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## LETTERS TO THE EDITOR

### Hand Eczema Due to Hygiene and Antisepsis Products: Not Only an Irritative Etiology<sup>☆</sup>

#### Productos de higiene, antisepsia y eccema de manos: no solo etiología irritativa

To the Editor:

We read with interest the recent article by Batalla et al.<sup>1</sup> on the use of hand hygiene and antisepsis products among health care professionals and the relationship between these products and hand eczema. While we are in full agreement with the central message of the article and the authors' algorithm for the management of patients with intolerance to alcohol-based products, we would like to add the following points.

Since 2009, when the World Health Organization published its guidelines on hand hygiene for health care professionals,<sup>2</sup> there has been a marked upswing in the distribution and use of alcohol-based products because of the numerous advantages they offer over traditional handwashing.

The hand rubs that have achieved the greatest commercial success (e.g., Sterillium and Manorapid r.f.u.) are those that contain isopropyl alcohol (Chemical Abstract Service number 67-63-0).

Before these products were developed, isopropyl alcohol was rarely used in medical or cosmetic preparations. Type IV hypersensitivity reactions were, therefore, rare<sup>3</sup> leading some authors to even doubt whether isopropyl alcohol was in fact an allergen in humans.<sup>4</sup>

However, the marked increase in the use of products containing isopropyl alcohol has led to a substantial increase in exposure. At the same time, it has been found that isopropyl alcohol is potentially an important allergen, especially when used directly on the skin although also in the case of occupational exposure.<sup>5</sup>

In Europe, there are already numerous reports of health professionals who have been diagnosed with contact allergy to this substance, especially nurses and nursing assistants working in highly specialized units where frequent hand

sanitizing is required (An Goossens, personal communication). In fact, in our own department we have diagnosed 2 young nurses with allergic contact dermatitis to isopropyl alcohol.

It is important to remember that, in addition to isopropyl alcohol, commercial alcohol-based hand rubs may contain other ingredients, such as emulsifiers, additives (lanolin, propylene glycol, bisabolol), and perfumes, and that the allergenic potential of these components may be even greater than that of the alcohol.<sup>6,7</sup>

For all these reasons—and as Batalla et al.<sup>1</sup> clearly indicate in their algorithm—the role of allergic contact dermatitis should not be overlooked when patients who habitually use alcohol-based sanitizers present with hand eczema. Consequently, patch testing is recommended in the case of persistent and clearly associated lesions. A practical alternative diagnostic technique available to any specialist is a repeated open application test with the actual product used by the patient.<sup>8</sup> It is very possible that the cause is allergic if the patient develops lesions after twice-daily application (morning and evening) on an area of approximately 5 cm<sup>2</sup> on the anterior forearm, for at least 2 weeks.

Finally, we would like to thank the authors of this excellent review on a very current issue of great relevance to dermatologists, who must be aware of the issues involved and up to date on the methods for diagnosing and treating these patients.

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## Response to: «Hand Eczema Due to Hygiene and Antisepsis Products: Not Only an Irritative Etiology»<sup>☆</sup>

### Réplica a: «Productos de higiene, antisepsia y eccema de manos: no solo etiología irritativa»

*To the Editor:*

We appreciate the comments made by García-Gavín et al.<sup>1</sup> concerning the article “Products for Hand Hygiene and Antisepsis: Use by Health Professionals and Relationship With Hand Eczema.”<sup>2</sup>

The focus of the article in question was skin irritation in health care professionals caused by hygiene and antisepsis products, particularly alcohol-based sanitizers. Skin irritation is one of the main reasons for the scant use of these products in clinical practice. Alcohol-based hand rubs are better tolerated by the skin than soap and water, and the guidelines of the Centers for Disease Control and Prevention and the World Health Organization clearly recommend the use of these products over traditional handwashing.<sup>3</sup>

It has been reported previously<sup>2</sup> that such irritation may be erroneously diagnosed by health professionals as an allergic reaction.<sup>4–8</sup> That said, this does not mean that these products can never cause true allergies. Cases have been reported of allergic contact dermatitis associated with alcohol-based products. In addition to the published cases of allergy to isopropanol,<sup>9</sup> there have also been reports of allergic contact dermatitis caused by ethanol, 1-propanol, and 2-propanol.<sup>3,4</sup> However, given the large number of people using alcohol-based rubs today, the incidence of such allergies, while certainly not negligible and potentially considerable, is low, and in most cases the allergy is caused by impurities, contaminants, or additives.<sup>3–5,8</sup> Therefore, the possibility that a user may develop an allergy should not be an obstacle to recommending the use of these products. For example, in a study of 50 nurses who reported erythema, desquamation, blistering, itching, or stinging after using alcohol-based products, none had a positive reaction to ethanol, 1-propanol, or 2-propanol on patch testing.<sup>7</sup> When, in the same study, the nurses underwent patch testing with the products they were using at the workplace, only 3 exhibited a mild positive reaction after application

of 2 of the products (Desmanol and Sterillium). When the components of these products were tested separately in 2 of these patients, a positive reaction was observed to the cetearyl octanoate in Desmanol and no reactions were seen at 72 hours in the case of the components of Sterillium.

Moreover, we should not forget that the most common causes of allergic contact dermatitis in health care professionals are the substances found in gloves, such as latex, rubber, and starch, or the ingredients in antiseptic soaps, including glutaraldehyde, formaldehyde, and glyoxal.<sup>10</sup>

As indicated in the management algorithm in our article on this topic, irritant contact dermatitis favors the development of allergic contact dermatitis. Thus, reducing irritation and preserving the integrity of the skin barrier will reduce the risk of sensitization.<sup>2</sup>

We agree entirely that when there is a temporal relationship in the case of lesions that are persistent or are exacerbated by the use of alcohol-based products, patch tests should be performed to rule out the possibility of an allergy to the alcohol component of the product used or the additives it contains. As García-Gavín et al.<sup>1</sup> point out, the repeated open application test is a quick, practical, and economical alternative diagnostic method.

In conclusion, we believe that the possibility that certain patients may develop allergic contact dermatitis to alcohol-based products should not distract from the main message of our article<sup>2</sup>: hygiene is mandatory in health care and the use of alcohol-based sanitizers causes less irritation than handwashing with soap and water. Moreover, irritation should not be considered a limiting factor in the use of such products.

## References

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<sup>☆</sup> Batalla A, García-Doval I. Réplica a: «Productos de higiene, antisepsia y eccema de manos: no solo etiología irritativa». *Actas Dermosifiliogr*. 2012;103:850–1.