

Part 3 of a 4-part series

Lip and Common Dental Care Products: Trends and Alternatives

Data from the American Contact Alternatives Group

**^aANDREW SCHEMAN, MD; ^bSHARON JACOB, MD; ^cRAJANI KATTA, MD; ^dSUSAN NEDOROST, MD;
^eERIN WARSHAW, MD; ^fMATT ZIRWAS, MD; ANN KRUK, BS**

^aNorthwestern University Medical Center, Chicago, Illinois; ^bUniversity of California San Diego, San Diego, California;

^cBaylor College of Medicine, Houston, Texas; ^dCase Western Reserve School of Medicine, Cleveland, Ohio;

^eUniversity of Minnesota Medical School; ^fOhio State University Medical School, Columbus, Ohio

Current data on the prevalence of known cosmetic allergens in cosmetic and skin care products is invaluable information for contact allergy specialists. Knowledge of current ingredient usage is instrumental in choosing relevant allergens for patch testing patients with suspected contact allergy to different types of topical products. In addition, knowledge of the most common potential allergens in each type of topical product allows the patch testing specialist to identify key alternative products that can be used by patients with proven contact allergy to skin, hair, and cosmetic products.

In this four-part series, the American Contact Alternatives Group (ACAG) provides data on the prevalence of cosmetic allergens on the American Contact Dermatitis Society core screening tray of 80 allergens in 5,416 skin, hair, and cosmetic products listed on the CVS website. From this data, suitable potential alternative products are listed for use by patients with proven contact allergy. Part 1 discusses facial cosmetic products, part 2 covers hair care products, part 3 discusses lip and oral care products, and part 4 covers miscellaneous categories of topical products. Two additional installments on moisturizers and cleansers will follow at a later date.

ABSTRACT

Objective: To provide updated data on the use of ingredients that are common potential contact allergens in several categories of lip and oral products. To identify useful alternative products with few or no common contact allergens. **Design:** In November 2009, the full ingredient lists of 5,416 skin, hair, and cosmetic products marketed by the CVS pharmacy chain was copied from CVS.com into Microsoft Word format for analysis. Computer searches were made in Microsoft Word using search/replace and sorting functions to accurately identify the presence of specific allergens in each website product. **Measurements:** Percentages of American Contact Dermatitis Society core series allergens (and other common preservatives) were calculated. **Results:** The use of American Contact Dermatitis Society core series allergens (and other preservatives) in various categories of lip and oral products are reported. **Conclusion:** Data on allergens and alternatives for lip and oral products is not widely published. This article reviews some of the common potential allergens in lip liners, lipsticks, lip moisturizers, mouthwashes, and toothpastes. Suitable available alternative products for patients with contact allergy are listed. (*J Clin Aesthet Dermatol.* 2011;4(9):50–53.)

In November 2009, the American Contact Alternatives Group (ACAG) collected data from the CVS website,¹ which contains the full ingredient lists for 5,416 skin, hair, and cosmetic products marketed by this pharmacy chain. Evaluation of this data provides a large representative sample of the products currently being marketed in one major drugstore chain in the United

States and provides an excellent overview of the ingredients being used in products currently on the market. This type of data is important to help guide which allergens need to be tested in order to identify most cases of contact allergy to topical products. This data also allows easy identification of available alternative products for patients with contact allergy.

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ADDRESS CORRESPONDENCE TO: Andrew Scheman, MD; E-mail: ajs@scheman.com

Finding alternative products free of specific allergens plays a crucial role in obtaining clinical improvement in patients with contact allergy. There have been several papers published previously that discussed contact allergy alternatives.²⁻⁵ ACAG was formed in order to provide periodically updated information on contact allergy alternatives and has previously published alternatives information for all of the allergens on the 2007 North American Contact Dermatitis Group (NACDG) standard screening tray.⁵

In 2010, the American Contact Dermatitis Society (ACDS) unveiled a recommended core screening tray of contact allergens that would identify a significant proportion of contact allergies.⁶ In this paper, ACAG discusses the ACDS core screening tray allergens found in various types of lip and dental care products and give updated information on available products that can serve as alternatives for patients with contact allergy to specific cosmetic ingredients. In addition, products were screened for additional preservatives not on the ACDS core series. When there was no alternative in the CVS database free of certain allergens, other suitable alternative products were located.

METHODS

In November 2009, the full ingredient lists of 5,416 skin, hair, and cosmetic products marketed by the CVS pharmacy chain was copied from CVS.com into Microsoft Office Word 2003 format for analysis. Comparison of CVS website data versus actual product labels showed an occasional discrepancy; however, the vast majority of the information is correct and provides an accurate analysis of overall trends of ingredients found in products carried in CVS stores within a small margin of error. The authors chose to analyze the website data “as is” to avoid researcher bias. However, since there were occasional errors in the CVS website data, all alternative products recommended in this article were rechecked for accuracy using the ingredient lists on the actual product label.

When writing about contact allergen alternatives or designing contact alternative databases,⁷ it is important to specify what ingredients are considered potential cross-reactants for specific allergens. In this article, fragrance was defined as the presence of “fragrance,” “perfume,” any of the components of fragrance mix I or II (Chemotechnique, Malmö, Sweden), or any of the 26 fragrances required to be listed by name in Europe on product labels. In this article, fragrance also included essential oils, which were defined as any plant extract as described in Wikipedia as having a fragrant odor that might qualify as a “natural” fragrance ingredient. For cocamidopropyl betaine, the authors considered betaines, sultaines, and dimethylamines (and related chemicals) to be possible cross-reactants. Lanolin components (lanolin acid, lanolin oil), “lanolates,” and wool wax derivatives were included as lanolin. For propylene glycol, any ingredients containing the exact words “propylene glycol” or “PG” were included as possible cross-reactants.

TABLE 1. ACDS core allergens in lip and oral products

Lip Liner	Vitamin E (81%)
	Parabens (77%)
	Propolis (42%)
	Sorbic acid (32%)
	Sorbitan sesquioleate derivatives (32%)
	Fragrance (13%)
	Lanolin (13%)
	BHT (9%)
Lipstick	Parabens (82%)
	Vitamin E (76%)
	Fragrance (71%)
	Lanolin (44%)
	BHT (38%)
	Propolis (21%)
	*Benzoic acid (16%)
	Cetylstearyl alcohol derivatives (16%)
	Sorbitan sesquioleate derivatives (7%)
	Propylene glycol (6%)
	Sorbic acid (5%)
	Fragrance (91%)
Lip Moisturizer	Vitamin E (66%)
	Propolis (61%)
	Lanolin (42%)
	Cetylstearyl alcohol derivatives (40%)
	Oxybenzone (30%)
	Parabens (27%)
	BHT (15%)
	Propylene glycol (9%)
	Phenoxyethanol (9%)
	Sorbitan sesquioleate derivatives (4%)
	*Benzoic acid (3%)
	Diazolidinyl urea (found in 1 product)
	Sorbic acid (found in 1 product)
	*Sodium benzoate (60%)
	*Benzoic acid (60%)
Mouthwash	Sorbitan sesquioleate derivatives (36%)
	Propylene glycol (28%)
	Sorbic acid (8%)
	Sorbitan sesquioleate derivatives (61%)
	Propylene glycol (20%)
Toothpaste	*Sodium benzoate (16%)
	Cocamidopropyl betaine (14%)
	*Benzoic acid (9%)
	BHT (found in 1 product)

*Allergen not on ACDS core series

TABLE 2. Alternative lip/oral products

	PRODUCT	ACDS CORE ALLERGENS	OTHER ALLERGENS
Lip Liner	Josie Maran Lip Liner	CSA, PR, VE	—
	Laura Mercier Lip Pencil	VE	—
	Revlon ColorStay Liner For Lips	P, SA, VE	—
Lipstick	Benefit Full-finish Lipstick	PR, VE	—
	Boots Botanics Lipstick	BHT, CSA	—
	Revlon Lipcolor	BHT, F, P, VE	—
	Revlon Lipstick Crème	L, VE	—
	Revlon Matte Lipstick	L, VE	—
Lip Moisturizer	Aquaphor Lip Repair	CO, PR, VE	—
	Vanicream Lip Protectant SPF 30	—	—
	Vaseline Lip Therapy	—	—
Mouthwash	Biotene Mouthwash	PG, PP	BA, SB
	Therabreath Oral Rinse	PP, SA	BA, SB
	Tom's of Maine Baking Soda Mouthwash Peppermint	PP	—
	Tom's of Maine Cleansing Mouthwash Spearmint	SP	—
Toothpaste	Tom's of Maine Children's Fluoride Toothpaste Silly Strawberry	—	Natural fruit flavors only
	Tom's of Maine Natural Anticavity Fluoride Toothpaste Peppermint	PP	Menthol (rare)
	Tom's of Maine Natural Anticavity Fluoride Toothpaste Spearmint	PP, SP	Menthol (rare)
	Tom's of Maine Natural Anticavity Fluoride Toothpaste Peppermint	PP	Menthol (rare)

BA=benzoic acid; CO=compositae; CSA=cetylstearyl alcohol; F=fragrance; L=lanolin; P=parabens; PG=propylene glycol; PP=peppermint; PR=propolis; SA=sorbic acid; SB=sodium benzoate; SP=spearmint; VE=vitamin E

Potassium sorbate was included as sorbic acid. Cosmetic grade beeswax often contains propolis as an impurity and is included as “propolis” in this discussion. The authors defined potential cross-reactants of sorbitan sesquioleate to include sorbic acid, sorbates, sorbitol, sorbitans, and polysorbates. Benzoic acid is defined to include any benzoates. The possible cross-reactions for cetylstearyl alcohol were the most problematic. The authors included cetyl alcohol, cetearyl alcohol, ingredients with the words “ceteth” or “ceteareth”, stearyl alcohol, stearic acid, and stearyl ingredients as possible cross-reactants, but not all stearates.

Using the above definitions and known synonyms for

individual allergens, computer searches were made in Microsoft Word using search/replace and sorting functions to accurately identify the presence of specific allergens in each website product. Recommended alternatives were chosen that had few ACDS core allergens. These were specifically checked for accuracy by author review of the product ingredient labels.

LIP LINERS

Lip liners are very similar to eyeliners in formulation and contain relatively few allergens. A total of 31 products were evaluated. ACDS core allergens found in more than two percent of lip liners were vitamin E (81%), parabens

(77%), propolis (42%), sorbic acid (32%), sorbitan sesquioleate derivatives (32%), fragrance and lanolin (each 13%), and BHT (9%). A summary of the allergens found in lip liners is provided in Table 1 and suitable alternate products with relatively few of these allergens are listed in Table 2.

LIPSTICKS

A total of 429 lipsticks were evaluated. ACDS core allergens found in more than two percent of lipsticks were parabens (82%), vitamin E (76%), fragrance and related flavoring agents (71%), lanolin (44%), BHT (38%), propolis (21%), cetylstearyl alcohol derivatives (16%), sorbitan sesquioleate derivatives (7%), propylene glycol (6%), and sorbic acid (5%). One additional preservative not on the ACDS core series, benzoic acid, was found in 16 percent of products evaluated. A summary of the allergens found in lipsticks is provided in Table 1 and suitable alternate products with relatively few of these allergens are listed in Table 2.

LIP MOISTURIZERS

A total of 92 lip moisturizers were evaluated. ACDS core allergens found in more than two percent of lip moisturizers were fragrance and related flavoring agents (91%), vitamin E (66%), propolis and beeswax (61%), lanolin (42%), cetylstearyl alcohol derivatives (40%), oxybenzone (30%), parabens (27%), BHT (15%), propylene glycol (9%), phenoxyethanol (9%), and sorbitan sesquioleate derivatives (4%). Benzoic acid was found in three percent of evaluated products and is not on the ACDS core tray. Diazolidinyl urea and sorbic acid were each found in one product. A summary of the allergens found in lip moisturizers is provided in Table 1 and suitable alternate products with relatively few core allergens are listed in Table 2.

TOOTHPASTES

The most difficult part of finding alternative products for patients allergic to toothpastes is the practice of listing “flavors” without specifying which specific ones are used. This is especially important for patients allergic to fragrance, balsam of Peru, cinnamic aldehyde, l-carvone, and peppermint (the latter is a NACDG standard tray allergen not on the ACDS core series). Out of 153 toothpastes evaluated, 95 percent did not list specific flavors.

Other ACDS core allergens in more than two percent of toothpastes are sorbitan sesquioleate derivatives (61%), propylene glycol (20%), and cocamidopropyl betaine (14%). Butylated hydroxytoluene (BHT) was found in one product. Allergens not on the ACDS core tray that were present in more than two percent of evaluated products were sodium benzoate (16%) and benzoic acid (9%). A

summary of the allergens found in toothpastes is provided in Table 1 and suitable alternate products that list only specific flavors are shown in Table 2.

MOUTHWASHES

Similar to toothpastes, the most difficult part of finding alternative products for patients allergic to mouthwash is finding ones with specified flavors. In 25 evaluated mouthwashes, the only other ACDS core standard allergens found with any frequency were sorbitan sesquioleate derivatives (36%), propylene glycol (28%), and sorbic acid (8%). Other potential allergens found in more than two percent of products were sodium benzoate and benzoic acid (each 60%). A summary of the allergens found in mouthwashes is provided in Table 1 and suitable alternate products that list only specific flavors are shown in Table 2.

SUMMARY

In order to find suitable alternative products for patients with contact allergy on the lips, it is important to know what potential allergens are in common products used on the lips and for dental care. The most common ACDS core allergens in lipsticks are parabens, vitamin E, fragrance, and lanolin. Finding suitable alternative dental care products suitable for individuals allergic to fragrance, balsam of Peru, cinnamic aldehyde, peppermint, or l-carvone requires finding products that list all the specific flavors used in such products. Suitable alternative products are listed for patient usage. One limitation of this study is that the data provided reflects the product inventory found in CVS stores and may differ from similar data obtained from other store chains.

REFERENCES

1. <http://www.cvs.com>. 1999–2011.
2. Adams RM, Fisher AA. Contact allergen alternatives: 1986. *J Amer Acad Dermatol*. 1986;14:951–969.
3. Scheman A. Contact allergy testing alternatives: 1996. *Cutis*. 1996;57:235–240.
4. Scheman A, Katta R. Contact dermatitis alternatives: 2003. *Adv Dermatol*. 2003;19:113–138.
5. Scheman A, Jacob S, Zirwas M, Warshaw E, et al. Contact allergy: alternatives for the 2007 North American Contact Dermatitis Group (NACDG) standard screening tray. *Disease-a-Month*. 2008;54:1–156.
6. Warshaw E, Powell D, Pratt M, Scheinman P, et al. ACDS Core Allergen Series Breakfast Symposium. Presented at: 21st Annual Meeting of American Contact Dermatitis Society; Miami Beach, FL: March 4, 2010.
7. Yiannias JA, Miller R, Kist JM. Creation, history, and future of the Contact Allergen Replacement Database (CARD). *Dermatitis*. 2009;20:322–326. ●