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Evidence-Based Urgent Care

High-Yield Clinical Education • Practical Application

CLINICAL CHALLENGES:

- What conditions are on the differential diagnosis for acute bronchitis?
- What are evidence-based strategies for the management of acute bronchitis?
- How can patient expectations and antibiotic stewardship be managed in presentations of acute bronchitis?

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Prior to beginning this activity, see "CME Information" on page 2.



Urgent Care Evaluation and Management of Acute Bronchitis

■ Abstract

Acute bronchitis is common in the urgent care setting and is a clinical diagnosis. Patients typically present with acute onset of cough that has lasted for 1 to 3 weeks, and although symptoms resolve without intervention, it is important to consider and evaluate for "don't-miss" diagnoses and disease processes that can mimic acute bronchitis. Treatment is largely supportive, and antibiotics should not be given for most patients with acute bronchitis. Patients should also receive education about their illness and should be provided with strict return precautions. By following evidence-based recommendations for the diagnosis and management of acute bronchitis, urgent care clinicians can avoid ordering unnecessary tests and medications.

CME Information

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Needs Assessment: The need for this educational activity was determined by a practice gap analysis; a survey of medical staff; review of morbidity and mortality data from the CDC, AHA, NCHS, and ACEP; and evaluation responses from prior educational activities for urgent care and emergency medicine physicians.

Target Audience: This internet enduring material is designed for physicians, physician assistants, nurse practitioners, and residents in the urgent care and family practice settings.

Goals: Upon completion of this activity, you should be able to: (1) identify areas in practice that require modification to be consistent with current evidence in order to improve competence and performance; (2) develop strategies to accurately diagnose and treat both common and critical urgent care presentations; and (3) demonstrate informed medical decision-making based on the strongest clinical evidence.

CME Objectives: Upon completion of this activity, learners should be able to: (1) evaluate patients with an urgent care presentation concerning for acute bronchitis; (2) clinically and diagnostically rule out conditions that can mimic acute bronchitis; and (3) employ evidence-based management strategies for acute bronchitis that include supportive care, antibiotic stewardship, and targeted therapies when indicated.

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QUICK READ

Points & Pearls

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Urgent Care Evaluation and Management of Acute Bronchitis

Points

- Acute bronchitis is a clinical diagnosis and should be made only after excluding pneumonia and other serious conditions.
- More than 90% of acute bronchitis cases in healthy adults are caused by a virus.[1]
- The hallmark presentation of bronchitis is acute cough lasting 1 to 3 weeks, with or without sputum production.
- Risk factors for bronchitis include seasonal variation (particularly fall and winter), low humidity and colder temperatures, smoking or vaping, underlying lung disease, exposure to environmental irritants, and immunosuppression.
- Normal vital signs and absence of focal lung findings make pneumonia unlikely. Conversely, abnormal vital signs (eg, fever, tachycardia, tachypnea, hypoxia) should prompt evaluation for pneumonia.
- Sputum color does not distinguish viral from bacterial infection and should not guide treatment decisions.
- Routine diagnostic testing is not indicated unless needed to rule out alternative diagnoses or identify a treatable pathogen.
- Chest x-ray should be obtained only when pneumonia is suspected, not routinely.
- Supportive care, such as hydration, rest, and cough drops, is the cornerstone of management of bronchitis.
- Antibiotics are indicated only for specific scenarios such as pertussis or suspected bacterial pneumonia.

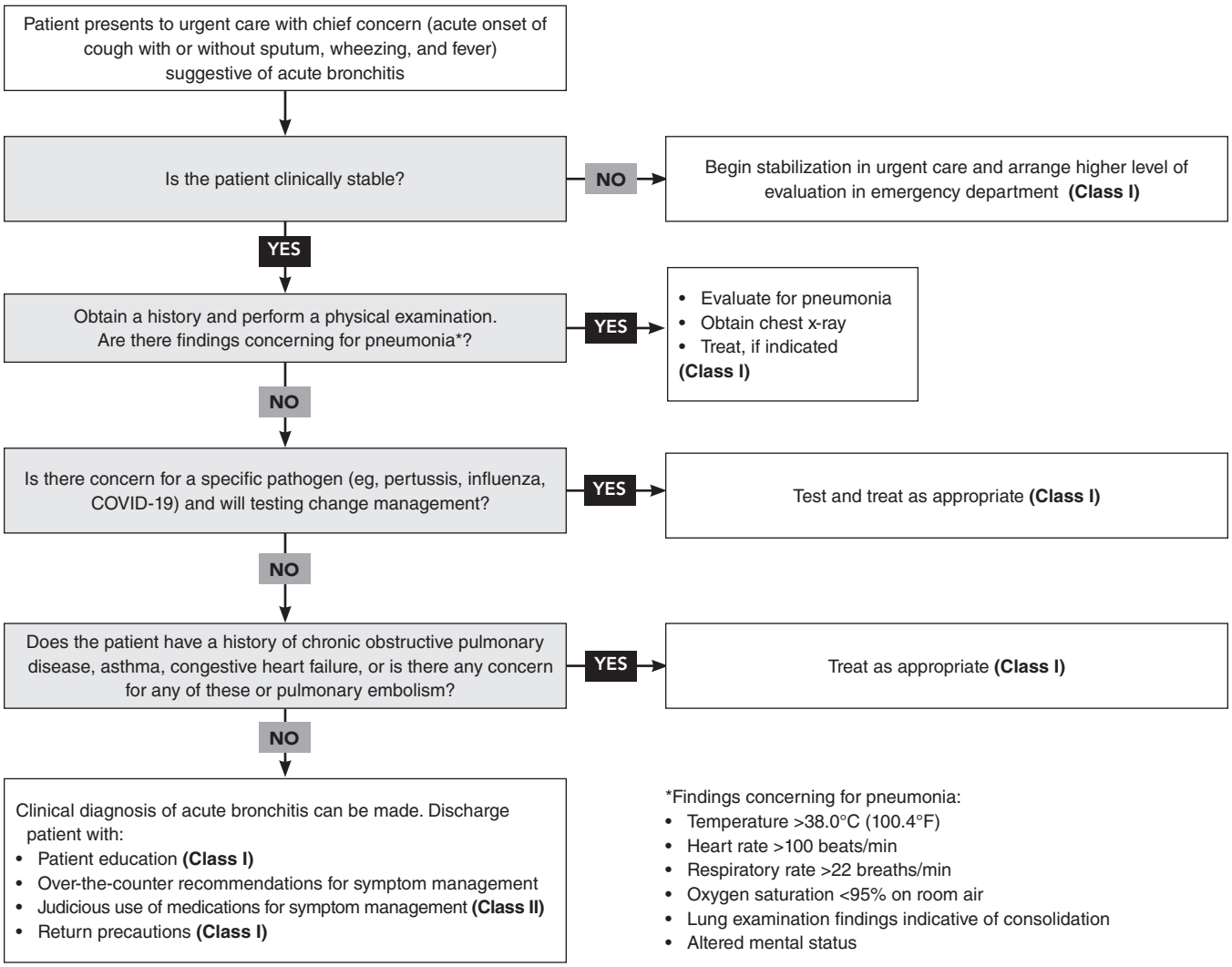
Pearls

- Think of bronchitis as a diagnosis of exclusion—always rule out pneumonia, pulmonary embolism, heart failure, asthma, and chronic obstructive pulmonary disease exacerbation first. **(See Table 1.)**
- Wheezing and rhonchi that improve with coughing supports a diagnosis of bronchitis rather than pneumonia.
- Corticosteroids and antihistamines are not effective for uncomplicated bronchitis and may cause harm. Bronchodilators should not be used routinely for bronchitis; they should only be used if there is wheezing or underlying airway disease.
- Avoid unnecessary prescriptions, as most medications do not shorten illness duration and may have adverse effects.
- Honey, humidified air, saline nasal spray, and hydration are safe, low-risk options for symptom relief.
- Immunocompromised and patients aged >65 years may require lower thresholds for testing and treatment. **(See Table 3.)**
- Patient education and return precautions are essential to reduce unnecessary revisits and antibiotic use.

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Clinical Pathway for Urgent Care Management of Acute Bronchitis

Click or scan for interactive pathway



*Findings concerning for pneumonia:
- Temperature >38.0°C (100.4°F)
- Heart rate >100 beats/min
- Respiratory rate >22 breaths/min
- Oxygen saturation <95% on room air
- Lung examination findings indicative of consolidation
- Altered mental status

Class of Evidence Definitions

Each action in the clinical pathways section of *Evidence-Based Urgent Care* receives a score based on the following definitions.

Class I
- Always acceptable, safe
- Definitely useful
- Proven in both efficacy and effectiveness

Level of Evidence:
- One or more large prospective studies are present (with rare exceptions)
- High-quality meta-analyses
- Study results consistently positive and compelling

Class II
- Safe, acceptable
- Probably useful

Level of Evidence:
- Generally higher levels of evidence
- Nonrandomized or retrospective studies: historic, cohort, or case control studies
- Less robust randomized controlled trials
- Results consistently positive

Class III
- May be acceptable
- Possibly useful
- Considered optional or alternative treatments

Level of Evidence:
- Generally lower or intermediate levels of evidence
- Case series, animal studies, consensus panels
- Occasionally positive results

Indeterminate
- Continuing area of research
- No recommendations until further research

Level of Evidence:
- Evidence not available
- Higher studies in progress
- Results inconsistent, contradictory
- Results not compelling

These clinical pathways are intended to supplement, rather than substitute for, professional judgment and may be changed depending upon a patient's individual needs. Failure to comply with this pathway does not represent a breach of the standard of care.

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Case Presentations

CASE 1

A 43-year-old man presents to urgent care with a complaint of nearly 2 weeks of cough…

- His cough is productive of clear yellow sputum. He has not experienced any chest pain, shortness of breath, fever, edema, or posttussive emesis.
- His past medical history is significant for type 2 diabetes mellitus, obesity, and hypercholesterolemia, and he is taking metformin and rosuvastatin.
- On examination, his lungs are clear to auscultation bilaterally, and the rest of his examination is unremarkable.
- His vital signs are: temperature, 36.9°C; heart rate, 88 beats/min; blood pressure, 134/85 mm Hg; respiratory rate, 16 breaths/min; and O_2 saturation, 98% on room air.
- You consider what could be causing his cough…

CASE 2

A 58-year-old woman presents to urgent care with a complaint of 12 days of nonproductive cough, malaise, and some mild chest discomfort…

- Her physical examination is notable for bilateral scattered wheezes on lung auscultation. When asked to cough, her wheezing partially resolves.
- She has a past medical history of hypertension, hyperlipidemia, and generalized anxiety disorder. She is taking lisinopril, atorvastatin, and sertraline.
- Her vital signs are: temperature 37.2°C; heart rate, 92 beats/min; blood pressure, 141/88 mm Hg; respiratory rate, 14 breaths/min; and O_2 saturation, 99% on room air.
- You consider whether this patient has an infection that requires antibiotics and question what your workup should include…

CASE 3

A 68-year-old woman presents to urgent care with worsening shortness of breath for the past day…

- She is now requiring 4L of oxygen to maintain saturation between 88% and 92%.
- She has a cough productive of sputum and has had fevers, with a maximum temperature at home of 100.9°F.
- She has a past medical history of COPD (on 2L of oxygen at home), hypothyroidism, hypertension, and hyperlipidemia. She is taking a combined daily fluticasone/umeclidinium/vilanterol inhaler, levothyroxine, amlodipine, and atorvastatin.
- Her physical examination is notable for bilateral wheezing on lung examination.
- Her vital signs are: temperature, 38.4°C; heart rate, 108 beats/min; blood pressure, 110/76 mm Hg; respiratory rate, 24 breaths/min; and O_2 saturation, 90% on 4L nasal cannula.
- You consider what your next steps for this patient should be…

Introduction

Acute bronchitis is commonly encountered in the urgent care setting but diagnosing it can be a challenge, even for seasoned clinicians. Bronchitis has an acute onset but typically causes persistent cough that may be productive of sputum. Duration of symptoms is between 1 and 3 weeks, and symptoms resolve without intervention. Utilizing an evidence-based approach to bronchitis can eliminate an unnecessary workup and overprescription of antibiotics and other supportive care measures.

Etiology and Pathophysiology

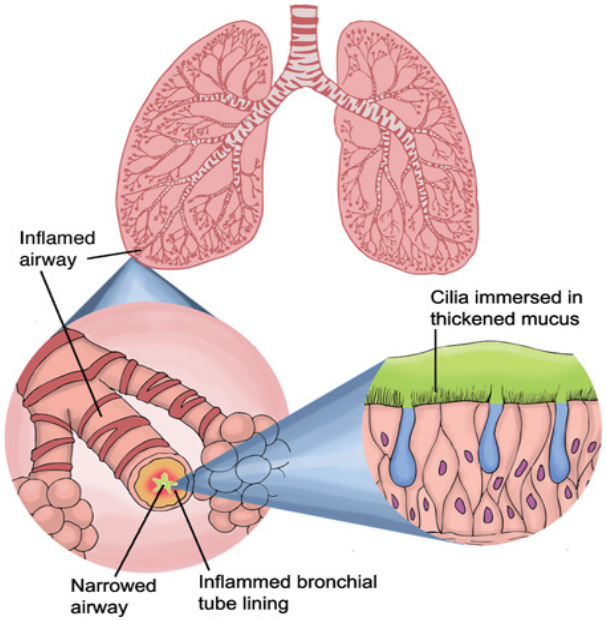
The majority of cases of acute bronchitis are caused by viruses. A 2025 review in *American Family Physician* estimated that >90% of acute bronchitis cases in healthy adults are caused by a virus.[1] Some of the most common viruses to cause bronchitis include: rhinovirus, influenza virus, coronavirus, parainfluenza virus, and respiratory syncytial virus.[2] However, there is a small subset of acute bronchitis cases that are caused by bacteria, specifically *Mycoplasma pneumoniae, Chlamydophila pneumoniae*, and *Bordetella pertussis*. These strains may lead to cases of bronchitis that are more severe than viral bronchitis.[3] Bacterial causes of bronchitis (such as pertussis) cause a longer duration of symptoms, most notably, prolonged cough. In the case of pertussis, treatment with antibiotics may hasten resolution of symptoms and decrease transmission.[4,5] *Streptococcus pneumoniae* and *Haemophilus influenzae* are uncommon causes of bronchitis, and they are typically seen in the elderly, immunocompromised, or patients with underlying lung disease.[6]

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Cough seen in bronchitis is due to pathogen-induced inflammation in the tracheal and bronchial epithelium. This inflammation causes epithelial injury, an increase in mucus production, and temporary inability of the mucociliary escalator to clear mucus. After the initial acute infection, there is transient hyperresponsiveness where the bronchi become re-inflamed.[7] **(See Figure 1.)** Transient hyperresponsiveness leads to the lingering cough that is the hallmark of bronchitis. Purulent sputum production is due to the sloughing of epithelial cells and does not always represent a bacterial infection, although viral and bacterial co-infection can occur on occasion.[3] The illness is self-limited, and the tracheobronchial inflammation resolves within 1 to 3 weeks.

The incidence of acute bronchitis is highest in the fall and winter months, when respiratory viruses are most prevalent. Decreased humidity and temperature during these seasons are strongly associated with peaks in virus prevalence.[8] Cold temperatures also decrease the upper respiratory tract's ability to clear infection via the mucociliary escalator.[9] Additional risk factors include smoking, vaping, pre-existing lung disease, exposure to environmental irritants, and immunosuppression, as these factors also reduce the respiratory system's ability to clear infection.

Figure 1. Pathophysiology of Acute Bronchitis



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■ Differential Diagnosis

Table 1 lists the differential diagnoses of acute bronchitis that should not be missed, due to risk for severe complications and poor outcomes. The hallmark presentation for acute bronchitis includes:

- Acute onset of cough for patients (without history of chronic obstructive pulmonary disease [COPD]) with duration of symptoms generally being <3 weeks;
- A cough that can be productive of sputum or nonproductive;
- A lack of symptoms indicative of pneumonia.

Patients with acute bronchitis will not typically have significant malaise, dyspnea, tachycardia,

Table 1. Differential Diagnosis of Acute Bronchitis: Don't-Miss Diagnoses

Don't-Miss Diagnosis	Presentation
Pneumonia[10]	• Respiratory symptoms: cough, shortness of breath, sputum production • Systemic infection signs: fever, tachypnea, tachycardia • Focal findings on lung examination
Pulmonary embolism	• Symptoms are nonspecific and difficult to identify • At least 1 of 4 cardinal symptoms (sudden-onset dyspnea, chest pain, fainting/syncope, or hemoptysis) occurs in 94% of patients[11] • Examination findings: tachycardia (65%-70%); hypoxemia (70%); signs of deep vein thrombosis (40% of symptomatic patients with pulmonary embolism)[12,13] • Clinical presentation ranges from asymptomatic incidental finding to shock state[12]
Heart failure exacerbation	• Diagnosis of acute decompensated heart failure requires at least 1 symptom, 2 objective findings (including at least 1 physical examination sign), and escalation of therapy • Symptom criteria: dyspnea (with exertion, at rest, orthopnea, or paroxysmal nocturnal dyspnea), decreased exercise tolerance, fatigue • Physical examination findings: ○ New or worsened peripheral edema ○ Abdominal distension/ascites ○ Pulmonary rales ○ Elevated jugular venous pressure ○ S3 gallop ○ Rapid weight gain • Escalation of therapy criteria:[14] ○ Augmentation of oral loop diuretics ○ Initiation of intravenous or subcutaneous diuretics ○ Intravenous vasoactive agents ○ Mechanical interventions ○ Mechanical fluid removal

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or hypoxemia. They may, however, have mild constitutional symptoms. **Table 2** shows conditions that commonly resemble acute bronchitis but have different clinical presentations.

■ Urgent Care Evaluation

Acute bronchitis is a clinical diagnosis and further workup should be reserved for ruling out other diagnoses.[19] The American College of Chest Physicians has emphasized that acute bronchitis may only be diagnosed when there is no clinical or radiographic evidence of pneumonia and when an upper respiratory tract infection, acute asthma, and COPD exacerbations have been excluded.[19]

History

The main objective of the patient interview is to distinguish between acute bronchitis and other pathologies. There are several important areas to explore on patient interview, which include but are not limited to:

- Past medical history, specifically if the patient has a history of COPD, asthma, or cardiac conditions such as heart failure;
- History of similar episodes in the past; recurrent bronchitis may suggest a diagnosis of asthma (approximately 65% of patients with ≥2 episodes are diagnosed with some degree of asthma);[19]
- Sick contacts;
- Pertussis exposure and pertussis vaccination status (pertussis should be considered specifically for patients with paroxysmal cough >2 weeks duration, whooping, and/or posttussive emesis);[4,20]
- Smoking history; and
- Influenza vaccination status (the influenza vaccine is the primary vaccine that decreases risk for acute bronchitis).[1]

It is helpful to analyze symptom characteristics to help guide diagnosis and clinical reasoning. The following characteristics should be specifically considered:

- Duration of cough – acute bronchitis lasts up to 3 weeks. If cough has lasted >3 weeks, further assessment is required.[19]
- Dyspnea – if dyspnea is present, it increases the chances of a patient having pneumonia.[1]
- Coryza – if coryza is absent, it increases the likelihood of pneumonia.[1] (*Coryza* is a medical term for inflammation of the nasal mucous membranes, typically presenting as symptoms of a common cold or upper respiratory infection.)

Vital Signs

Assessment of vital signs will help elucidate the etiology of patient presentations. For evaluation of patients with suspected bronchitis, it is important to determine whether pneumonia is a likely diagnosis. It is highly unlikely that immunocompetent adults aged <70 years have pneumonia when none of the following are present: tachycardia (>100 beats/min), tachypnea (>24 breaths/min), fever (>38°C), and abnormal chest examination findings.[1,3] Refer to the April 2023 issue of *Evidence-Based Urgent Care*, "Community-Acquired Pneumonia in Urgent Care Medicine" for more information about recommendations for the urgent care management of patients with community-acquired pneumonia.

Physical Examination

Acute bronchitis typically presents with an acute cough (with or without sputum production) lasting up to 3 weeks in duration, often occurring concurrently with typical common cold symptoms.[1] In some cases, the cough may begin as a dry cough for the first several days of illness and then progress to more of a wet cough productive of sputum. Sputum production

Table 2. Differential Diagnosis of Acute Bronchitis

Most Likely Diagnosis	How Presentation Is Unique and Differs from Acute Bronchitis
Viral upper respiratory infection	• Predominantly presents with upper respiratory symptoms such as rhinorrhea, nasal congestion, sore throat, and sneezing • Acute bronchitis involves the lower airways and presents with persistent cough[1]
Asthma[15,16]	• Presents with wheezing, dyspnea, chest tightness, and cough that vary over time and in intensity • Symptoms are often triggered by exposures (eg, infection, exercise, cold air, allergens) • Additionally, symptoms are typically worse at night or early in the morning
Chronic obstructive pulmonary disease exacerbation	• Occurs in patients with history of chronic obstructive pulmonary disease • Develops over days to weeks with symptoms of worsening dyspnea, increased sputum production, and increased cough[1]
Gastroesophageal reflux disease	• Can present with chronic cough, but it is also often accompanied by symptoms of heartburn and regurgitation[17]
Postnasal drip	• Presents mostly with upper airway symptoms (eg, secretions dripping down the throat, throat-clearing, nasal discharge, or congestion[1])
Allergic rhinitis	• Presents with nasal itching, palate itching, ocular itching, sneezing, and clear watery rhinorrhea[18]

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occurs in approximately 50% of acute bronchitis cases.[1,3] Sputum may be purulent-appearing; however, this does not indicate bacterial infection. Rather, the sputum is composed of sloughed off epithelial cells from the respiratory tract.[1] Patients may exhibit noisy breathing (eg, wheezes, rhonchi) that clears with coughing, and fever may be present in as many as one-third of patients with acute bronchitis.[1] If signs of consolidation on auscultation (eg, crackles) or there are physical examination findings such as tactile fremitus and egophony, there should be high suspicion for pneumonia.[1]

■ Diagnostic Studies

Laboratory Studies

For immunocompetent adult outpatients with suspected acute bronchitis, the American College of Chest Physicians recommends against routine ordering of respiratory tract samples for viral polymerase chain reaction (PCR) testing or sputum for microbial culture.[19] Nonetheless, testing may be appropriate if cough persists or worsens.[19] If there is concern for a specific pathogen (such as SARS-COV-2, influenza, or pertussis) based on patient presentation, seasonal variation and prevalence, and known exposures, then targeted testing for these pathogens can be considered if it will change management. COVID, influenza, and pertussis each have medications (either antivirals or antibiotics) that may be prescribed for treatment.[3] PCR-based respiratory swab tests are significantly more sensitive than antigen tests; however, antigen tests offer faster turnaround times, are less expensive, and may have more widespread availability.[2]

Imaging

If there is any concern for pneumonia, obtain a chest x-ray. Signs and symptoms concerning for pneumonia include: temperature >38.0°C (100.4°F); heart rate >100 beats/min; respiratory rate >22 breaths/min; oxygen saturation <95% on room air; lung examination findings indicative of consolidation; and altered mental status in elderly patients. It is also important to note that a negative chest x-ray does not rule out a diagnosis of pneumonia.[21] If clinical suspicion is high following a negative chest x-ray, a computed tomography scan may be required. Point-of-care ultrasound (POCUS) is emerging as a beneficial modality for diagnosing pneumonia, especially in children. Lung ultrasound demonstrates superior diagnostic accuracy compared with chest radiography for detecting pneumonia, with pooled sensitivity of 92% and specificity of 89%, compared with chest x-ray specificity of only 49%.[22] This makes POCUS particularly valuable for distinguishing pneumonia from bronchitis.

■ Treatment

First-line treatment of acute bronchitis in otherwise healthy adults is supportive care. Because most cases are viral, antibiotics provide little benefit and should be generally avoided. Prescription and over-the-counter symptomatic medications do not improve or shorten symptoms.[23] Some clinicians may choose to prescribe these medications to meet patient expectations and ensure patient satisfaction; however, clinicians should consider providing further education to patients regarding expected benefits and side effects, and shared decision making should be used before prescriptions are written. Additionally, nonpharmacologic therapies (eg, cough drops, honey) can be discussed as supportive care options.

Symptomatic Treatment

Even though the evidence does not directly support honey for adult patients with bronchitis, some studies have shown that honey can help reduce symptoms for acute cough, with pediatric patients deriving greater benefit than adults.[24] The lack of side effects with honey use makes it a safe option for adult patients to try.

Other measures that patients can take at home to treat their symptoms include rest, adequate hydration, cough drops, humidified air/mist/steam, and nasal saline irrigation.[1] These home remedies are aimed at reducing airway, oropharynx, and sinus irritation, while also ensuring that patients remain well-hydrated and rested during the course of their illness.

Contraindicated Treatments

Antibiotics

Antibiotics should not be given to immunocompetent patients with acute bronchitis unless there is suspicion for pneumonia or pertussis, because most patients with acute bronchitis have a viral cause for their symptoms. Pneumonia can be diagnosed based on chest x-ray or POCUS evidence, although a negative chest x-ray does not rule out pneumonia. The April 2023 issue of *Evidence-Based Urgent Care*, "Community-Acquired Pneumonia in Urgent Care Medicine," contains guidance regarding urgent care management of patients with community-acquired pneumonia.

Pertussis can be diagnosed clinically, based on exposure and historical elements, but laboratory testing (PCR testing of nasopharyngeal samples, culture for *B pertussis*, serology) is needed to definitively diagnose it. Pertussis typically presents with cough >2 weeks duration, a whooping cough, and posttussive emesis. It is important to consider vaccination status and ask the patient whether they have any known exposures to someone with pertussis. Azithromycin is the antibiotic of choice for treatment. It is appropriate to treat suspected pertussis empirically without first having results of confirmatory testing for patients who fit the clinical

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picture for pertussis, especially if they have contact with vulnerable individuals, such as infants.[20] Empiric azithromycin can always be discontinued if pertussis PCR testing is negative once it results.

A Note on Antibiotic Stewardship

Most patients who present with acute bronchitis are dealing with a self-limited viral illness, and antibiotics will not meaningfully shorten symptoms or improve outcomes. The decision to not prescribe antibiotics can be challenging for the clinician, especially when patients expect a medication or are uncomfortable with a lingering cough.

A helpful approach is to focus on shared medical decision-making: explain the patient's condition clinically, the conditions that have been ruled out (eg, pneumonia), and what patients can expect in terms of symptom duration. Framing treatment around what will help (eg, hydration, rest, natural remedies, and time) rather than what will not help can improve patient satisfaction without prescribing unnecessary medications.

While antibiotics have an important role in indicated conditions, using them selectively helps preserve their efficacy, reduces avoidable side effects, and maintains patient care with research-based treatments. In short, antibiotic stewardship in urgent care is not about saying "no," it is about making thoughtful, evidence-based decisions and communicating them well.

Antihistamines

Antihistamines (first and second generation) are not effective for symptom relief for patients with acute bronchitis, and both the American Academy of Family Physicians and American College of Chest Physicians have recommendations against their use.[1,19] In many cases, use of antihistamines may actually worsen symptoms by drying out the nasal mucosa.[25]

Expectorants

Similar to antihistamines, expectorants such as guaifenesin are largely ineffective for treating symptoms of acute bronchitis. A randomized controlled trial composed of subjects with acute respiratory tract infections found no measurable effect of guaifenesin on sputum volume or character.[26]

Bronchodilators

Albuterol has not been shown to benefit patients with bronchitis without pre-existing lung disease (eg, asthma, COPD).[3] A Cochrane review of 5 trials involving 418 adults found no significant differences in daily cough scores or the percentage of adults still coughing after 7 days with the use of albuterol.[27] Wheezing was also not significantly improved, and the side effects may outweigh benefits. The 2025 guidelines from the American Academy of Family Physicians recommend avoiding beta-2 agonists for acute bronchitis unless the patient has asthma, COPD, signs of airflow restriction suggested by wheezing, bronchial hyperresponsiveness, or decreased FEV1.[1] In clinical practice, a brief trial of albuterol may be reasonable for patients with wheezing and shortness of breath, recognizing that the evidence is inconsistent and potential benefits must be weighed against adverse effects.

Corticosteroids

Corticosteroids (oral and inhaled) do not reduce symptom duration or severity in adults without pre-existing lung disease. A randomized trial of 401 adults found that oral prednisolone 40 mg daily for 5 days did not significantly reduce median cough duration (median of 5 days in both the treatment and control group) or mean symptom severity between days 2 and 4.[28]

Other Treatments

The only randomized trial that specifically evaluated symptomatic treatments in adults with acute bronchitis found that dextromethorphan and ipratropium bromide were ineffective, with median days of moderate-to-severe cough being 5 to 6 days across all groups.[29] In addition to the above supportive treatments not being effective for improving symptoms or reducing duration of acute bronchitis, their use is accompanied by side effects that must be carefully considered.

■ Special Populations

Immunocompromised Patients

The management for acute bronchitis in immunocompromised patients is the same as immunocompetent patients; however, further testing should be considered for any patients with systemic symptoms, symptoms of pneumonia, and for patients whose cough does not improve over time. The choice to prescribe empiric antibiotics for these patients can be made based on clinical judgment, but it is important to consider whether a patient is truly immunocompromised. **Table 3** identifies patients and conditions that may lead to immunosuppression.

Table 3. Causes of Immunosuppression[30]

Disease-Related Immunosuppression	Treatment-Related Immunosuppression
• Hematologic malignancy • Neutropenia • HIV/AIDS • Primary immunodeficiencies (severe combined immunodeficiency, common variable immunodeficiencies, complement deficiencies) • Asplenia • Autoimmune diseases that require multiple immunosuppressive medications	• Transplant recipients who take immunosuppressants • Patients receiving chemotherapy • Patients taking high-dose corticosteroids • Patients taking some biologic medications • CAR T-cell therapy recipients

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Older Patients

For patients aged >65 years, medications for symptomatic treatment of acute bronchitis have limited efficacy, just as in younger patients. Side effects of these medications can be more severe in older patients. First-generation antihistamines can cause anticholinergic effects such as sedation, altered mental status, dry mouth, constipation, difficulty with urination, changes in vision, tachycardia, and orthostatic hypotension. Decongestants are associated with increased risk for anxiousness, insomnia, headaches, dry mouth, and hypertension. Home remedies that have a negligible side-effect profile are a much safer option.

Pregnant Patients

Management for pregnant patients with acute bronchitis is largely the same as it is for other patients; however, there are some medications that may be contraindicated. Clinicians should avoid codeine in pregnant patients, given the increased risk for neonatal opioid withdrawal syndrome, neonatal respiratory depression, and potential prolongation of labor.[31] It is recommended that patients contact their obstetrical clinician to see what they recommend for their patients, as different clinicians may have different preferences in this regard.

■ Controversies and Cutting Edge

Despite the guidance from the American College of Chest Physicians against laboratory and radiographic testing for bronchitis, there are many clinicians who still routinely order chest x-rays, sputum cultures, and serum tests, regardless of whether they are clinically indicated. A complete blood cell count with differential and inflammatory markers should be considered only for patients whose clinical course is not typical (eg, if symptoms persist beyond 3 weeks, if there is concern for a bacterial pneumonia, or if the patient has a medical history such as current cancer diagnosis that places them at greater risk for an alternate diagnosis). Avoiding unnecessary testing helps to decrease healthcare costs and improve efficiency in urgent care.

Some clinicians may choose to order multiplex respiratory pathogen testing despite recommendations against it. The American College of Chest Physicians suggests that routine investigation with respiratory tract samples for viral PCR does not improve outcomes or guide management for patients with acute bronchitis.[19]

■ Disposition

Referral to the emergency department should be considered for patients who are hemodynamically unstable, have signs of respiratory distress, are unable to tolerate oral intake, have significant comorbid conditions (eg, history of COPD, asthma, heart failure, immunodeficiency), or cannot be managed adequately within the resources and time constraints of an urgent care clinic.

Patients with acute bronchitis can be discharged home after ensuring the patient is stable, discussing supportive care, educating them about their illness, and providing return precautions. Patients should return to the urgent care clinic if symptoms extend beyond 2 to 3 weeks or worsen at any time, or if they develop difficulty breathing or high fevers. Patient education is essential, and patients should be advised that acute bronchitis is usually caused by a virus and that the symptoms they are experiencing will resolve on their own without any treatment. Their symptoms can last up to 2 to 3 weeks. The absence of the need for antibiotics should be discussed and return precautions should be provided if they develop a postviral bacterial respiratory infection.

Here is an example of what clinicians can tell patient with bronchitis: "You have acute bronchitis, which is a chest cold typically caused by a virus. This will clear up on its own within 3 weeks. If you continue to have symptoms past the 3-week point or start to feel worse, please come back to see us so that we can re-evaluate you. Specifically, please come back if you have shortness of breath, more malaise,

5 Things That Will Change Your Practice

1. Acute bronchitis is a clinical diagnosis. Chest x-rays should be ordered only for patients who have a presentation concerning for pneumonia.
2. Pathogen testing should be used only if it will change management. For example, a positive test for *B pertussis* would change management, as the patient should be prescribed antibiotics.
3. Supportive management should center around trial of home remedies, as prescription and over-the-counter medications are largely ineffective and cause unintended side effects.
4. Antibiotics should be given only for a known bacterial pathogen or when there is high suspicion for bacterial pneumonia, such as a positive chest x-ray or with a high-risk patient.
5. Patients with acute bronchitis should be provided with strict return precautions so that if they worsen (eg, they develop pneumonia), they understand they need to return to clinic for further evaluation and treatment.

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Case Conclusions

CASE 1

For the 43-year-old man with nearly 2 weeks of cough…

There was little concern for pneumonia or a specific pathogen, as he did not have dyspnea or evidence of consolidation on lung auscultation. Further testing was deferred at that time. The clinical diagnosis of acute bronchitis was made. This patient was provided with information about bronchitis and its viral etiology, educated about the lack of evidence to support use of prescription and over-the-counter medications. You informed him of options for symptomatic treatment, provided strict return precautions, and discharged him home.

CASE 2

For the 58-year-old woman with 12 days of cough, malaise, and mild chest discomfort…

Her presentation was concerning for pneumonia, as she was having constitutional symptoms. However, her lungs were wheezy and cleared with coughing, which can often be seen in acute bronchitis and less often for patients with pneumonia. You diagnosed her with acute bronchitis, and she was provided with education on bronchitis and was encouraged to try using honey and an air humidifier at home. Strict return precautions (eg, increase in fever, new shortness of breath, cough that lasts longer than 3 weeks, worsening malaise) were provided to the patient. She was discharged home.

A few days later, the patient returned to the clinic with fevers and worsening shortness of breath. Her oxygen saturation was 96% on room air and her heart rate was 87 beats/min. On lung auscultation, there were crackles in the left lower lobe. Chest x-ray was obtained and there was focal opacification in the left lower lobe, consistent with lobar pneumonia, which was likely a postviral bacterial infection. You then consulted an algorithm for management of community-acquired pneumonia to guide your treatment of this patient.

CASE 3

For the 68-year-old woman with worsening shortness of breath and increased oxygen requirement…

This patient's presentation was suggestive of a COPD exacerbation secondary to a respiratory illness. You realized that this patient required a higher level of care, so you made the decision to call EMS and have her transported to the emergency department. In the interim, you kept the patient on 4L nasal cannula, provided her with a nebulized ipratropium and albuterol, and gave her oral prednisone 40 mg. The patient was also given acetaminophen for her fever.

increased coughing, or new or worsening fever. At home, you can try honey, cough drops, air humidifiers, and/or saline nasal spray."

Summary

Acute bronchitis is diagnosed clinically. It is important to always consider don't-miss diagnoses and acute bronchitis mimics. Acute bronchitis is managed with supportive care, patient education about their diagnosis, and strict return precautions. Antibiotics, corticosteroids, and albuterol are not indicated for most patients with acute bronchitis. Overtreatment can burden patients with unnecessary side effects and cost without providing any proven benefit.

Critical Appraisal of the Literature

A literature search was performed using the following search terms in combination with *acute bronchitis*: *etiology, pathophysiology, presentation, treatment, management, management for special populations, disposition,* and *controversies regarding acute bronchitis*. Titles, abstracts, and full articles were reviewed for content. Important practice guidelines reviewed included guidance from the Infectious Diseases Society of America, American Society for Microbiology, American College of Physicians, the United States Centers for Disease Control and Prevention, and the American College of Chest Physicians.

Time- and Cost-Effective Strategies

- Acute bronchitis is a clinical diagnosis. Most patients with acute bronchitis do not require laboratory testing. Order further imaging and testing only if there is concern for another infectious process or other pathology.
- Order antibiotics only when they are clinically indicated (eg, diagnosis of pneumonia, high index of suspicion, or positive testing for specific pathogens).
- Corticosteroids are not indicated for patients with isolated acute bronchitis. They are appropriate only for patients with history of COPD or asthma who are presenting with an exacerbation.

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Risk Management Pitfalls in the Management of Acute Bronchitis in Urgent Care

1. **"This patient has acute bronchitis and may have something bacterial; I am going to give them an antibiotic just in case."** Do not prescribe antibiotics for uncomplicated acute bronchitis cases. Unnecessary antibiotics increase the risk for side effects, contribute to antibiotic resistance, and raise healthcare costs, with no proven benefit.

2. **"This just sounds like something viral; the patient is good to go home."** Do not forget to consider other differentials, such as pneumonia, asthma, COPD exacerbation, and pertussis. Overlooking more serious conditions may lead to risk of severe complications and poor outcomes.

3. **"The patient has thick, green sputum – they must have a bacterial pneumonia."** Do not use sputum color as a means of determining whether a patient's infection is bacterial or viral. Studies have shown that sputum color does not reliably distinguish between viral and bacterial infections[32] and should not be used to guide antibiotic prescribing.

4. **"This patient has acute bronchitis and some congestion. Let's just try giving them diphenhydramine."** Medications such as diphenhydramine have not been shown to be effective and may cause unwanted side effects and drug interactions. Instead, consider having patients try home remedies.

5. **"I told a patient yesterday that they have bronchitis and that they do not need antibiotics or corticosteroids. But they called the clinic today and requested these medications again because they are not feeling better. It has only been a day, how can they expect to feel better already?"** Do not forget to provide patients with education about acute bronchitis so that they have realistic expectations about their timeline for improvement. This will help prevent bounce-back visits and phone calls. It also is important to provide explicit return precautions.

References

Evidence-based medicine requires a critical appraisal of the literature based upon study methodology and number of subjects. Not all references are equally robust. The findings of a large, prospective, randomized, and blinded trial should carry more weight than a case report.

To help the reader judge the strength of each reference, pertinent information about the study is included in bold type following the reference, where available. In addition, the most informative references cited in this paper, as determined by the authors, are noted by an asterisk (*) next to the number of the reference.

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KidBits: Urgent Care Management of Acute Bronchitis in the Pediatric Population

By Laura Hart-Higgins, EdD, MSN, CPNP

Acute cough is one of the most common reasons for outpatient visits in both adult and pediatric patient populations.[1] For most children, *acute cough*, defined as cough lasting <4 weeks, is caused by viral upper respiratory tract infection (URI) and is self-limiting. Evaluation and treatment of cough in children differs from that of adults due to differences in anatomy and unique age-related risk factors.

■ Urgent Care Evaluation

Bronchitis, a general term used to describe acute cough, is a clinical diagnosis and does not require diagnostic testing unless a specific cause outside of a viral URI is suspected. Making a diagnosis of bronchitis in a child requires a thorough clinical history and careful physical examination to rule out a more serious etiology.[2]

The cough associated with pediatric bronchitis may sound dry or wet. The presence of wheezing, crackles, or diminished breath sounds should prompt a workup for pneumonia, bronchiolitis, or asthma exacerbation. A barking cough should alert the provider to laryngotracheobronchitis (also called *croup*). A paroxysmal cough, with or without an inspiratory whoop, can be an indicator for *Bordetella pertussis*, especially in infants or unvaccinated children. Foreign body aspiration must be considered in small children with sudden new onset of cough and may be accompanied by wheezing, stridor, and/or unilaterally decreased breath sounds.[2,3]

When assessing acute cough in children, chest radiography and laboratory testing should be used only when there is reasonable suspicion for a significant underlying cause.

■ Pediatric Management

Most treatments available for pediatric bronchitis lack evidence for efficacy and safety, and this is likely to be discouraging news for caregivers. **(See Table 1.)** Coughing may cause discomfort for the child and often disturbs sleep for both the patient and caregivers. This may, in turn, lead to missed school days, parental work absenteeism, and economic strain. Unfortunately, acute cough caused by viral URIs is self-limiting, and there are very few treatments supported by evidence. Families are often disappointed to leave an appointment without a treatment to decrease the severity or duration of the cough.

Antibiotics are contraindicated in the absence of an obvious bacterial source for cough, and bronchodilators are unlikely to improve symptoms in children who do not have a history of asthma.[1,3] Over-the-counter cough and cold medications containing ingredients such as dextromethorphan, diphenhydramine, and chlorpheniramine have been demonstrated to have very little efficacy and continue to be an important cause of pediatric mortality. Most importantly, opioid cough suppressants must never be used in pediatric patients.[4]

Caregivers can provide general supportive care, including adequate fluid intake and antipyretics if fever is present. There is some limited evidence demonstrating honey to be more effective than

Table 1. Treatments for Pediatric Bronchitis and Associated Concerns

Treatment	Concern
Antibiotics	• No efficacy for viral illnesses • Increased prevalence of multidrug-resistant organisms
Antihistamines (diphenhydramine, brompheniramine, doxylamine, chlorpheniramine)	• Not effective in decreasing cough • Risk for sedation
Decongestants (pseudoephedrine, phenylephrine, oxymetazoline)	• No evidence of efficacy • Risk for somnolence • Risk for rebound congestion with topical decongestant
Cough suppressants (dextromethorphan, benzonatate, codeine)	• Dizziness, drowsiness (dextromethorphan) • Respiratory depression (codeine) • Neurotoxicity and severe cardiac abnormalities (overdose of benzonatate)
Antipyretics (ibuprofen, acetaminophen)	• Accidental overdose relating to combination products • Relieves fever and pain but not cough
Expectorants (guaifenesin)	• Very poor evidence for efficacy • May cause unpleasant side effects
Honey	• Botulism concern in children aged <1 year • Conflicting evidence for efficacy
Mentholated chest rub	• Skin redness or rash • Burning sensation of eyes or nasal passages • Camphor should be used cautiously in children with seizures

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placebo in decreasing severity of cough, so this can be recommended as a reasonable treatment option for children aged >12 months. Likewise, several studies have noted improvement in cough frequency and severity with the use of mentholated chest rubs, although these should be used with caution due to the risk for skin irritation.[5] Saline nasal spray can be useful in the management of cough by loosening nasal mucus, and bulb suction is helpful for clearing nasal passages in infants.[2]

Counseling Families About Bronchitis

Once a serious etiology for cough has been ruled out and a diagnosis of bronchitis has been made, the urgent care clinician's greatest asset will be their rapport with the child's caregivers and their aptitude for patient education.

Cough is a particularly bothersome symptom that can linger well beyond the initial symptoms of URI, and families often present to urgent care centers seeking solutions. Caregivers should be advised to anticipate acute cough related to viral URI lasting up to 2 or 3 weeks.[3] Families can be reassured that this is a normal and expected finding with bronchitis and not a sign of something more serious.

Key Points

- Pediatric bronchitis will resolve without intervention.
- Cough due to bronchitis may last up to 3 weeks.
- Antibiotics are not recommended for treatment of bronchitis for patients at any age.
- Over-the-counter cough and cold medications are not effective and can be dangerous for children.
- Adequate hydration and keeping nasal passages clear will increase comfort.
- Honey and/or a mentholated chest rub may be reasonable treatment options for some pediatric patients.
- Counseling caregivers about effective treatment options, with empathy, and setting realistic expectations are paramount.

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Coding & Charting: What You Need to Know

- **Recording the negative findings matters clinically, as bronchitis is a diagnosis of exclusion.** It is important to document features that align the patient's symptoms with bronchitis rather than pneumonia. Remember: the American College of Chest Physicians emphasizes that acute bronchitis may be diagnosed only when there is no clinical or radiographic evidence of pneumonia, and when an upper respiratory tract infection, acute asthma, and COPD exacerbation have been excluded (diagnosis of exclusion). According to the United States Centers for Disease Control and Prevention, pneumonia is uncommon in otherwise healthy adults without abnormal vital signs (eg, fever, rapid heart rate, and low oxygen saturation) and focal lung findings (eg, wheezing, crackles, bronchial breath sounds, dull percussion).

- **Document why you did or did not order a chest x-ray.** Chest radiography is not generally indicated for uncomplicated acute bronchitis in healthy adults; thus, pertinent negatives should focus on ruling out pneumonia. These include specifically noting in the electronic medical record "no hypoxia," "no focal crackles or consolidation," "no tachypnea," "no pleuritic chest pain," or "no hemoptysis."

- **If a prescription is given, tie the medication to the symptom or condition** (eg, bronchodilator for wheezing or antitussive for disruptive cough). Routine antibiotics are not recommended for uncomplicated acute (viral) bronchitis regardless of cough duration, which also supports stewardship and payer review.

- **Be sure to document and code these 3 things:**
  - What you ruled out
  - Why your treatment choice is appropriate
  - How specific the diagnosis is

- **Straightforward, uncomplicated bronchitis often supports a lower-level outpatient visit.** Note that a visit with significant comorbidity, broad differential, imaging (if indicated), prescription drug management, or emergency department referral will support a higher level of medical elements.

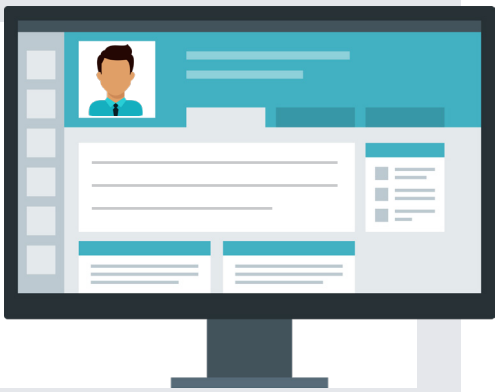
- **An example of a concise urgent care assessment and plan is:** *"Acute cough/bronchitis, likely viral. Patient is afebrile, oxygenating well, with no tachypnea, crackles, or evidence of pneumonia. Radiographic imaging and antibiotics are not indicated. Symptomatic treatment discussed. Albuterol prescribed for wheeze. Return precautions reviewed."*

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Coding Challenge: Acute Bronchitis

By Bradley Laymon, PA-C, CPC, CEMC
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A 42-year-old male, new patient, presents with 4 days of cough, increased sputum production, minimal sinus congestion, fever as high as 100˚F, and fatigue. No chest pain, dyspnea, syncope, abdominal pain, back pain, or GI symptoms. He has been taking over-the-counter guaifenesin, which is not helping with his cough. He does not smoke and has no history of asthma.



PATIENT HISTORY
Past medical history: None
Medications: None
Allergies: No known drug allergies

OBJECTIVE FINDINGS
BP: 132/84 mm Hg (right arm, sitting)
HR: 92 beats/min
RR: 16 breaths/min
Temp: 99.2°F
SpO_2: 95% on room air
Weight: 202 pounds
General: Alert and oriented. Has no acute distress. He speaks in complete sentences with no accessory muscle use. He is coughing frequently.

PHYSICAL EXAMINATION
Head: Normocephalic
Eyes: Conjunctiva clear, PERRLA, EOMI
Ears: No papilledema, TMs clear
Nose/throat: Oropharynx reveals postnasal drip
Neck: No lymphadenopathy, no JVD
Cardiovascular: RRR, no murmur
Respiratory: Mild rhonchi bilaterally, no wheezing or rales
Abdomen: Soft, nondistended, mild epigastric tenderness, no guarding or rebound, bowel sounds present in all quadrants
Skin: Warm and dry
Extremities: No edema or rash

LABORATORY STUDIES
POCT influenza: Negative for A and B
POCT COVID: Negative

IMPRESSION/PLAN
Assessment: Acute bronchitis
Differential includes viral URI, asthma, COPD exacerbation, GERD, or pneumonia; however, these are unlikely based on history and examination findings.
Treatment plan: Prescription for oral benzonatate 200 mg TID PRN for cough provided, as patient had improvement with this in the past. We discussed increasing fluid intake and rest. Patient should follow-up with his primary care provider in 48 hours for recheck. Return or emergency department precautions discussed, which include dyspnea, chest pain, high fever >102˚F, or just feeling worse.

Abbreviations: BP, blood pressure; COPD, chronic obstructive pulmonary disease; EOMI, extraocular movements intact; GERD, gastroesophageal reflux disease; HR, heart rate; JVD, jugular vein distention; PERRLA, pupils are equal, round, and reactive to light and accommodation; POCT, point-of-care test; PRN, as needed; RR, respiratory rate; RRR, regular rate and rhythm; SpO_2, oxygen saturation of peripheral capillaries; temp, temperature; TID, 3 times/day; TMs, tympanic membranes.

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Consider this patient encounter using the Simplified Elements of Medical Decision Making table provided in **Box 1**, then select the appropriate E/M code for this visit.

Number and Complexity of Problems Addressed
The patient complains of cough, body aches, loss of appetite, fatigue, fever, and increased sputum production. Since the patient is in no distress with normal vital signs, this would meet the criteria for an acute uncomplicated illness, which is **Low, Level 3.**

Amount and/or Complexity of Data to be Reviewed and Analyzed
Two POCT were ordered (influenza and COVID). These meet the criteria for **Low, Level 3.**

Risk of Complications and/or Morbidity or Mortality of Patient Management
Prescription medications for oral benzonatate were provided. This meets the criteria for **Moderate, Level 4.**



ANSWER: Two of the 3 elements of MDM must be met when choosing the level of service. **Level 3** criteria were successfully met in Problems Addressed and Complexity of Data categories, and **Level 4** in the Risk of Patient Management category. This visit supports **99203**.

Box 1. Simplified Elements of Medical Decision Making

MDM Level*	Problems Addressed	Complexity of Data	Risk of Patient Management	E/M Service Codes
Level 2: Straightforward	• Minor/self-limited	• Minimal/none	• Minimal risk of morbidity	• 99202 (new) • 99212 (established)
Level 3: Low	• ≥1 minor/self-limited problem • 1 stable chronic illness • 1 acute, uncomplicated illness • 1 acute, uncomplicated injury	At least 1 of these: • 2 data sources (eg, ordering or reviewing tests) • Independent historian	• Low risk of morbidity • Example: Over-the-counter medication management	• 99203 (new) • 99213 (established)
Level 4: Moderate	• ≥1 chronic illnesses with exacerbation/progression/treatment side effects • 1 acute, complicated injury • ≥2 stable chronic illnesses • 1 undiagnosed new problem • 1 acute illness with systemic symptoms	At least 1 of these: • 3 data sources (eg, ordering or reviewing tests); can include independent historian • Independent interpretation of test results • Discussion of management or test interpretation	• Moderate risk of morbidity • Examples: Prescription drug management; significant social determinants of health; decision regarding escalation of care	• 99204 (new) • 99214 (established)
Level 5: High	• ≥1 chronic illnesses with **severe** exacerbation/progression/treatment side effects • Illness or injury that threatens life or bodily function	At least 2 of these: • 3 data sources (eg, ordering or reviewing tests); can include independent historian • Independent interpretation of test results • Discussion of management or test interpretation	• High risk/severe without emergent treatment	• 99205 (new) • 99215 (established)

*Level is determined by meeting or exceeding 2 out of 3 elements of medical decision making.
Abbreviations: E/M, evaluation and management; MDM, medical decision making.
Based on data from: American Medical Association. *Evaluation and Management (E/M) Services Guidelines,* 2023.

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■ CME Questions

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1. **What is the most common cause of acute bronchitis?**
   a. Bacterial
   b. Viral
   c. Fungal
   d. Autoimmune

2. **Which of the following presentation features is most indicative of acute bronchitis?**
   a. Productive cough lasting >5 days
   b. High-grade fever
   c. Hypoxemia at rest
   d. Chest pain that improves with leaning forward

3. **For patients with presentation concerning for acute bronchitis, which of the following is NOT a reliable way to determine presence of a bacterial infection?**
   a. Sputum color
   b. Chest x-ray
   c. Sputum cultures
   d. Computed tomography scan

4. **Which of the following signs and symptoms would indicate pneumonia instead of acute bronchitis?**
   a. Cough for >1 week
   b. Temperature >38°C (100.4°F)
   c. Oxygen saturation of 98%
   d. Scattered wheezes that clear when the patient coughs

5. **Which of the following is most appropriate for evaluating a patient with suspected acute bronchitis?**
   a. Obtaining a chest x-ray
   b. Performing a sputum culture
   c. Obtaining a full history and complete physical examination
   d. Performing laboratory studies such as complete blood count, lactate level, and blood cultures

6. **Which of the following management plans for acute bronchitis is correct?**
   a. Antibiotics are indicated for most patients, to shorten the duration of illness.
   b. Antitussives can be considered for an especially bothersome cough.
   c. Inhaled corticosteroids are first-line treatment.
   d. Antivirals should be started for all patients.

7. **Antibiotics would be warranted for a patient with acute bronchitis in all of the following cases EXCEPT:**
   a. Confirmed or suspected *Bordetella pertussis* infection
   b. High-risk patients with comorbidities
   c. High suspicion for bacterial pneumonia
   d. Lung auscultation revealing diffuse wheezes that clear with coughing

8. **How long does the cough of acute bronchitis typically last?**
   a. 2 to 3 days
   b. 3 to 7 days
   c. 2 to 3 weeks
   d. 1 to 2 months

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