# Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guidelines/Treatment Protocols

## High-Flow Nasal Cannula (Pediatric)

Patient with moderate to severe sustained retractions or sustained hypoxia <88% not improved with SUPPORTIVE MEASURES (see box) and 2 LPM conventional nasal cannula or infant with apnea responsive to stimulation. (See box.)

↓

- Page respiratory therapist.
- Page pediatric hospitalist.

↓

- Activate medevac.
- PREPARE PATIENT. (See box.)

↓

- RT to start high-flow nasal cannula with pediatrician consultation.
- Low-flow cartridge to be used with neonatal/ infant cannula and produces flow rates of 1-8 LPM. This should only be used in patients ≤ 4 kg.
- High-flow cartridge to be used with larger cannula and produces flow rates of 5-40 LPM.

↓

Initial Settings
See Flow Rates box to left.
FiO2 50%, 37°C.
For newborns, consult neonatologist.

↓

Titrate flow by 1 LPM increments over first 3 minutes until improvement in WOB.
If patient is worsening on high flow rates, consider a lower flow rate.

↓

Titrate FiO2 to maintain sats >92%.

↓

Frequent gentle nasal suction as needed.

↓

Reassess at least every 20-30 minutes.

↓

**Signs of Clinical Improvement**
- ↓RR
- ↓retractions
- ↓irritability
- improved air movement
- decreased apnea

↓

Maintain current settings until medevac arrives.

**If no improvement**, consider obtaining ANMC PICU consult, checking blood gas, increasing supportive measures, intubation, etc.

---

**REMEMBER:**

- No pediatric patient may be kept at YKDRH on HFNC unless medevac is on weather-hold.
- Maintain patient on HFNC until medevac arrival.
- Requirements for HFNC:
  - □ The patient must have 1:1 nursing care until he/she has stabilized. After stabilization, nursing care may be 2:1 until medevac arrival.
  - □ The patient must have a respiratory therapist at bedside until stabilized.
- All newborns on HFNC must remain in the nursery.

**Apnea**

If patient has apnea with poor or worsening response to stimulation, prepare for intubation.

**Flow Rates**

Titrate flow to 0.5-2 LPM/kg.
Younger patients often require higher flow rates per kilogram.
Consult the PICU for any patient requiring >1 LPM/kg.
Listen to lungs with each adjustment. If child is unable to easily exhale or complete an exhalation, decrease flow rate until exhalation is adequate.

**Troubleshooting**

- Consider NG/OG-tube for decompression.
- Use a pacifier to keep the patient's mouth closed and prevent loss of pressure. Consider Sweet-Ease.
- Try environmental changes to comfort a fussy baby: caregiver may hold patient in semi-recumbent position, patient may be swaddled, patient may be fanned if hot, lights may be dimmed, etc.
- Consider mild anxiolysis in consultation with medical control.
- Consider higher levels of flow to improve washout.

**SUPPORTIVE MEASURES**

- Control fever, as it can be an independent cause of respiratory distress.
- Nasal suction ± nasal saline or saline nebs.
- IV hydration.
- Consider back-to-back or continuous albuterol.
- Consider phenylephrine 0.25%, 1 spray to each nostril once.

**PREPARE PATIENT**

- Make patient NPO.
- Ensure reliable IV access.
- Suction nares well.
- Choose a nasal cannula with prongs that do not occlude more than 50% of the nares.
- Position patient: optimal patient position is semi-recumbent, not supine or upright. Consider using blue seat (stored in the ED) with adjustable angle. Use blankets and towels for shoulder rolls and to support position and ensure patient is not slumping over. Caregivers may hold the child if it helps keep him/her calm as long as the child is at a ~45 degree angle.
- To prevent condensation causing problems, place patient at a higher level than unit and clip tubing to patient's clothing.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Click **here** to see the supplemental resources for this guideline.
Approved by Clinic Guidelines Committee 11/27/22.
**If comments about this guideline, please contact Amy_Carson-Strnad@ykhc.org.**