

BRONCHIOLITIS CLINICAL PRACTICE GUIDELINE

This clinical guideline has been developed to ensure appropriate diagnosis, evaluation, and treatment for otherwise healthy patients who are less than 2 years of age, presenting with a first episode of mild to moderate bronchiolitis. Please direct any questions to Dr. Jennifer Jewell, BBCH Pediatric Hospitalist, at 207-662-2541.

Bronchiolitis is a self-limited viral infection of the bronchioles, marked by edema but not smooth muscle contraction. Because the airway resistance is high in younger children, bronchiolitis is most common in patients less than 2 years of age. Viral etiologies include RSV, influenza, parainfluenza, bocavirus, metapneumovirus, and adenovirus; commonly, patients are infected with more than one virus. The treatment goal is to maintain hydration and oxygenation and to monitor for apnea and respiratory distress. A significant percentage of patients with bronchiolitis are diagnosed with asthma during childhood. The cause-effect relationship between asthma and bronchiolitis is unclear. The following are evidence-based recommendations.

SIGNS AND SYMPTOMS OF BRONCHIOLITIS

URI symptoms: fever, cough, coryza
Wheezing
Respiratory Distress
Poor feeding
Apnea

Evaluation: in the clinical setting of mild/moderate bronchiolitis, evidence for the following diagnostic tests are as indicated:

BLOOD GAS: not indicated

CHEST RADIOGRAPH: not indicated

RSV WASH: indicated for cohorting purposes only

CBC, BLOOD CULTURE, URINE CULTURE: rarely indicated, especially in patients over 90 days of age

RISK FACTORS for SEVERE DISEASE

Less than 12 weeks of age
Prematurity
Cardiac Disease
Pulmonary Disease
Immunodeficiencies

Criteria for IPU Admission

Significant respiratory distress/hypoxia

Difficulty feeding or dehydration

Unclear diagnosis

Social concerns (no phone access, transportation, etc.)

Criteria for PICU Admission/Transfer

Severe respiratory distress

Apnea

PCO₂ > 50 torr on an ABG or a CBG

TREATMENT

The following treatment modalities are not indicated: **ORAL ANTIHISTAMINES, ORAL/NASAL DECONGESTANTS, ANTIBIOTICS, COOL MIST, CHEST PHYSIOTHERAPY, DEEP SUCTIONING OF THE NASOPHARYNX**

OXYGEN is indicated to maintain saturations $\geq 90\%$. Apply oxygen only if saturations are persistently below 90%. Continuous monitoring is recommended if supplemental oxygen is required. If supplemental oxygen is not needed, Q4 hour oxygen saturation monitoring may be used. Consider maintaining higher oxygen saturations for patients with: fever, acidosis, hemoglobinopathy, chronic lung disease, significant cardiac disease, or prematurity.

OXYGEN via HFNC (high flow nasal cannula) may be indicated in patients with difficulty ventilating and oxygenating. HFNC reduces upper airway resistance, provides positive pressure, and heats and humidifies oxygen. Initiating HFNC is felt to decrease intubation in selected patients.

ALBUTEROL is not indicated. If a patient has a strong family history of asthma or a component of bronchospasm, albuterol may be helpful. A trial of albuterol should be discontinued if no response is noted after an initial dose. Patients who respond to albuterol may have undiagnosed asthma.

RACEMIC EPINEPHRINE is not indicated.

INHALED HYPERTONIC SALINE may benefit some patients. The typical dose is 3-4 ml every 4-6 hours.

STEROIDS are not indicated.

NASAL SALINE DROPS and **FREQUENT NASAL SUCTIONING**, especially prior to feeding, is useful.

RESPIRATORY MONITOR and **OXYGEN SATURATION MONITOR** (if the patient requires supplemental oxygen) is appropriate for admitted patients.

NGT FEEDS are indicated if a patient is clinically dehydrated and unwilling to feed despite suctioning prior to feeding attempts, has a persistent RR > 80/minute, vomiting, decreased oxygen saturation to < 90% despite supplemental oxygen during feedings, or marked work of breathing during feeds.

PO FEEDS are recommended if patients are stable with RR < 80/minute. Thickening feeds with 1-2 teaspoons of cereal/ounce of formula or breast milk has been shown to decrease the risk of aspiration and is recommended. Continued breastfeeding should be encouraged.

IV FLUIDS are rarely required in mildly to moderately ill patients with bronchiolitis.

INFECTION CONTROL

INFECTION CONTROL MEASURES for hospitalized patients include standard and contact precautions (gowns and gloves). Placing patients with proven RSV in a room together is acceptable. Visitors with URI symptoms should be discouraged from visiting hospitalized patients, especially during the winter months. Attention to hand hygiene with alcohol-based gel should be emphasized for visitors, families, patients, and providers.

PREVENTION

Exposure to **environmental tobacco smoke** should be avoided. Caregivers who smoke should receive information about the importance of minimizing environmental smoke exposure to patients and offered **smoking cessation counseling**.

Exclusive breastfeeding for the first six months of life should be encouraged. Breastfeeding decreases morbidity from respiratory infections.

Palivizumab may be indicated in certain patients with extreme prematurity or on-going medical illnesses.

REFERENCES

1. Khoshoo V. Benefits of thickened feeds in previously healthy infants with respiratory syncytial viral bronchiolitis. *Pediatr Pulmonol* 2001;31:301-2.
2. Kini NM, Robbins JM, Kirschbaum MS, Frisbee SJ, Kotagal UR. Inpatient care for uncomplicated bronchiolitis. *Arch Pediatr Adolesc Med* 2001;155:1323-7.
3. Perlstein PH, Kotagal UR, Bolling C, Steele R, Schoettker PJ, Atherton HD, Farrell MK. Evaluation of an evidence-based guideline for bronchiolitis. *Pediatrics* 1999;104:1334-41.
4. Perlstein PH, Kotagal UR, Schoettker PJ, Atherton HD, Farrell MK, Gerhardt WE. Sustaining the implementation of an evidence-based guideline for bronchiolitis. *Arch Pediatr Adolesc Med* 2000;154:1001-7.
5. Subcommittee on Bronchiolitis. Clinical practice guideline: The diagnosis, management, and prevention of bronchiolitis. *Pediatrics* 2014;134:e1474-1502.

Algorithms are not intended to replace providers' clinical judgment or to establish a single protocol. Some clinical problems may not be adequately addressed in this guideline. As always, clinicians are urged to document management strategies.

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