2020 PALS Science Summary Table

This table compares 2015 science with 2020 science, providing a quick reference to what has changed and what is new in the science of pediatric advanced life support.

PALS topic	2015	2020
Pediatric Chain of Survival	5 links for both chains (IHCA and OHCA Chains of Survival)	6 links for both chains (IHCA and OHCA Chains of Survival); added a Recovery link to the end of both chains
Pediatric Ventilation Rate	• Rescue breathing: If there is a palpable pulse 60/min or greater but there is inadequate breathing, give rescue breaths at a rate of about 12 to 20/min (1 breath every 3-5 seconds) until spontaneous breathing resumes. • During CPR with an advanced airway: If the infant or child is intubated, ventilate at a rate of about 1 breath every 6 seconds (10/min) without interrupting chest compressions.	• Rescue breathing: For infants and children with a pulse but absent or inadequate respiratory effort, give 1 breath every 2 to 3 seconds (20-30 breaths/min). • During CPR with an advanced airway: target a respiratory rate range of 1 breath every 2 to 3 seconds (20-30 breaths/min), accounting for age and clinical condition. Rates exceeding these recommendations may compromise hemodynamics.
Cuffed Endotracheal Tubes	Both cuffed and uncuffed ETTs are acceptable for intubating infants and children. In certain circumstances (eg, poor lung compliance, high airway resistance, or a large glottic air leak), a cuffed ETT may be preferable to an uncuffed tube, provided that attention is paid to [ensuring appropriate] ETT size, position, and cuff inflation pressure.	Cuffed ETTs can be used over uncuffed ETTs for intubating infants and children. When a cuffed ETT is used, attention should be paid to ETT size, position, and cuff inflation pressure (usually less than 20-25 cm H_2O).
Cricoid Pressure During Intubation	There is insufficient evidence to recommend routine application of cricoid pressure to prevent aspiration during endotracheal intubation in children.	Routine use of cricoid pressure is not recommended during endotracheal intubation of pediatric patients.
Emphasis on Early Epinephrine Administration	Administer epinephrine in pediatric cardiac arrest.	For pediatric patients in any setting, administer the initial dose of epinephrine within 5 minutes from the start of chest compressions.
Invasive Blood Pressure Monitoring to Assess CPR Quality	For patients with invasive hemodynamic monitoring in place at the time of cardiac arrest, it may be reasonable for rescuers to use blood pressure to guide CPR quality.	For patients with continuous invasive arterial blood pressure monitoring in place at the time of cardiac arrest, providers can use diastolic blood pressure to assess CPR quality.
Septic Shock	Administration of an initial fluid bolus of 20 mL/kg to infants and children with shock is reasonable, including those with conditions such as severe sepsis, severe malaria, and dengue.	• In patients with septic shock, administer fluid in 10-mL/kg or 20-mL/kg aliquots with frequent reassessment. • For infants and children with septic shock unresponsive to fluids and requiring

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		vasoactive support, consider stress-dose corticosteroids. • In infants and children with fluid-refractory septic shock, use either epinephrine or norepinephrine as an initial vasoactive infusion. • In infants and children with fluid-refractory septic shock, if epinephrine and norepinephrine are unavailable, dopamine may be considered.
Opioid Overdose	• Empiric administration of intramuscular or intranasal naloxone to all unresponsive opioid-associated life-threatening emergency patients may be reasonable as an adjunct to standard first aid and non–healthcare provider BLS protocols. • ACLS providers should support ventilation and administer naloxone to patients with a perfusing cardiac rhythm and opioid-associated respiratory arrest or severe respiratory depression. Bag-mask ventilation should be maintained until spontaneous breathing returns, and standard ACLS measures should continue if return of spontaneous breathing does not occur. • We can make no recommendation regarding the administration of naloxone in confirmed opioid-associated cardiac arrest.	• A new opioid-associated emergency algorithm has been added for lay rescuers and trained rescuers. These algorithms are used for both adult and pediatric patients. • For patients in respiratory arrest, rescue breathing or bag-mask ventilation should be maintained until spontaneous breathing returns, and standard PBLS or PALS measures should continue if return of spontaneous breathing does not occur. • For a patient with suspected opioid overdose who has a definite pulse but no normal breathing or only gasping (ie, a respiratory arrest), in addition to providing standard PBLS or PALS care, responders can administer intramuscular or intranasal naloxone. • 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).

Abbreviations: ACLS, advanced cardiovascular life support; AED, automated external defibrillator; BLS, basic life support; CPR, cardiopulmonary resuscitation; EMS, emergency medical services; ETT, endotracheal tube; IHCA, in-hospital cardiac arrest; OHCA, out-of-hospital cardiac arrest; PALS, pediatric advanced life support; PBLS, pediatric basic life support.

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Pediatric Cardiac Arrest Algorithm and the Pediatric Bradycardia With a Pulse Algorithm	Updated to reflect the latest science
Pediatric Tachycardia With a Pulse Algorithm	A single algorithm now covers both narrow- and wide-complex tachycardias.
Pediatric Post–Cardiac Arrest Care Checklist	A checklist is provided for pediatric post–cardiac arrest care. Healthcare providers should use this checklist as a training tool and to ensure that the most high-impact interventions are being used.
Hemorrhagic Shock	Among infants and children with hypotensive hemorrhagic shock after trauma, administer blood products, when available, instead of crystalloid for ongoing volume resuscitation.
Infant Compressions	• Single rescuers should compress the sternum with 2 fingers or 2 thumbs placed just below the nipple line. • If the rescuer is unable to achieve appropriate depth for infants with 2 fingers or 2 thumbs, use the heel of 1 hand.