



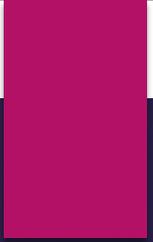
# Bronchiolitis

ROXANA MIDDLETON-GARCIA

PGY-1 PEDIATRICS

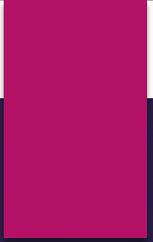
A 6 month-old infant with history of prematurity is seen in the emergency department for labored breathing and fever. The baby had clear nasal congestion 3 days ago, and developed progressive increased work of breathing and fever yesterday. Vital signs show a rectal temperature of 38.7C, pulse of 143 beats/minute, blood pressure of 98/52 mmHg, respiratory rate of 47 breaths/min and SpO<sub>2</sub> is 96% on room air. On physical exam the infant is alert and restless, has mild intercostal and suprasternal retractions and symmetric thorax expansion. Breath sound are equal bilaterally, there is good air movement on auscultation and generalized end expiratory wheezing. After initial management, which of the following during reassessment will alert the healthcare provider the infant's condition is worsening?

- A. Brief episode of oxygen desaturation (SpO<sub>2</sub> 87%)
- B. Respiratory rate of 51 breaths/min
-  C. Decreased wheezing and inspiratory breath sounds
- D. Crying and irritability
- E. Drooling and decreased oral intake



The baby in this vignette is presenting with a constellation of signs and symptoms consistent with bronchiolitis. Of the choices listed, decreased breath sounds in conjunction with decreased wheezing may indicate impending respiratory failure because less air is moving into the lungs, possibly representing worsening of the lower airway obstruction. Respiratory rate of 51 breaths/min, although increased from initial evaluation, is still within normal limits for an infant. Irritability, crying and brief episodes of oxygen desaturation may be expected in young children with respiratory infections, who are being evaluated or treated and are agitated.

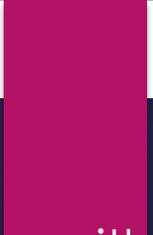
Bronchiolitis is broadly defined as a clinical syndrome that occurs in children <2 years of age and is characterized by upper respiratory symptoms leading to lower respiratory infection with inflammation, which results in wheezing and or crackles. It typically occurs with primary infection or reinfection with a viral pathogen.



Infants and children with moderate to severe respiratory distress (eg, nasal flaring, retractions, grunting, respiratory rate >70 breaths per minute, dyspnea, cyanosis) usually require hospitalization for supportive care and monitoring. Additional indications for hospitalization include toxic appearance, poor feeding, lethargy, apnea, and/or hypoxemia.

Infants and children with non-severe bronchiolitis usually can be managed in the outpatient setting, unless there are concerns about the caregivers' ability to care for them at home. Supportive care (maintenance of adequate hydration, relief of nasal congestion/obstruction, monitoring disease progression) and anticipatory guidance are the mainstays of management.

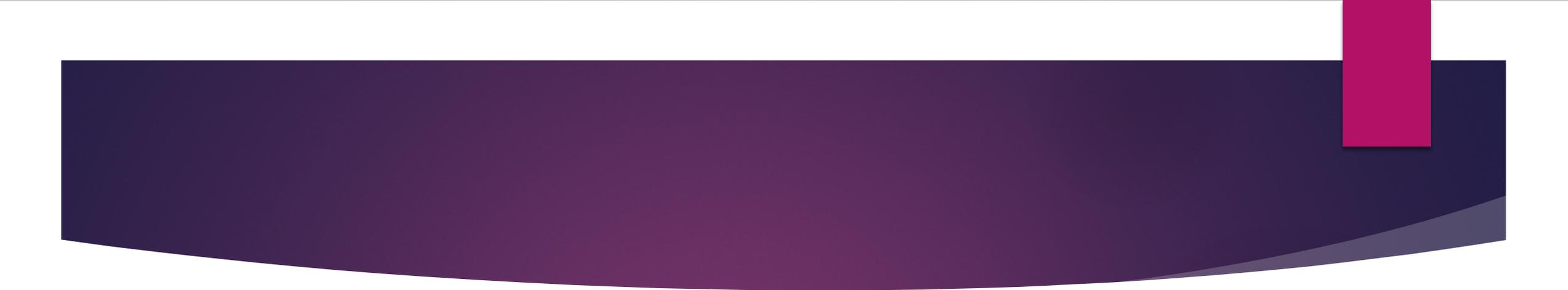
Pharmacologic interventions (eg, bronchodilators, glucocorticoids) or nebulized hypertonic saline in the management of children with non-severe bronchiolitis are not generally recommended.



A one-time trial of inhaled bronchodilators may be warranted for infants and children with bronchiolitis and severe disease. The bronchodilator response should be objectively assessed before and up to one hour after treatment. If there is a clinical response, aerosolized bronchodilator therapy can be administered every four to six hours as needed (based on clinical status) and discontinued when the signs and symptoms of respiratory distress improve.

Infants and children with bronchiolitis and arterial or capillary carbon dioxide tension  $>55$  mmHg, hypoxemia despite oxygen supplementation, and/or apnea may require mechanical ventilation. Noninvasive strategies that may be effective in reducing work of breathing, improving gas exchange, and avoiding the need for endotracheal intubation include heated humidified high-flow nasal cannula therapy and continuous positive pressure ventilation.

Minimal clinical criteria for discharge from the hospital, emergency department, or office include respiratory rate of  $<60$  breaths per minute for age  $<6$  months,  $<55$  breaths per minute for age 6 to 11 months, and  $<45$  breaths per minute for age  $\geq 12$  months; clinical stability without requiring supplemental oxygen; oral intake sufficient to prevent dehydration; and education of the family.



▶ REFERENCE:

**Bronchiolitis in infants and children: Treatment, outcome, and prevention.**

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