



KEY ADVANCES CLINICAL POLICY ALERT

American Heart Association Focused Update on Pediatric Advanced Life Support, 2019, 2020

Updated January 2023

2019 American Heart Association Focused Update on Pediatric Advanced Life Support: An Update to the American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care (1)

Pediatric Basic and Advanced Life Support: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency and Cardiovascular Care (2)

ABSTRACT: This 2020 focused update to the American Heart Association pediatric advanced life support guidelines follows the 2018 and 2019 systematic reviews performed by the Pediatric Life Support Task Force of the International Liaison Committee on Resuscitation. It aligns with the continuous evidence review process of the International Liaison Committee on Resuscitation, with updates published when the International Liaison Committee on Resuscitation completes a literature review based on new published evidence.

This update provides the evidence review and treatment recommendations for advanced airway management in pediatric cardiac arrest, modified respiratory rate during continuous cardiopulmonary resuscitation (CPR) with an advanced airway, prioritizes use of cuffed endotracheal tubes if an advanced airway is placed, early epinephrine use for patients with nonshockable rhythms, extracorporeal cardiopulmonary resuscitation in pediatric cardiac arrest, pediatric targeted temperature management during post-cardiac arrest care, and naloxone in cardiac arrest. The writing group analyzed the systematic reviews and the original research published for each of these topics.

Policy Recommendations and Focus Points in bold

Recommendation – Updated 2019; 2020

1. Best airway management in pediatric cardiac arrest?

Patient Management Recommendations:

Bag-mask ventilation is reasonable compared with advanced airway interventions (endotracheal intubation or supraglottic airway) in the management of children during cardiac arrest in the out-of-hospital cardiac arrest (OHCA) setting (Class 2a; Level of Evidence C-LD).

2. Best drug administration during cardiac arrest?

Patient Management Recommendations:

For pediatric patients in any setting, it is reasonable to administer the initial dose of epinephrine within 5 minutes from the start of chest compression. (Class 2a; Level of Evidence C-LD)

For shock refractory ventricular fibrillation/pulseless ventricular tachycardia, either amiodarone or lidocaine may be used. (Class 2b; Level of Evidence C-LD)

3. Extracorporeal cardiopulmonary resuscitation (ECPR) for in-hospital cardiac arrest (IHCA)?

Patient Management Recommendations:

ECPR may be considered for pediatric patients with cardiac diagnoses who have IHCA in settings with existing extracorporeal membrane oxygenation protocols, expertise, and equipment (Class 2b; Level of Evidence C-LD).

4. Best post-cardiac arrest targeted temperature management (TTM)?

Patient Management Recommendations:

Continuous measurement of core temperature during TTM is recommended (Class 1; Level of Evidence A).

For infants and children between 24 hours and 18 years of age who remain comatose after OHCA or IHCA, it is reasonable to use either TTM 32°C to 34°C followed by TTM 36°C to 37.5°C or TTM 36°C to 37.5°C (Class 2a; Level of Evidence B-R).

5. Best post-cardiac arrest blood pressure management?

Patient Management Recommendations:

After return of spontaneous circulation, we recommend that parenteral fluids and/or vasoactive drugs be used to maintain a systolic blood pressure greater than the fifth percentile by age. (Class 1; Level of Evidence C-LD).

6. Should cuffed endotracheal tubes be used for intubation?

Patient Management Recommendations:

It is reasonable to choose cuffed ETTs over uncuffed ETTs for intubating infants and children. (Class 2a; Level of Evidence C-LD)

7. Should frequency of respirations increase if an advanced airway is placed during CPR?

Patient Management Recommendation:

When performing CPR in infants and children with an advanced airway, it may be reasonable to target a respiratory rate range of 1 breath every 2-3 seconds (20-30 breaths/min), accounting for age and clinical condition. Rates exceeding these recommendations may compromise hemodynamics. (Class 2b; Level of Evidence C-LD)

8. Should naloxone be given for opioid-related cardiac arrest?

Patient Management Recommendations:

For patients known or suspected to be in cardiac arrest, in the absence of a proven benefit from the use of naloxone, standard resuscitative measures should take priority over naloxone administration, with a focus on high-quality CPR (compressions plus ventilation).

References:

1. Duff JP, Topjian AA, Berg MD, Chan M, Haskell SE, Joyner BL Jr, Lasa JJ, Ley SJ, Raymond TT, Sutton RM, Hazinski MF, Atkins DL. 2019 American Heart Association focused update on pediatric advanced life support: an update to the American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. *Circulation*. 2019;140:e904-e914. doi:10.1161/CIR.0000000000000731. Epub 2019 Nov 14. PMID: 31722551.
2. Topjian AA, Raymond TT, Atkins D, Chan M, Duff JP, Joyner BL, et al. Part 4. Pediatric Basic and Advanced Life Support: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency and Cardiovascular Care. *Circulation*. 2020;142(suppl 2):S469-S523.

Resources for additional learning:

<https://pubmed.ncbi.nlm.nih.gov/?term=pediatric+cardiac+arrest>

<https://rebelem.com/rebel-cast-ep75-2019-pals-update/>

<https://www.ahajournals.org/doi/epub/10.1161/CIR.0000000000000732>

<https://www.ahajournals.org/doi/epub/10.1161/CIR.0000000000000901>

<https://criticalcarenow.com/a-summary-of-the-pals-2020-updates/>