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Limiting Antibiotic Use in Acute Sinusitis: Partly a Matter of Vocabulary?

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“A vocabulary of truth and simplicity will be of service throughout your life.”

– Winston Churchill

In this issue of *Journal of Patient-Centered Research and Reviews (JPCRR)*, Ginzburg et al describe successful reduction of antibiotic usage for acute sinusitis following installation of a best practice alert (BPA), which “fired” in their institution’s electronic health record (EHR) when a sinusitis billing code was entered.¹ This particular EHR required such billing code placement to potentially order antibiotics for the patient’s sinus-related symptoms. The BPA clinician message included a reminder that the vast majority of sinusitis cases are viral in etiology along with a link to federal sinusitis treatment guidelines.¹ Their strategy resulted in a profound reduction of antibiotic prescribing from 86.3% to 61.7% within their single New York City-based primary care clinic,¹ far surpassing the negligible reduction in prescription of broad-spectrum antibiotics for acute sinusitis (from 42.4% to 40.2%) previously reported for four intervention clinics that were provided with clinical pathways and patient education materials.²

While the article of Ginzburg and colleagues was in proof at *JPCRR*, another authorship team published its experience with a BPA that also fired at the time of antibiotic prescription ordering for acute sinusitis.³ The latter study, recently published by *Journal of*

Managed Care & Specialty Pharmacy, was performed in 117 primary care clinics of an integrated health system and showed no significant change (94.8% preintervention to 94.3% postintervention, $P=0.152$) in outpatient antibiotic prescriptions for acute sinusitis. Contents of the

BPAs implemented in the two studies were similar, but not identical, and in each case the BPA could be ignored by prescribers.^{1,3} The biggest difference between the two study designs was setting and scope; one was undertaken in a single (but large) urban clinic, a family medicine residency training site, and the other in numerous clinics spanning four largely rural Midwestern states. One might speculate that there was more clinician education and “buy in” at the clinic heavily staffed by residents. Otherwise, it is not clear why the results were so different.

Improper Antibiotics Use

The importance of reducing antibiotic prescriptions for acute sinusitis, a predominantly viral illness, has been emphasized in recent years.^{cf.4-7} Reasons for overprescription in this illness include ambiguity in diagnosis of bacterial versus viral sinusitis; uncertainty regarding possible adverse outcomes; patient expectations of, or “pressure” on, the clinician to prescribe antibiotics (and related effect on patient satisfaction); clinician beliefs regarding efficacy of antibiotics in acute sinusitis; and limited time and effectiveness of communication regarding need for antibiotics at an office visit.^{5,8,9}

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Moreover, treatment options sans antibiotics are limited, cumbersome, poorly studied, or of unproven benefit.^{5,7,10} Rabago and colleagues performed a randomized controlled trial of large-volume 2% buffered saline nasal irrigation on 76 subjects (54 with acute sinusitis, 13 with chronic sinusitis, 11 with both). The intervention resulted in improved sinus-related quality of life and decreased symptoms, and also decreased other sinus-related medication use.¹¹ Trials of intranasal steroids have suggested mild, late symptomatic improvement of acute sinusitis when used for 21 days.¹² Oral corticosteroids appear to have no role in non-antibiotic-treated sinusitis.¹³

In addition to offering symptomatic relief, previous strategies to reduce antibiotic prescription in acute sinusitis have included patient, prescriber, and public education (including in-office posters); enhancing communication between clinician and patient regarding withholding of antibiotics; implementation of clinical pathways; prescribing of delayed/reserved antibiotic prescriptions; and efforts to improve differentiation of bacterial versus viral sinusitis at the time of patient visit.^{2,8,14-18} These efforts include clinical decision rules,¹⁶ C-reactive protein point-of-care testing,¹⁷ and the potential for procalcitonin point-of-care testing.¹⁸ The latter two actions, along with clinical shared decision-making, were noted in a Cochrane review as exhibiting moderate-quality evidence, suggesting efficacy in reducing antibiotic prescriptions for upper respiratory tract infections (URI).¹⁹

Indeed, multifaceted approaches to reducing antibiotic prescribing for common nonbacterial illnesses that include careful clinician-patient/parent communication appear to be most beneficial.⁸

The Power of Labels

In shared decision-making, using the right words makes a world of difference. Here, the intricacies of vocabulary may come in to play, both in terms of choice of diagnosis code as well as communication with the patient. General and specific-agent antibiotic prescriptions have been shown to vary by U.S. geographic region and by specialty.²⁰ Interestingly, some geographic variation was seen in the ratio of bronchitis versus URI/common cold diagnosis within the same health system,²¹ and the researchers suspected

providers may have been using the bronchitis diagnosis to “justify” antibiotic prescription, even though both are very predominantly viral illnesses.

Concerned with the same issue of diagnostic labeling in bronchitis and URI, Gonzales and colleagues performed a telephone survey regarding diagnostic labels and past experiences and expectations regarding antibiotic prescriptions for bronchitis.²² Based on the results, they recommended the use of the term “chest cold” rather than “bronchitis” when discussing with a patient their viral cough illness that could properly be diagnosed as bronchitis.²² Other authors have embraced this concept of re-labeling diagnoses of viral respiratory infections in an attempt to aid antibiotic stewardship.⁸

Ginzburg and co-authors implemented a BPA that was highly successful in limiting antibiotic orders for acute sinusitis in their organization, but they do not detail how participating clinicians “sold” the concept of not prescribing antibiotics to their patients.¹ Without knowledge of a proven effective lexicon, I propose that clinicians re-label acute sinusitis as “a sinus cold” when speaking to patients about their diagnosis of acute sinusitis. Use of this alternative term, combined with a ready collection of “facts for antibiotic seekers” — for example, the 1 in 4000 chance antibiotics will prevent a serious complication, up to 1 in 4 chance of diarrhea, 1 in 50 chance of skin reaction, and 1 in 1000 chance of a bad reaction needing an emergency department visit^{23,24} — just might do the trick.

Could the road to improved antibiotic stewardship in acute sinusitis be paved by adopting such simple tools as a well-devised best practice alert and a thoughtful change in physician vocabulary?

References

1. Ginzburg R, Conway J, Waltermayer E, Song W, Jellinek-Cohen SP. Using clinical decision support within the electronic health record to reduce incorrect prescribing for acute sinusitis. *J Patient Cent Res Rev*. 2018;5:196-203.
2. Jenkins TC, Irwin A, Coombs L, et al. Effects of clinical pathways for common outpatient infections on antibiotic prescribing. *Am J Med*. 2013;126:327-35. [CrossRef](#)
3. Hansen MJ, Carson PJ, Leedahl DD, Leedahl ND. Failure of a best practice alert to reduce antibiotic prescribing rates for acute sinusitis across an integrated health system in the Midwest. *J Manag Care Spec Pharm*. 2018;24:154-9. [CrossRef](#)

4. Fokkens WJ, Hoffmans R, Thomas M. Avoid prescribing antibiotics in acute rhinosinusitis. *BMJ*. 2014;349:g5703. [CrossRef](#)
5. Schumann S-A, Hickner J. Patients insist on antibiotics for sinusitis? Here is a good reason to say “no.” *J Fam Pract*. 2008;57:464-8.
6. 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;371:908-14. [CrossRef](#)
7. Rosenfeld RM. Acute sinusitis in adults. *N Engl J Med*. 2016;375:962-70. [CrossRef](#)
8. Llor C, Bjerrum L. Antimicrobial resistance: risk associated with antibiotic overuse and initiatives to reduce the problem. *Ther Adv Drug Saf*. 2014;5:229-41. [CrossRef](#)
9. Munoz-Plaza CE, Parry C, Hahn EE, et al. Integrating qualitative research methods into care improvement efforts within a learning health system: addressing antibiotic overuse. *Health Res Policy Syst*. 2016;14:63. [CrossRef](#)
10. Aring AM, Chan MM. Current concepts in adult acute rhinosinusitis. *Am Fam Physician*. 2016;94:97-105.
11. Rabago D, Zgierska A, Mundt M, Barrett B, Bobula J, Maberry R. Efficacy of daily hypertonic saline nasal irrigation among patients with sinusitis: a randomized controlled trial. *J Fam Pract*. 2002;51:1049-55.
12. Hayward G, Heneghan C, Perera R, Thompson M. Intranasal corticosteroids in management of acute sinusitis: a systematic review and meta-analysis. *Ann Fam Med*. 2012;10:241-9. [CrossRef](#)
13. Venekamp RP, Thompson MJ, Hayward G, et al. Systemic corticosteroids for acute sinusitis. *Cochrane Database Syst Rev*. 2014;(3):CD008115. [CrossRef](#)
14. Keller SC, Tamma PD, Cosgrove SE, et al. Ambulatory antibiotic stewardship through a human factors engineering approach: a systematic review. *J Am Board Fam Med*. 2018;31:417-30. [CrossRef](#)
15. Andrews T, Thompson M, Buckley DI, et al. Interventions to influence consulting and antibiotic use for acute respiratory tract infections in children: a systematic review and meta-analysis. *PLoS One*. 2012;7(1):e30334. [CrossRef](#)
16. Ebell MH, Hansen JG. Proposed clinical decision rules to diagnose acute rhinosinusitis among adults in primary care. *Ann Fam Med*. 2017;15:347-54. [CrossRef](#)
17. Cals JW, Schot MJ, de Jong SA, Dinant GJ, Hopstaken RM. Point-of-care C-reactive protein testing and antibiotic prescribing for respiratory tract infections: a randomized controlled trial. *Ann Fam Med*. 2010;8:124-33. [CrossRef](#)
18. Briel M, Schuetz P, Mueller B, et al. Procalcitonin-guided antibiotic use vs a standard approach for acute respiratory tract infections in primary care. *Arch Intern Med*. 2008;168:2000-7. [CrossRef](#)
19. Tonkin-Crine SK, Tan PS, van Hecke O, et al. Clinician-targeted interventions to influence antibiotic prescribing behaviour for acute respiratory infections in primary care: an overview of systematic reviews. *Cochrane Database Syst Rev*. 2017;9:CD012252. [CrossRef](#)
20. Fleming-Dutra KE, Demirjian A, Bartoces M, Roberts RM, Taylor TH Jr, Hicks LA. Variations in antibiotic and azithromycin prescribing for children by geography and specialty – United States, 2013. *Pediatr Infect Dis J*. 2018;37:52-8.
21. Joerres R, Wasson A, Baumgardner DJ. Geographic distribution of bronchitis vs. URI diagnosis and antibiotic use: eastern Wisconsin. (abstr.) Published online November 14, 2011. <http://www.napcrg.org/Conferences/PastMeetingArchives/PastAnnualMeetingAbstracts/2011AnnualMeeting?m=6&s=8137>. Accessed March 30, 2018.
22. Gonzales R, Wilson A, Crane LA, Barrett PH Jr. What's in a name? Public knowledge, attitudes, and experiences with antibiotic use for acute bronchitis. *Am J Med*. 2000;108:83-5. [CrossRef](#)
23. Linder JA. Antibiotics for treatment of acute respiratory tract infections: decreasing benefit, increasing risk, and the irrelevance of antimicrobial resistance. *Clin Infect Dis*. 2008;47:744-6. [CrossRef](#)
24. Shehab N, Patel PR, Srinivasan A, Budnitz DS. Emergency department visits for antibiotic-associated adverse events. *Clin Infect Dis*. 2008;47:735-43. [CrossRef](#)

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