Outpatient Bronchiolitis Care Guideline

CHOC Children's

Inclusion Criteria:

- Age less than 2 years
- Mild rhinorhea or nasal congestion for 1-3 days, followed by:
  - Persistent cough
  - Wheezing with or without rales
  - Tachypnea or retractions
  - Afebrile or T<39C

Exclusion Criteria:

Chronic Lung Disease, anatomical defects of the airways, hemodynamically significant congenital heart disease, immunodeficiency, neuromuscular disease, signs of pneumonia (T>39C with focal findings on lung exam), asthma

At Risk for Severe Disease

- Premature (< 32 weeks)
- Age < 12 weeks

Assess Clinical Severity

Mild Disease

- No tachypnea
- No or minimal retractions
- Clear BS or mild end expiratory wheezing
- Looks well
- Feeding well and hydrated

- Consider pulse ox measurement, if available

O2 sat <90%

No

Yes

Moderate Disease

- Mild to moderate tachypnea
- Mild to moderate retractions
- Diffuse expiratory wheezing with or without early inspiratory wheeze
- My be irritable or ill-appearing but not toxic

- Nasal suctioning in the office
- Pulse Ox measurement
- Antipyretic for fever if indicated
- Repeat clinical assessments over next 1-2 hours

Any of the following persistently present during observations?

- O2 sat <90%
- Moderate tachypnea or retractions
- Clinical dehydration or poor oral fluid intake (<50-75% of normal)
- Ill-appearing

No

Yes

Severe Disease

Any of the following:

- Apnea or history of apnea
- Marked tachypnea (RR>70)
- Marked retractions, nasal flaring or grunting
- Looks seriously ill or toxic
- Markedly irritable or decreased level of consciousness
- O2 sat persistently <90% or presence of cyanosis if no sat monitor

- Provide supplemental oxygen if pulse oxinetry is <90%
- **Urgent transfer by EMS to ED**
- Consider single albuterol treatment while waiting or transfer to ED

Discharge Home

- Educate about reasons to return to ED/clinic, expected clinical course, bulb suctioning, no smoking
- Phone follow up or return to clinic within 24 hours

- If sat < 90%, start supplemental O2
- **Transfer to ED**

Approved Evidence Based Medicine Committee 11-16-16

Reassess the appropriateness of Care Guidelines as condition changes and 24 hrs after admission. This guideline is a tool to aid clinical decision making. It is not a standard of care. The physician should deviate from the guideline when clinical judgment so indicates.

Notes for Bronchiolitis Guideline

1. Symptoms
    - Diagnosis based on history and physical exam
    - Lower respiratory symptoms begin on days 2-3 of illness and peak on days 4-7 of illness.
    - Cough resolves in 90% by 3 weeks
    - Young infants (especially < 6 weeks) can present with apnea without respiratory symptoms.
    - Fever present in 1/3. Usually $\leq$ 39 C. Fever greater than this, with focal respiratory findings, suggests pneumonia.
    - Suspect asthma in children > 1-2 years old with recurrent wheezing, family or past medical history of atopy, wheezing with exercise, past improvement with bronchodilators. Can consider albuterol in these patients.
2. Risk factors for severe disease
    - Prematurity (< 32 weeks gestational age)
    - Age < 3 mo
    - Chronic Lung Disease
    - Anatomic Defects of the airways
    - Hemodynamically Significant Congenital Heart Disease
    - Immunodeficiency
    - Neuromuscular Disease
3. Physical Exam
    - Clinical appearance can vary over time. Repeated assessments in the office are recommended for children with more than minimal disease.
    - Guidelines for normal RR rates

0-6 mo	< 60/min
7-12 mo	< 50/min
13-24 mo	< 40/min

    - Many respiratory scoring systems are available, but none have been validated as predictors for hospitalization or to assess response to treatment.
    - Nasal congestion and tachypnea interfere with feeding. Check for clinical dehydration or a history of significantly reduced fluid intake (< 50-75% of normal).
4. Pulse oximetry used in ED and hospital settings. Recommended in clinic setting, but data on the utility of measuring it on every patient are not available.

5. All of the following are NOT indicated in bronchiolitis and should only be obtained to evaluate for other diagnoses:
    - Laboratory studies (e.g. rapid viral panel, CBC, cultures, UA)
    - Chest X-Ray
6. Treatment
    - Nasal suction may help some infants to feed and can be useful to assess severity of disease. May not be needed in all infants. No benefit to deep airway suctioning
    - All of the following are NOT indicated in the treatment of bronchiolitis in the clinic setting:
        - Antibiotics
        - Albuterol, epinephrine, or ipratropium
        - Oral/Inhaled corticosteroids, Montelukast
        - Nebulized hypertonic saline
        - OTC cold medications
    - Since studies have generally excluded patients with severe disease, a single dose of albuterol could be considered in the infant with severe disease pending transfer to the ED.
    - Some studies suggest a decrease in hospitalization rate for nebulized hypertonic saline given in the ED, but the quality of evidence is not high.
7. Consider urgent EMS transfer to the ED for any patients with
    - Apnea or a history of apnea
    - Severe respiratory distress (grunting, marked retractions, RR > 70)
    - Ill-appearing or toxic
    - O2 sat < 90% on room air
8. Consider transfer to the ED for
    - Persistent moderate respiratory symptoms
    - Clinical signs of dehydration or significantly decreased oral intake (NICE guidelines recommend < 50-75% of normal)
    - O2 sat < 90% on room air
    - Prematurity < 32 weeks gestational age or age < 3 months because of increased risk of severe disease
9. Prevention Strategies
    - All providers should disinfect hands before and after direct contact with patients
    - All providers should use alcohol-based hand rubs for decontamination when caring for children with bronchiolitis

- Clinicians should inquire about exposure to tobacco smoke and encourage smoking cessation.
- Clinicians should encourage exclusive breastfeeding for at least 6 months to decrease the morbidity of respiratory infections
- Palivizumab should be administered to appropriate infants, as directed by AAP guidelines, during the RSV season

REFERENCES

AAP Section on Emergency Medicine Committee on Quality Transformation Clinical Algorithm for Bronchiolitis in the Emergency Department Setting, (June, 2016)

AAP Clinical Practice Guideline: The Diagnosis, Management, and Prevention of Bronchiolitis (Clinical practice Guideline) from the American Academy of Pediatrics, (November, 2014)

Bronchiolitis in Infants and Children: Treatment, Outcomes, and Prevention, (UpToDate, April 2015)

Bronchiolitis Care Guideline (Inpatient). Children's Hospital of Orange County (April, 2014)

Bronchiolitis: Clinical guidelines from the Stanford University Emergency Department, (May, 2015)

Bronchiolitis Clinical Pathway. Guidelines from Seattle Children's Hospital, (February, 2014)

Bronchiolitis Clinical Practice Guidelines. Guidelines from Dayton Children's Hospital, (December, 2013)