Uncomplicated acute bronchitis and acute upper respiratory 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.
- **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.

**Acute Bronchitis & Upper Respiratory Tract Infection**

**Acute Bronchitis:**

- **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:** Abetulous inhaled 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 role 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.

**Reference Articles**

**Acute Bacterial Sinusitis:**


**Pharyngitis:**


**Nonspecific Cough Illness/Acute Bronchitis:**


**NonSpecific URI:**


**Community Acquired Pneumonia:**


For more information visit our website at: www.aware.md
**CMA Foundation AWARE Project  Adult Clinical Practice Guidelines Compendium Summary**

### 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.

**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, or maxillary dental pain, ear pressure/fullness. Less frequent signs and symptoms include hypoxia and fatigue, in conjunction with some or all of the above.

<table>
<thead>
<tr>
<th>Indications for Antibiotic Treatment</th>
<th>Pathogen</th>
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<td>Strepococcus pneumonia</td>
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<td>10 to 14 days</td>
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<tr>
<td>Moraxella catarrhalis</td>
<td></td>
<td>Failure to respond after 72 hours of antibiotics: Reevaluate patient and switch to alternate antibiotic class.</td>
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</table>

**Antibiotic Duration:**

- 10 to 14 days
- Failure to respond after 72 hours of antibiotics: Reevaluate patient and switch to alternate antibiotic class.

**Antibiotic:**

- 1st Line: Amoxicillin
- Alternatives: Amoxicillin-clavulanate
- Oral cephalosporins: not first generation and not cefixime (i.e. cefpodoxime, cefuroxime, cefadroxil, etc.)
- Respiratory quinolones (levofloxacin, moxifloxacin)

**For 8-Lactam Allergy:**

- Trimethoprim-sulfamethoxazole, doxycycline, azithromycin, clarithromycin

**Organizational Guidelines Reviewed**

- 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)

### Pharyngitis

**When to Treat with an Antibiotic:** Streptococcus pyogenes (Group A Strept): Symptoms of sore throat, fever, headache.

**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 Strept, and point away from using antibiotics: conjunctivitis, cough, miorinorea, diaresis, and absence of fever.

**Antibiotic Duration:**

- 72 hours of antibiotics:
  - Strepococcus pyogenes
  - Group A Strept: Treatment reserved for patients with positive rapid antigen detection or throat culture.

**Antibiotic:**

- 1st Line:
  - Penicillin V
  - Benzthiazine penicill G
- Alternatives:
  - Amoxicillin
  - Oral cephalosporins
  - Clindamycin

**For 8-Lactam Allergy:**

- Azithromycin
- Clindamycin

**Organizational Guidelines Reviewed**

- ACP
- CDC
- Infectious Diseases Society of America (IDSA)
- Institute for Clinical Systems Improvement (ICSI)

### Non-specific 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.

**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.

**Empiric Therapy:**

- Chlamydia pneumoniae
- Mycoplasma pneumoniae
- Bordetella pertussis

**Antibiotic Duration:**

- Typically 7-10 days

**Antibiotic:**

- Uncomplicated: Not indicated
- Chronic COPD:
  - Amoxicillin, trimethoprim-sulfamethoxazole, doxycycline
- Other:
  - Bordetella pertussis, Chlamydia pneumoniae, Mycoplasma pneumoniae - macrolide or doxycycline

**Organizational Guidelines Reviewed**

- AAFP
- ACP
- CDC
- IDSA

### Non-specific URI

**When NOT to Treat with an Antibiotic:** Antibiotics not indicated; however, non-specific URI is a major cause of acute respiratory illnesses presenting to primary care practitioners.

**Outpatient Community-Acquired Pneumonia (CAP)**

**When to Treat with an Antibiotic as an Outpatient:** Perform CXR to confirm the diagnosis of pneumonia.

- 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.

- Sputum gram stain and culture are recommended if failure of outpatient antibiotic therapy, active alcohol abuse, severe obstructive/structural lung disease, or pleural effusion.

**Antibiotic Duration:**

- Typically 7-10 days

**Antibiotic:**

- Uncomplicated: Not indicated
- Chronic COPD:
  - Amoxilocillin, trimethoprim-sulfamethoxazole, doxycycline
- Other:
  - Bordetella pertussis, Chlamydia pneumoniae, Mycoplasma pneumoniae - macrolide or doxycycline

**Organizational Guidelines Reviewed**

- AAFP
- ACP
- CDC
- IDSA

### Outpatient Community-Acquired Pneumonia (CAP)

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**Organizational Guidelines Reviewed**

- AAFP
- ACP
- CDC
- IDSA
**Reference Articles**

**Otitis Media:**
1. Ganiats, T., et. al., Diagnosis and Management of Acute Otitis Media. PEDIATRICS, 2004; 113: 1451-1465. CLINICAL PRACTICE GUIDELINE.

**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.

**Pharyngitis:**

**Non-specific Cough Illness/Bronchitis:**

**Bronchiolitis/Non-Specific URI:**

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<tr>
<td>Otitis Media</td>
<td>When to Treat with an Antibiotic - Acute Otitis Media: 1. Recent, usually acute onset of signs and symptoms of middle-ear inflammation and effusion AND 2. Presence of middle-ear effusion that is indicated by any of the following: a. Bulging of the tympanic membrane b. Limited or absent mobility of tympanic membrane c. Air level behind the tympanic membrane d. Otitis AAND 3. Signs or symptoms of middle-ear inflammation as indicated by either: a. Distinct erythema of the tympanic membrane OR b. Distinct otalgia [discomfort clearly referable to the ear(s) that interferes with or precludes normal activity or sleep]</td>
<td>Streptococcus pneumoniae nontypeable Haemophilus influenzae Moraxella catarrhalis</td>
<td>Antibiotic Duration: 7-10 days (5 days for azithromycin) Age Group: 1. &lt; 6 mo: antibiotics 2. 6 mo - 2 yrs: antibiotics if diagnosis certain; antibiotics if diagnosis uncertain &amp; severe illness 3. &gt; 2 yrs: antibiotics if diagnosis certain and severe illness Analgesics &amp; Antipyretics: Always assess pain. If pain is present, add treatment to reduce pain. Oral: ibuprofen or acetaminophen (may use acetaminophen with codeine for moderate-severe pain) Topical: Benzocaine (&gt; 5 years of age).</td>
<td>1st Line: • High dose amoxicillin (80-90 mg/kg/day) High dose amoxicillin/clavulanate (80-90 mg/kg/day of amoxicillin component) if severe illness or additional coverage desired Alternatives: Non-anaphylactic penicillin allergy • Cefdinir, cefpodoxime, or cefuroxime Severe penicillin allergy • Azithromycin or clarithromycin Unable to tolerate p.o. antibiotic • Cefixime</td>
<td>American Academy of Pediatrics (AAP) Centers for Disease Control and Prevention (CDC) American Academy of Family Physicians (AAFP)</td>
</tr>
<tr>
<td>Acute Bacterial Sinusitis</td>
<td>When to Treat with an Antibiotic: Diagnosis of acute bacterial sinusitis may be made with symptoms of viral URI (nasal discharge or daytime cough not improved after 10 days, severe illness with fever, purulent nasal discharge, facial pain) not improving after 10 days or worse after 5-7 days. 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 tympanosia and fatigue, in conjunction with some or all of the above. 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 not improving after 10 days, or that are worsening after 5-7 days, and severe symptoms.</td>
<td>Streptococcus pneumoniae nontypeable Haemophilus influenzae Moraxella catarrhalis</td>
<td>Antibiotic Duration: 10 to 14 days Failure to respond after 72 hours of antibiotics: Rer-evaluate patient and switch to alternate antibiotic. Fibroptic endoscopy or sinus aspiration for culture may be necessary for work up. Consider anti-inflammatory or decongestive therapy.</td>
<td>1st Line: • Amoxicillin (80-90 mg/kg/day) Alternatives: Amoxicillin-clavulanate (80-90 mg/kg/day of amoxicillin component) Cefpodoxime Cefuroxime Cefdinir Cefixime For 8-Lactam Allergy: • Trimethoprim-sulfamethoxazole • Macrolides • Clindamycin</td>
<td>AAP AAFP CDC Sinus and Allergy Health Partnership (SAHP)</td>
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<tr>
<td>Pharyngitis</td>
<td>When to Treat with an Antibiotic: Streptococcus pyogenes (Group A Strep): Symptoms and signs: sore throat, fever, headache, tonsillopharyngeal erythema, exudates, palatal petechiae, tender enlarged anterior cervical lymph nodes. Confirm diagnosis with throat culture or rapid antigen detection; negative rapid antigen detection tests should be confirmed with throat culture. When NOT to Treat with an Antibiotic: Viral causes: conjunctivitis, cough, rhinorrhea, diarrhea uncommon with Group A Strep.</td>
<td>Streptococcus pyogenes</td>
<td>Antibiotic Duration: Group A Strep: Treatment reserved for patients with positive rapid antigen detection or throat culture.</td>
<td>1st Line: • Pericillin V • Benzathine penicillin G Alternatives: • Amoxicillin • Oral cephalosporins • Clindamycin • Macrolides For 8-Lactam Allergy: • Erythromycin</td>
<td>AAP AAFP CDC Infectious Diseases Society of America (IDSA) Institute for Clinical Systems Improvement (ICSI)</td>
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<tr>
<td>Non specific Cough Illness/ Bronchitis</td>
<td>When to Treat with an Antibiotic: Presents with prolonged, unimproving cough (14 days). Clinically differentiate from pneumonia. Pertussis should be reported to public health authorities. Chlamydia pneumoniae and Mycoplasma pneumoniae may occur in older children (unusual &lt; 5 years of age). When NOT to Treat with an Antibiotic:</td>
<td>&lt;10% of cases caused by Bordetella pertussis, Chlamydia pneumoniae, or Mycoplasma pneumoniae. &gt;90% of cases caused by routine respiratory viruses.</td>
<td>Antibiotics are generally not indicated. Treatment reserved for Bordetella pertussis, Chlamydia pneumoniae, Mycoplasma pneumoniae. Length of Therapy: 7-14 days (5 days for azithromycin)</td>
<td>• Macrolides • Tetracyclines for children &gt; 8 years of age</td>
<td>AAP AAFP CDC</td>
</tr>
<tr>
<td>Bronchiolitis/ Non specific URI</td>
<td>When to Treat with an Antibiotic: Sore throat, sneezing, mild cough, fever (generally &lt;102° F, &lt;3 days), rhinorrhea, nasal congestion; self-limited (typically 5-14 days).</td>
<td>&gt; 200 viruses, including rhinoviruses, coronaviruses, adenoviruses, respiratory syncytial virus, enteroviruses (coxsackieviruses &amp; echoviruses), influenza viruses &amp; parainfluenza viruses.</td>
<td>Antibiotics not indicated.</td>
<td>• None</td>
<td>AAP AAFP CDC ICSI</td>
</tr>
</tbody>
</table>

This guideline summary is intended for physicians and healthcare professionals to consider in managing the care of their patients for acute respiratory tract infections. While the summary describes recommended courses of intervention, it is not intended as a substitute for the advice of a physician or other knowledgeable healthcare professional. These guidelines represent best clinical practice at the time of publication, but practice standards may change as more knowledge is gained.