Pediatric Inpatient Admission for Bronchiolitis

Inclusion Criteria: Age 30 days – 23 months with viral respiratory symptoms +/- wheezing & increased work of breathing **(See Box 1 for Exclusion Criteria)**

Assess with Clinical Bronchiolitis Score (CBS) **on admit, transfer,** or **change in status**
(Ex: concern for clinical deterioration or change in PEWS)

Exclusion Criteria:
- Born < 32 weeks gestation
- Cardiac disease requiring home medications
- Chronic lung disease or on home oxygen or requires airway clearance support at baseline for any reason
- Significant neuromuscular disease (requires assistance with breathing and/or feeding); known or suspected dysphagia
- Presenting with apnea
- Patient requiring immediate HFNC, CPAP, BiPAP or intubation for respiratory failure

	0 – None	1– Mild	2 – Moderate	3 – Severe
Heart Rate	<2 mos: <160 bpm 2-11 mos: <150 bpm 1-2 yrs: <140 bpm	<2 mos: 160-180 bpm 2-11 mos: 150-170 bpm 1-2 yrs:140-160 bpm	<2 mos: 181-200 bpm 2-11 mos:171-180 bpm 1-2 yrs: <161-170 bpm	<2 mos: >201 bpm 2-11 mos:>181 bpm 1-2 yrs: >171 bpm
Respiratory Rate	< 2 mos: < 60 bpm 2-11 mos: < 50 bpm 1-2 yrs: < 40 bpm	< 2 mos: 60-70 bpm 2-11 mos:50-60 bpm 1-2 yrs: 40-50 bpm	< 2 mos: 71-80 bpm 2-11 mos: 61-70 bpm 1-2 yrs: 51-60 bpm	<2 mos: > 81 bpm 2-11 mos: > 71 bpm 1-2 yrs: > 61 bpm
Oxygenation	SpO2 ≥93% on room air	SpO2 90-92% on room air	SpO2 88-89% on room air **or** SpO2 ≥ 93% on low flow/supplemental O2	SpO2 < 88 % on room air **or** SpO2 < 93% on low flow/supplemental O2
Work of Breathing	None	Belly breathing or mild subcostal retractions	Nasal flaring and/or moderate retractions (intercostal, tracheosternal, or subcostal)	Any severe retractions, head-bobbing, and/or grunting
Auscultation			Diminished breath sounds, diffuse wheeze, or marked prolonged expiration	Severe diffuse wheeze breath sounds becoming inaudible

CBS ≤ 6 with ongoing need for hospitalization

Maintain Inpatient Supportive Measures
See Additional Treatment Considerations
Scheduled rescore not required unless concern for clinical deterioration or assessing for discharge readiness
(See Box 5: Assessing Discharge Readiness)

Box 5: Assessing Discharge Readiness
Begin to score patient more frequently to assess for discharge, when:
- SpO2 ≥ 90% on room air
- None or only mild work of breathing
- CBS ≤ 4 (or expected score ≤ 4 on assessment)
- Using bulb syringe and improved suctioning burden
- Family received education and demonstrates ability to care for patient
- Able to maintain hydration

Discharge Criteria
- CBS 0-4
- O2 saturation ≥ 90% on room air
- Able to feed to maintain hydration
- Home-going education provided

Clinical judgement supersedes CBS, may initiate HIP if clinical concern at any score

CBS ≥ 7, ANY score with concern for deterioration, or PACT Called (@St. John – notify hospitalist)

Initiate HIP/PACT within 15-30 minutes and obtain full set of vitals

HFNC Initiation Pause (HIP)
- **Bedside huddle (MD/RT/RN) to assess patient/trial interventions prior to HFNC**
- Nasal suction with neo sucker and saline
- Administer an antipyretic for comfort if not already given
- Address hydration needs, consider bolus if clinically dehydrated
- Trial administration of humidified low-flow nasal cannula or increase to floor max (for saturation ≤90% and/or severe work of breathing requiring intervention)

Medical Team Determine HIP Outcome 30 min later:
Is the CBS improved? No signs of clinical deterioration?

YES

PASS
- Remains on division
  Continue low-flow cannula, if started
- Document HIP outcome (MD in note; RT/RN in communication notes)
- Continue bronchiolitis care per Inpatient Supportive Measures

NO

FAIL
- Initiate PACT (if not already done) OR direct transfer to PICU
- Place on CR monitor
- Document HIP outcome (MD in note; RT/RN in communication nots)

Discharge Education

Educate family on suctioning; dispense bulb suction (if available)	Provide bronchiolitis discharge brochure (if available)
Need for frequent feeding	Follow up with PCP (schedule preferably)
Smoking cessation handout (as indicated)	Return precautions

Oxygen Delivery Outside of ICU
See Patient Care Guideline: Oxygen Administration

Low Flow Nasal Cannula	Infants (0-10 kg) on ≤ 2 LPM Pediatric patients (10-20 Kg) on ≤4 LPM
High Flow Nasal Cannula	May be initiated in ED or PICU only; may be initiated on general divisions at discretion of PICU service while awaiting transfer to PICU

Inpatient Supportive Measures

Place in precautions based on viral testing

Feeds	• Continue oral feeding if low concern for dehydration and PO tolerated • Consider placing NG (over IV access) for patient admitted with poor oral intake/mild dehydration after shared decision making with family • Obtain IV access for patient clinically dehydrated requiring volume resuscitation or patient with significant respiratory distress with concern for clinical deterioration
Suction	• Does NOT need to be performed on a scheduled basis. Only as needed for secretions; may be helpful before feeding or sleep or can be performed to alleviate work of breathing • If increasing respiratory distress, suction first and re-score
Supplemental O2	• Humidified low flow nasal cannula not to exceed weight and floor limits. Use bubble humidifier if flow exceeds 1 LPM for neonates or 2 LPM for pediatrics • Wean as tolerated for SpO2 > 90% and improving dyspnea
Fever Management	• First line: acetaminophen 15mg/kg/dose every 6 hours prn for temp ≥ 38 C • Second line (only if > 6 months of age): ibuprofen 10mg/kg/dose every 6 hours prn for temp ≥ 38 C and inadequate response 60 minutes after first line dose
Phenylephrine 0.125% Nasal	• 1 spray in each nostril X1 dose for ongoing suctioning burden and/or for epistaxis in the setting of suctioning • Repeat as needed per MD order
Monitoring Plan	• Vitals and PEWS per floor standards; continuous pulse oximetry ONLY if on supplemental O2 • Discontinue continuous monitoring when SpO2 > 90% off supplemental O2 for 4 hours
When to repeat CBS	• As needed only - based on nursing clinical judgement, change in vital signs, or increase in PEWS
Additional Treatments	• See **Additional Treatment Considerations** that may be considered in select circumstances
Discharge Education	• See recommended elements of Discharge Education

Additional Treatment Considerations

Albuterol (Nebulized or MDI) Trial	• Studies have shown no benefit for albuterol treatment in infants with typical bronchiolitis • An albuterol trial may be considered in children with features suggestive of possible asthma (recurrent wheezing, age > 12 months, family history of asthma, prior inhaled corticosteroid use)
Nebulized Racemic Epinephrine	• Consider use in patients with increasing severe respiratory distress on severe algorithm; this may provide bronchodilator and/or airway clearance effects
High Flow Nasal Cannula	• Provides warm, humidified air with adjustable oxygen concentration and reduces work of breathing. Indicated only if not responding to supportive care • See HFNC Job Instruction to set-up treatment
Nebulized Hypertonic Saline	• Current research does not support a role for routine use of nebulized hypertonic saline in the ED or Inpatient unit
Antibiotics	• Do NOT prescribe antibiotics without evidence of bacterial infection. Consider further evaluation for possible bacterial superinfection or sepsis if patient is persistently febrile or tachycardic, toxic appearing, or worsening clinical status • See focal infection treatment or sepsis pathway