Updated International Guidelines for Neonatal Resuscitation

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Care goals include early ventilatory support and advanced resuscitative efforts when warming, drying and stimulation alone are ineffective.

Sponsoring Organization: International Liaison Committee on Resuscitation

Target Audience: Clinicians who care for newly born infants transitioning from intrauterine to extrauterine life and neonatal patients in the first weeks of life, including emergency physicians, family medicine physicians, pediatricians, and neonatologists.

Background and Objective: Approximately 10% of newborns will require assistance to breathe after birth, and <1% will need additional resuscitation efforts. These guidelines update the 2010 International Liaison Committee recommendations on neonatal resuscitation.

Key Recommendations:

- Term infants who are breathing or crying and have good tone may remain with the mother for usual care.
- Infants not meeting the above criteria should be warmed (target temperature, 36.5°C–37.5°C), dried, and stimulated. Bulb suctioning should only be performed if evidence of airway obstruction is present.
- Labored or ineffective respirations or heart rate <100/min. after 60 seconds should prompt positive pressure ventilation by self-inflating bag, flow-inflating bag, or T-piece connector. Initial positive pressure ventilation should start with air (21% oxygen), with supplemental oxygen given to target preductal pulse oximetry norms.
- Heart rates <60/min. despite effective positive pressure ventilation should prompt chest compressions using the 2-thumb-encircling-hands technique at a 3:1 ratio of compressions to ventilation.
- Intubation is indicated for ineffective or prolonged bag-mask ventilation, chest compressions, or congenital diaphragmatic hernia.
- Laryngeal masks are an alternative to intubation for newborns at ≥34 weeks of gestation.
- When feasible, consider induced therapeutic hypothermia for infants born at >36 weeks of gestation with moderate-to-severe hypoxic-ischemic encephalopathy.
- Consider termination of resuscitative efforts if the 10-minute Apgar score is 0 and heart rate is undetectable.

What’s Changed

- For infants born through meconium-stained amniotic fluid, routine intubation for tracheal suctioning is no longer recommended, even in infants with poor muscle tone and inadequate breathing efforts.
For newborns requiring resuscitation, use 3-lead electrocardiography (ECG) in addition to palpation to assess heart rate.

**Comment:** These recommendations are largely unchanged from the 2010 guidelines. Two key changes include not intubating infants born through meconium-stained amniotic fluid and use of 3-lead ECG to assess heart rate.

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