Newborn Critical Care Center (NCCC) Clinical Guidelines

NCCC-PICU ECMO Communication/Transfer Pathway

PURPOSE

To improve the communication, coordination of care and handoff between the NCCC, PICU, and Pediatric Surgery teams when caring for critically ill neonates that may qualify for Extracorporeal Life Support (ECLS or ECMO). ***Excluding CDH babies***

GOAL

Early identification of neonates that may benefit from ECMO followed by earlier consultation of the PICU and Pediatric Surgery teams. Early involvement of ECMO providers will allow adequate time to determine ECMO candidacy, provide a multidisciplinary team approach to optimize medical management, and if necessary, allow for safer transport to the PICU.

A. ECMO Candidates:

1. ***Inclusion Criteria:***
    a. Neonates with respiratory failure and/or pulmonary hypertension secondary to:
        1. Idiopathic PPHN
        2. Meconium Aspiration
        3. Pneumonia
        4. Sepsis
        5. RDS
    b. Moderate HIE is typically acceptable
    c. Gestational age ≥34 weeks, weight ≥ 2 kg *(Some variability, please call a consult if there is a question)*
    d. Clinical course exhibiting **ANY ONE** of the following*:*
        1. **Oxygenation index (OI) >30 for 3 hours** despite escalating intervention for PPHN
        2. **Acidosis and shock unresponsive** to medical management (requiring two inotropes at high doses)
        3. Two or more signs of **significant barotrauma**:
            (1) Pneumothorax
            (2) Pneumomediastinum
            (3) Pneumopericardium
            (4) Pneumoperitoneum
            (5) Subcutaneous emphysema (PIE)
            (6) Mean airway pressure (MAP) >20
            (7) Air leak ≥ 24 hours

2. ***Relative Exclusion Criteria:***

Taken from the UNC Healthcare Policy: Patient Selection Criteria for ECMO

a. Major lethal chromosomal anomaly or congenital anomaly
b. Gestational age < 34 weeks birth weight < 2000 g
c. Grade III or higher Grade IVH
d. Grossly abnormal neurologic exam
e. Prolonged CPR (> 30 min or > 1 occasion)
f. Immune suppressed with terminal disease
g. Non-reversible pulmonary or cardiac dysfunction
h. Non- correctable coagulopathy

B. Consult Process:

NCCC provider contacts:

1. PICU: Call PICU fellow phone 4-5488 (or page PICU attending on call)
2. Pediatric Surgery (Senior Resident or Attending on call)
3. The PICU and Pediatric Surgery representatives will be responsible for evaluating the patient, writing a note, and providing recommendations. The goal of the consult is to initiate a dialogue about the care of the patient.
4. Please note:
    - Calling a consult is NOT committing a baby to ECMO
    - If there are questions about candidacy, call a consult
    - Do not call the PICU with informational calls; call with requests for bed status or PICU consults

C. Transfer Process:

Taken from the UNC Healthcare Policy: Patient Selection Criteria for ECMO

Transfer babies who have failed maximum conventional therapy as listed below:

1. Need for manual ventilation, unrelated to nursing interventions, twice in 12 hours to maintain PaO_2 > 40 mmHg
2. Patients with OI > 40 for **30 minutes to 4 hours** on conventional ventilation
3. Patients with OI > 50 for **30 minutes to 4 hours** on high frequency ventilation
4. Acidosis and shock unresponsive to medical management (pH < 7.25 for > 2 hours or with significant hypotension despite inotropic support at high doses)
5. Signs of significant barotrauma *(See above list)*