

# ***APLS: The Pediatric Emergency Medicine Resource*** **2015 ECC/CPR Guidelines Updates**

*Note:* Page numbers listed in this document reflect new page numbering in the corresponding PDF errata sheet.

## Chapter 2: The Pediatric Airway in Health and Disease

Page 50, left column, 3<sup>rd</sup> line, change shown in red:

The L-epinephrine (L-adrenaline) dose is 0.5 mL/kg of a **1 mg/mL** concentration to a maximum of 5 mL.

Page 50, right column, Key Points box, 3<sup>rd</sup> bullet, change shown in red:

- Begin epinephrine (adrenaline) for signs of moderate to severe respiratory distress: racemic epinephrine (adrenaline), 0.05 mL/kg, to a maximum of 0.5 mL of 2.25% in 2 mL of saline nebulized, or l-epinephrine (l-adrenaline; **1 mg/mL** solution), 0.5 mL/kg nebulized.

Page 57, left column, Management heading, 6<sup>th</sup> line, change shown in red:

A dosage of 0.01 mL/kg (0.01 mg/kg) of **1 mg/mL** solution to a maximum dose of 0.3 mL (0.5 mg), administered....

Page 58, left column, Key Points box, changes shown in red:

### **Management of Anaphylaxis**

- Administer epinephrine (adrenaline), 0.01 mL/kg of **1 mg/mL** solution, to a maximum of 0.3 mg intramuscularly, repeat every 15 minutes as needed.
- Administer nebulized albuterol (salbutamol).
- Administer H<sub>1</sub>- and H<sub>2</sub>-antihistamines intravenously.
- Administer methylprednisolone intravenously.
- Consider epinephrine (adrenaline), **0.01 mg/mL or 0.1 mg/mL** solution intravenously, only if patient is in cardiopulmonary failure.

Page 69, Table 2-11, under Systemic (Injected)  $\beta_2$ -Agonists, Epinephrine, change shown in red:

Epinephrine  
**1 mg/mL concentration**

### Chapter 3: Shock

Page 100, Table 3-2, asterisk added after “Septic”, with corresponding note beneath table:

\*In regions with limited access to critical care resources, treat all forms of septic shock with an initial fluid bolus of 20 mL/kg of crystalloid. Additional fluid boluses should be done with extreme caution. The patient should be reassessed after every fluid bolus.

Page 103, right column, 2<sup>nd</sup> line, changes shown in red:

If administered intramuscularly, 0.01 mg/kg of the **1 mg/mL** solution can be administered to a maximum of 0.3 mg. If administered intravenously, 0.01 mg/kg of the **0.1 mg/mL** solution can be administered to a maximum of 0.5 mg with or without an epinephrine (adrenaline) drip (0.1-1 mcg/kg per minute).

Page 104, right column, Septic Shock heading, added to end of first paragraph:

This discussion does not apply to resource-limited settings.

Page 113, right column, after Refractory Shock paragraph, added:

**Septic Shock in Resource-Limited Settings (no mechanical ventilation, no inotropic support)**  
Studies have demonstrated improved survival with the use of maintenance fluids alone compared to those who received 20 to 40 mL/kg in the first hour of therapy.<sup>53a</sup> In this setting, an initial fluid bolus of 20 mL/kg of crystalloid is reasonable. Administration of additional fluid boluses should occur with extreme caution. The patient should be reassessed after every fluid bolus.<sup>53b</sup>

Page 126, added new references 53a and 53b:

**53a.** Maitland K, Kiguli S, Opoka RO, et al. FEAST Trial Group. Mortality after fluid bolus in African children with severe infection. *N Eng J Med.* 2011;364:2483-2495.

**53b.** de Caen AR, Berg MD, Chameides L, et al. Part 12: Pediatric advanced life support: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation.* 2015;132 (suppl2):5526-5542.

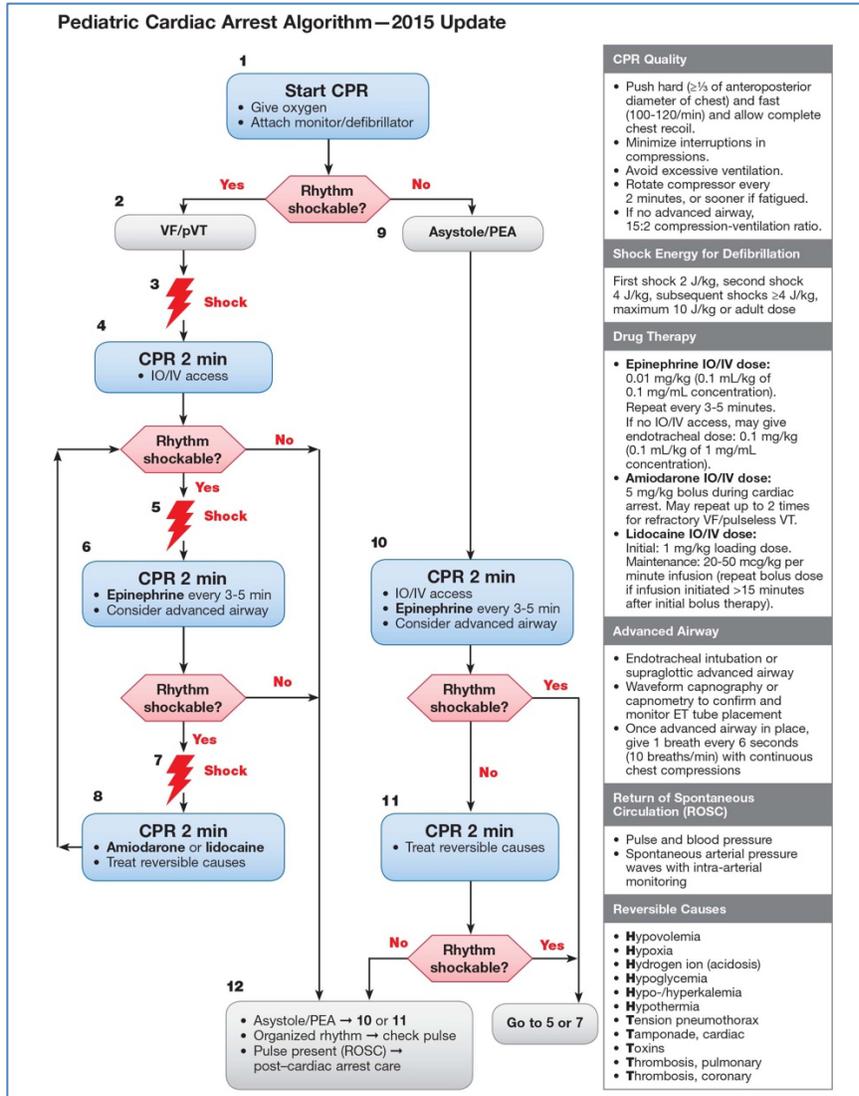
### Chapter 4: Cardiovascular System

Page 152, left column, 1<sup>st</sup> line, changes shown in red:

epinephrine (adrenaline) at 0.01 mg/kg (0.1 mL/kg of **0.1 mg/mL** solution) or tracheal (endotracheal) 0.1 mg/kg (0.1 mL/kg of **1 mg/mL** solution.)

**Doses/Details**

Epinephrine IO/IV Dose: 0.01 mg/kg (0.1 mL/kg of 0.1 mg/mL concentration). Repeat every 3-5 minutes. If IO/IV access not available but endotracheal (ET) tube in place, may give ET dose 0.1 mg/kg (0.1 mL/kg of 1 mg/mL).



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Page 157, left column, Management, 7<sup>th</sup> line from bottom, changes shown in red:

IV/IO of **0.1 mg/mL** concentration) should be administered and this dose repeated every 3 to 5 minutes. If there is no IV/IO access, but the patient is intubated, 0.01 mg/kg of a **1 mg/mL** concentration...

Page 157, right column, 3<sup>rd</sup> line from top, change shown in red:

Amiodarone (5 mg/kg IV/IO bolus) **or lidocaine (1 mg/kg)** therapy should be considered and administered while CPR is provided for five cycles; the rhythm should then be checked.

Page 157, right column, 11<sup>th</sup> line from top, change shown in red:

Amiodarone can be repeated, up to two times in this cycle **or lidocaine can be maintained at an infusion of 20 to 50 mcg/kg/min (repeat bolus dose if infusion > 15 min after initial bolus therapy).**<sup>24a</sup>

Page 157, right column, 2<sup>nd</sup> paragraph, 4<sup>th</sup> line, changes shown in red:

Epinephrine (adrenaline) (0.01 mg/kg IV/IO of **0.1 mg/mL** concentration or 0.01 mg/kg endotracheally of **1 mg/mL** concentration) should...

Page 163, added new reference 24a:

**24a.** de Caen AR, Berg MD, Chameides L, et al. Part 12: Pediatric advanced life support: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation*. 2015;132 (suppl2):5526-5542.

## Chapter 11: Neonatal Emergencies

Page 427, left column, Airway Management, 1<sup>st</sup> sentence, change shown in red:

If there is evidence of airway obstruction **or positive pressure ventilation is required**, it will be necessary to clear the airway.

Page 427, Table 11-2, 3<sup>rd</sup> bullet from bottom “Meconium aspirator” deleted.

Page 428, section from pg. 429 on Stimulating a Newborn moved to appear at end of Healthy Newborn section, 7<sup>th</sup> line from end of paragraph, with change shown in red:

Stimulating a newborn can include slapping or flicking of the soles of the feet or gentle rubbing of the newborn's back, trunk, or extremities during the drying process. **Delayed cord clamping for longer than 30 seconds is reasonable for those term and preterm infants who do not require resuscitation.**<sup>4a</sup>

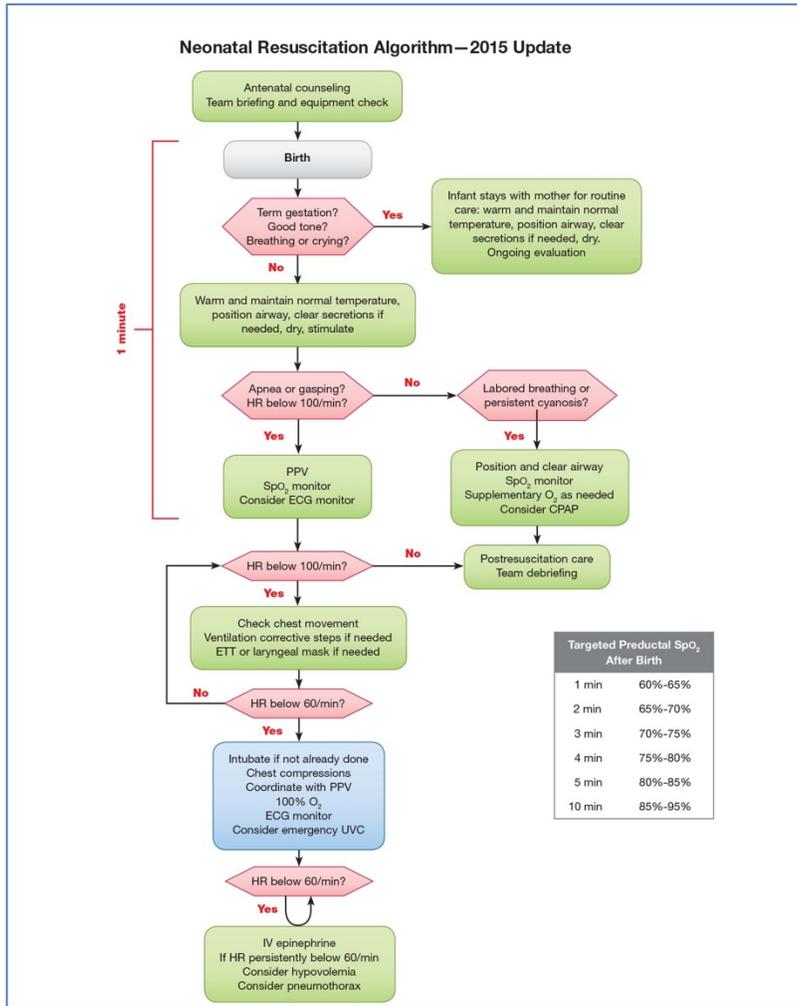
Page 429, Table 11-3, deleted “2. Clear fluid?” and renumbered the remaining items.

Page 429, left column, 2<sup>nd</sup> paragraph, 4<sup>th</sup> line, deleted “or labored breathing” and revised. Change shown in red:

If there is decreased respiratory effort (gaspings, apnea) or if the heart rate is less than 100/min, the newborn should have the airway cleared **and positive pressure ventilation initiated. If an infant has labored breathing or persistent cyanosis, the airway should be positioned and cleared, and supplementary oxygen given as needed.**

Page 430, left column, 2<sup>nd</sup> paragraph, changes shown in red:

The Neonatal Resuscitation **Algorithm—2015 Update** serves as a useful **tool** for further assessment of the newborn (**Figure 11.3**).



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Page 431, left column, 3<sup>rd</sup> paragraph, 8<sup>th</sup> line, change shown in red:

If blended oxygen is not available, resuscitation should begin with air (21% oxygen) for term infants. For preterm infants (<35 wk), resuscitation should be initiated with low oxygen concentration (21% to 30% oxygen) titrated to achieve productal oxygen saturation.<sup>4a</sup>

Page 432, left column, 2<sup>nd</sup> line, added:

For preterm infants, the use of 5 cm H<sub>2</sub>O PEEP is suggested when PPV is needed.

Page 432, Table 11-6, added:

6. Does the self-inflating bag have a PEEP valve?

Page 433, right column, 1<sup>st</sup> line, change shown in red:

The **preferred** technique in the newborn for delivery of higher peak systolic pressure and coronary perfusion pressure is the two-thumb technique.

Page 433, right column, last line, change shown in red:

The concentration of epinephrine (adrenaline) for either route should be **0.1 mg/mL**.

Page 434, left column, Meconium-Stained Amniotic Fluid, 6<sup>th</sup> line, change shown in red:

The current recommendation is that if a newborn is delivered through meconium-stained amniotic fluid and has poor tone and respiratory effort at birth, **the initial steps of resuscitation should occur under the radiant warmer. If the heart rate is less than 100 bpm or the infant is not breathing, positive pressure ventilation should be initiated. Routine intubation for tracheal suctioning is not recommended.**<sup>4a</sup>

Page 434, left column, Meconium-Stained Amniotic Fluid, starting at 11<sup>th</sup> line, deleted “This can be accomplished by intubation...” through the rest of the column. Also deleted Figure 11.6.

Page 434, right column, Discontinuing Resuscitative Efforts, 1<sup>st</sup> line, change shown in red:

In a newborn with **an Apgar score of 0 after 10 minutes of resuscitation and no detectable heart rate, it may be reasonable to stop assisted ventilation; however, the** decision to continue resuscitation beyond 10 minutes should take into consideration factors such as the presumed cause of the arrest, the gestation of the newborn, the presence or absence of complications, the potential role of therapeutic hypothermia, and the parents’ consent and request for continued resuscitation.<sup>4a</sup>

Page 443, added new reference 4a:

**4a.** Wyckoff MH, Aziz K, Escobedo MB, et al. Part 13: Neonatal resuscitation: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation*. 2015;132 (suppl2):5543-5560.

### Instructor’s ToolKit CD-ROM

Page 3, Endotracheal Intubation, Table 5-1, beneath Atropine, deleted “(0.01-mg/kg) Use in all children or with ketamine”. Atropine dosage is 0.02 mg/kg.