MedStar Health

Management of Sinusitis in Adults

Clinical Practice Guideline
MedStar Health
Antibiotic Stewardship

"These guidelines are provided to assist physicians and other clinicians in making decisions regarding the care of their patients. They are not a substitute for individual judgment brought to each clinical situation by the patient's primary care provider in collaboration with the patient. As with all clinical reference resources, they reflect the best understanding of the science of medicine at the time of publication but should be used with the clear understanding that continued research may result in new knowledge and recommendations."

INTRODUCTION:

1. Most common cause of sinusitis is a viral infection. Bacterial infections only cause 0.5 to 2% of cases.
2. Acute rhinosinusitis typically lasts less than 4 weeks.
3. Treatment should be focused on supportive care and patient education.
4. Antibiotics are not indicated for most patients but are overused for this condition.
5. Reducing antibiotic use for acute sinusitis is a national and international health care priority.
6. X-rays and CT scans are not useful for uncomplicated sinusitis.
7. When Covid 19 is suspected, appropriate testing should be performed. The patient should self-isolate, treat symptomatically, monitor for clinical worsening, and follow treatment recommendations per current CDC guidelines.

ADULT PATIENTS (18 years old or older) See Figure 1.

1. Antibiotics should not be given for viral rhinosinusitis or sinusitis.
2. Symptomatic therapies to treat nasal obstruction, rhinorrhea as well as fever are appropriate. These include:
    a. Acetaminophen or NSAIDs
    b. Saline irrigation (do not use tap water since could cause amebic encephalitis)
    c. Intranasal glucocorticoids

Other therapies often used but which have not been studied specifically in acute rhinosinusitis are:

a. Antihistamines to dry secretions
b. Mucolytics to make mucous thinner (guaifenesin)
c. Intranasal decongestants should be used cautiously for no more than 3 days if at all due to risk of rhinitis medicamentosa.
d. Oral decongestants—of most value for patients with concurrent eustachian tube dysfunction. Should be avoided or used cautiously in those with cardiovascular disease, bladder outlet obstruction, or acute angle closure glaucoma.
e. Intranasal ipratropium bromide: anticholinergic that reduces nasal congestion.
f. Oral corticosteroids: risks outweigh benefits.

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3. Indications for antibiotics include rhinosinusitis symptoms lasting **ten or more days** and **any** of the following:
    a. Purulent nasal discharge, or
    b. Maxillary tooth or facial pain, especially unilateral, or
        * Note: isolated tooth pain does not necessarily necessitate treatment with antibiotics.
    c. Unilateral maxillary sinus tenderness, or
    d. Worsening symptoms after initial improvement (double worsening)
4. Initial antibiotic treatment of acute bacterial sinusitis should be with the most narrow-spectrum agent which is active against the likely pathogens (Streptococcus pneumonia, Haemophilus influenzae, Moraxella catarrhalis) See Figure 2.
    a. Low Risk for Pneumococcal Resistance: Amoxicillin-clavulanate (either 500 mg/125 mg orally three times daily or 875 mg/125 mg orally twice daily) for five to seven days.
    b. Higher Risk for Pneumococcal Resistance (local resistance > 10%, age over 65, hospitalized in last 5 days): High dose amoxicillin-clavulanate extended release 2 grams/125mg every 12 hours for five to seven days.
    c. Penicillin Allergy: Doxycycline 100 mg every 12 hours or Doxycycline 200 mg daily for five to seven days; Cefixime 400 mg daily or cefpodoxime 200 mg twice daily with or without clindamycin (300 mg every 6 hrs.).
    d. NOT RECOMMENDED – Macrolides (clarithromycin or azithromycin), trimethoprim-sulfamethoxazole, and second- or third generation cephalosporins are not recommended for empiric therapy in adults because of high rates of resistance of S. pneumoniae (and of H. influenzae for trimethoprim-sulfamethoxazole).

5. Patients who have worsening symptoms or fail to respond within seven days on initial antibiotic therapy should be re-evaluated to confirm that symptoms remain consistent with acute bacterial sinusitis, to consider alternative diagnoses, and to evaluate for complications of acute sinusitis such as pre-septal or orbital cellulitis, intracranial abscess, osteomyelitis, or cavernous sinus thrombosis. Symptoms of concern include severe headache, periorbital edema/erythema, visual changes, proptosis, abnormal eye movements, altered mental status or neck stiffness. For patients with symptoms that are concerning for complicated acute bacterial rhinosinusitis, or who have evidence of complications on imaging, urgent, early referral is essential. Treatment decisions for immunocompromised patients or patients with other comorbidities that can affect immune function should be made on a case-by-case basis. Such patients may warrant immediate antibiotic treatment and/or specialist referral or further investigation.

6. If acute bacterial sinusitis remains the working diagnosis, the patient should be treated with an oral antibiotic in a different class from the first agent used. Treatment options include:

    a. Amoxicillin-clavulanate 2 grams/125 mg extended-release tablets orally twice daily for 7-10 days.
    b. *Levofloxacin 750 or 500 mg orally once daily for 7-10 days
    c. *Moxifloxacin 400 mg orally once daily for 7-10 days
    d. A third-generation cephalosporin plus clindamycin
    e. For penicillin-allergic patients, options for second-line therapy include:
        i. Doxycycline 100 mg orally twice daily or 200 mg orally daily for 7-10 days
        ii. *Levofloxacin 500 mg orally once daily for 7-10 days
        iii. *Moxifloxacin 400 mg orally once daily for 7-10 days

***The U.S. Food and Drug Administration is advising that the serious side effects associated with fluoroquinolone antibacterial drugs generally outweigh the benefits for patients with sinusitis, bronchitis,**

and uncomplicated urinary tract infections who have other treatment options. For patients with these conditions, fluoroquinolone should be reserved for those who do not have alternative treatment options. http://www.fda.gov/Drugs/DrugSafety/ucm500143.htm (5/12/2016)

7. Referral to ENT/specialist: Patients who fail ≥2 courses of appropriate antibiotics consider imaging and referral to ENT. Other indications for referral to a specialist for further investigation and management include patients with presumed acute bacterial rhinosinusitis who are seriously ill and immunocompromised or have recurrent bouts of acute rhinosinusitis with clearing between episodes.

8. Avoiding antibiotic overuse:
   a. Recommend having explicit discussion on risks and benefits of antibiotics with patients.
   b. Multiple high-quality trials and meta-analyses have shown that antibiotics do NOT provide substantial benefit and use can result in adverse effects (nausea, vomiting, diarrhea, rash, headache, vaginitis, rash, and anaphylaxis).
   c. Antibiotics can alter the patient's microbiome and may induce antibiotic resistant organisms both in the individual and in the community
   d. Antibiotic use comes at an increased financial cost.
   e. Consider delayed prescribing where prescription provided but patient agrees not to fill for period of time.

MEDCONNECT RESOURCES

A sinusitis specific power plan is present in MedConnect to facilitate appropriate treatment orders:

AMB Adult Sinusitis Treatment

PATIENT EDUCATION

Choosing wisely: http://www.choosingwisely.org/patient-resources/treating-sinus-problems-aaaai/

DEFINITIONS

Antimicrobial stewardship refers to coordinated interventions designed to improve and measure the appropriate use of antimicrobials by promoting the selection of the optimal antimicrobial drug regimen, dose, duration of therapy, and route of administration. Antimicrobial stewards seek to achieve optimal clinical outcomes related to antimicrobial use, minimize toxicity and other adverse events, reduce the costs of health care for infections, and limit the selection for antimicrobial resistant strains. – See more at: https://www.idsociety.org/policy--advocacy/antimicrobial-resistance/

REFERENCES:

Up to Date: Acute sinusitis and rhinosinusitis in adults: Clinical manifestations and diagnosis February 2024
Up to Date: Uncomplicated acute sinusitis and rhinosinusitis in adults: Treatment February 2024
Acute Sinusitis Emedicine.medscape.com February 23, 2021, August 14, 2023.
Centers for Disease Control (CDC), Antibiotic Use in the United States, 2023 Update: Progress and Opportunities. https://www.cdc.gov/antibiotic-use/stewardship-report/current.html
Infectious Disease Society of America (ISDA), 2024. Antibiotic Resistance https://www.idsociety.org/public-health/antimicrobial-resistance/antimicrobial-resistance/

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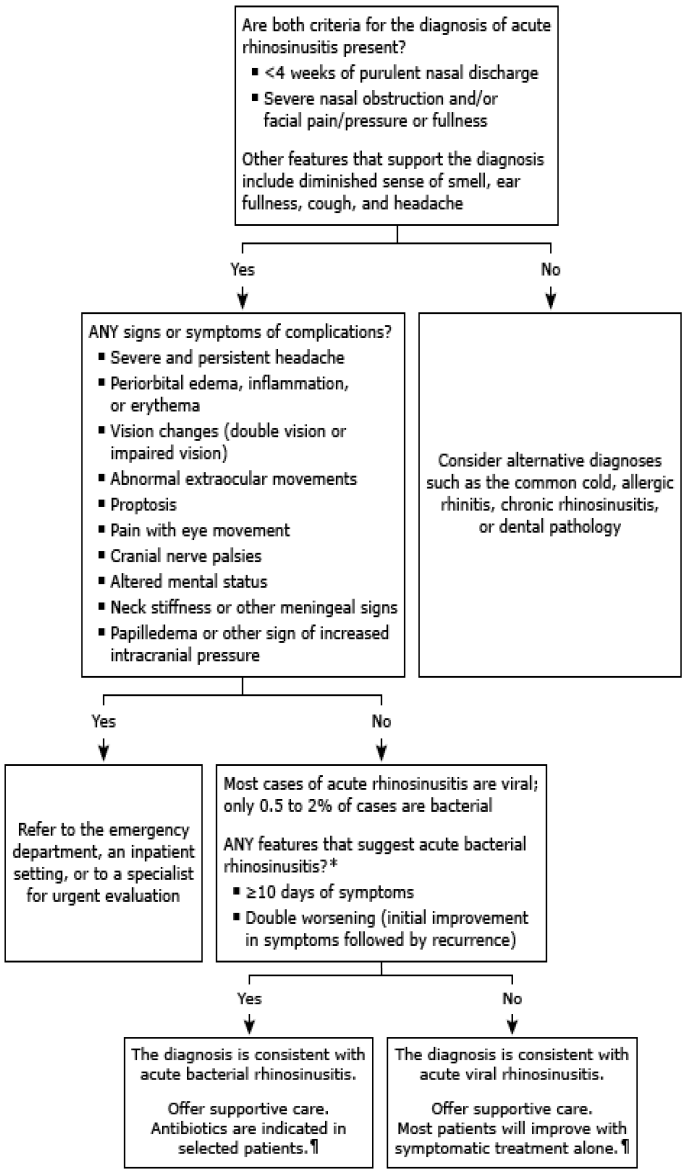
Figure 1: Initial Evaluation of the Adult with Suspected Rhinosinusitis



This algorithm will help differentiate patients with acute viral rhinosinusitis from those with acute bacterial rhinosinusitis and identify patients who have signs or symptoms of complications that require urgent evaluation and treatment.

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* The onset of severe symptoms or signs of severe illness (eg, high fever [>39°C or 102°F], purulent nasal discharge, facial pain) for at least 3 to 4 consecutive days at the beginning of illness supports the diagnosis of acute bacterial rhinosinusitis. However, severity of illness alone is not sufficient criteria for starting antibiotics. Refer to the UpToDate text for additional detail.

¶ Refer to UpToDate content on treatment of uncomplicated acute rhinosinusitis in adults.

Graphic 116726 Version 4.0

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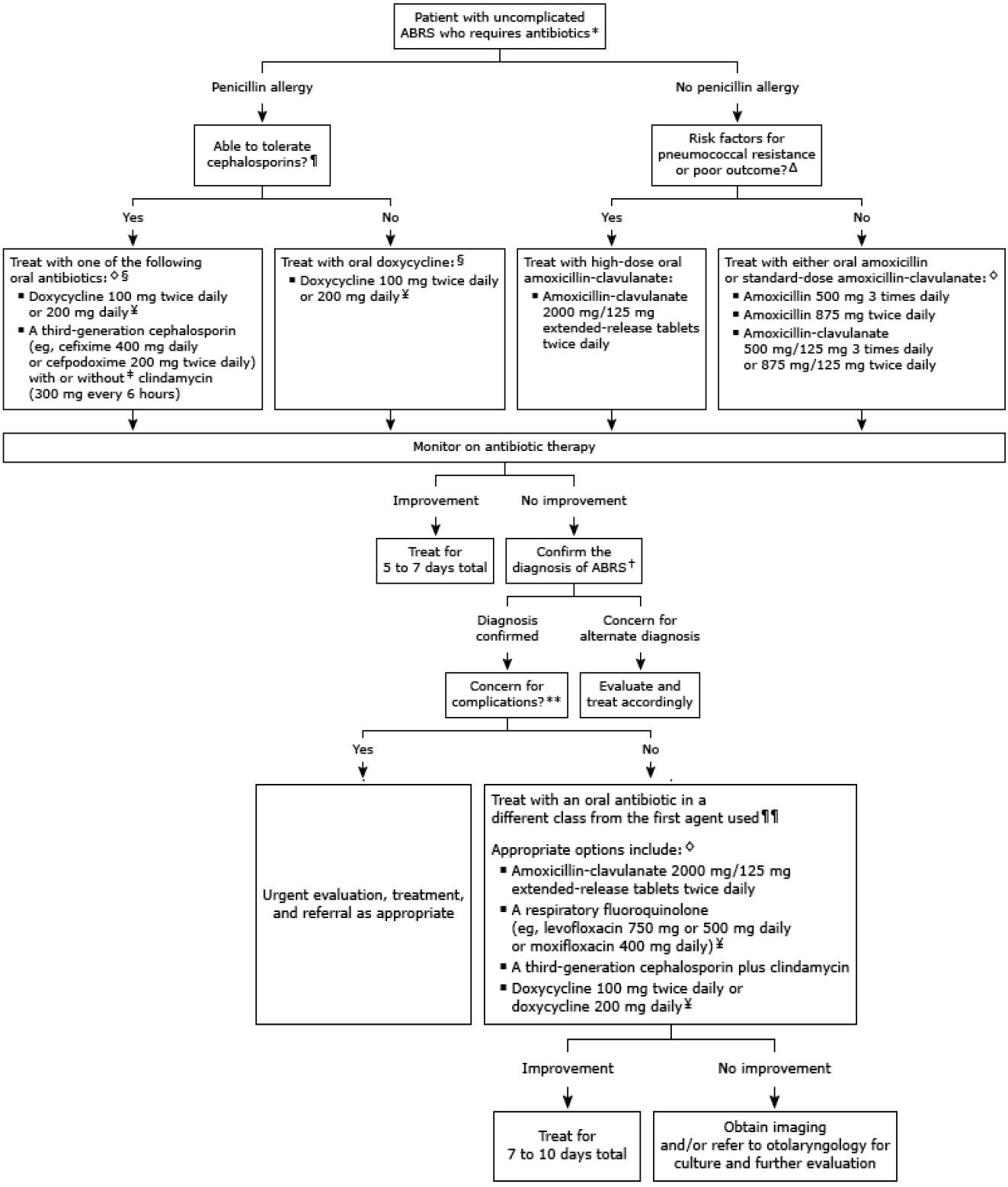
Figure 2: Empiric antimicrobial therapy for outpatient treatment of uncomplicated acute bacterial rhinosinusitis in immunocompetent adults.



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ABRS: acute bacterial rhinosinusitis.

* Indications for antibiotic therapy include lack of adequate follow-up, worsening symptoms during observation, and symptoms unchanged after 7 days of observation. Refer to the UpToDate topic on treatment of uncomplicated acute sinusitis and rhinosinusitis in adults for details.

¶ Refer to the UpToDate topics on penicillin allergy and cephalosporin allergy.

Δ Risk factors for resistance or poor outcome include:

- Living in geographic regions with rates of penicillin-nonsusceptible *Streptococcus pneumoniae* exceeding 10%
- Age ≥65 years
- Hospitalization in the last 5 days
- Antibiotic use in the previous month
- Immunocompromised
- Multiple comorbidities (eg, diabetes or chronic cardiac, hepatic, or renal disease)
- Severe infection (eg, evidence of systemic toxicity with temperature of ≥102°F)

◇ Selection among these agents depends on patient allergies (as above), comorbidities, potential adverse drug effects, likelihood of patient adherence, and other patient values and preferences.

§ A respiratory fluoroquinolone (eg, levofloxacin 750 mg or 500 mg orally daily or moxifloxacin 400 mg orally daily) is an additional option for initial treatment but should be reserved for those who cannot tolerate other options as the serious adverse effects associated with fluoroquinolones generally outweigh the benefits for patients with acute rhinosinusitis.

¥ Doxycycline and fluoroquinolones should be avoided in pregnancy.

‡ The addition of clindamycin provides improved coverage for beta-lactam-resistant *S. pneumoniae* but carries increased risk of adverse effects (eg, *Clostridioides* [formerly *Clostridium*] *difficile* infection).

† The diagnosis of ABRS can be confirmed clinically. In patients in whom there are concerns for complications, imaging should be obtained. In other patients in whom symptoms are not completely consistent with ABRS, imaging is reasonable to rule out sinusitis and/or evaluation for alternative diagnosis.

** Signs and symptoms of complications include toxic appearance, altered mental status, neurologic deficits, and/or evidence of extension of infection into the surrounding skin, soft tissue, or bone. Refer to the UpToDate topics on the diagnosis of acute rhinosinusitis, deep neck space infections, and orbital cellulitis for additional detail.

¶¶ For patients who received a respiratory fluoroquinolone as initial therapy, antimicrobial resistance is unlikely to be the cause of treatment failure. We often pursue evaluation in such patients in place of or in addition to prescribing a second course of antibiotics.

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