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 Chlamydophila 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:** Prolonged cough, wheezing, and a history of asthma, temperature > 38°C, heart rate >100, decreased breath sounds, and crackles argue against a diagnosis of pneumonia

**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**

**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 national emphasis on evidence-based medicine should persuade.

**Acute Bronchitis:** Absolutal 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 role of zinc, Echinacea and humidified air are limited. Results of trials of these latter three modalities have demonstrated varied results, none definitive.

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


**Non-specific Cough/Influenza/Acute Bronchitis**


**Pharyngitis:**


**Acute Respiratory Tract Infection Guideline Summary**

- **Acute Bacterial Sinusitis:**

- **Non Specific URI:**

- **Community Acquired Pneumonia:**

For more information visit our website at: www.aware.md

Endorsing & Supporting Organizations

[List of organizations and their logos]

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.

Supporting Organizations

[List of organizations and their logos]
### 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, maxillary dental pain, ear pressure/fullness. Less frequent signs and symptoms include hypovasia 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 that are not improving after 10 days, or that are worsening after 5-7 days, and severe symptoms.

<table>
<thead>
<tr>
<th>Indications for Antibiotic Treatment</th>
<th>Pathogen</th>
<th>Duration</th>
<th>Antibiotic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When to Treat with an Antibiotic:</strong></td>
<td>Streptococcus pneumoniae, Moraxella catarrhalis</td>
<td>10 to 14 days</td>
<td></td>
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<tr>
<td></td>
<td><em>Typeable</em> Haemophilus influenzae</td>
<td></td>
<td>Amoxicillin, amoxicillin-clavulanate</td>
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<tr>
<td></td>
<td>Respiratory quinolones (levofloxacin, moxifloxacin)</td>
<td></td>
<td>For 8-Lactam Allergy: Trimehtoprim-sulfamethoxazole, doxycycline, azithromycin, clarithromycin</td>
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### Pharyngitis

**When to Treat with an Antibiotic:** Streptococcus pyogenes (Group A Strep): 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, mornhea, diahrea, and absence of fever.

<table>
<thead>
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</tr>
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<tbody>
<tr>
<td><strong>When to Treat with an Antibiotic:</strong></td>
<td>Group A Strep: Streptococcus pyogenes</td>
<td>General 10 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Typeable</em> Haemophilus influenzae</td>
<td></td>
<td>Alternatives: Oral cephalosporins: not first generation and not cefixime (i.e. cefpodoxime, cefuroxime, cefadurin, etc.) Respiratory quinolones (levofloxacin, moxifloxacin)</td>
</tr>
<tr>
<td></td>
<td>Respiratory quinolones (levofloxacin, moxifloxacin)</td>
<td></td>
<td>For 8-Lactam Allergy: Trimehtoprim-sulfamethoxazole, doxycycline, azithromycin, clarithromycin</td>
</tr>
</tbody>
</table>

### 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 or 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.

<table>
<thead>
<tr>
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<th>Duration</th>
<th>Antibiotic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When to Treat with an Antibiotic:</strong></td>
<td>Chlamydia pneumoniae, Mycoplasma pneumoniae, Bordetella pertussis</td>
<td></td>
<td>1st Line: Penicillin V, Benzathine penicillin G</td>
</tr>
<tr>
<td></td>
<td>Uncomplicated: Not indicated</td>
<td></td>
<td>Alternatives: Amoxicillin, oral cephalosporins, Clindamycin</td>
</tr>
<tr>
<td></td>
<td>Uncomplicated: Not indicated</td>
<td></td>
<td>For 8-Lactam Allergy: Erythromycin, Clindamycin</td>
</tr>
</tbody>
</table>

### 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. Patients often present expecting some treatment. Attempt to discourage antibiotic use and explain appropriate non-pharmacologic treatment.

<table>
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<th>Duration</th>
<th>Antibiotic</th>
</tr>
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<tbody>
<tr>
<td><strong>When NOT To Treat with an Antibiotic:</strong></td>
<td>Viral</td>
<td></td>
<td>Not indicated</td>
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</tbody>
</table>

### 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.

**Empiric Therapy:**

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Duration</th>
<th>Antibiotic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Streptococcus pneumoniae</td>
<td></td>
<td>Macrolide; consider doxycycline</td>
</tr>
<tr>
<td>Mycoplasma pneumoniae, Haemophilus influenzae</td>
<td></td>
<td>Respiratory quinolone or combination of a 8-lactam plus a macrolide</td>
</tr>
<tr>
<td>Chlamydia pneumoniae</td>
<td></td>
<td>8-Lactam Alternatives (to be given with a macrolide): High dose amoxicillin or amoxicillin-clavulanate Cephalosporins (ceftriaxone, cefpodoxime, cefprozil, cefuroxime)</td>
</tr>
<tr>
<td>Empiric Therapy*:</td>
<td>Healthy with no DRSP** risk factors</td>
<td></td>
</tr>
<tr>
<td>Presence of co-morbidity, antibiotic use within 3 months***, or risk of DRSP</td>
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</tbody>
</table>

**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.

**Antibiotic duration:** Minimum of 5 days; discontinue once able to breathe 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 pH < 60 mmHg on room air).