17. UPPER RESPIRATORY INFECTIONS
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We conducted a MEDLINE search of the medical literature for all English-language review articles published between 1990 and 1995 for the following topics: pharyngitis, common cold, influenza, rhinovirus, bronchitis-acute, cough, and rhinitis. We selected articles from the MEDLINE results and references from the review articles were obtained in areas of controversy. In addition, we consulted two medical texts (Panzer et al., 1991; Barker et al., 1991) for general clinical approaches to respiratory infections. This section first outlines our findings on the general importance of URIs and then discusses five common clinical subcategories: pharyngitis, bronchitis, influenza, nasal congestion, and sinusitis.

IMPORTANCE

Respiratory tract infections account for more than 10 percent of all office visits to the primary care physician (Perlman and Ginn, 1990). According to the 1993 National Health Interview Survey (NHIS), over 250 million cases of respiratory infections occur in the U.S. yearly (National Center for Health Statistics [NCHS], 1994b). Respiratory infections include the common cold, influenza, pharyngitis, sinusitis, bronchitis, and pneumonia. Influenza and the common cold account for the majority of cases. Women aged 18-44 reported 394.2 restricted activity days per 100 persons per year due to acute respiratory conditions; this represents 47 percent of all restricted activity days for acute conditions for women in this age category (NCHS, 1994b).
PHARYNGITIS, ACUTE

Efficacy and/or Effectiveness of Interventions

Diagnosis

Multiple bacterial and viral organisms may cause acute pharyngitis (Barker et al., 1991). In evaluating acute pharyngitis, the critical clinical decision is whether or not to use antibiotics, or to culture, for group A streptococcal infection. Group A streptococcus is the causative agent of rheumatic fever, which can result in serious renal and cardiac disease. The incidence of rheumatic fever is currently low, and has been decreasing independent of antibiotic use (Little and Williamson, 1994). In fact, over 78,000 persons would be required in an RCT to show convincingly a 50 percent reduction in the attack rate of rheumatic fever with antibiotics (Shvartzman, 1994). The benefit of prescribing antibiotics for pharyngitis must be weighed against the costs. Little and Williamson (1994) estimate that if every case of pharyngitis were treated with antibiotics, the average general practitioner in the United Kingdom would have roughly a 1-in-3 chance of having a patient die from anaphylaxis after treatment for sore throat. This is slightly higher than the chances of nephritis or rheumatic fever developing post-pharyngitis, neither of which have a high death rate.

Komaroff (1986) has helped define pretest probabilities and diagnostic strategies for pharyngitis (Panzer et al., 1991). Based on prospective studies estimating sensitivity and specificity of clinical findings with respect to confirmed diagnosis of Group A streptococcal infection, Komaroff has determined that in adult patients who have a sore throat, but do not have a fever, tonsillar exudate, or anterior cervical adenopathy, the probability of streptococcal pharyngitis is less than 3 percent. On the other hand, when all three of these findings are present, the probability of streptococcal pharyngitis is at least 40 percent.

Diagnostic tests that are useful to determine the presence of group A streptococcus include throat culture and rapid streptococcal antigen
tests. Throat cultures are shown to be falsely negative in approximately 10 percent of patients (Panzer et al., 1991). Rapid antigen tests are highly specific, but variably sensitive (80-95 percent) (Panzer et al., 1991).

According to Komaroff (1986) and based on the prospective studies of persons with sore throat, a reasonable diagnostic strategy is as follows:

1) Patients with pharyngitis who have a low probability of streptococcal infection (lack of fever, cervical adenopathy, and tonsillar exudate) do not require a throat culture or treatment with antibiotics. The exceptions to this are: persons with a history of rheumatic fever, documented streptococcal exposure in the past week, and residence in a community in which there is a current streptococcal epidemic.

2) Persons with an intermediate probability of streptococcal infection (presence of one or two of the following: fever, cervical adenopathy, or tonsillar exudate) should receive a throat culture. Whether to treat immediately or await culture results is left to the discretion of the clinician.

3) Persons with a high probability of streptococcal pharyngitis (presence of all three of the following: fever, cervical adenopathy, and tonsillar exudate) should be treated immediately with antibiotics. Throat culture is not required for confirmation.

4) In young persons, the diagnosis of mononucleosis, especially for pharyngitis of greater than one week’s duration (Wood et al., 1980), should also be entertained.

**Treatment**

For documented or presumed group A streptococcus, treatment with penicillin or erythromycin is appropriate. Treatment should be for 10 days with penicillin V or erythromycin, or with a single intramuscular injection of 1.2 million units of penicillin B benzathine (Perlman and Ginn, 1990; Barker et al., 1991).
Follow-up

Follow-up cultures are indicated if there is a history of rheumatic fever in the patient or a household contact (Barker et al., 1991).

BRONCHITIS, ACUTE

IMPORTANCE

Acute bronchitis is an inflammatory disorder of the tracheobronchial tree that results in acute cough without signs of pneumonia (Billas, 1990). An estimated 12 million physician visits per year are made for acute bronchitis, with annual costs upward of $300 million for physician visits and prescription costs (Billas, 1990).

EFFICACY AND/OR EFFECTIVENESS OF INTERVENTIONS

Diagnosis

The causative organism of acute bronchitis is usually viral, but a variety of bacterial organisms may cause or contribute to bronchitis (e.g., Streptococcus pneumoniae, Mycoplasma pneumoniae, Chlamydia pneumoniae, B. catarrhalis, and Bordetella pertussis) (Billas, 1990; Barker et al., 1991). Cough may be nonproductive initially but generally becomes mucopurulent. The duration of cough is two weeks or less. Sputum characteristics are not helpful in distinguishing etiology of cough (Barker et al., 1991). Pharyngitis, fatigue and headache often precede onset of cough. Examination of the chest is usually normal, but may reveal rhonchi or rales without any evidence of consolidation. A detailed history must be obtained to rule in or out other possible causes for acute cough. Acute cough is defined as lasting less than three weeks (Pratter et al., 1993). Bronchitis, sinusitis, and the common cold are probably the most common causes of acute cough. Cough secondary to irritants (e.g., tobacco smoke) and allergies (e.g., from allergic rhinitis) are the next most common causes of cough (Zervanos and Shute, 1994).
Treatment

Most authorities agree that treatment with antibiotics in patients who are otherwise healthy and free of systemic symptoms is not useful (Barker et al., 1991; Billas, 1990). Orr et al. (1993) conducted a review of all randomized placebo-controlled trials of antibiotics for acute bronchitis published in the English language between 1980 and 1992. Four studies showed no significant benefit of using antibiotics, while two studies (one using erythromycin and the other using trimethoprim sulfa) did show benefit in decrease of subjective symptoms.

INFLUENZA

IMPORTANCE

Data from the 1981 NHIS indicated that there are approximately 112 million episodes of influenza-like illness annually in the United States, with an attack rate of 49.7 episodes per 100 persons per year (Garibaldi, 1985). Most influenza symptoms are caused by influenza A virus, which is dispersed by sneezing, coughing, or talking. While generally a self-limited disease, pandemics of influenza have caused heavy death tolls (Wiselka, 1994). Influenza causes between 10,000 and 20,000 deaths in the United States annually, especially among the elderly and those with chronic medical conditions (Fiebach and Beckett, 1994). In addition, influenza can cause complications such as pneumonitis, secondary pneumonia, Reye's syndrome, myositis and myoglobinuria, myocarditis, and neurologic sequelae (Wiselka, 1994; Barker et al., 1991). While most women under age 50 are at low risk of complications, influenza takes its toll in restricted activity days, amounting to over 420 million restricted activity days per year, or 1.9 per person per year (Garibaldi, 1985).
Efficacy and/or Effectiveness of Interventions

Diagnosis

Uncomplicated influenza has an abrupt onset of systemic symptoms including fever, chills, headache and myalgias. The fever generally persists 3-4 days, but may persist up to 7 days. Respiratory symptoms (e.g., cough, hoarseness, nasal discharge, pharyngitis) begin when systemic symptoms begin to resolve. Physical findings include toxic appearance, cervical lymphadenopathy, hot skin, watery eyes and, rarely, localized chest findings (e.g., rales).

Treatment

Treatment for uncomplicated influenza is generally symptomatic, with rest, fluid intake, and aspirin or acetaminophen. Dyspnea, hemoptysis, wheezing, purulent sputum, fever persisting more than 7 days, severe muscle pain, and dark urine, may indicate onset of influenza complications (Barker et al., 1991). Amantadine has been shown to decrease virus shedding and shorten duration of influenza symptoms if treatment was started within 48 hours of symptom onset. Common side-effects include headache, light headedness, dizziness and insomnia. Amantadine should be considered for use in patients at high risk (see Section C: Influenza, of Chapter 16) who develop symptoms of a flu-like illness during an influenza outbreak (Delker et al., 1980). Amantadine is also an appropriate form of treatment.

According to a 1979 National Institutes of Health (NIH) consensus development conference, adults who should be considered for prophylaxis include those with chronic diseases, those whose activities are vital to community function and who have not been vaccinated, and persons in semi-closed institutional environments (NIH, 1979).
NASAL CONGESTION AND RHINORRHEA

IMPORTANCE

Over 8 million visits for nasal congestion as the principal reason for patient visit occurred in 1989 across all age groups in the United States (NCHS, 1992). Nasal congestion may be due to a variety of causes, the principal of these being acute viral infection (i.e., common cold), allergic rhinitis and infectious sinusitis (acute or chronic) (Canadian Rhinitis Symposium, 1994). Other common causes include vasomotor rhinitis and rhinitis medicamentosa. Appropriate treatment rests in making distinctions among these causes. Other less common reasons for rhinitis include atrophic rhinitis, hormonal rhinitis and mechanical/obstructive rhinitis. For a more detailed discussion of allergic rhinitis, see Chapter 3.

The Canadian Rhinitis Symposium convened in January of 1994 to develop a guide for assessing and treating rhinitis (Canadian Rhinitis Symposium, 1994). The guidebook is extensive, but essential elements for diagnosis and treatment are discussed below.

EFFICACY AND/OR EFFECTIVENESS OF INTERVENTIONS

Diagnosis and Treatment

The following may serve to differentiate between (1) allergic rhinitis, (2) infectious viral rhinitis (common cold) and (3) sinusitis.

Allergic Rhinitis

**Symptoms:** Nasal congestion, sneezing, palatal itching, rhinorrhea with or without allergic conjunctivitis. Symptoms are seasonal or perennial and may be triggered by allergens such as pollens, mites, molds, and animal danders.

**Physical exam:** nasal mucosa is pale or hyperemic; edema with or without watery secretions are frequently present.

**Treatment:** Treatment of allergic rhinitis should include antihistamines, nasal cromolyn and/or nasal glucocorticoid sprays. Oral
decongestants may be used for symptomatic relief. If prescribed, topical nasal decongestants are indicated for short term use only.

**Infectious Viral Rhinitis**

**Symptoms:** Nasal congestion and rhinorrhea. Other symptoms of viral infectious rhinitis included mild malaise, sneezing, scratchy throat, and variable loss of taste and smell. Colds due to rhinoviruses typically last one week, and rarely as long as two weeks (Barker et al., 1991). Symptoms are generally of acute onset, unless chronic sinusitis is present (see below – chronic sinusitis). Symptoms of coexisting acute sinusitis may also be present (see below – acute sinusitis).

**Physical Exam:** Mucosa hyperemic and edematous with or without purulent secretions; physical exam should include nasal cavity and sinuses (for presence of sinusitis) and ears (for presence of otitis media) (Barker et al., 1991). Sinus tenderness and fever may be present with sinusitis.

**Treatment:** Treatment of infectious viral rhinitis without sinusitis is symptomatic. Use of oral decongestants or short term nasal decongestants is appropriate but not necessary. For coexisting sinusitis, treatment should be with antibiotics in addition to decongestants (see acute sinusitis below).

**Sinusitis**

**Symptoms/Physical Exam/Treatment:** See discussions below on acute and chronic sinusitis.

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**SINUSITIS**

**Importance—Acute and Chronic Sinusitis**

According to the 1991 National Ambulatory Medical Care Survey, chronic sinusitis was the eighth most common diagnosis rendered by physicians for office visits in 1991 (NCHS, 1994c). This translates to 1.7 percent of all visits among children and adults. Patients frequently mentioned symptoms which could be attributable to sinusitis—
headache in 1.5 percent of visits and nasal congestion in 1.3 percent of visits. In adults 25-44 years of age, sinusitis accounted for 2.3 percent of visits and allergic rhinitis for 2.3 percent. Among women of all ages, chronic sinusitis accounted for 1.8 percent of all visits (NCHS, 1994c). While little data exists on the incidence of acute sinusitis, chronic sinusitis was reported by over 30 million persons in the 1986-1988 NHIS (NCHS, 1993).

EFFECTIVENESS OF INTERVENTIONS

Acute Sinusitis

Diagnosis

Acute sinusitis is defined as a sinus infection that lasts less than 3 weeks. Acute sinusitis is a complication in about 0.5 percent of viral upper respiratory tract infections (Barker, 1991). By definition, acute sinusitis has a duration of less than three weeks (Stafford, 1992). Symptoms that may increase the likelihood of acute sinusitis being present include fever, malaise, cough, nasal congestion, toothache, purulent nasal discharge, little improvement with nasal decongestants, and headache or facial pain exacerbated by bending forward (Williams and Simel, 1993). Transillumination may improve the accuracy of diagnosis for maxillary sinusitis, but its usefulness is operator sensitive (Williams and Simel, 1993).

Treatment

Treatment is based on controlling infection and reducing tissue edema. Ten to fourteen days of antibiotics should be instituted for treatment of acute sinusitis, although there is some recent evidence that 3 days may suffice (Williams et al., 1995). In addition, oral or topical decongestants should be used. If a topical nasal decongestant is prescribed, treatment should be limited to no more than 4 days (Barker et al., 1991; Stafford, 1992). Antihistamines, because of their drying action on the nasal mucosa, have no role in the treatment of most patients with acute sinusitis, except when patients also manifest symptoms of allergic rhinitis (thin, watery rhinorrhea, and sneezing) (Stafford, 1992).

Follow-up
If symptoms fail to improve after 7 days, a 10-14 day course of therapy with another antibiotic should be prescribed (Stafford, 1992). If symptoms persist after 2 courses of antibiotics, referral to an otolaryngologist and/or more definitive diagnostic studies (e.g., x-ray, sinus CT, nasal endoscopy) are indicated (Stafford, 1992).

**Chronic Sinusitis**

**Diagnosis**

Sinusitis that has continued for 3 months or more is considered chronic (Stafford, 1992). Chronic sinusitis appears to result from episodes of prolonged, repeated, or inadequately treated acute sinusitis. Chronic sinusitis generally presents with dull ache or pressure across the midface, which patients characterize as a headache. The headache may be worse in the morning and with head movement. In addition, patients may also complain of nasal congestion and thick pharyngeal secretions, blocked or popping ears, dental pain, chronic cough, mild facial swelling, and eye pain (Godley, 1992).

Conditions that commonly predispose to chronic sinusitis include previous acute sinusitis, allergic rhinitis, environmental irritants, nasal polyposis, and viral infection (Godley, 1992).

Diagnosis rests on history, evaluation by nasal endoscopy, and CT scanning (Bolger and Kennedy, 1992). In general, if the history is strongly suggestive of chronic sinusitis, one should treat first with antibiotics (see below). If medical therapy is unsuccessful or if the disease recurs repeatedly, referral to an otolaryngologist for endoscopic examination is indicated (Bolger and Kennedy, 1992).

Endoscopic examination is more specific for chronic sinusitis than is CT scanning. If endoscopic findings are equivocal, a CT scan may demonstrate underlying sinus disease. However, a CT is best performed four to six weeks after optimal medical therapy is instituted to optimize specificity (Bolger and Kennedy, 1992).

**Treatment**

Medical treatment should be attempted first. First-line therapy for chronic disease is amoxicillin and clavulonic acid (Augmentin), three times daily for 21 to 28 days (Bolger and Kennedy, 1992), or
trimethoprim-sulfamethoxazole, cefaclor, cefuroxime, and cefixime (Godley, 1992). Other medications that may be used include oral decongestants, nasal steroids, and antihistamines for patients with an allergic component.

Surgical treatment is reserved for cases when medical therapy fails. Currently, endoscopic surgery is the method of choice (Bolger and Kennedy, 1992). Endoscopic examination and debridement of the operative cavity are required once or twice weekly for four to six weeks to promote healing and prevent stenosis of the sinus ostia. Complications of surgery include CSF rhinorrhea, diplopia, blindness and meningitis. However, the rates of complications are very low among experienced surgeons. In studies reporting success rates of surgery in consecutive patients, up to 93 percent of patients reported substantial symptomatic improvement in a two-year follow-up, and subsequent revision surgery is reported in 7-10 percent (Bolger and Kennedy, 1992). It should be noted that no randomized controlled trials or case-controlled studies for endoscopic surgery have been performed.
**Recommended Quality Indicators for Upper Respiratory Infections**

These indicators apply to women age 18-50.

**Diagnosis**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Quality of evidence</th>
<th>Literature</th>
<th>Benefits</th>
<th>Comments</th>
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<tr>
<td><strong>Pharyngitis</strong></td>
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<tr>
<td>1. If a patient presents with a complaint of sore throat, the medical history should document presence or absence of previous episodes of rheumatic fever.</td>
<td>III</td>
<td>Barker et al., 1991</td>
<td>Prevent rheumatic heart disease.</td>
<td>In patients with previous rheumatic fever, one would be more inclined to obtain a culture and treat with antibiotics, since these patients are at higher risk for complications.</td>
</tr>
<tr>
<td>2. History/physical exam should document presence or absence of fever, tonsillar exudate and anterior cervical adenopathy.</td>
<td>II</td>
<td>Komaroff, 1986</td>
<td>Alleviate sore throat. Prevent rheumatic heart disease. Prevent rheumatic fever.</td>
<td>If all three are present, the probability of streptococcal infections is greater than 40% and one would be inclined to treat empirically without culture.</td>
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<tr>
<td><strong>Bronchitis/Cough</strong></td>
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<td>3. The history of patients presenting with cough of less than 3 weeks' duration should document: presence or absence of preceding viral infection (e.g., common cold, influenza that started 2 weeks or less prior to onset of cough).</td>
<td>III</td>
<td>Zervanos and Shute, 1994</td>
<td>Decrease cough. Prevent allergic reactions from antibiotics.</td>
<td>If preceding viral infection were present and the patient has no other complications (e.g., fever, shortness of breath), a diagnosis of viral bronchitis is likely. This diagnosis is self-limited and antibiotics are not necessary. No preceding viral infection would lead one to search for non-viral causes of bronchitis.</td>
</tr>
<tr>
<td>4. The history of patients presenting with cough of less than 3 weeks' duration should document presence or absence of fever and shortness of breath (dyspnea).</td>
<td>III</td>
<td>Barker et al., 1991</td>
<td>Decrease cough. Decrease shortness of breath. Prevent development of emphysema. Prevent development of sepsis.</td>
<td>These symptoms are consistent with possible pneumonia, which would require antibiotic treatment.</td>
</tr>
<tr>
<td>5. Patients presenting with acute cough should receive a physical examination of the chest for evidence of pneumonia.</td>
<td>III</td>
<td>Barker et al., 1991</td>
<td>Decrease cough. Decrease shortness of breath. Prevent development of emphysema. Prevent development of sepsis.</td>
<td>Signs of consolidation would lead one on a different diagnostic and treatment path.</td>
</tr>
<tr>
<td>6. Patients presenting with acute cough and with evidence of consolidation on physical exam of the chest (dullness to percussion, egophony, etc.) should receive a chest x-ray to look for evidence of pneumonia.</td>
<td>III</td>
<td>Barker et al., 1991</td>
<td>Decrease cough. Decrease shortness of breath. Prevent development of emphysema. Prevent development of sepsis.</td>
<td>Presence of pneumonia would necessitate different treatment and follow-up plans.</td>
</tr>
</tbody>
</table>
### Nasal Congestion

7. If a patient presents with the complaint of nasal congestion and/or rhinorrhea not attributed to the common cold, the history should include: seasonality of symptoms, presence or absence of sneezing, facial pain, fever, specific irritants, use of topical or systemic nasal decongestants.

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<td></td>
<td>III</td>
<td>Payton, 1994</td>
<td>Decrease nasal congestion. Decrease rhinorrhea.</td>
<td>Nasal congestion can result from multiple causes in addition to the common cold. The most important of these, because of availability of treatment, are allergic rhinitis, sinusitis, and topical nasal decongestant abuse (rhinitis medicamentosa). If the practitioner does not attribute symptoms to the common cold, symptoms specific to these alternate diagnoses should be elicited.</td>
</tr>
</tbody>
</table>

### Acute Sinusitis

8. If the diagnosis of acute sinusitis is made, symptoms should be present for a duration of less than 3 weeks (e.g., fever, malaise, cough, nasal congestion, purulent nasal discharge, ear pain or blockage, post-nasal drip, dental pain, headache, or facial pain).

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<td></td>
<td>III</td>
<td>Barker et al., 1991; Williams &amp; Simel, 1993</td>
<td>Decrease nasal congestion, fever, post-nasal drip, headache and facial pain.</td>
<td>Acute sinusitis is defined as lasting less than 3 weeks. If symptoms last longer, the patient may have chronic sinusitis, which is more difficult to treat and requires longer duration of antibiotic therapy.</td>
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</table>

### Treatment

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<tbody>
<tr>
<td>9. Patients with sore throat and fever, tonsillar exudate and anterior cervical adenopathy should receive immediate treatment for presumed streptococcal infection.</td>
<td>II</td>
<td>Komaroff, 1986; Panzer, 1991</td>
<td>Decrease sore throat. Prevent rheumatic fever.</td>
<td>Since throat cultures and rapid antigen tests vary in their sensitivity and specificity, this combination of symptoms is sufficient to warrant antibiotic treatment without further laboratory testing.</td>
</tr>
<tr>
<td>10. Treatment of streptococcal throat infection should be with penicillin V or erythromycin for 10 days; or with a single injection of benzathine penicillin.</td>
<td>III</td>
<td>Barker et al., 1991</td>
<td>Decrease sore throat. Prevent rheumatic fever.</td>
<td>This is the current standard of care, although other antibiotics (e.g., ampicillin) are also effective.</td>
</tr>
<tr>
<td>11. If an antibiotic is NOT prescribed with the diagnosis of sore throat, a throat culture or rapid antigen test should be obtained if any of the following are present: a) fever; b) tonsillar exudate; c) anterior cervical adenopathy.</td>
<td>II</td>
<td>Komaroff, 1986</td>
<td>Prevent rheumatic fever.</td>
<td>Each finding increases the probability of streptococcal infection.</td>
</tr>
<tr>
<td>12. If an antibiotic is prescribed, documentation of presence or absence of drug allergies should be in the chart.</td>
<td>III</td>
<td>Barker et al., 1991</td>
<td>Avoid allergic reactions.</td>
<td>Allergy to antibiotics is relatively common. Approximately 2% of persons treated with penicillin derivatives develop an allergic reaction. Since alternative antibiotic regimens usually exist, it is wise to be aware of patients’ allergy status before prescribing antibiotic.</td>
</tr>
</tbody>
</table>
### Bronchitis/Cough

13. If an antibiotic is prescribed for acute cough, documentation of drug allergies should be in the chart.

| III | Barker et al., 1991 | Avoid allergic reactions. | Allergy to antibiotics is relatively common. Approximately 2% of persons treated with penicillin derivatives develop an allergic reaction. Since alternative antibiotic regimens usually exist, it is wise to be aware of patients' allergy status before prescribing antibiotic.

14. If the history documents cigarette smoking in a patient with acute cough, encouragement to stop smoking should be documented.

| III | Barker et al., 1991 | Prevent future bronchitic episodes. Prevent smoking-related morbidity and mortality. | Smokers are predisposed to bronchitis. Symptomatic patients present a window of opportunity to counsel regarding smoking cessation.

### Influenza

15. Women with asthma, chronic obstructive pulmonary disease, chronic cardiovascular disorders, diabetes mellitus, renal failure, hemoglobinopathies (e.g., sickle cell disease) or immunosuppression, who present with symptoms of influenza within the first 48 hours should be considered for treatment with amantadine.


### Nasal Congestion

16. If topical or systemic nasal decongestants are prescribed, duration of treatment should be for no longer than 4 days.

| III | Stafford et al., 1992; Barker et al., 1991 | Prevent rhinitis medicamentosa. | Long-term treatment with topical decongestants can cause rebound congestion (rhinitis medicamentosa).

### Acute Sinusitis

17. Treatment for acute sinusitis should be with antibiotics for at least 10 days.

| I-III | Williams et al., 1995 | Decrease nasal congestion. Decrease fever. Decrease facial pain. Prevent development of chronic sinusitis. | Antibiotics have proven benefit but the length of treatment is somewhat controversial.

18. Treatment for acute sinusitis should include a systemic or topical nasal decongestant.


19. If topical or systemic nasal decongestants are prescribed, duration of treatment should be for no longer than 4 days

| III | Stafford et al., 1992; Barker et al., 1991 | Prevent rhinitis medicamentosa. | Long term treatment with topical decongestants can cause rebound congestions (rhinitis medicamentosa).

20. If an antibiotic is prescribed for acute sinusitis, documentation of presence or absence of drug allergies should be in the chart.

| III | Stafford et al., 1992 | Avoid allergic reactions. | Allergy to antibiotics is relatively common. Approximately 2% of persons treated with penicillin derivatives develop an allergic reaction. Since alternative antibiotic regimens usually exist, it is wise to be aware of patients' allergy status before prescribing antibiotic.

21. In the absence of symptoms of allergic rhinitis (thin, watery rhinorrhea, and sneezing), antihistamines should not be prescribed for acute sinusitis.

| III | Stafford et al., 1992 | Prevent antihistamine side effects. | Antihistamines should only be used if allergic symptoms are present. No RCTs have been done in this area.
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<tr>
<td>22. If symptoms fail to improve after one week of antibiotic treatment, therapy with another antibiotic for at least 10 days should be instituted.</td>
<td>III</td>
<td>Stafford et al., 1992</td>
<td>Decrease nasal congestion. Decrease fever. Decrease facial pain. Prevent development of chronic sinusitis.</td>
</tr>
<tr>
<td>23. If the patient does not improve after two courses of antibiotics, referral to an otolaryngologist for a diagnostic test (CT, x-ray, ultrasound of the sinuses) is indicated.</td>
<td>III</td>
<td>Stafford et al., 1992</td>
<td>Decrease nasal congestion. Prevent development of chronic sinusitis.</td>
</tr>
<tr>
<td><strong>Chronic Sinusitis</strong></td>
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<tr>
<td>24. If a diagnosis of chronic sinusitis is made, the patient should be treated with at least 3 weeks of antibiotics.</td>
<td>III</td>
<td>Stafford et al., 1992</td>
<td>Decrease nasal congestion and other symptoms of chronic sinusitis.* Prevent recurrence of sinusitis.</td>
</tr>
<tr>
<td>25. If patient has repeated symptoms after 2 separate 3 week trials of antibiotics, a referral to an otolaryngologist is indicated.</td>
<td>III</td>
<td>Bolger and Kennedy, 1992</td>
<td>Decrease nasal congestion and other symptoms of chronic sinusitis.* Prevent recurrence of sinusitis.</td>
</tr>
<tr>
<td>26. If topical or systemic nasal decongestants are prescribed, duration of treatment should be for no longer than 4 days.</td>
<td>III</td>
<td>Stafford et al., 1992; Barker et al., 1991</td>
<td>Prevent rhinitis medicamentosa.</td>
</tr>
<tr>
<td>27. In the absence of symptoms of allergic rhinitis (thin, watery rhinorrhea, and sneezing), antihistamines should not be prescribed.</td>
<td>III</td>
<td>Stafford et al., 1992</td>
<td>Prevent antihistamine side effects.</td>
</tr>
</tbody>
</table>

*Symptoms of chronic sinusitis include nasal congestions, fever, headache, facial pain, toothache, rhinorrhea, and purulent nasal discharge.

**Quality of Evidence Codes:**

I: RCT
II-1: Nonrandomized controlled trials
II-2: Cohort or case analysis
II-3: Multiple time series
III: Opinions or descriptive studies
REFERENCES - UPPER RESPIRATORY INFECTIONS


