Chapter 32 Pediatric Emergencies

Pediatric Emergencies

- Caring for sick and injured children presents _________________ challenges.
- EMT-Bs may find themselves anxious when dealing with critically ill or injured children.
- Treatment is the same as that for adults in _________________ emergency situations.

Communication With the Patient and the Family

- You may have more than _________________ patient.
  - Caregiver may need help and support.
- A calm parent contributes to a calm child.
  - An agitated parent means child will act same way.
- Remain _________________, efficient, professional, and sensitive.

Growth and Development

- Thoughts and behaviors of children usually grouped into stages
  - _________________
    - Toddler years
  - _________________ age
  - School age
  - _________________

Infant

- First _________________ of life
- They respond mainly to physical stimuli.
  - _________________ is a way of expression.
- They may prefer to be with _________________.

Assessment of Infants

- Observe infant from a _________________.
- Caregiver should hold baby during assessment.
- Provide _________________ comfort.
  - Warm hands and end of stethoscope.
- Do painful procedures at _________________ of assessment.

Toddler

- ____________ to ____________ years of age
- They begin to walk and explore the environment.
- They may resist _________________ from caregivers.
- Start to learn body systems
  - Vocabulary grows rapidly

Assessment of Toddlers

- May have stranger anxiety
- May resist separation from caregiver
- May have a hard time describing _______________________.
- Can be _______________________.
- Persistent _______________________ can be a symptom of serious illness or injury.

**9 Preschool Age Children**

- _____ to ________ years of age
- They can use simple language effectively.
- They can understand _______________________.
- They can identify painful areas when questioned.
- They can _______________________ when you explain what you are going to do using simple descriptions.

**10 Assessment of Preschool Children**

- Much _______________________ must still be obtained from caregivers.
- Appeal to child’s imagination to facilitate examination.
- Never _______________________ to the patient.
- Patient may be easily distracted.

**11 School Age Children**

- _____ to ________ years of age
- Beginning to act more like adults
- Can think in concrete terms
- Can respond sensibly to questions
- Can help take care of themselves
- _______________________ is important.
- Children begin to understand death

**12 Assessment of School Age Children (1 of 2)**

- Assessment begins to be more like adults’.
- Talk to the child, not just the caregiver.
- Start with head and move to the _______________________.
- Give the child _______________________ if possible.
- Ask only questions that let you control the answer:
  - Would you like me to take the BP on the right or left arm?

**13 Assessment of School Age Children (2 of 2)**

- Allow the child to listen to his or her heartbeat through the stethoscope.
- Can understand difference between physical and emotional pain
- Give them simple _______________________ about what is causing pain and what will be done about it.
- Ask the parent’s or caregiver’s advice about which _______________________ will work best.

**14 Adolescents**

- _____ to ________ years of age
- They are very concerned about body image.
• They may have strong feelings about being observed.
• Puberty begins
  • Feel “________________________”
  • They understand __________________________.

15  Assessment of Adolescents (1 of 3)
• Respect an adolescent’s __________________________.
• Explain any procedure that you are doing.
• Can often understand complex concepts and treatment
  __________________________
  • Allow them to be involved in their own care.
  • Provide _________________________, while lending guidance.

16  Assessment of Adolescents (2 of 3)
• EMT of same __________________________ should do assessment, if possible.
• 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 __________________________, dangerous sexual practices, and
    teen pregnancy

17  Assessment of Adolescents (3 of 3)
• Female patients may be __________________________:
• Important to report this information to receiving facility.
• Adolescent may not want parents to know this information.
  • Try to interview __________________________ the caregiver/parent present.

18  Differences Between Pediatrics and Adults

19  Airway Differences
• Larger, rounder __________________________
• Larger tongue relative to the mouth
• Larger __________________________
• Less well-developed rings of cartilage in the trachea
• Narrower, lower __________________________

20  Breathing Differences (1 of 2)
• Infants breathe __________________________ than children or adults.
• Infants use the diaphragm when they breathe.
• Sustained, labored breathing may lead to respiratory __________________________.
• Respiratory problems are the leading cause of cardiopulmonary arrest in the
  pediatric population.

21  Breathing Differences (2 of 2)
• During respiratory __________________________, the pediatric patient is working
  harder to breathe and will eventually go into respiratory failure.
• Respiratory failure occurs when the pediatric patient has exhausted all
  __________________________ mechanisms.
• Waste products collect, leading to respiratory arrest, a total ____________________.

22 Circulation Differences (1 of 2)
• The normal heart rate is faster than adults.
  • Infants heart can beat _______ beats/min or more.
• The heart rate increases for _____________________ and injury.
• Primary method used to compensate for decreased perfusion
  • _______________________ keeps vital organs nourished.
• Constriction of the blood vessels can affect blood flow to the extremities.

23 Circulation Differences (2 of 2)
• Pediatrics are more dependent on actual cardiac output.
  • Blood being pumped out of heart in ________ minute
• May be in shock despite normal blood pressure
• A small amount of blood loss can lead to _____________________.

24 Gastrointestinal System (1 of 3)
• _____________________ muscles are less developed.
• Less protection from trauma.
• Liver, spleen, 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 _____________________ injury.

25 Gastrointestinal System (2 of 3)
• Signs and symptoms of acute abdomen may be vague.
• Abdominal walls are underdeveloped.
• May not be able to _____________________ origin of pain
• Take complaints of abdominal pain seriously.
  • Large amount of _____________________ may occur within abdominal cavity, without signs of shock.

26 Gastrointestinal System (3 of 3)
• Liver and _____________________ injuries are common in this age group.
• Needs to be monitored for shock; may include AMS, _____________________ , tachycardia, and bradycardia

27 Musculoskeletal System (1 of 4)
• Open growth _____________________ 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 _____________________ discrepancies can occur if injury to growth plate occurs.
  • Immobilize all strains and sprains.

28 Musculoskeletal System (2 of 4)
Bones of an infant’s head are _______________________ and soft.
Fontanelles (soft spots) are located at front and back of head.
  • Will close at particular _______________________ of development

29. Musculoskeletal System (3 of 4)
• _______________________ can be a useful assessment tools
  • Bulging indicates intracranial pressure
• Thoracic cage is highly elastic and pliable.
  • Composed of cartilaginous connective tissue
  • Ribs and vital organs are less protected.
• Muscles and bones grow into _______________________ .

30. Musculoskeletal System (4 of 4)
• The younger the child, the more ______________________ the bone structures.
  • Sprains are uncommon and femur fractures rare.
• Older children are prone to _______________________ bone fractures due to more risks and activity.

31. Integumentary System (1 of 2)
• _______________________ skin and less subcutaneous fat
• Higher ratio of body surface area to body mass leads to larger fluid and heat losses.
• Composition of skin is thinner and tends to _______________________ more easily and deeply.

32. Integumentary System (2 of 2)
• Thermoregulator system is immature:
• Makes pediatric population more prone to _______________________ events
• Lack of ability to _______________________ to generate heat
• Children should be kept warm during transport.
• Without treatment of hypothermic event, patient may lapse into convulsive _______________________ activity.

33. Scene Size Up
• Take note of your _______________________ .
• Scene assessment will supplement additional findings.
• Observe:
  • Position of the patient
  • Condition of the _______________________ 
  • Clues to child _______________________ 

34. Primary Assessment
• Begins before you _______________________ the patient
• Form a general impression.
• Determine a chief complaint.
• The Pediatric Assessment _______________________ can help.
35 **Pediatric Assessment Triangle (PAT)**
- Should take only __________ - __________ seconds
- Appearance
- Work of _______________________
- Skin circulation
- Requires no _______________________ or equipment
- Observation only

36 **Appearance**
- Note LOC, muscle tone, interactiveness.
- TICLS mnemonic helps determine if patient is sick or not sick.
- ________________
- Interactiveness
- Consolability
- ________________ or gaze
- ________________ or cry

37 **Work of Breathing**
- Increases body _______________________
- May manifest as tachypnea, abnormal airway noise, ________________ of intercostal muscles or sternum

38 **Circulation to the Skin**
- ________________ of skin and mucous membranes may be seen in compensated shock.
- Mottling is sign of poor perfusion.
- ________________ reflects decreased level of oxygen.

39 **Stay or Go?**
- From PAT findings, you will decide if the patient is stable or requires urgent care:
- If unstable, assess ABC’s, treat life threats, and ________________ immediately.
- If stable, continue with the remainder of the ________________ process.

40 **Assessing the ABCs**
- Ensure airway is open and position patient.
- Breathing assessment
  - ________________
  - Obstructions
  - ________________
- Circulation assessment
  - Rate
  - Skin color, temp., and capillary refill

41 **Transport Decision**
• Children under ___________lb should be transported in a child safety seat, if the situation allows.
• Seat should be secured to the cot or captain’s chair.
• Cannot be secured to _____________________ seat
• Child may have to be transported without a seat, depending on condition.

42 [ ] History Taking (1 of 2)
• Based on MOI or NOI
  • _____________________ of sickness or injury
• Key events leading up to injury or illness
• Presence of fever
• Effects of illness or injury on behavior
• Patient’s ________________ level
• Recent eating, drinking, and _____________________ output

43 [ ] History Taking (2 of 2)
• Changes in bowel or _____________________ habits
• Presence of vomiting, diarrhea, abdominal pain
• Presence of rashes
• _____________________ history

44 [ ] Secondary Assessment
• Should be completed on _____________________ unless severity requires rapid transport
• Young children should be examined toe to head.
• Focused exam on noncritical patients
• _____________________ scan on potentially critical patients
• Physical exam is basically the same as that of an adult

45 [ ] Vital Signs by Age

46 [ ] Respiration
• Abnormal _____________________ are a common sign of illness or injury.
• Count respirations for 30 seconds.
• In children less than __________ years, count the rise and fall of the abdomen.
• Note effort of breathing.
• Listen for _____________________ .

47 [ ] Pulse
• In infants, feel over the _____________________ or femoral area.
• In older children, use the carotid artery.
• Count for at least 1 minute.
• Note _____________________ of the pulse.

48 [ ] Blood Pressure
• Use a cuff that covers _____________________ thirds of the upper arm.
• If scene conditions make it difficult to measure blood pressure accurately, do not waste time trying.
  • Usually not needed if under __________ yoa

49  Skin Signs
  • Feel for temperature and ____________________________.
  • Check ____________________________ refill.

50  Reassessment
  • Repeat the primary assessment.
  • Obtain vitals every __________ minutes if stable.
  • Obtain vitals every __________ minutes if unstable.
  • Continually monitor respiratory effort, skin color and condition, and level of consciousness.
  • Check ____________________________
  • Communicate and document

51  Respiratory Emergencies

52  Signs of Increased Work of Breathing
  • Nasal flaring
  • ____________________________ respirations
  • Wheezing, stridor, other abnormal sounds
  • ____________________________ muscle use
  • Retractions/movements of child’s flexible rib cage
  • In older children, ____________________________ position

53  Airway Obstruction
  • Small children are always putting objects in their mouths causing ____________________________
  • ____________________________ such as epiglottitis and croup cause obstructions

54  Asthma (1 of 2)
  • Acute ____________________________ of the bronchioles
  • One of the most common illnesses seen
  • Almost 5 million US children are affected.
  • Common causes for asthma attack include upper respiratory infection, exercise, exposure to cold air, emotional stress, and passive exposure to ____________________________.

55  Asthma (2 of 2)
  • Asthma is a true emergency if not promptly treated.
  • Signs and symptoms:
  • ____________________________ as patient exhales
    • In some cases, airway is completely blocked.
  • ____________________________ and respiratory arrest may quickly develop.
  • ____________________________ position allows for easier breathing.
56 **Treatment of Asthma (1 of 2)**
- Administer supplemental _______________________ .
- _______________________ via metered-dose inhaler with a spacer mask device (if protocol allows)
  - Often caregivers have administered albuterol.
- If assisting ventilations, use slow, gentle breaths.
  - Resist temptation to squeeze bag hard and fast.

57 **Treatment of Asthma (2 of 2)**
- A prolonged asthma attack may progress into status _______________________ .
  - A true emergency
  - Give oxygen and transport immediately.
- Patient may become _______________________ from trying to breath.
  - Manage airway aggressively, administer oxygen, and transport promptly.

58 **Croup**
- _______________________ infection of the _______________________ , trachea, and mainstem bronchi.
- Usually 6 mo. to 4 years of age.
- _______________________ onset, low grade fever.
- Nocturnal dyspnea, stridor, wheezing, “seal bark cough.”
- Treatment is to give _______________________ oxygen.

59 **Epiglottitis**
- _______________________ infection of the _______________________ .
- Usually 4 to 7 yoa.
- _______________________ onset, high fever.
- Stridor, wheezing, pain on swallowing, drooling, muffled voice.
- May cause complete airway obstruction.
- Treatment is to give oxygen and rapid transport.
- Do Not Visualize _______________________ !!!!!

60 **Care of the Pediatric Airway (1 of 2)**
- _______________________ the airway.
- Position the airway in a neutral _______________________ position.
- If spinal injury is suspected, use jaw-thrust maneuver to open the airway.

61 **Care of the Pediatric Airway (2 of 2)**
- Positioning the airway:
  - Place the patient on a _______________________ surface.
  - Fold a small towel under the patient’s shoulders and back.
  - Place _______________________ across patient’s forehead to limit head rolling.

62 **Oropharyngeal Airways**
- Determine the appropriately sized airway.
- Place the airway next to the face to confirm correct size.
• Open the mouth.
• Insert the airway until flange rests against ________________.
• Reassess airway.

63 Nasopharyngeal Airways (1 of 2)
• Determine the appropriately sized airway.
• Place the airway next to the face to make certain ________________ is correct.
• Position the airway.
• ________________ the airway.

64 Nasopharyngeal Airways (2 of 2)
• Insert the tip into the ________________ naris.
• Carefully move the tip forward until the flange rests against the outside of the nostril.
• ________________ the airway.

65 Oxygen Delivery Devices
• Nonrebreathing mask at 10 to 12 L/min provides ________% oxygen concentration.
• Blow-by technique at 6 L/min provides more than ________% oxygen concentration.
• Nasal cannula at 4 to 6 L/min provides ________% to ________% oxygen concentration.

66 BVM Devices
• Equipment must be the ________________ size.
• BVM device at 10 to 15 L/min provides ________% oxygen concentration.
• Ventilate at the proper rate and ________________.
• May be used by one or two rescuers

67 Pediatric Medical Emergencies

68 Dehydration
• Determine if child is vomiting and has diarrhea and for how long.
• “How many wet ________________ has the child had during the day (6 to 10 is normal)?”
• “What fluids is the child taking?”
• “What was the child’s weight before the symptoms started?”
• “Has the child been normally ________________?”

69 Emergency Medical Care for Dehydration
• Assess the ABCs.
• Obtain baseline vital signs.
• Treat for ________________ as needed
• ALS backup may be needed for ________ administration.

70 Seizures
Result of disorganized electrical activity in the brain

Types of seizures

- Generalized (grand mal) seizures
- Absence (petit mal) seizures
- Status _______________________ is a continuous seizure, or multiple seizures without a return to consciousness for ________ minutes or more.

71 Febrile Seizures

- Febrile seizures are most common in children from ________ months to ________ years.
- Febrile seizures are caused by fever.
- They last less than ________ minutes.
- Assess ABCs and begin _______________________ measures.
- Provide prompt transport.

72 Emergency Medical Care of Seizures (1 of 2)

- Perform initial assessment, focusing on the ABCs.
- Protect from _______________________.
- Securing and protecting the airway is the priority.
- Place patient in the _______________________ position.
- Be ready to _______________________.

73 Emergency Medical Care of Seizures (2 of 2)

- Deliver oxygen by mask, _______________________ , or nasal cannula.
- Obtain blood _______________________ level if authorized
- Begin BVM ventilation if no signs of improvement.
- Call _______________________ for backup if appropriate.

74 Altered Level of Consciousness (LOC)

- The first step in treatment is to assess the ABCs and provide proper care.
- Use the _______________________ scale.
- Obtain brief history from caregivers.
- After initial assessment, secure _______________________.
- Support patient’s vital functions.
- Provide prompt _______________________.

75 Poisoning

- Poisoning is common in children.
- Care will be based on how awake and alert the child appears.
- Focus on the ABCs.
- Do not administer activated _______________________ unless directed by medical control.
- Provide transport.
- Child’s condition could _______________________ at any time.
76 **Common Causes of Fever**
- ______________________
- Neoplasm (cancer)
- Drug ______________________
- Vascular disease
- High environmental ______________________

77 **Emergency Care of Fever**
- Perform assessment of ABCs and care for life threats.
- Obtain vital signs.
- Evaluate for signs and symptoms of ______________________.
- If child feels very warm, remove covering.
- Begin ______________________ measures en route.

78 **Meningitis**
- ______________________ of the linings of the brain and spinal cord
- Signs/Symptoms
  - -Fever
  - -Altered level of consciousness
  - -_____________________
  - -Seizure
  - -Stiff neck
  - -_____________________

79 **Neisseria Meningitidis (Bacterial Meningitis)**
- ______________________ onset of meningitis symptoms
- Often associated with small pinpoint cherry-red spots or larger purple/black rash
- Children at serious risk for ______________________ , shock, and death
- All suspected cases of meningitis should be considered ________________.

80 **Emergency Medical Care of Meningitis**
- Begin with assessment of ABCs.
- Care for ______________________ threats.
- Give supplemental oxygen.
- Assess vital signs.
- Keep patient ______________________
- Monitor for shock.
- If patient’s vital signs are unstable, call ________________ for backup.

81 **Pediatric Trauma**

82 **Injury Patterns: Automobile Collisions**
- The exact area of impact will depend on the child’s ______________________.
- A car bumper dips down when ______________________ suddenly, causing a lower point of impact.
Children often sustain high-energy injuries.

83 Injury Patterns: Sports Activities
- Head and neck injuries can occur from high-speed collisions during ________________ sports.
- ________________ the cervical spine.
- Follow local protocols for helmet removal.

84 Head Injuries
- Common injury among children
- The head is ________________ in proportion to an adult.
- Nausea and vomiting are signs of pediatric head injury.
- Bulging ________________ indicate increased intracranial pressure (ICP).

85 Chest Injuries
- Most chest injuries in children result from ________________ trauma.
- Children have soft, flexible ribs.
- The absence of obvious ________________ trauma does not exclude the likelihood of serious internal injuries.

86 Abdominal Injuries
- Abdominal injuries are very ________________ in children.
- Children compensate for blood loss better than adults but go into shock more quickly.
- Watch for:
  - Weak, rapid pulse
  - Cold, ________________ skin
  - ________________ capillary refill

87 Injuries to the Extremities
- Children’s bones bend more easily than adults’ bones.
- ________________ fractures can occur.
- Do not use ________________ immobilization devices on children unless the child is large enough.

88 Burns
- Most common burns involve exposure to ________________ substances.
- Suspect internal injuries from chemical ingestion when burns are present around lips and mouth.
- ________________ is a common problem with burns.
- Consider the possibility of child ________________.

89 Submersion Injury
- Drowning or near drowning
- ________________ most common cause of unintentional death of children in the United States
- Assessment and reassessment of ABCs are critical.
• Consider the need for _______________________ protection.

90  Child Abuse
• Child abuse refers to any improper or excessive _______________________ that injures or harms a child or infant.
• This includes physical abuse, sexual abuse, neglect, and emotional abuse.
• More than 2 million cases are reported annually.
• Be aware of signs of child abuse and _______________________ suspicions to authorities.

91  Signs of Child Abuse

92  Questions Regarding Signs of Abuse (1 of 3)
• Is the injury _______________________ for the child’s developmental stage?
• Is reported method of injury consistent with injuries?
• Is the caregiver _______________________ appropriately?
• Is there evidence of drinking or drug abuse?
• Was there a _______________________ in seeking care for the child?

93  Questions Regarding Signs of Abuse (2 of 3)
• Is there a good relationship between child and caregiver?
• Does the child have _______________________ injuries at various stages of healing?
• Does the child have any unusual marks or bruises?
• Does the child have _______________________ types of injuries?

94  Questions Regarding Signs of Abuse (3 of 3)
• Does the child have _______________________ on the hands or feet involving a glove distribution?
• Is there an unexplained decreased level of consciousness?
• Is the child _______________________ and an appropriate weight?
• Is there any rectal or vaginal bleeding?
• What does the _______________________ look like? Clean or dirty? Warm or cold? Is there food?

95  Shaken Baby Syndrome (1 of 2)
• Infants may sustain life-threatening head trauma by being _______________________ or struck.
• Life-threatening condition
• _______________________ within the head and damage to the cervical spine
• Infant will be found _______________________ often without evidence of external trauma.

96  Shaken Baby Syndrome (2 of 2)
• Shaking tears blood vessels in the _______________________ , resulting in bleeding around the brain.
• Pressure from blood results in an increase in cranial pressure leading to _______________________ and/or death.
97 \textbf{Neglect}
- Refusal or failure to provide \underline{______________} necessities
- Examples are water, clothing, shelter, personal hygiene, \underline{______________}, comfort, personal safety.
- Child may show no signs of \underline{______________} abuse
- Child may appear \underline{______________}, week, and pale

98 \textbf{Sexual Abuse}
- Children of any age or either \underline{______________} can be victims.
- \underline{______________} examination.
- Do not allow child to wash, urinate, or defecate.
- Maintain professional composure.
- \underline{______________}.

99 \textbf{Emergency Medical Care}
- EMT-Bs must report all suspected cases of child abuse.
- Most states have special forms for reporting.
- You do not have to \underline{______________} that abuse occurred.
- Try to convince a \underline{______________} to allow transport, regardless of severity
- Do not make \underline{______________}.
- Treat injuries as required

100 \textbf{Immobilization}
- Any child with a head or back injury should be \underline{______________}.
- Young children may need padding beneath their torso.
- Children may need \underline{______________} along the sides of the backboard.

101 \textbf{Pediatric Immobilization Device}

102 \textbf{Immobilization in a Child Safety Seat (1 of 2)}
- Assess child for injuries and seat for visible \underline{______________}.
- If child is injured or seat is damaged, remove child to another transport device.
- Apply \underline{______________} around child to minimize movement.
- Move seat to ambulance and secure according to the manufacturer’s instructions.

103 \textbf{Immobilization in a Child Safety Seat (1 of 2)}

104 \textbf{Removing a Child from a Child Safety Seat}
- Remove both the child and the seat from the vehicle.
- Place immobilization \underline{______________} behind the child.
- \underline{______________} child into place on device.

105 \textbf{Sudden Infant Death Syndrome (SIDS)}

106 \textbf{Sudden Infant Death Syndrome (SIDS)}
- Death for \underline{______________} reason in an otherwise healthy child.
- Several known risk factors:
• Mother younger than _________ years old
• Mother ______________________ during pregnancy
• Low birth ______________________

107 Tasks at Scene of SIDS
• Assess and manage the _______________________.
• Communicate with and support the _______________________.
• Assess the _______________________.

108 Assessment and Management
• Assess ABCs and provide interventions as necessary.
• If child shows signs of ______________________ changes, call medical control.
• If there is no evidence of postmortem changes, begin ______________________ immediately.
• If resuscitation is contraindicated, notify law enforcement and preserve _______________________.

109 Communication and Support
• The death of a child is very ______________________ for the family.
• Provide support in whatever ways you can.
• Use the infant’s _______________________.
• If possible, allow the family time with the infant; but preserve scene until after investigation

110 Scene Assessment
• Carefully inspect the environment, following local protocols.
• Concentrate on:
  • Signs of ______________________
  • General condition of the house
  • Family ______________________
  • Site where infant was discovered

111 Key Points on SIDS
• ______________________ can often look like bruising; so cautious what you say
• Never _______________________ anyone of child abuse
• All non-institutional scenes, where death occurs, are considered crime scenes until proved otherwise
• ______________________ notify law enforcement, stay on scene, and preserve evidence

112 Apparent Life-Threatening Event
• Aka: Near _______________________.
• Infant found not breathing, cyanotic, and unresponsive but resumes breathing with stimulation
• Complete careful _______________________.
• ______________________ immediately.
• Pay strict attention to airway management.
113 Death of a Child (1 of 2)
- Be prepared to support the _______________________.
- Family may insist on resuscitation efforts.
- Introduce yourself to the child’s caregivers.
- Do not _______________________ on the cause of death.

114 Death of a Child (2 of 2)
- Allow the family to see the child and say _______________________.
- Be prepared to answer questions posed by caregivers.
- Seek _______________________ help for yourself if you notice signs of posttraumatic stress.