Research Priorities Established by the American Academy of Pediatrics (AAP) Neonatal Resuscitation Program® (NRP)® 2017

Top Initiative

What are the best ways to optimize care in the delivery room using NRP? Initiatives can include teaching and evaluating the cognitive, technical and behavioral skills necessary for successful resuscitation of the newborn and retention of skills and knowledge over time.

Basic and Clinical Research

Topic: Human factors impact on delivery room resuscitation

Questions of interest:
- What features facilitate rapid and correct assimilation and interpretation of physiologic data streaming from patient monitors used during resuscitation?
- What are optimal delivery room physical features or set-up to enhance individual and team situational awareness?
- Does the use of scripts, technology, or "readers" improve compliance with NRP algorithm steps?
- What is the ideal team composition for the most effective resuscitation?
- How can documentation be improved for greater accuracy?
- Are pre-debriefings and debriefings useful for improving individual and team performance?

Topic: Effective delivery of ventilation

Questions of interest:
- What is the optimal method to use in safely and effectively establishing functional residual capacity (FRC) and assisting ventilation during resuscitation? What is the role of the laryngeal mask?
- When administering positive-pressure ventilation (PPV) in the delivery room, should volume and/or pressure be measured? If volume is measured, what is the optimum volume to deliver as compliance changes while trying to establish a functional residual capacity (FRC) in a newborn?
- Is there a role for CPAP and PEEP to help in the stabilization of the spontaneously breathing term newborn?
- What is the role of respiratory function monitoring in the delivery room, including the use of exhaled CO₂ to guide ventilation efforts?

Topic: Time of Cord Clamping:

Questions of interest:
- What are the effects of delayed cord clamping in the preterm neonate who needs resuscitation?
- What are the physiologic effects of starting ventilation during delayed cord clamping for the newborn who needs resuscitation?

Topic: Use of Oxygen

Questions of interest:
• What are the optimal goal saturation ranges for preterm infants needing resuscitation in the delivery room?
• How much supplemental oxygen should be used when there is persistent heart rate < 60 bpm despite 30 seconds of effective ventilation?
• What is the effect of administering room air as compared to supplemental oxygen during circulatory arrest on restoring spontaneous circulation and limiting organ injury?
• What is the most effective starting oxygen concentration for achieving target saturations in babies born preterm and babies born at term?

**Topic: Chest Compressions in the Newborn**

*Questions of interest:*
• Is coordination of compressions and ventilations important?
• How can efficacy of chest compressions be best evaluated in the delivery room?
• What is the optimal ratio of chest compressions to positive-pressure ventilation breaths in neonatal resuscitation?
• When (i.e., at what HR) should chest compressions be initiated?

**Education**

**Topic: Optimization of NRP Education**

*Questions of interest:*
• What is the best method for teaching specific NRP skills? Do different educational methodologies improve acquisition and application of NRP?
• Do live or on-line refresher sessions improve retention of NRP skills?
• Does just-in-time training improve delivery of NRP skills?
• What is the decay in NRP skills for providers who perform resuscitation infrequently?
• What is the optimal interval and format for education and assessment?
• If providers who perform neonatal resuscitation are trained in the NRP, are survival rates and post-resuscitation outcomes improved?
• Does use of simulation and debriefing techniques for teaching/reviewing NRP skills improve teamwork? Competency in resuscitation?
• Do performance scores after simulation predict performance scores achieved in actual resuscitations?
• What elements of team and individual performance are most critical in ensuring optimal practice?

**More details**
Copublishing of the Pediatric and Neonatal Portions of the 2015 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations and the 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Pediatrics* 2015;136;S83; originally published online October 14, 2015;DOI: 10.1542/peds.2015-3373B

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