

Magic Mouthwash

There are numerous magic mouthwash formulations. Most contain at least three ingredients. Formulas may contain a combination of an antibiotic (to reduce the bacterial flora around the lesion), antihistamine (for local anesthetic effect), antifungal (to stop any fungal growth), steroid (to reduce inflammation), a local anesthetic/pain reliever, or an antacid (to enhance coating of the ingredients on the mouth).¹ Most of the formulations are used every four to six hours with instructions to hold in the mouth for one to two minutes then spit out or swallow. Patients should be instructed to shake the bottle well before using and not to eat or drink for 30 minutes after use.¹

Below is a list of commonly used magic mouthwash formulas (instructions given if available):

Ingredients^{a-c,g}	Amount
Diphenhydramine 12.5 mg/5 mL	240 mL
Hydrocortisone	60 mg
Nystatin powder	6 million units
Tetracycline	1.5 g
Swish and spit 5 mL QID a.k.a. Mary's Magic Potion	
Distilled water	160 mL
Hydrocortisone	80 mg
<i>Maalox</i>	80 mL
Swish and spit 5 mL QID a.k.a. Weisman's Philadelphia Mouthwash	
Diphenhydramine 12.5 mg/5 mL	1 part
Nystatin suspension	1 part
<i>Maalox</i>	1 part
Water	1 part
Diphenhydramine 12.5 mg/5 mL	1 part
Viscous lidocaine 2%	1 part
<i>Maalox</i>	1 part
Swish and swallow 5 mL no more than Q 4 H	
Diphenhydramine 12.5 mg/5 mL	240 mL
Hydrocortisone powder (wet with 1% CMC ^f to dissolve)	120 mg
Nystatin Suspension	60 mL
Tetracycline 125 mg/5 mL (capsule dissolved in flavored syrup)	120 mL
CMC ^f 1%	QS to 480 mL
Swish and swallow 10 mL TID	

Ingredients^{a-c,g}	Amount
Diphenhydramine 12.5 mg/5 mL	30 mL
<i>Mylanta</i> or <i>Maalox</i>	60 mL
Sucralfate	4 g
Hydrocortisone	60 mg
Nystatin	Suspension 30 mL OR Powder 3 million units
Diphenhydramine 12.5 mg/5 mL	QS to 240 mL
a.k.a. Duke's Magic Mouthwash	
Diphenhydramine 12.5 mg/5 mL	180 mL
Hydrocortisone	0.072 g
Nystatin suspension	36 mL
Tetracycline	0.75 g
Diphenhydramine 12.5 mg/5 mL	100 mL
Hydrocortisone	0.02 g
Nystatin suspension	4.8 mL
Tetracycline	200 mg
Diphenhydramine 12.5 mg/5 mL	1 part
Prednisone 5 mg/5 mL	1 part
Nystatin suspension	1 part

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Ingredients ^{a-c}	Amount
Diphenhydramine 12.5 mg/5 mL	1 part
Prednisone 5 mg/5 mL	1 part
Nystatin suspension	1 part
Cherry flavored <i>Kool-Aid</i> mixed with 2000 mL distilled water (sugar-free)	100 mL
Viscous lidocaine 2%	100 mL
Nystatin suspension	100 mL
Swish and spit or swallow 15 mL QID a.k.a. Koolstat	
Hydrocortisone 100 mg/2 mL (<i>Solu-Cortef</i>)	12 mL
Nystatin suspension	7.2 mL
Tetracycline 125 mg/5 mL (capsule dissolved in syrup)	12 mL
Diphenhydramine 12.5 mg /mL	150 mL
Swish and swallow 10 mL QID	
Viscous lidocaine 2%	250 mL
Hydrocortisone 100 mg/2 mL (<i>Solu-Cortef</i>)	1 g
Nystatin suspension	150 mL
Mouth rinse	QS 500 mL
Do not swallow	
Diphenhydramine 12.5 mg /5 mL	120 mL
Dexamethasone 4 mg/mL injection	0.56 mL
Nystatin suspension	40 mL
Distilled water	39 mL
Swish and Spit 5 mL QID	
Viscous lidocaine 2%	2000 mL
Cherry flavored <i>Kool-Aid</i> mixed with 1500 mL of sterile water for irrigation (sugar-free)	QS 3400 mL
Viscous lidocaine 2%	150 mL
Diphenhydramine 12.5 mg/5 mL	20 mL
Hydrocortisone (<i>Solu-Cortef</i>)	100 mg
Tetracycline	2 grams
Nystatin suspension	20 mL
Swish and swallow 15 to 30 mL Q4-6H a.k.a. Mile's Solution	

- Elixirs containing alcohol can cause stinging. Consider using injectable or powder formulation, crushing tablets, or opening capsules in place of elixir formulation to avoid stinging.
- Some U.S. clinicians have found the new formulation of *Kaopectate* (i.e., containing bismuth) to solidify over a short period of time when mixed with other ingredients. U.S. clinicians should consider this potential problem if utilizing recipes which use *Kaopectate* in the place of *Maalox*. Canadian *Kaopectate* formulation does not contain bismuth.
- Nystatin has not been shown to be effective in treating oral fungal infection associated with oral mucositis.¹
- The use of corticosteroids, such as hydrocortisone or dexamethasone, has not been adequately studied to recommend its inclusion in magic mouth.¹
- Some suggest that if a mixture contains water, the expiration should not be longer than two weeks.¹
- CMC= Carboxymethylcellulose.
- Some of the formulations listed are, or will soon be, available as ready-to-mix kits by CutisPharma (www.cutispharma.com).

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Sources used for recipes include the following:

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Magic Mouthwash

Background

“Magic mouthwash” is commonly prescribed for conditions such as chemotherapy/radiation-induced mucositis, canker sores, mouth pain, etc. The logic behind magic mouthwash is to combine ingredients with different potential mechanisms of action to treat a variety of oral conditions. There is not a standard formulation for magic mouthwash and problems can arise when patients receive a product different from what the prescriber intended. There is also a potential for allergic reaction to one of the ingredients if the formulation dispensed is not intended by the prescriber. Although there is no evidence that magic mouthwashes are effective, different formulations of magic mouthwash continue to be prescribed. This document provides a list of common magic mouthwash formulations and the rationale for each ingredient used.

Formulations

There are numerous magic mouthwash formulations. Most contain at least three ingredients. Concoctions may contain a combination of an antibiotic (to reduce the bacterial flora around the lesion), antihistamine (for local anesthetic effect), antifungal (to stop any fungal growth), steroid (to reduce inflammation), a local anesthetic/pain reliever, or an antacid (to enhance coating of the ingredients on the mouth).¹

The most popular formulation includes topical anesthetics such as lidocaine viscous and diphenhydramine plus *Maalox* (aluminum/magnesium hydroxide) to enhance coating of the ingredients in the mouth. Other formulations include antifungals, corticosteroids, or antibiotics for infections or inflammations.^{1,2} Most of the formulations are used every four to six hours with instructions to hold in the mouth for one to two minutes then spit out or swallow. Patients should be instructed not to eat or drink for 30 minutes after use.¹

When compounding these mixtures, try to avoid using elixir formulations as the alcohol contents can cause stinging. Consider injectable or bulk powder formulations, crushed tablets, or opened capsules if needed. In some cases injectable formulations are used in place of elixirs.

Some U.S. clinicians have found the new formulation of *Kaopectate* (i.e., containing bismuth) to solidify over a short period of time when mixed with other ingredients. U.S. clinicians should consider this potential problem if utilizing recipes which use *Kaopectate* in the place of *Maalox*. Canadian *Kaopectate* formulation does not contain bismuth. Expiration of these mixtures vary depending on the ingredients. Some suggest that if a mixture contains water, the expiration should not be longer than two weeks.¹

Aside from magic mouthwash, single agents such as chlorhexidine oral rinse (*Peridex*) and sucralfate (*Carafate*) suspension have also been tried for chemotherapy/radiation-induced oral mucositis.⁴

Efficacy

There is a lack of controlled studies to evaluate the efficacy of the many different magic mouthwash recipes. Whether one recipe is more effective than another is unknown. There is only one study comparing the efficacy of magic mouthwash (diphenhydramine, viscous lidocaine, *Maalox*) to other agents such as chlorhexidine (*Peridex*) and saline/baking soda solution. In this randomized, double-blind study (n=200), patients with mucositis were followed from the time they developed mucositis until the signs and symptoms of mucositis subsided or until they finished their 12-day supply of mouthwash.² Patients were taught how to assess their own mouths and were followed by phone interviews for updates on the signs and symptoms of mucositis. At the end of the study, there was no difference in efficacy among the different mouthwashes.²

The current guidelines for the treatment of oral mucositis suggest that compounded magic mouthwashes (with various combinations of viscous lidocaine, benzocaine, milk of magnesia, kaolin-pectin, chlorhexidine, or diphenhydramine) are no better than normal saline solution in pain relief [Evidence level C; Consensus].³ In addition, a Cochrane review found magic mouthwash (containing lidocaine, diphenhydramine, and aluminum hydroxide) to be ineffective in shortening the healing time of oral

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mucositis related to cancer therapies.⁴ There is also concern about the absorption of anesthetics such as lidocaine when used on damaged mucosa.³

Although frequently used as ingredients of magic mouthwash, nystatin has not been shown to be effective in treating oral fungal infection associated with mucositis.¹ Some also suggest that the high sugar content of nystatin suspension may feed the fungus.² Corticosteroids have not been studied adequately to be recommended as an ingredient of magic mouthwash and there's concern that long-term use may lead to oral candidiasis.

Conclusion

Despite the lack of evidence that magic mouthwashes work in decreasing the pain associated with chemotherapy/radiation-induced mucositis, canker sores, or other oral pain conditions, many patients and prescribers continue to use them. There is a need to standardize the ingredients used to compound magic mouthwash in order to fully evaluate its efficacy. Prior to dispensing magic mouthwash, pharmacists should verify the formula and patient allergies. Patient should be counseled regarding the proper use of magic mouthwash (e.g., to shake well before use, hold in mouth for a minute or two, whether to swallow or not, etc).

Users of this document are cautioned to use their own professional judgment and consult any other necessary or appropriate sources prior to making clinical judgments based on the content of this document. Our editors have researched the information with input from experts, government agencies, and national organizations. Information and Internet links in this article were current as of the date of publication.

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Levels of Evidence

In accordance with the trend towards Evidence-Based Medicine, we are citing the **LEVEL OF EVIDENCE** for the statements we publish.

Level	Definition
A	High-quality randomized controlled trial (RCT) High-quality meta-analysis (quantitative systematic review)
B	Nonrandomized clinical trial Nonquantitative systematic review Lower quality RCT Clinical cohort study Case-control study Historical control Epidemiologic study
C	Consensus Expert opinion
D	Anecdotal evidence In vitro or animal study

Adapted from Siwek J, et al. How to write an evidence-based clinical review article. *Am Fam Physician* 2002;65:251-8.

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