



Guidelines for Neonatal Cardiopulmonary Resuscitation (2025 Update). Executive summary

(Official adaptation by the Sociedad Argentina de Pediatría of the 2025 AHA/AAP–ILCOR and ERC Guidelines)

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ABSTRACT

The 2025 update on neonatal cardiopulmonary resuscitation from the American Heart Association (AHA), the American Academy of Pediatrics (AAP), ILCOR, and the European Resuscitation Council (ERC), adapted by the Sociedad Argentina de Pediatría (SAP, by its Spanish acronym), retains the core neonatal resuscitation algorithm, but incorporates a systemic approach based on the “Newborn Chain of Care”.

Emphasis is placed on prenatal anticipation, early physiological monitoring, temperature control, rational oxygen titration, and post-resuscitation care. Effective ventilation remains the most important intervention. In addition, guidelines are established for the early detection of hypoxic-ischemic encephalopathy and referral for therapeutic hypothermia.

The SAP promotes its implementation through training, clinical simulation, perinatal regionalization, and quality audits.

Keywords: cardiopulmonary resuscitation; newborn; hypoxia-ischemic encephalopathy.

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INTRODUCTION

Neonatal cardiopulmonary resuscitation is a critical intervention designed to ensure an adequate cardiorespiratory transition at birth. The 2025 update of the recommendations from the American Heart Association (AHA), the American Academy of Pediatrics (AAP), and the International Liaison Committee on Resuscitation (ILCOR), and the 2025 Guidelines from the European Resuscitation Council (ERC),¹⁻³ adapted by the Sociedad Argentina de Pediatría (SAP, by its Spanish acronym),⁴ leave the classic neonatal resuscitation algorithm largely unchanged but introduce conceptual modifications aimed at strengthening continuity of care, the organization of the care system, early physiological monitoring, and post-resuscitation care.

The main contribution of this update is the inclusion of the “Newborn Chain of Care” model, which integrates prenatal care, stabilization in the delivery room, resuscitation, postnatal care, and recovery as a continuous process focused on patient safety.

ANTICIPATION AND PRENATAL PREPARATION

The 2025 update emphasizes that neonatal resuscitation begins before birth. Systematic prenatal assessment of risk factors and early activation of trained teams are recommended. There must be at least one professional trained in positive-pressure ventilation (PPV) present at every birth, and advanced teams for high-risk deliveries. In addition, structured pre-birth planning is formally incorporated as a tool for team safety and organization.

UMBILICAL CORD MANAGEMENT

Timely cord clamping for at least 60 seconds is recommended for healthy full-term and preterm newborns, due to its benefits for hemodynamic stability and reduced complications, especially in preterm infants.

Umbilical cord milking is not recommended in newborns younger than 28 weeks due to the potential increased risk of intraventricular hemorrhage. The SAP currently advises against its routine use at any gestational age.

THERMOREGULATION AND FIRST STEPS

The new recommendations reinforce the importance of strict temperature control, maintaining body temperature between 36.5 °C and 37.5 °C. For newborns under 34 weeks, using

a plastic bag without prior drying is recommended.

The recommendation to avoid routine suctioning in healthy newborns remains in effect, with priority given to the rapid initiation of ventilation when necessary.

PHYSIOLOGICAL MONITORING

The 2025 update places greater emphasis on objective and early monitoring during neonatal resuscitation. It highlights the use of electrocardiography for rapid and accurate assessment of heart rate, and preductal oximetry to guide oxygen administration and achieve saturation targets based on the minute of life.

VENTILATION AND OXYGENATION

Effective ventilation remains the most important intervention in neonatal resuscitation. It is recommended to initiate CPAP if apnea, ineffective breathing, or a heart rate of less than 100 beats per minute is present.

The SAP recommends starting with room air (FiO₂ 0.21) in newborns ≥32 weeks and with FiO₂ 0.3 in newborns younger than 32 weeks, performing rapid titration based on preductal oxygen saturation. Empirical use of oxygen with FiO₂ 1.0 is not recommended in term newborns.

The use of positive end-expiratory pressure (PEEP) in preterm infants is also emphasized, as is the availability of supraglottic devices, particularly the laryngeal mask (LM), as an alternative when ventilation with a face mask is ineffective or as the device of choice for initiating non-invasive ventilation.

Consider using videolaryngoscopy for intubation when available. It is recommended that the operator performing PPV be rotated every 2 minutes, since physical fatigue affects the quality of the technique (mask seal, applied pressure, frequency).

CHEST COMPRESSIONS AND MEDICATIONS

The recommendations to begin chest compressions remain unchanged: they should be initiated when the heart rate remains <60 bpm after 30 seconds of effective ventilation via an endotracheal tube or LM. The two-thumb encircling technique and the 3:1 compression-to-ventilation ratio are maintained.

Intravenous epinephrine remains indicated when severe bradycardia persists despite adequate ventilation and chest compressions, with umbilical venous access being the preferred route. It is recommended that the person

performing chest compressions be rotated at most every 2 minutes.

POST-RESUSCITATION CARE AND NEUROPROTECTION

One of the most significant conceptual changes is the formal recognition of post-resuscitation care as an integral part of the neonatal care continuum. Emphasis is placed on continuous respiratory, hemodynamic, and metabolic monitoring following initial stabilization.

Early identification of hypoxic-ischemic encephalopathy and prompt referral to centers capable of performing therapeutic hypothermia in eligible newborns are recommended. Therapeutic hypothermia should be initiated within the first few hours of life and performed exclusively in centers with adequate monitoring and comprehensive support.

RESUSCITATION IN THE NEONATAL INTENSIVE CARE UNIT

The update includes specific recommendations for resuscitation during hospitalization in neonatal intensive care units (NICUs). It highlights the need to adapt the algorithm to common reversible causes in NICUs, incorporate advanced monitoring, and establish protocols for response teams.

PROGNOSIS, ETHICS, AND FAMILY INVOLVEMENT

The 2025 guidelines state that, in the event of a persistent absence of a heart rate despite effective and complete resuscitation, a change in the course of care may be considered around 20 minutes, based on an individualized assessment and a shared decision with the family.

Furthermore, the ethical and communicative aspects of patient care are strengthened by promoting structured communication with parents and allowing family members to be present during resuscitation when appropriate protocols and training are in place.

CONCLUSION

The 2025 update to neonatal resuscitation consolidates the stability of the traditional technical algorithm while further advancing a conceptual shift toward continuity of care, physiological monitoring, and patient safety. The incorporation of the “Newborn Chain of Care” redefines resuscitation as a comprehensive process that spans from prenatal anticipation to post-resuscitation care and recovery.

The Sociedad Argentina de Pediatría proposes implementing these recommendations by strengthening perinatal regionalization, continuing education, clinical simulation, institutional protocols, and systematic audits to improve the quality and consistency of neonatal care in Argentina. ■

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