Proper Hand Hygiene Techniques & Products

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According to the World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), Health Canada and various research studies, proper hand washing with soap and water is the single best way to prevent the spread of infection. When soap and water are not available and hands are free from visible soil, hand sanitizer is considered an acceptable product to sanitize hands.

Bacteria Found on the Skin

The main function of the skin is to act as a barrier against physical, immune and environmental threats such as bacteria. Not all bacterial flora however, are harmful. Residential flora is normal flora found in the deeper layers of the skin and generally does not pose a problem for healthy people. Transient flora is flora that rests on the outer layers of the skin that are acquired through contamination. It is the transient flora that is responsible for spreading disease and causing infection.

Hands can become contaminated with transient bacterial flora by touching contaminated objects. Commonly contaminated objects include door handles, money, stair rails, keyboards, improperly disinfected counter tops and objects that are frequently touched.

Hand Cleansing Agents

Plain Soap

Plain soap is a detergent based product that works by coating physical contaminants on the hands, such as soil, which are then washed away under running water. Plain soap when combined with proper hand washing techniques is very effective in removing potentially harmful transient flora. Plain soap does not remove the natural residential flora.

Antibacterial Soap

Antibacterial soap contains an antibacterial agent such as Triclosan that reduces the amount of bacterial flora on the hands. Antibacterial soaps only contain a small amount of the antibacterial agent (0.5% or less) and are no more effective than plain soap after a single wash. However, antibacterial soaps become more effective than plain soap after multiple washes due to residual activity. Antibacterial soap is harsher on skin than plain soap due to its ability to remove both transient and residential flora and therefore use in the general public is not deemed necessary. Antibacterial soaps are generally used in healthcare and clinical settings.

Alcohol Based Hand Sanitizer

Alcohol based hand sanitizers are disinfectants with an active ingredient of either ethanol, isoproponol or a mixture of both. Major benefits of alcohol based hand sanitizers are that they are quick, do not require paper or cloth towels for drying and they are very effective at killing a variety of harmful bacteria and viruses. They work by breaking down proteins that viruses and bacteria need to survive. Hand sanitizers however, are not effective for removing visible soil.

In order to be effective, alcohol based hand sanitizers must have an alcohol concentration of between 60% to 90%. Alcohol percentages below 60% have actually be shown to increase the amount of bacteria on the hands. Alcohol percentages above 90% become ineffective as alcohol needs water (another component of alcohol based hand sanitizer) to effectively remove bacteria.

Be cautious! Some substandard products containing less than 60% alcohol may be advertised to the public as an effective hand sanitizer. Alcohol based hand sanitizers that have been approved by the Food & Drug Act (FDA)'s over-the-counter drug review should have a Drug Identification Number (DIN), or a Natural Product Number (NPN) from Health Canada.

Hand Cleansing in Health Care Settings

Due to the high risk of infection spread from person to person in health care settings, antibacterial soap is recommended as it removes both transient and residential flora. Most health care settings also use alcohol based hand sanitizers with an alcohol percentage of approximately 70% in conjunction with antibacterial soap for maximum hand sanitation.

Hand Cleansing in Food Service Settings

Methods designed for hand hygiene programs in health care settings were not intended to apply to food service settings. In food service settings, washing hands with soap and water is the recommended method to obtain hand hygiene. Alcohol based hand sanitizers are not effective at removing physical contaminants such as soil, protein and fat. In fact, protein and fat often found on food service workers hands actually counter acts the sanitizing effect of alcohol based hand sanitizers.

Hand contamination is responsible for approximately 40% of all food borne illnesses and Health Canada estimates that the costs associated with food borne illnesses is between $12 to $14 billion dollars annually! Proper hand washing is a defence against the spread of food borne illnesses.

Compliance Interventions

Multiple studies have shown significant reductions in gastrointestinal and respiratory infections in locations where hand hygiene interventions have been implemented. All employees in health care and food service settings should be educated on the risks associated with improper hand hygiene and refresher courses should be provided periodically.

Effective hand hygiene interventions must provide wash stations and suitable cleansers to employees. Texture, consistency, scent and effect on skin are just a few things that should be considered when selecting a product.

Proper Hand Washing & Drying

It takes 20 to 30 seconds along with adequate amounts of soap, friction and clean running water to properly clean hands.

- Long sleeves should be rolled up and jewelry, including watches should be removed.
- Water temperature should be warm but not hot as warm water is sufficient to kill microorganisms and hot water can damage the skin.
- All surfaces of the hand including palms, back of hands, wrists, between fingers and under fingernails should be lathered with soap and scrubbed thoroughly.
- To prevent re-contamination of hands, faucets should be turned off with a clean paper towel.
- It takes approximately 20 seconds to adequately dry hands with paper or cloth towels and approximately 35 to 45 seconds under an electric air dryer.
- When using paper or cloth towels, hands should be pat dry instead of rubbing dry as this will help keep the skin from cracking or becoming chapped.

Proper Use of Hand Sanitizer

- Hand sanitizer is indicated for use when soap and water are not available and hands are free from visible contaminants.
- Hands should be completely dry before application
- To be effective, an adequate quantity of sanitizer (approximately 3 mL), must come in to contact with all surfaces of the hands, just as when washing hands with soap.