

## ELSEVIER Clinical Skills

# Emergency Primary Assessment (Pediatric) - CE

### ALERT

**Stabilize the cervical spine throughout the procedure if injury is suspected.**

**Do not proceed to the next step in the primary assessment or on to the secondary assessment stage until interventions for life-threatening conditions have been implemented.**

**Don appropriate personal protective equipment based on the patient's signs and symptoms and indications for isolation precautions.**

### OVERVIEW

The primary assessment is a rapid assessment and simultaneous intervention for life-threatening conditions in critically ill or injured children. The primary assessment, a systematic process that establishes a prioritized sequence of care, uses an ABCDE approach:

- Airway and alertness with simultaneous cervical spinal motion restriction if trauma is suspected
- Breathing and ventilation
- Circulation
- Disability or neurologic status
- Exposure and environmental control

### CHILD AND FAMILY EDUCATION

- Provide individualized, developmentally appropriate education to the family and child based on the desire for knowledge, readiness to learn, and overall neurologic and psychosocial state.
- Explain the purpose of the primary assessment.
- If the child is at risk for cervical spinal injury, emphasize to the child and family the importance of not moving and that cervical spinal motion restriction will be implemented until a spinal cord injury has been ruled out.
- Address the child by name. Speak in a calm voice, addressing both the child and family.
- Use developmentally appropriate explanations and allow the child to make simple, developmentally appropriate decisions and participate in his or her care.
- Reassure the family that any pain the child is experiencing will be managed.
- Encourage the family to interact with the child and assist in any way possible in the care of the child.
- Encourage questions and answer them as they arise.

### ASSESSMENT AND PREPARATION

#### Child and Family Assessment

1. Perform hand hygiene before patient contact.
2. Introduce yourself to the child and family.
3. Verify the correct child using two identifiers, if time allows.
4. Assess the child's and family's understanding of the reasons for and the risks and benefits of the procedure.
5. With young children or children with chronic neurologic impairment, ask the family for the child's baseline status and what to expect for the child's typical response.

## Emergency Primary Assessment (Pediatric) - CE

### Preparation

1. Encourage the family to remain with the child when possible. If the child's condition requires invasive or resuscitative measures, assign a staff member or support person to provide the family with support and explanations about what is occurring.

### PROCEDURE

1. Perform hand hygiene and don gloves. Don a fluid-resistant gown, mask, and eye protection, as needed.
2. Verify the correct child using two identifiers, if time allows.
3. Explain the procedure to the child and family and ensure that they agree to treatment.
4. When approaching the child, perform a rapid, across-the-room assessment using the pediatric assessment triangle (PAT).

Rationale: The pediatric assessment triangle is intended to be a quick visual analysis to determine if the child needs immediate intervention.<sup>5</sup>

- a. General appearance: Assess for poor muscle tone, decreased interactivity, crying that cannot be consoled, an unfocused gaze, and abnormal speech or crying.
- b. Work of breathing: Assess for retractions, nasal flaring, stridor, grunting, snoring, preferred position (e.g. tripod), apnea, or gasping.
- c. Circulation to the skin: Assess for pallor, mottling, cyanosis, or uncontrolled external hemorrhage.

**If uncontrolled external hemorrhage is identified, take steps to control the hemorrhage, including direct pressure and tourniquet.**

### **A = Airway and Alertness with Simultaneous Cervical Spinal Motion Restriction**

5. Using the AVPU scale, determine whether the child is alert (A), responds to verbal stimuli (V), responds to painful stimuli (P), or is unresponsive to all stimuli (U).
6. Assess airway patency while maintaining cervical spinal motion restriction with manual stabilization.

#### a. Open the airway

- i. If the child is alert, ask him or her to open the mouth.
- ii. If the child is not alert or cannot follow directions, manually open the mouth.

**If there is a possibility of a spinal cord injury, use a jaw thrust maneuver, taking care to avoid cervical spinal motion.**

- b. Assess for vocalization, blood, secretions, vomitus, loose teeth, foreign objects, edema, and tongue obstruction.
- c. Assess for signs of upper-airway obstruction, including abnormal inspiratory sounds (e.g., snoring, gurgling, stridor, grunting), drooling, dysphagia, or assumption of a preferred position (e.g., tripod).

## Emergency Primary Assessment (Pediatric) - CE

7. If the airway is partially or completely obstructed, clear it of any foreign objects or debris, such as teeth, blood, vomit, or secretions, and implement or prepare for one or more appropriate interventions, which may include:

a. Airway positioning (e.g., head tilt chin lift, jaw thrust)

**Infants also have a proportionately larger tongue, which may obstruct the airway.**

b. Nasopharyngeal or oropharyngeal airway insertion

c. Supraglottic airway insertion (i.e., laryngeal mask airway)

d. Endotracheal intubation

e. Cricothyroidotomy

f. Oropharyngeal or nasopharyngeal suctioning

**Nasal flaring is an indication of respiratory distress in infants, who are obligate nose breathers.**

**Perform nasal suctioning in an infant with nasal secretions.**

g. Foreign body removal

8. If the child has assumed a position of comfort, allow him or her to maintain this position.<sup>6</sup>

9. If the child's mechanism of injury indicates a suspicion for cervical spinal injury, initiate cervical spinal motion restriction per the organization's practice.

**Current recommendations are to use a long backboard only as an extrication or transportation device, limit its use as much as possible, and remove it as quickly as possible.<sup>3</sup>**

### **B = Breathing and Ventilation**

10. Assess breathing adequacy.

a. Observe respiratory rate, depth, and effort.

b. Assess for symmetrical chest rise and fall.

c. Observe skin color for pallor, mottling, or cyanosis.

d. Assess for signs of increased work of breathing, such as nasal flaring, chest retractions, grunting, use of accessory muscles, head bobbing, or seesaw breathing.

**Rationale: The ribs and sternum are more cartilaginous in children; therefore, retractions are common during respiratory distress.**

e. Briefly auscultate breath sounds bilaterally.

i. If the child is crying and cannot be consoled, listen for breath sounds when the child inhales between cries.

## Emergency Primary Assessment (Pediatric) - CE

- ii. Listen for abnormal breath sounds (e.g., wheezing, crackles) or decreased, absent, or unequal breath sounds.
- iii. For accuracy, auscultate breath sounds over the midaxillary areas on both sides.

Rationale: Because the chest walls of infants and small children are thin, breath sounds may be transmitted from the opposite side. Breath sounds may be auscultated equally even when there is right main stem intubation or pneumothorax.

11. If a weight is needed for medication administration (e.g., before intubation), obtain the child's weight in kilograms, using a scale if the child's condition permits or using a length-based resuscitation tape if it does not.

12. If spontaneous respirations are present, support the child with appropriate interventions, which may include:

a. Positioning of the child

**An upright or semi-Fowler position is preferred for infants and children in respiratory distress.**

Rationale: Infants primarily rely on diaphragmatic breathing because of poorly developed intercostal muscles.

b. Supplemental oxygen therapy (via a nonrebreather mask, nasal cannula, continuous positive airway pressure [CPAP] or bilevel positive airway pressure [BiPAP])

13. If respirations are absent or abnormal, implement or prepare for appropriate interventions, which may include:

a. Bag-mask ventilation

b. Endotracheal intubation or insertion of a laryngeal mask airway

**Decompress the stomach following manual ventilation with a gastric tube to prevent limited ventilation from pressure on the diaphragm from air in the stomach.**

c. Needle thoracentesis or thoracotomy

d. Chest tube insertion

e. Medication administration

### **C = Circulation and Control of Hemorrhage**

14. Assess circulation.

a. Assess skin color, moisture, and temperature.

b. Assess capillary refill.

## Emergency Primary Assessment (Pediatric) - CE

Rationale: Capillary refill is an important circulatory assessment in infants and young children. Normal capillary refill is less than 2 seconds.<sup>4</sup> Capillary refill is affected by cold environmental temperatures, which can cause peripheral vasoconstriction and produce cool skin and delayed capillary refill.<sup>4</sup>

c. Evaluate the quality of central and peripheral pulses. Use the carotid pulse in older children, the brachial pulse in infants, or the femoral pulse in a child of any age to assess the central pulse.<sup>2</sup>

Rationale: Children have a limited ability to alter stroke volume to increase cardiac output; therefore, they compensate for shock by increasing the heart rate. An increased heart rate is an early sign of shock. A decreased heart rate, associated with poor signs of perfusion, is a late sign of decompensated shock.<sup>2</sup>

15. If there is no pulse, or if the pulse rate is inadequate and signs of poor perfusion are present, immediately begin cardiac compressions.<sup>1</sup>

16. If perfusion is poor or ineffective, begin or assist with appropriate interventions.

- a. Vascular access
- b. Fluid resuscitation
- c. Blood product administration
- d. Medication administration
- e. Pericardiocentesis
- f. Synchronized cardioversion
- g. Defibrillation
- h. Transcutaneous cardiac pacing
- i. Advanced cardiac life support measures

17. Check for uncontrolled external hemorrhage and, if present, apply direct pressure to the site or apply a tourniquet .

### D = Disability (Neurologic Status)

18. Evaluate the child’s neurologic status (disability).

- a. Assess and assign a Glasgow Coma Scale score ([Table 1](#)). Use the developmentally appropriate scale.

**Table 1 Modified Glasgow Coma Scale for Infants and Children**

<b>Table 4 Modified Glasgow Coma Scale for Infants and Children</b>			
	<b>Child</b>	<b>Infant</b>	<b>Score</b>
<b>Eye opening</b>	Spontaneous	Spontaneous	4
	To verbal stimuli	To verbal stimuli	3
	To pain only	To pain only	2
	No response	No response	1
<b>Verbal response</b>	Oriented, appropriate	Coos and babbles	5

## Emergency Primary Assessment (Pediatric) - CE

	Confused	Irritable cries	4
	Inappropriate words	Cries to pain	3
	Incomprehensible words or nonspecific sounds	Moans to pain	2
	No response	No response	1
<b>Motor response</b>	Obeys commands (e.g., child holds up two fingers, wiggles toes, or sticks out tongue)*	Moves spontaneously and purposefully	6
	Localizes painful stimulus (e.g., child reaches for hand that is starting IV)	Withdraws to touch	5
	Withdraws in response to pain	Withdraws in response to pain	4
	Abnormal flexion in response to pain	Abnormal flexion (decorticate posturing) in response to pain	3
	Abnormal extension in response to pain	Abnormal extension (decerebrate posturing) in response to pain	2
	No response (flaccid)	No response (flaccid)	1
<b>TOTAL</b>			<b>3–15</b>

\*Note: These modifications were added to the scale by the chapter 11 authors (Milonovich, L.M., Eichler, V.F.) and book editor (Hazinski, M.F.). Hazinski, M.F. [Ed.]. (2013). *Nursing care of the critically ill child* (3rd ed.). St. Louis: Mosby.

(From Morray, J.P. and others. [1984]. Coma scale for use in brain-injured children. *Critical Care Medicine*, 12[12], 1018-1020.)

b. Assess pupil size, shape, equality, and reaction to light.

### E = Exposure and Environmental Control

19. To facilitate a complete assessment, remove the child's clothing.

- Assess skin for signs of rash, injury, or maltreatment
- Cover the child to maintain normothermia and privacy.
- If needed, provide warming measures, such as warm blankets, warm ambient room temperature, overhead warming lights, warmed oxygen, or warmed IV fluids.

**Infants and young children have immature thermoregulatory capabilities and are susceptible to iatrogenic hypothermia, which can complicate resuscitation efforts by increasing metabolic demands and exacerbate the effects of hypoxia and hypoglycemia.<sup>2</sup>**

### Completing the Procedure

20. Discard supplies, remove personal protective equipment (PPE), and perform hand hygiene.

## Emergency Primary Assessment (Pediatric) - CE

21. Verify the correct child using two identifiers before documenting the results of the primary assessment.

Rationale: The primary assessment should never be delayed to obtain this information. A temporary alias (e.g., John Doe, Baby Girl Doe) may be assigned if needed to begin an electronic health record for the child.

22. Document the procedure in the child's record.

23. After completing the primary assessment and addressing any life-threatening conditions, proceed to the secondary assessment.

### EXPECTED OUTCOMES

- Recognition of and appropriate intervention for life-threatening conditions

### UNEXPECTED OUTCOMES

- Failure to recognize and intervene appropriately for life-threatening conditions before progressing to the next assessment step
- Intervention for noncritical conditions, such as extremity fractures and minor burns, before correcting life-threatening conditions
- Injury to the spinal cord from head or neck movement in a child with cervical spine injuries

### DOCUMENTATION

- Conditions found in the primary assessment
- Interventions made based on the primary assessment for life-threatening conditions
- Child's response to interventions for life-threatening conditions
- Child's weight in kilograms, if obtained
- Child and family education
- Unexpected outcomes and related nursing interventions

### REFERENCES

1. American Heart Association (AHA). (2016). Part 2: Review of BLS and AED for infants and children. In *Pediatric advanced life support: Provider manual* (pp. 15-28). Dallas: AHA. ([Level VII](#))
2. American Heart Association (AHA). (2016). Part 3: Systematic approach to the seriously ill or injured child. In *Pediatric advanced life support: Provider manual* (pp. 29-67). Dallas: AHA. ([Level VII](#))
3. Emergency Nurses Association (ENA). (2015). Long backboard use for spinal motion restriction. Retrieved March 12, 2020, from <https://www.ena.org/docs/default-source/resource-library/practice-resources/translation-into-practice/longbackboardusespinalmotionrestriction> ([Level VII](#))
4. Fleming, S. and others. (2015). Validity and reliability of measurement of capillary refill time in children: A systematic review. *Archives of Disease in Childhood*, 100(3), 239-249. doi:10.1136/archdischild-2014-307079 ([Level I](#))

# Emergency Primary Assessment (Pediatric) - CE

5. Forseman-Capuzzi, J.R. (2020). Chapter 11: Triage and prioritization. In *Emergency nursing pediatric course: Provider manual* (5th ed., pp. 109-116). Burlington, MA: Jones and Bartlett Learning.
6. Steinman, R.A. (2020). Chapter 6: Initial assessment. In *Emergency nursing pediatric course: Provider manual* (5th ed., pp. 45-58). Burlington, MA: Jones and Bartlett Learning.

### Elsevier Skills Levels of Evidence

- Level I - Systematic review of all relevant randomized controlled trials
- Level II - At least one well-designed randomized controlled trial
- Level III - Well-designed controlled trials without randomization
- Level IV - Well-designed case-controlled or cohort studies
- Level V - Descriptive or qualitative studies
- Level VI - Single descriptive or qualitative study
- Level VII - Authority opinion or expert committee reports

### SUPPLIES

- PPE (gloves, plus fluid-resistant gown, mask, and eye protection as needed)
- Blanket
- Towel rolls or other head-support devices
- Cardiopulmonary monitor
- Cardiac leads, pulse oximeter, and blood pressure cuff (size appropriate)
- Cloth adhesive tape
- Backboard (optional)
- Size-appropriate cervical collar (optional)
- Stethoscope
- Flashlight or penlight
- Length-based resuscitation tape
- Warming lights (optional)
- IV fluid warmer (optional)
- Suction to be available as needed
- Bag and mask to be available as needed
- Other equipment, as indicated, for resuscitative procedures with a range of sizes appropriate for children of all ages

Clinical Review: Marlene L. Bokholdt, MS, RN, CPEN, TCRN, CEN

Published: October 2019

Revised: March 2020