Bronchiolitis

FAST FACTS

Bronchiolitis is the leading cause of hospitalization for infants under the age of 1.

$730 million

Annual cost of hospitalization for bronchiolitis in the U.S.

Bronchiolitis is the acute inflammation, edema and necrosis of epithelial cells lining the small airways, which causes increased mucus production and bronchospasm. It occurs in infants and children under the age of 2 and is most commonly caused by viral lower respiratory tract infections.

ASSESSMENT

Perform standard history and physical examination (HPE) to assess disease severity. Children with bronchiolitis typically present with nasal congestion, cough, rales or wheezing and may also present with difficulty breathing or dehydration.

Risk factors for severe disease include:

- Age <12 weeks
- Chronic lung disease (including bronchopulmonary dysplasia, or BPD)
- Hemodynamically significant congenital heart disease
- Premature birth, particularly under 32 weeks gestation
- Neuromuscular disorders
- Immunodeficiency

Radiographic or lab studies should not be obtained routinely as part of PCP assessment.

HPE (HISTORY AND PHYSICAL EXAM) RED FLAGS

- Apnea (observed or reported)
- Severe respiratory distress (grunting, nasal flaring, marked retractions or a respiratory rate (RR) >60 breaths/minute)
- Requiring >2L O2 to maintain O2 sat >90%
- Ill appearance
- Central cyanosis
- Inadequate oral intake or urine output with moderate to severe clinical dehydration

WHEN TO REFER

Refer to emergency department (ED) if any red flags are present (consider ambulance).

Consider possible referral to the ED if any of the following are present:

- Clinical dehydration
- Difficulty with breastfeeding or inadequate oral fluid intake (50–75% of usual volume, taking account of risk factors and using clinical judgement)
- Persistent O2sat <90% when breathing room air

Patient is eligible for direct admission to hospital medicine when all are present:

- >2 months of age
- Gestational age >34 weeks; n/a if >12 months of age
- No signs of altered mental status, toxic appearance, apneic episodes, moderate or severe dehydration, severe respiratory distress (such as head bobbing, nasal flaring, grunting, or severe retractions)
- RR <60 breaths/minute
- Stable with O2 sat >90% on room air or supplemental oxygen ≤2L nasal cannula. Will need emergency medical services transport if supplemental oxygen.
- Difficulty with feeding with no or mild dehydration only

See page 2 for management guidance.

For urgent issues or to speak with an emergency medicine or hospital medicine specialist on call 24/7, call the Physician Priority Line at 1-888-987-7997.

If you would like additional copies of this tool, or would like more information, please contact the Physician Outreach and Engagement team at Cincinnati Children's.

Tool developed by Cincinnati Children's physician-hospital organization (known as Tri-State Child Health Services, Inc.) and staff in the James M. Anderson Center for Health Systems Excellence. Developed using expert consensus and informed by Best Evidence Statements, Care Practice Guidelines, and other evidence-based documents as available. For Evidence-Based Care Guidelines and references, see www.cincinnatichildrens.org/evidence.

Bronchiolitis

Patient Presents

Standard Workup

Perform standard history and physical examination (HPE) to assess disease severity. Children with bronchiolitis typically present with nasal congestion, cough, rales or wheezing and may also present with difficulty breathing or dehydration.

Risk factors for severe disease include:

- Age <12 weeks
- Chronic lung disease (including bronchopulmonary dysplasia)
- Hemodynamically significant congenital heart disease
- Premature birth, particularly under 32 weeks gestation
- Neuromuscular disorders
- Immunodeficiency
- Whether the patient is immunocompromised (decreases the likelihood of spontaneous clearance without intervention)

Radiographic or laboratory studies should not be obtained routinely as part of the PCP assessment.

HPE (HISTORY AND PHYSICAL EXAM) RED FLAGS

- Apnea (observed or reported)
- Severe respiratory distress (grunting, nasal flaring, marked retractions or a respiratory rate (RR) > 60 breaths/minute)
- Requiring >2L oxygen to maintain O2 sat >90%
- Ill appearance
- Central cyanosis
- Inadequate oral intake or urine output with moderate to severe clinical dehydration

Any Red Flags?

- Yes → **Refer to ED**
- No →

Consider referral to ED if any are present:

- Clinical dehydration
- Difficulty with breastfeeding or inadequate oral fluid intake (50–75% of usual volume, taking account of risk factors and using clinical judgement)
- Persistent O2sat <90% when breathing room air

Consider direct admission if all are present:

- >2 months of age
- Gestational age >34 weeks; n/a if >12 months of age
- No underlying cardiopulmonary disease or complex medical disease, aside from BPD or chronic lung disease of prematurity (if no baseline oxygen requirement)
- No signs of altered mental status, toxic appearance, apneic episodes, moderate or severe dehydration, severe respiratory distress
- RR <60 breaths/minute
- Stable with O2 sat >90% on room air or supplemental oxygen ≤2L nasal cannula. Will need emergency medical services transport if supplemental oxygen.
- Difficulty with feeding with no or mild dehydration only

Consider recommending at-home care

Caregivers should be instructed to recognize red flags, offer age-appropriate fluids frequently, monitor hydration and suction the nose prior to offering fluids and as needed.

Prior to making this recommendation, assess factors that might affect success (e.g., social circumstances, caregiver skill/confidence).

PCP Management

PCP should not administer:

- Albuterol, corticosteroids, hypertonic saline or inhaled epinephrine
- Antibacterial medications (unless there is a concomitant bacterial infection or a strong suspicion of one)
- Chest physiotherapy

For urgent issues, or to speak with the specialist on call 24/7, call the Physician Priority Link® at 1-888-987-7997.