PEDIATRIC EMERGENCY DEPARTMENT CLINICAL GUIDELINE: BRONCHIOLOITIS

Population:
- Infants with new-onset, viral-associated wheezing
- Peak ages 6 weeks to 6 months (range 2 weeks to 2 years)
- Peak season November to April

History:
- Usually preceded by 2-3 days of mild cough and URI symptoms
- May have a history of low grade fevers
- Reaches peak of symptoms on day 4-5 at which time infants frequently present to the ED
- Determine effects on feeding and activity

Physical Exam:
- General appearance (including vital signs and pulse oximetry on room air)
- Rapid cardiopulmonary assessment (including perfusion)
- Evaluation of work of breathing (stridor, respiratory rate, retractions, air entry, wheezing, saturations, degree of dyspnea)
- Evaluate for atypical features (lethargy, high fever, toxic appearance)

Diagnostic Evaluation & Management:
- If the patient presents during bronchiolitis season and has classic bronchiolitis symptoms not requiring aggressive treatment, no diagnostic evaluation is usually necessary
- However, if the presentation is atypical, or severe, then a CXR is indicated
- If the infant is a neonate and has a fever, then the Fever in Neonate guideline should be followed
- Similarly, if the infant is under 6mo and has a fever, then the appropriate component for infants < 6mo in the Fever in Children 3-36mo guideline should be followed.

Therapeutic Management:
- No Treatment
  - Bronchiolitis in general is a benign process and usually gets better without any treatment.
- Breathing Treatments – 2 Options (either one are reasonable):
  - **Albuterol 2.5mg nebulization**
    - A trial dose of a pure beta agonist may be used to determine if the infant will “respond” – with the additional benefit of being able to send them home on an MDI with mask/spacer
    - May be of particular benefit in those with history of recurrent wheezing or strong family history of asthma
    - Of questionable benefit in classic virally-mediated bronchiolitis
  - **Racemic Epinephrine 0.5cc nebulization**
    - Has both alpha and beta effects
    - May be repeated if needed every 1/2hr, but rarely will more than 2 treatments be needed in the first hour.
    - Dosing does not need to be on a per kg basis in infants – infants will self dose by their own tidal volume.
    - Congenital heart disease is not a contraindication to receiving racemic epinephrine nebulizations, in fact their heart rate and work of breathing will frequently decrease after receiving treatments, not increase.
Has additional benefit of decreasing airway wall edema and improving clearance of secretions and airway luminal size
- In some studies appears to show additional benefit over albuterol
- May obviate the need for admission in some infants and/or significantly improve their work of breathing.
- Has the disadvantage of not being available for home use
- Bronchiolitis appears to be a very different pathophysiologic disease process as compared to croup - lower respiratory tract versus primarily upper airway involvement - and therefore theoretically does not necessitate as long of an observation period.
- Although there are no clear recommendations regarding observation times after use prior to discharge, infants should be observed for a reasonable period of time given their individual respiratory distress at presentation, their required support and treatment in the ER, and their parental supports following discharge.
- Some infants receiving 1 racemic epinephrine treatment may be safely discharged home. Clearly these should be those infants in the more mild to moderate severity group, older infants, and those with only the best parental observation skills and follow-up.

- **Corticosteroids**
  - Dexamethasone 0.6-1 mg/kg IM or PO x 1 10mg max)
    - Dexamethasone suspension has high rates of vomiting – an alternate is to crush and put in chocolate-cherry sauce
    - Another option is to use prednisolone 2mg/kg/d PO for 3-5 days of
    - Corticosteroids have gone in and out of favor over the years. They are starting to come back into favor again (Schuh 2002). The key is that bronchiolitis is a generally benign process such that it is difficult to find an effect size if no matter what you do everyone gets better.
    - It makes sense, however, given the fact that steroids are of proven benefit in asthma and in croup, a logical intersection of bronchiolitis that they may be of benefit in some patients. The difficulty is always in determining the most appropriate patients and endpoints to evaluate.
    - We recommend corticosteroids in patients with any of the following characteristics:
      - Those patients on the more severe end of the disease spectrum (i.e., not mild or moderate cases)
      - History of recurrent wheezing
      - Strong family history of asthma
      - Previous history of pulmonary problems/BPD/intubation

**Disposition Assignment:**
- General considerations/indications for admission:
  - Age < 6wks
  - Hypoxemia (generally SpO2 < 90-92% on room air, however should be assessed in conjunction with the overall work of breathing and co-morbidities)
  - Poor feeding
  - Excessively high work of breathing
  - Congenital heart disease
  - Co-morbidities
  - Social reasons

**REFERENCES:**


DISCLAIMER:
This clinical guideline has been developed for the purpose of unifying the general emergency care of infants with bronchiolitis. It is intended to aid, rather than substitute for, professional judgment. It is not intended to serve as a rigid protocol or a written proxy for the standard of care. Failure to comply with this guideline does not represent a breach of the standard of care.