Chapter 8

Patient Assessment

Learning Objectives

- Discuss the components of scene size-up
- Describe common hazards found at the scene of trauma and medical patients
- Identify common mechanisms of injury and the nature of illness

Learning Objectives

- Discuss the reason for identifying the total number of patients at the scene
- Summarize reasons for forming a general impression of the patient
- Differentiate between assessing mental status in the adult, child, and infant patient
Learning Objectives

- Differentiate between patients with adequate and inadequate breathing
- Differentiate between assessing circulation in the adult, child, and infant
- Discuss the need for assessing the patient for external bleeding

Learning Objectives

- Identify reasons for prioritizing a patient for care and transport
- Demonstrate a focused history and physical examination
- Given a simulated patient, obtain a SAMPLE history

Learning Objectives

- Differentiate between the ongoing assessment of a critical patient and a noncritical patient
- Describe the information included in the EFR “hand-off” report
- Provide a rationale for evaluating scene safety before entering a given scene
Learning Objectives

- Given a scenario, describe how patient situations can affect evaluation of the mechanism of injury/nature of illness
- Give a rationale for the sequence of patient assessment
- Given a scenario, identify potential safety hazards and determine if the scene is safe to enter

Learning Objectives

- Given a simulated patient, assess the patient's mental status, airway, breathing, circulation, and disability

Introduction

- As an EFR, you must be able to:
  - Rapidly assess the scene
  - Size up potential hazards and determine the need for additional resources
  - Rapidly assess patients for life-threatening (critical) conditions and begin treatment
Introduction

- Assessment is learned as a series of separate skills, but in reality you will be doing many of these things at the same time
  - In the assessment process you rapidly take in information and sort it to make decisions

- As an EFR, you are the first to arrive on the scene and possibly the first to come in contact with the patient
  - Your assessment skills may impact your safety, the safety of other care providers, patients and their outcome, and bystanders at the scene

- Assessment is the most important skill for EFRs
  - Includes the following stages:
    - Scene size-up
    - Primary assessment
    - Physical examination
    - Patient history
    - Ongoing assessment
    - Hand-off report
Scene Size-up

- Quick determination of the entire scene before you actually touch the patient; this includes:
  - Safety of the scene
  - Personal protection
  - Assessment of mechanism of injury or nature of illness

Scene Size-up

- Begins the moment you receive initial request for aid
  - Information provided by dispatch should give you an idea of:
    - What to expect when you arrive
    - What resources you may need to obtain
    - Security of the scene

Scene Size-up

- While traveling to the scene look at weather conditions
  - Bad weather can affect your ability to get to the scene safely
  - Weather can create an environmental concern for your patient such as exposure to heat and cold
Scene Size-up

● Personal protection equipment (PPE)
  ➢ Your first concern when responding to the scene of an emergency is to use proper PPE:
    • Gloves
    • Eye protection
    • Gown and mask, depending on the information from dispatch and from your scene size-up

Scene Size-up

● Scene safety
  ➢ As an EFR, you must ask yourself, “Is the scene safe” whenever you arrive at the scene of an emergency
    • Never enter a scene that is potentially hazardous/unsafe
      ➢ Always wait for the scene to be made safe
Scene Size-up

- Scene safety
  - In some situations the safety of the scene is determined by other responders who have received specialty training in areas such as:
    - Tactical situations
    - Fire
    - Hazardous materials
    - Vehicle extrication
    - Other types of special rescue

Scene Size-up

- Nature of the event
  - During scene size-up it is also important to determine whether a patient is a trauma patient or medical patient
    - A trauma patient is one who has sustained an injury as the result of an external force
    - A medical patient is a patient who appears to have an illness or complains of symptoms of an illness

Scene Size-up

- Nature of the event
  - MOI
    - As you evaluate scene safety at a traumatic incident you should also look for clues to the MOI
      - To discover the MOI, you need to consider the entire trauma scene and any physical forces that may have injured the patient’s body
Scene Size-up

- Nature of the event
  - MOI
    - You can also predict likely injuries to the patient by considering the impact site and tracing destructive energy through the body.

Scene Size-up

- Nature of the event
  - MOI
    - You cannot see the forces that occurred, but you can learn to look at a trauma incident.
    - Penetrating trauma can create both a permanent cavity and temporary cavity.
    - In blunt trauma, the energy applied also creates a temporary cavity.

Scene Size-up
Scene Size-up

- Nature of the event
  - NOI
    - With a medical emergency, try to learn the NOI
      - Talk directly with the patient whenever possible
      - Look around the scene to uncover clues about the NOI

Scene Size-up

- Number of patients involved
  - During scene size-up determine the number of patients at the scene
  - Determine whether additional resources are needed
  - Thoroughly check the scene to be certain that you find everyone involved in the incident
  - Triage should begin when you are confronted with multiple casualties
Scene Size-up

- Additional resources
  - When you first arrive at an emergency scene, confirm that additional personnel are en route to help manage the scene and the patient as needed
    - You may need:
      - Police officers
      - Firefighters
      - Extrication specialists
      - Hazardous materials team
      - Utility company workers
      - Medical transport team

Primary Assessment

- Sometimes referred to as a primary survey or initial assessment
- Performed to determine whether a patient has any life-threatening problems and to manage those problems as they are found

Primary Assessment

- Has three main parts:
  - Forming a general impression of the patient
  - Assessing the patient’s responsiveness
  - Checking the patient’s airway, breathing, circulation, and disability (ABCD)
Primary Assessment

- As you enter a scene:
  - Look at the patient
  - Think about what happened
  - Begin to evaluate the patient’s condition
  - Notice the patient’s responsiveness, level of anxiety, breathing, and skin

Primary Assessment

- General Impression
  - Is formed before you have touched/started to assess the patient
  - Helps you decide how to act and gauge the seriousness of the scene
  - To form a general impression of the emergency you need to quickly evaluate the scene and think about what is happening, what you have been told, and what you observe
Primary Assessment

- Level of consciousness
  - Once you have formed a general impression, this is the first thing to assess
    - Involves the evaluation of how alert/awake the patient is and what kind of stimulus causes a response from the patient

- Airway
  - A patient who is responsive and can speak has an open (or patent) airway
    - While this patient’s airway may currently be functional, reassessment must be continuous as the airway may still be at risk
    - Noisy breathing indicates a partially obstructed airway
    - A patient who is trying to speak or cough but cannot make any noise has a completely obstructed airway
Primary Assessment

- Airway
  - If the patient is unresponsive, assess the patient’s airway and look, listen, and feel for breathing
    - Open the airway if breathing is noisy or if you do not hear breathing at all
    - Use the head-tilt/chin-lift maneuver to open the airway unless there is a possibility of trauma

- Airway
  - With trauma patients it is important to open the airway without moving the spine
    - Prevents further injury
    - Best accomplished by having someone assist you
    - Maintain head and spine stabilization while you use the modified jaw-thrust method without a head-tilt maneuver
Primary Assessment

- Breathing and ventilation
  - To assess breathing, look at and listen to the patient as he/she breathes
  - If patient is responsive and alert, ask yourself the following questions:
    - Is the patient able to speak in full sentences without having to stop to take a breath?
    - How hard is patient working to breathe?
    - Is breathing adequate?
    - Is patient sitting upright?

- Breathing and ventilation
  - If patient is responsive and alert, ask yourself the following questions:
    - What is patient’s color?
    - Is patient showing signs of hypoxia such as cyanosis?
    - How fast and deep is patient breathing?
    - Is patient using accessory muscles in the chest (between the ribs) or neck or abdominal muscles to breathe?
    - Can patient speak and carry on a normal conversation?
Primary Assessment

- Breathing and ventilation
  - To assess the patient look at and listen to them as they breathe
    - If patient is responsive and alert, ask yourself the following:
      - Is the patient sitting upright?
      - What is the patient’s color?
      - Is the patient showing signs of hypoxia, cyanosis?
      - How fast and how deep is the patient breathing?

- Allow patient to take the position that makes it easiest to breath; usually sitting up
- If patient is unresponsive, look, listen, and feel for breathing
  - If patient is not breathing adequately, open airway and ventilate using either mouth-to-mask, mouth-to-barrier, or bag-mask device
Primary Assessment

Breathing and ventilation
• Supplemental O₂ should be given to any patient with signs of inadequate breathing and/or ventilation
  • Assist breathing with bag-mask and supplemental O₂ if patient is breathing too fast (>20 breaths per minute) or too slow (<12 breaths per minute) or has signs of cyanosis

Primary Assessment

Breathing and ventilation
• If patient is showing signs/symptoms of inadequate ventilation and oxygenation, start ventilation assistance
  • Regardless of his/her level of consciousness
• If patient has no respiration or very slow respirations, start rescue breathing
Primary Assessment

- Circulation
  - To determine effectiveness of a patient's circulation
    - Look for major bleeding
    - Assess the pulse
    - Quickly assess the skin

Primary Assessment

- Circulation
  - Assess the pulse
    - Patients who are awake, breathing, and talking will have circulating blood volume that can be confirmed by a pulse
      - If patient is unresponsive, check to see if he/she has a detectable pulse
Primary Assessment

- Circulation
  - Carotid pulse
    - Pulse felt over the carotid arteries in patient’s neck
    - When you locate carotid pulse, keep airway open, with one hand on patient’s forehead
    - Use two or three fingers of your other hand to locate larynx (Adam’s apple) in center of patient’s neck
    - Once located, slide your fingers back toward yourself into the groove between the Adam’s apple and the muscles on the side of the neck
    - Gently feel for a pulse >5 seconds but <10 seconds

- Brachial pulse
  - Pulse felt in fleshy part of the upper arm just under the bicep muscle
  - Always assess brachial pulse in an infant regardless of whether patient is responsive or unresponsive
Primary Assessment

• Circulation
  ➢ Radial pulse
    ✓ Felt on thumb side of the wrist just lateral (toward the outside) to the tendon
    ✓ Generally checked on responsive patients
    ▶ If radial pulse cannot be found, check carotid pulse
    ▶ In responsive children, assess brachial or radial pulses first, followed by the carotid or femoral pulses
Primary Assessment

- Circulation
  - Femoral pulse
    - Found in groin area
    - Used to assess circulation in responsive children if brachial or radial pulse cannot be found
    - Carotid or femoral pulse should be assessed in an unresponsive child
    - In newborns, assess central pulse by palpating the base of the umbilical cord between your thumb and index fingers

- When you check a pulse, determine:
  - Whether it is present or not present
  - Is it slow or fast
    - Normal pulse rates for an adult will be between 60 and 100 beats/minute and regular
  - If no pulse, start CPR

- Major bleeding
  - As part of the primary assessment, assess patient for major bleeding (haemorrhage)
  - Look at both the patient and scene for:
    - Any visible active bleeding
    - Pool of blood anywhere at the scene
    - Blood collected in the ground
    - Feel around the back of the patient to see if any blood has collected underneath the patient
Primary Assessment

- Circulation
  - Major bleeding
    - Active hemorrhage must be controlled immediately
    - Be aware of how much blood patient has potentially lost
    - If patient has lost significant blood, possible shock occurs
    - Do not let bleeding distract you from the priorities of assessing and maintaining airway, breathing, and circulation

- Assess the skin
  - Skin color and temperature can also be indications of the adequacy of circulation
  - A bluish (cyanotic) discoloration indicates a lack of O₂ at the cellular level
  - Pale skin may indicate a low body temperature, blood loss, or shock
  - If skin is flushed or red, patient’s temperature may be elevated
  - Cool skin may indicate a low body temperature/shock
  - Wet/sweaty skin may indicate physical exertion, severe pain, or shock
  - If color is pale, mottled, and cool to the touch, patient may be in shock
Primary Assessment

• Circulation
  ➢ Check capillary refilling time for circulation assessment of infants and children <6 years
  ▶ Press on area of the skin or thumb and nail & release
  ▶ Once released, color should return to the area within 2 seconds
  ▶ If it takes longer than 2 seconds for color to return to the depressed area, it may indicate possible decreased circulation
  ▶ Delayed capillary refill by itself is not a reliable indicator

Primary Assessment

• Disability
  ➢ An additional step in the initial assessment is sometimes designated as D for disability
  ▶ Provides more of an assessment of a patient’s brain (mental) function (neurological assessment)
  ▶ Assess the patient’s mental function along with the ability to move and control all extremities

Primary Assessment

• Disability
  ➢ Glasgow Coma Scale (GCS)
    ▶ One of the most complete ways to assess a patient’s mental status (disability)
    ▶ GCS score is used by other prehospital providers to assess the patient’s mental function
    ▶ The earlier an assessment can be done on a patient, the earlier a baseline value can be set
Primary Assessment

- Disability
  - GCS
    - GCS score evaluates patient’s neurological functions based on three categories:
      - Eye opening
      - Verbal response
      - Motor response
    - Each category identifies typical responses and has an assigned numerical value.
    - Assessment is based on patient’s best response in each category and computation of the total score.

  - Eye opening (E)
    - Maximum number of points available = 4 points
      - If patient readily opens his eyes without having to be asked = 4 points
      - If patient opens his eyes only when asked = 3 points
      - If you must administer a painful stimulus to open patient’s eyes = 2 points
      - If patient does not open eyes to either a verbal or painful stimulus = 1 point

  - Verbal response (V)
    - Maximum number of points available = 5 points
      - If the patient answers appropriately to a simple question such as “What happened?” or “Where do you hurt?” = 5 points
      - If the patient gives a confused response (such as “I don’t know” or “I don’t remember”) to your questions = 4 points
Primary Assessment

- Disability
  - GCS
    - Verbal response (V)
      - If the patient responds inappropriately (such as “The sky is blue”) to your questions = 3 points
      - If the patient simply makes unintelligible noise in response to your questions = 2 points
      - If the patient is unable to or does not give a verbal response = 1 point

- Motor response (M)
  - Final component of GCS is patient’s motor response (M)
    - Maximum number of points available is 6
    - If patient is able to follow simple commands to move all extremities = 6 points
    - If the patient does not respond to your request, apply a minor painful stimulus

- If patient tries to push away painful stimulus (called localizing) = 5 points
- If instead patient withdraws from painful stimulus = 4 points
- If response to painful stimuli is to flex his extremities = 3 points
- If patient responds by extending his extremities away from the body = 2 points
- If there is no response to painful stimuli = 1 point
Primary Assessment

- Disability
  - GCS
  - Reporting of the GCS Score
    - After assessing each component of the GCS (E, V, M), the points received for each component are added together to get a total GCS score
    - Ranges from 3 to 15 points

Primary Assessment

- Disability
  - GCS
  - Reporting of the GCS Score
    - A total GCS score of 3 would mean that the patient is nonresponsive and without spontaneous eye opening, verbal response, or motor response.
    - A GCS score of 15 means that the patient is conscious and alert.
    - If patient’s GCS score is something other than 3 or 15, the score should be broken down by category and its awarded points.

Primary Assessment

- Prioritizing patients
  - The primary assessment helps separate/triage critical/serious patients from noncritical ones.
  - With critical/serious patients you must continue to reassess the airway, breathing, and circulation and care for any life-threatening conditions until the patient is stable or more advanced care arrives.
Skill 8-1
Primary Assessment (Unresponsive Patient)

- General impression
  - Assess responsiveness

- Assess airway and breathing

Skill 8-1
Primary Assessment (Unresponsive Patient)

- Assess for pulse

- Assess for major bleeding

Skill 8-1
Primary Assessment (Unresponsive Patient)

- Assess the skin
- Determine disability & assess priority
Skill 8-2
Primary Assessment (Responsive Patient)

- General impression
- Assess responsiveness, airway, and breathing

Skill 8-2
Primary Assessment (Responsive Patient)

- Assess circulation
- Determine disability and assess priority

Primary Assessment

- Communication
  - If patient is unresponsive during initial assessment, call for additional help immediately
  - If patient is responsive, wait until initial assessment is complete before calling for additional help
  - Once you have prioritized the patient, update the responding EMS unit with a brief radio/cellular telephone report if possible
Secondary Assessment

- Performed after ensuring all life threatening conditions have been identified and correctly managed during the primary assessment
- Obtain complete set of vital signs
- Perform detailed physical examination based on patient’s present condition

Secondary Assessment

- Gather past medical history
- Perform a systematic and organized physical examination of the patient

Secondary Assessment

- Vital signs
  - Consists of patient’s pulse rate, respiratory rate, and, if allowed, blood pressure
  - Provides starting point for judging effectiveness of prehospital care
  - Taken every 15 minutes for noncritical patients and at least every 5 minutes for critical patients or whenever their condition changes
Secondary Assessment

- Physical examination
  - Inspect (look) and palpate (feel) for signs of injury
  - Use mnemonic DOTS for physical examination
    - Deformities
    - Open wounds
    - Tenderness
    - Swelling
Secondary Assessment

- Physical examination
  - Always compare one side of patient’s body to the other side to help identify abnormalities
  - Done in a systematic and orderly manner
  - Practice assessment skills often so you can quickly identify normal/abnormal findings
  - If a patient has a specific injury or complaint, start there and then expand the examination as needed
  - Purpose of the physical examination is to identify other injuries not found in your initial assessment

Skill 8-3
Secondary Assessment-Physical Examination

- Inspect and palpate the scalp

- Inspect and palpate the face

Skill 8-3
Secondary Assessment-Physical Examination

- Look for eye injuries and pupil response; do not palpate eye injuries

- Look for fluid leaking from ears
Skill 8-3
Secondary Assessment-Physical Examination

• Check the mouth for any bleeding or injuries

• Remove clothing from patient’s upper body

Skill 8-3
Secondary Assessment-Physical Examination

• Inspect and palpate the front and back of the neck

• Inspect and palpate the chest

Skill 8-3
Secondary Assessment-Physical Examination

• Compare both sides of the chest for any abnormality

• Auscultate the chest
Skill 8-3
Secondary Assessment-Physical Examination

- Inspect and palpate the abdomen
- Palpate the back and inspect for signs of bleeding
- Remove clothing from patient's lower body
- Palpate the pelvis
- Inspect and palpate each upper leg
- Inspect and palpate each lower leg
Skill 8-3
Secondary Assessment-Physical Examination

- Assess movement and sensation in each foot

- Assess pulses in each foot

Skill 8-3
Secondary Assessment-Physical Examination

- Inspect and palpate each upper arm

- Inspect and palpate each lower arm

Skill 8-3
Secondary Assessment-Physical Examination

- Assess radial pulse in each arm

- Assess movement and sensation in each hand
Skill 8-3
Secondary Assessment-Physical Examination

- If possible, log roll patient and assess back

Secondary Assessment

- Physical examination
  - Head
    - To examine the head run your fingers over the face and scalp to gently palpate for deformities or depressions in bones of the face and skull
    - Be gentle, so you do not force pieces down into the brain, in case of skull fracture

Secondary Assessment

- Physical examination
  - Neck
    - If the patient is injured, keep head and neck stabilized while you use gently pressure to palpate for deformities
    - Specific areas of assessment include position of the trachea (it should be midline in the neck and not shifted) and presence of open wounds in the neck
    - Open wounds in the neck can be dangerous; the neck holds the trachea and has very large blood vessels
    - If you discover an open wound, cover it completely with an airtight occlusive dressing
Secondary Assessment

- Physical examination
  - Neck
    - If patient complains of tenderness when you palpate, there may be damage to the spine/soft tissue that supports the neck
    - Swelling can obstruct the airway
    - Palpate not only front of the neck but also vertebrae and skin on back of the neck

- Physical examination
  - Chest
    - As you examine the chest remember the major organs that the thoracic cavity holds
    - Always compare the two sides of the chest to help identify abnormalities
    - Inspect and palpate the chest for any deformity, which may indicate broken ribs
Secondary Assessment

- Physical examination
  - Chest
    - Assess both anterior (front) and posterior (back) of the chest for open wounds
    - Open chest wounds can let air flow into the chest and around the lungs, potentially causing a life-threatening injury
    - If you find an open chest wound, immediately apply direct pressure with a gloved hand and then apply an airtight (occlusive) dressing
    - Tape the dressing on three sides, maintaining one side open for air to escape

- Abdomen
  - Gently palpate for any injuries/tenderness
  - You may feel/see deformities
  - If you discover any open injuries to the skin and fatty tissue, cover them with an occlusive dressing such as plastic food wrap to keep air from entering the abdomen
  - If contents are spilling out of the wound, cover area with a sterile, moist dressing
Secondary Assessment

- Physical examination
  - Abdomen
    - It is important to note location of any tenderness because it may provide a clue about underlying organ damage
    - Patient may tighten the muscles of an injured area (called “guarding”) when you palpate the abdomen
    - Report swelling/distention in the abdomen by quadrant locations

Secondary Assessment

- Physical examination
  - Back
    - If there are enough providers available when you are assessing a trauma patient, do a log roll to inspect the patient’s back
    - Inspect and palpate the back for any obvious deformities, open wounds, tenderness/swelling

Secondary Assessment

- Physical examination
  - Pelvis
    - To assess, apply gentle but firm pressure to the pelvic girdle to check for deformities
    - As you are palpitating you may feel a crunching/crepitus
    - Injury can cause extensive bleeding both internally and externally from the large blood vessels in this area
    - Tenderness and swelling may indicate a fracture or dislocation
    - If you need to move a patient, fully support the legs if you suspect a fracture in the pelvic area
Secondary Assessment

- Physical examination
  - Extremities
    - Inspect and palpate each extremity for deformities of the bones, soft tissue, and joints
    - Look for open wounds and control any bleeding
    - Injuries can be dramatic
    - Tenderness/swelling may result from a fracture, dislocation, or sprain

  - To assess for numbness, ask the patient to identify areas you touch
  - Palpate radial pulses in arms and pedal pulses in legs to evaluate circulation
  - Compare each extremity to the opposite extremity to help identify possible injuries/abnormalities

- History
  - Important to collect patient’s complaint, past medical history, and event history as you assess the patient
    - Primary complaint is a very brief description of the reason for summoning assistance
    - In the best circumstances, the patient will be able to answer all questions about his/her medical history
    - You can gather most relevant medical history by using the mnemonic SAMPLE
Secondary Assessment

- History
  - S-signs and symptoms
    - As you perform the physical examination and collect the patient's history, note the patient's signs and symptoms.

- History
  - S-signs and symptoms
    - Give you clues about what is wrong with the patient
    - Obtain additional information about patient’s signs and symptoms if you have time.

- History
  - Allergies
    - It is important to determine if the patient is allergic to anything
    - Information is important to communicate to other healthcare providers
    - Patients with severe allergies may wear a medical insignia tag that indicates allergy.
Secondary Assessment

- **History**
  - **M-medications**
    - Always ask patients what medications they are taking, including prescribed medications, over-the-counter medications, herbs, vitamins, and "recreational" drugs.
    - Ask the following questions to help identify recent medical problems:
      - Have you had any recent medical, surgical/trauma problems?
      - Are you seeing a doctor for these problems?
      - Have you been to the doctor recently?
  - **L-last oral intake**
    - Find out when the patient last ate/drank anything.
    - Knowing when a diabetic last ate may help you evaluate unresponsiveness.
    - Ask how much and when an infant ate and drank to evaluate dehydration.
  - **E-events**
    - Information about events that occurred before the problem may provide clues about the patient’s problem.
    - It is also important to understand the chronology of events that happened.
Reassessment

- While caring for your patient perform a reassessment until additional EMS personnel arrive and take over care
- Repeat primary assessment (ABCD) and vital signs at continuous intervals

Reassessment

- Reassesses airway, breathing, circulation, and possible disability to gauge effectiveness of your treatment and to correct any identified problems
  - Reassess airway to ensure it is open and maintained
  - Monitor patient’s breathing and pulse for rate and quality
  - Recheck skin color, temperature, and condition
  - Calm patient as you wait for EMS to arrive
- Anytime a patient’s condition changes, reassess

Hand-off Report

- When EMS responders arrive, be ready to give a hand-off report
- This report describes your assessments and interventions
- With multiple patients, start with most critical patients so they get immediate care and transport
Hand-off Report

- The report should include the following:
  - Age and gender
  - Primary complaint
  - Responsiveness
  - Airway and breathing status
  - Circulation status
  - Physical findings
  - SAMPLE history
  - Interventions provided
  - Patient's current condition

Vital Signs

- As part of the healthcare team it is beneficial for you to know how to take and report vital signs and how to accurately triage patients
- You may be required to evaluate/help evaluate the patient's vital signs if time permits

Vital signs

- Include:
  - Breathing
  - Pulse
  - Skin
  - Pupils
  - Blood pressure
Vital Signs

- As you assess a patient’s vital signs the initial numbers you obtain will be important, but even more important will be trends you identify as you reassess vital signs
  - Vital signs are usually taken at a minimum of every 5 minutes in critical patients and every 15 minutes in non-critical patients

Breathing

- When evaluating, assess rate, quality, and in some situations breath sounds
- To assess breathing observe rise and fall of patient’s chest
  - You may find it easier to look at/feel the upper abdomen to count the respiratory rate
  - To measure rate you should count the number of breaths in 30 seconds and multiply this number by 2

- To assess quality of breathing, evaluate how much energy the patient is using to breathe
  - Whether the patient is using accessory muscles to breathe
  - How deep respirations are
  - Whether breathing is noisy
Vital Signs

- Breathing
  - To assess breath sounds you may also auscultate or listen to the chest with a stethoscope
    - Place the stethoscope in your ears with earpieces facing forward and use diaphragm of the stethoscope to listen from side to side on the chest
    - You are comparing sounds and quality of respiration in each lung field in order to identify abnormalities

Vital Signs

Vital Signs
Vital Signs

- Pulse
  - Indicator of patient’s circulatory function
  - Assess radial pulse on both adult and child patients
    - A radial pulse should be measured with 2/3 fingers of your hand
    - Do not use your thumb to feel for a pulse because a thumb has its own pulse, which may be measured instead
    - If a radial pulse cannot be found, assess a carotid pulse on adults and brachial pulse on children
    - Brachial pulse should always be assessed on infants

- Once you feel the pulse assess it for rate, regularity, and quality
  - To determine pulse rate, count the number of beats in 30 seconds and multiply by 2
  - Also determined by counting the number of beats in 15 seconds and multiplying by 4
  - Normal pulse occurs at regular intervals
  - If the pulse is irregular, it may be a sign of cardiac problems

- When you assess the quality of the pulse, you are feeling to see if it is weak or strong
  - If pulse is rapid and weak, patient may be in shock
  - If pulse is rapid and bounding, it may indicate that the patient is anxious or has high blood pressure
Vital Signs

- Skin signs
  - Assessing patient’s skin can tell you a lot about a patient:
    - Not only will you see injuries, assessment will give you clues about how well the heart and lungs are working.
  - When evaluating the skin, assess for color, temperature, condition, and in children, capillary refill time.

Vital Signs

- Skin signs
  - To assess color you should look at:
    - Overall skin color
    - Mucous membranes of the mouth
    - Nail beds
    - Conjunctiva of the eye

Vital Signs

- Skin signs
  - Abnormal skin colors may include the following:
    - Pale
    - Cyanotic
    - Flushed
    - Jaundiced
    - Mottled
Vital Signs

- Skin signs
  - Skin temperature
    - Assess by placing the back of your ungloved hand on patient's skin
    - Normal skin: temperature is warm
    - Abnormal skin: temperature suggests decreased perfusion, infection, or heat and cold emergencies

Vital Signs

- Skin signs
  - Condition of the skin
    - Skin is normally dry
      - Wet, moist, or clammy skin may be associated with shock

Vital Signs

- Skin signs
  - Capillary refill time
    - Capillary refill in conjunction with other findings is a reflection of how well the circulatory system is working
    - Delayed capillary refill time can be caused by decreased perfusion to an area
Vital Signs

- Skin Condition
  - Capillary refill time
    - Assessed by pressing on patient’s skin/fingernail until skin underneath depressed area turns white
    - Once area turns white the pressure is released
    - Note how long it takes for the color to return to the white area

Vital Signs

- Pupils
  - Assessed for size, equality, and reaction to light
    - To assess, look at pupils and then shine a light into them
      - Normally pupils react by constricting equally to light
    - Pupils of both eyes are normally the same size
    - Size, equality, and reaction to light give you clues about possible problems
Vital Signs

Blood pressure
- Reflects status of heart and blood vessels
- To assess you need a stethoscope and properly fitting blood pressure cuff/sphygmomanometer
- Represented by two numbers, systolic and diastolic blood pressures
- Values will vary depending on age of the patient

Blood pressure
- Can be obtained by two methods, auscultation and palpation
  - When you auscultate the blood pressure, you will be using a stethoscope and listening for systolic and diastolic sounds
Skill 8-4
Auscultating a Blood Pressure

- Place blood pressure cuff on patient and place stethoscope in your ears

- Palpate for the brachial artery

Skill 8-4
Auscultating a Blood Pressure

- Place diaphragm of stethoscope over brachial artery and hold in place

- Tighten valve on bulb and inflate the cuff by squeezing on the bulb

Skill 8-4
Auscultating a Blood Pressure

- Slowly let the air out of the cuff and listen to the sounds
- The first sound is the systolic pressure
Skill 8-4
Auscultating a Blood Pressure

- Where the sound stops is the diastolic pressure
- Record the blood pressure as systolic/diastolic

Vital Signs

- Blood pressure
  - Can be obtained by two methods, auscultation and palpation
    - When you palpate a blood pressure, you will be feeling for the return of a pulse as the cuff is deflated
    - You will not obtain a diastolic pressure when you palpate

Skill 8-5
Palpating a Blood Pressure

- Place blood pressure cuff on patient
Skill 8-5
Palpating a Blood Pressure

- Place your index and middle fingers over the radial pulse

Skill 8-5
Palpating a Blood Pressure

- Tighten the valve on the bulb and inflate the cuff by squeezing the bulb

Skill 8-5
Palpating a Blood Pressure

- Slowly let the air out of the cuff and feel for a pulse
- Systolic pressure is when a pulse can be felt
- Record a "systolic/palp."
Vital Signs

- Blood pressure
  - Documented with systolic pressure over diastolic pressure (e.g., 120/90) or with systolic pressure palpated
  - There are many factors that can affect accuracy of a blood pressure reading
    - When taking a blood pressure reading it is very important to use the proper cuff size

Vital Signs

- Blood pressure
  - Take blood pressure readings in all patients who are <3 years
  - Vital signs tell you how your patient is doing; they are most useful when assessed repeatedly for trends

Vital Signs

- Triage
  - Process of sorting patients
  - Used when you have more patients than personnel or resources to care for them
  - Being aware of how to perform triage and the importance of triage is of vital importance to EFRs because they may be the first on the scene at a multicasualty incident