St Luke's Children's Hospital

INITIAL NIPPV AND WEANING GUIDELINE ON AVEA/FLEXITRUNK (<28 WKS AT BIRTH)

v.12-11-20

INITIAL NIPPV SETTINGS: Total PIP 16, PEEP 6, Rate 20, i-Time 0.5 sec.

- Target initial MAP to approximate same as on ventilator, if just extubated
- Titrate to attain comfortable WOB, good 'roar,' appropriate blood gases
- MAX Settings: Total PIP 20-24, PEEP 8-10, Rate 50, i-Time 0.5 sec. (Note that max settings likely to be lower in acute phase; consider giving surfactant in acute phase if meets criteria.)

LAB WORK:

- POCT gases one hour following initiation and PRN (daily suggested if FiO2 >30%). Consider decreased frequency if TCOM in place and correlating, or if in chronic phase of lung disease.

MEDICATIONS:

- See Surfactant Delivery Guidelines.
- Caffeine 25 mg/kg IV x 1 load upon admission, then 10 mg/kg IV q 24hrs.

ADDITIONAL CONSIDERATIONS:

- CXR within 24 hours and PRN to assess for over/underinflation.
- Strict avoidance of overtightening headgear straps and pressure/folding of ear pinna.
- Transcutaneous pCO_2 monitor if skin integrity allows.
- Minimize time "off" NIPPV (<30sec) when switching mask/prongs to avoid atelectasis.

BLOOD GAS CRITERIA FOR NIPPV MANAGEMENT:

Age		Immediate Evaluation *Notify Provider* Recheck gas 30-60" after intervention	Increase PIP or rate pCO2	Hold pCO2	Wean PIP or rate pCO2	Immediate Evaluation *Notify Provider* Aggressive Wean Recheck gas 30-60"
0-72h	ABG/CBG	pH <7.2 OR pCO2 >70	56-70	45-55	40-45	pH >7.45 OR pCO2 <40
3+days	ABG/CBG	pH <7.2 OR pCO2 >70	66-70	50-65	40-49	pH >7.45 OR pCO2 <40

- Notify Provider if FiO2 >50% or rapidly increasing, or for worsening of A/B/D severity.
- Any value in "immediate evaluation" category takes precedence.
- Any gas rechecks due to "immediate evaluation" category are in addition to routinely scheduled gases.
- Titrate settings until stable in Hold range for 72h, then proceed to Weaning Approach.

WEANING APPROACH:

- Wean slowly as tolerated until Maintenance Settings reached.
- PIP changes should generally be by 1-2cm/change. Rate changes should be by 5-10 breaths/change.
- **Maintenance NIPPV Settings:** Total PIP 16; Rate 10-20; PEEP 5-7 (based on FiO2, inflation)
- At ~27wks CGA, begin weaning towards CPAP Criteria over ~1wk.

CPAP CRITERIA:

- Wean toward a mean airway pressure on NIPPV settings that can be approximated by straight CPAP by 28wks.
- Infants should generally be maintained on NIPPV until 28wks CGA prior to attempting CPAP
- Consideration may be given to trial of CPAP earlier than 28wks CGA in select infants with abd distention, however there should be low threshold for returning to NIPPV as evidence shows this decreases risk for reintubation.
- Once infant reaches 28wks CGA, refer to CPAP/BPD Guideline
- If unable to wean to CPAP by 29wks CGA, assess infant for other modifiable risk factors.

EXTUBATION FAILURE CRITERIA:

v.5-10-19	Initial Intubation Criteria /Extubation Failure Criteria/Reintubation Criteria
Considerations	• Intubation should occur if criteria below are met on NIPPV
FiO2	Initial intubation: >40% for >2h Extubation failure or reintubation: >50%
pH	<7.2 (and CO2 as below, i.e. not metabolic)
pCO2	0-72h: 65 3+days: 70
Apnea	≥6 apnea episodes or significant bradys requiring stimulation in 6 consecutive hrs OR >1 episode requiring PPV in 12h shift
Other	Always allow provider discretion for "urgent need"

- If extubation fails, consider conventional ventilation after reintubation.