Checklist: Initial Care of Newborns with Congenital Diaphragmatic Hernia (CDH)

Purpose:
To standardize the pre-delivery planning and initial care of newborns with CDH.

Care Coordination Prior to Delivery

- Review case at weekly meeting with the BCH AFCC team.
- Prenatal consults by pediatric surgery at BCH AFCC and neonatology at BWH.

When the mother is admitted in labor or 24 h before IOL or C/S

- NICU attending calls the Surgeon of the Day directly and the NICU charge nurse (NIC) calls 7S charge nurse (617-355-1957) to confirm bed availability.

Day of Delivery

Prior to Delivery

- NICU attending updates the Surgeon of the Day and the BWH NIC provides updates to 7S charge nurse.

NICU Team Preparations

- Triage RN moves Panda warmer, transport shuttle, and code cart into OR, sets up the warmer and CR monitor with EKG leads and pulse oximeter.
- NICU charge nurse calls L&D charge nurse to reserve an OR (if VD anticipated).
- DR resident identifies most recent estimated fetal weight, prepares documentation for transfer/discharge.
- Team huddle in NICU to assign roles as below and review delivery room management (Surgery, NICU, and OB attendings will have another brief huddle 5 min prior to delivery in L&D.)
    - Surgery attending will be present at all CDH deliveries.
    - 2 MDs from NICU (two neonatology attendings or a neonatology attending and a fellow both proficient in intubation)
        - When available, a second attending neonatologist will be present as backup
    - MD1 will be the code leader and MD2 will manage the airway
        - If central UV access is needed, the code leader will determine whether MD2 can do it or MD1 or another person will be assigned.
    - DR resident assigned as recorder to keep track of time and to assign Apgar scores

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   - 2-3 RNs who will place O2 saturation probe on RUE, monitor vital signs, and obtain peripheral IV access
   - Respiratory therapist (RT)
   - Unit coordinators to call security to facilitate elevator access at both hospitals
- MD2 and RT to set up airway supplies in the OR, including:
   - Preparing the appropriate size laryngoscope blade and cuffed ET tube. ETT size should be .5 less than what you would normally use. i.e. If you would normally use a 3.5 (based on EFW from the last OB US), then set up a 3.0 cuffed ETT.
   - Checking the bag and setting up the blender to 100% O_2.
- MD2 and RNs set up UVC supplies:
   - 5 Fr single lumen if expected weight > 2.5 kg, 3.5 F single lumen if expected weight < 2.5 kg, sterile umbilical tie, sterile betadine swaps
   - Prime the UV line with sterile NSS
- Order medications and fluids are prepped based on the most recent estimated fetal weight, including:
   - Fentanyl 1 mcg/kg (to be prepared in single dose syringes prior to delivery and to be used after intubation, if needed)
   - D10W – to be infused at a rate of 60 mL/kg/day via peripheral IV
   - Epinephrine (1:10,000 solution) - 0.03 mg/kg (to be used during transfer should resuscitation be needed)

Delivery Room Management
(Goal is to initiate transport to BCH 7S within 10-20 minutes of delivery)

- NO delayed cord clamping – NICU attending neonatologist will communicate this to the Obstetrician prior to delivery.
- Neonatologist (MD1) leads the resuscitation with surgery attending functioning as a consultant.
- Resuscitative support will be provided according to NRP guidelines (except will use 100% oxygen throughout).
- First 60 seconds:
   - Standard initial newborn care with suctioning and drying and airway/breathing assessment
   - RN1 checks heart rate, then places EKG leads
   - RT/RN2 places pulse oximeter and provides 100% blow-by oxygen
   - MD2 prepares for intubation in all cases regardless of respiratory effort.
- Second 60 seconds:
   - MD2 intubates with cuffed ETT (see above for size)
     (MD1 is the first back-up for intubation. If intubation attempts by both MD1 and MD2 are unsuccessful, then at the discretion of the neonatologist, another neonatologist, anesthesiologist or surgery attending physician will provide back-up for the 3rd intubation attempt.)
   - Confirm ET placement by end-tidal CO2
   - Secure the ETT with tape and inflate the ETT cuff.
   - Provide Ventilation with 100% FiO2, high rate (60/min) and low PIP/PEEP (18/5); switch to Neo Puff from manual ventilation when SaO2 and HR are stabilized.
- RN places a Replogle tube via the nares and suctions gastric contents.

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- RN places PIV; if PIV attempts unsuccessful by 5-6 min of life, MD2 places low-lying UVC and sutures the line in place
  - Potential for transfer to BCH without iv access should be discussed at the huddle for term infants
  - Start PIV and D10W infusion (60 ml/kg/d) for IUGR or GA < 37 weeks
  - Administer Vit K and erythromycin eye ointment
  - Obtain blood for NBS during iv placement
- For bradycardia:
  - HR< 60; chest compressions and epinephrine per NRP Guidelines.
- Prior to transport, a time-out will occur between the NICU MD1 and the surgery attending to confirm that both agree that the baby is sufficiently stable for the transport.
- BWH NIC or one of the RNs will call BCH 7S charge nurse as the team is leaving from the OR.
- Transport to BCH 7S – if the baby is unstable, the NICU attending must accompany the baby in transport.
- Upon arrival to 7S, the NICU attending/fellow provides sign-out to the 7S attending and fellow and the surgical attending and fellow.

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