

Acute Bronchitis: Adult

Respiratory

Clinical Decision Tools for RNs with Additional Authorized Practice [RN(AAP)s]

Effective Date: February 1, 2022

Background

Bronchitis is an acute infection or inflammation of the trachea and bronchi characterized by wheezing or coughing (Brashers & Huether, 2019). The majority of acute uncomplicated cases of bronchitis are viral (90%) (Anti-infective Review Panel, 2019; RxFiles Academic Detailing Program, 2021). The most common viral pathogens include influenza A or B, adenovirus, parainfluenza, and *respiratory syncytial virus* (RSV) (Anti-infective Review Panel, 2019; RxFiles Academic Detailing Program, 2021).

Bacterial pathogens are less likely to be the cause of acute bronchitis (five to 10% of cases) (Anti-infective Review Panel, 2019). Bacterial bronchitis is most common in adults with chronic obstructive pulmonary disease (COPD) and is rare in previously healthy adults except after viral infection (Brashers & Huether, 2019). The most common bacterial pathogens include *Mycoplasma pneumoniae*, *Chlamydia pneumoniae*, *Bordetella pertussis*, *Legionella*, *Haemophilus influenzae*, *Streptococcus pneumoniae* (in those with underlying lung disease), and *Moraxella catarrhalis* (Anti-infective Review Panel, 2019).

Immediate Consultation Requirements

The RN(AAP) should seek immediate consultation from a physician/NP when any of the following circumstances exist:

- tachypnea;
- dyspnea;
- tachycardia;
- cyanosis;
- declining oxygen saturation;
- change in mental status;
- sepsis;
- hemoptysis;

- pre-existing lung disease (e.g., asthma, cystic fibrosis); or
- suspect pertussis, tuberculosis (TB), or lung cancer (Interprofessional Advisory Group [IPAG], personal communication, October 14, 2019).

Predisposing and Risk Factors

Predisposing and risk factors for bronchitis in adults include:

- exposure to individuals with acute viral or bacterial respiratory symptoms,
- asthma,
- bronchiectasis,
- COPD,
- immunosuppression,
- vaping,
- smoking and secondhand smoke, and
- air pollutants (Brashers & Huether, 2019).

Health History and Physical Exam

Subjective Findings

The circumstances of the presenting complaint should be determined. These may include:

- recent infection of the upper respiratory tract,
- general malaise,
- fever (a finding that may suggest pneumonia or influenza),
- cough (non productive or productive),
- muscular strain in the chest wall or discomfort with coughing, and
- wheezing (may be present) (Brashers & Huether, 2019).

Objective Findings

Physical findings consistent with acute bronchitis may include:

- mild to moderate fever;
- mildly elevated heart rate, if febrile;
- respiratory rate may be slightly elevated;
- spasmodic cough (productive or nonproductive);
- rhinitis or pharyngitis;
- cervical lymphadenopathy;
- slightly prolonged expiratory phase of respiration;
- wheezing; and
- crackles that clear with coughing (Brashers & Huether, 2019).

Differential Diagnosis

The following should be considered as part of the differential diagnosis:

- respiratory infections (e.g., influenza, pneumonia, sinusitis, common cold, pharyngitis, pertussis),
- reactive airway disease (e.g., asthma, allergies, inhaled or aspirated chemical irritants),
- bronchiectasis,
- heart failure,
- gastroesophageal reflux disease,
- angiotensin-converting enzyme inhibitor use,
- TB, or
- lung cancer (Hart, 2014).

Making the Diagnosis

The term "acute bronchitis" usually indicates a respiratory tract infection in which cough (productive or nonproductive) is a predominant feature. No clear diagnostic criteria have been established for making the diagnosis of acute bronchitis. A cough in the absence of fever, tachycardia, and tachypnea suggests bronchitis instead of pneumonia, except in elderly clients (Hart, 2014; RxFiles Academic Detailing Program, 2021). Clients given the diagnosis of acute bronchitis or upper respiratory tract infection have considerable overlap in symptoms and signs. Sputum color does not reliably differentiate between viral and bacterial infections (RxFiles Academic Detailing Program, 2021).

Investigations and Diagnostic Tests

Diagnostic tests are not routinely recommended (Brashers & Huether, 2019; Hart, 2014; RxFiles Academic Detailing Program, 2021). Nasopharyngeal swabs during influenza season, or sputum analysis for acid fast bacilli during a tuberculosis outbreak may be appropriate and should be determined in collaboration with the employer and/or Medical Health Officer with consideration for disease prevalence in the specific community.

Management and Interventions

Goals of Treatment

The primary goals of immediate treatment are to rule out pneumonia, provide client education about the course of illness and treatment plan, relieve symptoms, and avoid unnecessary antibiotic use (Brashers & Huether, 2019; RxFiles Academic Detailing Program, 2021).

Non-Pharmacological Interventions

The RN(AAP) should recommend, as appropriate, the following non-pharmacological options:

- increased rest (especially if febrile),

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- adequate hydration (six to eight glasses of fluid per day),
- increased humidity in the environment, and
- avoidance of pulmonary irritants (e.g., stop or decrease smoking, use of perfumes) (Rx Files Academic Detailing Program, 2021).

Pharmacological Interventions

The pharmacological interventions recommended for the treatment of acute bronchitis are in accordance with the *RxFiles Drug Comparison Charts* (RxFiles Academic Detailing Program, 2021), *CPS Drug Information* (Canadian Pharmacists Association, 2021) and the *Anti-infective Guidelines for Community-acquired Infections* (Anti-infective Review Panel, 2019).

Analgesics and Antipyretics

	Drug	Dose	Route	Frequency	Duration
Adult					
	Acetaminophen	500-1000 mg (maximum dose of 4 g/day)	p.o.	q4-6h prn	5-7 days
AND/ OR	Ibuprofen	400-600 mg (maximum dose of 3200 mg/day)	p.o.	q6-8h prn	5-7 days

Bronchodilators

There is limited evidence for use of the following agents but they may improve daytime and nighttime cough, and dyspnea associated with coughing.

	Drug	Dose	Route	Frequency	Duration
Adult					
	Salbutamol 100 mcg/puff	2 inhalations	inhaled	q.i.d.	5-7 days and then prn for up to 3 weeks
OR	Ipratropium 20 mcg/puff	4 inhalations	inhaled	q.i.d.	5-7 days and then prn for up to 3 weeks

Client and Caregiver Education

The RN(AAP) provides client and caregiver education as follows:

- Counsel about appropriate use of medications, such as purpose, dose, frequency, and side effects.
- Recommend proper handwashing to prevent the spread of infection throughout the household.
- Advise that the cough commonly lasts one to three weeks and may persist longer in 50% of clients.
- Inform that routine antibiotic treatment is not necessary or recommended as the majority of cases are viral and self-limiting (Hart, 2014; RxFiles Academic Detailing Program, 2021).

Monitoring and Follow-Up

The RN(AAP) should instruct the client to return for reassessment if:

- symptoms such as fever, chest pain, productive cough, shortness of breath worsen, or
- dry cough persists for more than 3 weeks.

Complications

The following complications may be associated with acute bronchitis:

- pneumonia,
- post bronchitis (non-infectious) cough, and
- bacterial superinfection (Brashers & Huether, 2019).

Referral

Refer to a physician/NP if client presentation is consistent with those identified in the *Immediate Consultation Requirements* section; if there is a failure to respond to the prescribed treatment in 10-14 days and the client remains unwell; or if the cough lasts longer than four weeks (IPAG, personal communication, October 14, 2019).

References

- Anti-Infective Review Panel. (2019). *Anti-infective guidelines for community-acquired infections*. MUMS Guideline Clearinghouse.
- Brashers, V., & Huether, S. (2019). Alterations of pulmonary function. In K. McCance & S. Huether (Eds.), *Pathophysiology: The biologic basis for disease in adults and children* (8th ed., pp. 1163-1201). Elsevier.
- Canadian Pharmacists Association. (2021). *CPS drug information*. <https://www-myrxtx-ca.ezproxy.saskpolytech.ca/search>
- Hart, A. M. (2014). Acute bronchitis. *Nurse Practitioner*, 39(9), 32–40.
doi.org/10.1097/01.NPR.0000452978.99676.2b
- RxFiles Academic Detailing Program. (2021). *RxFiles: Drug comparison charts* (13th ed.). Saskatoon Health Region.

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