**Background**

- The common cold is caused by viral pathogens, such as rhinovirus, parainfluenza, adenovirus, RSV, and influenza.
- Bacterial rhinosinusitis complicates only about 2% of cases.

**Diagnosis**

- Although sore throat, nasal symptoms, and cough may be present, there is no prominent symptom or sign.
- Symptoms may last up to 14 days with an average of 7 to 11 days (J Clin Microbiol 1997;35:2864; JAMA 1967;202:158).
- Purulent nasal secretions do not predict bacterial sinusitis unless accompanied by other signs and symptoms of bacterial infection.

**Treatment**

- Studies have found the common cold resolves without antibiotic treatment.
- Treatment with an antibiotic does **not** shorten the duration of illness or prevent bacterial rhinosinusitis.
- Patients with purulent green or yellow secretions do not benefit from antibiotic treatment.
- Over-the-counter cough suppressants have limited efficacy for relief of cough due to upper respiratory infection (Chest 2006; 129:95S-103S).
- Acute cough associated with the common cold may be relieved by first-generation antihistamines and decongestants (Chest 2006;129:95S-103S).

**Duration of Cold Symptoms**

- % of Patients with Symptom

  - Feverishness
  - Sore throat
  - Cough
  - Nasal discharge

**TIPS TO REDUCE ANTIBIOTIC USE**

- Tell patients that antibiotic use increases the risk of an antibiotic-resistant infection.
- Identify and validate patient concerns.
- Recommend specific symptomatic therapy.
- Spend time answering questions and offer a contingency plan if symptoms worsen.
- Provide patient education materials on antibiotic resistance.
- REMEMBER: Effective communication is more important than an antibiotic for patient satisfaction.
- See www.cdc.gov/getsmart or contact your local health department for more information and patient education materials.

**Key Reference**

Principles of appropriate antibiotic use for acute rhinosinusitis apply to the diagnosis and treatment of acute maxillary and ethmoid rhinosinusitis in otherwise healthy adults.

**Sinus inflammation is often viral and usually resolves without antibiotics.**

### Background

- Respiratory viruses typically cause inflammation of the nasal mucosa and maxillary sinuses.
- Most cases of acute rhinosinusitis are due to uncomplicated viral infections.

### Diagnosis

- Most rhinovirus colds last 7 to 11 days (*J Clin Microbiol* 1997; 35:2864; *JAMA* 1967; 202:158).
- Bacterial rhinosinusitis may be present if symptoms have been present >7 days and there is localization to the maxillary sinus.

### Signs/Symptoms of Acute Maxillary Sinusitis

*(BMJ 1995;311:233)*

<table>
<thead>
<tr>
<th>Maxillary Sinusitis</th>
<th>Present (N=92)</th>
<th>Absent (N=82)</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>89%</td>
<td>79%</td>
<td>2.1</td>
</tr>
<tr>
<td>Unilateral maxillary pain</td>
<td>51%</td>
<td>38%</td>
<td>1.9</td>
</tr>
<tr>
<td>Maxillary toothache</td>
<td>66%</td>
<td>51%</td>
<td>1.9</td>
</tr>
<tr>
<td>Unilateral maxillary sinus tenderness</td>
<td>49%</td>
<td>32%</td>
<td>2.5</td>
</tr>
</tbody>
</table>

- Generalized facial pain or tenderness, postnasal drainage, headache, and cough do **not** increase the predictive value of maxillary sinus symptoms.

### Treatment

- Most patients with acute bacterial rhinosinusitis improve without antibiotic treatment.
  - About 81% of antibiotic-treated patients and 66% of controls are improved at 10-14 days (absolute benefit of 15%).
- Patients with mild symptoms should not receive antibiotics, but symptomatic treatment may be helpful.
  - Topical and oral decongestants may reduce nasal symptoms.
  - Most randomized trials of symptomatic therapies have been inconclusive.
- Patients with moderate or severe symptoms may benefit from antibiotics.
- Use a narrow spectrum agent that covers *S. pneumoniae* and *H. influenzae*.
  - Amoxicillin remains an appropriate choice for uncomplicated infections.
  - Consider second line agent if no improvement or worsening after 72 hours.

**TIPS TO REDUCE ANTIBiotic USE**

- Tell patients that antibiotic use increases the risk of an antibiotic-resistant infection.
- Identify and validate patient concerns.
- Recommend specific symptomatic therapy.
- Spend time answering questions and offer a contingency plan if symptoms worsen.
- Provide patient education materials on antibiotic resistance.
- REMEMBER: Effective communication is more important than an antibiotic for patient satisfaction.
- See [www.cdc.gov/drugresistance/community](http://www.cdc.gov/drugresistance/community) or contact your local health department for more information and patient education materials.

### Key Reference

Acute Pharyngitis in Adults

Principles apply to the diagnosis and treatment of Group A β-hemolytic streptococcal (GABHS) pharyngitis in otherwise healthy adults.

Clinical screening for GABHS pharyngitis could substantially reduce unnecessary antibiotic use.

Background

- Only 5-15% of adult cases of acute pharyngitis are caused by GABHS.
- It is estimated that 3,000 to 4,000 patients with GABHS must be treated for every 1 case of acute rheumatic fever prevented.
- Antibiotic therapy of GABHS hastens resolution by 1-2 days if initiated within 2-3 days of symptom onset.

Diagnosis

- Lab testing is not indicated in all patients with pharyngitis. Instead, all adults should be screened for the following:
  - History of fever
  - Lack of cough
  - Tonsillar exudates
  - Tender anterior cervical adenopathy

- Patients with none or only one of these findings should not be tested or treated for GABHS.

- Any one of the following three strategies is appropriate for patients with two or more of the above findings:
  - Rapid streptococcal antigen test (RAT) for patients with 2 or more criteria, with antibiotic therapy restricted to those with positive test results.
  - Rapid streptococcal antigen testing of patients with 2 or 3 criteria, with antibiotic therapy restricted to patients with all 4 findings and those with positive test results.
  - Empiric antibiotic therapy for patients with 3 or 4 criteria; no diagnostic testing.

Comparison of Diagnostic Strategies*

<table>
<thead>
<tr>
<th></th>
<th>Test for 2+ criteria and treat positives</th>
<th>Empiric treatment for 3-4 criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of patients with GABHS who are correctly treated</td>
<td>60%-70%</td>
<td>70%-80%</td>
</tr>
<tr>
<td>% of patients receiving antibiotics</td>
<td>11%</td>
<td>33%</td>
</tr>
</tbody>
</table>

*Assumptions: RAT sensitivity = 80%; RAT specificity = 90%; GABHS prevalence = 10%.

Treatment

- Penicillin is recommended for initial treatment of GABHS.
  - Erythromycin is recommended for penicillin-allergic patients.
  - Penicillin-resistant GABHS have not been reported in the United States.

- Extended spectrum macrolides and fluoroquinolones are not appropriate for uncomplicated GABHS pharyngitis.

TIPS TO REDUCE ANTIBIOTIC USE

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Key Reference

Acute Cough Illness (Acute Bronchitis)

Acute bronchitis is an acute respiratory infection with a normal chest radiograph that is manifested by cough with or without phlegm production that lasts for up to 3 weeks (Chest 2006;129:95S-103S).

Principles apply to the appropriate treatment of cough illness lasting less than 3 weeks in otherwise healthy adults.

Refer to acute cough illness as a “chest cold” to reduce patient expectation for antibiotics (Am J Med 2000;108-83).

Background

- Greater than 90% of cases of acute cough illness are non-bacterial.
  - Viral etiologies include influenza, parainfluenza, RSV, and adenovirus.
  - Bacterial agents include *Bordatella pertussis*, *Mycoplasma pneumoniae*, and *Chlamydophila pneumoniae*.
- The presence of purulent sputum is not predictive of bacterial infection.
  - >95% of patients with purulent sputum do not have pneumonia (J Chron Di 1984; 37:215).

Diagnosis

- Evaluation should focus on excluding severe illness, particularly pneumonia.

Clinical Assessment for Pneumonia

- Pneumonia is unlikely if all of the following findings are absent (JAMA 1997;278:1440).

<table>
<thead>
<tr>
<th>Sign</th>
<th>Abnormal Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>≥ 38 C</td>
</tr>
<tr>
<td>Tachypnea</td>
<td>≥ 24 breaths/min</td>
</tr>
<tr>
<td>Tachycardia</td>
<td>≥ 100 beats/min</td>
</tr>
<tr>
<td>Evidence of consolidation on chest exam</td>
<td>rales, egophony, fremitus</td>
</tr>
</tbody>
</table>

- Consider chest radiograph for patients with any of these findings or cough lasting >3 weeks.

Treatment

- Empiric antibiotic treatment is not indicated for acute bronchitis.
  - Meta-analyses of randomized, controlled trials all concluded that routine antibiotic treatment is not justified (BMJ 1998;316:906; Chest 2006;129:95S-103S).
- If influenza therapy is considered, it should be initiated within 48 hours of symptom onset for clinical benefit.
  - During the 2005-06 Flu season CDC recommends that neither amantadine nor rimantadine be used for treatment or prevention of influenza A infections because of high levels of resistance (MMWR 2006 Jan 20;55(2):44-6).
  - Neuramidase inhibitors such as oseltamivir or zanamivir have activity against influenza A and B viruses.
  - Antiviral therapy reduces symptom duration by approximately 1 day. http://www.cdc.gov/flu/professionals/treatment/
- If pertussis is suspected, empiric therapy may be initiated while obtaining a diagnostic test for confirmation.
  - Antibiotic treatment decreases transmission but has little effect on symptom resolution.
  - Over-the-counter cough suppressants have limited efficacy in relief of cough due to acute bronchitis (Chest 2006; 129:95S-103S).

TIPS TO REDUCE ANTIBIOTIC USE

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- Identify and validate patient concerns.
- Recommend specific symptomatic therapy.
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Key Reference