STUDY GUIDE

2025 Korean Guidelines for Cardiopulmonary Resuscitation: Part 7. Pediatric basic life support.

Korean Association of Cardiopulmonary Resuscitation · 2026

Study Guide: 2025 Korean Guidelines for Pediatric Basic Life Support

This study guide provides a comprehensive overview of the 2025 Korean Guidelines for Pediatric Basic Life Support (PBLS). It is designed to assist learners in mastering the latest evidence-driven refinements in pediatric resuscitation, emphasizing prevention, high-quality CPR techniques, and specialized intervention protocols.

I. Key Concepts and Clinical Foundations

1. Etiology and the Importance of Prevention

Pediatric cardiac arrest differs fundamentally from adult cardiac arrest in its primary causes. While adult events are typically cardiac in nature, pediatric arrests are primarily caused by:

- **Infants:** Asphyxia and respiratory failure.
- **Older Children:** Trauma.

Because survival remains low even with effective resuscitation, **prevention** is the cornerstone of pediatric BLS. Key preventative strategies include:

- **Safe Sleep Practices:** Placing infants in a supine position on firm surfaces and caregiver smoking cessation to reduce Sudden Infant Death Syndrome (SIDS).
- **Injury Mitigation:** Use of age-appropriate child restraint systems in vehicles and direct supervision near water.
- **Social Awareness:** Awareness of child abuse and proactive intervention for adolescent suicide.
- **In-Hospital Systems:** Implementation of Pediatric Early Warning Systems (PEWS) to detect physiological deterioration early via vital sign scoring.

2. Major 2025 Guideline Updates

The 2025 guidelines introduce four critical refinements based on recent evidence:

1. **PEWS Implementation:** Hospitals should use scoring systems to prompt rapid response teams (RRT) for at-risk inpatients.
2. **Infant Compression Technique:** All rescuers (lay and healthcare) are now recommended to use the **two-thumb encircling hands technique** for infant chest compressions to achieve optimal depth and recoil.
3. **Lay Rescuer AED Use:** Automated External Defibrillators (AEDs) are suggested for lay rescuers in nontraumatic out-of-hospital cardiac arrest (OHCA) for children aged 1 year or older.
4. **Infant Airway Obstruction:** For foreign body airway obstruction (FBOA) in infants, rescuers should alternate five back blows with five chest thrusts using the heel-of-hand technique.

3. Pediatric Age Definitions

Category	Age Range
Newborn	Up to 4 weeks from birth
Infant	Younger than 1 year of age
Child	1 year to less than 8 years of age
Adult	8 years of age or older

4. CPR Technical Standards

High-quality CPR is defined by specific metrics for rate, depth, and ratio:

- **Compression Rate:** 100–120 compressions per minute for all pediatric patients.
- **Compression Depth:**
  - Infants: Approximately 4 cm.
  - Children: 4–5 cm (at least one-third of the anteroposterior chest diameter).
- **Compression-to-Ventilation Ratio:**
  - **Lay Rescuers:** 30:2 for all ages.
  - **Healthcare Providers (1 Rescuer):** 30:2.
  - **Healthcare Providers (2+ Rescuers):** 15:2.

II. Short-Answer Practice Questions

1. Why is the two-thumb encircling hands technique preferred over the two-finger technique for infants? *Answer:* It is superior at maintaining coronary perfusion pressure, consistent compression

depth/force, and higher systolic/diastolic pressures, while also being more comfortable for the rescuer.

2. What is the practical threshold for a healthcare provider to initiate chest compressions in a child who still has a palpable pulse? *Answer:* Healthcare providers should start chest compressions if the heart rate is <60/min and there are signs of poor perfusion (e.g., pale, mottled, or cyanotic skin) despite adequate oxygenation and ventilation.

3. Under what specific circumstances should a lay rescuer prioritize compression-only CPR? *Answer:* Compression-only CPR should be performed if the rescuer is unwilling or untrained to provide rescue breaths, or during infectious disease outbreaks/pandemics.

4. Describe the correct procedure for relieving a severe airway obstruction in an infant. *Answer:* Alternate five back blows (delivered over the spine between the scapulae) with five chest thrusts (using the heel of one hand on the sternum) until the object is expelled or the infant becomes unresponsive.

5. How long should a rescuer spend checking for a pulse or breathing before starting CPR? *Answer:* The assessment of breathing and the pulse check (for healthcare providers) should be performed simultaneously and must be completed within 10 seconds.

6. What is the recommended ventilation rate for a child who has a pulse but is not breathing normally? *Answer:* Rescue breaths should be delivered at a rate of 20–30 breaths per minute (one breath every 2–3 seconds).

III. Essay Prompts for Deeper Exploration

1. **The Role of Institutional Systems in Survival:** Discuss how the implementation of Pediatric Early Warning Systems (PEWS) and Rapid Response Teams (RRT) transforms the "Pediatric Chain of Survival" within a hospital setting. Analyze the evidence regarding their impact on unplanned ICU transfers and mortality.
2. **Comparative Analysis of Resuscitation Priorities:** Explain why ventilation is considered "extremely important" in pediatric resuscitation compared to adult resuscitation. Contrast the primary etiologies of cardiac arrest in both populations and justify the 2025 guideline's decision to maintain the "Compressions-Airway-Breathing" (C-A-B) sequence despite the asphyxial nature of most pediatric arrests.
3. **Navigating Resuscitation in Special Circumstances:** Compare and contrast the BLS modifications required for a drowning victim versus a victim of major trauma. Address specific concerns such as cervical spine management, the timing of EMS activation, and the efficacy of in-water interventions.

IV. Glossary of Important Terms

- **AED (Automated External Defibrillator):** A portable device that analyzes heart rhythms and can deliver an electrical shock to treat shockable rhythms like ventricular fibrillation.
- **Asphyxial Cardiac Arrest:** Cardiac arrest resulting from a lack of oxygen or respiratory failure; the most common type in the pediatric population.
- **Brachial Artery:** The recommended site for a pulse check in infants, located on the inner upper arm.
- **Cricoid Pressure:** A technique once used to prevent gastric distention; the 2025 guidelines state it is not routinely recommended and may paradoxically occlude the airway.
- **FBOA (Foreign Body Airway Obstruction):** A life-threatening condition where an object blocks the airway; commonly referred to as choking.
- **Gastric Distention:** Inflation of the stomach with air during ventilation, which can impair lung expansion and induce vomiting.
- **OHCA (Out-of-Hospital Cardiac Arrest):** A cardiac arrest event occurring outside of a clinical or hospital environment.
- **PEWS (Pediatric Early Warning System):** A clinical tool used in hospitals to score vital signs and detect early signs of a child's physiological decline.
- **ROSC (Return of Spontaneous Circulation):** The resumption of a sustained heart rhythm and pulse after cardiac arrest.
- **Two-Thumb Encircling Hands Technique:** A compression method for infants where the rescuer's hands encircle the chest and both thumbs compress the sternum just below the nipple line.