



DIAGNOSIS AND MANAGEMENT OF

Sinusitis, Acute – Adult

2016 UPDATE

This care process model (CPM) was developed by Intermountain Healthcare's Antibiotic Stewardship team and Primary Care Clinical Program. Based on expert opinion and the Infectious Disease Society of America^{IDSA} Clinical Practice Guidelines, it provides best-practice recommendations for diagnosis and management of acute sinusitis including guidance for when and which antibiotics should be used.

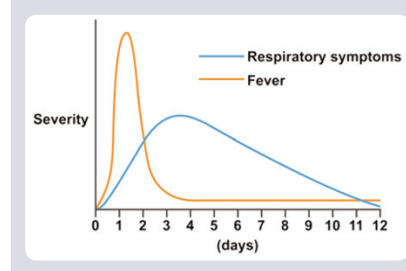
KEY POINTS

- **Imaging is not recommended to distinguish uncomplicated acute bacterial sinusitis from a viral upper respiratory infection (URI).** Imaging is not effective, since during an uncomplicated viral URI, the majority of patients will have significant abnormalities indistinguishable from those associated with bacterial infection.^{IDSA} The diagnosis of acute bacterial sinusitis can be made based on the patient's symptoms and clinical course, which saves unnecessary costs and prevents overdiagnosis.
- **Amoxicillin is the first-line antibiotic recommended for non-severe acute sinusitis in the Intermountain region.** This strays from the IDSA guidelines, which recommend amoxicillin-clavulanate as the first-line antibiotic^{IDSA} (but follows American Academy of Pediatrics^{AAP} guidelines). After a careful review of Intermountain's resistance patterns over the past 5 years, our experts have determined that amoxicillin is the most appropriate first-line agent to treat non-severe acute sinusitis in the region. If amoxicillin fails after 3 days, you can switch to amoxicillin-clavulanate.

► Why Focus ON ACUTE SINUSITIS?

- **Antibiotics are overprescribed for sinusitis.** Sinusitis is the fifth leading indication for antibiotic prescriptions in primary care. In addition, 81% of adults with a diagnosis of acute sinusitis receive an antibiotic prescription, despite the fact that 70% of patients improve without medication in randomized clinical trials.^{IDSA}
- **Distinguishing between sinusitis and uncomplicated URIs can be challenging.** Clinicians need to differentiate between sequential uncomplicated viral URIs and establish whether or not symptoms are improving before diagnosing acute sinusitis.^{AAP} While a typical URI improves over the course of the illness (see *Figure 1*), persistent sinusitis does not.
- **2012 IDSA guidelines define 3 clinical presentations of sinusitis** — severe, persistent, and worsening — that help guide appropriate management and antibiotic prescription.^{IDSA}

FIGURE 1. Uncomplicated URI course^{AAP}



► GOALS

- **Help providers improve accuracy of diagnosis** of persistent, severe, and worsening acute sinusitis in adults.
- **Select appropriate antibiotics** for patients who meet the diagnostic criteria for acute bacterial sinusitis.
- **Reduce the unnecessary use of antibiotics** for an unclear diagnosis of sinusitis by introducing a watchful-waiting option for persistent sinusitis.
- **Determine appropriate referrals** to ENTs.

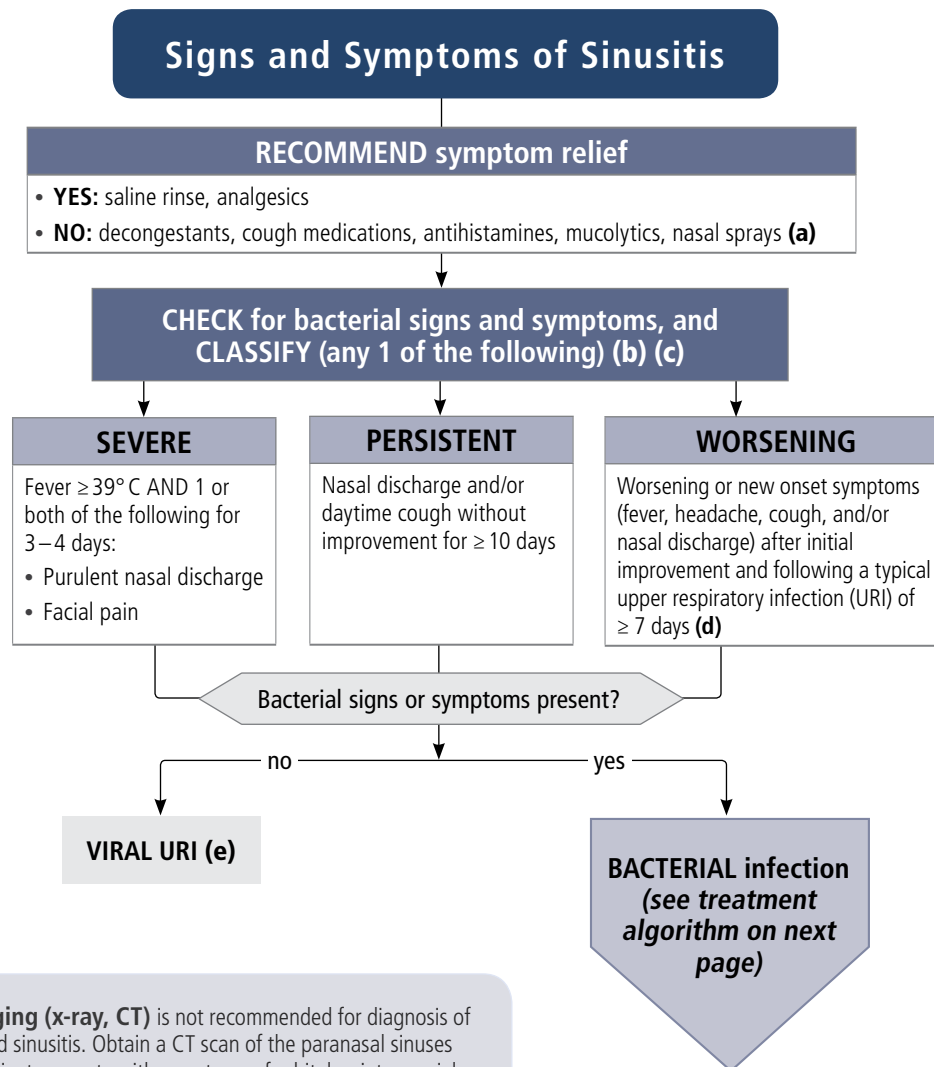


GermWatch is Intermountain's source for up-to-date information about infectious diseases currently circulating in Utah communities.

For physicians: intermountainphysician.org/gw

For parents and patients: germwatch.org

▶ ALGORITHM: DIAGNOSIS



NOTE: Imaging (x-ray, CT) is not recommended for diagnosis of uncomplicated sinusitis. Obtain a CT scan of the paranasal sinuses only if the patient presents with symptoms of orbital or intracranial complications.^{IDSA} **Intracranial** symptoms include very severe headache, photophobia, seizures, or other focal neurologic findings.^{AAP}

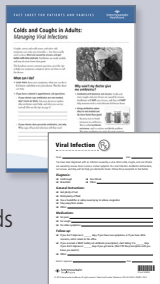
DIAGNOSIS

- (a) Symptom relief sprays.** Limited data exist demonstrating that decongestants and antihistamines hasten recovery of sinusitis or improve nasal airway patency. Intranasal corticosteroids (INCSs) can be used as an adjunct to antibiotics in the treatment of sinusitis, primarily in patients with a history of allergic rhinitis.^{IDSA}
- (b) Other signs** of acute sinusitis include ear pain, pressure, or fullness, bad breath, dental pain, and fatigue.^{IDSA}
- (c) Rhinitis.** Allergic and nonallergic rhinitis can be predisposing causes of acute bacterial sinusitis or may be mistaken for sinusitis. Review family and patient history and evaluate for other symptoms of rhinitis to rule it out.^{AAP}
- (d) Worsening course.** IDSA defines worsening course as following a typical URI of 5 – 6 days.^{IDSA} This CPM recommends ≥ 7 days based on expert opinion, local resistance patterns, and American Academy of Pediatrics guidelines.^{AAP}
- (e) Viral URI.** Recommend symptom relief, and tell the patient to follow up if symptoms don't improve within 10 days of onset, become severe, or worsen. (See support tools below.)

Intermountain patient tools

To order copies, go to iprintstore.org.

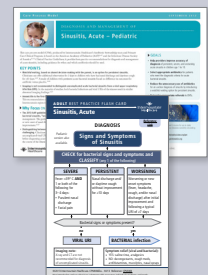
- **Colds and Coughs in Adults: Managing Viral Infections.** Supports patient education and provides additional instructions.
- **Viral Infection Rx.** Use to communicate the diagnosis and directions for symptom relief and follow-up with the patient. Order notepads from the link above.



Intermountain provider tools

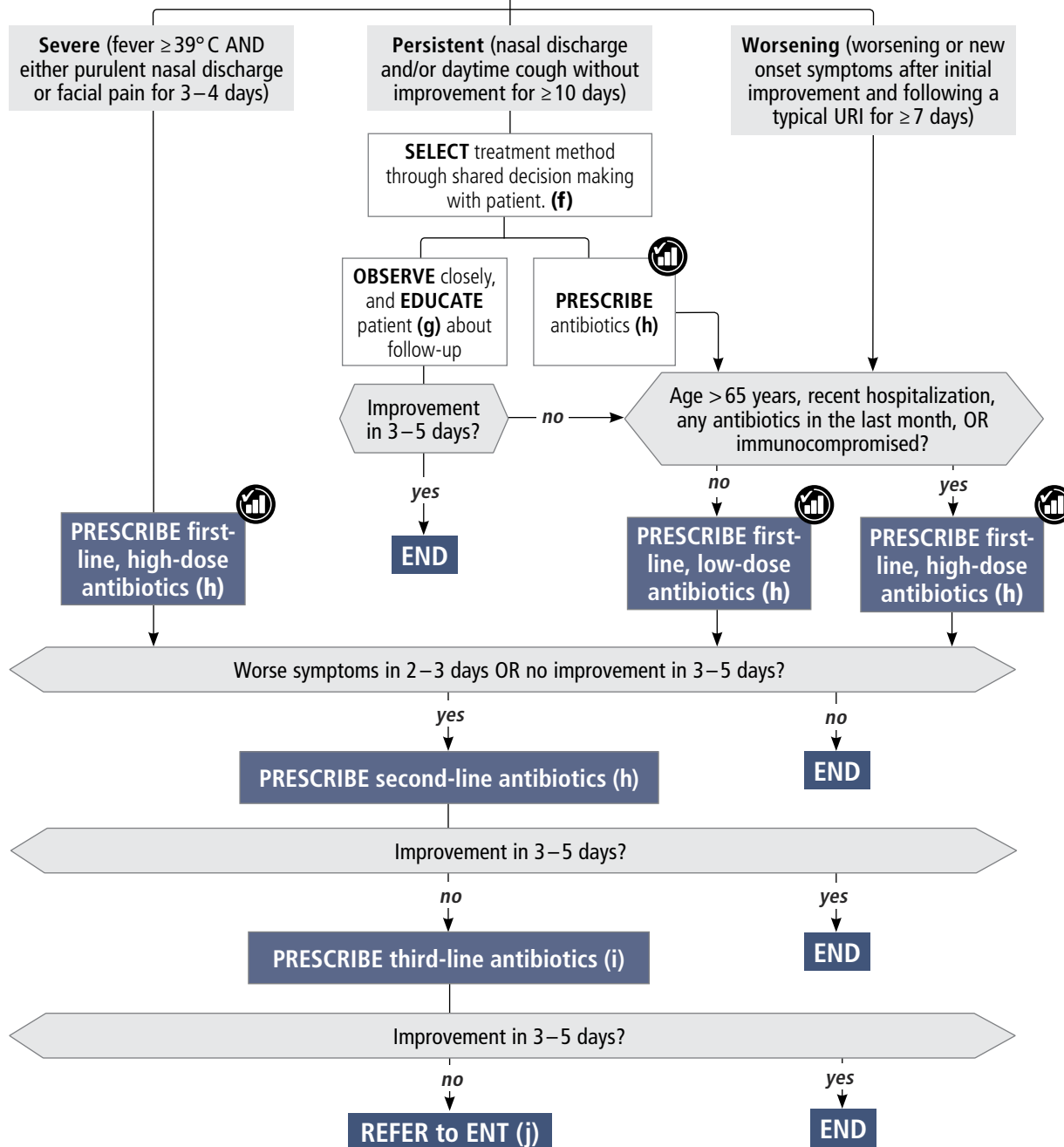
Available from the Primary Care Clinical Program page of intermountain.net and intermountainphysician.org:

- **Pediatric Sinusitis CPM** and **Best Practice Flash Card**
- **Adult Sinusitis Best Practice Flash Card**
- **Antibiotic Best Practices website**



▶ ALGORITHM: TREATMENT

Acute Bacterial Sinusitis



TREATMENT

(f) Factors to consider when determining treatment:^{AAP}

- Symptom severity
- Discomfort level
- Recent antibiotic use
- Previous experience or outcomes with acute bacterial sinusitis
- Cost of antibiotics
- Ease of administration
- Concerns about potential adverse effects of antibiotics
- Persistence of respiratory symptoms
- Development of complications

(g) Provider actions:

- Have the patient monitor symptoms for the next 5 days, paying special attention to whether or not symptoms improve, stay the same, or worsen.
- If symptoms worsen in 2–3 days or fail to improve in 3–5 days, have the patient call for a prescription or start a SNAP.

(h) Antibiotics and doses. See page 4 for list of antibiotics.

(i) Third-line antibiotics. Before prescribing a third antibiotic, reconsider diagnosis, assess patient compliance, and consider allergic rhinitis.

IDSA recommends referral to a specialist after second-line antibiotics.^{IDSA} This CPM recommends a third antibiotic based on expert opinion, local resistance patterns, amoxicillin as first-line antibiotic, and American Academy of Pediatrics guidelines.^{AAP}

(j) Referral to an ENT. Refer patients who meet any of the following criteria to an ENT:^{IDSA}

- Seriously ill and immunocompromised
- Continue to deteriorate clinically despite extended courses of antimicrobial therapy
- Have recurrent bouts of acute sinusitis with clearing between episodes



Intermountain measures sinusitis diagnoses and which antibiotics are prescribed.

Antibiotics for Acute Sinusitis in Adults

First-line antibiotics

Low dose	<ul style="list-style-type: none"> Amoxicillin: 1,000 mg (two 500 mg capsules) twice daily for 7 days 	If penicillin allergic: <ul style="list-style-type: none"> doxycycline: 100 mg twice daily for 7 days cefdinir: 600 mg daily for 7 days 	Notes: <ul style="list-style-type: none"> Do not prescribe azithromycin or TMP/SMX due to high rates of resistance. The cost for 1,000 mg (two 500 mg capsules) twice daily amoxicillin (as low dose) is significantly less than the cost for the 875 mg dose recommended by the IDSA.
High dose	<ul style="list-style-type: none"> Amoxicillin: 2,000 mg twice daily for 7 days 		

Second-line antibiotics

	<ul style="list-style-type: none"> Amoxicillin/clavulanate: 875 mg plus amoxicillin 1,000 mg (two 500 mg capsules) twice daily for 10 days 	If penicillin allergic: <ul style="list-style-type: none"> doxycycline: 100 mg twice daily for 7 days cefdinir: 600 mg daily for 7 days 	Notes: <ul style="list-style-type: none"> The cost for 875 mg of amoxicillin/clavulanate twice daily plus 1000 mg (two 500 mg capsules) amoxicillin twice daily (as second line) is significantly less than the cost for the two 1,000 mg AugmentinXR doses twice daily recommended by the IDSA.
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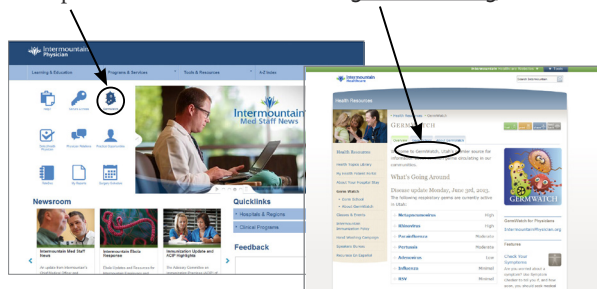
Third-line antibiotics

	<ul style="list-style-type: none"> Doxycycline: 100 mg twice daily for 7 days Cefdinir: 600 mg daily for 7 days 	Note: The FDA does not recommend fluoroquinolones as a treatment for sinusitis if other options are available.
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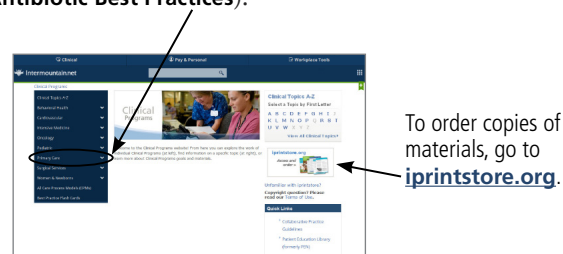
Where to find resources (intermountainphysician.org)

GermWatch: Physician version is available from the home page of intermountainphysician.org.

Patient/public version available from germwatch.org.



Patient and Provider Education Materials: Available at intermountainphysician.org/clinicalprograms (click **Primary Care** on the left, then **Topics**, then **Antibiotic Best Practices**).



References

- AAP Wald E, Kimberly E, Bordley C, et al. Clinical practice guidelines for the diagnosis and management of acute bacterial sinusitis in children aged 1 to 18 years. *Pediatrics*. 2013;132(1):e261-e281.
- FDA FDA Drug Safety Communication: FDA updates warnings for oral and injectable fluoroquinolone antibiotics due to disabling side effects. U.S. Food and Drug Administration website. <http://www.fda.gov/Drugs/DrugSafety/ucm511530.htm>. Updated May 12, 2016. Accessed July 19, 2016.
- IDSA Chow AW, Benninger MS, Brook I, et al. IDSA clinical practice guideline for acute bacterial rhinosinusitis in children and adults. *Clin Infect Dis*. 2012;54(8):e72-e112.

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This CPM is based on best evidence at the time of publication. It is not meant to be a prescription for every patient. Clinical judgment based on each patient's unique situation remains vital.