JAMA Clinical Guidelines Synopsis

# Diagnosis and Management of Acute Rhinosinusitis in Adults

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**GUIDELINE TITLE** Adult Sinusitis Update

**RELEASE DATE** June 17, 2025

**PRIOR VERSION** 2015

**DEVELOPER** American Academy of Otolaryngology–Head and Neck Surgery Foundation (AAO-HNSF)

**TARGET POPULATION** Adults with rhinosinusitis

**MAJOR RECOMMENDATIONS**

- Acute bacterial rhinosinusitis is defined as presence of purulent nasal drainage associated with nasal obstruction and facial pain, pressure, or fullness that persists without improvement for at least 10 days or that worsens within 10 days after initial improvement (strong recommendation; quality of evidence [QOE]: B).
- Radiologic imaging should not be obtained for patients with acute rhinosinusitis unless a complication such as orbital or soft tissue involvement or alternative diagnosis is suspected (recommendation against; QOE: B).
- Adults with uncomplicated acute bacterial rhinosinusitis should be offered watchful waiting (without antibiotics) with follow-up 3 to 5 days after diagnosis to reassess need for antibiotics (recommendation; QOE: A).
- If antibiotics are prescribed for acute bacterial rhinosinusitis, amoxicillin with or without clavulanate for 5 to 7 days should be used in most adults (recommendation; QOE: A). Doxycycline is an alternative for persons with immunoglobulin E (IgE)–mediated penicillin allergy.

## Summary of the Clinical Problem

Rhinosinusitis may be classified as acute if less than 4 weeks' duration or chronic if more than 12 weeks' duration. Recurrent acute rhinosinusitis is defined as 4 or more acute episodes per year without persistence of symptoms between episodes. Annually, nearly 12% of adults in the US report a diagnosis of rhinosinusitis. This article focuses on recommendations for clinical diagnosis and treatment of acute rhinosinusitis in the general ambulatory patient population.[1]

Supplemental content

CME at jamacmelookup.com

## Characteristics of the Guideline Source

The guideline work group had broad representation (eTable in the Supplement). The QOE was graded A through D. Level A recommendations were informed by systematic reviews of randomized clinical trials (RCTs), B were based on RCTs or observational studies with consistent evidence, C were based on observational studies, and D were based on case reports or mechanism-based reasoning. Strength of recommendation was graded as *strong recommendation* when benefits informed by A or B QOE clearly outweighed harms, *recommendation* when benefits exceeded harms and were supported by B or C QOE, or *option* when there was D QOE or A, B, or C QOE with no clear advantage among approaches.[1]

## Evidence Base

The guideline issued 17 recommendations; 2 were strong recommendations, 12 were recommendations, and 3 were options.

Acute rhinosinusitis is a clinical diagnosis defined as presence of purulent nasal drainage, nasal obstruction, and facial pain or pressure lasting for up to 4 weeks. If symptoms are present for fewer than 10 days and not worsening, acute rhinosinusitis is presumed to be due to a viral infection. If symptoms persist for at least 10 days or there is worsening of symptoms within 10 days of symptom onset, criteria for acute bacterial rhinosinusitis are met. However, evidence underpinning the clinical definitions of acute bacterial rhinosinusitis is limited. Prior clinical trials refer to a duration of 7 days of symptoms as a moderately sensitive but nonspecific predictor of bacterial sinusitis.[2]

In a more recent prospective cohort study (n = 50), patients with at least 4 days of nasal symptoms (blockage or discharge) who were examined 10 days after symptom onset and found to have mucosal edema or nasal passage secretions based on anterior rhinoscopy had paranasal sinus computed tomography (CT).[3] Patients with air-fluid levels, gas bubbles, or total sinus opacification on CT underwent maxillary sinus puncture and aspiration. Using culture positivity from the maxillary sinus aspirate as the reference standard, the most useful findings for predicting acute bacterial rhinosinusitis were presence of any nasal secretion in the posterior pharynx (sensitivity, 0.50 [95% CI, 0.16-0.84]; specificity, 0.91 [95% CI, 0.77-0.97]), facial tenderness (sensitivity, 0.38 [95% CI, 0.09-0.75]; specificity, 0.83 [95% CI, 0.69-0.93]), and cervical adenopathy (sensitivity, 0.50 [95% CI, 0.16-0.84]; specificity, 0.83 [95% CI, 0.69-0.93]).[3] Fever does not reliably differentiate between bacterial and viral causes of sinusitis and is not a criterion for acute bacterial rhinosinusitis.[1]

Routine use of radiography or CT of the sinuses for diagnosis of acute rhinosinusitis is not recommended. Imaging studies should be reserved for patients with suspected complications of acute bacterial rhinosinusitis, such as orbital, intracranial, or soft tissue infection. In addition to unnecessary radiation exposure, cost, and possible overdiagnosis, CT lacks specificity in distinguishing viral and bacterial causes of acute rhinosinusitis.[1]

Antibiotics are not currently recommended for uncomplicated acute rhinosinusitis (nasal congestion and inflammation without neurologic, ophthalmologic, or facial involvement) within the first 10 days of illness,[1] in contrast to the 2015 AAO-HNSF guidelines that included antibiotic therapy as a recommended option in initial management of acute bacterial rhinosinusitis.[4] A double-blind, placebo-controlled study of 416 patients with clinically diagnosed acute rhinosinusitis (defined as a respiratory infection lasting <30 days with



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purulent rhinorrhea) reported that therapy success, defined as absence or very mild presence of relevant symptoms at day 10 of enrollment, was achieved in 35% of patients randomized to amoxicillin vs 29% of patients randomized to placebo (relative risk, 1.14 [95% CI, 0.92-1.42]).[5] Another double-blind, placebo-controlled RCT (n = 249) compared amoxicillin-clavulanate and placebo in patients with clinically diagnosed acute rhinosinusitis (defined as purulent nasal discharge and maxillary or frontal unilateral or bilateral facial pain for ≥2 days and <1 month) who had a median duration of symptoms prior to treatment of 5 days. No difference in time to cure was observed (hazard ratio, 0.99 [95% CI, 0.68-1.45]), and symptoms generally improved by day 14 in both treatment groups.[6] Due to the high spontaneous recovery rate among patients receiving no treatment, rare complications associated with no antibiotic treatment, and potential harms of treatment with antibiotics, watchful waiting with close follow-up within 3 to 5 days of symptom onset is recommended.[1]

When antibiotic therapy is prescribed for a clinical diagnosis of acute bacterial rhinosinusitis, treatment with amoxicillin is recommended due to its relative safety, efficacy, and low cost. Evidence has shown that the addition of clavulanate has not been beneficial. In a propensity score–matched retrospective cohort study of a nationwide health care utilization database of 521 244 adults diagnosed with acute sinusitis, no significant differences in risk of treatment failure were observed among patients prescribed amoxicillin-clavulanate vs amoxicillin (3.0% vs 3.1%; risk ratio, 0.96 [95% CI, 0.92-1.01]).[7] The guideline leaves the decision to prescribe amoxicillin with clavulanate to clinician discretion. When antibiotics are used for patients with an IgE-mediated penicillin allergy, doxycycline or a third-generation cephalosporin with or without clindamycin is recommended.[1]

## Discussion

Many recommendations in the guideline about use of antibiotics in acute bacterial rhinosinusitis were based on studies in which microbiological confirmation of infection was not required. While it is conceivable that antibiotics could provide benefit to patients definitively diagnosed with bacterial sinusitis, current routine clinical practice in primary care settings precludes this approach. Among the studies using clinical criteria for diagnosis of acute bacterial rhinosinusitis, use of antibiotics has not been shown to shorten symptom duration or improve clinically meaningful outcomes, and patients not receiving antibiotics did not have excess risk of complications such as orbital, intracranial, or soft tissue extension of infection.[1] Therefore, ongoing judicious use of antibiotics in most cases of acute rhinosinusitis is prudent.

Several options are suggested for symptomatic relief of acute rhinosinusitis, including over-the-counter oral analgesics such as nonsteroidal anti-inflammatory medications or acetaminophen (paracetamol), topical intranasal corticosteroids, and saline irrigation.[1] In a meta-analysis of 3 RCTs including 1792 participants comparing common doses of intranasal corticosteroids vs placebo or no intervention for 15 or 21 days in clinically or radiographically diagnosed acute rhinosinusitis, symptom resolution occurred more frequently in patients receiving intranasal corticosteroids (73% vs 66%; relative risk, 1.11 [95% CI, 1.04-1.18]), with a number needed to treat of 11 across all doses.[8] Other therapies commonly used for symptom control, such as systemic steroids, decongestants, antihistamines, guaifenesin, and alternative therapies were not recommended due to the lack of strong evidence.[1]

## Areas in Need of Future Study or Ongoing Research

Further study should focus on the effect of clinician beliefs and patient perceptions about antibiotic prescribing for acute bacterial rhinosinusitis and how these might affect patient preferences and satisfaction. For subacute rhinosinusitis (symptoms present for 4-12 weeks), more evidence is needed to determine whether these patients should be treated similarly to those with acute rhinosinusitis or chronic sinusitis.


### ARTICLE INFORMATION

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**Published Online:** October 28, 2026. doi:10.1001/jama.2026.16552

**Conflict of Interest Disclosures:** None reported.

**Disclaimer:** Dr Alexander is Associate Editor of *JAMA* but was not involved in any of the decisions regarding review of the manuscript or its acceptance.


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