

# Bronchiolitis Clinical Care Guideline

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<p><b><u>Table of Contents</u></b></p> <p><a href="#">Clinical Management</a></p> <p><a href="#">Prevention</a></p> <p><a href="#">Telephone Triage</a></p> <p><a href="#">Clinical Assessment</a></p> <p><a href="#">Severity Classification</a></p> <p><a href="#">Monitoring</a></p> <p><a href="#">Diagnostic tests/Studies</a></p> <p><a href="#">Therapeutics</a></p> <p><a href="#">Caregiver Education</a></p> <p><a href="#">Discharge Criteria</a></p> <p><a href="#">Follow-up</a></p> <p><a href="#">Measures &amp; Targets</a></p> <p><a href="#">Figure 1</a></p> <p><a href="#">Figure 2</a></p> <p><a href="#">Figure 3</a></p> <p><a href="#">Figure 4</a></p> <p><a href="#">Admitting Orders</a></p> <p><a href="#">Parent Education Material</a></p> <p><a href="#">References</a></p>	<p><b><u>Target Population</u></b></p> <p><b><u>Intended for patients with:</u></b></p> <ul style="list-style-type: none"> <li>• Principle diagnosis: Bronchiolitis (acute respiratory illness associated with: nasal congestion, cough &amp; diffuse wheezing, crackles, tachypnea, &amp;/or retractions) ICD9 Codes: 466.1, 466.11, 466.19, 480.1</li> <li>• Age: 1 month to 15 months</li> <li>• Time: December through April</li> <li>• First time episode</li> </ul> <p><b><u>Not intended for patients with:</u></b></p> <ul style="list-style-type: none"> <li>• History of: CF, BPD, chronic cough, asthma, previous wheezing</li> <li>• Chronic respiratory condition requiring home O<sub>2</sub></li> <li>• Immunodeficiencies</li> <li>• Serious bacterial infections (SBI), toxic appearance</li> <li>• PICU/NICU admissions or vent ilator use</li> </ul>	<p><b><u>Key Treatment Principles</u></b></p> <p><b><u>Indicated:</u></b></p> <ul style="list-style-type: none"> <li>• Care path use beginning in the ED</li> <li>• O<sub>2</sub>, suctioning &amp; fluids</li> <li>• Careful clinical monitoring</li> <li>• Passive smoke avoidance</li> </ul> <p><b><u>Not routinely indicated:</u></b></p> <ul style="list-style-type: none"> <li>• Antibiotics</li> <li>• Chest X-ray, viral testing</li> <li>• Inhaled medications (unless proven benefit)</li> <li>• Steroids, chest physiotherapy (CPT)</li> </ul>
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*Please Note: Clinical care guidelines are designed to assist clinicians and patients make decisions about appropriate health care for specific clinical circumstances. 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 clinician in light of the individual circumstances presented by the patient and the needs and resources particular to the locality or institution.*

## Clinical Management

### 1. Prevention

- Droplet precautions for all care settings
- Good hand washing!
- Protect high risk patients from exposure
- Eliminate exposure to smoke
- Preventive medical therapies (RSV-IVIG or palivizumab) may be considered for high-risk patients

### 2. Telephone Triage

- **Activate EMS (911):** Severe difficulty breathing (struggling for breath, grunting noises with each breath, unable to speak or cry because of difficulty breathing). Blue lips. Child passed out.
- **ED, same day:** Underlying heart or pulmonary disease, breathing heard across room, poor fluid intake, fever above 105. Age less than 3 months, less than 1 year (respiratory rate [RR] above 60, unable to suck or sleep), greater than 1 year (RR above 40, difficulty breathing). Not interactive.
- **Phone contact with PCP:** Chronic or underlying illness, parental request
- **Office visit, next day:** Worsening cough, rhinorrhea, and/or low fever

### 3. Clinical Assessment

- Evaluate hydration status
- Evaluate the patient using the Bronchiolitis Severity Classification after nasal suctioning

### Bronchiolitis Severity Classification

<u>Mild Disease</u>	<ul style="list-style-type: none"> <li>• Alert, active, feeding well</li> <li>• None to minimal retractions</li> <li>• RR normal to mildly elevated (less than 50)</li> </ul>
<u>Moderate Disease</u>	<ul style="list-style-type: none"> <li>• Alert, consoles, feeding decreased</li> <li>• Minimal to moderate retractions</li> <li>• RR is mildly to moderately elevated (50 to 70)</li> </ul>
<u>Severe Disease</u>	<ul style="list-style-type: none"> <li>• Fussy, difficult to console, poor feeding</li> <li>• Moderate to severe retractions,</li> <li>• RR is moderately to severely elevated (greater than 70)</li> </ul>

### 4. Monitoring

#### Clinical Severity Reassessment Schedule:

- Mild = every 4 hour assessments, consider discharge
- Moderate = every 4 hour assessments
- Severe = every 2 hour assessments

#### Electronic monitoring:

- Continuous cardiac/pulse oximetry monitoring is only recommended for unstable patients (Severe Disease Classification) and/or for patients under 3 months of age and/or have a history of apnea.

- Check pulse oximetry with vital signs or with a change in clinical condition.
- Patients under 3 months of age; patients who are unstable; and patients who have a history of apnea should have their oxygen titrated to keep SaO<sub>2</sub> at or above 90% while on continuous monitoring.
- Stable patients over 3 months of age should have their oxygen titrated per clinical parameters and to achieve SaO<sub>2</sub> of 90%, or 88% if on room air.

- **First Choice: Racemic Epinephrine:** 0.25 mL (for patients less than 5kg) or 0.5 mL (for patients greater than or equal to 5kg)
- **Alternate Choice; Albuterol via nebulizer:** 2.5 mg

**Not Routinely Indicated:**

- Antibiotics unless evidence of secondary infection / sepsis
- Steroid therapy
- Chest physiotherapy (CPT)

**Clinical Titration of Oxygen for Stable Infants over 3 Months of Age (See Figure 1 – Titration of Oxygen guidelines)**

1. If Bronchiolitis Severity Class is Mild, (respiratory rate is less than 50, minimal retractions, and child is active and feeding well) wean oxygen flow in increments of 0.125 to 0.5 Lpm. Assess for titration of oxygen at least every 4 hours.
2. If Bronchiolitis Severity Class is Moderate or Severe, (respiratory rate is rapid for age, infant has significant retractions or nasal flaring, or infant is feeding poorly) increase oxygen incrementally. Consider continuous pulse oximetry if oxygen flow is greater than 1 Lpm for infants 3 to 6 months of age or greater than 2 Lpm for children greater than 6 months of age, in consultation with medical staff.

**5. Diagnostic Tests / Studies**

The following diagnostic tests are indicated only if they will change outcome

- RSV/Viral test (See Figure 2)
- CBC, blood or urine cultures
- Blood gas
- Chest X-ray

**6. Therapeutics**

**Evaluating Clinical Status & Response to Treatment**

1. On initial assessment, determine Severity Classification
2. Decide on intervention (based on Care Algorithm (Figure. 2))
3. Repeat severity classification to determine if intervention was helpful

**Routinely Indicated:** Supportive Care

- Oxygen to minimize increased work of breathing and to achieve SaO<sub>2</sub> at or above 90%
- P.O. / I.V. fluids as needed
- Suction upper airway (use saline PRN):
  - Prior to feeding
  - During clinical assessment
  - PRN evidence of upper airway obstruction

Consider if severity classification is moderate or severe [see Figure 3]:

**7. Parent / Caregiver Education**

- Expected clinical course of bronchiolitis and treatment.
- Proper techniques for suctioning and airway maintenance.
- Signs of worsening clinical status and when to call their PCP.
- Smoking Cessation Counseling:
  - Determine patient's exposure to smoke: when where, who?
  - Explain the hazard of smoke exposure and its relationship to current illness.
  - Emphasize minimizing future exposure to smoke.
  - Refer family members to smoking cessation resources as appropriate:
    - Quit line: 1 (800) 630-QUIT
    - Quitnet: [www.co.quitnet.com](http://www.co.quitnet.com)
    - Provide parent with [Parent Education Materials](#)

**8. Discharge Criteria**

(Begin Discharge Planning on Admission)

- SaO<sub>2</sub> at or above 88% when patient is on room air or SaO<sub>2</sub> at or above 90% on less than or equal to 0.5 Lpm O<sub>2</sub> via nasal cannula, including sleeping and feeding, observed for several hours *or* consider sending patient home on oxygen (see Figure 4)
- Parent able to clear patient's airway using bulb suctioning
- Patient tolerating oral feedings at a level to maintain hydration
- Parents/Caregivers are proficient with post discharge care
- Home resources are adequate to support the use of any necessary home therapies
- Parents/Caregivers aware of smoke exposure hazards and provided with information/resources to quit smoking

**9. Follow-up**

- PCP notified of discharge plan
- PCP follow-up appointment scheduled
- Home care agencies notified and arrangements made when necessary (i.e. home oxygen)

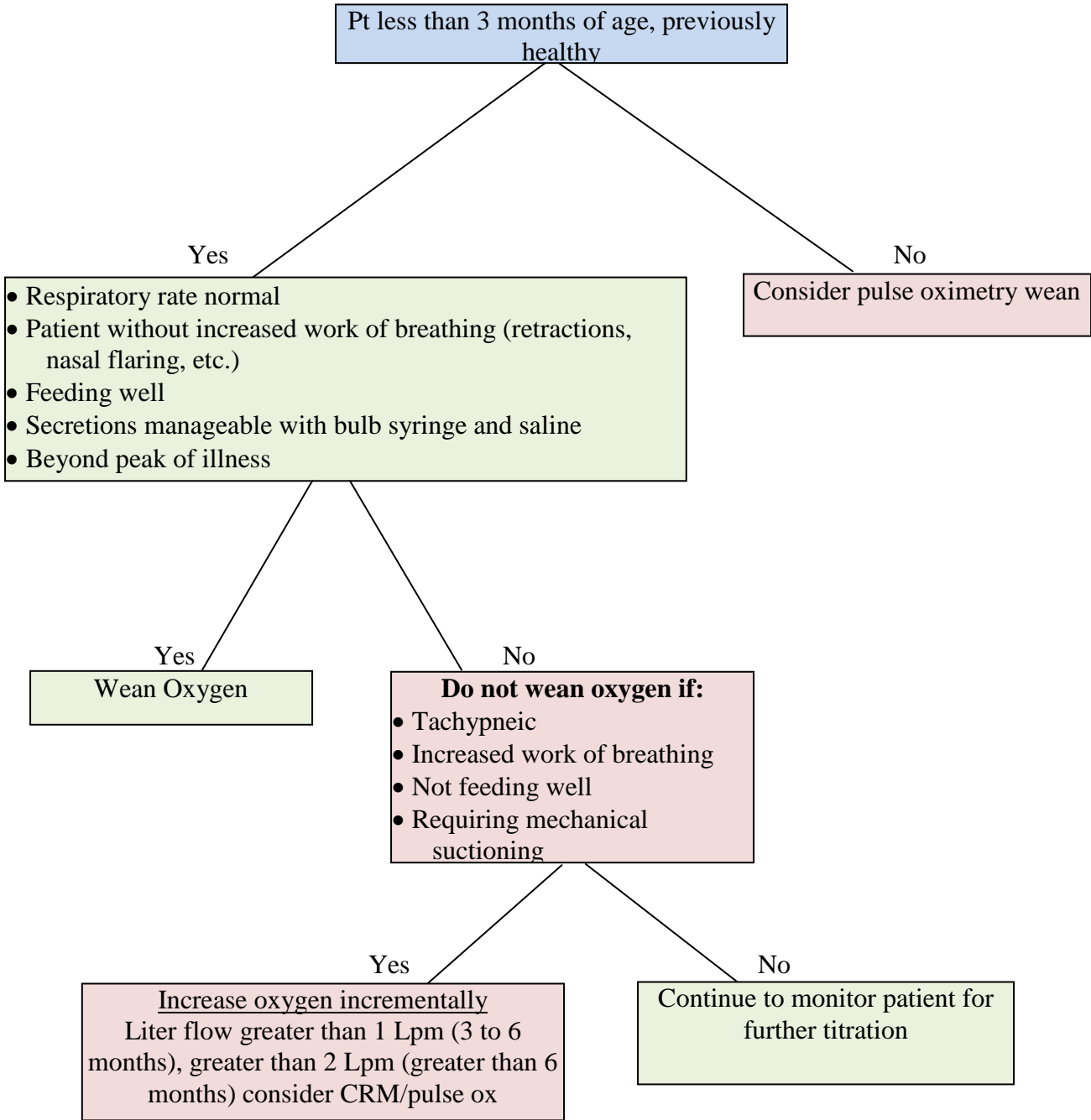
## 10. Clinical Care Guideline Measures

#	Process Measures	Location	TCH Target
P1	Antibiotics (without coded rationale)	IP	< 25%
P2	Chest Radiographs	ED	< 30%
		IP	< 25%
P3	ED Admission Rate	ED	25%
P4	Home Oxygen Use	ED	> 8%
		IP	> 35%
P5	Inhaled Medications (2 or more doses)	IP	< 20%
P6	RSV / Viral Tests	IP	< 25%

#	Outcome Measures	Location	TCH Target
O1	Median Length of Stay	IP	< 60 hr
O2	Readmission within 72 hr	IP	< 2%
O3	Readmission within 72 hr for Home Oxygen Cases	ED	< 2%
		IP	< 2%
O4	Return to ED/Urgent Care within 72 hrs - Resulting in Admission	ED	< 5%

**Figure 1**

**Titration of Oxygen Guidelines**



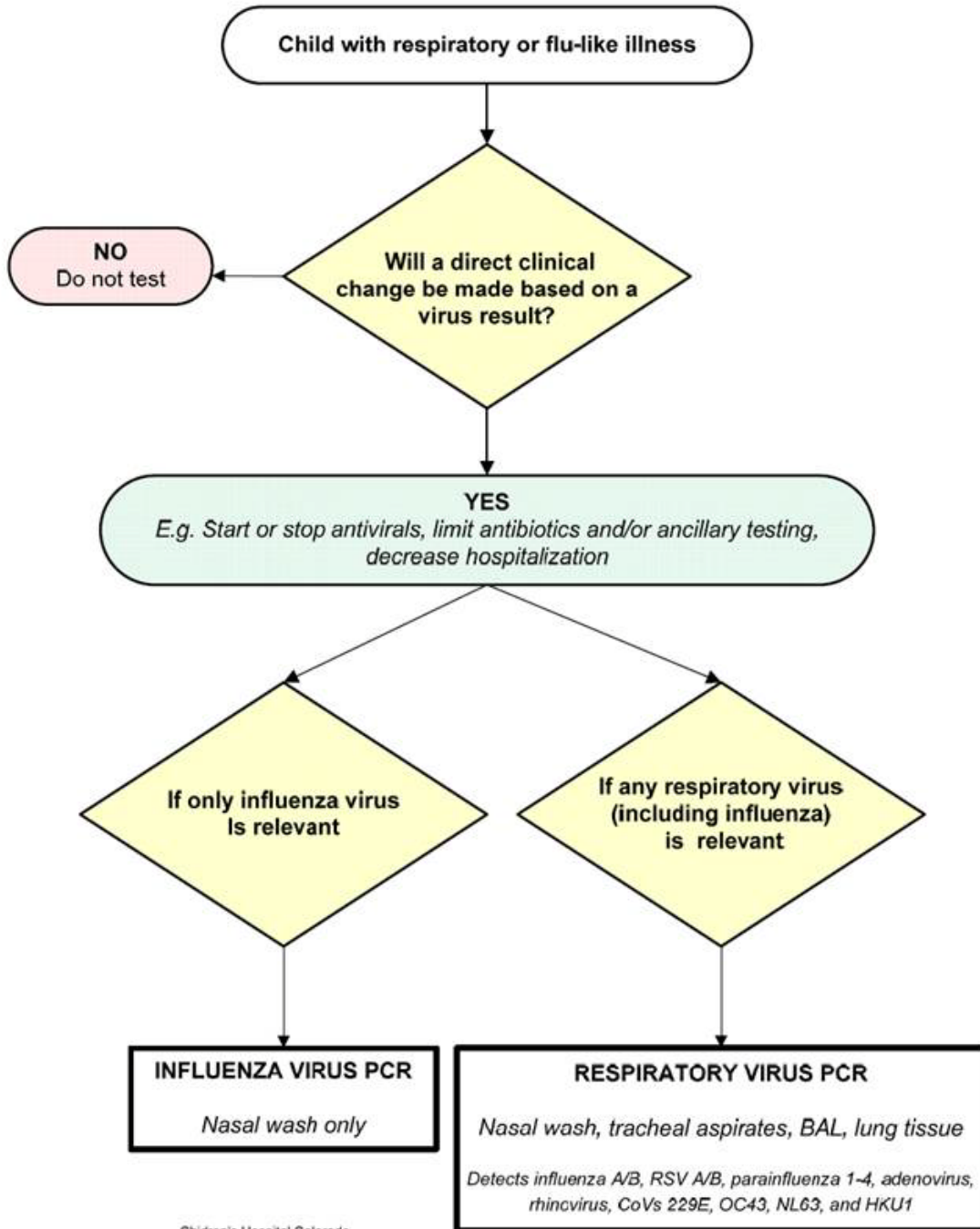
**Vital Sign Norms**

<b>Respirations</b>	
<u>Age</u>	<u>RR</u>
Infant less than 1 year	30 to 60
Toddler (1 to 3 years)	24 to 40
Preschooler (4 to 5 years)	22 to 34
School Age (6 to 12 years)	12 to 24
Adolescent (13 to 18 years)	12 to 16

<b>Heart Rate</b>		
<u>Age</u>	<u>Awake</u>	<u>Sleeping</u>
Newborn to 3 months	80 to 205	80 to 160
3 months to 2 years	100 to 190	75 to 160
2 to 10 years	60 to 140	60 to 90
10 years or older	60 to 100	50 to 90

**Figure 2**

## RESPIRATORY VIRUS TEST ALGORITHM

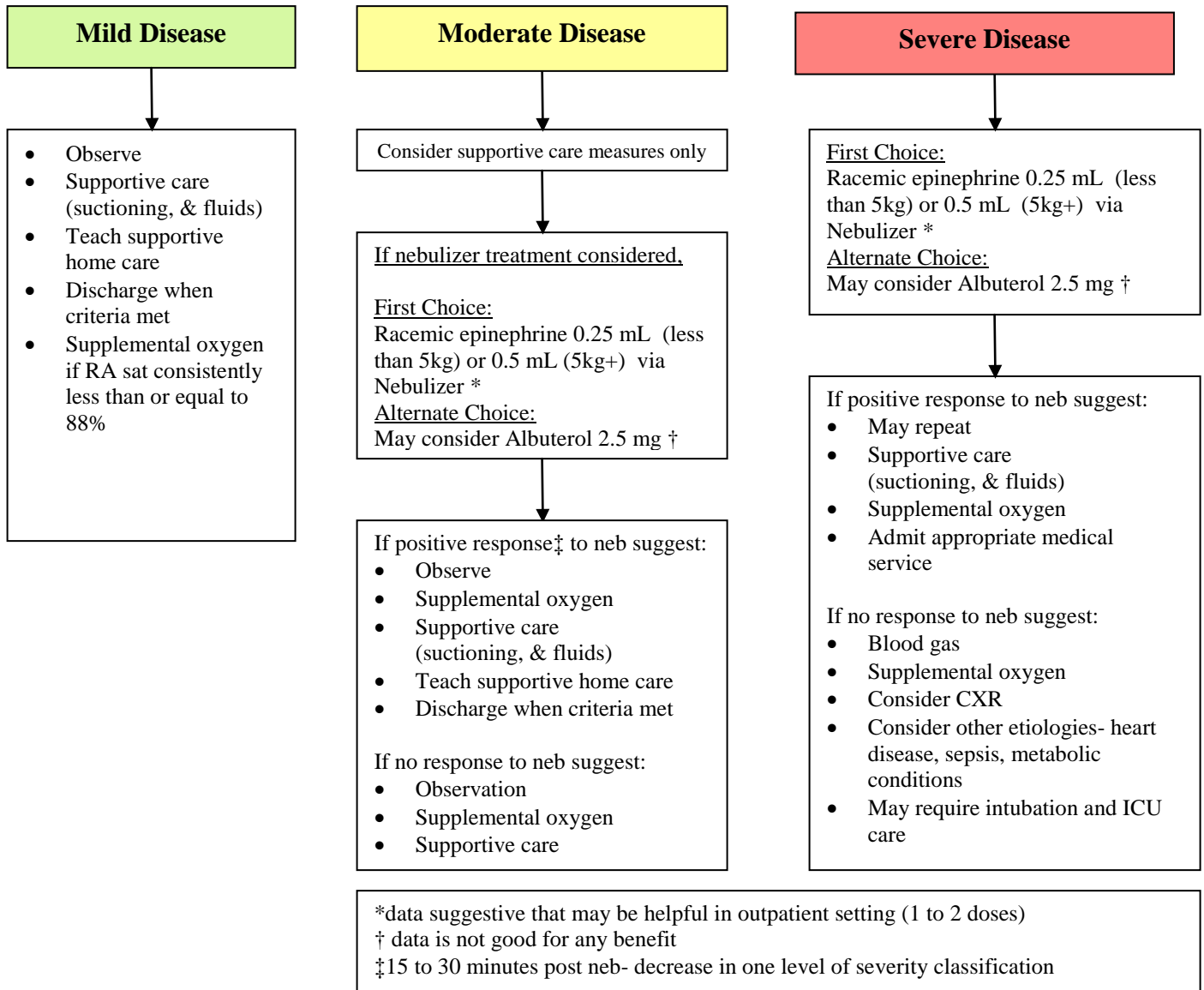


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## Figure 3 Bronchiolitis Care Algorithm

All Patients should receive upper airway suctioning prior to classification of disease severity.

**Do not use treatment algorithm in the toxic appearing patient.**



\*data suggestive that may be helpful in outpatient setting (1 to 2 doses)

† data is not good for any benefit

‡15 to 30 minutes post neb- decrease in one level of severity classification

### Bronchiolitis Severity Classification

<u>Mild Disease</u>	<ul style="list-style-type: none"> <li>Alert, active, feeding well</li> <li>None to minimal retractions</li> <li>RR normal to mildly elevated (less than 50)</li> </ul>
<u>Moderate Disease</u>	<ul style="list-style-type: none"> <li>Alert, consoles, feeding decreased</li> <li>Minimal to moderate retractions</li> <li>RR is mildly to moderately elevated (50-70)</li> </ul>
<u>Severe Disease</u>	<ul style="list-style-type: none"> <li>Fussy, difficult to console, poor feeding</li> <li>Moderate to severe retractions,</li> <li>RR is moderately to severely elevated (greater than 70)</li> </ul>

## **Figure 4:**

### **Home Oxygen Protocol (for use in emergency department only)**

#### **Home Oxygen from the Emergency Department (ED) in Patients with Bronchiolitis After 8 Hours of Observation**

##### Suggested eligibility criteria:

1. Age 3 to 18 months with a minimum of 48 weeks age corrected for prematurity
2. First episode of wheezing
3. Room air saturations 87% or less on arrival to the emergency department
4. Reliable transportation, social situation and phone number
5. Lives at an altitude of 6000 ft or less
6. Lives within 30 minutes from emergency medicine facility
7. No apnea
8. Follow-up in 24 hours arranged with PCP, or will return to ED for follow-up
9. Caretakers and medical staff comfortable with sending patient home on oxygen
10. Smoke free home encouraged

Please document in EPIC with Bronchiolitis smart text

Discuss with parents/caregivers if they would be comfortable with plan: If so then patients can be placed in “obs” or “obs status”.

#### **Contact Respiratory Therapy for oxygen set-up.**

**Please have a script with the liter flow and room air SaO<sub>2</sub>, this should be done as a script in EPIC.**

**Instructions are posted.**

Standard observation will consist of continuous pulse oximetry measurements and vital signs every 2 hours.

At the end of the 8 hour observation period, patients will be discharged on home oxygen therapy provided they meet the discharge criteria. Discharge criteria will include the following:

1. Saturations of 90% or more on less than or equal to 0.5 L/min nasal canula oxygen while awake, asleep and feeding
2. Able to maintain hydration without deep suctioning
3. No signs of deteriorating respiratory status
4. Attending/caregiver comfortable with discharge home
5. 24 hour follow-up arranged with either **PCP (primary option)** or ED



## Bronchiolitis Admission Orders (Page 2 of 2)

### Isolation

All admission orders require isolation order.

- Droplet Precautions
- Airborne Precautions

### Requests

#### Requests

- Request for Social Work
- Request for Case Management

### Medications

#### Antipyretics / Pain

- |   |  |
|---|--|
| <input type="checkbox"/> acetaminophen liquid | EVERY 4 HOURS PRN, give for temp greater than 38.5 C or discomfort         |
| <input type="checkbox"/> acetaminophen PR     | Rectal, EVERY 4 HOURS PRN, give for temp greater than 38.5 C or discomfort |
| <input type="checkbox"/> ibuprofen liquid     | EVERY 6 HOURS PRN, give for temp greater than 38.5 C or discomfort         |

## PARENT EDUCATION MATERIALS

1. [Bronchiolitis \(English\)](#)
2. [Bronchiolitis \(Spanish\)](#)
3. [RSV \(English\)](#)
4. [RSV \(Spanish\)](#)
5. [Tobacco Smoke \(English\)](#)
6. [Tobacco Smoke \(Spanish\)](#)
7. [Home Nebulizer Treatments \(English\)](#)
8. [Home Nebulizer Treatments \(Spanish\)](#)

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