Chapter 8
Patient Assessment

Unit Summary

After students complete this chapter presentation and the related course work, they will understand the scope and sequence of patient assessment for medical and trauma patients and all the phases and components of patient assessment. Please note that this chapter is divided into five sections: scene size-up, primary assessment, history taking, secondary assessment, and reassessment. These divisions will help facilitate the instructorôs approach for teaching this skill as a whole concept.

Knowledge Objectives

1. Identify the components of the patient assessment process, and explain how the different causes and presentations of emergencies will affect how each step is performed by the EMT. (p 253)
2. Discuss some of the possible environmental, chemical, and biologic hazards that may be present at an emergency scene, ways to recognize them, and precautions to protect personal safety. (pp 255ï 256)
3. Discuss the steps EMTs should take to survey a scene for signs of violence and to protect themselves and bystanders from real or potential danger. (p 256)
4. Describe how to determine the mechanism of injury (MOI) or nature of illness (NOI) at an emergency and the importance of differentiating trauma patients from medical patients. (pp 256ï 257)
5. List the minimum standard precautions that should be followed and personal protective equipment (PPE) that should be worn at an emergency scene, including examples of when additional precautions would be appropriate. (pp 257ï 258)
6. Explain why it is important for EMTs to identify the total number of patients at an emergency scene and how this evaluation relates to determining the need for additional or specialized resources, implementation of the incident command system (ICS), and triage. (pp 258ï 259)
7. Describe the principal goals of the primary assessment process: to identify and treat life threats and to determine if immediate transport is required. (pp 261ï 278)
8. Explain the process of forming a general impression of a patient as part of primary assessment and the reasons why this step is critical to patient management. (p 261)
9. Explain the importance of assessing a patientôs level of consciousness (LOC) to determine altered mental status, and give examples of different methods used to assess alertness, responsiveness, and orientation. (pp 262ï 265)
10. Describe the assessment of airway status in patients who are both responsive and unresponsive, and give examples of possible signs and causes of airway obstruction in each case as well as the appropriate EMT response. (pp 265ï 266)
11. Describe the assessment of a patientôs breathing status, including the key information the EMT must obtain during this process and the care required for patients who have both adequate and inadequate breathing. (pp 266ï 269)
12. List the signs of respiratory distress and respiratory failure. (p 269)

13. Describe the assessment of a patientôs circulatory status, including the different methods for obtaining a pulse and appropriate management depending on the patientôs status. (pp 270ï 272)
14. Explain the variations required to obtain a pulse in infant and child patients as compared with adult patients. (pp 270ï 272)
15. Describe the assessment of a patientôs skin color, temperature, and condition, providing examples of both normal and abnormal findings and the information this provides related to the patientôs status. (pp 272ï 274)
16. Discuss the process of assessing for and methods for controlling external bleeding. (p 274)
17. Discuss the steps used to identify and subsequently treat life-threatening conditions that endanger a patient during an emergency. (pp 274ï 275)
18. List the steps the EMT should follow during the rapid scan of a trauma patient, including examples of abnormal signs and appropriate related actions. (pp 275ï 277)
19. Explain the process for determining the priority of patient care and transport at an emergency scene, and give examples of conditions that necessitate immediate transport. (pp 275, 277ï 278)
20. Discuss the importance of protecting a trauma patientôs spine and identifying fractured extremities during patient packaging for transport. (pp 277ï 278)
21. Discuss the process of taking a focused history, its key components, and its relationship to the primary assessment process. (pp 280ï 281)
22. Describe examples of different techniques an EMT may use to obtain information from patients during the history-taking process. (pp 280ï 287)
23. Discuss different challenges EMTs may face when taking a patient history on sensitive topics and strategies they may use to facilitate each situation. (pp 282ï 287)
24. Explain the purpose of performing a physical exam during secondary assessment, its components, special patient considerations, and methods for determining which aspects of the physical examination will be used. (pp 289ï 304)
25. Describe the purpose of a full-body scan, and list the steps used during this process. (pp 291ï 295)
26. Explain situations in which patients may receive a focused assessment, and then give examples by body system of what each focused assessment should include based on a patientôs chief complaint. (pp 291, 296ï 304)
27. List normal blood pressure ranges for adults, children, and infants. (pp 296ï 301)
28. Explain the importance of performing a reassessment of the patient and the steps in this process. (p 306)

Skills Objectives

1. Demonstrate how to use the AVPU scale to test for patient responsiveness. (p 262)
2. Demonstrate how to evaluate a patientôs orientation and document his or her status correctly. (pp 262ï 264)
3. Demonstrate how to test pupil reaction in response to light in a patient and how to document his or her status correctly. (pp 264ï 265)

4. Demonstrate the techniques for assessing a patientôs airway and correctly obtaining information related to respiratory rate, rhythm, quality/character of breathing, and depth of breathing. (pp 265ï 269)
5. Demonstrate how to assess a radial pulse in a responsive patient and an unresponsive patient. (pp 270ï 272)
6. Demonstrate how to assess a carotid pulse in an unresponsive patient. (pp 270ï 272)
7. Demonstrate how to palpate a brachial pulse in a child who is younger than 1 year (or a manikin). (pp 270ï 272)
8. Demonstrate how to obtain a pulse rate in a patient. (pp 270ï 272)
9. Demonstrate how to assess capillary refill in an adult or child older than 6 years. (pp 273ï 274)
10. Demonstrate how to assess capillary refill in an infant or child younger than 6 years; explain variations that would be required when assessing a newborn. (pp 272ï 274)
11. Demonstrate how to perform a rapid scan of a patient. (pp 275ï 277, Skill Drill 8-1)
12. Demonstrate the use of a pulse oximetry device to evaluate the effectiveness of oxygenation in the patient. (pp 289ï 290)
13. Demonstrate the use of electronic devices to assist in determining the patientôs blood pressure in the field. (pp 290ï 291)
14. Demonstrate how to perform a full-body scan. (pp 291ï 295, Skill Drill 8-2)
15. Demonstrate how to measure blood pressure by auscultation. (pp 296ï 300, Skill Drill 8-3)
16. Demonstrate how to measure blood pressure by palpation. (p 300)

Lecture

I. Introduction

A. The importance of patient assessment cannot be overemphasized.

1. EMTs must master and be comfortable with the patient assessment process.
2. Patient assessment is used, to some degree, in every patient encounter.

B. The assessment process is divided into five main parts:

1. Scene size-up
2. Primary assessment
3. History taking
4. Secondary assessment
5. Reassessment
    a. The order in which the steps are performed depends on the patientôs condition.

C. Rarely does one sign or symptom reveal to you the patient's status or underlying problem.

1. A symptom is a subjective condition the patient feels and tells you about.
2. A sign is an objective condition you can observe about the patient.

D. The patient assessment process is the ground on which all levels of EMT education are built and is the foundation of all patient care.

II. Scene Size-up

A. The scene size-up is how you prepare for a specific situation.

1. It begins with the dispatcherôs basic information.
2. It must be combined with an inspection of the scene to help you:
   a. Ensure safety
   b. Identify hazards, safety concerns, and the number of patients you may have
   c. Identify additional resources you may need

B. Ensure scene safety.

1. The prehospital setting is not a controlled and isolated scene; it is unpredictable, dangerous, and unforgiving.
   a. Every prehospital scene has a potential for injury.
2. Ensure your own safety first and your patientôs second.
   a. This begins by wearing, at a minimum, an American National Standards Institute 207 certified high-visibility public safety vest.
   b. Look for possible dangers as you approach the scene and before you step out of the vehicle.
3. Typically the way you enter an area is also the way you will leave, with a stretcher.
   a. Consider difficult terrain.
4. Consider traffic safety issues and issues related to scene safety in vehicle rescue.
   a. Do not enter potentially dangerous scenes until a professional rescuer has made the scene safe.
5. Consider environmental conditions at the scene.
   a. Your patient may be outdoors, indoors, or in a public place.
   b. Be aware of the weather and the physical terrain.
6. Working in unfavorable conditions and on unstable surfaces is a large part of prehospital care.
   a. A good rule to use when faced with a wide variety of possibilities is that any actions you may take to protect yourself should also be considered for the patient.
7. If appropriate, help protect bystanders from becoming patients as well.
8. Some forms of hazards:
   a. Chemical and biologic
   b. Electricity from downed lines or lightning
   c. Water hazards, fires, explosions
   d. Potentially toxic environments
   e. Hazards found at every motor vehicle collision scene
   i. Information that may help to determine potential hazards can be provided by dispatch.
9. Occasionally you and your partner will not be able to enter a scene safely.
   a. If the scene is unsafe, make it safe.
   b. If this is not possible, do not enter.

c. If the hazard presents a substantial risk to your health and safety, you should request the appropriate assistance.

d. If the scene is a potential crime scene, follow local protocols before entering.

10. Be aware of scenes that have the potential for violence.

a. Violent patients

b. Distraught family members

c. Angry bystanders

d. Gangs

e. Unruly crowds

C. Determine mechanism of injury (MOI)/nature of illness (NOI).

1. To care for trauma patients, you must understand the MOI.

a. With a traumatic injury, the body has been exposed to some force or energy that has resulted in a temporary injury, permanent damage, or even death.

2. Fragile and easily injured areas include the brain, spinal cord, and eyes.

a. You can use the MOI as a kind of guide to predict the potential for a serious injury by evaluating three factors:

i. The amount of force applied to the body

ii. The length of time the force was applied

iii. The areas of the body that are involved

3. With blunt trauma, the force of the injury occurs over a broad area, and the skin is usually not broken.

a. However, the tissues and organs below the area of impact may be damaged.

4. With penetrating trauma, the force of the injury occurs at a small point of contact between the skin and the object.

a. It is an open wound with high potential for infection.

b. The severity of injury depends on:

i. The characteristics of the penetrating object

ii. The amount of force or energy

iii. The part of the body affected

5. For medical patients, determine the NOI.

a. There are similarities between the MOI and the NOI.

i. Both require you to search for clues regarding how the incident occurred.

b. To quickly determine the NOI, talk with the patient, family, or bystanders.

c. Use your senses to check the scene for clues as to the possible problem.

6. Be aware of scenes with more than one patient who are exhibiting similar signs or symptoms.

a. Could indicate an unhealthy situation for you and your partner as well

D. The importance of the MOI and NOI

1. Considering the MOI or NOI early can be of value in preparing to care for your patient.

2. During your prehospital assessment, you may be tempted to categorize your patient immediately as a trauma or medical patient.

a. Remember, the fundamentals of a good patient assessment are the same despite the unique aspects of trauma and medical care.

E. Take standard precautions

1. Standard precautions and personal protective equipment (PPE) need to be considered and adapted to the prehospital task at hand.
   a. PPE includes clothing or specialized equipment that provides protection to the wearer.
   b. The type of PPE used will depend on the specific job duties required during a patient care interaction.
2. Standard precautions are protective measures that have traditionally been developed by the Centers for Disease Control and Prevention for use in dealing with:
   a. Objects
   b. Blood
   c. Body fluids
   d. Other potential exposure risks of communicable disease
3. The concept of standard precautions assumes that all blood, body fluids (except sweat), nonintact skin, and mucous membranes may pose a substantial risk of infection.
4. When you step out of the EMS vehicle and before actual patient contact, standard precautions must have been taken or initiated.
   a. At a minimum, gloves must be in place before any patient contact.
   b. Also consider glasses and a mask.

F. Determine number of patients.

1. During scene size-up, it is important to accurately identify the total number of patients.
   a. Critical in determining your need for additional resources
2. When there are multiple patients, you should use the incident command system, call for additional units, and then begin triage.
   a. The incident command system is a system implemented to manage disasters and mass-casualty incidents in which section chiefs report to the incident commander.
   b. Triage is the process of sorting patients based on the severity of each patientôs condition.

G. Consider additional/specialized resources

1. Some situations may require:
   a. More ambulances
   b. Specialized resources
2. Specialized resources include:
   a. Advanced life support (ALS)
   b. Air medical support
   c. Fire departments may handle high-angle rescue, hazardous materials management, complex extrication from motor vehicle crashes, or water rescue.
   d. Search and rescue teams
3. To determine if you require additional resources, ask yourself:
   a. How many patients are there?
   b. What is the nature of their condition?
   c. Who contacted EMS?
   d. Does the scene pose a threat to you, your patient, or others?

III. Primary Assessment

A. Patient assessment begins when you greet your patient.

1. The goal of the primary assessment is to identify and initiate treatment of immediate or potential life threats.
2. The patientôs vital signs will determine the extent of your treatment at the scene.

B. Form a general impression.

1. The initial general impression is formed to determine the priority of care and is based on your immediate assessment of the patient.
2. Includes making a note of the personôs:
    a. Age
    b. Sex
    c. Race
    d. Level of distress
    e. Overall appearance
3. As you approach, make sure the patient sees you coming.
    a. Position yourself lower than the patient, if possible.
    b. Introduce yourself.
    c. Address the patient by name.
    d. Ask about the chief complaint.
4. Assess the patientôs skin color and condition.
    a. Life-threatening problems should be treated immediately.
5. Determine whether your patientôs condition is stable, stable but potentially unstable, or unstable.

C. Assess level of consciousness (LOC).

1. The LOC is considered a vital sign.
    a. Tells a lot about a patientôs neurologic and physiologic status
2. Determine which of the following categories best fits your patient:
    a. Conscious with an unaltered LOC
    b. Conscious with an altered LOC
    c. Unconscious
3. Conscious with an altered LOC may be due to inadequate perfusion.
    a. Perfusion is the circulation of blood within an organ or tissue.
    b. Can also be caused by medications, drugs, alcohol, or poisoning
4. Assessment of an unconscious patient focuses first on airway, breathing, and circulation (ABCs).
    a. Sustained unconsciousness should warn you that a critical respiratory, circulatory, or central nervous system problem or deficit may exist.
    b. You should package the patient and provide rapid transport to the hospital.
5. To assess for responsiveness, use the mnemonic AVPU, and choose one description:
    a. **A**wake and alert
        i. The patient is aware of you and is responsive to the environment.

b. Responsive to **V**erbal stimuli
   i. The patientôs eyes open to verbal stimuli, and he or she is able to respond in some meaningful way when spoken to.
c. Responsive to **P**ain
   i. The patient does not respond to your questions but moves or cries out in response to painful stimulus.
d. **U**nresponsive
   i. The patient does not respond spontaneously or to a verbal or painful stimulus.
   ii. No cough or gag reflex

6. Orientation tests mental status by checking a patientôs memory and thinking ability.
   a. Evaluates a personôs ability to remember:
      i. Personð remembers his or her name
      ii. Placeð identifies the current location
      iii. Timeð the current year, month, and approximate date
      iv. Eventð describes what happened
   b. Evaluates long-term memory, intermediate-term memory, and short-term memory
   c. If the patient knows these facts, the patient is said to be ñalert and fully oriented,ò ñalert and oriented to person, place, time, and event,ò or ñalert and oriented × 4.ò

7. The Glasgow Coma Scale (GCS) score can be helpful in providing additional information on patients with mental status changes.
   a. Uses parameters that test a patientôs eye opening, best verbal response, and best motor response
   b. Provides a numeric score that defines the severity of a patientôs brain dysfunction

8. Pupils
   a. The diameter and reactivity to light of the patientôs pupils reflect the status of the brainôs perfusion, oxygenation, and condition.
      i. The pupil is a circular opening in the center of the pigmented iris of the eye.
      ii. The pupils are normally round and of approximately equal size and serve as optical diaphragms, adjusting their size depending on the available light.
      iii. In the absence of any light, the pupils will become fully relaxed and dilated.
   b. A small number of the population exhibit unequal pupils (anisocoria). You must assume the patient has depressed brain function as a result of central nervous system depression or injury if the pupils react in any of the following ways:
      i. Become fixed with no reaction to light
      ii. Dilate with introduction of a bright light and constrict when the light is removed
      iii. React sluggishly instead of briskly
      iv. Become unequal in size
      v. Become unequal in size when a bright light is introduced into or removed from one eye
   c. Depressed brain function can be caused by the following situations:
      i. Injury of the brain or brain stem
      ii. Trauma or stroke
      iii. Brain tumor
      iv. Inadequate oxygenation or perfusion
      v. Drugs or toxins (central nervous system depressants)
   d. Opiates, which are one category of central nervous system depressants, cause the pupils to constrict so significantly, regardless of light, that they become so small as to be described as pinpoint.
   e. PEARRL is a useful assessment guide:

i. **P**upils
ii. **E**qual
iii. **A**nd
iv. **R**ound
v. **R**egular in size
vi. React to **L**ight

D. Assess the airway.

1. As you move through the primary assessment, always be alert for signs of airway obstruction.
   a. To prevent permanent damage to the brain, heart, and lungs, or even death, you must determine if the airway is open (patent) and adequate.
2. Responsive patients
   a. Patients of any age who are talking or crying have an open airway.
   b. Watching and listening to how patients speak may provide important clues about the adequacy of their airway and the status of their breathing.
   c. If you identify an airway problem, stop the assessment process and obtain a patent airway.
3. Unresponsive patients
   a. With a patient who is unresponsive or has a decreased LOC, immediately assess the patency of the airway.
   b. If there is a potential for trauma, use the modified jaw-thrust technique to open the airway.
   c. If it can be confirmed that the patient did not experience a traumatic event, use the head tiltï chin lift technique to open and maintain a patent airway.
   d. Another cause of airway obstruction in an unconscious patient could be relaxation of the tongue muscles, allowing the tongue to fall to the back of the throat.
4. Signs of obstruction in an unconscious patient:
   a. Obvious trauma, blood, or other obstruction
   b. Noisy breathing, such as snoring, bubbling, gurgling, crowing, or other abnormal sounds
   c. Extremely shallow or absent breathing
5. Remember that airway positioning depends on the age and size of your patient.

E. Assess breathing.

1. Once you have made sure the patientôs airway is open, make sure the patientôs breathing is present and adequate.
   a. A patient who is breathing without assistance is said to have spontaneous respirations or spontaneous breathing.
2. Breathing is a continuous process in which each breath regularly follows the last with no notable interruption.
   a. You will assess breathing by:
      i. Watching the patientôs chest rise and fall
      ii. Feeling for air through the mouth and nose during exhalation
      iii. Listening to breath sounds with a stethoscope over each lung
3. When assessing breathing, obtain the following information:
   a. Respiratory rate
   b. Rhythmð regular or irregular
   c. Quality/character of breathing

d. Depth of breathing

4. Ask yourself the following questions:
   a. Does the patient appear to be choking?
   b. Is the respiratory rate too fast or too slow?
   c. Are the patientôs respirations shallow or deep?
   d. Is the patient cyanotic (blue)?
   e. Do I hear abnormal sounds when listening to the lungs?
   f. Is the patient moving air into and out of the lungs on both sides?
5. If a patient seems to develop difficulty breathing after your primary assessment, you should immediately reevaluate the airway.
   a. Administer supplemental oxygen if:
      i. Respirations are too fast (generally more than 20 breaths/min)
      ii. Respirations are too shallow
      iii. Respirations are too slow (generally fewer than 12 breaths/min)
   b. Consider providing positive-pressure ventilations with an airway adjunct when:
      i. Respirations exceed 24 breaths/min
      ii. Respirations are fewer than 8 breaths/min
6. Respiratory rate
   a. A normal respiratory rate varies widely in adults, ranging from 12 to 20 breaths/min.
   b. Children breathe at even faster rates.
   c. Respirations are determined by counting the number of breaths in a 30-second period and multiplying by two.
      i. The result equals the number of breaths per minute.
   d. While counting the patientôs respirations, also note the rhythm.
      i. If the time from one peak chest rise to the next is fairly consistent, respirations are considered regular.
      ii. If respirations vary or change frequently, they are considered irregular.
7. Quality of breathing
   a. It may be helpful to listen to breath sounds on each side of your patientôs chest early in the primary assessment.
      i. Decreased or absent breath sounds on one side of the chest and decreased movement in the rise and fall on one side indicate inadequate breathing.
   b. Normal breathing is silent or, in a very quiet environment, accompanied only by the sounds of air movement at the mouth and nose.
   c. A patient who coughs up thick, yellowish or greenish sputum (matter from the lungs) most likely has an advanced respiratory infection.
   d. How and where to listen to assess breath sounds:
      i. You can almost always hear a patientôs breath sounds better from the patientôs back.
      ii. Auscultate over the upper lungs (apices), the lower lungs (bases), and the major airways (midclavicular and midaxillary lines).
      iii. Lift the clothing or slide the stethoscope under the clothing.
      iv. Place the diaphragm of the stethoscope firmly against the skin to hear the breath sounds.
   e. What are you listening for?
      i. Normal breath soundsð These are clear and quiet during inspiration and expiration.
      ii. Wheezing breath soundsð These suggest an obstruction of the lower airways.

iii. Ralesð A moist crackling, usually on both inspiration and expiration

iv. Rhonchið Low-pitched, noisy sounds that are most prominent on expiration

v. Stridorð A brassy, crowing sound that is most prominent on inspiration

8. Depth of breathing

a. The amount of air that the patient is exchanging depends on the rate and the tidal volume.

i. Tidal volume is a measure of the depth of breathing and is the amount of air in milliliters that is moved into or out of the lungs during one breath.

b. Shallow respirations can be identified by little movement of the chest wall (reduced tidal volume) or poor chest excursion.

i. Deep respirations cause a significant rise and fall of the chest.

c. The presence of retractions (indentation above the clavicles and in the spaces between the ribs) or the use of accessory muscles of respiration is a sign of inadequate breathing.

i. Nasal flaring and seesaw breathing in pediatric patients indicate inadequate breathing.

ii. A patient who can speak only two or three words without pausing to take a breath, a condition known as two- to three-word dyspnea, has a serious breathing problem.

d. Normal breathing is an effortless process that does not affect a patientôs speech, posture, or positioning.

i. In the tripod position, a patient is sitting and leaning forward on outstretched arms with the head and chin thrust slightly forward; significant conscious effort is required for breathing.

ii. In the sniffing position, the patient sits upright with the head and chin thrust slightly forward, and the patient appears to be sniffing.

e. Breathing that becomes progressively more difficult requires progressively more effort; this is known as labored breathing.

F. Assess circulation.

1. Circulation is evaluated by assessing the pulse rate, pulse quality, and pulse rhythm.

2. Assess pulse.

a. Often referred to as a heartbeat, the pulse is the pressure wave that occurs as each heartbeat causes a surge in the blood circulating through the arteries.

b. To determine if a pulse is present, you will need to palpate (feel) the pulse.

i. In responsive patients who are older than 1 year, you should palpate the radial pulse at the wrist.

ii. In unresponsive patients older than 1 year, you should palpate the carotid pulse in the neck.

iii. Palpate the brachial pulse, located at the medial area (inside) of the upper arm, in children younger than 1 year.

c. If you cannot palpate a pulse in an unresponsive patient, begin CPR.

d. If an AED is available, attach it and follow the voice prompts, following your local protocol.

e. If the patient has a pulse but is not breathing, provide ventilations at a rate of at least 10 breaths/min for adults and at least 12 breaths/min for an infant or a child.

f. After you have determined that a pulse is present, next determine its adequacy.

g. Pulse rate

i. For an adult, the normal resting pulse rate should be between 60 and 100 beats/min and could be as much as 100 beats/min in geriatric patients.

ii. In pediatric patients, generally the younger the patient, the faster the pulse rate.

iii. To obtain the pulse rate in most patients, you should count the number of pulses felt in a 30-second period and then multiply by two.

iv. A rate that is greater than 100 beats/min is described as tachycardia.

v. A rate of less than 60 beats/min is described as bradycardia.

h. Pulse quality
   i. If the pulse feels of normal strength, you should describe it as being strong.
   ii. You should describe a stronger than normal pulse as ñbounding.ò
   iii. A pulse that is weak and difficult to feel is described as ñweakò or ñthready.ò

i. Pulse rhythm
   i. Determine whether the rhythm is regular or irregular.
   ii. When the interval between each ventricular contraction of the heart is short, the pulse is rapid.
   iii. When the interval is longer, the pulse is slower.
   iv. The pulse should be easy to feel; weak pulses may signal problems.

3. Assess skin.

a. A normally functioning circulatory system perfuses the skin with oxygenated blood.
   i. Perfusion is assessed by evaluating a patientôs skin color, temperature, moisture, and capillary refill.

b. Skin color
   i. The skinôs color is determined by the blood circulating through vessels and the amount and type of pigment that is present in the skin.
   ii. Poor peripheral circulation will cause the skin to appear pale, white, ashen, or gray.
   iii. When the blood is not properly saturated with oxygen, it appears bluish.
   iv. High blood pressure may cause the skin to be abnormally flushed and red.
   v. Changes in skin color may also result from chronic illness.

c. Skin temperature
   i. Normal skin temperature will be warm to the touch (normal body temperature is 98.6°F).
   ii. Abnormal skin temperatures are hot, cool, cold, and clammy.

d. Skin moisture
   i. Dry skin is normal.
   ii. Skin that is wet, moist (often called diaphoretic), or excessively dry and hot suggests a problem.

e. Capillary refill
   i. Capillary refill is evaluated to assess the ability of the circulatory system to restore blood to the capillary system.
   ii. To test capillary refill:
      (a) Place your thumb on the patientôs fingernail with your fingers on the underside of the patientôs finger and gently compress.
      (b). Remove the pressure.
      (c). As the underlying capillaries refill with blood, the nail bed will be restored to its normal pink color.
      (d). With adequate perfusion, the color in the nail bed should be restored to its normal pink color within 2 seconds.

4. Assess and control external bleeding.

a. Assess after clearing the airway and stabilizing breathing.
b. Bleeding from a large vein is characterized by a steady flow of blood.
c. Bleeding from an artery is characterized by a spurting flow of blood.
d. Run gloved hands from the patientôs head to toe, pausing periodically to see if your gloves are bloody.
e. Controlling external bleeding is often very simple.
   i. Apply direct pressure.
   ii. If bleeding is on the arms or legs, elevate the extremity.
   iii. When direct pressure and elevation are not successful, apply a tourniquet.

5. Identify and treat life threats.
    a. The EMT must determine a life threat and quickly address it.
    b. There will be a loss of meaningful communication between you and the patient.
        i. After a variable period, loss of consciousness occurs.
        ii. The jaw muscles become slack, leading to airway obstruction. The patient stops breathing.
        iii. The heart cannot function without oxygen, and stops.
        iv. Brain cells become damaged, leading to irreversible brain damage.
    c. Lifesaving interventions begin with opening the airway.

G. Perform a rapid scan.

1. Scan the patientôs body to identify injuries that must be managed or protected immediately.
    a. Take 60 to 90 seconds to perform the rapid scan.
    b. This is not a focused physical examination, which comes later.
2. See ***Skill Drill 8-1***.

H. Determine priority of patient care and transport.

1. The rapid scan assists in determining transport priority.
2. High-priority patients include those with any of the following conditions:
    a. Difficulty breathing
    b. Poor general impression
    c. Unresponsive with no gag or cough reflex
    d. Severe chest pain
    e. Pale skin or other signs of poor perfusion
    f. Complicated childbirth
    g. Uncontrolled bleeding
    h. Responsive but unable to follow commands
    i. Severe pain in any area of the body
    j. Inability to move any part of the body
3. The Golden Period is the time from injury to definitive care, during which treatment of shock and traumatic injuries should occur because survival potential is best.
    a. Aim to assess, stabilize, package, and begin transport to the appropriate facility within 10 minutes (often referred to as the ñPlatinum 10ò) after arrival on scene.
4. Transport decisions should be made at this point.
    a. Some patients will benefit from immediate transport while others are better served on scene.
    b. Transport decisions are based on:
        i. Patientôs condition
        ii. Availability of advanced care
        iii. Distance of transport
        iv. Local protocols

IV. History Taking

A. History taking provides detail about the patient's chief complaint and an account of the patient's signs and symptoms.

B. Be sure to document the following information:

1. Date of the incident
2. All times of assessments and interventions
3. Patientôs age
4. Patientôs sex
5. Patientôs race
6. Past medical history
7. Patientôs current health status

C. Investigate the chief complaint (history of present illness).

1. To investigate the chief complaint, begin by making introductions, make the patient feel comfortable, and obtain permission to treat.
   a. Ask a few simple, open-ended questions.
   b. Refer to the patient as Mr., Ms., or Mrs., using the patientôs last name.
   c. Use eye contact, body position, and language to show you care, and encourage the patient to continue speaking.
2. If the patient is unresponsive, information about the patient, pertinent past medical history, and clues about the immediate incident may be obtained from:
   a. Family members present
   b. A person who may have witnessed the situation
   c. Medical alert jewelry

D. Obtain SAMPLE history.

1. Symptoms cannot be felt or observed by others.
2. Signs are objective conditions that can be seen, heard, felt, smelled, or measured by you or others.
3. Use the mnemonic SAMPLE to obtain the following information:
   a. **S**igns and symptomsð What signs and symptoms occurred at the onset?
   b. **A**llergiesð Is the patient allergic to any medication, food, or other substances?
   c. **M**edicationsð What medications is the patient taking?
   d. **P**ertinent past medical historyð Does the patient have any medical history?
   e. **L**ast oral intakeð When did the patient last eat or drink?
   f. **E**vents leading up to injury or illnessð What events led to this incident?
4. Use the OPQRST mnemonic to assess pain.
   a. **O**nsetð When did the problem begin and what caused it?
   b. **P**rovocation or palliationð Does anything make it feel better or worse?
   c. **Q**ualityð What is the pain like?
   d. **R**egion/radiationð Where does it hurt?
   e. **S**everityð On a scale of 1 to 10, how would you rate your pain?
   f. **T**imingð Has the pain been constant or does it come and go?
5. Identify pertinent negatives.
   a. Pertinent negatives are negative findings that warrant no care or intervention.

6. Taking history on sensitive topics
    a. Alcohol and drugs
        i. Signs may be confusing, hidden, or disguised.
        ii. Many patients may deny having any problems.
        iii. The history gathered from a chemically dependent patient may be unreliable.
        iv. Do not judge the patient, and be professional in your approach.
    b. Physical abuse or violence
        i. Report all physical abuse or domestic violence to the appropriate authorities.
        ii. Follow local protocols.
        iii. Do not accuse; instead, immediately involve law enforcement.
7. Sexual history
    a. Consider all female patients of childbearing age who report lower abdominal pain to be pregnant unless ruled out by history or other information.
    b. Questions to ask when faced with this prehospital scenario:
        i. When was your last menstrual period?
        ii. Are your periods normal?
        iii. Do you have urinary frequency or burning?
        iv. What is the severity of cramping, and are there any foul odors?
        v. Is there a possibility you may be pregnant?
        vi. Are you taking birth control pills?
        vii. How many sexual partners do you have?
    c. Inquire about urinary symptoms with male patients.
        i. Is there pain associated with urination?
        ii. Do you have any discharge, sores, or an increase in urination?
        iii. Do you have burning or difficulty voiding?
        iv. Has there been any trauma?
        v. Have you had recent sexual encounters?
    d. Ask about the potential for sexually transmitted diseases in all patients.

E. Special challenges in obtaining patient history include:

1. Silence
    a. Patience is extremely important when dealing with patients and their emergency crises.
    b. Using a close-ended question that requires a simple yes or no answer may work best.
    c. Consider whether the silence is a clue to the patientôs chief complaint.
2. Overly talkative
    a. Gathering details about a patientôs medical condition may be difficult if he or she talks around your question or you have a difficult time refocusing the patientôs conversation.
    b. Reasons why a patient may be overly talkative:
        i. Excessive caffeine consumption
        ii. Nervousness
        iii. Ingestion of cocaine, crack, or methamphetamines
3. Multiple symptoms
    a. Expect multiple symptoms in the geriatric age group.

b. Prioritize the patientôs complaints as you would in triage; start with the most serious and end with the least serious.

4. Anxiety
   a. Frequently, anxious patients can be observed in emergency scenes that involve a large number of patients, such as during a disaster.
   b. EMTs can expect anxious patients to show signs of psychological shock, such as:
      i. Pallor
      ii. Diaphoresis
      iii. Shortness of breath
      iv. Numbness in the hands and feet
      v. Dizziness or light-headedness
      vi. Loss of consciousness
5. Anger and hostility
   a. Emergency calls have a high potential for unexpected violence because friends, family, or bystanders may direct their anger and rage toward you.
   b. Remain calm, reassuring, and gentle.
   c. If the scene is not safe or secured, get it secured.
6. Intoxication
   a. Do not put an intoxicated patient in a position where he or she feels threatened and has no way out.
      i. The potential for violence and a physical confrontation is high when a patient is intoxicated.
   b. Alcohol dulls a patientôs senses, which will make it difficult for an intoxicated patient to inform you that something feels painful.
7. Crying
   a. A patient who cries may be sad, in pain, or emotionally overwhelmed.
   b. Remain calm and be patient, reassuring, and confident, and maintain a soft voice.
8. Depression
   a. Depression is among the leading causes of disability worldwide.
   b. Symptoms include:
      i. Sadness
      ii. A feeling of hopelessness
      iii. Restlessness
      iv. Irritability
      v. Sleeping and eating disorders
      vi. A decreased energy level
   c. The most effective treatment in handling a patientôs depression is being a good listener.
9. Confusing behavior or history
   a. Conditions such as hypoxia, stroke, diabetes, trauma, medication use, and other drug use could alter a patientôs explanation of events.
      i. Hypoxia is the most common cause of confusion.
   b. In geriatric patients, it is not uncommon to encounter a patient who has dementia, delirium, or Alzheimer disease.
10. Limited cognitive abilities
   a. These patients are considered developmentally handicapped.

b. Keep your questions simple, and limit the use of medical terms.
c. In cases of patients with severely limited cognitive function, rely on the presence of family, caregivers, and friends to supply answers to your questions.

11. Language barriers
    a. Find an interpreter, if possible.
    b. If not, determine whether the patient understands who you are.
    c. Keep questions straightforward and brief, and use hand gestures.
    d. Be aware of the language diversity in your community.
12. Hearing problems
    a. Ask questions slowly and clearly.
    b. Use a stethoscope to function as a hearing aid for the patient.
    c. Learning simple sign language during your career will help in the communication process.
    d. Use a pencil and paper.
13. Visual impairments
    a. Identify yourself verbally when entering the scene.
    b. It is important that you put any items that have been moved back into their previous position.
    c. During the assessment and history-taking process, explain to the patient what is happening.

V. Secondary Assessment

A. Secondary assessment is performed at the scene or in the back of the ambulance en route to the hospital.

B. However, there will be situations where you may not have time to perform the secondary assessment.

1. You may have to continue to manage life threats during the primary assessment, en route to the hospital.

C. The purpose is to perform a systematic physical examination of the patient.

1. The physical examination may be a systematic head-to-toe, full-body scan or a systematic assessment that focuses on a certain area or region of the body, often determined through the chief complaint.
2. Guidelines on how and what to assess during a physical examination:
    a. Inspectionð Look at the patient for abnormalities.
    b. Palpationð Touch or feel the patient for abnormalities.
    c. Auscultationð Listen to the sounds a body makes by using a stethoscope.
3. The mnemonic DCAP-BTLS reminds you what to look for:
    a. **D**eformities
    b. **C**ontusions
    c. **A**brasions
    d. **P**unctures/penetrations
    e. **B**urns
    f. **T**enderness
    g. **L**acerations
    h. **S**welling

4. Compare findings on one side of the body with the other side when possible.

D. Assess vital signs using the appropriate monitoring device.

1. These devices should never be used to replace your comprehensive assessment of your patient.
   a. Think of these devices as adjuncts to the assessment and treatment of your patient.
2. Pulse oximetry
   a. Pulse oximetry is a newer assessment tool to evaluate oxygenation.
   b. It measures the oxygen saturation of hemoglobin in the capillary beds.
   c. A sensing probe is placed on the finger or the earlobe.
   d. In most patients, the reading will fall between 95% and 100%.
   e. Patients with difficulty breathing should receive oxygen regardless of their pulse oximetry value.
   f. Several conditions can give false values:
      i. Hypoperfusion
      ii. Hypothermia
      iii. Bleeding
      iv. Anemia
      v. Carbon monoxide exposure
3. Noninvasive blood pressure measurement
   a. The sphygmomanometer (blood pressure cuff) is used to measure blood pressure.
   b. Oscillometric measurement, or electronic measurement, is another method of obtaining blood pressure readings.
4. End-tidal carbon dioxide
   a. Carbon dioxide is the by-product of aerobic cellular metabolism and reflects the amount of oxygen being consumed during the process.
   b. Capnography is a noninvasive method that can quickly and efficiently provide information on a patientôs ventilatory status, circulation, and metabolism.
   c. End-tidal CO_2 is the partial pressure or maximal concentration of CO_2 at the end of an exhaled breath.
      i. The normal range is 35 to 45 mm Hg, or 5% to 6% CO_2.
   d. Colorimetric devices come in different shapes and sizes but provide continuous end-tidal monitoring.
   e. Capnometry and capnography provide a digital reading and waveform of end-tidal CO_2.

E. Systematically assess the patient—full-body scan.

1. Systematic head-to-toe examination
2. The goal is to identify injuries or causes missed during the primary assessmentôs 60- to 90-second rapid scan.
3. See ***Skill Drill 8-2***.

F. Systematically assess the patient—focused assessment.

1. Performed on patients who have sustained nonsignificant MOIs or on responsive medical patients
2. This type of examination is based on the chief complaint.
3. The goal of a focused assessment is to focus your attention on the immediate problem.
4. Respiratory system
   a. Expose the patientôs chest.
   b. Look again for signs of airway obstruction, as well as trauma to the neck and/or chest.

c. Inspect the chest for overall symmetry.
d. Listen carefully to breath sounds, noting abnormalities.
e. Measure the respiratory rate, chest rise and fall (for tidal volume), and effort.
f. Look for retractions.
g. Carefully reevaluate the pulse rate, skin, and blood pressure.
h. Inspect and palpate from the clavicles to the shoulder to the abdomen, and reassess breath sounds.

5. Cardiovascular system

a. Look for trauma to the chest, and listen for breath sounds.
b. Reevaluate the pulse and respiratory rate and the blood pressure.
c. Pay particular attention to rate, quality, and rhythm.
d. Reevaluate the skin.
e. Check and compare distal pulses to determine any right and left side differences.
f. Consider auscultation for abnormal heart sounds.
g. Blood pressure
    i. Blood pressure is the pressure of circulating blood against the walls of the arteries.
    ii. A drop in blood pressure indicates a loss of blood, a loss of vascular tone, or a cardiac pumping problem.
    iii. Decreased blood pressure is a late sign of shock and indicates that the critical decompensated phase has begun.
    iv. Abnormally high blood pressure may result in a rupture or other critical damage in the arterial system.
    v. Systolic pressure is the increased pressure that is caused along the artery with each contraction (systole) of the ventricles and the pulse wave that it produces.
    vi. Diastolic pressure is the residual pressure that remains in the arteries during the relaxing phase of the heartôs cycle (diastole), when the left ventricle is at rest.
h. A blood pressure cuff contains the following components:
    i. A wide outer cuff
    ii. An inflatable wide bladder sewn into a portion of the cuff
    iii. A ball-pump with a one-way valve
    iv. A pressure gauge calibrated in millimeters of mercury
i. See ***Skill Drill 8-3.***
j. The palpation (feeling) method does not depend on your ability to hear sounds and should be used in certain cases to obtain a patientôs blood pressure.
k. Normal blood pressure
    i. A patient has hypotension when the blood pressure is lower than the normal range and hypertension when the blood pressure is higher than the normal range.

6. Neurologic system

a. A neurologic assessment should be performed any time you are confronted with a patient who has:
    i. Changes in mental status
    ii. A possible head injury
    iii. Stupor
    iv. Dizziness
    v. Drowsiness
    vi. Syncope
b. A neurologic assessment can be as simple as talking with the patient, asking questions, and receiving an appropriate reply from the patient.

c. Evaluate the LOC and orientation to determine the patientôs ability to think.
   i. Use the AVPU scale if appropriate.
   ii. Determine the patientôs mental status.
d. When evaluating speech, assess the patientôs thought process and determine if he or she may be delusional or has unusual reasoning.
e. Inspect the head for trauma.
f. Check for bilateral muscle strength and weaknesses.
g. Test for pain, sensations, and position, and compare distal and proximal motor and sensory responses and one side with the other.

7. Musculoskeletal system
   a. Assess for posture if standing, and look at joints, checking for range of motion.
   b. Always compare the right side with the left side, looking for weakness or atrophy, and assess equality of grip strength.
   c. Look for trauma to the abdomen and for distention.
   d. Palpate the abdomen for tenderness, rigidity, and patient guarding.
   e. Pelvis
      i. Inspect the pelvis for symmetry and any obvious signs of injury, bleeding, and deformity.
      ii. If you feel any movement or crepitus or if the patient reports pain or tenderness, severe injury may be present.
   f. Extremities
      i. Inspect each extremity for symmetry, cuts, bruises, swelling, obvious injuries, and bleeding.
      ii. Palpate along each extremity for deformities.
      iii. Check for pulses, motor function, and sensory function.
   g. Posterior body
      i. Inspect the back for tenderness, deformity, symmetry, and open wounds.
      ii. Carefully palpate the spine from the neck to the pelvis for tenderness and deformity.

8. Anatomic regions
   a. Head, neck, and cervical spine
      i. Gently palpate the scalp and skull for any pain, deformity, tenderness, crepitus, and bleeding.
      ii. Check the patientôs eyes, and assess pupillary function, shape, and response.
      iii. Check the color of the sclera.
      iv. Assess the patientôs cheekbones (zygomas) for possible injury.
      v. Check the patientôs ears and nose for fluid.
      vi. Check the upper (maxillae) and lower (mandible) jaw.
      vii. Open the patientôs mouth, looking for any broken or missing teeth.
      viii. Note any unusual odors that may be present in the mouth.
      ix. Palpate the neck for signs of trauma, such as deformities, bumps, swelling, bruising, and bleeding, as well as a crackling sound produced by air bubbles under the skin, also known as subcutaneous emphysema.
   b. Chest
      i. When assessing the chest, inspect, visualize, and palpate over the chest area for injury and signs of trauma, including bruising, tenderness, and swelling.
      ii. When assessing breathing, watch for both sides of the chest to rise and fall together with normal breathing.
      iii. Observe for abnormal breathing signs, including retractions or paradoxical motion.

c. Abdomen
   i. Inspect and palpate the abdomen for any obvious injuries, bruising, and bleeding.
   ii. Be sure to palpate the front and back of the abdomen, evaluating for symmetry, masses, tenderness, and bleeding.
   iii. The abdomen is broken into four quadrants: left upper quadrant (LUQ), left lower quadrant (LLQ), right upper quadrant (RUQ), and right lower quadrant (RLQ).
   iv. Assess for the presence of rebound tenderness.

VI. Reassessment

A. Perform a reassessment at regular intervals during the assessment process.

1. The purpose of reassessment is to identify and treat changes in a patientôs condition.

B. Repeat the primary assessment.

C. Reassess vital signs.

1. Compare the baseline vitals obtained during the primary assessment with any and all subsequent vital signs.
2. Look for trends.
3. Reassess the mental status and the ABCs.
4. Monitor skin color and temperature.

D. Reassess the chief complaint.

1. The purpose is to ask and answer the following questions about the patientôs chief complaint:
   a. Is the current treatment improving the patientôs condition?
   b. Has an already identified problem gotten better?
   c. Has an already identified problem gotten worse?
   d. What is the nature of any newly identified problems?

E. Recheck interventions.

1. Check all interventions.
   a. Most important are the patientôs ABCs.
2. Ensure management of bleeding.
3. Ensure adequacy of other interventions, and consider the need for new interventions.

F. Identify and treat changes in the patient's condition.

1. If the changes in the patientôs condition are improved, simply continue whatever treatments you are providing.
2. If the patientôs condition deteriorates, prepare to modify treatments as appropriate.
3. Document any changes, whether negative or positive.

G. Reassess patient.

1. A patient in unstable condition should be reassessed every 5 minutes.
2. A patient in stable condition should be reassessed every 15 minutes.

VII. Summary

A. The assessment process begins with the scene size-up, which identifies real or potential hazards. The patient should not be approached until these hazards have been dealt with in a way that eliminates or minimizes risk to the EMTs and the patient(s).

B. The primary assessment is performed on all patients. It includes forming an initial general impression of the patient, including the LOC, and identifies any life-threatening conditions to the ABCs.

C. A rapid scan is performed to assist in prioritizing time and mode of transport. Any life threats identified must be treated before moving on to the next step of the assessment.

D. ABCs are assessed to evaluate the patient's general condition.

E. History taking includes an investigation of the patient's chief complaint or history of present illness. A SAMPLE history is generally taken during this step of the assessment process. This information may be obtained from the patient, family, friends, or bystanders.

F. By asking several important questions, you will be able to determine the patient's signs and symptoms, allergies, medications, pertinent past history, last oral intake, and events leading up to the incident.

G. The secondary assessment is a systematic physical examination of the patient. The physical examination may be a systematic head-to-toe, full-body scan, or a systematic assessment that focuses on a certain area or region of the body, often determined by the chief complaint. Circumstances will dictate which aspects of the physical examination will be used.

H. The secondary assessment is performed on scene or in the back of the ambulance en route to the hospital; there are times when you may not have time to perform a secondary assessment at all if the patient has serious life threats.

I. The reassessment is performed on all patients. It gives you an opportunity to reevaluate the chief complaint and to reassess interventions, modifying treatment as appropriate.

J. A patient in stable condition should be reassessed every 15 minutes, whereas a patient in unstable condition should be reassessed every 5 minutes.

K. The assessment process is systematic and dynamic. Each assessment will be slightly different, depending on the needs of the patient. The result will be a process that will enable you to quickly identify and treat the needs of all patients, both medical and trauma related, in a way that meets their unique needs.

Post-Lecture

Unit Assessment

1. What is the mechanism of injury?

2. What is blunt trauma?

3. What is the process of sorting patients based on the severity of each patientôs condition?

4. What are the components of the AVPU scale?

5. What is the significance of stridor?

6. What three components of the skin should be assessed?

7. Normal capillary refill is within _____.

8. The method of listening to sounds with a stethoscope is called _____.

9. What does the mnemonic ñDCAP-BTLSò stand for?

10. What are three conditions that may be indicated by a low blood pressure?

Knowledge Objectives

Knowledge Objectives

Knowledge Objectives