



BOTTOM LINE RECOMMENDATIONS:

Bronchiolitis

Bronchiolitis is a common viral illness. It is most commonly caused by respiratory syncytial virus and typically occurs over the **late fall and winter months**. Children **less than 2 years of age** are most commonly affected, with the largest burden of illness being children **less than 12 months of age**.

- » **THE ILLNESS IS CHARACTERIZED BY** acute inflammation in the airways, edema & necrosis of epithelial cells lining small airways, bronchospasm and increased mucus production
- » **CLINICAL SIGNS AND SYMPTOMS INCLUDE** coryza, cough, wheezing, crackles and increased respiratory effort

DIAGNOSING BRONCHIOLITIS

- » Bronchiolitis should be diagnosed on the basis of patient's history and physical exam
- » A diagnosis is typically made for a first episode of wheezing in children less than 24 months of age in winter months
- » Routine laboratory tests and chest x-rays are **not** helpful in diagnosing or managing bronchiolitis; use of chest x-rays is associated with increased use of antibiotics

SEVERE BRONCHIOLITIS

- » Children less than 6 weeks of age and those with underlying cardio-respiratory disease, immunodeficiency or significant prematurity are at risk of developing **severe bronchiolitis**
- » Symptoms of severe disease include apnea and need for respiratory intervention (e.g. CPAP and intubation)

TYPICAL CLINICAL COURSE OF BRONCHIOLITIS

- » Most children do well; symptoms of bronchiolitis peak around day 5 of illness
- » Symptoms such as cough may persist for **up to 3 weeks**

TREATMENT OF BRONCHIOLITIS

- » **Supportive care is the cornerstone of treatment**
- » Limited suctioning to clear the nares may be beneficial
- » The main management goals are to ensure adequate oxygenation and hydration
- » Oral, nasogastric or intravenous (IV) rehydration may be necessary if children cannot maintain fluid status
- » Supplemental oxygen may also be necessary if **oxygen saturations are < 90%** persistently

MEDICATIONS FOR THE TREATMENT OF BRONCHIOLITIS

Note: The majority of evidence for treatment of bronchiolitis is for children < 12 months of age with a first episode of wheezing in the winter months. **The following recommendations are intended for this population.**

THE FOLLOWING MEDICATIONS ARE NOT SHOWN TO BE EFFECTIVE IN EMERGENCY DEPARTMENT TREATMENT OF BRONCHIOLITIS:



- » **DO NOT** use salbutamol
- » **DO NOT** use ipatropium bromide
- » **DO NOT** use inhaled corticosteroids
- » **DO NOT** use antibiotics
- » **DO NOT** use oral bronchodilators
- » **DO NOT** use hypertonic saline
- » **DO NOT** use systematic corticosteroids on their own

BRONCHODILATORS

- » Limited evidence supports an observed trial of nebulized epinephrine for bronchiolitis
- » If child shows improvement in respiratory status with epinephrine, further treatments may be tried
- » If child does improve they should be observed for some time prior to discharge home
- » Typical dosage is **3 ml of 1:1000 epinephrine or 0.5 ml of 2.25% racemic epinephrine in 3 ml normal saline**

CORTICOSTEROIDS

- » There is **no** evidence that oral or IV corticosteroids given alone reduce admission to hospital or improve symptoms
- » There is limited evidence that dexamethasone and epinephrine given close together in timing may reduce admission to hospital

CRITERIA FOR HOSPITAL ADMISSION

- » Requirement for IV/NG fluids for hydration
- » Requirement for supplemental oxygen
- » Persistent respiratory distress

CONSIDER CLOSE OBSERVATION OR ADMISSION FOR:

- » Infants <6 weeks of age or premature infants
- » Infants with underlying cardio-respiratory disease or immunodeficiency
- » Infants presenting with high heart rates and respiratory rates (**heart rate >180 bpm, respiratory rate > 80 bpm**) even if they improve while observed in the emergency department

The purpose of this document is to provide health care professionals with key facts and recommendations for the diagnosis and treatment of bronchiolitis in children in the emergency department. This summary was produced by the bronchiolitis content advisor for the TREKK Network, Dr. Amy Plint of the Children's Hospital of Eastern Ontario, and uses the best available knowledge at the time of publication. However, healthcare professionals should continue to use their own judgment and take into consideration context, resources and other relevant factors. The TREKK Network is not liable for any damages, claims, liabilities, costs or obligations arising from the use of this document including loss or damages arising from any claims made by a third party. The TREKK Network also assumes no responsibility or liability for changes made to this document without its consent.

This summary is based on:

- 1) American Academy of Pediatrics, *Clinical Practice Guideline: The diagnosis, management and prevention of bronchiolitis*, Pediatrics 134: e1474-e1502 (2014) <http://pediatrics.aappublications.org/content/134/5/e1474.full.pdf+html>.
- 2) Hartling L, Fernandes RM, Bialy L, Milne A, Johnson D, Plint A, Klassen TP, Vandermeer B. *Steroids and bronchodilators for acute bronchiolitis in the first two years of life: Systematic review and meta-analysis*. BMJ 342:d1714 (2011).
- 3) Bialy L et al. *The Cochrane Library and the Treatment of Bronchiolitis in Children: An Overview of Reviews*. Evidence-Based Child Health 6: 258-275 (2011).

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