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SPECIAL ARTICLE

What's new in the 2026 pediatric cardiopulmonary resuscitation recommendations

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Abstract
Objectives: To adapt the 2025 international guidelines for pediatric cardiopulmonary resuscitation (CPR) for its application in Spain.
Methods: Critical analysis of the international CPR guidelines.
Results: The most relevant changes in the basic life support guidelines are: simplification of the basic life support steps, immediate notification to emergency services (112) with the phone on speakerphone, simultaneous assessment of breathing and other vital signs, and performing chest compressions in infants by wrapping both hands around the chest, both for CPR and for clearing a foreign body causing airway obstruction. The changes in advanced life support are:

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◊ Appendix A presents the members of the Spanish Group on Pediatric and Neonatal Cardiopulmonary Resuscitation.

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repeat the adrenaline dose every 4 min to coordinate it with the cycles of chest compressions and ventilation; place the defibrillation pads in an anteroposterior position in children weighing less than 25 kg or under 8 years of age; and aim for a diastolic blood pressure of at least 25 mmHg in infants and 30 mmHg in children during CPR.
Conclusions: The changes in pediatric life support recommendations are aimed at facilitating learning and practical application. It is important that pediatric life support training in Spain follows the same recommendations, adapted to the characteristics of health care system and the needs of the trainees. The objective of the Spanish Pediatric and Neonatal Cardiopulmonary Resuscitation Group is to coordinate CPR training in Spain, with the active participation of all professionals, societies, and groups that care for children requiring CPR.
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PALABRAS CLAVE
Reanimación cardiopulmonar;
Reanimación cardiopulmonar pediátrica;
Parada cardiaca;
Reanimación cardiopulmonar básica;
Reanimación cardiopulmonar avanzada;
Educación médica

Novedades en las recomendaciones de reanimación cardiopulmonar pediátrica 2026

Resumen
Objetivos: Adaptar las recomendaciones internacionales de reanimación cardiopulmonar (RCP) pediátrica del 2025 para su aplicación en España.
Métodos: Análisis crítico de las recomendaciones internacionales de RCP pediátrica.
Resultados: Los cambios más relevantes en las recomendaciones de RCP básica son: la simplificación de los pasos de la RCP básica, el aviso inmediato al 112 con el teléfono en altavoz, la evaluación simultánea de la respiración y el resto de los signos vitales y la realización de las compresiones torácicas en el lactante abrazando el tórax con las dos manos tanto en la RCP como para la desobstrucción de la vía aérea por un cuerpo extraño. En la RCP avanzada; repetir la dosis de adrenalina cada 4 minutos para coordinarla con los ciclos de compresiones torácicas y ventilación, la colocación de los parches de desfibrilación en posición anteroposterior en los niños con peso menor de 25 kg u 8 años, y alcanzar durante la RCP al menos una TA diastólica de 25 mmHg en lactantes y 30 mmHg en niños.
Conclusiones: Los cambios en las recomendaciones en RCP pediátrica están orientados a facilitar el aprendizaje y su aplicación práctica. Es importante que la formación en RCP pediátrica en España siga las mismas recomendaciones, adaptándolas a las características asistenciales y las necesidades de los alumnos. El Grupo Español de Reanimación Cardiopulmonar Pediátrica y Neonatal tiene como objetivo coordinar la formación en RCP Pediátrica en España contando con la participación de todos los profesionales y grupos que atienden a niños que precisan RCP.
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Introduction

Cardiac arrest (CA) is an important cause of death and sequelae, chiefly neurologic, in children. The body of evidence on which to base cardiopulmonary resuscitation (CPR) recommendations is not substantial. Still, in recent years, early and high-quality CPR has been the most important contributor to the improvement of survival and the reduction in the incidence of neurologic sequelae after CA in children. Therefore, the dissemination of CPR recommendations and the training of health care staff and the general population in CPR are of the essence.

The purpose of this article is to analyze the main international 2025 pediatric CPR recommendations[1–8] with the aim of highlighting the most relevant changes in relation to the 2020 recommendations[9–12] and facilitating their dissemination among health care professionals and the general public in Spain. The *Manual of Cardiopulmonary Resuscitation* of the Spanish Group on Pediatric and Neonatal Cardiopulmonary Resuscitation (GERCPPYN, for its acronym in Spanish) will explain these changes in greater detail.

Recommendation review process

The International Liaison Committee on Resuscitation (ILCOR) is continuously appraising the scientific evidence on life support and CPR. The results of this ongoing analysis are reported through the publication of Consensus on Science with Treatment Recommendations (CoSTR) documents throughout the year in addition to a yearly summary of the main updates. In late 2025, the ILCOR published its updated recommendations,[1,2] which have been used in combination with their own reviews of the evidence by other scientific societies, such as the European Resuscitation Council (ERC) or the American Heart Association (AHA), to develop spe-

cific CPR recommendations for application at the regional or national level.[3–8]

The GERCPPYN, which has representatives from the main societies that work on pediatric CPR in Spain through the Asociación Española de Pediatría (AEP, Spanish Association of Pediatrics) and the Spanish Council of Cardiopulmonary Resuscitation (CERCP) (including the Sociedad de Cuidados Intensivos Pediátricos, Sociedad de Urgencias Pediátricas, Sociedad Española de Pediatría Extrahospitalaria y Atención Primaria, Asociación Española de Pediatría de Atención Primaria and Sociedad Española de Neonatología), has analyzed the current evidence and recommendations and adapted the latter for their application to clinical practice and CPR training in Spain. The aim of this article is to summarize these recommendations. The changes in neonatal CPR recommendations are discussed in a separate article.

Prevention of cardiac arrest

- In recent years, the ILCOR has not conducted systematic reviews of the evidence regarding the prevention of CA. The 2025 ERC guidelines maintain the previous recommendations practically unchanged.[9,10]
- Prevention of bradycardia during intubation. In children, in the absence of cardiac arrest, routine premedication with atropine before intubation is no longer recommended. Atropine can be given if the patient develops bradycardia secondary to increased vagal tone, but if the bradycardia is due to hypoxia, adrenaline must be administered and ventilation and oxygenation problems must be reversed.[5]

Basic life support[5,6,8]

Both the European and the Spanish basic CPR guidelines maintain the ABC approach (airway, breathing, circulation).[5]

Changes have been introduced to simplify the algorithm, allow quicker intervention and facilitate training (Fig. 1).

Activation of the emergency medical services system

- Raising alarm and calling 112 immediately after confirming that the victim is unresponsive is recommended as long as the rescuer has a mobile phone with a speaker function to keep hands free.[5,6,8] The 2020 recommendations, in the case of a single rescuer with a mobile phone, called for delivery of five rescue breaths before contacting 112. This step has been eliminated in the current recommendations.
- This change advances the call to 112 from out-of-hospital settings and unifies the algorithm for cardiac arrest of any cause (sudden cardiac arrest of probable cardiac origin or cardiac arrest secondary to respiratory failure, which is more frequent in children). It also unifies the basic life support pediatric and adult CPR algorithms, which facilitates learning in the general population.
- In the case of a single rescuer without a mobile phone, performance of CPR for one minute is recommended before going to seek help.
- If there is more than one rescuer, one should start CPR immediately while the other seeks help, calls 112 and searches for a semi-automatic external defibrillator (SAED), as recommended in previous guidelines.[10,12,13]

Checking breathing and signs of life

- After calling 112, the airway should be opened with the head tilt-chin lift technique or, if craniocervical injury is suspected, the jaw thrust technique, while checking for signs of life for no longer than 10 s. Previous recommendations called for delivery of five rescue breaths followed by assessment of signs of life.[10–13]
- By merging the assessment of the airway and other signs of life, the number of steps is reduced, CPR is initiated earlier, and the algorithm is simplified, which facilitates learning. It is worth considering that when it comes to basic life support training, especially for the general population, teaching how to assess for signs of life is recommended rather than manual checking of central pulses, which is more complicated.

Ventilation and chest compressions

- If the child is not breathing normally (it is important not to confuse agonal breathing/gasping with normal breathing), delivery of five rescue breaths is recommended, followed by immediate initiation of chest compressions with a 15:2 compression-to-ventilation ratio (in the case of untrained bystander CPR, a 30:2 ratio). After delivery of the five rescue breaths, it is no longer recommended to check again for signs of life, and, unless the child exhibits clear signs of circulation, the CPR sequence should be started directly with chest compressions to minimize interruptions (Fig. 1).

Chest compression technique

- Technique: the most important change concerns chest compressions in infants. The two-finger technique is no longer recommended, as there is evidence that it is less effective than the two-thumbs encircling technique.[1,5,6,8] If it is not possible to encircle the thorax with the two hands, chest compressions can be performed with the heel of one hand.
- There are no other changes to chest compression technique. Pressure should be exerted on the lower half of the sternum, at a rate of 100–120 compressions per minute and reaching a depth of approximately one third of the anteroposterior diameter of the chest. The chest must be allowed to recoil fully between compressions, interruptions should be minimized (< 10 s), and chest compressions should not be interrupted except when delivering ventilations or when prompted to stop by the defibrillator.

Semi-automatic defibrillation

- Anyone, even untrained individuals, can use a SAED. In children, performance of CPR for at least one minute is recommended before using the SAED, except in the case

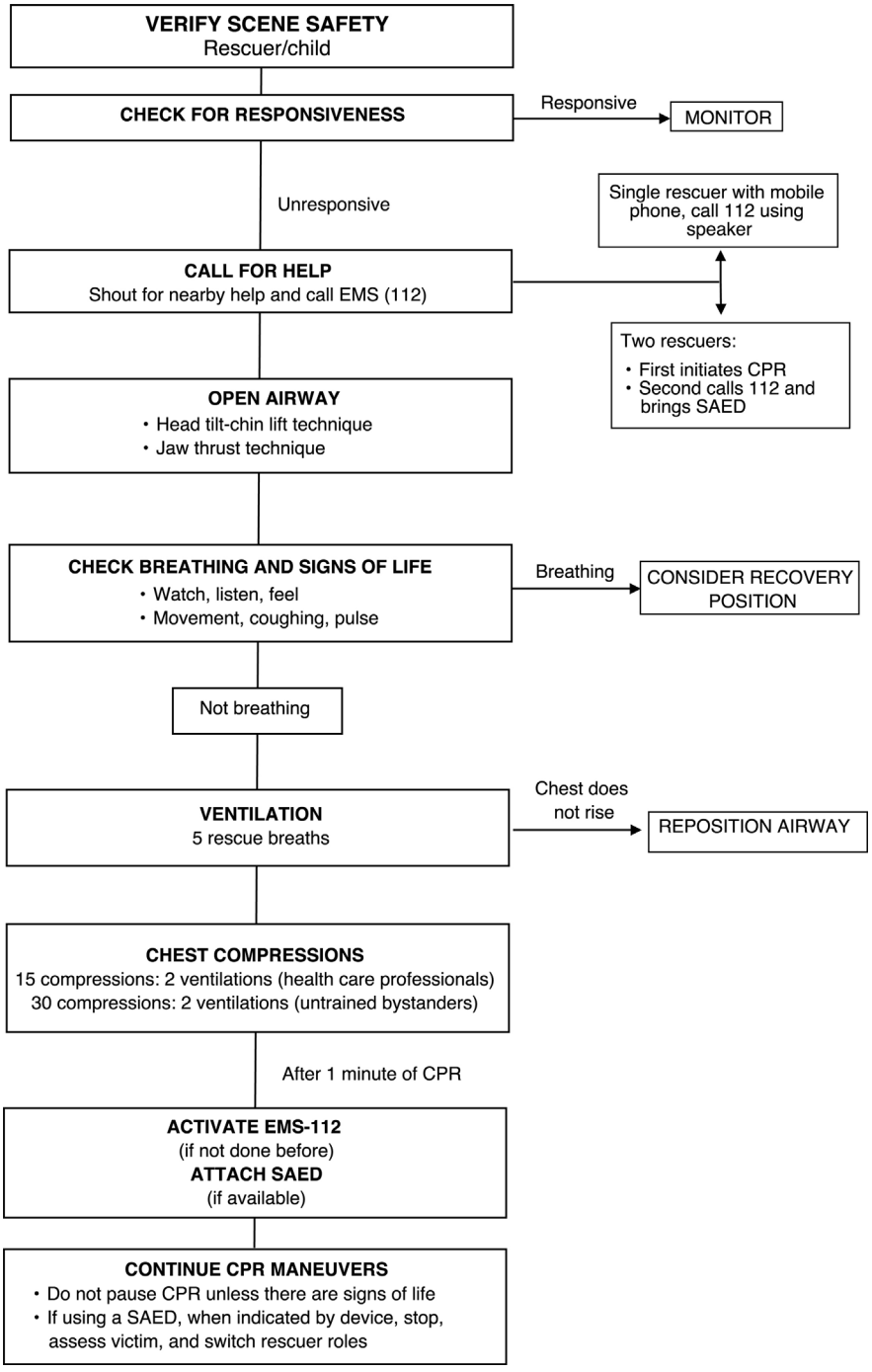

Figure 1 Pediatric basic CPR algorithm.

of witnessed sudden cardiac arrest in a setting where a SAED is available, when it will be used immediately.

- Pad positioning: in infants and young children (weighing less than 25 kg or younger than 8 years), the anteroposterior position is recommended because it may facilitate current flow during defibrillation.[14] In children weighing more than 25 kg and adolescents, pads can be placed in the anterolateral or anteroposterior positions, although the latter can be more complicated, as it would require turning the patient during resuscitation to attach a pad on the back.

Foreign object airway obstruction (FBAO) (Fig. 2)

- There are no significant changes to the recommended sequence for foreign body airway obstruction. In children in whom coughing is ineffective, the same sequence of back blows and chest/abdominal thrusts (chest in infants and abdomen in children) is maintained (Fig. 2).
- The key change is that in infants with ineffective cough, chest thrusts will be delivered with the same technique used in basic CPR (encircling the thorax with both hands

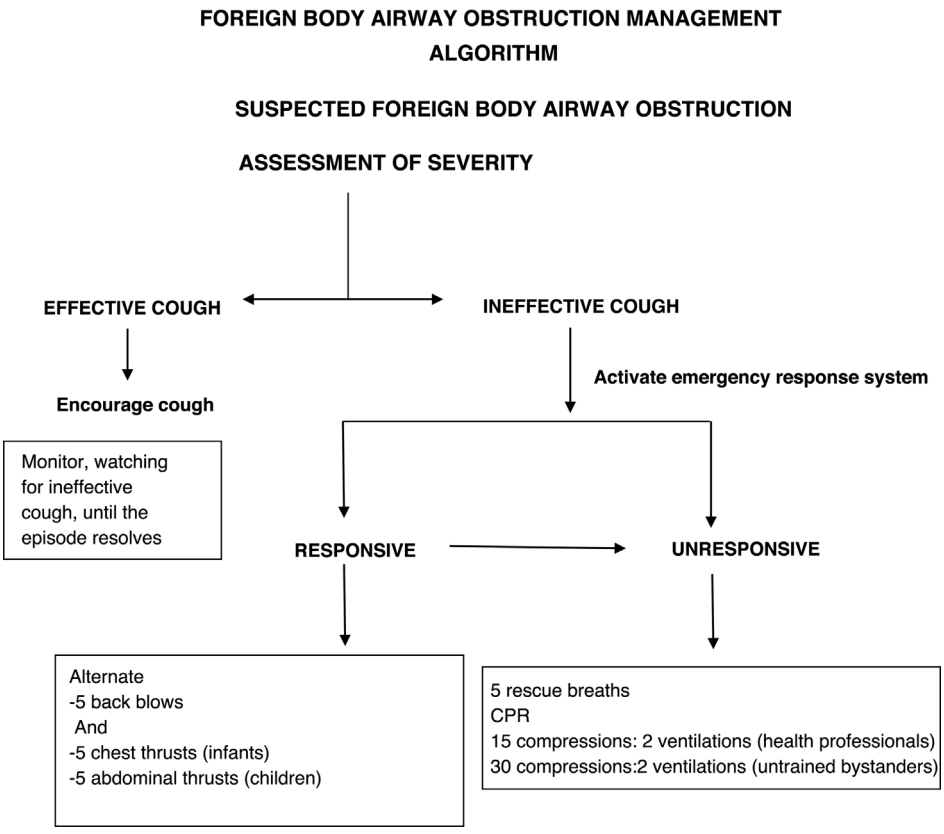

Figure 2 Foreign body airway obstruction (FBAO) algorithm.

and pressing on the sternum with the thumbs or, if the thorax cannot be fully encircled, with the heel of one hand).[5]
- At present, there is insufficient evidence to recommend the use of suction-based devices as the first-line intervention for FBAO in children.

Pediatric advanced life support

There are no major changes in the general pediatric advanced life support algorithm (Figs. 3–5) or resuscitation medication doses (Table 1).

The most important changes in the pediatric advanced life support recommendations are[4,7,8]:

Recognition of cardiac arrest and checking for signs of life during resuscitation

- Health care professionals must be trained to identify cardiac arrest in a child based on absent signs life, absence of arterial central pulses or severe abnormalities in vital signs monitoring (ECG, intraarterial blood pressure, hemoglobin concentration or end-tidal CO_2). It must be noted that isolated abnormalities in monitored vital signs do not suffice for diagnosis of cardiac arrest in children if there are no accompanying clinical manifestations (decreased consciousness and absent signs of life), but they may help in its early detection.
- During CPR, it is recommended to assess clinical signs of life and check arterial pulse, ECG and monitored vital signs every two minutes, with minimal interruption of CPR maneuvers (ideally, less than 5 s). If possible, the rescuer who delivers compressions should be changed every 2 min to ensure their quality.

Ventilation and intubation[1,5,7,8,15,16]

- If bag-mask ventilation is used, the recommendation continues to be ventilation with 100% oxygen alternating with chest compressions at a ratio of 15 compressions to 2 ventilations. If the child is intubated or carries a supraglottic airway device, delivery of continuous chest compressions with asynchronous ventilation is recommended, using a ventilation rate in the lower limit of normal for age (25 bpm for infants, 20 bpm between 1 and 8 years, 15 bpm between 8 and 12 years and 10 bpm in patients older than 12 years).
- If the child is mechanically ventilated, it is possible to disconnect the device and use bag-mask ventilation, or to continue using the ventilator after disabling the triggers and limits.
- Intubation should only be performed by experienced personnel, keeping interruptions to chest compressions and ventilation to a minimum. It is recommended to limit intubation attempts to a maximum of two.[1,5,7,8,15,16]

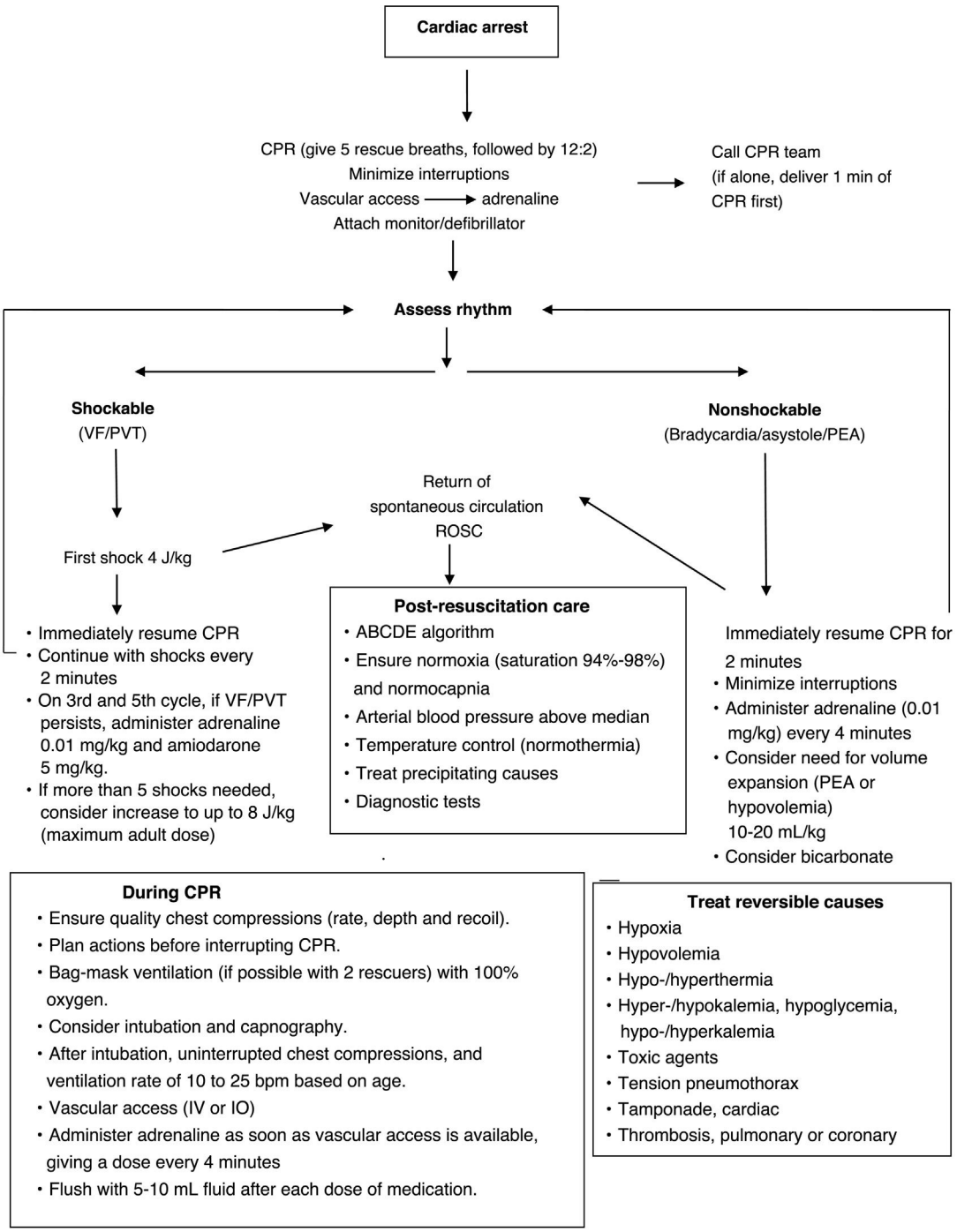

Figure 3 Pediatric advanced CPR algorithm.

Commonly used medications[5,7,8,17,18]

- Adrenaline: the first dose of adrenaline should be administered as soon as possible, followed by additional doses every 4 min. The recommended interval of adrenaline administration has been changed to every 4 min, as opposed to the 3—5 min of previous guidelines, to make it coincide with the vital sign monitoring intervals in order to facilitate training.[5,7,8]
- Bicarbonate: the current evidence is not for or against the administration of bicarbonate during CPR in children, as most studies in the literature (all of low methodological quality) have not found an association between the administration of bicarbonate and either the return of spontaneous circulation or survival. Its administration should be considered in the case of CA secondary to tricyclic antidepressant or calcium channel blocker toxicity, hyperkalemia, or prolonged CA (e.g., longer than 10 min).[17,18]

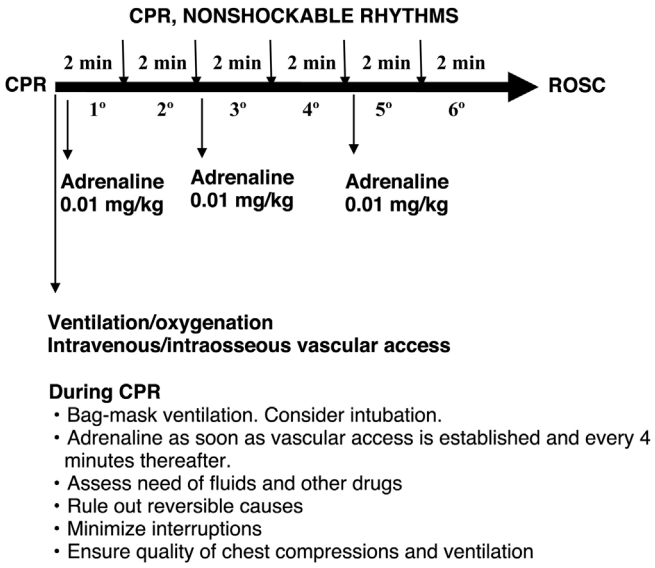

Figure 4 Pediatric advanced CPR algorithm, nonshockable rhythms.

Hemodynamic targets during CPR

- If an intra-arterial line is in situ during CPR, monitoring diastolic BP in response to chest compressions and adrenaline is recommended, aiming for at least 25 mmHg in infants and 30 mmHg in children, as these target values are associated with greater survival.[1,5,7,8,15]
- Capnography can help assess the effectiveness of chest compressions and detect the return of spontaneous circulation.

Defibrillation

- As is the case with SAEDs, for manual defibrillation, the anteroposterior position for defibrillation pads is recommended in children weighing less than 25 kg (8 years). In children weighing more than 25 kg, they can be placed in the anteroposterior or the anterolateral position.[1,5,14]
- Before starting defibrillation, check that the oxygen source has been disconnected (disconnect the ventilation bag) and moved at least 1 m away. If the child is mechanically ventilated, defibrillation does not require disconnection from the ventilator.

Cardiac arrest in special situations[5,7,8,19]

- In the case of CA secondary to hyperkalemia, the main recommendation is intravenous administration of insulin (0.1 U/kg), 10% glucose (5 mL/kg), and salbutamol. The evidence does not support the effectiveness of calcium or bicarbonate. While these drugs are not contraindicated, they are not considered first-line choices.
- In the case of CA in a hypothermic child with a body temperature below 30 °C, only one dose of adrenaline should be administered until the body temperature rises.

Post-resuscitation care[5,20,21]

- Patients should be monitored continuously following the ABCDE approach with the aim of preventing secondary organ injury. After the return of spontaneous circulation, the goal is to achieve and maintain an oxygen saturation of 94%–98%, a $PaCO_2$ of 35–45 mmHg and a blood pressure above the 10th percentile. Due to the importance

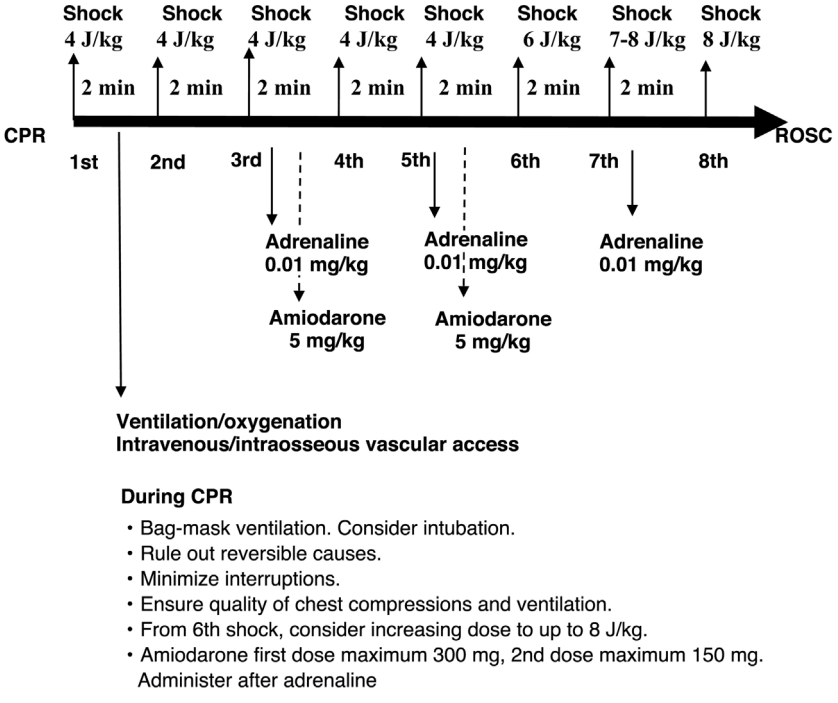

Figure 5 Pediatric advanced CPR algorithm, shockable rhythms.

Table 1 Drugs used in pediatric resuscitation.

Drug	Dose	Preparation	Route	Indication
Adrenaline	0.01 mg/kg	Diluted with NS (1 + 9) = 0.1 mL/kg	IV, IO, IT	CA
	Max: 1 mg	IT: 0.1 mg/kg undiluted	bolus	
Adenosine	1st. 0.2 mg/kg	Quickly flush with 5—10 mL NS	IV, IO bolus	SVT
	Max: 6 mg 2nd. 0.4 mg/kg Max: 12 mg			
Amiodarone	5 mg/kg Max: 300 mg	Pure	IV, IO Bolus for CA, otherwise slow infusion	Refractory VF or pVT SVT or VT
Atropine	0.02 mg/kg Max: 1 mg	0.2 mL/kg	IV, IO bolus	Vagal bradycardia
Bicarbonate	1 mEq/kg	Diluted 1:1 in NS = 2 mL/kg	IV, IO	Consider in: refractory CA, tricyclic antidepressant or calcium channel blocker toxicity
	Max: 50 mEq		bolus	
Calcium	0.2 mEq/kg =	Calcium gluconate 10%: 0.4 mL/kg	IV, IO Slow infusion	Hypocalcemia
	Max: 10 mEq	Calcium chloride 10%: 0.2 mL/kg. Diluted 1:1		Hypermagnesemia Calcium channel blocker toxicity. Consider in hyperkalemia
Glucose	0.2—0.4 g/kg	10% glucose = 2—4 mL/kg	IV, IO bolus	Hypoglycemia
Lidocaine	1 mg/kg Max: 100 mg	Undiluted	IV, IO bolus	Refractory VF or pVT
Fluids	10—20 mL/kg	SSF	IV, IO Rapid	PEA Hypovolemia
Magnesium	50 mg/kg	Undiluted	IV, IO bolus	Polymorphic VT with torsades de pointes

CA, cardiac arrest; IV, intravenous; IO, intraosseous; IT, intratracheal; Max, maximum per dose; NS, normal saline; PEA, pulseless electrical activity; pVT, pulseless ventricular tachycardia; SVT, supraventricular tachycardia; VF, ventricular fibrillation.

of maintaining adequate organ perfusion, the GERCPPYN recommends approaching the median blood pressure for age.

- Multimodal monitoring is recommended to guide neuroprognostication, including clinical parameters (Glasgow Comma Scale, pupillary light response), an early EEG in the first 24–48 h, and biochemical markers (pH, lactate, S100B, neuron-specific enolase, myelin basic protein, neurofilament light chain, glial fibrillary acidic protein, as available). Performance of a brain MRI is recommended on day 4. Due to the uncertainties surrounding the clinical course, a definitive neurologic prognosis should not be made before three or four days post arrest.[5,20–22]
- It is important to provide long-term multidisciplinary follow-up for survivors after discharge, involving health care and social work professionals at the hospital and at the primary care level.

Training[23,24]

The most important recommendations on pediatric CPR training are:

- Introduce resuscitation training from ages 4–6 years and include annual resuscitation training into school curricula.
- Tailor training to the specific group of rescuers, using different learning modalities to facilitate access to CPR training and learning (gamified training, rapid cycle deliberate practice, remote training, augmented reality, use of

feedback devices, cognitive aids and considering artificial intelligence support).
- Include teaching of communication and teamwork competencies in all life support courses.
- Consider in situ simulation at the workplace for CPR training.

Conclusions

The 2026 pediatric CPR recommendations do not introduce significant changes in resuscitation techniques. Most previous recommendations continue to be valid. Many updates to the previous recommendations are aimed at simplifying the sequence and facilitating learning to improve the quality of resuscitation and its actual implementation.

It is important to tailor pediatric life support training to the characteristics and needs of the specific group of providers/rescuers and to include teaching of both technical skills and team competencies including leadership, task allocation, or communication. Each center must plan ongoing in situ pediatric life support training according to its particular characteristics and available resources.

Our responsibility as pediatricians is not limited to the training in pediatric CPR required of health care providers, but also to collaborate in raising awareness and training the general population and children aged 4–6 years in cooperation with institutions and educators.

The purpose of the Spanish Group on Pediatric and Neonatal Cardiopulmonary Resuscitation is to promote training in CPR, with active involvement of all professionals, societies and groups that care for children who require CPR.

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Appendix A. Members of the Spanish Group on Pediatric and Neonatal Cardiopulmonary Resuscitation

Custodio Calvo Macías, Angel Carrillo Alvarez, Jimena del Castillo Peral, Margarita Escudero Lirio, Jesús López-Herce, Ignacio Manrique Martínez, Sara Pons Morales, Antonio Rodríguez Núñez and Valero Sebastián Barberán.

Declaration of competing interest

The authors have no conflicts of interest to declare.

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