

# Magic Mouthwash Demystified

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“**M**agic mouthwash” is a generic term for a compounded pharmaceutical rinse used to mitigate mouth and throat sores. In an orthodontic office, it is commonly given to patients with fixed appliances who experience recurrent aphthous ulcerations. Since there are multiple formulations called magic mouthwash, however, it can be daunting to prescribe. This article will demystify magic mouthwash by reviewing its ingredients and prescription practices.

## Ingredients

Most magic mouthwash formulations contain at least three of the following classes of ingredients: antihistamine, antacid, anesthetic, antifungal, antibiotic, or corticosteroid. The version commonly prescribed by an orthodontist is composed of an antihistamine, diphenhydramine hydrochloride; an antacid combination, aluminum hydroxide and magnesium hydroxide (generic Maalox\*); and an anesthetic, 2% viscous lidocaine (Fig. 1). These are also the top three ingredients used in all formulations of magic mouthwash.<sup>1</sup>

Benadryl,\*\* a brand name for diphenhydramine, is an antihistamine that reduces swelling. Maalox is an antacid used to restore pH

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\*\*Registered trademark of Johnson & Johnson Corporation, Brunswick, NJ; www.benadryl.com.

\*\*\*Registered trademark of Fresenius Kabi USA, LLC, Lake Zurich IL; www.fresenius-kabi.com/us.



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### POPULAR FORMULATIONS OF MAGIC MOUTHWASH

Name	Ingredients
BMX or Xyloxadryl	Diphenhydramine, Maalox,* lidocaine
Duke's Magic Mouthwash	Diphenhydramine, nystatin, hydrocortisone
Mary's Magic Mouthwash	Diphenhydramine, nystatin, hydrocortisone, tetracycline
Kaiser's Magic Mouthwash	Nystatin, hydrocortisone, tetracycline
Ulcer Swish	Lidocaine, betamethasone, tetracycline

\*Aluminum hydroxide and magnesium hydroxide.

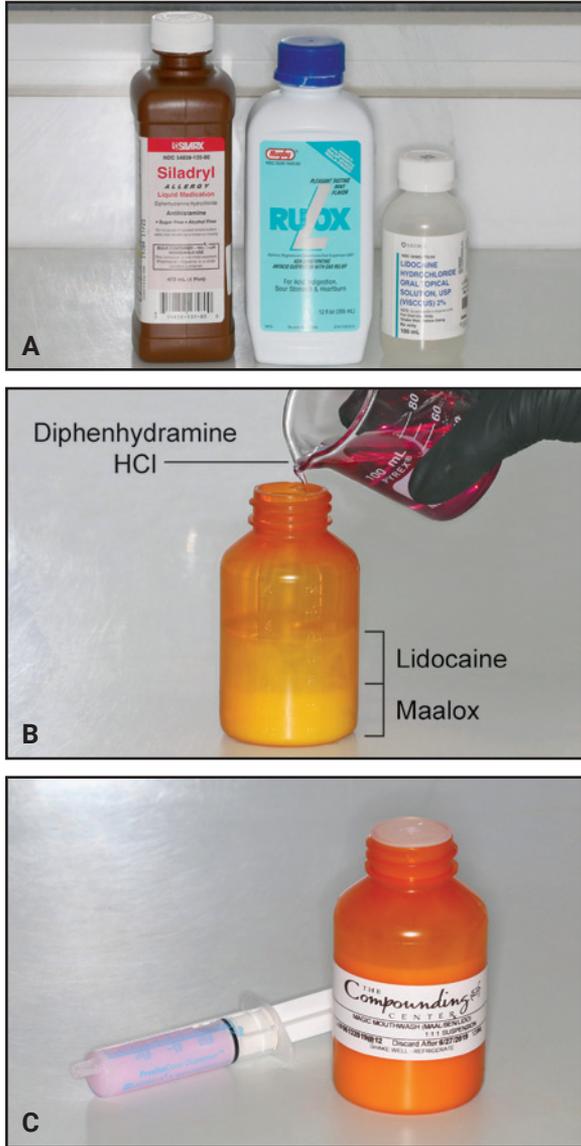
balance and to ensure that the other ingredients adequately coat the inside of the mouth. Xylocaine\*\*\* is a brand name for lidocaine, an anesthetic that reduces pain by numbing the mucosa. This formulation of magic mouthwash is also referred to by the acronym BMX or the portmanteau word Xyloxadryl.

Liquid nystatin (100,000 units/mL) may be added if needed. Nystatin is an antifungal used to treat oral thrush, an infection of the mouth that is caused by a yeast (*Candida albicans*) and appears as creamy white lesions on the tongue and inner cheeks. Thrush is an uncommon finding in an orthodontic practice, since it is typically seen in infants or immunocompromised patients after chemotherapy or corticosteroid usage.

Other versions of magic mouthwash may contain antibiotics or corticosteroids. Tetracycline, a bacteriostatic antibiotic, is commonly added because it inhibits matrix metalloproteinases (MMPs), which have a role in the breakdown of connective tissue.<sup>2</sup> Corticosteroids may be added to reduce inflammation, but must be combined with nystatin because their regular use can increase susceptibility to oral thrush.<sup>3</sup>

### Prescription

Although magic mouthwash can be ordered by calling a compounding pharmacy, faxing a handwritten prescription, or using the pharmacy's prescription portal system, future regulations may



**Fig. 1** A. Three “magic mouthwash” ingredients typically used in orthodontic office: diphenhydramine, generic Maalox\* (aluminum hydroxide and magnesium hydroxide), and 2% viscous lidocaine. B. Equal parts mixed. C. One dose (10 mL) withdrawn in oral syringe.

\*Registered trademark of GSK Consumer Health Inc., Wilmington, DE; www.gsk.com.

†Kramer Consumer Healthcare, Inc., Bridgewater, NJ; www.kramerlabs.com.

R<sub>x</sub>

PATIENT NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

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1 part diphenhydramine 12.5 mg per  
5 mL elixir

1 part Maalox (do not substitute  
Kaopectate)

1 part 2% viscous lidocaine

Quantity: 120 mL

Sig: Swish, gargle, and spit one to  
two teaspoonsful (5-10 mL) every  
four to six hours as needed.  
Shake well before using.

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SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

**Fig. 2** Sample prescription for orthodontic magic mouthwash.

require all prescriptions to be sent electronically. Each patient requires a specific prescription.<sup>4</sup> Most important, the prescription must include the desired formulation and not just the name “magic mouthwash.”

A typical prescription (Fig. 2) will read: “Rx: 1 part diphenhydramine 12.5 mg per 5 mL elixir, 1 part Maalox (do not substitute Kaopectate), 1 part 2% viscous lidocaine. Quantity: 120 mL. Sig: Swish, gargle, and spit one to two teaspoonsful (5-10 mL) every four to six hours as needed. Shake well before using.” Since the ingredients are compounded in a 1:1:1 equal-part solution, a 120 mL solution will contain 40 mL of each ingredient. Kaopectate† is the brand name of bismuth subsalicylate, an antacid and antidiarrheal; although its indications are similar to those for Maalox, it should not be used in magic mouthwash because it will solidify the mixture.

A 120 mL solution of magic mouthwash costs about \$50. Insurance reimbursement will be submitted by the pharmacy, but many prescription plans do not cover compounded pharmaceuticals. The patient can purchase and pick up the mouthwash at the pharmacy, or the orthodontist can purchase and dispense the mouthwash at the office.

Magic mouthwash is administered in 5-10 mL doses every four to six hours. It should be swished and spit out to avoid such systemic side effects as drowsiness and nausea. In cases of oral mucositis with ulcerations in the throat due to chemotherapy or radiation, some mouthwashes may be swallowed. The most common side effect for an orthodontic patient is a tingling feeling in the mouth from the anesthetic.

To allow the medicine to take effect, the patient should wait 30 minutes before eating or drinking. Although the formulation is stable at room temperature, the mouthwash is commonly refrigerated because patients prefer the cooler feel and taste. It should be used for no longer than five to seven days. The expiration period for a 1:1:1 mixture of diphenhydramine hydrochloride, aluminum hydroxide/magnesium hydroxide, and lidocaine is 21 days.<sup>5</sup>

### Nonprescription Alternatives

Two simple nonprescription alternatives should be considered: “magic mouthwash lite,” an equal mixture of diphenhydramine hydrochloride and aluminum hydroxide/magnesium hydroxide, and “saltwater mouth rinse,” a solution comprising eight ounces of water, one teaspoon of salt, and two teaspoons of baking soda (to neutralize the acidity of the mouth). Saltwater rinse can be as effective as magic mouthwash in treating oral mucositis.<sup>6</sup>

A variety of over-the-counter solutions containing light numbing agents such as menthol, hexylresorcinol, hydrogen peroxide, or sodium hyaluronate are sold in stores and online. These may provide only modest relief from recurrent aphthous ulcerations.

In addition to prescribing a therapeutic mouthwash, the orthodontist should instruct the

patient to avoid highly acidic foods—processed foods, acidic fruits and fruit juices, energy drinks, and soda—to minimize discomfort from aphthous ulcerations and avoid future outbreaks.

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