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Serious Adverse Health Events Associated with Methanol-based Hand Sanitizers

Summary

Most commercially available alcohol-based hand sanitizers or rubs (ABHSR) contain either ethanol or isopropanol as active ingredients. On June 19, 2020, the U.S. Food and Drug Administration (FDA) advised consumers not to use any hand sanitizer manufactured by “Eskbiochem SA de CV” in Mexico, due to the potential presence of **methanol**, a “toxic alcohol”, as an active ingredient, which can cause blindness and/or death when absorbed through the skin or when swallowed. Since then, FDA has identified additional ABHSR products that contain methanol and is working with manufacturers and distributors on a voluntary recall of these products (<https://www.fda.gov/drugs/drug-safety-and-availability/fda-updates-hand-sanitizers-methanol>).

Clinicians and public health officials should advise the public to:

- 1) Seek immediate medical attention and contact their poison center (1-800-222-1222) for advice if they have swallowed an ABHSR product or are experiencing symptoms from repeated use of these products that are on the “FDA’s testing and manufacturer’s recalls” list (<https://www.fda.gov/drugs/drug-safety-and-availability/fda-updates-hand-sanitizers-methanol>),
- 2) Stop using any ABHSR that are on the “FDA’s testing and manufacturer’s recalls” list because using these methanol-containing products may result in serious adverse health events (e.g., blindness and death), and
- 3) NEVER swallow ABHSR and only use them for their intended purpose. Clinicians should be highly suspicious of methanol poisoning when a patient presents with a history of ABHSR ingestion, compatible signs and symptoms, and laboratory findings.

Background

The Centers for Disease Control and Prevention (CDC) confirmed with the New Mexico Department of Health and the New Mexico Poison and Drug Information Center that serious adverse health events occurred in seven patients who had purportedly ingested ABHSR in June 2020. Significant blood methanol concentrations were detected in all patients; four died, one critically ill patient recovered with loss of vision, and outcomes are pending on the remaining two critically ill patients. Two product samples were available for testing; preliminary results showed one product tested positive for methanol at the Scientific Laboratory Division, New Mexico Department of Health; the result on the second product is pending. CDC also confirmed with the Arizona Department of Health Services that the Arizona Poison and Drug Information Center reported an additional six patients who purportedly ingested ABHSR in June 2020. Significant blood methanol concentrations were detected in these critically ill patients; two patients have been discharged from the hospital, one has permanent blindness, and four outcomes are pending.

Hand hygiene is an important part of the response to the emergence of COVID-19 in the United States. Practicing hand hygiene, which includes using ABHSR, is a simple and effective way to decrease the spread of pathogens and infections. Commercially available ABHSR usually contain either ethanol or isopropanol. However, some ABHSR that were manufactured in Mexico (<https://www.fda.gov/drugs/drug-safety-and-availability/fda-updates-hand-sanitizers-methanol>) have been found to contain a significant amount of methanol. Repeated use of these products on the skin may result in methanol poisoning. However, the highest risk for methanol poisoning is by swallowing ABHSR products containing methanol. Examples include young children who accidentally swallow these products and adolescents or adults who intentionally swallow these products as an alcohol (ethanol) substitute. The clinical effects of methanol and ethanol poisoning are similar (e.g., headache, blurred vision, nausea, vomiting, abdominal pain, loss of coordination, and decreased level of consciousness), but methanol poisoning may result in severe metabolic acidosis and blindness, and can be fatal if untreated. Clinicians should be highly suspicious of methanol poisoning when a patient presents with a history of ABHSR ingestion, compatible signs and symptoms, and laboratory findings (e.g., elevated anion gap metabolic acidosis). Treatment of methanol poisoning includes supportive care, administration of an alcohol dehydrogenase inhibitor (e.g., fomepizole), and hemodialysis.

Recommendations for Clinicians and Public Health Officials

1. **Clinicians** should advise patients to immediately seek medical treatment if they have been exposed to methanol-containing alcohol-based hand sanitizers on the “FDA’s testing and manufacturer’s recalls” list (<https://www.fda.gov/drugs/drug-safety-and-availability/fda-updates-hand-sanitizers-methanol>) and are experiencing symptoms.
2. **Clinicians** should have a high index of suspicion for methanol poisoning when a patient presents with a history of ABHSR ingestion or repeated use of these products on the skin. Signs and symptoms include headache, blurred vision or blindness, nausea, vomiting, abdominal pain, loss of coordination, decreased level of consciousness, and laboratory findings such as anion gap metabolic acidosis.
3. **Clinicians and public health practitioners** should educate patients and the public to use alcohol-based hand sanitizers or rubs **only** for hand hygiene.
4. **Clinicians and public health practitioners** should educate patients and the public on the serious adverse health risks of ingesting alcohol-based hand sanitizers or rubs.
5. **Clinicians and public health practitioners** should educate patients and the public that some alcohol-based hand sanitizers or rubs may contain a significant amount of methanol and using these products may result in serious adverse health events (e.g., blindness and death).
6. **Clinicians** should contact the local poison center (1-800-222-1222) to report cases and to obtain specific medical management advice of methanol poisoning.

Recommendations for the Public

1. Seek immediate medical attention if you have swallowed alcohol-based hand sanitizer or rub or are experiencing symptoms from repeated use of these products on your skin and contact your poison center (1-800-222-1222) for advice. Signs and symptoms include headache, blurred vision or blindness, nausea, vomiting, abdominal pain, loss of coordination, and decreased alertness.
2. Do **not** swallow any alcohol-based hand sanitizers or rubs. These chemicals are not intended for human consumption and can lead to serious health issues, including death.
3. **Only** use alcohol-based hand sanitizers or rubs for their intended purpose – to clean hands.
4. Keep alcohol-based hand sanitizers or rubs out of reach of children and supervise their use.
5. Check your hand sanitizer products against the “FDA’s testing and manufacturer’s recalls” list (<https://www.fda.gov/drugs/drug-safety-and-availability/fda-updates-hand-sanitizers-methanol>). If your product is on this list, stop using the product and dispose of it immediately in appropriate hazardous waste containers; do not flush or pour them down the drain.

For More Information

- FDA website for updates on hand sanitizers containing methanol (<https://www.fda.gov/drugs/drug-safety-and-availability/fda-updates-hand-sanitizers-methanol>)
- For general questions about hand sanitizers, email FDA at COVID-19-Hand-Sanitizers@fda.hhs.gov
- For questions about hand sanitizer containing methanol, email FDA at DRUGINFO@fda.hhs.gov
- FDA's MedWatch Adverse Event Reporting (<https://www.fda.gov/safety/medwatch-fda-safety-information-and-adverse-event-reporting-program>) program to report adverse events or quality problems with hand sanitizer use
- CDC coronavirus website (<https://www.cdc.gov/coronavirus>)
- Association of American Poison Control Centers (<https://www.aapcc.org>)
- American College of Medical Toxicology (<https://www.acmt.net>) for poisoning information

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