SLN BPD Prevention Bundle 2025

Scope: All infants <32 weeks PMA at birth

v.11-10-25

Antenatal Corticosteroid Administration (1a)

Resuscitation (Micropremie huddle prior, debrief after, tracking sheet) (1b-NRP)

- Resuscitation w/ blended O2 (FiO2 0.21-0.3) & titrate to achieve pre-ductal sat of >85% by 10 min of age.
- Minimum occlusive mask/prong CPAP ≥5 if spontaneous breathing (no RAM/HFNC)
- Golden Hour (lines in/top down <1hr)
  - Intubate all born at 22&23 weeks (Klein, Tiny Baby C.)
- Transport to NICU on vent if intubated in DR or CPAP device

Post-Resuscitation

- Caffeine 25mg/kg load, 10/kg maintenance- admission orders (1a &1b)
- Monitor fluids/Na intake to prevent fluid overload (Small baby guidelines) (2b)

Initial Non-Invasive Management

- Occlusive NIV NAVA, NIPPV, CPAP
- Avoid de-recruitment until in an active weaning phase. 2 person cares.

Surfactant Deficient RDS Management (RDS-NExT , 2023)

Intubated – Surfactant ASAP

nCPAP/NAVA/NIPPV PEEP/MAP ≥ 6 if <28 wk, ≥7 if >28 wk

- FiO2≥0.3 early (<=2 hr) OR (INSURE/LISA/MIST)
- FiO2>0.4 late (>2hr) (NIV-SUPPORT, COIN trials)
- pH <7.25, pCO2 >60
- ≥26 Wk Consider INSURE/LISA

Repeat Surfactant (still intubated) –

- <25 wk: FiO2 > 0.3 OR MAP >8 cmH20
- >25 wk: FiO2 >0.4 OR MAP >10 cm H20

Oxygen Management

- Blended oxygen until on LFNC and >35 weeks (1b)
- Saturation targets (90-95%), Histograms in future? (SUPPORT Trial 2010)

Ventilator Management (Daily discussion of settings in rounds)

- **TCOM,** Goal CO2 1st week of age 45-55, > 7d of age 50-60. pH>7.2
- **HFJV** – 22/23/+/-24wk GA, sick, PIPs>25 on PRVC, consider for severe FGR (2b)
  - Avoid hyperinflation
  - Initial settings – peep 5-6, rate 300-420 (lower rates if concern for hyperinflation)
- **Conventional**
  - **PRVC** as initial mode **(Ok to use Edi to evaluate respiratory effort)** (2a)
    - **Initial settings – TV 5ml/kg, peep 5-6, Ti 0.3s, limiting pressure 25**
  - **INV Nava** – requires mature respiratory drive – **Future criteria to be developed**

Extubation Criteria

- **22/23/24 GA**
  - Min 1 wk. Tolerating full fds? Size >BW?
  - FiO2 <0.3, MAP <=8, PCO2 <60
- **≥25 GA**
  - FiO2<0.4
  - MAP <= 10, PIPs 13-16/PEEP <=6

Extubation Failure (DIVA study)

- FiO2 incr >20% from pre-extub for >2hr
- pH <=7.2, pCO2 >65 (<72 hr), >70 (>72 hr)
- ≥6 A/B requiring Stim or >1 A/B requiring PPV in 6 hr
- Other concern at discretion of Provider

Corticosteroids for Management & Prevention of BPD – Use closest day in 1st month **(NICHD 2022)**

PDA management algorithm (echo at 7-10 days if remains on positive pressure)

BPD Ventilation Management – High TV, low rate/ Invasive NAVA - Future project

Non-Invasive Management

- Extubate to Occlusive CPAP/NIPPV/NIV NAVA - PEEP 5-8 **(ECLAT Trial 2023, DIVA trial)**
- May attempt RA trials weekly starting at 32 wk CGA if stability criteria met

Stability Criteria for RA Trial (met x >24 hr):
Peep +5 for <36 wk (potentially higher for older/bigger or on RAM)
FiO2 21-25%
No increased work of breathing, RR<70, no ≥ moderate A/B/D
Tolerates up to 15 min off CPAP for cares

- If fails RA trial due to desaturations only – may trial LFNC (≤1/4 LPM 100%)
- If fails RA/LFNC trial replace occlusive CPAP (mask/prongs, not RAM) **(McEvoy 2025)**

Weaning Criteria for CPAP:
Typically 1 x per week (allow for growth)
FiO2 </=25%
No significant WOB, RR<70
No ≥ moderate A/B/D
If >37 weeks, BSRI scores ≥7

Non-occlusive CPAP

- May consider once >34 weeks and can achieve same level of respiratory stability
- RAM preferred, PEEP will likely need to be set 2-3 higher to maintain same level of support therefore best success with this change will be from occlusive CPAP of +6 or less
- If HHHFNC interface chosen, would treat as if on RAM for this population
- Strict attention to interface securement/care
- RA/LFNC trials weekly when meets criteria of 21-25% FiO2 and occlusive PEEP 5-6 , RAM or HHHFNC flow of 7 or less. No need to wean below flow of 5.
- Oral feeding on CPAP/RAM/HHHFNC –
    - >37 weeks, BSRI scores ≥7
    - Infants with G2 or G3 BPD that meet OT/SLP stability criteria (see BPD oral feeding guideline)

Airway evaluations are considered if inability to wean PEEP, stridor, multiple failed extubations

Pulmonary/BPD team consult ~ 36 weeks for Jensen grade 2 and 3 BPD babies