Infants with BPD: Weaning Strategies from Assisted Ventilation

**Preterm Infant (> 28 d) with Evolving/Established BPD on Invasive Mechanical Ventilation**

MAP < 10, FiO2 < 0.4

- Consider the following 24 h prior to extubation:
  - Caffeine bolus
  - PRBC tx if hct < 30-35
  - Furosemide 1-2 doses if any evidence of fluid overload, pulmonary edema, or with PRBC tx

First extubation attempt to CPAP\(^a\) or NIPPV\(^b\)

**Successful**

- Continue NIPPV or CPAP for 2-3 d
- Transition to bubble CPAP (BCPAP) (7-8 cm H\(_2\)O) if FiO2 < 0.3 and RR < 70-80
- Wean BCPAP by 1 cm H\(_2\)O every 3-5 d if FiO2 < 0.3\(^d\)
- Trial of RA/LFNC O2 when BCPAP 5 and RA for 3-5 d and PMA > 32 wks\(^d,e\)
- Transition from BCPAP to HFNC (3-4 lpm) if unable to wean to RA/ LFNC > 36 wks PMA and/or nasal trauma
- Wean HFNC by 1 Lpm every 2-3 d until 2 Lpm, then trial of RA/LFNCO\(^d\)

**Unsuccessful\(^c\) or MAP > 10 and FiO2 > 0.4**

- Consider low dose dexamethasone or prednisolone Rx if PMA > 36 wks
- Wean ventilator settings as tolerated and reattempt extubation within 3-4 d

\(^a\) Suggested initial CPAP settings, 8-9 cm H\(_2\)O; if trial of CPAP fails\(^d\), trial of NIPPV before reintubation

\(^b\) Suggested initial NIPPV settings [17]:
  - Rate: initial 10, max 40;
  - PIP: initial 10 above PEEP, max 18;
  - PEEP: initial same as when intubated, max 8

\(^c\) Extubation failure criteria:
  - one episode of apnea requiring bag mask ventilation (BMV) or
  - more than six episodes of apnea requiring stimulation in a 6-h period or
  - more than 100% increase in baseline FiO2 for more than 4-6 h (for example from 30% to 60%) or
  - significantly increased work of breathing and/or RR >80 consistently

\(^d\) Criteria for failure to wean or discontinue CPAP/HFNC:
  - more than 20% increase in baseline respiratory rate for more than 4-6 h or
  - more than 30% increase in baseline FiO2 requirement for more than 4-6 h (for example from 30% to 40%) or
  - LFNC O2 requirement > 200 ml for more than 4-6 h

\(^e\) Return to previous settings if unable to wean based on criteria defined in \(^d\)