

COMMON CLINICAL DIAGNOSES AND CONDITIONS**BRONCHIOLITIS****INTRODUCTION**

Bronchiolitis is the most common viral lower respiratory illness in young children and infants. It is responsible for hundreds of thousands of outpatient and emergency department visits and nearly 150,000 hospitalizations per year, costing the U.S. healthcare system more than \$500 million annually. The most commonly identified etiology of bronchiolitis is respiratory syncytial virus (RSV), however bronchiolitis may be caused by many other viruses, including human metapneumovirus, adenovirus, and influenza. Despite guidelines published by the American Academy of Pediatrics on the diagnosis and management of bronchiolitis, there is significant variation in care of hospitalized patients. Pediatric hospitalists should render evidence-based care that avoids use of unnecessary tests and procedures and improves outcomes.

KNOWLEDGE

Pediatric hospitalists should be able to:

- Compare and contrast the epidemiology and pathogenesis of bronchiolitis with asthma.
- Describe the typical clinical presentation of viral bronchiolitis including wheezing, tachypnea, acute respiratory distress, hypoxia, cough, apnea, and/or nasal obstruction, and give examples of how presentations may vary.
- Review alternate diagnoses which may mimic the presentation of bronchiolitis such as congestive heart failure, previously undiagnosed cyanotic or non-cyanotic congenital heart disease, metabolic acidosis, sepsis, aspiration, and others.
- Identify the risk factors such as prematurity, congenital heart disease, pulmonary disease, immunodeficiency, and environmental smoke exposure that predispose infants and children to severe illness or complications of bronchiolitis.
- State the indications and contraindications for RSV immunoprophylaxis.
- List the indications for hospital admission and cite discharge criteria.
- Discuss indications for ordering viral antigen testing and chest radiographs.
- Compare and contrast initial diagnostic evaluation for febrile infants of various ages presenting with bronchiolitis attending to ages less than 30 days, 31-60 days and others.
- Discuss the evidence regarding beta-agonist and steroid therapy in routine bronchiolitis.
- Discuss the evidence regarding use of supportive measures including suctioning, positioning, enteral versus intravenous fluids and nutrition, and supplemental oxygen.
- Discuss the benefits and potential technical errors associated with use of various non-invasive monitoring modalities including cardiorespiratory, oxygen saturation, and capnography.
- Describe a management strategy for patients with worsening respiratory status including the use of different oxygen delivery systems and methods for positive pressure ventilation.
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SKILLS

Pediatric hospitalists should be able to:

- Correctly diagnose bronchiolitis by efficiently performing an accurate history and physical examination; determining if key features of the disease are present.
- Accurately assess clinical signs of respiratory distress and identify impending respiratory failure.
- Assess nutrition and hydration status and chose appropriate methods to maintain adequate hydration and nutrition.
- Order appropriate monitoring and correctly interpret monitor data.
- Objectively assess the response to any medications trialed and use clinical exam and respiratory scores to determine true efficacy.
- Perform careful reassessments daily and as needed, note changes in clinical status and respond with appropriate actions including discontinuation of ineffective or unnecessary therapies.
- Recognize the indications for escalating level of care and initiate basic ventilatory support if indicated.
- Implement appropriate oxygen weaning strategies, including the use of appropriate oxygen saturation parameters.

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- Engage the family/caregiver in assisting with interpreting clinical status changes and in determining care plans.
- Consistently adhere to proper infection control measures.
- Efficiently render care by creating a discharge plan which can be expediently activated when appropriate.

ATTITUDES

Pediatric hospitalists should be able to:

- Educate the family/caregiver on the etiologies and natural history of bronchiolitis, including the importance of hand washing and minimizing environmental exposure in the prevention of infection.
- Discuss with the family/caregiver the importance of supportive care, as well as the limited evidence supporting other interventions.
- Display proactive, engaged behavior regarding proper isolation measures particularly including hand-washing to prevent spread of the etiologic agent in the hospital.
- Educate the family/caregiver regarding the relationship between hospitalization for bronchiolitis and risk of future wheezing based on the most current evidence.
- Collaborate with the primary care provider to ensure a smooth transition to the outpatient setting, and to minimize the need for readmission.

SYSTEMS ORGANIZATION AND IMPROVEMENT

In order to improve efficiency and quality within their organizations, pediatric hospitalists should:

- Collaborate with hospital infection control practitioners to prevent nosocomial infection related to bronchiolitis.
- Partner with community services to educate the public on respiratory infection preventive strategies.
- Work with emergency department physicians to mutually develop and implement evidence-based admission criteria.
- Lead, coordinate or participate in multidisciplinary initiatives to develop, implement, and assess quality outcomes of evidence-based clinical guidelines.