

Management of Bronchitis in children and adolescents

“These guidelines are provided to assist physicians and other clinicians in making decisions regarding the care of their patients. They are not a substitute for individual judgment brought to each clinical situation by the patient’s primary care provider in collaboration with the patient. As with all clinical reference resources, they reflect the best understanding of the science of medicine at the time of publication but should be used with the clear understanding that continued research may result in new knowledge and recommendations.”

INTRODUCTION

Pediatric bronchitis is primarily diagnosed clinically, and its management focuses on supportive care rather than medication. In pediatric patients, the diagnosis is based on the type and duration of cough.

- **Acute Bronchitis:** Characterized by an acute cough (typically lasting 2–3 weeks) with or without sputum. It is predominantly viral in origin, caused by pathogens like influenza, rhinovirus, and RSV.
- **Protracted Bacterial Bronchitis (PBB):** Diagnosed in children ≤ 14 years with a chronic wet or productive cough lasting more than 4 weeks.
- **Bronchiolitis:** A common lower respiratory tract infection in children under 2 years, characterized by a viral upper respiratory prodrome followed by increased respiratory effort, wheezing, edema, and mucus production (see Bronchiolitis guideline).

Diagnostic evaluation and treatment for acute bronchitis:

Signs and symptoms of typical acute bronchitis

- Cough
- Production of mucus (sputum) if present, can be clear, white, yellowish-gray, or green in color. Rarely, mucus may be streaked with blood.
- Fatigue
- Shortness of breath
- Slight fever and chills
- Chest discomfort

Most common causes of bronchitis in immunocompetent children and adolescents are **viral in origin** and **antibiotics are not indicated**.

Consider specific causes if indicated. Appropriate diagnostic testing and treatment should be utilized as clinically indicated.

- Influenza

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- Pertussis
- Atypical Mycobacteria
- COVID-19

DIFFERENTIAL DIAGNOSIS:

Consider alternative diagnoses such as pneumonia, asthma, aspiration when symptoms such as the following are present:

- Fever (temperature greater than 100.3 F or 38.0 C)
- Tachycardia (parameters vary by age)
- Tachypnea (parameters vary by age)
- Hypoxemia (pulse oxygenation < 95%)
- Cyanosis
- Asymmetrical lung sounds (rales, egophony, fremitus)
- Wheezing
- Cough lasting 3 weeks or longer

In high-risk immunocompromised patients (i.e. HIV, cancer, sickle cell, cystic fibrosis) consider other sources, diagnostic tests, and treatment.

MANAGEMENT: mainly supportive care.

1. Increase hydration.
2. Nasal congestion can be treated with nasal saline and external nasal suction.
3. Use cool mist humidifier for congestion and cough.
4. Children over 1 year can have honey to soothe sore throat and cough.
5. OTC cold and cough medicines have limited effectiveness in research studies and have potential safety concerns.
6. Albuterol PRN may be appropriate for wheezing and asthma symptoms.
7. Systemic steroids are not indicated for acute bronchitis.

PREVENTING AND TREATING BRONCHITIS: ([CDC PDF PRINTABLE HANDOUT](#)):

PROTRACTED BACTERIAL BRONCHITIS (PBB):

For children ≤ 14 years with a **daily**, chronic wet or productive cough (>4 weeks duration) without underlying disease, the American College of Chest Physicians recommends a 2-week trial of antibiotics targeting common respiratory bacteria (*Streptococcus pneumoniae*, *Haemophilus influenzae*, *Moraxella catarrhalis*). Identification and treatment of PBB is important because, if untreated, it may be a precursor to bronchiectasis.

Amoxicillin-Clavulanate is the most commonly used first-line agent, as it provides broad coverage against all three pathogens, including beta-lactamase-producing strains. Alternative antibiotics include macrolides (erythromycin, azithromycin, clarithromycin) and third generation cephalosporins. If the cough resolves within 2 weeks of antibiotic treatment, the

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diagnosis is made. If the wet cough persists after 2 weeks of appropriate antibiotics, further investigation should be undertaken.

ANTIMICROBIAL STEWARDSHIP:

Antimicrobial stewardship refers to coordinated interventions designed to improve and measure the appropriate use of antimicrobials by promoting the selection of the optimal antimicrobial drug regimen, dose, duration of therapy, and route of administration. Antimicrobial stewards seek to achieve optimal clinical outcomes related to antimicrobial use, minimize toxicity and other adverse events, reduce the costs of health care for infections, and limit the selection for antimicrobial resistant strains.

Antibiotics should not be used for viral respiratory illnesses, including bronchitis, bronchiolitis, pharyngitis, and sinusitis.

American Academy of Pediatrics: [Antibiotic Stewardship in Pediatrics](#)

AVOIDING ANTIBIOTIC OVERUSE:

- a. Recommend having explicit discussion on risks and benefits of antibiotics with patients.
- b. Multiple high-quality trials and meta-analyses have shown that antibiotics do NOT provide substantial benefit and use can result in adverse effects (nausea, vomiting, diarrhea, rash, headache, vaginitis, rash, and anaphylaxis).
- c. Antibiotics can alter the patient's microbiome and may induce antibiotic resistant organisms both in the individual and in the community
- d. Antibiotic use comes at an increased financial cost.
- e. Consider delayed prescribing where prescription provided but patient agrees not to fill for period of time.

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