



# Entrustable Professional Activities

## EPA 2 for Neonatal-Perinatal Medicine

### EPA 2: Manage Patients with Complex, Multisystem Diseases in the NICU

#### Supervision Scale for This EPA

1. Trusted to observe only
2. Trusted to execute with direct supervision and coaching
3. Trusted to execute with indirect supervision for most simple and some complex cases
4. Trusted to execute with indirect supervision but may require discussion of information conveyed for a few complex cases
5. Trusted to execute without supervision

#### Description of the Activity

Neonates and infants with complex multi-system illnesses pose a more challenging and critical activity for the neonatologist. The components of this professional activity build upon those of managing neonates and infants with common illnesses. Managing patients with acute, complex, multisystem diseases requires additional knowledge and skills.

The specific functions which define this EPA include:

1. Developing a complex management plan to provide care to infants with a broad range of complex diseases that affect multiple organ systems. In addition to addressing and documenting the primary problem, documentation of admission and discharge criteria, and nutritional plans, the management plan must also *address all comorbidities (actual and reasonably anticipated)* requiring attention during the entire hospitalization, and *case management issues* such as special resources required during and after hospitalization.
2. *Coordinating care* with the interdisciplinary health care team. The complex neonate and infant in the inpatient setting requires the input of the many professionals on the health care team (e.g., nutritionist, pharmacist, advanced practitioner, discharge planner, social worker, other subspecialists); thus, the entrusted professional must be able to communicate and partner with both interdisciplinary and intradisciplinary professionals. This activity includes reconciling disparate opinions from other health care professionals and coordinating and prioritizing their input.
3. Managing uncertainties (personal, team, and family) is a critical skill since much of the care for these patients is not known or determined clearly in the existing medical evidence.
4. Delivering bad news. Unforeseen errors, life-threatening complications, and poor outcomes are more common in neonates and infants with acute, complex, multi-system disease, and the learner must be entrusted to communicate effectively and compassionately with families.

#### Judicious Mapping to Domains of Competence

- Patient Care
- Medical Knowledge
- Practice-Based Learning and Improvement
- Interpersonal and Communication Skills
- Professionalism
- Systems-Based Practice
- Personal and Professional Development



# Entrustable Professional Activities

## EPA 2 for Neonatal-Perinatal Medicine

### Competencies Within Each Domain Critical to Entrustment Decisions

PC 9:	Counseling patients and families
MK 2:	Practicing EBM
PBLI 1:	Identifying gaps
ISC 4:	Working as a member of a health care team
SBP 2:	Coordinating care
PPD 8:	Dealing with uncertainty

### Context for the EPA

**Rationale:** Neonatologists must be able to provide care for neonates and infants with a broad range of illness, including those who present with complex illness involving multiple systems and those who deteriorate after presenting with common, single-system diseases. Although most newborns requiring the care of a neonatologist will present at birth, in some circumstances, neonatologists may be expected to provide care to infants who have previously been well and at home.

**Scope of Practice:** It is beyond the scope of this document to consider the variety of contexts in which the neonatologist will practice. This document is intended to address the scope of knowledge and skills of the neonatologist working in the NICU, with a specific focus on patients with complex, multisystem diseases. Although the document enumerates several specific conditions pertinent to this EPA, this list is **not** intended to be comprehensive. Rather, it seeks to provide common or high-stakes examples of disease that would be captured by this EPA.

### Curricular Components That Support the Functions of the EPA

1. Developing a complex management plan to provide care to infants with a broad range of complex diseases that affect multiple organ systems. In addition to addressing and documenting the primary problem, documentation of admission and discharge criteria, and nutritional plans, the management plan must also *address all comorbidities (actual and reasonably anticipated)* requiring attention during the entire hospitalization, and *case management issues* such as special resources required during and after hospitalization. Examples of such illnesses include (but are not limited to) the following problems:
  - Complex cardiopulmonary diseases of the newborn, including:
    - Persistent pulmonary hypertension of the newborn
    - Aspiration syndromes
    - Pulmonary hypoplasia
  - Extreme prematurity and associated complications, including:
    - Patent ductus arteriosus
    - Intraventricular hemorrhage
    - Periventricular leukomalacia
    - Necrotizing enterocolitis
    - Retinopathy of prematurity



# Entrustable Professional Activities

## EPA 2 for Neonatal-Perinatal Medicine

- Chronic lung disease of multiple etiologies, including those requiring tracheostomy
  - Congenital diaphragmatic hernia
  - Common chromosomal and genetic disorders, particularly those with Trisomies 13, 18, and 21
  - Congenital heart disease
  - Shock
  - Cardiomyopathy of multiple etiologies
  - Disseminated intravascular coagulation
  - Congenital hypotonia
  - Hypoxic-ischemic encephalopathy
  - Sepsis (bacterial, viral, or fungal)
  - Inborn errors of metabolism
  - Renal failure, including those requiring dialysis
  - Posterior urethral valves/prune belly syndrome
- Recognizes the interaction between different organ systems and anticipate the evolution of the disease processes. Initiate and appropriately utilize advanced therapies, including:
    - Ventilator modalities, including high-frequency ventilation and nitric oxide
    - Complex nutritional management, including parenteral and enteral nutrition
    - Therapeutic hypothermia, including initiation and/or timely referral
    - Cardiotonic and vasoactive medications
    - Extracorporeal membrane oxygenation (ECMO), including initiation and/or timely referral
    - Dialysis, including initiation and/or timely referral
    - Conscious sedation
  - Ensures appropriate follow-up for graduates of the NICU at the time of discharge. This process includes:
    - Educating the family about anticipated complications
    - Transitioning care to follow-up providers
2. Coordinating care with the interdisciplinary health care team. The complex neonate and infant in the inpatient setting requires the input of the many professionals on the health care team (e.g., nutritionist, pharmacist, advanced practitioner, discharge planner, social worker, other subspecialists); thus, the entrusted professional must be able to communicate and partner with both interdisciplinary and intradisciplinary professionals. This activity includes reconciling disparate opinions from other health care professionals and coordinating and prioritizing their input.
- Recognizes the need for consultation and requests such consultation in a timely fashion
  - Coordinates and prioritizes the input of multiple consultants
  - Considers the recommendations of other providers in the context of the patient's overall condition and prognosis
  - Reconciles disparate opinions among caregivers
  - Clearly communicates the therapeutic plan with the rest of the care team in written and verbal form
  - Ensures that the team functions efficiently and focuses on the health of the child rather than on any goals or priorities of individual team members
  - Addresses conflict directly and expeditiously



# Entrustable Professional Activities

## EPA 2 for Neonatal-Perinatal Medicine

3. Managing uncertainties (personal, team, and family) is a critical skill since much of the care for these patients is not known or determined clearly in the existing medical evidence.
  - Recognizes limits of knowledge and skills and seeks help when necessary
  - Searches for relevant, evidence-based literature to guide therapy when indicated
  - Approaches clinical problems with an open mind
  - Assesses the facts of the case and reconsiders them in light of new information as it becomes available
  - Acknowledges the uncertainty of outcomes and understands the parent's short- and long-term goals for their child's medical care
  - Maintains flexibility in response to:
    - Changes in the baby's condition
    - Changes in the perspective of the baby's parents
  - Advocates transition to comfort care in the setting of futility
  - Ensures end-of-life communication and care is provided in an empathetic and culturally sensitive way
4. Delivering bad news. Unforeseen errors, life-threatening complications, and poor outcomes are more common in neonates and infants with acute, complex, multi-system disease, and the learner must be entrusted to communicate effectively and compassionately with families.
  - Provides regular, timely, clear, open communication with parents and families
  - Identifies and abrogates barriers to communication
  - Encourages questioning and verifies understanding
  - Projects empathy and compassion while maintaining professionalism
  - Communicates in a culturally sensitive manner

### EPA Authors

Thomas Parker, MD, Susan Guttentag, MD, Ward Rice, MD, PhD

### Curricular Components Author

Thomas Parker, MD (lead), Patricia Chess, MD, Ward Rice, MD, Kris Reber, MD, Taylor Sawyer, MD