



Handwashing: Clean Hands Save Lives

Show Me the Science – When & How to Use Hand Sanitizer in Community Settings

Note: For hand hygiene guidance in healthcare settings, please visit the [Clean Hands Count webpage](#).

CDC recommends washing hands with soap and water whenever possible because handwashing reduces the amounts of all types of germs and chemicals on hands. But if soap and water are not available, using a hand sanitizer with at least 60% alcohol can help you avoid getting sick and spreading germs to others. The guidance for effective handwashing and use of hand sanitizer in community settings was developed based on data from a number of studies.

Alcohol-based hand sanitizers can quickly reduce the number of microbes on hands in some situations, but sanitizers do *not* eliminate all types of germs.

Why? Soap and water are more effective than hand sanitizers at removing certain kinds of germs, like *Cryptosporidium*, *norovirus*, and *Clostridium difficile*¹⁻⁵. Although alcohol-based hand sanitizers can inactivate many types of microbes very effectively when used correctly¹⁻¹⁵, people may not use a large enough volume of the sanitizers or may wipe it off before it has dried¹⁴.

Hand sanitizers may not be as effective when hands are visibly dirty or greasy.

Why? Many studies show that hand sanitizers work well in clinical settings like hospitals, where hands come into contact with germs but generally are not heavily soiled or greasy¹⁶. Some data also show that hand sanitizers may work well against certain types of germs on slightly soiled hands^{17,18}. However, hands may become very greasy or soiled in community settings, such as after people handle food, play sports, work in the garden, or go camping or fishing. When hands are heavily soiled or greasy, hand sanitizers may not work well^{3,7,16}. Handwashing with soap and water is recommended in such circumstances.

Hand sanitizers might not remove harmful chemicals, like pesticides and heavy metals, from hands.

Why? Although few studies have been conducted, hand sanitizers probably cannot remove or inactivate many types of harmful chemicals. In one study, people who reported using hand sanitizer to clean hands had increased levels of pesticides in their bodies¹⁹. If hands have touched harmful chemicals, wash carefully with soap and water (or as directed by a poison control center).

If soap and water are not available, use an alcohol-based hand sanitizer that contains at least 60% alcohol.

Why? Many studies have found that sanitizers with an alcohol concentration between 60–95% are more effective at killing germs than those with a lower alcohol concentration or non-alcohol-based hand sanitizers^{16,20}. Hand sanitizers without 60-95% alcohol 1) may not work equally well for many types of germs; and 2) merely reduce the growth of germs rather than kill them outright.

When using hand sanitizer, apply the product to the palm of one hand (read the label to learn the correct amount) and rub the product all over the surfaces of your hands

until your hands are dry.

Why? The steps for hand sanitizer use are based on a simplified procedure recommended by CDC ²¹. Instructing people to cover all surfaces of both hands with hand sanitizer has been found to provide similar disinfection effectiveness as providing detailed steps for rubbing-in hand sanitizer ²².

Swallowing alcohol-based hand sanitizers can cause alcohol poisoning.

Why? Ethyl alcohol (ethanol)-based hand sanitizers are safe when used as directed, ²³ but they can cause alcohol poisoning if a person swallows more than a couple of mouthfuls ²⁴.

From 2011 – 2015, U.S. poison control centers received nearly 85,000 calls about hand sanitizer exposures among children ²⁵. Children may be particularly likely to swallow hand sanitizers that are scented, brightly colored, or attractively packaged. Hand sanitizers should be stored out of the reach of young children and should be used with adult supervision. Child-resistant caps could also help reduce hand sanitizer-related poisonings among young children ²⁴. Older children and adults might purposefully swallow hand sanitizers to become drunk ²⁶.

References

+

Page last reviewed: March 3, 2020