Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guidelines/Treatment Protocols

High-Flow Nasal Cannula (HFNC) for Pediatric Patients

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.
- Prior to starting HFNC, physicians, bedside nurses, charge nurses, and RT will huddle to determine which unit will care for the patient. This will be decided on a case-by-case basis. Considerations include:
  - □ How long is the patient expected to remain at YKDRH? Will that time exceed the time provided by an H-cylinder?
  - □ How much risk will be added by moving the patient after stabilization on HFNC?
  - □ Experience level of nurses who will care for the patient.
- All newborns on HFNC must remain in the nursery.

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.

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

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Page respiratory therapist.

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Page pediatrician on-call.

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- Determine optimal patient location with team.
- Activate medevac.
- PREPARE PATIENT (see box).

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RT to start high-flow nasal cannula with pediatrician consultation.

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

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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.

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Titrate FiO2 to maintain sats >92%.

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Frequent gentle nasal suction as needed.

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Reassess at least every 20-30 minutes.

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

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Maintain current settings until medevac arrives.

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

SUPPORTIVE MEASURES
- Control fever, as it can be an independent cause of respiratory distress.
- Nasal suction.
- IV hydration.
- Consider back-to-back nebs with albuterol or normal saline.
- Consider phenylephrine nasal spray to each nostril once.
- Consider hypertonic saline nebs q6h.

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 blanket rolls 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.

NOTE:
- 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.

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.
Approved by MSEC 4/14/20.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.