

Bronchiolitis Path Care Path

Screening and Diagnosis

Definition:

- Bronchiolitis is a clinical syndrome that occurs primarily in children younger than two years of age and generally presents with mild fever, cough, and respiratory distress (e.g. increased respiratory rate, retractions, wheezing, and crackles). It often is preceded by a one- to three-day history of upper respiratory tract symptoms (e.g. nasal congestion and/or discharge).
- RSV is the leading cause, accounting for 60% of cases. It is clustered in the winter illness season.
- Ninety percent of children contract RSV by 2 years of age showing that most have a mild and uncomplicated course.
- Despite the ubiquitous nature of the infections, bronchiolitis is still the number one cause of hospitalization in infants.

Bronchiolitis is a clinical diagnosis. Although rapid office testing is available, guidelines suggest using it in limited fashion for a specific purpose such as cohorting patients in a hospital room or verifying the viral nature to hold on antibiotic use.

Chest X-rays are of limited value and should only be used in the setting of an outlier to exclude other causes such as lobar pneumonia or heart disease.

Differential Diagnosis:

- Bacterial pneumonia
- Chronic lung disease (i.e., bronchopulmonary dysplasia)
- Foreign body aspiration
- Congenital heart disease/heart failure
- Vascular rings

Risk Assessment and Severity – the following risk factors justify greater observation and can predict a more severe course:

- Prematurity with greater risk associated with greater levels of prematurity
- Age less than 12 weeks
- Chronic pulmonary disease, particularly bronchopulmonary dysplasia (also known as chronic lung disease)
- Congenital and anatomic defects of the airways

- Congenital heart disease
- Immunodeficiency
- Neurologic disease
- Environmental and other risk factors, such as passive smoking, crowded household, daycare attendance, concurrent birth siblings, and older siblings can also contribute to more severe disease.

Higher Severity Markers:

- Persistent or more marked labored breathing
- Poor oral intake and hydration
- Reduced SaO₂ below 93%
- Any perceived apnea
- Fatigue or toxicity

Treatment

Supportive Treatment:

- **Secretion management:** Suction at home using bulb syringe or other methods to clear the nasal passageways. More thorough suctioning may be needed through a bronchiolitis clinic using nasopharyngeal suctioning.
- **Oxygenation:** For persistently low SaO₂ (<low 90s if low risk disease and <mid 90s if higher risk), supplemental oxygen in the hospital should be used.
- **Hydration:** Assessing hydration through number of wet diapers and described volume of oral intake will help determine need for IV fluids. NG fluids as an alternative should be selective due to the increased work of breathing and risk of aspiration.

Medications:

- **Bronchodilators:** Guidelines do not recommend routine use of bronchodilators in typical bronchiolitis. If a child has already shown a tendency for bronchospasm with prior illnesses (suggesting evolving asthma) or in cases of the hospitalized infant with more severe disease, a trial of albuterol may be appropriate.
- **Steroids:** Steroids are not indicated for first time bronchiolitis. Those with repeated events of viral triggered bronchiolitis may benefit from oral steroids, although data is inconclusive.
- **Antibiotics:** Bronchiolitis is a viral illness. Antibiotics are used for complications such as otitis media. The majority of infants will not need an antibiotic course.

Education:

- Parents should be educated on the typical clinical course and markers of worsening disease.

Prevention:

- American Academy of Pediatrics gives guidelines concerning use of preventative treatment, palivizumab. Those should be followed.

Potential Indications for Hospital Assessment or Admission

Children can be managed as outpatients if they are adequately hydrated, and have no signs of moderate to severe respiratory distress; (grunting; respiratory rate >70 breaths per minute; dyspnea; or cyanosis) and do not require supplemental oxygen. Infants with bronchiolitis who are not hospitalized should be monitored in the outpatient setting by their clinician for progression of disease. Although clinical practice varies widely, hospitalization for supportive care and monitoring usually is indicated for infants and young children with:

- Toxic appearance, poor feeding, lethargy, and dehydration.
- Moderate to severe respiratory distress, manifested by one or more of the following signs: nasal flaring; intercostal, subcostal, or suprasternal retractions; respiratory rate >70 breaths per minute; dyspnea; or cyanosis.
- Apnea.
- Hypoxemia with or without hypercapnia (arterial or capillary carbon dioxide tension >45 mmHg). Studies evaluating SpO₂ (oxygen saturation) <95 percent as a predictor of disease severity or progression among outpatient children with bronchiolitis have inconsistent results. Consider hospitalization for SaO₂ levels in the low 90s.
- Dehydration.
- Parents who are unable to care for them at home

Specialist Consult

When to Refer:

- Referral to hospitalists or intensivists based on need for hospitalization.

References:

1. *American Academy of Pediatrics*