

Otolaryngology: Rhinology

Five Things Physicians and Patients Should Question

by

Canadian Society of Otolaryngology - Head & Neck Surgery

Rhinology Subspecialty Group

Last updated: January 2022



1 Don't prescribe antibiotics to patients with acute sinusitis who do not meet the diagnostic criteria for acute bacterial rhinosinusitis

The prevalence of a bacterial infection during acute rhinosinusitis is estimated to be 2%–10%, whereas viral causes account for 90%–98%. Management of viral rhinosinusitis is primarily focused on symptomatic relief, which may include use of intranasal corticosteroids, analgesics, nasal saline rinses, oral or topical decongestants, and mucolytics. Antibiotics are ineffective for viral illness and do not provide direct symptom relief. Despite this, 82% of Canadian patients diagnosed with acute sinusitis received a prescription for antibiotics. Differentiating viral rhinosinusitis from acute bacterial rhinosinusitis (ABRS) is challenging because the symptoms are overlapping, but is critical to avoid inappropriate antibiotic prescriptions.

The “**PODS**” clinical criteria suggest ABRS with two or more of facial **P**ain/pressure/fullness, nasal **O**bstuction, nasal purulence/discoloured postnasal **D**ischarge, decreased/absent **S**mell that persist for more than 7-10 days (*Canadian Clinical Practice Guidelines for Acute and Chronic Rhinosinusitis* for full details). A bacterial infection is so unlikely prior to this timeframe that antibiotics generally should be avoided unless symptoms have persisted for at least 7 days.

In patients who meet the criteria for ABRS with mild or moderate symptoms, intranasal corticosteroids alone are often sufficient. Antibiotics can be considered for patients with severe symptoms or those who fail a 72 hour trial of intranasal corticosteroids after the diagnosis of ABRS* has been made.

*This [table](#) outlines how ABRS diagnosis requires the presence of at least 2 persistent or worsening symptoms.

2 Don't order a CT scan for uncomplicated acute rhinosinusitis

Radiographic imaging for patients presenting with uncomplicated acute rhinosinusitis to distinguish acute bacterial rhinosinusitis (ABRS) from viral rhinosinusitis is not recommended, unless a complication or alternative diagnosis is suspected. A sinus CT scan is a highly sensitive test for rhinosinusitis, and a normal study confidently rules out active sinusitis of any etiology. However, abnormal sinus CT imaging findings, including air-fluid levels, mucosal thickening, and complete sinus opacification, are nonspecific and can be seen with both bacterial and viral sinusitis, as well as in up to 42% of asymptomatic healthy individuals. In a prospective study of healthy young adults experiencing a new cold, CT scans showed that 87% of the subjects had significant abnormalities of their maxillary sinuses. Therefore, in acute rhinosinusitis, a CT scan has minimal utility because its findings are not specific to a diagnosis of acute rhinosinusitis, and does not help guide the need for antibiotics since it cannot reliably distinguish viral from bacterial rhinosinusitis. Consider CT imaging of the sinuses when a complication of ABRS is suspected based on severe headache, altered mental status, facial swelling, cranial nerve palsies, proptosis of the eye, or other clinical findings.

3 Don't order plain film sinus x-rays

Plain film x-rays of the sinuses should not be ordered in the work-up of sinusitis. Plain films have poor sensitivity and specificity and they cannot be relied upon to confirm or reject the diagnosis of either acute or chronic sinusitis. Findings such as air-fluid levels and complete sinus opacification are not reliably present in rhinosinusitis, and cannot differentiate between viral and bacterial etiologies. The complicated anatomy of the ethmoid sinuses and critical sinus drainage pathways are not delineated effectively with plain films, and are inadequate for operative planning. Given that the findings of a sinus x-ray cannot be relied upon to diagnose rhinosinusitis, guide antibiotic prescribing, or plan surgery, they do not provide value in patient care and should be avoided.

4**Don't swab the nasal cavity as part of the work up for rhinosinusitis**

Acute bacterial rhinosinusitis is a clinical diagnosis that does not require proof of a culture-identified pathogen. When patients meet criteria for uncomplicated ABRS, empiric antibiotic selection should be based on typical causative pathogens (i.e. *Streptococcus pneumoniae*, *Hemophilus influenzae*, *Moraxella catarrhalis*, and *Staphylococcus aureus*), local bacterial resistance patterns, and patient factors. Nasal swabs are contaminated by normal nasal flora and results correlate poorly with causative pathogens in rhinosinusitis. In many hospitals, a nasal swab will only be processed to report on the presence or absence of *S. aureus*, rather than a full culture for speciation. In situations where cultures are required, such as intraorbital or intracranial complications, endoscopically-guided culture of the middle meatus or a maxillary sinus aspirate are the preferred methods for obtaining samples of the causative pathogen.

5**Don't order a plain film X-ray in the evaluation of nasal fractures**

Plain film x-rays should not be ordered as part of the management of nasal fractures. The decision to reduce a nasal fracture depends on numerous factors including patient preference, external deformity, and breathing difficulty, none of which are effectively assessed by an x-ray. They have a very low sensitivity and specificity, with 63.3% and 55.7% respectively. As such, plain x-rays are unable to accurately diagnose occult fractures. Despite being commonly ordered for medicolegal documentation of nasal fractures, the poor sensitivity and specificity brings into question their value in medicolegal proceedings. In studied cohorts, no unsuspected facial fractures were identified solely on nasal x-rays, and no negative effects on management occurred when an institution instituted a "no nasal x-ray policy". Overall, nasal x-rays do not contribute to diagnosis, documentation, or management decisions, and should not be ordered.

How the list was created

This list was created by the Rhinology Specialty Group of the Canadian Society of Otolaryngology – Head & Neck Surgery. Members of the group, representing the national leaders within their respective subspecialties, were asked to create a list of recommendations for unnecessary tests that were seen to be commonly ordered or unnecessary interventions that were commonly performed. These unnecessary tests and interventions incur risk to patients and unwarranted costs to our public health care system. The evidence was then reviewed to further refine the recommendations. The final version of the list was then circulated and approved by the members of the group. Choosing Wisely Canada groups across multiple specialties reviewed and refined the consensus recommendations.

Sources

- 1** Gwaltney JM Jr., et al. Acute Community-Acquired Bacterial Sinusitis: The Value of Antimicrobial Treatment and the Natural History. *Clin Infect Dis.* 2004 Jan 15;38(2):227-33. Epub 2003 Dec 19. PMID: 14699455.
Desrosiers M, et al. [Canadian Clinical Practice Guidelines for Acute and Chronic Rhinosinusitis](#). [Internet]. 2011 February [cited 2018 July].
Rosenfeld RM, et al. Clinical practice guideline (update): Adult Sinusitis Executive Summary. *Otolaryngol Head Neck Surg.* 2015 Apr;152(4):598-609. PMID: 25833927.
Finley R, et al. [Human Antimicrobial Use Report \[Internet\]](#). Updated 2015 Nov 17 [cited 2018 July].
Fokkens W.J., Lund V.J., Hopkins C., Hellings P.W., Kern R., Reitsma S., et al. [European Position Paper on Rhinosinusitis and Nasal Polyps 2020](#). *Rhinology* 2020 Suppl. 29: 1-464.
Orlandi, Kingdom, T. T., Smith, T. L., Bleier, B., DeConde, A., Luong, A. U., Poetker, D. M., Soler, Z., Welch, K. C., Wise, S. K., Adappa, N., Alt, J. A., Anselmo-Lima, W. T., Bachert, C., Baroody, F. M., Batra, P. S., Bernal-Sprekelsen, M., Beswick, D., Bhattacharyya, N., ... Chowdhury, N. (2021). International consensus statement on allergy and rhinology: rhinosinusitis 2021. *International Forum of Allergy & Rhinology*, 11(3), 213–739. PMID: 33236525.
- 2** Desrosiers M, et al. [Canadian Clinical Practice Guidelines for Acute and Chronic Rhinosinusitis](#). [Internet]. 2011 February [cited 2018 July].
Rosenfeld RM, et al. Clinical practice guideline (update): Adult Sinusitis Executive Summary. *Otolaryngology Head Neck Surg.* 2015 Apr;152(4):598-609. PMID: 25833927.
Chow AW, et al. IDSA Clinical Practice Guideline for Acute Bacterial Rhinosinusitis in Children and Adults. *Clin Infect Dis.* 2012;54(8):e72-e112. PMID: 22438350.
Gwaltney JM, et al. Computed Tomographic Study of the Common Cold. *N Engl J Med.* 1994;330(1):25-30. PMID: 8259141.
Fokkens W.J., Lund V.J., Hopkins C., Hellings P.W., Kern R., Reitsma S., et al. [European Position Paper on Rhinosinusitis and Nasal Polyps 2020](#). *Rhinology* 2020 Suppl. 29: 1-464.
Orlandi, Kingdom, T. T., Smith, T. L., Bleier, B., DeConde, A., Luong, A. U., Poetker, D. M., Soler, Z., Welch, K. C., Wise, S. K., Adappa, N., Alt, J. A., Anselmo-Lima, W. T., Bachert, C., Baroody, F. M., Batra, P. S., Bernal-Sprekelsen, M., Beswick, D., Bhattacharyya, N., ... Chowdhury, N. (2021). International consensus statement on allergy and rhinology: rhinosinusitis 2021. *International Forum of Allergy & Rhinology*, 11(3), 213–739. PMID: 33236525.
- 3** Desrosiers M, et al. [Canadian Clinical Practice Guidelines for Acute and Chronic Rhinosinusitis](#). [Internet]. 2011 February [cited 2018 July].
Rosenfeld RM, et al. Clinical practice guideline (update): Adult Sinusitis Executive Summary. *Otolaryngol Head Neck Surg.* 2015 Apr;152(4):598-609. PMID: 25833927.
Chow AW, et al. IDSA Clinical Practice Guideline for Acute Bacterial Rhinosinusitis in Children and Adults. *Clin Infect Dis.* 2012;54(8):e72-e112. PMID: 22438350.
Fokkens W.J., Lund V.J., Hopkins C., Hellings P.W., Kern R., Reitsma S., et al. [European Position Paper on Rhinosinusitis and Nasal Polyps 2020](#). *Rhinology* 2020 Suppl. 29: 1-464.
Orlandi, Kingdom, T. T., Smith, T. L., Bleier, B., DeConde, A., Luong, A. U., Poetker, D. M., Soler, Z., Welch, K. C., Wise, S. K., Adappa, N., Alt, J. A., Anselmo-Lima, W. T., Bachert, C., Baroody, F. M., Batra, P. S., Bernal-Sprekelsen, M., Beswick, D., Bhattacharyya, N., ... Chowdhury, N. (2021). International consensus statement on allergy and rhinology: rhinosinusitis 2021. *International Forum of Allergy & Rhinology*, 11(3), 213–739. PMID: 33236525.
Kirsch CFE, Bykowski J, Aulino JM, et al. ACR Appropriateness Criteria® Sinonasal Disease. *J Am Coll Radiol.* 2017 Nov;14(11S):S550-S559. PMID: 29101992.
Aaløkken TM, et al. Conventional sinus radiography compared with CT in the diagnosis of acute sinusitis. *Dentomaxillofac Radiol.* 2003 Jan;32(1):60-2. PMID: 12820855.
Okuyemi KS, et al. Radiologic imaging in the management of sinusitis. *Am Fam Physician.* 2002;66(10):1882-1886. PMID: 12469962.
Fokkens W.J., Lund V.J., Hopkins C., Hellings P.W., Kern R., Reitsma S., et al. [European Position Paper on Rhinosinusitis and Nasal Polyps 2020](#). *Rhinology* 2020 Suppl. 29: 1-464.
Orlandi, Kingdom, T. T., Smith, T. L., Bleier, B., DeConde, A., Luong, A. U., Poetker, D. M., Soler, Z., Welch, K. C., Wise, S. K., Adappa, N., Alt, J. A., Anselmo-Lima, W. T., Bachert, C., Baroody, F. M., Batra, P. S., Bernal-Sprekelsen, M., Beswick, D., Bhattacharyya, N., ... Chowdhury, N. (2021). International consensus statement on allergy and rhinology: rhinosinusitis 2021. *International Forum of Allergy & Rhinology*, 11(3), 213–739. PMID: 33236525.
- 4** Desrosiers M, et al. [Canadian Clinical Practice Guidelines for Acute and Chronic Rhinosinusitis](#). [Internet]. 2011 February [cited 2018 July].
Chow AW, et al. IDSA Clinical Practice Guideline for Acute Bacterial Rhinosinusitis in Children and Adults. *Clin Infect Dis.* 2012;54(8):e72-e112. PMID: 22438350.
- 5** Nigam A, et al. The value of radiographs in the management of the fractured nose. *Arch Emerg Med.* 1993;10(4):293-297. PMID: 8110318.
Jaber MC, et al. Medico-legal and ethical aspects of nasal fractures secondary to assault: Do we owe a duty of care to advise patients to have a facial x-ray? *J Med Ethics.* 2013;39(2):125-126. PMID: 23172899.
Illum P. Legal aspects in nasal fractures. *Rhinology.* 1991;29(4):263–266. PMID: 1780626.
Logan M, O'Driscoll K, Masterson J. The utility of nasal bone radiographs in nasal trauma. *Clin Radiol.* 1994;49(3):192-194. PMID: 8143411.
Sharp JF, et al. Routine X-rays in nasal trauma: the influence of audit on clinical practice. *J R Soc Med.* 1994;87(3):153-154. PMID: 8158594.

About The Canadian Society of Otolaryngology - Head & Neck Surgery

The Canadian Society of Otolaryngology-Head & Neck Surgery (CSOHNS) is a proud partner of the Choosing Wisely Canada campaign. CSOHNS is an association that helps to serve the Canadian Otolaryngology-Head & Neck Surgery community. It is composed exclusively of otolaryngologists-head & neck surgeons and those training in the specialty. CSOHNS is dedicated to improving patient care through the support of education, the promotion of research, the dissemination of information, the scientific advancement of the Society, and the maintenance of high professional and ethical standards.



Otolaryngology - Head & Neck
Surgery

About Choosing Wisely Canada

Choosing Wisely Canada is the national voice for reducing unnecessary tests and treatments in health care. One of its important functions is to help clinicians and patients engage in conversations that lead to smart and effective care choices.

🌐 ChoosingWiselyCanada.org | ✉ info@ChoosingWiselyCanada.org | 🐦 [@ChooseWiselyCA](https://twitter.com/ChooseWiselyCA) | 📘 [/ChoosingWiselyCanada](https://www.facebook.com/ChoosingWiselyCanada)