

Endorsing Organizations

American Academy of Urgent Care Medicine
 American College of Physicians – California
 Association of California Nurse Leaders
 California Academy of Family Physicians
 California Academy of Physician Assistants
 California Association of Nurse Practitioners
 California Pharmacists Association
 California Society of Health-System Pharmacists
 Urgent Care Association of America

Supporting Organizations

Aetna Health of California	Inland Empire Health Plan
Blue Cross of California	Kaiser Permanente
Blue Shield of California	L.A. Care Health Plan
CalOptima	Molina Healthcare
Care1st Health Plan	National Medical Health Card Systems, Inc.
Health Net of California	Santa Barbara Regional Health Authority
Health Plan of San Joaquin	

Acute Bronchitis & Upper Respiratory Tract Infection

Uncomplicated acute bronchitis and acute upper respiratory tract infection are the most common conditions for visiting a clinician in the United States. Accurate distinction between acute bronchitis and acute upper respiratory infection is difficult. Both conditions are most frequently caused by viruses and differentiation does not alter recommended treatment for otherwise healthy adults. Adults with COPD or other comorbidities might need more extensive evaluation and possibly different therapies.

Antibiotic Prescribing – Why This Continues

Antibiotic prescribing for these conditions, accounts for most inappropriate antibiotic prescriptions. Treatment of a virus with an antibiotic is more likely to harm than help. Only *Bordetella pertussis*, *Mycoplasma pneumoniae*, and *Chlamydia pneumoniae* have been established as non-viral causes of these syndromes in adults.

There are clinical myths that have been perpetuated in the medical community as well as the lay public that need to be addressed. Among these myths are:

MYTH: Purulent nasal discharge or sputum reflects bacterial infection.

FACT: It is recognized that this process reflects the immune response, NOT bacterial infection. Viral etiologies as well as allergic responses will also cause these symptoms.

MYTH: I should prescribe antibiotics to avoid missing a more significant diagnosis.

FACT: Other conditions that may present with similar symptoms to bronchitis include pneumonia and asthma. However, there are specific clinical features that may distinguish these various conditions.

- **Pneumonia:** It is important to distinguish patients with bronchitis from those with pneumonia. Absence of all of the following, history of asthma, temperature > 38°C (100°F), heart rate >100 beats/min, decreased breath sounds, and crackles argue against a diagnosis of pneumonia.¹
- **Asthma:** A prolonged cough, wheezing, and a history of asthma would lead to consideration of this diagnosis. Antibiotic prescribing for reactive airways is inappropriate and may result in masking of a more serious condition.

- **Influenza:** Antivirals rather than antibiotics might be useful for influenza. The diagnosis of influenza is suggested by the presence of fever and cough within 48 hours of symptom onset, plus one other influenza-like symptom, such as myalgia, when it is known that influenza is circulating in the community.

MYTH: Patient satisfaction requires an antibiotic prescription.

FACT: Patients usually seek a diagnosis with recommended remedies that are safe and effective, rather than an antibiotic prescription. Patient satisfaction improves when patients understand the duration of symptoms and the severity of their illness. Patients also appreciate having a contingency plan in the event that symptoms worsen over time. Emphasis of these points as well as the well-publicized adverse effects of antibiotics (and other commonly prescribed pharmaceutical agents), and the new, national emphasis on evidence-based medicine should persuade.

- **Acute Bronchitis:** Albuterol inhalers provide relief in severity and duration of symptoms, particularly in those with wheeze or pronounced cough. The role of codeine or dextromethorphan containing medications is not as well established, but probably provides some mild benefit in all patients and more significant benefit among those with greater than 14 days of symptoms.
- **Nasal Congestion:** Decongestants offer relief. The roles of zinc, Echinacea and humidified air are limited. Results of trials of these latter three modalities have demonstrated varied results, none definitive.

It is important that the effectiveness of antibiotics be preserved by prescribing antibiotics only when appropriate.

¹ Metlay JP, Kapoor WN, Fine MJ. Does this patient have community acquired pneumonia? Diagnosing pneumonia by history and physical

This compendium was designed to summarize appropriate antibiotic treatment of common adult outpatient infections. It is based on guidelines and recommendations from leading medical experts and professional organizations in the U.S.

This guideline summary is updated annually.

Acute Bacterial Sinusitis:

1. The Sinus and Allergy Health Partnership. Antimicrobial Treatment Guidelines for Acute Bacterial Rhinosinusitis. Executive Summary. SUPPLEMENT OTOLARYNGOLOGY-HEAD AND NECK SURGERY, 2004; 130: 1-45.
2. Piccirillo, JF., Clinical Practice. Acute Bacterial Sinusitis. N ENGL J MED. 2004 Aug 26; 351 (9): 902-10.
3. Snow, V. et. al., Clinical Practice Guideline Part 1: Principles of Appropriate Antibiotic Use of Acute Sinusitis in Adults: Background. ANNALS OF INTERNAL MEDICINE, 2001; 134: 498-505.
4. Slavin, R.G., et. al., J Allergy Clin Immunol 2005; 116:S13-47

Pharyngitis:

1. Institute for Clinical Systems Improvement. Acute Pharyngitis Health Care Guideline. Executive Summary. www.ICSI.org. May 2005.
2. Cooper, R., et. al., Principles of Appropriate Antibiotic Use for Acute Pharyngitis in Adults: Background. ANNALS OF INTERNAL MEDICINE, 2001; 134: 509-517.
3. Bisno, A., et. al., Diagnosis and Management of Group A Streptococcal Pharyngitis: A Practice Guideline – IDSA. CLINICAL INFECTIOUS DISEASES, 1997; 25: 574-583.

Nonspecific Cough Illness/Acute Bronchitis:

1. Gonzales, R. et. al., Principles of Appropriate Antibiotic Use for Treatment of Acute Respiratory Tract Infections in Adults. ANNALS OF EMERGENCY MEDICINE, 2001; 37: 690-697. (Reprinted from ANNALS OF INTERNAL MEDICINE, March 2001)
2. Gonzales, R., et. al., Principles of Appropriate Antibiotic Use for Treatment of Uncomplicated Acute Bronchitis: Background. ANNALS OF INTERNAL MEDICINE, 2001; 134: 521-529.
3. Hooton, T., Antimicrobial Resistance: A Plan of Action for Community Practice. AMERICAN FAMILY PHYSICIAN, 2001; 63: 1034-1039.
4. Wenzel, R.P., et. al., Acute Bronchitis. NEJM, 2006; 355:2125-30

NonSpecific URI:

1. Gonzales, R. et. al., Principles of Appropriate Antibiotic Use for Treatment of Acute Respiratory Tract Infections in Adults: Background, Specific Aims and Methods. Clinical Practice Guideline. ANNALS OF INTERNAL MEDICINE, 2001; 134: 479-486.
2. Gonzales, R., et. al., Principles of Appropriate Antibiotic Use for Treatment of Acute Respiratory Tract Infections in Adults: Background. Clinical Practice Guideline Part 2. ANNALS OF INTERNAL MEDICINE, 2001; 134: 490-494.

Community Acquired Pneumonia:

1. Mandell LA, et al., Infectious Diseases Society of America/ American Thoracic Society Consensus Guidelines on the Management of Community-Acquired Pneumonia in Adults. CID, 2007;44:S27-72.
2. The Medical Letter, July 2007; 49(1266): 62-64.

For more information visit our website at:

www.aware.md



AWARE is a project of the California Medical Association Foundation, in collaboration with a number of clinical, public health and consumer organizations designed to increase appropriate antibiotic prescribing and lower antibiotic resistance in California.

Acute Respiratory Tract Infection Guideline Summary

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Alliance Working for Antibiotic Resistance Education

CMA Foundation AWARE Project Adult Clinical Practice Guidelines Compendium Summary

Illness	Indications for Antibiotic Treatment	Pathogen	Antimicrobial Therapy	Antibiotic	Organizational Guidelines Reviewed		
Acute Bacterial Sinusitis	When to Treat with an Antibiotic: Diagnosis of acute bacterial sinusitis may be made in adults with symptoms of a viral URI that have not improved after 10 days or that worsen after 5-7 days.	<i>Streptococcus pneumoniae</i>	Antibiotic Duration: 10 to 14 days Failure to respond after 72 hours of antibiotics: Reevaluate patient and switch to alternate antibiotic class.	1st Line: • Amoxicillin Alternatives: • Amoxicillin-clavulanate • Oral cephalosporins: not first generation and not cefixime (i.e. cefpodoxime, cefuroxime, cefdinir, etc.) • Respiratory quinolones (levofloxacin, moxifloxacin) For β-Lactam Allergy: Trimethoprim-sulfamethoxazole, doxycycline, azithromycin, clarithromycin	American Academy of Allergy, Asthma & Immunology (AAAAI) American Academy of Family Physicians (AAFP) American College of Physicians (ACP) Centers for Disease Control and Prevention (CDC) Sinus and Allergy Health Partnership (SAHP)		
	Diagnosis may include some or all of the following symptoms or signs: Nasal drainage, nasal congestion, facial pressure/pain (especially when unilateral and focused in the region of a particular sinus), postnasal discharge, anosmia, fever, cough, maxillary dental pain, ear pressure/fullness. Less frequent signs and symptoms include hyposmia and fatigue, in conjunction with some or all of the above.	nontypeable <i>Haemophilus influenzae</i> <i>Moraxella catarrhalis</i>					
	When NOT to Treat with an Antibiotic: Nearly all cases of acute bacterial sinusitis resolve without antibiotics. Antibiotic use should be reserved for moderate symptoms that are not improving after 10 days, or that are worsening after 5-7 days, and severe symptoms.	Mainly viral pathogens					
Pharyngitis	When to Treat with an Antibiotic: <i>Streptococcus pyogenes</i> (Group A Strep): Symptoms of sore throat, fever, headache.	<i>Streptococcus pyogenes</i>	Group A Strep: Treatment reserved for patients with positive rapid antigen detection or throat culture. Antibiotic Duration: Generally 10 days	1st Line: • Penicillin V • Benzathine penicillin G Alternatives: • Amoxicillin • Oral cephalosporins • Clindamycin For β-Lactam Allergy: • Erythromycin • Clindamycin	ACP CDC Infectious Diseases Society of America (IDSA) Institute for Clinical Systems Improvement (ICSI)		
	Physical Findings Include: Fever, tonsillopharyngeal erythema and exudates, palatal petechiae, tender and enlarged anterior cervical lymph nodes, and absence of cough. Confirm diagnosis with throat culture or rapid antigen detection before using antibiotics; negative rapid antigen detection tests may be confirmed with a throat culture.						
	When NOT to Treat with an Antibiotic: Most pharyngitis cases are viral in origin. The presence of the following is uncommon with Group A Strep, and point away from using antibiotics: conjunctivitis, cough, rhinorrhea, diarrhea, and absence of fever.	Routine respiratory viruses					
Nonspecific Cough Illness/ Acute Bronchitis	When to Treat with an Antibiotic: Antibiotics not indicated in patients with uncomplicated acute bacterial bronchitis. Sputum characteristics not helpful in determining need for antibiotics. Treatment is reserved for patients with acute bacterial exacerbation of chronic bronchitis and COPD, usually smokers. In patients with severe symptoms, rule out other more severe conditions, e.g. pneumonia. Testing is recommended either prior to or in conjunction with treatment for pertussis.	<i>Chlamydomphila pneumoniae</i> <i>Mycoplasma pneumoniae</i> <i>Bordetella pertussis</i>	Uncomplicated: Not indicated	Uncomplicated: Not indicated Chronic COPD: • Amoxicillin, trimethoprim-sulfamethoxazole, doxycycline Other: • <i>Bordetella pertussis</i> , <i>Chlamydomphila pneumoniae</i> , <i>Mycoplasma pneumoniae</i> - macrolide or doxycycline	AAFP ACP CDC IDSA		
	When NOT to Treat with an Antibiotic: 90% of cases are nonbacterial. Literature fails to support use of antibiotics in adults without history of chronic bronchitis or other co-morbid conditions.	Mainly viral pathogens					
Nonspecific URI	When NOT to Treat with an Antibiotic: Antibiotics not indicated; however, nonspecific URI is a major cause of acute respiratory illnesses presenting to primary care practitioners. Patients often present expecting some treatment. Attempt to discourage antibiotic use and explain appropriate non-pharmacologic treatment.	Viral	Not indicated	Not indicated	AAFP ACP CDC ICSI IDSA		
Outpatient Community-Acquired Pneumonia (CAP)	When to Treat with an Antibiotic as an Outpatient: Perform CXR to confirm the diagnosis of pneumonia.	<i>Streptococcus pneumoniae</i> <i>Mycoplasma pneumoniae</i> <i>Haemophilus influenzae</i> <i>Chlamydomphila pneumoniae</i>	Empiric Therapy*:		1st Line: • Macrolide (azithromycin, clarithromycin, or erythromycin) • Doxycycline • Respiratory quinolone (moxifloxacin, levofloxacin) β-Lactam Alternatives (to be given with a macrolide): • High dose amoxicillin or amoxicillin-clavulanate • Cephalosporins (ceftriaxone, cefpodoxime, cefprozil, cefuroxime)	Infectious Diseases Society of America / American Thoracic Society (IDSA/ATS) ICSI	
	Evaluate for outpatient management. Consider pre-existing conditions, calculate Pneumonia Severity Index (PSI ≤ 90 for outpatient management) or CURB-65 (0 or 1 for outpatient management). Visit www.aware.md for more information.		Healthy with no DRSP** risk factors	Macrolide; consider doxycycline			
	Sputum gram stain and culture are recommended if failure of outpatient antibiotic therapy, active alcohol abuse, severe obstructive/structural lung disease, or pleural effusion.		Presence of co-morbidity, antibiotic use within 3 months***, or risk of DRSP	Respiratory quinolone or combination of a β-lactam plus a macrolide			
	When NOT to Treat with an Antibiotic as an Outpatient: Consider inpatient admission if PSI score > 90, CURB-65 ≥ 2, unable to tolerate orals, unstable social situation, or if clinical judgment so indicates.		* Consider alternative agents for macrolide-resistant <i>S. pneumoniae</i> in any patient including those without co-morbidities ** DRSP: Drug-resistant <i>S. pneumoniae</i> *** Choose a class of antibiotic that differs from the prior antibiotic				Antibiotic duration: Minimum of 5 days; discontinue once afebrile for 48 - 72 hours and no more than one CAP-associated sign of clinical instability (temp > 100°F (37.8°C), pulse > 100, RR >24, SBP < 90 mmHg, arterial oxygen saturation < 90% or pO ₂ < 60 mmHg on room air)