

Letter to Editor

Flame burn caused by Alcohol-based hand sanitizer

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Dear Editor

During the COVID-19 pandemic, the use of alcohol-based hand sanitizers increased significantly. The World Health Organization (WHO) recommended their use as a preventive measure to reduce the transmission of coronavirus [1]. The Centers for Disease Control and Prevention (CDC) recommends a minimum alcohol concentration of 60% in hand sanitizers for effectiveness against microorganisms [2,3]. This high alcohol concentration makes these products inflammable and capable of causing burn injuries if appropriate precautions are not taken during their storage and use.

A ten-year-old boy presented to the emergency department of Mayo Hospital with flame burns involving the perineal area, lower abdomen, and both thighs (Figure 1). He had a bottle of hand sanitizer in his pocket, which he was using for hand sanitization during the COVID-19 pandemic, as advised by his mother, who works as a lady health worker. The bottle was loosely capped and spilled onto his clothes. He was unaware that the sanitizer was inflammable. When he went near a fireplace, his clothes caught fire.

He sustained approximately 20% total body surface area flame burns, and the wounds were second-degree, partial-thickness burns. He was admitted for regular wound dressing and intravenous antibiotics.

Hand hygiene is crucial in preventing the transmission of many diseases. Hand sanitizers contain ethanol, n-propanol, and isopropyl alcohol in varying concentrations and are available in different forms, such as gels, liquids, and foams. The high concentration of alcohol makes these products inflammable [4]. Accidental spillage can result in burn injuries [5].

Alcohol-based hand sanitizers can cause injuries through different mechanisms. When poured onto an open flame, they can ignite rapidly, and the fire may spread to the container, leading to burns of the hands and arms. Multiple cases of facial and hand burns have been reported in individuals smoking with alcohol-wet hands

[6]. Accidental spillage of sanitizer into the eyes or rubbing the eyes after application of hand rub can lead to ocular chemical injuries [7]. In our patient, a lack of awareness regarding the flammable nature of the sanitizer led him to approach a fireplace despite his clothes being soaked due to spillage, resulting in burn injury.



Figure 1: Twenty percent flame burn involving both thighs. Perineum and abdomen.

Therefore, precautions should be taken during the use and storage of alcohol-based hand sanitizers. They should be stored in tightly capped bottles and kept away from ignition and heat sources. Bottle labels should clearly indicate the inflammable nature of the contents. Sanitizers should be kept out of the reach of children, and children should be educated and supervised during their use. Print and electronic media can play an important role in educating the public about safety measures and precautions related to alcohol-based hand sanitizers.

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