

Letters

COMMENT & RESPONSE

Trying to Define Sinonasal Medications

To the Editor In his Original Investigation, McCoul¹ expresses concern regarding confusion caused by the panoply of over-the-counter (OTC) sinonasal medications. But a more relevant question might be, what is a sinonasal medication?

Primary symptoms of a cold include nasal symptoms, rhinorrhea, or nasal obstruction. While those symptoms are often colloquially referred to as a sinus infection, sinonasal medications do not treat a sinus infection. Severe bacterial sinusitis is an infrequent but potentially serious infection, the symptoms of which are severe pain and tenderness over the sinus, often with fever. Antibiotics, not OTC sinonasal medications, are the indicated treatment.²

Ingredients in OTC sinonasal products are listed in Table 2¹ of McCoul's article.¹ There is limited evidence that those ingredients relieve any symptoms. Phenylephrine is an alpha-1 adrenergic agonist marketed as an oral agent to relieve nasal obstruction. But oral phenylephrine is poorly bioavailable because of inactivation by enzymatic activity in the gut and during the first pass through the liver. It is consequently ineffective when taken orally even in doses 4 times the FDA-approved OTC dose.³ Dextromethorphan, marketed as an antitussive, has been compared in a controlled trial⁴ with no treatment and with honey; it was little better than no treatment, while honey provided more benefit in decreasing nocturnal cough in children aged 2 through 18 years. Pseudoephedrine is an alpha-1 adrenergic agonist that, unlike phenylephrine, has good oral bioavailability. It has a modest effect in decreasing nasal airway resistance but is currently sold only behind the pharmacy counter. Phenylephrine has been substituted for pseudoephedrine in OTC preparations because of the illicit production of methamphetamine from pseudoephedrine.³ Guaifenesin, formerly known as glyceryl guaiacolate, is marketed as a mucolytic. In the FDA-approved OTC dose, this drug neither thins sputum nor decreases sputum volume.⁵ A placebo-controlled clinical trial of 1200 mg

twice daily for 7 days found no significant difference between the guaifenesin and placebo.⁵ Several older antihistamines are included in many OTC sinonasal medications. While they may improve allergy-induced nasal symptoms, a Cochrane review found them ineffective for nasal symptoms of a cold.⁵

None of these ingredients in OTC sinonasal medications, other than pseudoephedrine with its modest decrease in nasal airway resistance, has demonstrable value for its indicated purpose as a single ingredient, and data for combinations of these and other ingredients provide no further justification for their use. The consumer is therefore provided with false hope that their symptoms would be relieved by these products.

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1. McCoul ED. Assessment of pharmacologic ingredients in common over-the-counter sinonasal medications. *JAMA Otolaryngol Head Neck Surg*. Published online July 16, 2020. doi:[10.1001/jamaoto.2020.1836](https://doi.org/10.1001/jamaoto.2020.1836)
2. Weinberger M. Whither sinusitis? *Clin Pediatr (Phila)*. 2018;57(9):1013-1019. doi:[10.1177/0009922818764927](https://doi.org/10.1177/0009922818764927)
3. Weinberger M, Hendeles L. Nonprescription medications for respiratory symptoms: facts and marketing fictions. *Allergy Asthma Proc*. 2018;39(3):169-176. doi:[10.2500/aap.2018.39.4117](https://doi.org/10.2500/aap.2018.39.4117)
4. Paul IM, Beiler J, McMonagle A, Shaffer ML, Duda L, Berlin CM Jr. Effect of honey, dextromethorphan, and no treatment on nocturnal cough and sleep quality for coughing children and their parents. *Arch Pediatr Adolesc Med*. 2007;161(12):1140-1146. doi:[10.1001/archpedi.161.12.1140](https://doi.org/10.1001/archpedi.161.12.1140)
5. Hendeles L. Efficacy and safety of antihistamines and expectorants in nonprescription cough and cold preparations. *Pharmacotherapy*. 1993;13(2):154-158.