

## Sanitizing Hand Gels: a Potential Source of Burn in the Covid-era

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### Introduction

The SARS-CoV-2 pandemic has brought new challenges to the world. To limit virus spread, effective hand hygiene is crucial. WHO's recently recommended healthcare workers to perform hand hygiene at 5 crucial moments (before touching a patient, before aseptic procedures, after body fluid exposure, after touching a patient or surroundings), and generally before putting on/after removal of protective equipment, before food preparation and eating and after using the toilet.

### Case Presentation

An otherwise healthy 43-year-old woman came to our dermatological emergency room with a burn injury in both hands, first treated with topical antibiotics dressing for 48 hours.

Clinical examination (Figure 1) revealed second and first degree burns involving both palms, volar surface of the wrists and the back of her right hand (ie 2% of TBSA). Clinically, the injury was mid-dermal in depth. The incident

occurred when the patient lightened a cigarette just after having performed hand hygiene with a commercially available hand sanitizing gel. The patient noticed a blue flame over the site of gel application and was able to extinguish it by rapidly immersing both hands into cold water. The burn was managed orally with amoxicillin-clavulanate for 1 week and oral analgesics. Patches of cryopreserved skin allografts were applied on the thenar eminence grade 2 burned areas for 7 days, followed by hyaluronic acid gauzes for 7 days, and hyaluronic acid cream for further 7 days.

Complete healing with moderate post-inflammatory dyspigmentation was observed after 21 days (Figure 2). The sanitizing hand gel was composed of: denatured alcohol, triethanolamine, benzyl salicylate glycerin, carbomer, o-phenylphenol, parfum, aqua.

### Discussion

Some concerns have been previously raised about the flammability characteristics of hand sanitizers gels [1]. Indeed, alcohol-based hand sanitizers should contain between 60% and 80% of alcohol (usually ethanol or methanol) to be



**Figure 1.** Clinical appearance of the patient at presentation time, 48 hours after flame burn injury due to cigarette ignition after application of hand sanitizing gel. (A) Second degree burns on both palms and volar surface of the fingers and wrists. (B) first degree burn of the dorsum of the right hand and dorsal surface of the fingers of the left hand. (C) Hand sanitizing gel.



**Figure 2.** (A) Treatment cryopreserved skin graft for 7 days followed by hyaluron gauze for 7 days. (B) Clinical appearance after 21 days at volar hand surfaces. (C) Clinical appearance after 21 days at dorsal hand surfaces.

effective: these alcohols can easily ignite and tend to burn relatively coldly. Moreover, the vapor produced on the hands after gel application is flammable [2]. From March 2020, everyone has started using hand sanitizing gel in daily life, either for the recommendations and for their large availability at the entrances not only in hospitals, healthcare institutions and pharmacies, but also in every public shop and working place. This widespread use has caused an increase in irritant/allergic contact dermatitis cases, either relapsed or newly developed, and generally a worsening of atopic eczema and dryness.

## Conclusions

In the Covid era, the danger related to the flammable nature of hand sanitizing gels has yet not been stressed, and the occurrence of burns after cigarette lightening following sanitizing gel application never reported. Nevertheless,

healthcare workers, non-healthcare workers and the general public are usually not aware, or not used to wait until the product as completely dried on the skin surface in daily life. People should now be informed on the flammability danger and should be aware of the necessity to wait few minutes to respect adequate time before getting close to ignition sources (eg cooking) or touching metal surfaces.

## References

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