

## CLEAN HANDS SAVE LIVES!

### ....How do hand sanitizers work?

Since 2002 the Center for Disease Control has recommended using alcohol-based hand sanitizers in hospital settings to supplement washing hands with soap and water. Using hand gel sanitizers has become increasingly popular for use in the community, especially with concerns about H1N1 flu (swine flu) concerns. **But hand sanitizers must be used correctly in order to be effective. In order to use them correctly, it helps to understand how they work.**

Hand sanitizers work by using a high concentration of alcohol to kill bacteria on your hands. The alcohol penetrates the bacteria's cell membrane and denatures it. This means the alcohol changes the nature of the bacteria, making it so the proteins cannot fold properly to reproduce.

The alcohol in hand sanitizer gel also strips the outer layer of oil off your hands, creating an environment where bacteria can't stay alive as easily. By rubbing enough alcohol over your hands for a 30 second period of time, you allow the alcohol to make contact with and destroy most of the bacteria on your hands.

Are all hand sanitizers effective? It is important to choose a hand sanitizer that has a high concentration of alcohol. The CDC recommends using a 60 to 95 percent concentration of ethanol or isopropanol alcohol since their studies show that percentage to be most effective. Studies show that a lower percentage of alcohol actually seemed almost worse than not using hand sanitizer at all. The gel with less alcohol seemed to help move bacteria around on the hands instead of killing them! Almost all hand sanitizers claim to kill 99.9% of germs even when they have alcohol concentrations of less than 60%. So be sure to check the back of the gel bottle and read the label before you buy it.

Besides choosing a hand gel with a good concentration of alcohol, it is important to use the hand sanitizer correctly. Use at least a dime-sized dollop – a quarter-sized dollop is probably better. Rub the gel briskly all over your hands, including finger tips and between the fingers, for 30 seconds. If the hand sanitizer dries in before 30 seconds, you didn't use enough gel to kill the germs.

If your hands look dirty, the hand sanitizer is not going to wipe the dirt away for you. Hand sanitizing gel works when it can easily get to the bacteria on the skin. Putting the sanitizer on top of dirty hands won't allow the alcohol to penetrate both the dirt and the bacteria. So washing your hands with soap and water is strongly recommended when your hands are visibly dirty. Scrub briskly with soap and water long enough to sing "Happy Birthday to me" through twice. Of course, if you don't have soap or water, hand sanitizer is better than nothing.

Hand sanitizers are not recommended after using the bathroom since they will not remove fecal matter, also known as "BM" or "poop." Even worse, sanitizers may not be able to kill the bacteria in the poop that is still on your hands. Clostridium difficile, sometimes found in fecal

matter that causes severe diarrhea, is resistant to hand sanitizers since the Clostridium forms spores that the alcohol can't kill. So soap and water are the best to kill bacteria after using the bathroom yourself, or helping someone else use the toilet, or after changing another person's Attends or pull-ups. (Gloves must also be worn when helping someone wipe, or change Attends or pull-ups, of course.) And, as above, if soap and water are not available, hand sanitizer is better than nothing.

Does alcohol-based hand-sanitizer kill the viruses that cause colds, flu, hepatitis and other viral illnesses? More study is needed before we can know how just how effective it is in killing viruses. At least the sanitizer may make the surface of your hands so that viruses can't thrive as well. Since some viruses can live on surfaces for up to a year, it's a good idea to use soap and water to wash your hands thoroughly when you can, especially before touching food, utensils and cups, or your face (eyes, nostrils and mouth).

As always, be sure to wash your hands with soap and water when you enter and leave a client's home for the best protection. And again, if soap and water are not available, hand sanitizer is better than nothing.

Taken from "How Do Hand Sanitizers Work?" by Heather Shaw, eHow Contributing Writer.  
Resources: FDA's HANDWASHING-RELATED RESEARCH FINDINGS and The Center for Disease Control's Clean Hands Saves Lives: Emergency Situations.

Summarized by Judy Unrau RN Above and Beyond Home Care November 20091

Quiz for "How do hand sanitizers work?"

1. Hand sanitizer works by changing the \_\_\_\_\_ of the bacteria so they can't \_\_\_\_\_.
2. In order for the sanitizer to be effective, it is important to:
  - a. Know the percent of \_\_\_\_\_ in the sanitizer gel, to be sure it is more than \_\_\_\_\_%.
  - b. Use enough gel so that your hands stay wet as you rub your hands and fingers for at least \_\_\_\_\_ seconds.
  - c. Your hands can't be visibly \_\_\_\_\_.
3. Hand sanitizer isn't recommended for use after using the bathroom yourself or changing someone's Attends or pull-up, because the gel can't cleanse your hands of BM and also can't kill \_\_\_\_\_ s.
4. More studies are needed to know just how well hand sanitizer kills \_\_\_\_\_ s. It is important to know this since viruses cause illnesses like \_\_\_\_\_ and the \_\_\_\_\_.
5. What is the best way to be sure your hands have been thoroughly cleansed?  
\_\_\_\_\_  
\_\_\_\_\_

Your Name \_\_\_\_\_ Date \_\_\_\_\_