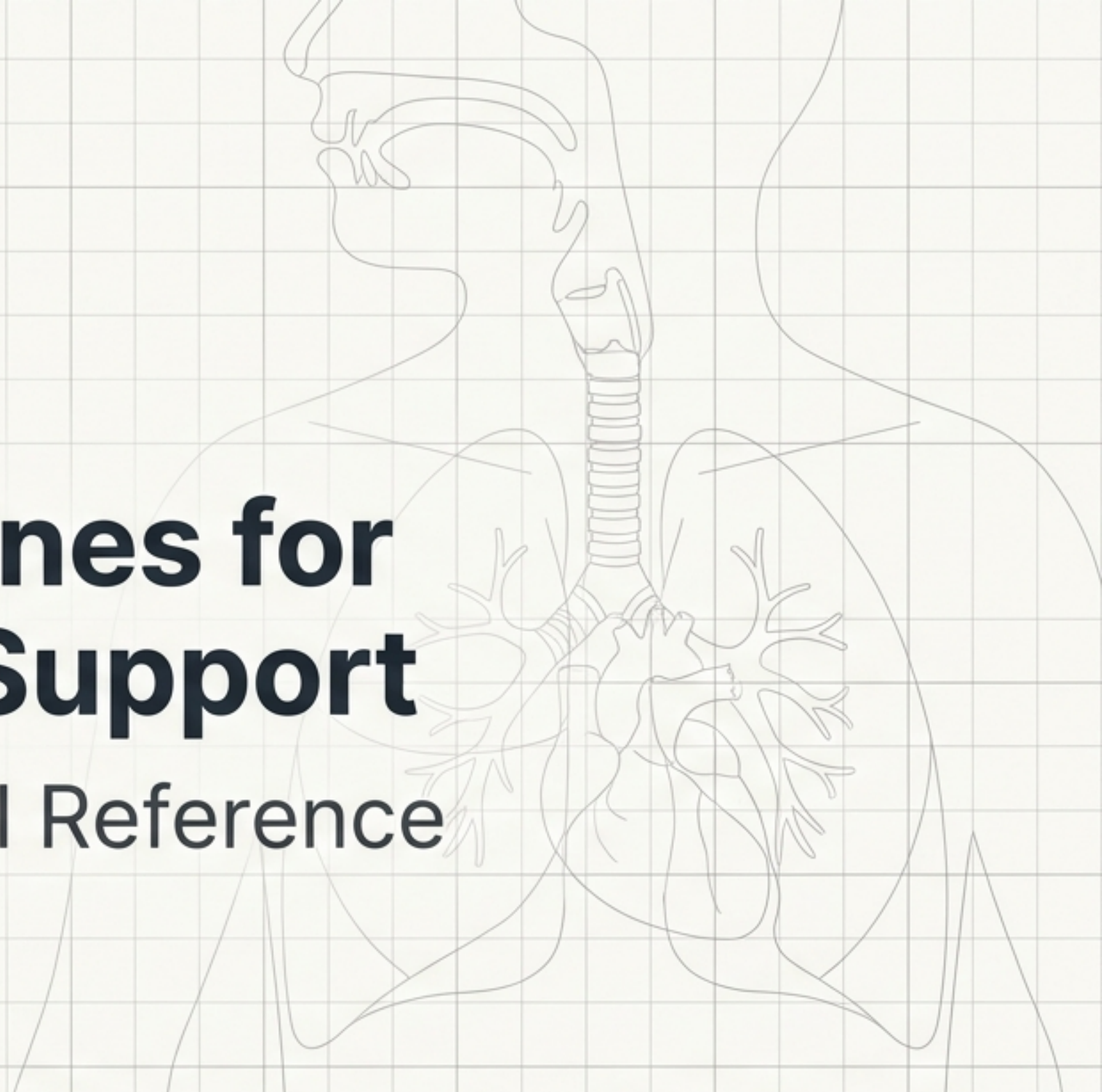


# 2025 Korean Guidelines for Pediatric Basic Life Support

A Clinical Blueprint & Protocol Reference



Lay Rescuer Pathways

Healthcare Provider (HCP) Pathways



# The 2025 Pediatric BLS Update Dashboard



## PEWS Implementation

Hospitals must implement **Pediatric Early Warning Systems (PEWS)** and **Rapid Response Teams** to detect clinical deterioration early in at-risk inpatients.



## Universal Two-Thumb Technique

All rescuers (Lay & HCP) must now use the **two-thumb encircling hands technique** for infant chest compressions to optimize depth, rate, and recoil.



## Lay Rescuer AED Expansion

Lay rescuers are now advised to use **AEDs for nontraumatic out-of-hospital cardiac arrest in children 1 year of age and older.**



## Choking Protocol Refinement

For **infant foreign body airway obstruction**, alternate **5 back blows** with **5 chest thrusts**, specifically using the **heel-of-hand technique** on the **sternum**.



# The Pediatric Prevention Funnel

Unlike adult cardiac events, pediatric arrest primarily arises from **asphyxia** (infants) and **trauma** (older children).

**Infants:** SIDS prevention (supine sleeping, firm surfaces, smoking cessation).

**Young Children:** Drowning prevention (life jackets, strict pool supervision—2<sup>nd</sup> leading cause of unintentional death).

**Adolescents:** Intentional self-harm/suicide prevention (emotional support) and trauma mitigation (seatbelts/child restraints).

**Rapid Recognition  
& 119 Activation**



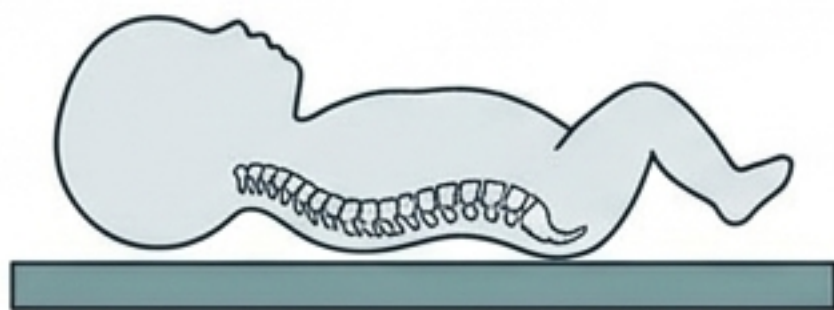
# Age Definitions & Anatomical Vulnerabilities

**Newborn:**  
Up to 4 weeks

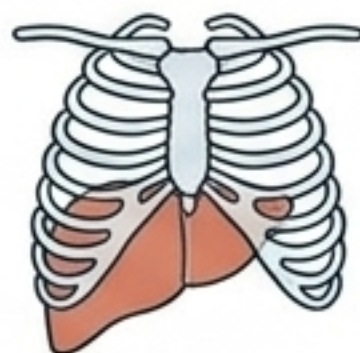
**Infant:**  
< 1 year

**Child:**  
1 year to < 8 years

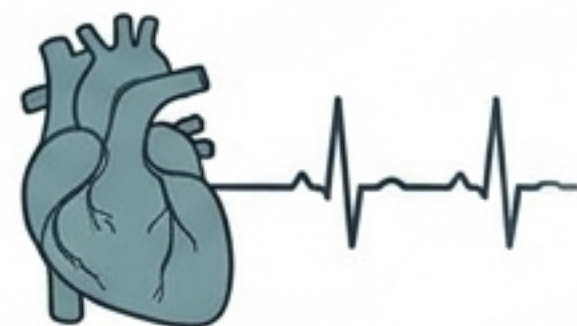
**Adult:**  
8+ years



**Head/Airway:** Relatively large occiput requires a slightly recessed torso positioning on spinal boards to prevent cervical flexure and airway collapse.



**Chest/Liver:** Large liver and minimal rib protection over the epigastric region strictly prohibit abdominal thrusts in infants.



**Cardiac Output:** Highly dependent on heart rate; bradycardia (<60/min) with poor perfusion rapidly precipitates arrest.



# Clinical Parameters: Infant vs. Child

## Infant (<1 yr)

- **Primary Arrest Etiology:** Asphyxia (Respiratory failure, SIDS)
- **Compression Target:** Sternum just below nipple line
- **Compression Depth:** ~4 cm (At least 1/3 AP diameter)
- **Technique:** Two-thumb encircling hands (Preferred) / One-hand heel (Backup)
- **Rescue Breaths:** Mouth-to-mouth-and-nose

## Child (1 to <8 yrs)

- **Primary Arrest Etiology:** Trauma
- **Compression Target:** Lower half of the sternum
- **Compression Depth:** 4–5 cm (At least 1/3 AP diameter)
- **Technique:** Heel of one or two hands
- **Rescue Breaths:** Mouth-to-mouth

**Note:** Both require a strict rate of 100–120 compressions per minute and complete chest recoil.

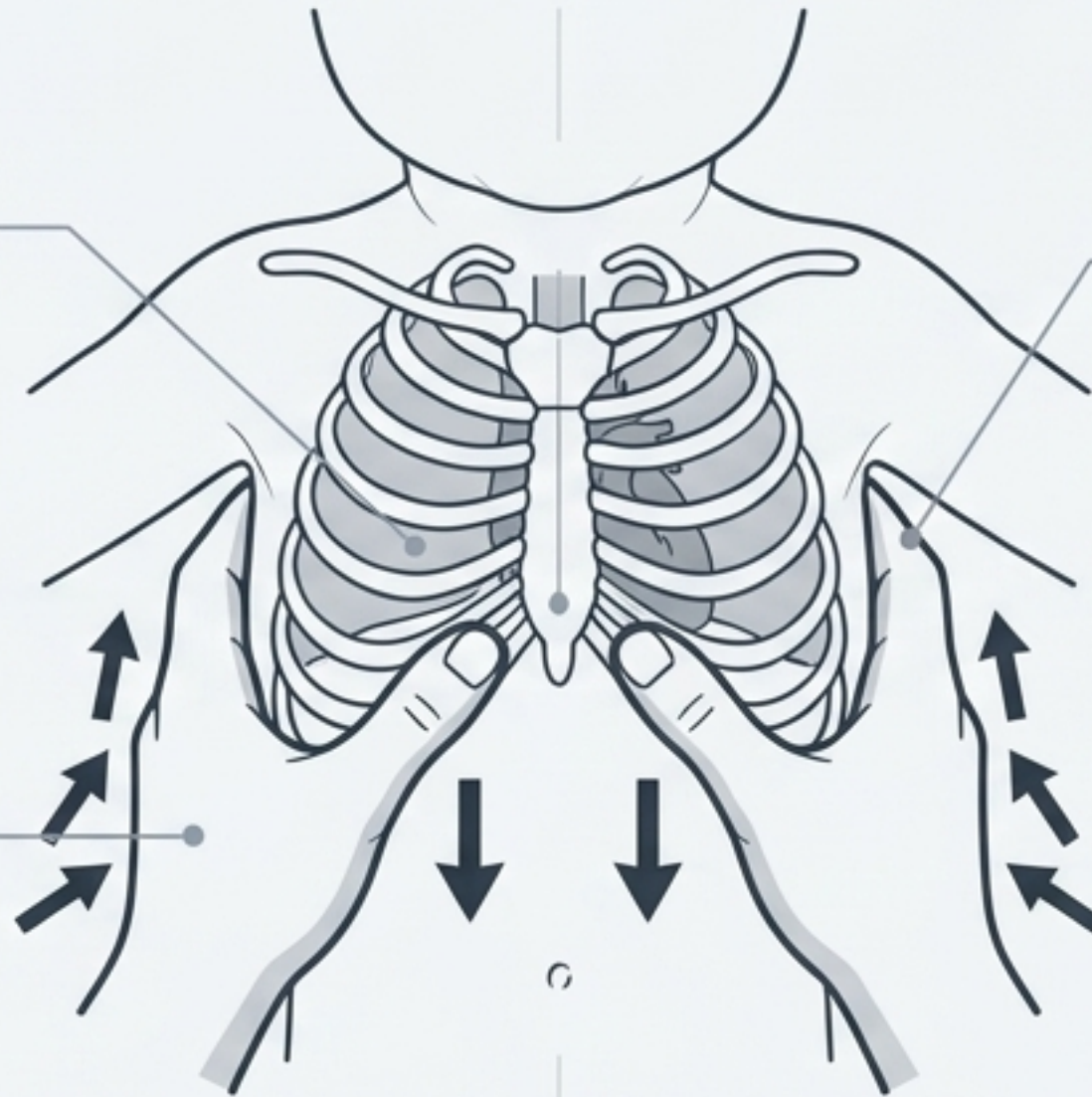


# The Mechanics of the Two-Thumb Encircling Technique

**Optimal Depth & Force:** Thumbs placed side-by-side just below the nipple line (avoiding the xiphoid process) achieve the strict 4 cm depth more consistently than two fingers.

**Perfusion Maintenance:** The encircling fingers provide a rigid backboard effect, significantly improving coronary perfusion pressure and systolic/diastolic hemodynamics.

**Rescuer Stamina:** Anatomically aligns rescuer hand strength, reducing fatigue during the 2-minute (or 5-cycle) rotation intervals.



**The two-finger technique is officially retired.** One-hand heel compression is only a backup for very large infants approaching 1 year of age.



# Protocol Divergence: Lay Rescuer vs. Healthcare Provider

## Lay Rescuer Pathway

### Pulse Assessment

No pulse check; rely on unresponsiveness and abnormal breathing.

### Action Threshold

No normal breathing = CPR.

### Compression:Ventilation Rat

Always 30:2.

### Ventilation Tools

Mouth-to-mouth/nose, or compression-only if untrained.

## Healthcare Provider (HCP) Pathway

### Pulse Assessment

Palpate brachial/carotid/femoral pulse within 10 seconds.

### Action Threshold

Pulse <60/min with poor perfusion = CPR.

### Compression:Ventilation Ratio

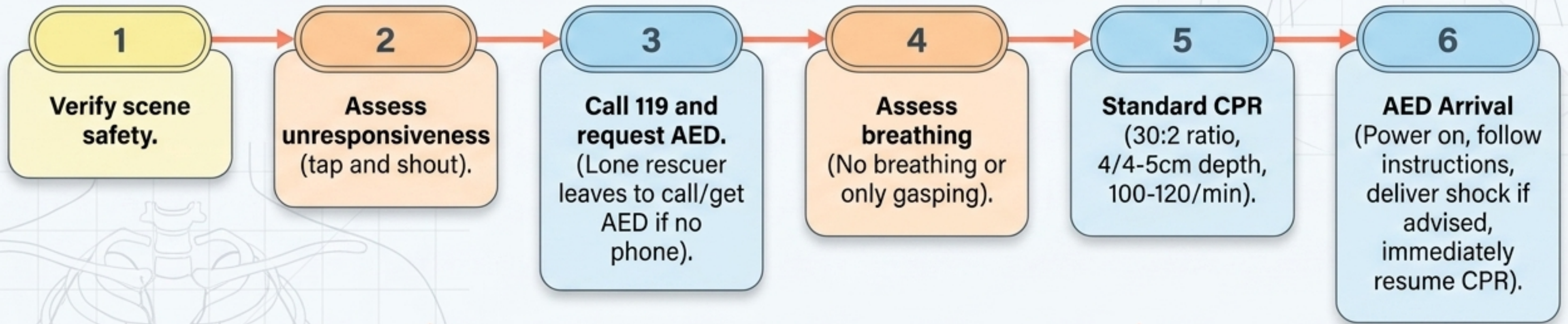
30:2 for one rescuer; 15:2 for two rescuers.

### Ventilation Tools

Bag-mask ventilation preferred over intubation for OHCA.



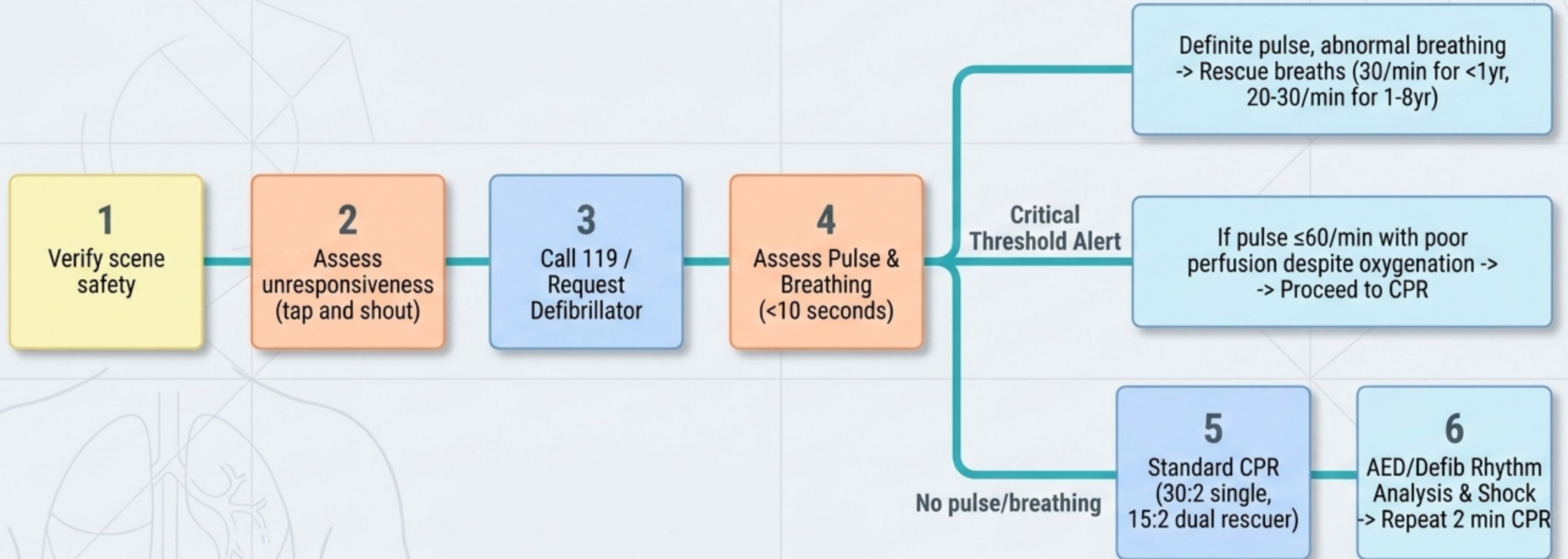
# Lay Rescuer Protocol (Out-of-Hospital)



**Dispatcher-Assisted CPR:** Dispatchers play a vital role guiding lay rescuers via phone, significantly reducing time-to-first-compression.



# Healthcare Provider Protocol (Out-of-Hospital)





# Advanced Life Support & Airway Management

## In-Hospital Defibrillation

Activate ALS Team immediately.



**Manual Defibrillation Dosing:**  
Initial energy 2 J/kg; subsequent doses  $\geq 4$  J/kg (do not exceed adult maximum).

## Bag-Mask Superiority

Bag-mask ventilation is preferred over advanced airways (intubation/supraglottic) for pediatric OHCA due to lower complication rates and fewer CPR interruptions.

## Equipment Specs

Use self-inflating bags (450-500mL for infants, 1000mL for larger adolescents) connected to 100% oxygen reservoir.

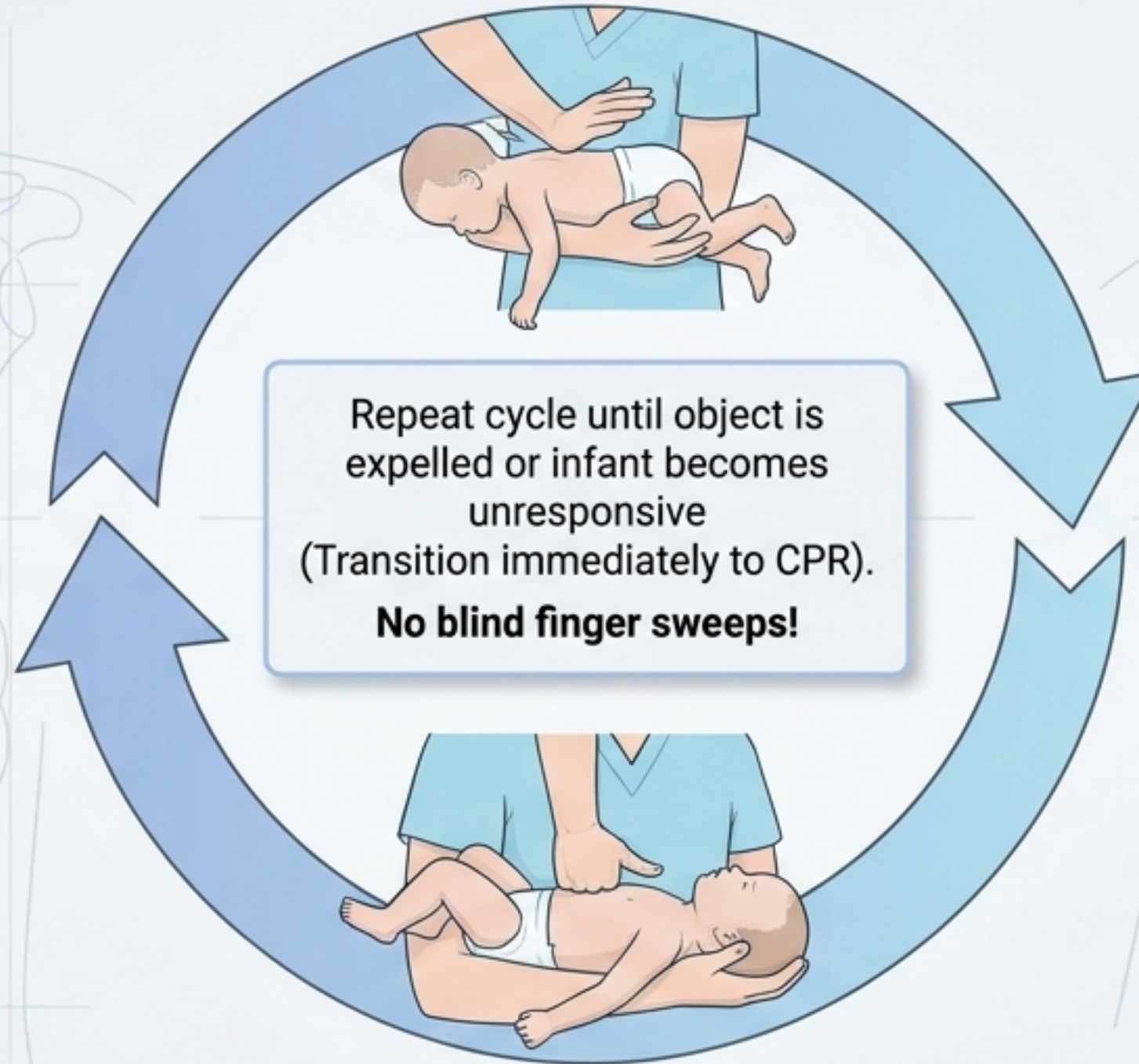
## Hyperventilation Warning

Avoid excessive ventilation; it increases intrathoracic pressure, impairing venous return and coronary perfusion. Deliver breaths over 1 second.



# Foreign Body Airway Obstruction (Infants)

Deliver 5 firm back blows between the scapulae.



Turn infant face up. Deliver 5 chest thrusts using the heel-of-one-hand technique.



**WARNING:** NEVER perform abdominal thrusts on infants due to exposed liver and unprotected epigastric organs.



# Special Circumstances: Protocol Deviations

## Trauma

### Standard Rule

Standard: Head tilt-chin lift.

### Clinical Deviation

Deviation: Use Jaw Thrust to minimize cervical spine movement. Control external bleeding immediately; cardiac arrest in pediatric trauma is often driven by hypovolemia.

## Drowning

### Standard Rule

Standard: Start CPR immediately.

### Clinical Deviation

Deviation: Specially trained rescuers may provide in-water rescue breaths, but NOT in-water chest compressions. Do not waste time trying to drain lungs. If alone, perform 5 cycles (30:2) before leaving to call EMS.

## Tracheostomy & Special Needs

### Standard Rule

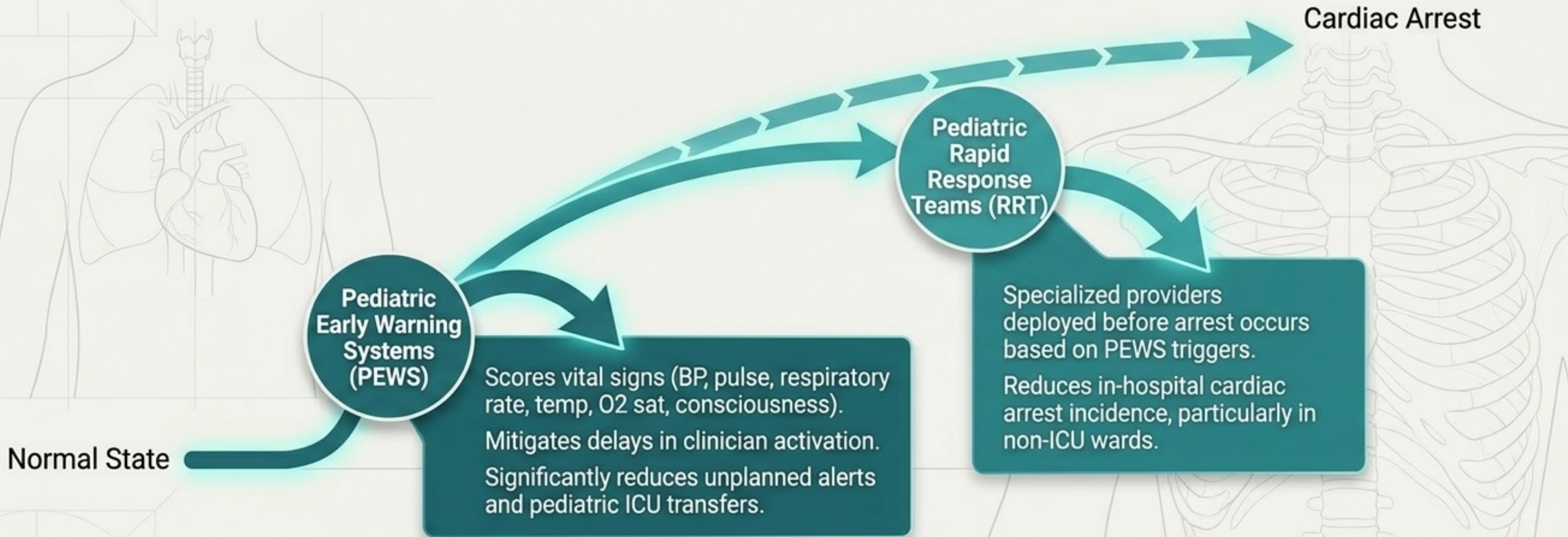
Standard: Mouth-to-mouth/nose.

### Clinical Deviation

Deviation: Perform assisted ventilation through the tracheostomy window. If occluded, attempt mouth-to-stoma or bag-mask over nose/mouth.



# In-Hospital Defense: PEWS & Rapid Response



Resuscitation is the last resort. The 2025 guidelines emphasize institutional algorithms that intercept physiological changes before the pulse drops below 60/min.



# The Golden Rule: Pediatric Arrest is a Respiratory Problem

**Unlike adults, pediatric cardiac arrest is overwhelmingly driven by hypoxia and asphyxia, not primary cardiac events.**

## **Why Prevention Dominates**

This is why lifestyle modifications (SIDS, drowning, trauma) form the massive front-end of the pediatric chain of survival.

## **Why Ventilation is Non-Negotiable**

This is why conventional CPR with rescue breaths drastically outperforms compression-only CPR in pediatric cohorts. Oxygenation is the cure.

## **Why Ratios Change**

This is why HCPs switch to a 15:2 ratio with two rescuers—maximizing the frequency of oxygen delivery to vital organs before irreversible hypoxic damage occurs.