Chapter 34 - Pediatric Emergencies

1. National EMS Education Standard Competencies (1 of 10)
   Special Patient Populations
   Applies a fundamental knowledge of the growth, development, and aging and assessment findings to provide basic emergency care and transportation for a patient with special needs.

2. National EMS Education Standard Competencies (2 of 10)
   Patients With Special Challenges
   – Recognizing and reporting abuse and neglect
   Health care implications of
   • Abuse
   • Neglect
   • Homelessness
   • Poverty
   • Bariatrics

3. National EMS Education Standard Competencies (3 of 10)
   Health care implications of (cont’d)
   • Technology dependence
   • Hospice/terminally ill
   • Tracheostomy care/dysfunction
   • Home care
   • Sensory deficit/loss
   • Developmental disability

4. National EMS Education Standard Competencies (4 of 10)
   Pediatrics
   • Age-related assessment findings, and age-related assessment and treatment modifications for pediatric-specific major diseases and/or emergencies
     • Upper airway obstruction
     • Lower airway reactive disease
     • Respiratory distress/failure/arrest

5. National EMS Education Standard Competencies (5 of 10)
   • Age-related assessment findings, and age-related assessment and treatment modifications for pediatric-specific major diseases and/or emergencies (cont’d)
     • Shock
     • Seizures
     • Sudden infant death syndrome

6. National EMS Education Standard Competencies (6 of 10)
   • Age-related assessment findings, and developmental stage-related assessment and treatment modifications for pediatric-specific major diseases and/or emergencies
     • Upper airway obstruction
     • Lower airway reactive disease
     • Respiratory distress/failure/arrest
     • Shock

7. National EMS Education Standard Competencies (7 of 10)
   • Age-related assessment findings, and developmental stage-related assessment and
treatment modifications for pediatric-specific major diseases and/or emergencies (cont’d)
• Seizures
• Sudden infant death syndrome
• Gastrointestinal disease

9 National EMS Education Standard Competencies (8 of 10)
Trauma
Applies fundamental knowledge to provide basic emergency care and transportation on assessment findings for an acutely injured patient.

10 National EMS Education Standard Competencies (9 of 10)
Special Considerations in Trauma
• Recognition and management of trauma in
  – Pregnant patient
  – Pediatric patient
  – Geriatric patient

11 National EMS Education Standard Competencies (10 of 10)
• Pathophysiology, assessment, and management of trauma in the
  – Pregnant patient
  – Pediatric patient
  – Geriatric patient
  – Cognitively impaired patient

12 Introduction (1 of 2)
• Children differ anatomically, physically, and emotionally from adults.
  – Illnesses and injuries that children sustain, and their responses to them, vary based on age or developmental level.
  – Important to remember that children are not small adults
  – Fear of EMS providers and pain can make the child difficult to assess.

13 Introduction (2 of 2)
• Once you learn how to approach children of different ages and what to expect while caring for them, you will find that treating children also offers some very special rewards.

14 Communication With the Patient and the Family
• When caring for a pediatric patient, you must care for parents or caregivers as well.
  – Caregivers often need emotional support.
• A calm parent usually results in a calm child.
  – An agitated parent means child will act same way.
  – Remain calm, efficient, professional, and sensitive.

15 Growth and Development
• Many physical and emotional changes occur during childhood (birth to age 18).
• Thoughts and behaviors:
  – Infancy: first year of life
  – Toddler: 1 to 3 years
  – Preschool-age: 3 to 6 years
  – School-age: 6 to 12 years
  – Adolescent: 12 to 18 years

16 The Infant (1 of 7)
• Infancy is defined as first year of life.
  – First month after birth is neonatal or newborn period.
• 0 to 2 months
  – Spend most time sleeping and eating
    • Sleep up to 16 hours per day
  – Respond mainly to physical stimuli
  – Cannot tell the difference between parents and strangers
  – Crying is one of the main modes of expression

17 The Infant (2 of 7)
• 0 to 2 months (cont’d)
  – Basic needs: food, warmth, and comfort
  – Soothing includes holding, cuddling, or rocking.
  – Hearing is well developed at birth.
    • Calm, reassuring talk is helpful in soothing.
  – Have a sucking reflex for feeding
  – Head control is limited
  – Predisposed to hypothermia
  – May need to unbundle the infant during assessment.

18 The Infant (3 of 7)
• 2 to 6 months
  – More active at this stage
    • Easier to evaluate
  – Spend more time awake, smile and make eye contact, and recognize caregivers
  – Have strong sucking reflex, active extremity movement, and vigorous cry
  – May follow objects with eyes

19 The Infant (4 of 7)
• 2 to 6 months (cont’d)
  – Increased awareness of surroundings
    • Will use both hands to examine objects
  – About 70% of infants will sleep through the night by 6 months.
  – Begin to roll over at this stage
  – Persistent crying, irritability, or lack of eye contact can be an indicator of serious illness,
    depressed mental status, or a delay in development.

20 The Infant (5 of 7)
• 6 to 12 months
  – Infants begin to babble.
  – Say their first word by their first year
  – Learn to sit without support
  – Begin to crawl and finally walk
    • Predisposes age group to increased exposure to physical danger

21 The Infant (6 of 7)
• 6 to 12 months (cont’d)
  – Begin teething and exploring their world by putting objects in mouth
    • Higher risk of choking and poisonings
  – May cry if separated from parents or caregivers
• Called separation anxiety
  • Assess with caregiver nearby
    – Persistent crying or irritability can be symptoms of serious illness.

22 **The Infant (7 of 7)**

• Assessment
  – Observe infant from a distance.
  – Caregiver should hold baby during physical assessment.
  – Provide sensory comfort.
    • Warm hands and end of stethoscope.
  – Do painful procedures at end of assessment.

23 **The Toddler (1 of 4)**

• After infancy until 3 years of age, a child is called a toddler.
  – Experience rapid changes in growth and development
• 12 to 18 months
  – Begin to walk and explore
  • Able to open doors, drawers, boxes, and bottles

24 **The Toddler (2 of 4)**

• 12 to 18 months (cont’d)
  – Because they are explorers by nature and not afraid, injuries increase.
  – Begin to imitate behaviors of older children and parents
  – Know major body parts
  – May speak 4 to 6 words
  – May not be able to fully chew food

25 **The Toddler (3 of 4)**

• 18 to 24 months
  – Mind develops rapidly at this stage
    • Vocabulary increases to about 100 words.
    • Able to name common objects
  – Begin to understand cause and effect
  – Balance and gait improve rapidly.
    • Running and climbing skills develop.
  – May cling to parents or comforting toy
  – Use any comforting objects when available.

26 **The Toddler (4 of 4)**

• Assessment
  – May have stranger anxiety
  – May resist separation from caregiver
  – May have a hard time describing pain
  – Can be distracted
  – Begin your assessment at the feet.
  – Persistent crying can be a symptom of serious illness or injury.
  – Previous medical experiences may lead to hesitation toward you.

27 **The Preschool-Age Child (1 of 4)**

• Ages 3 to 6 years
– Able to use simple language effectively
  • Most rapid increase in language occurs
– Can walk and run well and begin throwing, catching, and kicking during play
– Toilet training is mastered.
– Have a rich imagination and can be fearful about pain
  • May believe injury is a result of earlier bad behavior

**The Preschool-Age Child (2 of 4)**

- Ages 3 to 6 years (cont’d)
  - Learn which behaviors are appropriate and inappropriate
  - Foreign body aspiration airway obstruction still high risk
- Assessment
  - Can understand directions and be specific in describing painful areas

**The Preschool-Age Child (3 of 4)**

- Assessment (cont’d)
  - Much history must still be obtained from caregivers.
  - Communicate simply and directly.
  - Appealing to child’s imagination may facilitate examination.
  - Never lie to the patient.
  - Patient may be easily distracted.

**The Preschool-Age Child (4 of 4)**

- Assessment (cont’d)
  - Begin assessment at feet, moving to head.
  - Use adhesive bandages to cover the site of an injection or other small wound.
  - Modesty is developing; keep child covered as much as possible.

**School-Age Years (1 of 3)**

- 6 to 12 years
  - Beginning to act more like adults
    • Can think in concrete terms
    • Can respond sensibly to questions
    • Can help take care of themselves
  - School is important.
  - Children begin to understand death.

**School-Age Years (2 of 3)**

- Assessment
  - Assessment begins to be more like adults’.
  - To help gain trust, talk to the child, not just the caregiver.
  - Start with head and move to the feet.
  - If possible, give the child choices.
  - Ask only the type of questions that let you control the answer.
  - Do not bargain or debate with the patient.

**School-Age Years (3 of 3)**

- Assessment (cont’d)
  - Allow the child to listen to his or her heartbeat through the stethoscope.
  - Can understand the difference between physical and emotional pain
– Provide simple explanations about what is causing their pain and what will be done.
– Ask the parent’s or caregiver’s advice about which distraction will work best.

**Adolescents (1 of 5)**

- 13 to 18 years
  - Able to think abstractly and can participate in decision making
    - Personal morals begin to develop.
    - Able to discriminate between right and wrong
    - Able to incorporate values into decision making
  - Physically similar to adults
    - Shifting from family to friends for support
    - Interest in romantic relationships begins

**Adolescents (2 of 5)**

- 12 to 18 years (cont’d)
  - Puberty begins.
    - Very concerned about body image and appearance
    - Strong feelings about privacy
  - Time of experimentation and risk-taking
    - Often feel “indestructible”
    - Struggle with independence, loss of control, body image, sexuality, and peer pressure
    - May have mood swings or depression

**Adolescents (3 of 5)**

- Assessment
  - Can often understand complex concepts and treatment options
  - Allow them to be involved in their own care.
    - Provide choices, while lending guidance.
  - EMT of same gender should do physical examination, if possible.

**Adolescents (4 of 5)**

- Assessment (cont’d)
  - Allow them to speak openly and ask questions.
  - Risk-taking behaviors are common.
    - Can ultimately facilitate development and judgment, and shape identity
    - Can also result in trauma, dangerous sexual practices, and teen pregnancy

**Adolescents (5 of 5)**

- Assessment (cont’d)
  - Female patients may be pregnant.
    - Important to report this information to receiving facility.
    - Adolescent may not want parents to know this information.
  - Try to interview without the caregiver/parent present.
  - Have clear understanding of pain
  - Get them talking to distract them

**Anatomy and Physiology**

- Body is growing and changing very rapidly during childhood.
  - You must understand the physical differences between children and adults and alter your patient care accordingly.
Chapter 34 - Pediatric Emergencies

The Respiratory System (1 of 7)
• Anatomy of airway differs from adults.
  – Pediatric airway is smaller in diameter and shorter in length.
  – Lungs are smaller.
  – Heart is higher in child’s chest.

The Respiratory System (2 of 7)
• Anatomy of airway differs from adults (cont’d).
  – Glottic opening is higher and positioned more anteriorly, and neck appears to be nonexistent.
  – As child develops, the neck becomes proportionally longer as the vocal cords and epiglottis achieve anatomically correct adult position.

The Respiratory System (3 of 7)
• Anatomy of airway differs from adult (cont’d).
  – Larger, rounder occiput
  – Proportionally larger tongue
  – Long, floopy, U-shaped epiglottis
  – Less-developed rings of cartilage in the trachea
  – Narrowing, funnel-shaped upper airway

The Respiratory System (4 of 7)
• Anatomy of airway differs from adult (cont’d).
  – Diameter of trachea in infants is about the same as a drinking straw.
  • Airway is easily obstructed by secretions, blood, or swelling.
  • Infants are nose breathers and may require suctioning and airway maintenance.
  • Respiratory rate of 20 to 60 breaths/min is normal for a newborn.

The Respiratory System (5 of 7)
• Anatomy of airway differs from adult (cont’d).
  – Children have an oxygen demand twice that of an adult.
  • Increases risk for hypoxia

The Respiratory System (6 of 7)
• Anatomy of airway differs from adult (cont’d).
  – Muscles of diaphragm dictate the amount of oxygen a child inspires.
  • Pressure on child’s abdomen can cause respiratory compromise.
  • Use caution when applying the straps of a spinal immobilization device.

The Respiratory System (7 of 7)
• Anatomy of airway differs from adult (cont’d).
  – Gastric distention can interfere with movement of the diaphragm and lead to hypoventilation.
  – Breath sounds are more easily heard in children because of their thinner chest walls.
  – Detection of poor air movement or complete absence of breath sounds may be more difficult.

The Circulatory System (1 of 2)
• Important to know normal pulse ranges
  – Infants heart can beat 160 beats/min or more.
  • Primary method used to compensate for decreased perfusion
– Children are able to compensate for decreased perfusion by constricting the vessels in the skin.
  • Blood flow to the extremities can be diminished.
– Signs of vasoconstriction include pallor (early sign), weak distal pulses in the extremities, delayed capillary refill, and cool hands or feet.

48 The Circulatory System (2 of 2)

49 The Nervous System (1 of 2)

• Pediatric nervous system is immature, underdeveloped, and not well protected.
  – Head-to-body ratio is larger.
  – Occipital region of head is larger.
  – Subarachnoid space is relatively smaller, leaving less cushioning for brain.
  – Brain tissue and cerebral vasculature are fragile and prone to bleeding from shearing forces.

50 The Nervous System (2 of 2)

• Pediatric brain requires higher cerebral blood flow, oxygen, and glucose.
  – At risk for secondary brain damage from hypotension and hypoxic events
• Spinal cord injuries are less common.
  – If injured, it is more likely to be an injury to the ligaments because of a fall.
  – For suspected neck injury, perform manual in-line stabilization or follow local protocols.

51 The Gastrointestinal System

• Abdominal muscles are less developed.
  – Less protection from trauma
  – Liver, spleen, and kidneys are proportionally larger and situated more anteriorly and close to one another.
  • Prone to bleeding and injury
  • There is a higher risk for multiple organ injury.

52 The Musculoskeletal System
(1 of 3)

• Open growth plates allow bones to grow.
  – As a result of growth plates, children’s bones are softer and more flexible, making them prone to stress fracture.
• Bone length discrepancies can occur if injury to growth plate occurs.
  – Immobilize all strains and sprains.

53 The Musculoskeletal System
(2 of 3)

• Bones of an infant’s head are flexible and soft.
  – Soft spots are located at front and back of head.
  • Referred to as fontanelles
  • Will close at particular stages of development
  • Fontanelles of an infant can be a useful assessment tool.

54 The Musculoskeletal System
(3 of 3)

• Thoracic cage is highly elastic and pliable.
  – Composed of cartilaginous connective tissue
  – Ribs and vital organs are less protected.
The Integumentary System

- Pediatric system differs in a few ways:
  - Thinner skin and less subcutaneous fat
  - Composition of skin is thinner and tends to burn more deeply and easily with less exposure.
  - Higher ratio of body surface area to body mass leads to larger fluid and heat losses.

Scene Size-up (1 of 4)

- Assessment begins at time of dispatch.
  - Prepare mentally for approaching and treating an infant or child.
  - Plan for pediatric size-up, equipment, and age-appropriate physical assessment.
  - Collect age and gender of child, location of scene, NOI or MOI and chief complaint from dispatch.

Scene Size-up (2 of 4)

- Scene safety
  - Ensure proper safety precautions and standard precautions.
  - Note position in which patient is found.
  - Look for possible safety threats.
  - Patient may be safety threat if he or she has infectious disease.

Scene Size-up (3 of 4)

- Scene safety (cont’d)
  - Do an environmental assessment.
    - Will provide important information
    - Inspect physical environment.
    - Information from parents or caregivers is important and may provide clues to the patient’s problem.
    - Document dangerous scene conditions and inappropriate statements from caregivers.

Scene Size-up (4 of 4)

- Traumatic scene where the child is unresponsive or too young to communicate
  - Assume the injury was significant enough to cause head or neck injuries.
  - Perform cervical spine immobilization if suspected MOI is severe.
  - Pad under the child’s head and/or shoulder to facilitate a neutral position for airway management.

Primary Assessment (1 of 18)

- Form a general impression.
  - Use pediatric assessment triangle (PAT).
    - Does not require you to touch the patient
    - Can be performed in less than 30 seconds

Primary Assessment (2 of 18)

- PAT
  - Does not require equipment
  - Three steps:
    - Appearance
    - Work of breathing
    - Circulation
Primary Assessment (3 of 18)
- Appearance
  - Note LOC, interactiveness, and muscle tone.
  - You can use the AVPU scale, modified as necessary for the pediatric patient’s age.
  - Normal level of consciousness: act appropriately for age, exhibit good muscle tone, and maintain good eye contact.
  - TICLS mnemonic helps determine if patient is sick or not sick: Tone, Interactiveness, Consolability, Look or gaze, Speech or cry.

Primary Assessment (4 of 18)
- Work of breathing
  - Increases as the body attempts to compensate for abnormalities in oxygenation and ventilation.
  - May manifest as abnormal airway noise, accessory muscle use, retractions, head bobbing, nasal flaring, tachypnea, and tripod position.

Primary Assessment (5 of 18)
- Circulation to the skin
  - When cardiac output fails, the body shunts blood from areas of lesser need to areas of greater need.
  - Pallor of skin and mucous membranes may be seen in compensated shock.
  - Mottling is sign of poor perfusion.
  - Cyanosis reflects decreased level of oxygen.

Primary Assessment (6 of 18)
- From PAT findings, you will decide if the patient is stable or requires urgent care.
  - If unstable, assess ABCs, treat life threats, and transport immediately.
  - With life-threatening external hemorrhage, assess and address the CABs first, including tourniquets.
  - If stable, continue with the remainder of the assessment process.

Primary Assessment (7 of 18)
- Hands-on ABCs
  - For pediatric patient you will now perform a hands-on ABCs assessment.
  - Assess and treat any life threats as you identify them by following the ABCDE format.
    - Airway
    - Breathing
    - Circulation
    - Disability
    - Exposure

Primary Assessment (8 of 18)
- Airway
  - If airway is open and will remain open, assess respiratory adequacy.
  - If patient is unresponsive or has difficulty keeping airway open, ensure it is properly positioned and clear of mucus, vomitus, blood, and foreign bodies.
  - Use head tilt–chin lift or jaw-thrust maneuver to open airway.

Primary Assessment (9 of 18)
- Airway (cont’d)
  - Always position airway in neutral sniffing position.
• Keeps trachea from kinking
• Maintains proper alignment
  – Establish whether patient can maintain his or her own airway.

69 Primary Assessment (10 of 18)
• Breathing
  – Use the look, listen, feel technique.
  – Place both hands on patient’s chest to feel for rise and fall of chest wall.
  – Belly breathing in infants is considered adequate.
  – Bradypnea is an ominous sign and indicates impending respiratory arrest.

70 Primary Assessment (11 of 18)
• Circulation
  – Determine if patient has a pulse, is bleeding, or is in shock.
  – In infants, palpate brachial or femoral pulse.
  – In children older than 1 year, palpate carotid pulse.
  – Strong central pulses usually indicate that the child is not hypotensive.

71 Primary Assessment (12 of 18)
• Circulation (cont’d)
  – Weak or absent peripheral pulses indicate decreased perfusion.
  – Tachycardia may be early sign of hypoxia.
  – Interpret pulse within the context of overall history, the PAT, and primary assessment.
  – Evaluate trend of increasing or decreasing pulse rate.
  – Feel skin for temperature and moisture.
  – Estimate the capillary refill time.

72 Primary Assessment (13 of 18)
• Disability
  – Use AVPU scale or pediatric GCS.
  – Check pupil response.
  – Look for symmetric movement of extremities.
  – Pain is present with most types of injuries.
  – Assessment of pain must consider developmental age of patient.

73 Primary Assessment (14 of 18)
• Exposure
  – Hands-on ABCs require that the caregiver remove some of patient’s clothing for observation.
    • Avoid heat loss by covering the patient as soon as possible.
  – More prone to hypothermic events
  – Should be kept warm during transport.

74 Primary Assessment (15 of 18)
• Transport decision
  – Determine whether rapid transport to the hospital is indicated.
  – Rapid transport indicated if:
    • Significant MOI
    • History compatible with serious illness
    • Physical abnormality noted
    • Potentially serious anatomic abnormality
• Significant pain
• Abnormal level of consciousness

Primary Assessment (16 of 18)
• Transport decision (cont’d)
  – Also consider:
    • Type of clinical problem
    • Benefits or ALS treatment in field
    • Local EMS protocol
    • Your comfort level
    • Transport time to hospital
  – If patient’s condition is urgent, initiate immediate transport to the closest appropriate facility.

Primary Assessment (17 of 18)
• Transport decision (cont’d)
  – Less than 40 lb, transport in car seat
  – To mount a car seat to a stretcher:
    • Put head of stretcher upright.
    • Put car seat against the back of stretcher.
    • Secure upper and lower stretcher straps through seatbelt holes on car seat.
    • Push seat into stretcher tightly and retighten straps.

Primary Assessment (18 of 18)
• Transport decision (cont’d)
  – Follow manufacturer’s instructions to secure car seat in captain’s chair.
  – Patients who require spinal immobilization: immobilize on long board or other suitable spinal immobilization device.
  – Patients in cardiopulmonary arrest: use a device that can be secured to the stretcher.
  – You should not use the pediatric patient’s own car seat.
  – The goal is to secure and protect the pediatric patient for transport in the ambulance.

History Taking (1 of 4)
• Approach to history depends on age of patient.
  – History information for an infant, toddler, or preschool-age child will be obtained from caregiver.
  – Adolescent information is obtained from patient.
  – Questioning the parents or child about the immediate illness or injury should be based on the child’s chief complaint.

History Taking (2 of 4)
• Questions to ask based on chief complaint:
  – NOI or MOI
  – Length of sickness or injury
  – Key events leading up to injury or illness
  – Presence of fever
  – Effects of illness or injury on behavior
  – Patient’s activity level
– Recent eating, drinking, and urine output
–

**History Taking (3 of 4)**

- Questions to ask (cont’d)
  - Changes in bowel or bladder habits
  - Presence of vomiting, diarrhea, abdominal pain
  - Presence of rashes
  - Obtain name and phone number of caregiver if they are not able to come to the hospital with you.

**History Taking (4 of 4)**

- SAMPLE history
  - Same as adult’s
  - Questions based on age and developmental stage

- Obtaining OPQRST
  - Same for children and adults
  - Questions based on age and developmental stage

**Secondary Assessment (1 of 11)**

- Physical examinations
  - Secondary assessment of the entire body should be used when patient is unresponsive or has significant MOI.
    - Use the DCAP-BTLS mnemonic.
  - Focused assessments should be performed on patients without life threats.
    - Focus on areas of body affected by injury or illness as well as on the chief complaint, MOI or NOI, and the findings of the primary assessment.

**Secondary Assessment (2 of 11)**

- Physical examinations (cont’d)
  - Infants, toddlers, and preschool-age children should be assessed started at the feet and ending at the head.
  - School-aged children and adolescents should be assessed using the head-to-toe approach.

**Secondary Assessment (3 of 11)**

- Physical examinations (cont’d)
  - Head
    - Look for bruising, swelling, and hematomas.
    - Assess fontanelles in infants.
  - Nose
    - Nasal congestion and mucus can cause respiratory distress.
    - Gentle bulb or catheter suction may bring relief.

**Secondary Assessment (4 of 11)**

- Physical examinations (cont’d)
  - Ears
    - Drainage from ears may indicate skull fracture.
    - Battle sign may indicate skull fracture.
    - Presence of pus may indicate infection.
  - Mouth
• Look for active bleeding and loose teeth.
• Note the smell of the breath.

Secondary Assessment (5 of 11)
• Physical examinations (cont’d)
  – Neck
    • Examine tracheal area for swelling or bruising.
    • Note if patient cannot move neck and has high fever.
  – Chest
    • Examine for penetrating trauma, lacerations, bruises, or rashes.
    • Feel clavicles and every rib for tenderness and/or deformity.

Secondary Assessment (6 of 11)
• Physical examinations (cont’d)
  – Back
    • Inspect back for lacerations, penetrating injuries, bruises, or rashes.
  – Abdomen
    • Inspect for distention.
    • Gently palpate and watch for guarding or tensing of muscles.
    • Note tenderness or masses.
    • Look for seat belt abrasions or bruising.

Secondary Assessment (7 of 11)
• Physical examinations (cont’d)
  – Extremities
    • Assess for symmetry.
    • Compare both sides for color, warmth, size of joints, swelling, and tenderness.
    • Put each joint through a full range of motion while watching the patient’s eyes for signs of pain.

Secondary Assessment (8 of 11)
• Vital signs
  – Some guidelines/equipment used to assess adult circulatory status have limitations in pediatric patients.
  • Normal heart rates vary with age in pediatric patients.
  • Blood pressure is usually not assessed in patients younger than 3 years.

Secondary Assessment (9 of 11)
• Vital signs (cont’d)
  – Assessment of skin is a better indication of pediatric patient’s circulatory status.
  – When equipment is used, it is important to use appropriately sized equipment.
    • Use a cuff that covers two thirds of the pediatric patient’s upper arm.

Secondary Assessment (10 of 11)
• Vital signs (cont’d)
  – Use this formula to determine blood pressure for children ages 1–10 years:
    • \( 70 + (2 \times \text{child’s age in years}) = \text{systolic blood pressure} \)
  – Respiratory rates may be difficult to interpret.
    • Count respirations for at least 30 seconds and double that number.
    • In infants and those younger than 3 years, evaluate respirations by assessing the rise and fall of the abdomen.
Secondary Assessment (11 of 11)

- Vital signs (cont’d)
  - Assess pulse rate by counting at least 1 minute, noting quality and regularity.
  - Normal pediatric vital signs vary with age.
  - Assess respirations, then pulse, then blood pressure.
  - Evaluate pupils using a small pen light.
  - Compare size of the pupils.
  - Pulse oximeter is a valuable tool for patients with respiratory issues.

Reassessment (1 of 2)

- Reassess the pediatric patient’s condition as necessary.
  - Obtain vitals every 15 minutes if stable.
  - Obtain vitals every 5 minutes if unstable.
  - Continually monitor respiratory effort, skin color and condition, and level of consciousness or interactiveness.

Reassessment (2 of 2)

- Interventions
  - Parents or caregivers may be able to assist.
  - Able to calm and reassure child
  - Often well versed on their child’s medical conditions
  - Oxygen or nebulizer administration
- Communication and documentation
  - Communicate and document all relevant information to ED personnel.

Respiratory Emergencies and Management (1 of 5)

- Respiratory problems are the leading cause of cardiopulmonary arrest in the pediatric population.
  - Failure to recognize and treat will lead to death.
  - Patient must work harder to breathe and will eventually go into respiratory failure if left untreated.
- In the early stages, you may note changes in behavior, such as combative, restlessness, and anxiety.

Respiratory Emergencies and Management (2 of 5)

- Signs and symptoms of increased work of breathing:
  - Nasal flaring
  - Abnormal breath sounds
  - Accessory muscle use
  - Tripod position

Respiratory Emergencies and Management (3 of 5)

- As the pediatric patient progresses to possible respiratory failure:
  - Efforts to breathe decrease.
  - Chest rises less with inspiration.
  - Body has used up all available energy stores and cannot continue to support extra work of breathing.
  - Without care, cyanosis may develop.

Respiratory Emergencies and Management (4 of 5)

- As the patient progresses to possible respiratory failure (cont’d):
– Changes in behavior and eventually, altered level of consciousness
– Patient may experience periods of apnea.
– Heart muscle becomes hypoxic.
  • Leads to bradycardia
  • If heart rate is slow, you must begin CPR.

Respiratory Emergencies and Management (5 of 5)

• As the patient progresses to possible respiratory failure (cont’d):
  – Respiratory failure does not always indicate airway obstruction.
  – Condition can progress from respiratory distress to failure at any time; reassess frequently.
  – A child or infant needs supplemental oxygen.
  – For infants and children in possible respiratory failure, assist ventilation with a BVM and 100% oxygen.
  – Allow patient to remain in a comfortable position.

Airway Obstruction (1 of 10)

• Children can obstruct airway with any object they can fit into their mouth.
• In cases of trauma, teeth may have been dislodged into the airway.

Airway Obstruction (2 of 10)

• Blood, vomitus, or other secretions can cause severe airway obstruction.
• Infections can cause obstruction.
  – Infection should be considered if patient has congestion, fever, drooling, and cold symptoms.
  – Croup is an infection in the airway below the level of the vocal cords.
  – Epiglottitis is an infection of the soft tissue above the level of the vocal cords.

Airway Obstruction (3 of 10)

Airway Obstruction (4 of 10)

• Obstruction by foreign object may involve upper or lower airway.
  – Obstruction may be partial or complete.
  – Signs and symptoms associated with partial upper airway obstruction include decreased breath sounds and stridor.
    • Infants or children with a complete airway obstruction will not make any sound, have no breath sounds, and become rapidly cyanotic
  – Signs and symptoms of lower airway obstruction include wheezing and/or crackles.

Airway Obstruction (5 of 10)

• Best way to auscultate breath sounds in pediatric patient is to listen to both sides of the chest at armpit level.

Airway Obstruction (6 of 10)

• Immediately begin treatment of airway obstruction.
  – Encourage coughing to clear airway when patient is conscious and forcibly coughing.
    • If this does not remove the object, do not intervene except to provide oxygen.
    • Allow patient to remain in whatever position is most comfortable.

Airway Obstruction (7 of 10)

• If you see signs of a severe airway obstruction, attempt to clear the airway immediately.
– Ineffective cough (no sound)
– Inability to speak or cry
– Increasing respiratory difficulty, with stridor
– Cyanosis
– Loss of consciousness

107 **Airway Obstruction (8 of 10)**

• If an infant is conscious with a complete airway obstruction, perform up to five back blows followed by chest thrusts.
  – Position the infant facedown on your forearm, and slap the back forcefully five times.
  – If the airway does not clear, flip the child onto his or her back and perform up to five chest thrusts in the same manner you would for CPR.
  – Repeat the process until the obstruction clears, or until the infant becomes unconscious.

108 **Airway Obstruction (9 of 10)**

• If a child is conscious with a complete airway obstruction, perform abdominal thrusts (Heimlich maneuver).
  – Continue until the obstruction is relieved or until the child loses consciousness.

109 **Airway Obstruction (10 of 10)**

• Use head tilt–chin lift and finger sweep to remove a visible foreign body in an unconscious pediatric patient.
• Use chest compressions to relieve a severe airway obstruction in an unconscious pediatric patient.
  – Increases pressure in chest, creating an artificial cough

110 **Asthma (1 of 4)**

• A condition in which the bronchioles become inflamed, swell, and produce excessive mucus, leading to difficulty breathing.
• A true emergency if not promptly identified and treated
  – 10% of US children are affected.
  – Common causes for asthma attack include upper respiratory infection, exercise, exposure to cold air or smoke, and emotional stress.

111 **Asthma (2 of 4)**

• Signs and symptoms:
  – Wheezing as patient exhales
  – In some cases, airway is completely blocked and no air movement is heard.
  – Cyanosis and respiratory arrest may quickly develop.
  – Tripod position allows for easier breathing.

112 **Asthma (3 of 4)**

• Treatment
  – Allow patient to assume a position of comfort.
  – Administer supplemental oxygen.
  – Bronchodilator via metered-dose inhaler with a spacer mask device (if protocol allows)
  – If assisting ventilations, use slow, gentle breaths.
  • Resist temptation to squeeze bag hard and fast.

113 **Asthma (4 of 4)**

• Treatment (cont’d)
  – A prolonged asthma attack may progress into status asthmaticus.
• A true emergency
  • Administer oxygen and provide rapid transport.
    – If patient becomes exhausted and stops struggling to breathe:
      • Manage airway aggressively, administer oxygen, and transport promptly.
      • Consider ALS support.

Pneumonia (1 of 3)
• Leading cause of death in children
• Pneumonia is a general term that refers to an infection to the lungs.
  – Often a secondary infection
  – Can also occur from chemical ingestion
  – Diseases causing immunodeficiency in children increase risk.
  – Incidence is greatest during fall and winter months

Pneumonia (2 of 3)
• Presentation in pediatric patient:
  – Unusual rapid breathing
  • Sometimes with grunting or wheezing sounds
  – Nasal flaring
  – Tachypnea
  – Hypothermia or fever
  – Unilateral diminished breath sounds or crackles over the infected lung segments

Pneumonia (3 of 3)
• Pediatric patient treatment:
  – Primary treatment will be supportive.
  – Monitor airway and breathing status.
  – Administer supplemental oxygen if required.
  – If the child is wheezing, administer a bronchodilator, if permitted.
• Diagnosis of pneumonia must be confirmed in the hospital.

Croup (1 of 2)
• An infection of the airway below the level of the vocal cords, usually caused by a virus.
  – Typically seen in children between ages 6 months and 3 years
  – Easily passed between children
• The disease starts with a cold, cough, and a low-grade fever that develops over 2 days.
  – The hallmark signs of croup are stridor and a seal-bark cough.

Croup (2 of 2)
• Treatment
  – Croup often responds well to the administration of humidified oxygen.
  – Bronchodilators are not indicated for croup and can make the child worse.

Epiglottitis
• Bacterial infection of the soft tissue in the area above the vocal cords
  – Incidence decreased since development of vaccine
• Epiglottitis can swell to two to three times normal size.
• Children look ill, report a very sore throat, and have a high fever.
  – Tripod position and drooling

Bronchiolitis (1 of 3)
Chapter 34 - Pediatric Emergencies

- Specific viral illness of newborns and toddlers, often caused by RSV.
  - Causes inflammation of the bronchioles
  - RSV is highly contagious and spread through coughing or sneezing.
  - Virus can survive on surfaces.
  - Virus tends to spread rapidly through schools and in childcare centers.

**Bronchiolitis (2 of 3)**
- More common in premature infants and results in copious secretion
  - Occurs during first 2 years of life; more common in males
  - Most widespread in winter and early spring
  - Bronchioles become inflamed, swell, and fill with mucus.
  - Airways can easily become blocked.
- Look for signs of dehydration, shortness of breath, and fever.

**Bronchiolitis (3 of 3)**
- Treatment
  - Use calm demeanor when approaching.
  - Allow patient to remain in position of comfort.
  - Treat airway and breathing problems.
  - Humidified oxygen is helpful.
  - Consider ALS backup.

**Pertussis (1 of 2)**
- Pertussis (whooping cough) is caused by a bacterium spread via respiratory droplets.
- Less common in the United States
- Signs and symptoms: coughing, sneezing, and a runny nose
  - Coughing becomes more severe with distinctive whoop sound during inspiration.
  - Infants may develop pneumonia or respiratory failure.

**Pertussis (2 of 2)**
- To treat pediatric patients, keep the airway patent (open) and transport.
- Pertussis is contagious, so follow standard precautions, including wearing a mask and eye protection.

**Airway Adjuncts (1 of 4)**
- Devices that help to maintain the airway or assist in providing artificial ventilation, including:
  - Oropharyngeal and nasopharyngeal airways
  - Bite blocks
  - BVMs

**Airway Adjuncts (2 of 4)**
- Oropharyngeal airway
  - Keeps tongue from blocking airway and makes suctioning easier
  - Should be used for pediatric patients who are unconscious and in respiratory failure
  - Should not be used in conscious patients or those who have a gag reflex or who may have ingested a caustic or petroleum-based product

**Airway Adjuncts (3 of 4)**
- Nasopharyngeal airway
  - Usually well tolerated.
  - Used for responsive pediatric patients.
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- Used in association with possible respiratory failure
- Rarely used in infants younger than 1 year
- Should not be used if there is nasal obstruction or head trauma

**Airway Adjuncts (4 of 4)**

- Nasopharyngeal airway potential problems:
  - May become obstructed by mucus, blood, vomitus, or the soft tissues of the pharynx
  - May stimulate the vagus nerve and slow the heart rate, or enter the esophagus, causing gastric distention
  - May cause a spasm of the larynx and result in vomiting if inserted into responsive patient
  - Should not be used when pediatric patients have facial trauma because the airway may tear soft tissues and cause bleeding into the airway

**Oxygen Delivery Devices (1 of 9)**

- Several options for pediatric patient
  - Blow-by technique at 6 L/min provides more than 21% oxygen concentration.
  - Nasal cannula at 1 to 6 L/min provides 24% to 44% oxygen concentration.
  - Nonrebreathing mask at 10 to 15 L/min provides up to 95% oxygen concentration.
  - BVM at 10 to 15 L/min provides nearly 100% oxygen concentration.

**Oxygen Delivery Devices (2 of 9)**

- Nonrebreathing mask, nasal cannula, or simple face mask is indicated for pediatric patients who have adequate respirations and/or tidal volumes.
  - BVM is used for those with respirations less than 12 breaths/min or more than 60 breaths/min, an altered LOC, or inadequate tidal volume.

**Oxygen Delivery Devices (3 of 9)**

- Blow-by method
  - Less effective than face mask or nasal cannula for oxygen delivery.
  - Does not provide high oxygen concentration.
  - Administration:
    - Place tubing through hole in bottom of cup.
    - Connect tube to oxygen source at 6 L/min.
    - Hold cup 1 to 2 inches away from nose and mouth.

**Oxygen Delivery Devices (4 of 9)**

- Nasal cannula
  - Some patients prefer the nasal cannula; some find it uncomfortable.
  - Applying a nasal cannula:
    - Choose appropriately sized nasal cannula.
    - Connect tubing to an oxygen source at 1 to 6 L/min.

**Oxygen Delivery Devices (5 of 9)**

**Oxygen Delivery Devices (6 of 9)**

- Nonrebreathing mask
  - Delivers up to 90% oxygen
  - Allows patient to exhale all carbon dioxide without rebreathing it
– Applying a nonrebreathing mask:
  • Select appropriately sized mask.
  • Connect tubing to oxygen source at 10 to 15 L/min.
  • Adjust oxygen flow as needed.

Oxygen Delivery Devices (7 of 9)
  • Bag-valve mask
    – Indicated in patients with too fast or too slow respirations, who are unresponsive, or who do not respond to painful stimuli
    – Assisting ventilations with BVM:
      • Select appropriately sized equipment.
      • Maintain a good seal with the mask on the face.
      • Ventilate at the appropriate rate and volume, using a slow, gentle squeeze.

Oxygen Delivery Devices (8 of 9)
Oxygen Delivery Devices (9 of 9)
  • Two-person BVM ventilation
    – Similar to one-person BVM ventilation except one rescuer holds the mask to the face and maintains the head position
    – Usually more effective in maintaining a tight seal

Cardiopulmonary Arrest
  • Cardiac arrest in pediatric patients is associated with respiratory failure and arrest.
    – Children are affected differently by decreasing oxygen concentration.
      • Adults become hypoxic and the heart develops a dysrhythmia that leads to sudden cardiac death.
      • Children become hypoxic and their hearts slow down, becoming more bradycardic.

Shock (1 of 11)
  • A condition that develops when the circulatory system is unable to deliver a sufficient amount of blood to the organs
    – Results in organ failure and eventually cardiopulmonary arrest
      • Compensated shock is the early stage of shock.
      • Decompensated shock is the later stage of shock.

Shock (2 of 11)
  • Common causes include:
    – Trauma injury with blood loss
      • Especially abdominal
    – Dehydration from diarrhea or vomiting
    – Severe infection
    – Neurologic injury
      • Such as severe head trauma

Shock (3 of 11)
  • Common causes include (cont’d):
    – Severe allergic reaction/anaphylaxis to an allergen
      • Insect bite or food allergy
    – Diseases of the heart
    – Collapsed lung
• Tension pneumothorax
  – Blood or fluid around the heart
• Cardiac tamponade
• Pericarditis

**Shock (4 of 11)**
• Pediatric patients respond differently than adults to fluid loss.
  – May respond by increasing heart rate, increasing respirations, and showing signs of pale or blue skin

**Shock (5 of 11)**
• Signs of shock in children
  – Tachycardia
  – Poor capillary refill time (> 2 seconds)
  – Mental status changes
• Treat shock by assessing ABCs, intervening as required.
  – The order becomes CAB if there is obvious life-threatening external hemorrhage or if cardiac arrest is suspected.
  – Pediatric patients do not demonstrate a fall in blood pressure until shock is severe.

**Shock (6 of 11)**
• Treatment
  – In assessing circulation, assess the rate and quality of pulses; the temperature and moisture of hands and feet; skin color; and capillary refill time, with 2 seconds being normal.
  – Changes in pulse rate, color, skin signs, and capillary refill time suggest shock.
  – Blood pressure is the most difficult vital sign to measure.
  – Assessment should also include talking with the parents or caregivers.

**Shock (7 of 11)**
• Treatment (cont’d)
  – Limit your management to simple interventions.
  – Do not waste time performing field procedures.
  – Ensure airway is open; prepare for artificial ventilation.
  – Control bleeding.

**Shock (8 of 11)**
• Treatment (cont’d)
  – Give supplemental oxygen by mask or blow-by.
  – Continue to monitor airway and breathing.
  – Position the pediatric patient in a position of comfort.
  – Keep warm with blankets and heat.
  – Provide immediate transport.
  – Contact ALS backup as needed.

**Shock (9 of 11)**
• Anaphylaxis
  – A life-threatening allergic reaction that involves generalized, multisystem response
    • Characterized by airway swelling and dilation of blood vessels
    • Common causes are insect sting, medications, or food allergy.
Shock (10 of 11)
• Anaphylaxis (cont’d)
  – Signs and symptoms
    • Hypoperfusion
    • Stridor and/or wheezing
    • Increased work of breathing
    • Altered appearance
    • Restlessness, agitation, and sometimes a sense of impending doom
    • Hives

Shock (11 of 11)
• Anaphylaxis (cont’d)
  – Treatment
    • Maintain airway and administer oxygen.
    • Allow caregiver to assist in positioning the patient, oxygen delivery, and maintaining calm.
    • Assist with epinephrine auto-injector based on protocol.
    • Provide rapid transport.

Bleeding Disorders
• Hemophilia is a congenital condition in which patients lack normal clotting factors.
  – Most forms are hereditary and severe.
  – Predominantly found in male population
  – Bleeding may occur spontaneously.
  – All injuries become serious because blood does not clot.

Altered Mental Status (1 of 2)
• Abnormal neurologic state
  – Understanding developmental changes and listening to caregiver’s opinion are key.
  – AEIOU-TIPPS reflects major causes of AMS.

Altered Mental Status (2 of 2)
• Signs and symptoms vary from simple confusion to coma.
• Management focuses on ABCs and transport.
  – If level of consciousness is low, patient may not be able to protect airway.
    • Ensure patent airway and adequate breathing through nonrebreathing mask or BVM.
  – Transport to the hospital.

Seizures (1 of 6)
• Result of disorganized electrical activity in the brain
  – Manifests in a variety of ways
  – Subtle in infants, with an abnormal gaze, sucking, and/or “bicycling” motions
  – More obvious in older children with repetitive muscle contractions and unresponsiveness

Seizures (2 of 6)
• Common causes of seizures

Seizures (3 of 6)
• Once seizure stops and muscles relax, it is referred to as postical state.
• The longer and more intense the seizures are, the longer it will take for this imbalance to correct itself.
Postictal state is over once normal level of consciousness is regained.

**Seizures (4 of 6)**
- Status epilepticus
  - Seizures that continue every few minutes without regaining consciousness in between or last longer than 30 minutes
- Recurring or prolonged seizures should be considered life threatening.
  - If patient does not regain consciousness or continues to seize, protect him or her from harming self and call for ALS backup.

**Seizures (5 of 6)**
- Management
  - Securing and protecting airway are priority.
    - Position head to open airway.
    - Clear mouth with suction.
    - Use recovery position if patient is vomiting.
  - Provide 100% oxygen by nonrebreathing mask or blow-by method
  - Begin BVM ventilations if no signs of improvement.

**Seizures (6 of 6)**
- Management (cont’d)
  - Some caregivers will have given the child a rectal dose of diazepam (Diastat) prior to your arrival; monitor breathing and level of consciousness carefully.
  - Transport to the appropriate facility

**Meningitis (1 of 7)**
- Inflammation of tissue that covers the spinal cord and brain
  - Caused by infection by bacteria, viruses, fungi, or parasites
  - Left untreated, can lead to brain damage or death
- Being able to recognize a pediatric patient with meningitis is an important skill to have.

**Meningitis (2 of 7)**
- Individuals at greater risk:
  - Males
  - Newborn infants
  - Compromised immune system by AIDS or cancer
  - History of brain, spinal cord, back surgery
  - Children who have had head trauma
  - Children with shunts, pins, or other foreign bodies in their brain or spinal cord
    - Especially children with VP shunts

**Meningitis (3 of 7)**
- Signs and symptoms vary with age.
  - Fever and altered level of consciousness
    - Changes can range from mild headache to inability to interact appropriately.
  - Child may experience seizure.
  - Infants younger than 2 to 3 months can have apnea, cyanosis, fever, distinct high-pitched cry, or hypothermia.

**Meningitis (4 of 7)**
- Signs and symptoms (cont’d)
“Meningeal irritation” or “meningeal signs” are terms to describe pain that accompanies movement.
- Often results in characteristic stiff neck
- In an infant, increasing irritability and a bulging fontanelle without crying

**Meningitis (5 of 7)**
- *Neisseria meningitidis* is a bacterium that causes rapid onset of meningitis symptoms.
  - Often leads to shock and death
  - Children present with small, pinpoint, cherry-red spots or a larger purple/black rash.
- Serious risk of sepsis, shock, and death

**Meningitis (6 of 7)**
- Patients with suspected meningitis should be considered contagious.
  - Use standard precautions.
  - Follow up to learn the patient’s diagnosis.
- Treatment
  - Provide supplemental oxygen and assist with ventilations if needed.
  - Reassess vital signs frequently.

**Meningitis (7 of 7)**
- Patients with suspected meningitis should be considered contagious.
  - Use standard precautions.
  - Follow up to learn the patient’s diagnosis.
- Treatment
  - Provide supplemental oxygen and assist with ventilations if needed.
  - Reassess vital signs frequently.

**Gastrointestinal Emergencies and Management (1 of 3)**
- Never take a complaint of abdominal pain lightly.
  - Monitor for signs and symptoms of shock.
- Complaints of gastrointestinal origin are common in pediatric patients.
  - Ingestion of certain foods or unknown substance
  - In most cases, patient will be experiencing abdominal discomfort with nausea, vomiting, and diarrhea.
  - Can cause dehydration

**Gastrointestinal Emergencies and Management (2 of 3)**
- Appendicitis is also common.
  - If untreated, can lead to peritonitis or shock
  - Will typically present with fever and pain upon palpation of right lower quadrant
  - Rebound tenderness is a common sign.
- If you suspect appendicitis, promptly transport to the hospital for evaluation.

**Gastrointestinal Emergencies and Management (3 of 3)**
- Obtain a thorough history from the primary caregiver.
  - How many wet diapers today?
  - Is the child tolerating liquids and keeping them down?
  - How many times has the child had diarrhea and for how long?
  - Are tears present during crying?

**Poisoning Emergencies and Management (1 of 5)**
- Common among children
  - Can occur by ingesting, inhaling, injecting, or absorbing toxic substances
- Common sources:
  - Alcohol
  - Aspirin and acetaminophen
  - Cosmetics
– Household cleaning products
– Houseplants

170 **Poisoning Emergencies and Management (2 of 5)**
• Common sources (cont’d):
  – Iron
  – Prescription medications of family members
  – Illicit (street) drugs
  – Vitamins
• Signs and symptoms vary, depending on substance, age, and weight.
  – May appear normal, confused, sleepy, or unconscious.
  – Some substances only take one pill to be lethal

171 **Poisoning Emergencies and Management (3 of 5)**
• Be alert for signs of abuse.
• After primary assessment, ask caregiver the following:
  – What is the substance involved?
  – Approximately how much was ingested?
  – What time did the incident occur?
  – Any changes in behavior or level of consciousness?
  – Any choking or coughing after the exposure?

172 **Poisoning Emergencies and Management (4 of 5)**
• Contact Poison Control for assistance.
  • Treatment
    – Perform external decontamination.
      • Remove tablets or fragments from mouth.
      • Wash or brush poison from skin.
    – Assess and maintain ABCs and monitor breathing.
    – If shock is present, treat and transport.
    – Give activated charcoal according to medical control or local protocol.

173 **Poisoning Emergencies and Management (5 of 5)**
• Activated charcoal
  – Not recommended for those who have ingested acid, an alkali, or a petroleum product
  – Not recommended for patients who have decreased level of consciousness
  – Common trade names are Insta-Char, Actidose, and Liqui-Char.
  – Usual dose is 1 g per kilogram of body weight; pediatric dose is 12.5 to 25 g.

174 **Dehydration Emergencies and Management (1 of 3)**
• Occurs when fluid loss is greater than fluid intake
  – Vomiting and diarrhea are common causes.
    • Can lead to shock and death if left untreated
  – Infants and children are at greater risk.
    • Life-threatening dehydration can overcome an infant in a matter of hours.
  – Can be mild, moderate, or severe

175 **Dehydration Emergencies and Management (2 of 3)**
• Mild dehydration signs
  – Dry lips and gums, decreased saliva and wet diapers
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- Moderate dehydration signs
  - Sunken eyes, sleepiness, irritability, loose skin, sunken fontanelles
- Severe dehydration signs
  - Mottled, cool, clammy skin; delayed CRT; increased respiration

176 Dehydration Emergencies and Management (3 of 3)
- Treatment
  - Assess ABCs and obtain baseline vital signs.
    - If severe, ALS backup may be necessary for IV access.
    - Transport to ED.

177 Fever Emergencies and Management (1 of 4)
- An increase in body temperature
  - 100.4°F (38°C) or higher is abnormal.
  - Rarely life threatening
- Causes
  - Infection
  - Status epilepticus
  - Cancer
  - Drug ingestion (aspirin)

178 Fever Emergencies and Management (2 of 4)
- Causes (cont’d)
  - Arthritis
  - Systemic lupus erythematosus (rash on nose)
  - High environmental temperature
- Result of internal body mechanism in which heat generation is increased and heat loss is decreased

179 Fever Emergencies and Management (3 of 4)
- Accurate body temperature is important for pediatric patients.
  - Rectal temperature is most accurate for infants and toddlers.
  - Under tongue or arm will work for older children.

180 Fever Emergencies and Management (4 of 4)
- Patient may present with signs of respiratory distress, shock, a stiff neck, a rash, hot skin, flushed cheeks, and, in infants, bulging fontanelles.
  - Assess for nausea, vomiting, diarrhea, decreased feedings, and headache.
- Transport and manage ABCs.
  - Follow standard precautions with communicable diseases.

181 Febrile Seizures (1 of 2)
- Common between 6 months and 6 years
  - Caused by fever alone
  - Typically occur on first day of febrile illness
  - Characterized by tonic-clonic activity
  - Last less than 15 minutes with little or no postictal state
  - May be sign of more serious problem

182 Febrile Seizures (2 of 2)
• Assess ABCs, provide cooling measures with tepid water, and provide prompt transport.
  – All patients with febrile seizures need to be seen in the hospital setting.

183 Drowning Emergencies and Management (1 of 3)
• Take steps to ensure your own safety.
  – Second-most-common cause of unintentional death among children
    • Children younger than age 5 are most at risk.
    • Alcohol frequently a factor with adolescents.
  – Principal condition is lack of oxygen.
    • A few minutes without oxygen affects the heart, lungs, and brain.
    • Hypothermia from submersion in icy water
    • Diving increases risk of neck and spinal cord injuries.

184 Drowning Emergencies and Management (2 of 3)
• Signs and symptoms
  • Coughing and choking
  • Airway obstruction and difficulty breathing
  • AMS and seizure activity
  • Unresponsiveness
  • Fast, slow, or no pulse
  • Pale, cyanotic skin
  • Abdominal distention

185 Drowning Emergencies and Management (3 of 3)
• Management
  – Assess and manage ABCs.
  – Contact ALS crew to intervene if needed.
  – Administer 100% oxygen.
  – Apply cervical collar if trauma is suspected.
  – Perform CPR in unresponsive patient in cardiopulmonary arrest.

186 Pediatric Trauma Emergencies and Management
• Number one killer of children in the US
  – Quality of care can impact recovery.
  – The muscles and bones of children continue to grow well into adolescence.
  – Fracture of the femur is rare.
    • Source of major blood loss
  – Older children and adolescents are prone to long bone fractures.

187 Physical Differences
• Children are smaller than adults.
  – Locations of injuries may be different.
• Children’s bones and soft tissues are less well developed than an adult’s.
  – Force of injury affects structures differently.
    • A child’s head is proportionally larger than an adult’s and exerts greater stress on the neck structures during a deceleration injury.

188 Psychological Differences
• Psychologic differences
  – Often injured because of underdeveloped judgment and lack of experience
– Always assume the child has serious head and neck injuries.

### Injury Patterns (1 of 2)
- Important for EMT to understand physical and psychologic characteristics of children
- Vehicle collisions
  - Children can dart out in front of motor vehicles without looking.
  - Typically sustain high-energy injuries to the head, spine, abdomen, pelvis, or legs.

### Injury Patterns (2 of 2)
- Sport injuries
  - Children are often injured in organized sports activities.
  - Head and neck injuries can occur in contact sports such as football, wrestling, ice hockey, field hockey, soccer, or lacrosse.
  - Remember to immobilize cervical spine.
  - Be familiar with protocols for helmet removal.

### Injuries to Specific Body Systems (1 of 14)
- Head injuries
  - Common in children because the size of the head in relation to the body
  - Infant has softer, thinner skull.
    - May result in brain injury
  - Scalp and facial vessels may cause great deal of blood loss if not controlled.

### Injuries to Specific Body Systems (2 of 14)
- Head injuries (cont’d)
  - Nausea and vomiting are common signs and symptoms of a head injury in children.
    - Easy to mistake for abdominal injury or illness
    - Should suspect a serious head injury in any child who experiences nausea and vomiting after a traumatic event

### Injuries to Specific Body Systems (3 of 14)
- Immobilization
  - Necessary for all children with possible head or spinal injuries after a traumatic event
  - Immobilization can be difficult because of the child’s body proportions.
  - Younger children require padding under the torso to maintain a neutral position.
  - May be necessary to immobilize child in a car seat

### Injuries to Specific Body Systems (4 of 14)
- Immobilization (cont’d)
  - Around 8 to 10 years of age, children no longer require padding under the torso and can lie supine on the backboard.
  - Padding will be required along the sides to properly secure the child on an adult-sized backboard.

### Injuries to Specific Body Systems (5 of 14)
- Chest injuries
  - Usually the result of blunt trauma
  - Chest wall flexibility in children can produce a flail chest.
    - May be injuries within the chest even though there may be no sign of external injury
    - Pediatric patients are managed in the same way as adults.
Injuries to Specific Body Systems (6 of 14)
• Abdominal injuries
  – Common in children
    • Children can compensate for blood loss better than adults.
    • Children can have a serious injury without early external evidence of a problem.
  – Monitor all children for signs of shock.
  – If signs of shock are evident, prevent hypothermia with blankets.

Injuries to Specific Body Systems (7 of 14)

Injuries to Specific Body Systems (8 of 14)
• Burns
  – Burns to children are considered more serious than burns to adults.
    • Have more surface area to relative total body mass, which means greater fluid and heat loss
    • Do not tolerate burns as well as adults
    • More likely to go into shock, develop hypothermia, and experience airway problems

Injuries to Specific Body Systems (9 of 14)
• Burns (cont’d)
  – Common ways that children are burned:
    • Exposure to hot substances
    • Hot items on a stove
    • Exposure to caustic substances
  – Infection is a common problem.
    • Burned skin cannot resist infection as effectively.
    • Sterile techniques should be used when handling skin.

Injuries to Specific Body Systems (10 of 14)
• Burns (cont’d)
  – Should consider child abuse in any burn situation
    • Report any information about suspicions.
  – Severity
    • Minor
    • Moderate
    • Critical

Injuries to Specific Body Systems (11 of 14)
• Burns (cont’d)
  – Pediatric patients are managed in the same manner as adults.
    • Prevent hypothermia if shock is suspected.
    • If patient shows bradycardia, ventilate.
    • Monitor the patient during transport.

Injuries to Specific Body Systems (12 of 14)
• Injuries to the extremities
  – Children have immature bones with active growth centers.
  – Growth of long bones occurs from the ends at specialized growth plates.
    • Potential weak spots
    • Incomplete or greenstick fractures can occur.
Injuries to Specific Body Systems (13 of 14)

• Injuries to the extremities (cont’d)
  – Generally, extremity injuries in children are managed in the same manner as adults.
  • Painful deformed limbs with evidence of broken bones should be splinted.
    – Should not attempt to use adult immobilization devices on pediatric patient

Injuries to Specific Body Systems (14 of 14)

• Pain management
  – First step is recognizing the patient is in pain.
  – Look for visual clues and use the Wong-Baker FACES pain scale.
  – Interventions are limited to positioning, ice packs, and extremity elevation.
    • Will decrease pain and swelling to injury site
  – ALS interventions may be needed.
  – Another important tool is kindness and providing emotional support.

Disaster Management (1 of 4)

• JumpSTART triage system
  – Intended for patients younger than age 8 years and weighing less than 100 lb
  – Four triage categories
    • Green
    • Yellow
    • Red
    • Black

Disaster Management (2 of 4)

• JumpSTART triage system (cont’d)
  – Green: minor; not in need of immediate treatment
    • Able to walk (except in infants)
  – Yellow: delayed treatment
    • Presence of spontaneous breathing, with peripheral pulse, responsive to painful stimuli

Disaster Management (3 of 4)

• JumpSTART triage system (cont’d)
  – Red: immediate response
    • Apnea responsive to positioning or rescue breathing; respiratory failure; breathing but without a pulse; or inappropriate painful response
  – Black: deceased or expectant deceased
    • Apneic without pulse, or apneic and unresponsive to rescue breathing

Disaster Management (4 of 4)

Child Abuse and Neglect

• Any improper or excessive action that injures or otherwise harms a child
  – Includes physical abuse, sexual abuse, neglect, and emotional abuse
  – Over half a million children are victims of child abuse annually.
  – Many children suffer life-threatening injuries.
    • If abuse is not reported, it is likely to happen again.

Signs of Abuse (1 of 10)

• You will be called to homes because of reported injury to a child.
• Child abuse occurs in every socioeconomic status.
  – Be aware of patient’s surroundings.
  – Document findings objectively.

**Signs of Abuse (2 of 10)**

• Ask yourself the following:
  – Injury typical for age of child?
  – MOI reported consistent with the injury?
  – Caregiver behaving appropriately?
  – Evidence of drinking or drug use at scene?
  – Delay in seeking care for the child?
  – Good relationship between child and caregiver or parent?

**Signs of Abuse (3 of 10)**

• Ask yourself the following (cont’d):
  – Are there multiple injuries at different stages of healing?
  – Any unusual marks or bruises that may have been caused by cigarettes, grids, or branding injuries?
  – Are there several types of injuries?
  – Any burns on hands or feet that involve a glove distribution?

**Signs of Abuse (4 of 10)**

• Ask yourself the following (cont’d):
  – Is there unexplained decreased level of consciousness?
  – Is the child clean and an appropriate weight for his or her age?
  – Is there any rectal or vaginal bleeding?
  – What does the home look like? Clean or dirty? Warm or cold? Is there food?

**Signs of Abuse (5 of 10)**

• CHILD ABUSE mnemonic may help.

**Signs of Abuse (6 of 10)**

• Bruises
  – Observe color and location.
  – New bruises are pink or red.
  • Over time turn blue, then green, then yellow-brown and faded
  • Bruises to the back, buttocks, or face are suspicious and are usually inflicted by a person.

**Signs of Abuse (7 of 10)**

• Burns
  – Burns to the penis, testicles, vagina, or buttocks are usually inflicted by someone else.
  – Burns that look like a glove are usually inflicted by someone else.
  • You should suspect child abuse if the child has cigarettes burns or grid pattern burns.

**Signs of Abuse (8 of 10)**

• Fractures
  – Fractures of the humerus or femur do not normally occur without major trauma.
  – Falls from bed are not usually associated with fractures.
  • Maintain an index of suspicion if an infant or young child sustains a femur fracture.
  • A complete fracture of the bone indicates that the child was exposed to a great deal of traumatic force.
Signs of Abuse (9 of 10)
- Shaken baby syndrome
  - Infants may sustain life-threatening head trauma by being shaken or struck.
  - Bleeding within the head and damage to the cervical spine
  - Infant will be found unconscious, often without evidence of external trauma.

Signs of Abuse (10 of 10)
- Shaken baby syndrome (cont’d)
  - Shaking tears blood vessels in the brain, resulting in bleeding around the brain.
  - Pressure from blood results in an increase in cranial pressure leading to coma and/or death.
- Neglect
  - Refusal or failure to provide life necessities
  - Examples are water, clothing, shelter, personal hygiene, medicine, comfort, personal safety

Symptoms and Other Indicators of Abuse (1 of 2)
- Abused children may appear withdrawn, fearful, or hostile.
  - Should be concerned if child does not want to discuss how an injury occurred
- Parent may reveal a history of “accidents.”
  - Be alert for conflicting stories or lack of concern.
  - Abuser may be a parent, caregiver, relative, or friend of the family.

Symptoms and Other Indicators of Abuse (2 of 2)
- EMTs in all states must report suspected abuse.
  - Most states have special forms to do so.
  - Supervisors are generally forbidden to interfere with the reporting.
  - Law enforcement and child protection services will determine whether there is abuse.
- It is not your job.

Sexual Abuse (1 of 3)
- Children of any age and gender can be victims of sexual abuse.
  - Maintain an index of suspicion.
  - Often longstanding abuse by relatives
- Assessment
  - Limited to determining type of dressing required
  - Treat bruises and fractures as well.
  - Do not examine genitalia unless there is evidence of bleeding or other injury.

Sexual Abuse (2 of 3)
- Assessment (cont’d)
  - Do not allow child to wash, urinate, or defecate until a physician completes examination.
    - Difficult but important step to preserve evidence
  - Ensure an EMT or police officer of the same gender remains with the child.
  - Maintain professional composure.
    - Assume a caring, concerned approach.
    - Shield the child from onlookers.

Sexual Abuse (3 of 3)
- Assessment (cont’d)
– Obtain as much information as possible from the child and any witnesses.
– Transport all children who are victims of sexual assault.
– Sexual abuse is a crime.
– Cooperate with law enforcement officials in their investigations.

### Sudden Infant Death Syndrome (1 of 2)
- Unexplained death after complete autopsy
- About 3,500 infants die of SIDS annually.
  – Baby should be placed on his or her back on a firm mattress, in a crib free of bumpers, blankets, and toys.
  – Baby should sleep in the same room, but not the same bed, chair, or sofa as an adult.
- Impossible to predict

### Sudden Infant Death Syndrome (2 of 2)
- Risk factors
  – Mother younger than age 20 years
  – Mother smoked during pregnancy
  – Low birth weight
- Can occur at any time of day
- You are faced with three tasks
  – Assessment of the scene
  – Assessment and management of patient
  – Communication and support of the family

### Patient Assessment and Management (1 of 4)
- Victim of SIDS will be pale or blue, not breathing, and unresponsive.
- Other causes include:
  – Overwhelming infection
  – Child abuse
  – Airway obstruction
  – Meningitis

### Patient Assessment and Management (2 of 4)
- Other causes include (cont’d)
  – Accidental or intentional poisoning
  – Hypoglycemia
  – Congenital metabolic defects
- Begin with ABC assessment.
  – Provide necessary interventions.

### Patient Assessment and Management (3 of 4)
- Depending on how much time has passed, patient may show postmortem changes.
  – Rigor mortis
  – Dependent lividity
- If you see these signs, call medical control.
- If no signs of postmortem changes, begin CPR immediately.

### Patient Assessment and Management (4 of 4)
- As you assess patient, pay special attention to any marks or bruises on the child before performing any procedures.
  – Note any interventions that were performed before your arrival.
Scene Assessment

- Carefully inspect environment, noting condition of scene and where infant was found.
- Assessment should concentrate on:
  - Signs of illness
  - General condition of the house
  - Signs of poor hygiene
  - Family interaction
  - Site where the infant was discovered

Communication and Support of the Family

- Sudden death of an infant is devastating for a family.
  - Tends to evoke strong emotional responses among health care providers
  - Allow the family to express their grief.

Death of a Child (1 of 5)

- In addition to medical treatment the child may require, you must provide the family with empathy and understanding.
- The family may want you to initiate resuscitation efforts, which may or may not conflict with your EMS protocols.
- Introduce yourself to the child’s parents or caregivers, and ask about the child’s date of birth and medical history.

Death of a Child (2 of 5)

- Do not speculate on the cause of the child’s death.
- The family should be asked whether they want to hold the child and say good-bye.
- The following interventions are helpful:
  - Use the child’s name.
  - Speak to family members at eye level.
  - Use “died” and “dead” instead of “passed away” or “gone.”

Death of a Child (3 of 5)

- Helpful interventions (cont’d):
  - Acknowledge family’s feelings, but never say, “I know how you feel.”
  - Offer to call other family members or clergy.
  - Keep any instructions short, simple, and basic.
  - Ask family members if they want to hold the child.
  - Wrap the child in a blanket, and stay with the family while they hold the child.
  - Do not to remove equipment that was used in attempted resuscitation.

Death of a Child (4 of 5)

- Everyone expresses grief in a different way.
  - Some will require intervention.
  - Many caregivers feel directly responsible for the death of a child.
- Some EMS systems arrange for home visits after a child’s death for closure.
  - You need training for these visits.

Death of a Child (5 of 5)

- Child’s death can be very stressful.
  - Take time before going back to the job.
– Talk with other EMS colleagues.
– Be alert for signs of posttraumatic stress in yourself and others.
– Consider the need for help if signs occur.

**Apparent Life-Threatening Event (1 of 2)**
- Infants who are not breathing, cyanotic, and unresponsive sometimes resume breathing and color with stimulation.
- Apparent life-threatening event (ALTE)
- Classic ALTE is characterized by:
  - Distinct change in muscle tone
  - Choking or gagging

**Apparent Life-Threatening Event (2 of 2)**
- After ALTE, child may appear healthy and show no signs of illness or distress.
- Must complete careful assessment and provide rapid transport to the ED.
- Pay strict attention to airway management.
- Assess infant’s history and environment.
- Allow caregivers to ride in the back of the ambulance.
- Physicians will determine the cause.

**Review**
1. How does pediatric anatomy differ from adult anatomy?
   A. The trachea is more rigid.
   B. The tongue is proportionately smaller.
   C. The epiglottis is less floppy.
   D. The head is proportionately larger.

**Review**
Answer: D
Rationale: There are several important anatomic differences between pediatric patients and adult patients. The head—specifically the occiput—is proportionately larger. Their tongue and epiglottis are also proportionately larger, and the epiglottis is floppier and more omega-shaped. The child’s airway is narrower at all levels, and the trachea is less rigid and easily collapsible.

**Review (1 of 2)**
1. How does pediatric anatomy differ from adult anatomy?
   A. The trachea is more rigid.
      Rationale: A pediatric trachea is less rigid, narrower, and more anterior than an adult trachea.
   B. The tongue is proportionately smaller.
      Rationale: A tongue is proportionately larger than an adult tongue.

**Review (2 of 2)**
1. How does pediatric anatomy differ from adult anatomy?
   C. The epiglottis is less floppy.
      Rationale: The epiglottis is floppier and shaped differently.
   D. The head is proportionately larger.
      Rationale: Correct answer
2. When a small child falls from a significant height, the ______ MOST often strikes the ground first.
   A. head
   B. back
   C. feet
   D. side

245 Review
   Answer: A
   Rationale: Compared to adults, pediatric patients have proportionately larger heads. When they fall from a significant height, gravity usually takes them headfirst. This is why head trauma is the most common cause of traumatic death in the pediatric patient.

246 Review (1 of 2)
   2. When a small child falls from a significant height, the ______ MOST often strikes the ground first.
      A. head
      Rationale: Correct answer
      B. back
      Rationale: The head is heavier, and gravity tends to tilt the head in a downward direction.

247 Review (2 of 2)
   2. When a small child falls from a significant height, the ______ MOST often strikes the ground first.
      C. feet
      Rationale: Adults will attempt to land feet first.
      D. side
      Rationale: The head is heavier, and gravity tends to tilt the head in a downward direction.

248 Review
   3. When assessing a conscious and alert 9-year-old child, you should:
      A. isolate the child from his or her parent.
      B. allow the child to answer your questions.
      C. obtain all of your information from the parent.
      D. avoid placing yourself below the child’s eye level.

249 Review
   Answer: B
   Rationale: A 9-year-old child is capable of answering questions. By allowing a child to answer your questions, you can gain his or her trust and build a good rapport, which facilitates further assessment and treatment. Do not isolate the child from his or her parent, yet do not allow the parent to do all the talking, unless the child is unable to communicate. When assessing any patient, you should place yourself at or slightly below the patient’s eye level. This position is less intimidating and helps to minimize patient anxiety.

250 Review (1 of 2)
   3. When assessing a conscious and alert 9-year-old child, you should:
      A. isolate the child from his or her parent.
      Rationale: Do not isolate a child from his or her parents.
      B. allow the child to answer your questions.
3. When assessing a conscious and alert 9-year-old child, you should:
   C. obtain all of your information from the parent.
   Rationale: Some information from parents is useful, but allow the child to speak.
   D. avoid placing yourself below the child’s eye level.
   Rationale: Never tower over a child; instead maintain yourself at/or below eye level.

4. The purpose of a shunt is to:
   A. minimize pressure within the skull.
   Rationale: Correct answer
   B. reroute blood away from the lungs.
   Rationale: The shunt is connected from the brain to the abdomen.
   C. instill food directly into the stomach.
   Rationale: The shunt drains excess cerebrospinal fluid from the brain.
   D. drain excess fluid from the peritoneum.
   Rationale: The shunt drains excess cerebrospinal fluid from the brain.

5. Which of the following statements regarding febrile seizures is correct?
   A. Febrile seizures usually indicate a serious underlying condition, such as meningitis.
   B. Most febrile seizures occur in children between the ages of 2 months and 2 years of age.
   C. Febrile seizures are rarely associated with tonic-clonic activity, but last for more than 15 minutes.
   D. Febrile seizures usually last less than 15 minutes and often do not have a postictal phase.

Answer: D
Rationale: Febrile seizures are the most common seizures in pediatric patients; they are common between the ages of 6 months and 6 years of age. Most pediatric seizures are due to fever alone—hence the name “febrile” seizure. However, seizures and fever may indicate a more serious underlying condition, such as meningitis. Febrile seizures are characterized by generalized tonic-clonic activity and last less than 15 minutes; if a postictal phase occurs, it is generally very short.
5. Which of the following statements regarding febrile seizures is correct?
   A. Febrile seizures usually indicate a serious underlying condition, such as meningitis.
      Rationale: Most febrile seizures are caused by fever, but a fever and seizures may be an indication of a serious underlying condition.
   B. Most febrile seizures occur between the ages of 2 months and 2 years of age.
      Rationale: Most febrile seizures occur between the ages of 6 months and 6 years.

5. Which of the following statements regarding febrile seizures is correct?
   C. Febrile seizures are rarely associated with tonic-clonic activity, but last for more than 15 minutes.
      Rationale: Febrile seizures last less than 15 minutes.
   D. Febrile seizures usually last less than 15 minutes and often do not have a postictal phase.
      Rationale: Correct answer

6. You respond to a sick child late at night. The child appears very ill, has a high fever, and is drooling. He is sitting in a tripod position, struggling to breathe. You should suspect:
   A. croup.
   B. pneumonia.
   C. epiglottitis.
   D. severe asthma.

   Answer: C
   Rationale: This child has all the classic signs of epiglottitis: high fever, drooling, and severe respiratory distress. Epiglottitis is a potentially life-threatening bacterial infection that causes the epiglottis to swell rapidly and potentially obstruct the airway.

6. You respond to a sick child late at night. The child appears very ill, has a high fever, and is drooling. He is sitting in a tripod position, struggling to breathe. You should suspect:
   A. croup.
      Rationale: This is a viral disease characterized by edema of the upper airways, a barking cough, and stridor.
   B. pneumonia.
      Rationale: This is an inflammation of the lungs caused by bacteria, viruses, fungi, and other organisms.

6. You respond to a sick child late at night. The child appears very ill, has a high fever, and is drooling. He is sitting in a tripod position, struggling to breathe. You should suspect:
   C. epiglottitis.
      Rationale: Correct answer
   D. severe asthma.
      Rationale: This is a lower airway condition resulting in intermittent wheezing and excess mucus production.

7. Treatment for a semiconscious child who swallowed an unknown quantity of pills includes:
   A. administering 1 g/kg of activated charcoal and rapidly transporting.
B. monitoring the child for vomiting, administering oxygen, and transporting.
C. positioning the child on his left side, elevating his legs 6 inches, and transporting.
D. contacting medical control and requesting permission to induce vomiting.

264 Review
Answer: B
Rationale: If a semi- or unconscious child has ingested pills, poisons, or any other type of harmful substance, closely observe for vomiting, give high-flow oxygen (assist ventilations if necessary), and rapidly transport to the emergency department. Do not give activated charcoal to any patient who is not conscious and alert enough to swallow. Induction of vomiting is not indicated for anyone—regardless of age.

265 Review (1 of 2)
7. Treatment for a semiconscious child who swallowed an unknown quantity of pills includes:
A. administering 1 g/kg of activated charcoal and rapidly transporting.
   Rationale: Do not give anything by mouth to an individual who is not conscious and alert enough to swallow.
B. monitoring the child for vomiting, administering oxygen, and transporting.
   Rationale: Correct answer

266 Review (2 of 2)
7. Treatment for a semiconscious child who swallowed an unknown quantity of pills includes:
C. positioning the child on his left side, elevating his legs 6 inches, and transporting.
   Rationale: Placing the child in the recovery position is acceptable if vomiting is possible, but the patient's legs should remain flat.
D. contacting medical control and requesting permission to induce vomiting.
   Rationale: Inducing vomiting is not indicated for anyone at any age.

267 Review
8. When using the mnemonic CHILD ABUSE to assess a child for signs of abuse, you should recall that the "D" stands for:
A. delay in seeking care.
B. divorced parents.
C. dirty appearance.
D. disorganized speech.

268 Review
Answer: A
Rationale: The mnemonic CHILD ABUSE stands for Consistency of the injury with the child’s developmental age, History inconsistent with the injury, Inappropriate parental concerns, Lack of supervision, Delay in seeking care, Affect, Bruises of varying stages, Unusual injury patterns, Suspicious circumstances, and Environmental clues. A delay in care may happen when the parent or caregiver does not want the abuse noted by other people.

269 Review (1 of 2)
8. When using the mnemonic CHILD ABUSE to assess a child for signs of abuse, you should recall that the "D" stands for:
A. delay in seeking care.
   Rationale: Correct answer
B. divorced parents.
   Rationale: Divorce may put the child at greater risk, but does not indicate the child is being abused.
Chapter 34 - Pediatric Emergencies

Review (2 of 2)

8. When using the mnemonic CHILD ABUSE to assess a child for signs of abuse, you should recall that the “D” stands for:
   C. dirty appearance.
   Rationale: This is something providers should be aware of. A potential for abuse exists, but this does not indicate that the child is being abused.
   D. disorganized speech.
   Rationale: This may indicate a learning disability or handicap.

Review (1 of 2)

9. A 4-year-old girl fell from a second-story balcony and landed on her head. She is unresponsive; has slow, irregular breathing; has a large hematoma to the top of her head; and is bleeding from her nose. You should:
   A. immediately perform a full-body scan to detect other injuries, administer high-flow oxygen, and transport at once.
   B. apply a pediatric-sized cervical collar, administer high-flow oxygen via pediatric nonrebreathing mask, and prepare for immediate transport.

Review (2 of 2)

9. A 4-year-old girl fell from a second-story balcony and landed on her head. She is unresponsive; has slow, irregular breathing; has a large hematoma to the top of her head; and is bleeding from her nose. You should:
   C. manually stabilize her head, open her airway with the jaw-thrust maneuver, insert an airway adjunct, and begin assisting her ventilations with a bag-valve mask.
   D. suction her airway for up to 10 seconds, insert a nasopharyngeal airway, apply a pediatric-sized cervical collar, and administer oxygen via pediatric nonrebreathing mask.

Review

Answer: C
Rationale: This child has a severe head injury and is not breathing adequately. You must manually stabilize her head to protect her spine, open her airway with the jaw-thrust maneuver, suction her airway if needed, insert an oropharyngeal airway, and assist her ventilations with a bag-valve mask. The full-body scan is performed after you have performed a primary assessment to detect and correct any life threats. The nasopharyngeal airway is contraindicated for this child; she has a head injury and is bleeding from her nose.

Review (1 of 3)

9. A 4-year-old girl fell from a second-story balcony and landed on her head. She is unresponsive; has slow, irregular breathing; has a large hematoma to the top of her head; and is bleeding from her nose. You should:
   A. immediately perform a full-body scan to detect other injuries, administer high-flow oxygen, and transport at once.
   Rationale: A full-body scan is performed after the primary assessment.
   B. apply a pediatric-sized cervical collar, administer high-flow oxygen via pediatric nonrebreathing mask, and prepare for immediate transport.
   Rationale: Assisted ventilations must be started on a patient with slow, irregular respirations.

Review (2 of 3)

9. A 4-year-old girl fell from a second-story balcony and landed on her head. She is unresponsive; has slow, irregular breathing; has a large hematoma to the top of her head;
and is bleeding from her nose. You should:
C. manually stabilize her head, open her airway with the jaw-thrust maneuver, insert an
airway adjunct, and begin assisting her ventilations with a bag-valve mask.
Rationale: Correct answer

Review (3 of 3)
9. A 4-year-old girl fell from a second-story balcony and landed on her head. She is
unresponsive; has slow, irregular breathing; has a large hematoma to the top of her head;
and is bleeding from her nose. You should:
D. suction her airway for up to 10 seconds, insert a nasopharyngeal airway, apply a
pediatric-sized cervical collar, and administer oxygen via pediatric nonrebreathing
mask.
Rationale: A nasopharyngeal airway is contraindicated with potential facial injuries.
Ventilations need to be maintained with a bag-valve mask.

Review
10. The AVPU scale is used to monitor a patient’s level of consciousness. What does the “P”
stand for?
A. Pallor
B. Pediatric
C. Painful
D. Pale

Review
Answer: C
Rationale: The “P” in the AVPU scale stands for painful. If the patient is responsive to pain
they should withdraw from it.

Review (1 of 2)
10. The AVPU scale is used to monitor a patient’s level of consciousness. What does the “P”
stand for?
A. Pallor
   Rationale: Pallor means that the skin is pale. This has nothing to do with level of
   consciousness.
B. Pediatrics
   Rationale: The same AVPU scale is used for adults and pediatrics.

Review (2 of 2)
10. The AVPU scale is used to monitor a patient’s level of consciousness. What does the “P”
stand for?
C. Painful
   Rationale: Correct answer
D. Positioning
   Rationale: The patient’s position may provide clues to the patient’s condition but it is
   not part of the AVPU scale.