Hand Sanitizers, Soaps, and Antibacterial Agents: the Dirt on Getting Clean

**Regis:** Flu season is upon us! Doctors tell us to keep our hands clean to prevent the spread of disease. My students ask what method will best clean their hands.

**Barbara:** Flu and colds are both caused by viruses. So, the first line of defense is a flu shot. After that there are two general approaches to eliminating viruses from your hands, but each involves complications. One way is using hand sanitizers; the other is just washing with old-fashioned soap and water.

**R:** Soap and water are not always available, but you can easily carry a hand sanitizer. Commercial sanitizers often contain alcohol and other chemicals that effectively kill most viruses. You may be surprised by the number of products that contain the antibacterial agent triclosan (Fig. 1), a chemical that slows bacterial growth (antibacterial soaps); prevents dental disease (toothpaste); controls growth of odor-causing bacteria (socks); prevents bacterial degradation (baby pacifiers); and acts as a preservative (cosmetics).

**B:** Also popular is washing with antibacterial soaps. However, they do not kill viruses, the cause of the flu and colds. You may be surprised by the number of products that contain the antibacterial agent triclosan (Fig. 1), a chemical that slows bacterial growth (antibacterial soaps); prevents dental disease (toothpaste); controls growth of odor-causing bacteria (socks); prevents bacterial degradation (baby pacifiers); and acts as a preservative (cosmetics).

**R:** Also popular is washing with antibacterial soaps. However, they do not kill viruses, the cause of the flu and colds. You may be surprised by the number of products that contain the antibacterial agent triclosan (Fig. 1), a chemical that slows bacterial growth (antibacterial soaps); prevents dental disease (toothpaste); controls growth of odor-causing bacteria (socks); prevents bacterial degradation (baby pacifiers); and acts as a preservative (cosmetics).

**B:** Also popular is washing with antibacterial soaps. However, they do not kill viruses, the cause of the flu and colds. You may be surprised by the number of products that contain the antibacterial agent triclosan (Fig. 1), a chemical that slows bacterial growth (antibacterial soaps); prevents dental disease (toothpaste); controls growth of odor-causing bacteria (socks); prevents bacterial degradation (baby pacifiers); and acts as a preservative (cosmetics).

**R:** Also popular is washing with antibacterial soaps. However, they do not kill viruses, the cause of the flu and colds. You may be surprised by the number of products that contain the antibacterial agent triclosan (Fig. 1), a chemical that slows bacterial growth (antibacterial soaps); prevents dental disease (toothpaste); controls growth of odor-causing bacteria (socks); prevents bacterial degradation (baby pacifiers); and acts as a preservative (cosmetics).

**B:** Also popular is washing with antibacterial soaps. However, they do not kill viruses, the cause of the flu and colds. You may be surprised by the number of products that contain the antibacterial agent triclosan (Fig. 1), a chemical that slows bacterial growth (antibacterial soaps); prevents dental disease (toothpaste); controls growth of odor-causing bacteria (socks); prevents bacterial degradation (baby pacifiers); and acts as a preservative (cosmetics).

**B:** Be wary of recipes for homemade sanitizers on the Internet. Is the following example really a good, inexpensive solution?

**Bubble Gum Sanitizer**

1/2 cup of aloe vera gel + bubble gum essence
1/4 cup of 99% rubbing alcohol isopropanol

Let’s do the math: 99% of 1/4 cup of alcohol = .2475 cup of alcohol. 75% of solution x 100% = 33% alcohol! While the scent may be appealing, this gel does not contain enough alcohol to kill viruses. Unfortunately, in addition to their effect on viruses, alcohol-based sanitizers kill all bacteria, not just pathogens. Some bacteria are beneficial and actually strengthen our immune systems.

**R:** Some decisions are not easy. Should we restrict the use of alcohol-based sanitizers and ban the use of triclosan from over-the-counter products? Will you choose to limit the use of hand sanitizing products in your home? Send us your ideas at: chemmatters@acs.org

**ChemMatters, DECEMBER 2011 5**