

3.06 NEWBORN CARE AND DELIVERY ROOM MANAGEMENT

Introduction

Pediatric hospitalists are increasingly called upon to provide care for the immediate newborn. For those who provide these services, the components of this care vary and may include any combination of routine newborn care, level II and above neonatal intensive care, delivery room management, neonatal resuscitation and stabilization, or neonatal transport services. Rendering this care requires medical and procedural skills, as well as leadership and team skills while working with neonatologists, obstetricians, nurses, nurse midwives, advanced practice practitioners, primary care providers, and the family/caregivers. Pediatric hospitalists are well positioned to provide quality care for the newborn and to assure effective transition of care to home or to higher levels of support as needed.

Knowledge

Pediatric hospitalists should be able to:

- Describe the role of each team member commonly involved in newborn care, including the obstetricians, perinatologists, prenatal ultrasonographers/radiologists, nurses, advanced practice practitioners, lactation consultants, social workers, primary care providers, and others.
- Describe the skills needed to be an effective neonatal resuscitation team leader, including critical thinking, evidence-based decision-making, and effective communication.
- Define nursery care levels and the conditions that can be cared for at each level of acuity, while demonstrating knowledge and awareness of available resources.
- Describe the normal delivery process and the physiologic transitions of a newborn.
- Summarize the components of a complete newborn exam.
- Review the steps of neonatal resuscitation as recommended by the Neonatal Resuscitation Program (NRP).
- Describe the basic physiologic differences between preterm, late preterm, and term infants.
- Discuss common issues for preterm and late preterm infants including respiratory complications, temperature instability, feeding difficulties, hypoglycemia, infection, hyperbilirubinemia, and others.
- Discuss the impact of maternal factors and conditions on the fetus and newborn, including abnormal prenatal labs, diabetes, thyroid disorders, hypertension, and others.
- Discuss the impact of maternal use of prescription, non-prescription, and illicit drugs on the fetus and newborn.
- List symptoms of drug withdrawal and summarize the appropriate monitoring and management of the newborn at risk for neonatal abstinence syndrome (NAS).
- Compare and contrast the nutritional requirements of term versus preterm infants.
- Compare and contrast the benefits of breast milk, formulas, and supplements (Vitamin D, Iron) for term versus preterm infants.
- Cite examples where use of nutrition other than breast milk may be medically indicated.
- Identify when breastfeeding difficulties warrant additional support from lactation consultants.
- Review the components of common newborn screening tests, including state metabolic screening, hearing screening, critical congenital heart disease screening, car seat tolerance testing, and bilirubin screening.
- Review guidelines and recommendations for common newborn medications, such as immunizations for Hepatitis B, Vitamin K, and eye prophylaxis.
- Describe and differentiate between risk factors and pathophysiologic causes of hyperbilirubinemia requiring treatment for immediate newborns (first 1- 2 days of life) versus older infants.
- Discuss key elements in the assessment and management of newborns at risk for early onset sepsis, such as maternal antibiotic prophylaxis, presence of fever in the newborn, rupture of membranes, gestational age, and other factors.
- Describe the diagnostic and therapeutic approach toward newborns with common dysmorphisms including features associated with trisomies, ear pits, cleft-lip/palate, supernumerary digits, spinal dysraphisms, clubfoot, and others.
- Review risk factors for and pathophysiology of persistent fetal circulation/pulmonary hypertension of the newborn.
- Describe the diagnostic approach and differential diagnosis for a newborn with tachypnea, hypoxia, or cyanosis.
- Discuss the approach toward the newborn with hypoglycemia, including a summary of pathophysiology of glucose homeostasis, risk factors, diagnosis, and treatment.
- Discuss presentation and management of common birth traumas including clavicle fractures, brachial plexus injuries, and others.
- Describe the initial management and differential diagnosis for newborns with seizures.
- Review the role of prenatal ultrasound and describe appropriate post-birth follow-up of common findings including renal abnormalities, heart lesions, and others.
- List common clinical indications for an acute metabolic or endocrine work-up in newborns.
- Compare and contrast the characteristics of benign versus pathologic cardiac murmurs in this population, and give examples of indications for emergent echocardiogram and/or cardiology consultation.
- Describe the risk factors for developmental dysplasia of the hip, and the diagnostic and therapeutic approach to this condition.
- Explain specific goals that should be met to ensure safe transitions of care for this population, including recommendations for and timing of follow-up appointments.
- List commonly utilized resources to support the family/caregivers after hospital discharge, attending to global and potential special needs due to infant condition or the family/caregivers' needs.

Skills

Pediatric hospitalists should be able to:

- Lead a team in an NRP-based resuscitation for term and preterm infants.
- Provide initial care and stabilization for newborns requiring a higher level of care.
- Perform a physician exam to elicit signs related to conditions requiring subspecialty consultation and counseling, including cardiac anomalies, ambiguous genitalia, dysmorphisms, and others.
- Identify and provide initial care and stabilization for newborns with surgical emergencies such as gastrointestinal obstruction, diaphragmatic hernia, cardiac anomalies, and others.
- Identify newborns with respiratory and cardiac instability and initiate appropriate cardiorespiratory support.
- Order and correctly interpret expanded newborn vital signs, including 4-extremity blood pressure and pre/post ductal oxygenation testing.
- Select appropriate diagnostic studies and therapeutics for common newborn conditions such as jaundice, tachypnea, hypoxia, altered mental status, hypoglycemia, neonatal sepsis, jitteriness, and others.
- Interpret basic studies (such as laboratory tests and radiographs) and identify abnormal finding that require further testing or consultation.
- Demonstrate basic competency in performing procedures on this population according to local context, including lumbar puncture, intravenous and intraosseous access, intubation, placement of enteral tubes, placement of umbilical catheters, frenotomy, needle thoracentesis, circumcision, and others.
- Order and manage enteral and parenteral nutrition for term and preterm infants.
- Demonstrate skills in counseling mothers and the family/caregivers, based on current evidence and recommendations, about common topics, such as immunizations, circumcision, breast-feeding, vitamin K administration, provision of erythromycin ophthalmic ointment, and others.
- Demonstrate skills in communicating with the family/caregivers to diffuse anxiety and provide support, particularly when discussing the need for consultation or emergency care.
- Coordinate care with the primary care provider and subspecialists as indicated to arrange for the referral, transfer or hospital discharge for this population.
- Identify when maternal, familial, and/or environmental factors warrant social work consultation or other support and initiate appropriate referrals.

Attitudes

Pediatric hospitalists should be able to:

- Role model a high level of commitment, responsibility, and accountability in rendering care for newborns.
- Exemplify professional and compassionate behavior towards the family/caregivers at all times while providing care and discussing care options, including during the delivery process and in the nursery.
- Reflect on the importance of and benefits from coordinating care with other multidisciplinary members of the health care team, including social workers, case managers, developmental specialists, and lactation consultants.
- Recognize the importance of utilizing shared decision-making with the family/caregivers when addressing care options for newborns with complex issues, such as extreme prematurity, congenital anomalies, and other conditions.

Systems Organization and Improvement

In order to improve efficiency and quality within their organizations, pediatric hospitalists should:

- Lead, coordinate, or participate in the development and implementation of cost-effective, evidence-based care pathways to standardize the evaluation, management, and discharge process for newborns.
- Work with hospital administration, hospital staff, subspecialists, and other services/consultants to provide appropriate newborn resuscitation services and newborn care at all levels of acuity according to local context.
- Collaborate with hospital administration and community partners to develop and sustain referral networks between local facilities and tertiary care centers for newborns requiring higher levels of care.
- Promote or provide leadership for a newborn nursery or level II neonatal intensive care unit, in partnership with neonatologists and other subspecialists as indicated.
- Lead, coordinate, or participate in efforts to create and sustain in a process of continuous quality improvement in the nursery.

References

1. Weiner GM, Zaichkin J. *Textbook of Neonatal Resuscitation (NRP)*, 7th ed. Elk Grove Village, IL: American Academy of Pediatrics and American Heart Association; 2016.
2. Kilpatrick SJ, Papile LA, Macones GA and the AAP Committee on Fetus and Newborn and ACOG Committee on Obstetric Practice. *Guidelines for Perinatal Care*, 8th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2017.
3. AAP Committee on Fetus and Newborn. *Neonatal Care: A Compendium of AAP Clinical Practice Guidelines and Policies*. Elk Grove Village, IL: American Academy of Pediatrics; 2019.