Patients insist on antibiotics for sinusitis? Here is a good reason to say "no." *J Fam Pract*. 2008;57:464-468.	
Potential PURL Review Form: Systematic reviews and meta-analyses	
SECTION1: IDENTIFYING INFORMATION	
1.0 Citation	Young J, De Sutter A, Merenstein D, et al. Antibiotics for adults with clinically diagnosed acute rhinosinusitis: a meta-analysis of individual patient data. *Lancet*. 2008;371:908-914.
1.1 Editors classification of nominated study	Potential PURL Review Date: 3/13/08
1.2 Editors reason for classification	This meta-analysis provides additional, and perhaps more convincing, evidence that antibiotics are not effective in the routine treatment of clinical diagnosed acute sinusitis. We believe that most doctors still prescribe antibiotics for acute sinusitis, so, this would be a practice changer (or at least have practice changing conclusions).
1.4 Hypertext link to PDF of full article	http://linkinghub.elsevier.com/retrieve/pii/S0140-6736(08)60416-X
1.5 First date published study available to readers	3/15/08
1.6 PubMed ID	18342685
1.7 Nominated By	John Hickner
1.8 Institutional Affiliation of Nominator	University of Chicago
1.9 Date Nominated	3/14/08
1.10 Identified Through	*Lancet* Table of Contents
1.11 PURLS Editor	Bernard Ewigman
1.12 Nomination Decision Date	3/18/08
1.13 Potential PURL Review Form (PPRF) type	Systematic reviews/meta-analyses
1.14 Other comments, materials or discussion	
1.15 Assigned Potential PURL Reviewer	Sarah-Anne Schumann
1.16 Reviewer Affiliation	University of Chicago
1.17 Date Review Due	3/20/08

1.18 Abstract	BACKGROUND: Primary-care physicians continue to overprescribe antibiotics for acute rhinosinusitis because distinction between viral and bacterial sinus infection is difficult. We undertook a meta-analysis of randomised trials based on individual patients' data to assess whether common signs and symptoms can be used to identify a subgroup of patients who benefit from antibiotics. METHODS: We identified suitable trials—in which adult patients with rhinosinusitis-like complaints were randomly assigned to treatment with an antibiotic or a placebo—by searching the Cochrane Central Register of Controlled Trials, Medline, and Embase, and reference lists of reports describing such trials. Individual patients' data from 2547 adults in nine trials were checked and re-analysed. We assessed the overall effect of antibiotic treatment and the prognostic value of common signs and symptoms by the number needed to treat (NNT) with antibiotics to cure one additional patient. FINDINGS: 15 patients with rhinosinusitis-like complaints would have to be given antibiotics before an additional patient was cured (95% CI NNT[benefit] 7 to NNT[harm] 190). Patients with purulent discharge in the pharynx took longer to cure than those without this sign; the NNT was 8 patients with this sign before one additional patient was cured (95% CI NNT[benefit] 4 to NNT[harm] 47). Patients who were older, reported symptoms for longer, or reported more severe symptoms also took longer to cure but were no more likely to benefit from antibiotics than other patients. INTERPRETATION: Common clinical signs and symptoms cannot identify patients with rhinosinusitis for whom treatment is clearly justified. Antibiotics are not justified even if a patient reports symptoms for longer than 7-10 days.

SECTION 2: DETAILED STUDY DESCRIPTION

2.1 What types of studies are included in this review?	Randomized controlled trials
2.2 What is the key question addressed by this review? Summarize the main conclusions and any strengths or weaknesses.	Young and his colleagues compiled individual patients' data from the investigators of all known trials in which adult patients in a primary care setting with clinical symptoms of acute sinusitis were randomly assigned to treatment with an antibiotic or a placebo. They excluded trials that used imaging or bacterial culture as part of patient recruitment. Studies that allowed the use of concomitant medication such as NSAIDs, decongestants, or nasal steroids were included, as long as patients in both groups received the same medication. All trials excluded patients with severe symptoms such as high fever, periorbital swelling, erythema, or intense facial pain. They completed an intent-to-treat analysis of 10 double-blind trials with a total of 2457 patients. Using individual patients' data, the odds ratio (OR) for the overall treatment effect was 1.37 (95% confidence interval [CI], 1.13-1.66), with an NNT of 15 (or 15 patients needed to be given an antibiotic before one additional patient would be cured).

	They analyzed the prognostic value of any sign or symptom recorded in at least 4 trials. Patients with a longer duration of symptoms, more severe symptoms, or increased age took longer to cure but were no more likely to benefit from antibiotic treatment than other patients. Specific symptoms, such as a previous common cold, pain on bending, unilateral facial pain, tooth pain, and purulent nasal discharge, did not have any prognostic value. Only one sign—purulent discharge in the pharynx—was associated with a higher likelihood of benefit from treatment with antibiotics, but the NNT was still 8 in this group. They found that 64% of patients treated with placebo were cured at 14 days. Only one patient out of 1381 treated with placebo experienced a serious complication (a brain abscess).
SECTION 3: INTERNAL VALIDITY	
3.1 Study addresses an appropriate and clearly focused question	Well addressed
3.2 A description of the methodology used is included.	Well addressed
3.3 The literature search is sufficiently rigorous to identify all the relevant studies.	Well addressed
3.4 Study quality is assessed and taken into account.	Well addressed
3.5 There are enough similarities between selected studies to make combining them reasonable.	Well addressed
3.6 Are patient oriented outcomes included? If yes, what are they?	Yes. Proportion of patients cured
3.7 Is funding a potential source of bias? If yes, what measures (if any) were taken to insure scientific integrity?	No. Funded by santesuisse, Gottfried and Julia Bangerter-Rhyner Foundation, Swiss National Research Foundation

SECTION 4: EXTERNAL VALIDITY	
4.1 To which patients might the findings apply? Include patients in the meta-analysis and other patients to whom the findings may be generalized.	Adults with mild-to-moderate clinical symptoms of acute rhinosinusitis for any duration
4.2 In what care settings might the findings apply, or not apply?	Primary care, otolaryngology
4.3 To which clinicians or policy makers might the findings be relevant?	Guideline-writers in the above fields
SECTION 5: REVIEW OF SECONDARY LITERATURE	
5.1 DynaMed excerpts	Summary: treat with analgesics, +/-decongestants; conflicting information about antibiotics—slightly better than placebo; includes CDC guidelines, modest reduction in symptoms with nasal steroids, hypertonic saline irrigation helps improve symptoms if frequent sinusitis
5.2 DynaMed citation/access date	Hickner, John. Acute sinusitis. In: Dynamed [database online]. Available at: http://www.DynamicMedical.com. Last updated January 9, 2008. Accessed February 4, 2008.
5.3 UpToDate excerpts	Viral rhinosinusitis—recommends antihistamines, decongestants, and NSAIDs to treat colds to prevent sinusitis. Community-acquired bacterial sinusitis—summarizes studies with conflicting results, but recommends broad-spectrum antibiotics for patients "who meet the accepted diagnostic criteria for acute bacterial sinusitis"; don't recommend nasal steroids.
5.4 UpToDate citation/access date	Gwaltney JM. Acute sinusitis and rhinosinusitis in adults. In: Rose BD, ed. *UpToDate* [database online]. Waltham, MA; 2007. Available at: http://www.uptodate.com. Last updated September 17, 2007. Accessed February 4, 2008.
5.5 PEPID PCP excerpts	□ Bacterial sinusitis • Mild symptoms, no antibiotics in past 6 wks: o Amoxicillin 500 mg q 8h or 875 mg q12 hrs, x 7 days o For beta-lactam allergy: TMP-SMX 160/800 mg q 12 hrs x 10 days or fluoroquinolones (as below) or doxycycline 100 mg q 12 hrs x 1 day, then 50 mg q 12 hrs x 9 days • Moderately severe symptoms, recent antibiotic use, or no response to treatment in 72 hrs: o Amoxicillin-clavulanate potassium (Augmentin) 500 mg q 8 hrs, OR 875 mg q 12 hrs o Or fluoroquinolones (Note: *Streptococcus pneumoniae* resistance increasing) ▪ Levofloxacin 500 mg qD x 10 d, or

	▪ Gatifloxacin 400 mg qD x 10 d, or ▪ Ciprofloxacin 500 mg q12 hr x 10 d, or ▪ Moxifloxacin 400 mg qD x 10 d
5.6 PEPID citation/access data	Acute sinusitis. In: WinklerPrins V, ed. PEPID-PCP [database online]. Available at: http://www.pepidonline.com.
5.7 Other excerpts (USPSTF; other guidelines; etc.)	
5.8 Citations for other excerpts	
SECTION 6: CONCLUSIONS	
6.1 How well does the meta-analysis minimize sources of internal bias and maximize internal validity? Give one number on a scale of 1 to 7 (1=extremely well; 4=neutral; 7=extremely poorly)	2
6.2 If 6.1 was coded as 4 or above, please describe the potential bias and how it could affect the study results. Specifically, what is the likely direction in which potential sources of internal bias might affect the results?	
6.3 Are the results of this review relevant to the health care needs of patients cared for by "full scope" family physicians, general internists, general pediatricians, or general ob/gyns? Without significant change in programs or policies such as the organization or financing of practice? Give one number on a scale of 1 to 7 (1=absolutely relevant; 4=neutral; 7=not at all relevant)	1

6.4 Please explain your response to item 6.3.	A high percentage of physicians are still prescribing antibiotics for acute sinusitis.
6.5 What is the main recommendation for change in practice, if any? Include a description of the change in practice, the indication(s), and the target population.	For adult patients with clinical symptoms of acute sinusitis, even with symptoms for longer than 1 week, treat the symptoms (ie, NSAIDs for pain) but do not give antibiotics unless they have severe symptoms (high fever, periorbital swelling, etc) that could lead to complications such as brain abscess.
SECTION 7: EDITORIAL DECISIONS	
7.1 FPIN PURLs editorial decision (select one)	Pending PURL
7.2 FPIN PURLS Editor	Bernard Ewigman
7.3 Date of decision	March 20, 2008
7.4 Brief summary of decision	This meta-analysis provides additional, and perhaps more convincing, evidence that antibiotics are not effective in the routine treatment of clinically diagnosed acute sinusitis. We believe that most doctors still prescribe antibiotics for acute sinusitis, so this would be a practice changer (or at least have practice-changing conclusions).