

## The hidden danger of hand sanitizer

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### Disclosure

The authors report no financial relationship with any company whose products are mentioned in this article or with manufacturers of competing products.

The Centers for Disease Control and Prevention recommends that all health care professionals use an ethanol-based hand sanitizer to decontaminate their hands before and after direct contact with patients to prevent infection.<sup>1,2</sup> As a result, many psychiatric hospitals use alcohol-based hand sanitizers as a primary infection control measure.

Patient misuse of these products as intoxicants has been reported in prisons, emergency rooms, and medical units.<sup>3-7</sup> We report 2 cases of psychiatric inpatients who intentionally ingested alcohol-based hand sanitizers to become intoxicated; there were no permanent toxic effects in either case.

### Case 1

Mr. F, age 52, is diagnosed with polysubstance dependence and bipolar disorder and hospitalized for acute exacerbation of mania characterized by unrestrained buying sprees, racing thoughts, grandiosity, and a persistently irritable mood. On day 3 of admission, he presents as stuporous and disorganized, with a strong odor of alcohol on his breath. He admits drinking an alcohol-based hand sanitizer foaming solution, an empty bottle of which is found in his room. His serum alcohol level is 176 mg/dL; the threshold concentration above which a person is considered legally drunk when operating a motor vehicle is 100 mg/dL. Other laboratory values, including urine toxicology, were negative.

### Case 2

Mr. V, age 47, has schizophrenia, cocaine dependence, and antisocial personality disorder. He is admitted for command audi-

### Table

### Alcohol content of hand sanitizers and beverages

Product	Percentage of alcohol by volume
Beer	5% alcohol <sup>8</sup>
Wine	12% alcohol <sup>8</sup>
Distilled spirits	40% alcohol <sup>8</sup>
Purell Foaming Hand Sanitizer	62% ethyl alcohol <sup>9</sup>
Purell Instant Hand Sanitizer	62% ethyl alcohol, 5% isopropanol by volume <sup>9</sup>

tory hallucinations and a suicide attempt by overdose. On day 6 of hospitalization, staff members find him delirious and confused. Mr. V confesses to drinking an alcohol-based hand sanitizer solution for the past 3 days. His vital signs are stable, and his serum alcohol level is 142 mg/dL.

### Limiting access

Hand sanitizer has a much higher alcohol concentration than several common alcoholic drinks (Table).<sup>8,9</sup> Ethyl alcohol, the active ingredient in hand sanitizers, is responsible for the adverse effects seen in our patients; the inactive ingredients—glycerin, propylene glycol, tocopherol acetate, isopropyl myristate, and aminomethyl propanol—generally are recognized as safe by the FDA and the Cosmetic Ingredient Review Expert Panel.<sup>10,11</sup> Although hospitals routinely restrict patients' access to traditional forms of alcohol, hand sanitizer is easily accessible in many facilities. In our cases, having the alcohol-based sanitizer placed throughout the unit and readily available to patients made it easy for

at-risk patients to become intoxicated. As suggested by Weiner,<sup>7</sup> replacing bottles of hand sanitizer with self-contained, wall-mounted dispensers that are difficult for patients to remove might decrease the likelihood of ingestion.

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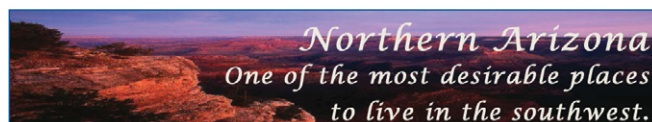
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**Wall-mounted hand sanitizer dispensers may decrease the likelihood of ingestion**

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