PEDIATRIC EBOC EVIDENCE BASED OUTCOMES CENTER

High Flow Nasal Cannula Weaning Pathway:

1. Inclusion Criteria

- Respiratory distress with diagnosis of bronchiolitis who have failed to respond to low flow oxygen

2. Exclusion criteria

- Neonates in special care nurseries

3. Contraindications

- Nasal obstruction
- Ingestion/toxins
- Life threatening hypoxia/apneas/hemodynamic instablility
- Trauma (maxillofacial/suspected base of skull fracture/chest)
- Pneumothorax
- Foreign body aspiration.

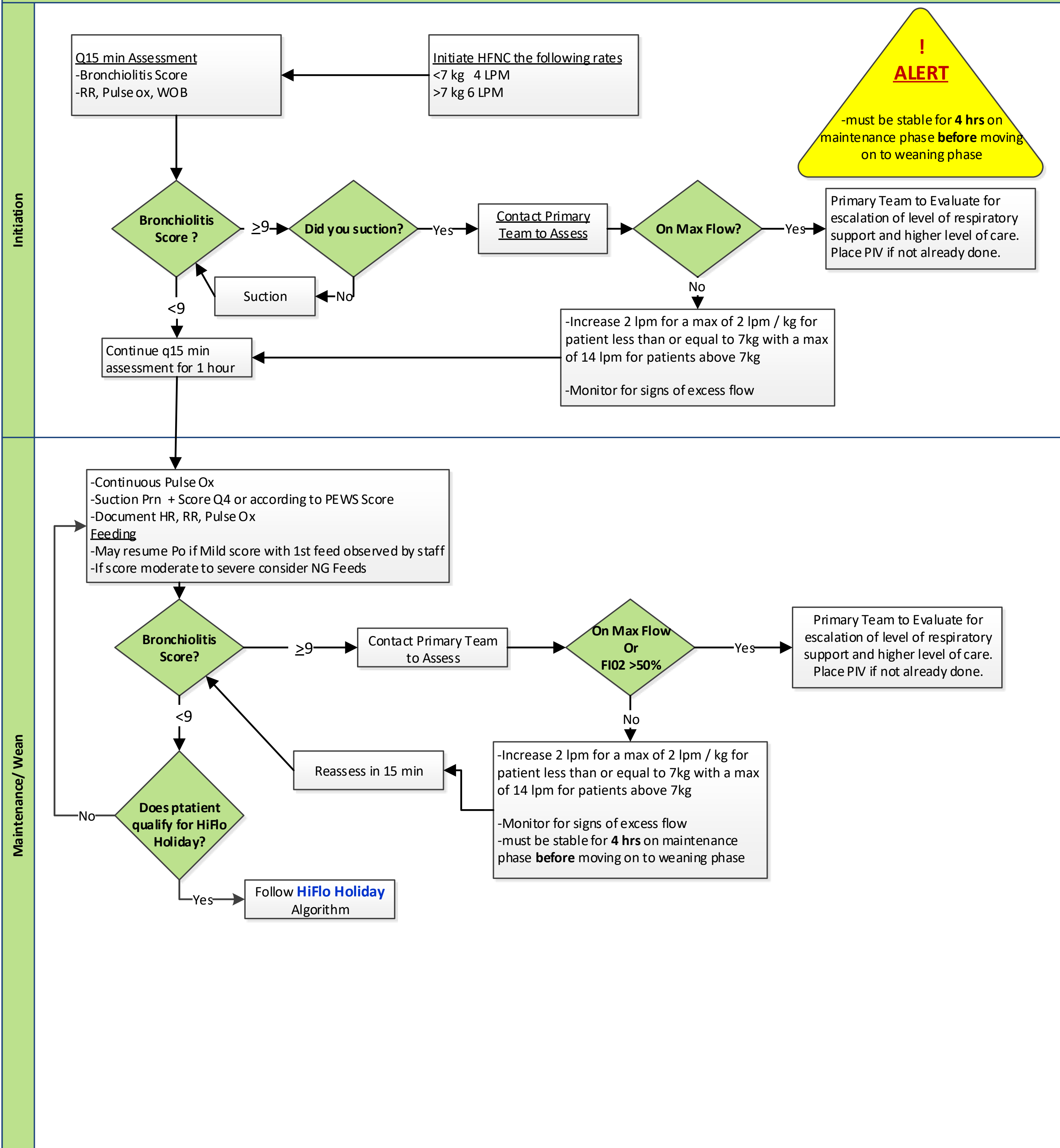
Proceed with caution in those with:

- Decreased level of consciousness (LOC)
- Congenital heart disease
- Asthma
- Chronic lung disease

Reference:

New South Wales (2016). Humidified High Flow Nasal Cannula Oxygen Guideline for Metropolitan Pediatric Wards and Eds.

DCMC HFNC Initiation, Maintenance, and Weaning Pathway



dell children's
Ascension

Last Updated November 28, 2021

DCMC HFNC Holiday Protocol

PEDIATRIC EBOC EVIDENCE BASED OUTCOMES CENTER

Patient Ordered on Bronchiolitis Protocol and qualifies for HFNC use

EXCLUSION CRITERIA:
- Born <32 weeks gestation
- Cardiac disease requiring home medications
- Chronic lung disease or on home oxygen
- Significant neuromuscular disease

- Assess Q4H for clinical improvement and Holiday Readiness
- Wean FiO_2 to maintain SpO_2 >88 asleep and 90% awake
- Optimize suctioning and hydration
- Continue current local weaning practices.

Does patient meet all of the following criteria?
1. $FiO_2 \leq 40\%$
2. SpO_2 > 90% while awake and > 88% while asleep
3. HR within normal limits while calm?
4. Score <9 b-litis pathway

No → return to assessment

Yes →

Start High Flow Holiday BID
- All Flow Rate with FiO_2 above 21% change to 2 lpm at 100%
- All Flow Rate with FiO_2 at 21% take off HFNC and keep on RA
- Monitor in room a minimum of 5 minutes- if immediate deterioration, place back on previous HFNC settings

- Reassess within 30-60 minutes to evaluate Holiday outcome
- Document Holiday Outcome in EHR

Clinical Decompensation while calm
- Severe WOB (increased retraction or severity)
- Increased HR greater than 20 bpm
- Increased respiratory rate by 10 bpm

NO Pass
Return to previous settings

HR, RR, WOB acceptable but SpO_2 <90% awake, 88% asleep?

PASS TO LFNC
Titrate nasal cannula to meet SPO_2 goals up to 2 lpm.

HR, RR, WOB acceptable and SpO_2 > 90%

PASS
Wean NC 1 lpm or leave on RA.

Patient Label

Date/Time________________________

Bronchiolitis Assessment Scoring (BAS) Tool	0	1	2
RR	• <2 mos: <50 • 2-12 mos: <40 • >1 yr: <30	• <2 mos: 50-60 • 2-12 mos: 40-50 • >1yr: 30-40	• <2 mos: >60 • 2-12 mos: >50 • >1yr >40
FiO2 AND O2 sat	≤24% & >90%	25-39% & >90%	≥40% & >90%
Breath Sounds (crackles don't change score)	Good air movement, few crackles, few wheezes	Decreased air movement, I-E wheezes, or crackles	Diminished or absent breath sounds, with severe wheezing, prolonged expiratory phase, crackles.
Work of Breathing	None, to mild subcostal retractions, abdominal breathing	Moderate retractions, nasal flaring	Severe retractions, nasal flaring, grunting, head bobbing
Mental Status	Normal to mildly irritability	agitated, restless	Lethargic
Color	Normal	Pale	Cyanotic
TOTAL	(calculate total score from all rows)		

Total Score

Mild = Weanable Score of 0-3

Moderate = Maintain = score of 4-8

Severe = increase support = score of 9-12

EBOC Project Owner: Jennifer Simpson
Approved by the Bronchiolitis Team and the Evidence Based Outcomes Center (EBOC)

<u>Revision History</u>
Date Approved: October 2019
Revised: November 2021

Revision Changes:
(*Nov 2021*) - DCMC participated in a national quality improvement collaborative through the AAP Value in Inpatient Pediatrics (VIP) Network addressing the overutilization of High Flow nasal Cannula (HFNC) in the treatment of bronchiolitis. Implemented HIFLOF Holiday protocol; updated HIFLO algorithm.

<u>Bronchiolitis EBOC Team:</u>
Toni Wakefield, MD
Dory Collette, RN
Jessica Overgoner, MSRC, RRT-NPS
Emily Mcspadden, MSN, RN
Jorge Ganem, MD
Jennifer Simpson, RRT
Frank James, MBA, PMP

<u>EBOC Committee:</u>
Sarmistha Hauger, MD
Terry Stanley, DNP, RN, NE-BC
Deb Brown, RN
Sujit Iyer, MD
Tory Meyer, MD
Nilda Garcia, MD
Meena Iyer, MD
Michael Auth, DO

<u>Revision Team:</u>
Donald Williams, MD
Joseph Tayar, MD
Jessica Overgoner, MSRC, RRT-NPS
Lynn Thoreson, DO
Hetal Gadhia, MD
Jennifer Simpson, RRT
Carmen Garudo, PM

<u>EBOC Committee:</u>
Sarmistha Hauger, MD
Patty Click, RN
Amanda Puro, MD
Sujit Iyer, MD
Tory Meyer, MD
Nilda Garcia, MD
Meena Iyer, MD
Lynn Thoreson, DO

Please cite as:
Dell Children's Medical Center, Miner G, Simpson J, Stanley T, Toth B, Machen R, Click P, Boswell P, 2017. Bronchiolitis Clinical Pathway. Available: https://www.dellchildrens.net/wp-content/uploads/2015/10/DCMCBronchiolitisGuideline1.pdf

LEGAL DISCLAIMER: The information provided by Dell Children's Medical Center of Texas (DCMCT), including but not limited to Clinical Pathways and Guidelines, protocols and outcome data, (collectively the "Information") is presented for the purpose of educating patients and providers on various medical treatment and management. The Information should not be relied upon as complete or accurate; nor should it be relied on to suggest a course of treatment for a particular patient. The Clinical Pathways and Guidelines are intended to assist physicians and other health care providers in clinical decision-making by describing a range of generally acceptable approaches for the diagnosis, management, or prevention of specific diseases or conditions. These guidelines should not be considered inclusive of all proper methods of care or exclusive of other methods of care reasonably directed at obtaining the same results. The ultimate judgment regarding care of a particular patient must be made by the physician in light of the individual circumstances presented by the patient. DCMCT shall not be liable for direct, indirect, special, incidental or consequential damages related to the user's decision to use this information contained herein.