

**FELLOWSHIP IN ADVANCED HOSPITAL TRAINING  
FOR FAMILY PHYSICIANS**

**NEONATAL ICU**

**Goals:**

- 1 Fellows will demonstrate competency with initial stabilization and resuscitation of the critically ill neonate.
- 2 Fellows will expand their experience in management and care of the premature and ill neonate, including but not limited to; respiratory distress syndrome, sepsis, intraventricular hemorrhage, nutritional problems, the drug exposed neonate, meconium aspiration, hyperbilirubinemia, fluid and electrolyte disorders, necrotizing enterocolitis and congenital malformations.
- 3 Fellows will gain the skills necessary for neonatal resuscitation, intubation, ventilator management, UVC/UAC line placement and lumbar puncture.
- 4 Fellows will be able to discuss prenatal prevention strategies to reduce morbidity and mortality of the neonate.

**Objectives:**

1. Explain and perform step in the stabilization and resuscitation of the critically ill neonate particularly: airway management, volume replacement, vascular access, chest compressions, management of meconium deliveries, and pharmacology of medications used during resuscitation.
2. Explain common causes of deterioration in the status of a previously stable NICU patient.
3. Demonstrate ability to function appropriately as leader or team member in neonatal resuscitations and codes
4. Evaluate and manage:
  - a. General:  
History of maternal infection, hypothermia, hyperthermia, IUGR, SGA, irritability, jitteriness, LGA, lethargy, poor weight gain.
  - b. Cardiorespiratory:  
Apnea, cyanosis, cardiac arrest, dysrhythmias, heart murmur, congenital heart disease, hypotension, hypertension, hypovolemia, respiratory distress, shock, bronchopulmonary displasia, pneumothorax, TTN, RDS, mec aspiration, PPH, PDA
  - c. Genetic/metabolic:  
Congenital/genetic disorders, dysmorphic syndromes, errors of inborn metabolism, metabolic derangements (Hypo and hyperglycemia, acid-base, sodium etc), infant of diabetic mothers, and infant of mother with thyroid disease.
  - d. Fluids and Electrolytes/nutrition:  
hypovolemnia, acid-base disturbances, electrolyte disturbance, nutritional management.
  - e. GI:  
Abdominal mass, failure to pass stool, abdominal distension, bloody stools, hepatosplenomegally, reflux, vomiting, diarrhea, biliary atresia, necrotizing enterocolitis, mec plug, diaphragmatic hernia, omphalocele
  - f. Hematologic:  
Anemia, nutropenia, thrombocytopenia, jaundice, petechiae, polycythemia, coagulopathy of the newborn.

- g. ID:
    - Sepsis, meningitis, nosocomial infections, pneumonia, herpes simplex, syphilis, varicella and other maternal infection exposures
  - h. Neurologic:
    - Birth trauma, hypotonia, macro-microcephaly, seizures, open neural tube defects, IVH, drug withdrawal, hydrocephalus, retinopathy of the newborn, hypoxic-ischemic encephalopathy, brain death.
  - i. Renal/Urologic:
    - Abnormal genitalia, renal mass, hematuria, oliguria, proteinuria, urinary retention, renal failure, hydronephrosis.
6. Demonstrate understanding of common diagnostic tests and imaging studies used in the NICU and use age appropriate ranges. (including indications, contraindications, complications, costs, and interpretation of results)
- a. CBC
  - b. Coombs testing
  - c. Blood chemistries
  - d. Renal Function tests
  - e. Hepatic function tests
  - f. Therapeutic drug concentrations
  - g. ABG and CBG
  - h. CSF
  - i. UA
  - j. Cultures
  - k. Newborn screening
  - l. Stool studies
  - m. Neonatal toxicologic screens
  - n. CXR
  - o. Abdominal xray
  - p. Crainial ultrasound
  - q. CT scans
  - r. MRI scans
  - s. Skeletal survey
7. Demonstrate the understanding as well as perform and utilize the monitoring techniques used in the NICU. (Including age appropriate ranges, indications, contraindications, complications, and interpretation of results)
- b. Physiologic monitoring of blood pressure, pulse, temperature and respirations
  - c. Pulse oximetry
  - d. Neonatal pain and withdrawal scales
  - e. Demonstrate the ability to perform and utilize the following treatments used in the NICU
  - f. Oxygen administration via cannula, mask, hood and Et tube
  - g. Positive pressure ventilation by CPAP, Bag mask, ET tube
  - h. Principals of ventilator management including intubation and extubation criteria
  - i. Administration of surfactant
  - j. Phototherapy
  - k. Umbilical arterial and venous catheterization.
  - l. Chest tube placement
  - m. Vasoactive drugs (pressors and inotropes)
  - n. Analgesics, sedatives, and paralytics
  - o. Enteral and parenteral nutrition
  - p. Blood and blood product transfusions

8. Perform Lumbar puncture, arterial puncture.
9. Attend NRP course prior to starting rotation.
10. Demonstrate effective teaching strategies for teaching medical students, residents, colleagues, other professionals and laypersons.
11. Participate effectively as part of an interdisciplinary team member.
12. Show appropriate consultation and effective communication.