract from the underlying condition.

b. Tunnel vision occurs when you become focused on one aspect of the patient’s condition and exclude all others, which may cause you to miss an important injury or illness.

4. Assessment may be difficult with uncooperative or hostile patients.

a. Maintain a professional, calm, nonjudgmental demeanor at all times.

b. Refrain from labeling patients and displaying personal biases.

c. A frequent caller may have a different complaint this time.

B. Scene size-up

1. Scene safety

a. Ensure the scene is safe.

b. Use standard precautions and determine the number of patients and whether you need additional help.

2. Determine the NOI.

a. The index of suspicion is your awareness and concern for potentially serious underlying and unseen injuries or illness.

b. Initiate spinal immobilization if indicated.

C. Primary assessment

1. Develop a general impression.

a. Perform a rapid examination of the patient to identify life threats.

b. Quickly determine the patient’s level of consciousness using the AVPU scale.

2. Airway and breathing

a. In conscious patients, ensure the airway is open and they are breathing adequately.

b. Check the respiratory rate, depth, and quality.

c. Consider applying oxygen if breathing has been affected.

d. For unconscious patients, make sure to open the airway using the proper technique for their condition, and take several seconds to evaluate their breathing.

e. Apply oxygen to patients if necessary

f. Unconscious patients may need airway adjuncts and ventilatory assistance with a bag-mask device.

3. Circulation

a. In a conscious patient, check the radial pulse and observe the patient’s skin color, temperature, and condition.

b. For unconscious patients, assess the circulation at the carotid artery.

4. Transport decision

a. The following patients should be considered in serious condition and in need of rapid transport:

i. Patients who are unconscious or who have an altered mental status

ii. Patients with airway or breathing problems

iii. Patients with obvious circulation problems such as severe bleeding or signs of shock

b. If the patient does not meet the criteria for rapid transport, continue your assessment on scene and prepare for transport when you have completed the assessment and treatment.

D. History taking

1. Determine what the problem is or what may be causing the problem.

a. Gather a thorough history.

b. Investigate the NOI by inquiring about the chief complaint.

c. For an unconscious patient, survey the scene for medication containers or medical devices.

2. Obtain a SAMPLE history and to ask questions about the patient’s chief complaint using the OPQRST mnemonic.

3. Record any allergies, medical conditions, and medications.

4. Some patients take numerous medications; take the medications with you to the hospital andlist them in your report.

E. Secondary assessment

1. The secondary assessment may occur on scene or en route to the ED.

a. In some cases, you may not have time to conduct a secondary assessment.

2. Physical examinations

a. All conscious patients should undergo a limited or detailed physical examination based on their chief complaint.

b. For unconscious patients, you should always perform a secondary assessment of the entire body or head-to-toe examination to obtain clues to assess the problem.

c. A full body assessment should help you obtain clues and it should be performed quickly so it does not delay transport.

d. If the patient’s condition warrants the secondary assessment:

i. Examine the head, scalp, and face.

ii. Examine the neck closely.

iii. Assess the chest and abdomen.

iv. Palpate the legs and arms.

v. Examine the patient’s back.

e. Treatment will depend on the condition(s) found and your local protocols.

3. Vital signs

a. Assess the pulse for rate, quality, and regularity at the most appropriate site.

b. Identify the rate, quality, and regularity of the respirations and any difficulties that may be apparent.

c. Obtain an initial blood pressure, measuring both systolic and diastolic pressures.

d. Consider using the automatic blood pressure cuff for future assessments at regular intervals.

e. Consider obtaining a blood glucose level and a pulse oximetry reading.

F. Reassessment

1. Once the assessment and treatment have been completed, reassessment should begin and continue throughout transport.

a. Repeat the primary assessment and reassess the chief complaint.

b. Consider the need for ALS backup.

c. Repeat your physical examination to identify and treat changes in the patient’s condition.

2. Review all treatments that have been performed.

3. Document any changes that have developed as a result of the treatments, and, if needed, adjust any of the treatments accordingly.

III. Management: Transport and Destination

A. Most medical emergencies require a level of treatment beyond that available in the prehospital setting.

1. It may be beyond the scope of an EMT to administer medications to a patient.

a. Any administration of medication by an EMT requires direct permission from medical control.

2. EMTs can use an automated external defibrillator (AED) on a patient who is pulseless and apneic.

B. Scene time

1. Scene time may be longer for medical patients than for trauma patients.

2. Gather as much information as possible to transmit to the ED.

3. Critical patients always need rapid transport. They include patients:

a. With altered mental status

b. With airway or breathing difficulties

c. With any sign of circulatory compromise

d. Who are very old or very young

C. Type of transport

1. If a life-threatening condition exists, the transportation should include lights and siren.

2. If the patient is not critical, consider nonemergency transport.

3. Modes of transport ultimately come in one of two categories: ground or air.

a. Ground transport EMS units are generally staffed by EMTs and paramedics.

b. Air transport EMS units are generally staffed by critical care transport professionals and paramedics.

D. Destination selection

1. Generally, the closest hospital should be your destination.

2. Sometimes a patient will benefit from going to another hospital that is capable of handling his or her particular condition.

IV. Infectious Diseases

A. General assessment principles

1. Approach the patient with an infectious disease like any other medical patient.

2. Perform scene size-up, take standard precautions, and complete primary assessment.

3. Gather patient history using OPQRST to elaborate on the patient’s chief complaint.

4. Obtain a SAMPLE history and a set of baseline vital signs; pay particular attention to medications and the events leading up to today’s problem.

5. Ask whether the patient has recently traveled or has come in contact with someone who has traveled.

B. General management principles

1. Focus on any life-threatening conditions identified in the primary assessment.

2. Be empathetic.

3. Place the patient in the position of comfort on the stretcher and keep them warm.

4. Use standard precautions.

a. Always follow your agency’s exposure control plan in cleaning equipment; properly discard any disposable supplies and wash linens.

C. Epidemic and pandemic considerations

1. Epidemic:when new cases of a disease in a human population substantially exceed what is expected

2. Pandemic: a disease outbreak that occurs on a global scale

V. Common or Serious Communicable Diseases

A. Influenza

1. Those with chronic medical conditions, compromised immune systems, and the very young and very old are most susceptible to complications of influenza.

2. Transmitted by direct contact with nasal secretions and aerosolized droplets from coughing and sneezing by infected people

3. Many potentially serious diseases can be passed by the respiratory route:

a. Always wear PPE (gloves, eye protection, and a HEPA respirator or N95 mask at a minimum).

b. Wash hands frequently.

c. Place a surgical mask on patients with suspected or confirmed respiratory disease.

d. Wear HEPA respirator or N95 mask during aerosol-generating procedures, such as suctioning of airway secretions, performing CPR, or assisting with endotracheal intubation.

4. Annual influenza immunization is important for EMS personnel to protect providers and patients.

B. Herpes simplex

1. This is a common virus strain carried by humans.

2. Symptomatic infections cause eruptions of tiny fluid filled blisters called vesicles that appear on the lips or genitals.

3. Can cause more serious illnesses like pneumonia and meningitis in the very young, very old, and immunocompromised patients

4. The primary mode of infection is through close personal contact, so standard precautions are generally sufficient to prevent spread to or from health care workers.

C. HIV infection

1. EMTs face a risk of exposure to the virus that causes AIDS on a regular basis.

2. AIDS can still be fatal; however, with treatment, patients can expect a near-normal lifespan.

3. HIV infection is a potential hazard only when deposited on mucous membranes or directly into the bloodstream.

a. It is not easily transmitted in the work setting.

b. Your risk of infection is limited to exposure to an infected patient’s blood and body fluids.

4. Many patients with human immunodeficiency virus (HIV) show no symptoms.

a. Always wear gloves when caring for a patient.

b. Take great care in handling and properly disposing of needles and other sharp objects.

c. Cover any open wounds that you have whenever you are on the job.

5. If you think that a patient’s blood or secretions may have entered your system, seek medical advice as soon as possible and notify your infectious disease officer.

D. Hepatitis

1. Inflammation (and often infection) of the liver

2. Can be caused by viruses and toxins

3. There is no sure way to tell which hepatitis patients are contagious.

4. Hepatitis A can be transmitted only from a patient who has an acute infection, whereas hepatitis B and hepatitis C can be transmitted from long-term carriers who have no signs of illness.

a. A carrier is a person (or animal) in whom an infectious organism has taken up permanent residence and may or may not cause an active disease.

b. Hepatitis A is transmitted orally through oral or fecal contamination.

c. Hepatitis B is far more contagious than HIV.

d. Hepatitis B vaccine is highly recommended for EMTs.

E. Meningitis

1. Inflammation of the meningeal coverings of the brain and spinal cord

2. Most forms of meningitis are not contagious.

a. One form, meningococcal meningitis, is highly contagious.

3. Take standard precautions.

a. Gloves and a mask will go a long way to prevent the patient’s secretions from getting into your nose and mouth.

b. Vaccines are rarely used.

c. Meningitis can be treated at the ED with antibiotics.

4. After treating a patient with meningitis, contact your employer health representative.

F. Tuberculosis

1. Most infected patients are well most of the time.

2. A chronic mycobacterial disease that usually strikes the lungs

3. Disease that occurs shortly after infection is called primary tuberculosis.

a. Reactive tuberculosis is common and can be much more difficult to treat.

4. Patients who pose the highest risk almost always have a cough.

a. Consider respiratory tuberculosis to be the only contagious form because it is the only one that is spread by airborne transmission.

b. Droplet nuclei: the remnants of the droplets produced by coughing after the excess water has evaporated

c. N95 or HEPA mask is required to stop droplet nuclei.

5. Absolute protection from infection with the tubercle bacillus does not exist.

a. According to the Centers for Disease Control and Prevention, one third of the world’s population is infected with tuberculosis.

b. The mechanism of transmission is not very efficient.

6. Have tuberculin skin tests regularly.

a. If the infection is found before you become ill, preventive therapy is almost 100% effective.

G. Whooping cough

1. Also called pertussis, whooping cough is an airborne disease caused by bacteria that mostly affects children younger than 6 years.

2. The best way to prevent exposure is to be vaccinated with the DPT or TDaP; you can also place a mask on the patient and yourself.

H. Methicillin-resistant *Staphylococcus aureus* (MRSA)

1. MRSA is a bacterium that causes infections and is resistant to many antibiotics.

2. In health care settings, MRSA is transmitted from patient to patient by the unwashed hands of health care providers.

3. Factors that increase the risk for developing MRSA include:

a. Antibiotic therapy

b. Prolonged hospital stays

c. A stay in an intensive care or burn unit

d. Exposure to an infected patient

4. The incubation period for MRSA appears to be between 5 and 45 days.

5. MRSA results in soft-tissue infections.

I. Global health issues

1. 2019 Novel coronavirus (COVID-19)

a. Originated in Wuhan, Hubei Province, China

b. Quickly spread, infecting millions and killing hundreds of thousands

c. Controlling the virus: social distancing

d. Symptoms include fever, cough, shortness of breath that appear 2–14 days after exposure to infected person

e. For current updates on COVID-19, use the CDC website (www.cdc.gov).

2. MERS-CoV (Middle East respiratory syndrome coronavirus)

a. First human case of MERS-CoV discovered in 2012 in Saudi Arabia

i. Most human infections found in the Middle East

ii. Cases of MERS-CoV have been found in Europe and the United States.

b. If you suspect MERS-CoV, place a surgical mask on the patient and notify the receiving facility.

3. Ebola

a. In 2014, an outbreak of the Ebola virus in West Africa, which spread when infected people traveled to other countries, caused international concern.

b. Incubation period: 6 to 12 days after exposure

c. Symptoms may not appear for as long as 21 days after infection.

d. Fatality rate can be as high as 70% if treatment in an ICU is not initiated promptly.

e. If you suspect Ebola, place a surgical mask the patient, follow PPE precautions as outlined by local protocols and the CDC, and notify the receiving facility.

J. Travel Medicine

1. You must be aware of travel-acquired infections when assessing a patient who was recently outside of the United States.

2. Patients can present with a variety of symptoms, including fever, cough, vomiting, bloody diarrhea, body aches, and rashes.

3. When you encounter an ill patient with a recent travel history, place a mask on the patient and gather as much information as possible.

4. Important questions to ask the patient should include:

a. Where did you recently travel?

b. Did you receive any vaccinations before your trip?

c. Were you exposed to any infectious diseases?

d. Is there anyone else in your travel party who is sick?

e. What types of foods did you eat?

f. What was your source of drinking water?

5. If you suspect the patient has a communicable illness, follow appropriate PPE precautions and notify the receiving facility.

VI. Conclusion

A. The assessment and treatment of medical patients can be challenging and interesting because of the nature of medical conditions.

1. The condition of a medical patient may not be as apparent as in a trauma patient and treatment may not be as straightforward.

2. Delays in an attempt to diagnose a condition can be harmful to the patient.

3. Keep calm, use your patient assessment skills, treat the patient’s symptoms, report to medical control, and transport the patient safely to the emergency department.

4. Be prepared to handle any combination of conditions, including conditions of medical patients who have been involved in trauma.

Post-Lecture

## Assessment in Action

A. Assessment in Action is available in the Navigate course.