

CLINICAL

Leslie Canham, CDA, RDA, CSP
Speaker, Consultant, Trainer
Leslie Canham & Associates



Healthy Hands for Dental Professionals

As dental professionals, hand hygiene is an important concern. Does your skin ever get dry, cracked or irritated? Are you using gloves that fit well, are comfortable to wear, and provide adequate coverage for your hands? Do you strive to prevent hand contamination and subsequent cross-contamination? Do your co-workers share the same commitment to hand hygiene or do they inadvertently have lapses? This article will provide information on best practices for protecting your hands at work and tips to help you promote a culture of healthy hand hygiene among co-workers.

Evidence supports the premise that improved hand hygiene can reduce health care associated infection rates. Failure to perform appropriate hand hygiene is considered one of the leading causes of health care associated infections and has been recognized as a substantial contributor to outbreaks. However, frequent and repeated use of hand-hygiene products, particularly soaps and other detergents, are a primary cause of chronic irritant contact dermatitis among healthcare workers.¹ Discomfort due to irritation can interfere with adherence to recommended hand hygiene practices.

Is Your Hand Washing Protocol Effective?

Effective hand washing is accomplished by wetting hands and applying an antimicrobial or plain soap. The next step includes vigorously rubbing hands together to create a lather covering all the surfaces of the palms, tops of the hands, between the fingers, base of the fingers and thumbs, backs of the fingers, wrists and finger nails. The hands should then be rinsed thoroughly to remove all the lather. Washing and rinsing should be performed with cool water as hot water can be drying to skin. Remember not to touch the faucet with freshly washed hands, instead use a paper towel to turn the water off, so hands are not re-contaminated.

The amount of time spent washing hands is critical in reducing transmission of pathogens to other people and environmental surfaces. According to the Centers for Disease Control and Prevention (CDC) guidelines, 15 seconds is the minimum amount of time to spend washing hands. Drying hands thoroughly is also important. Wet hands have been known to transfer pathogens much more readily than dry hands or hands not washed at all. The residual moisture determines the level of bacterial and viral transfer following hand washing.² Hands should be completely dry prior to donning gloves so as to prevent promotion of bacterial growth and because moisture trapped under gloves can cause irritation to skin.

When I conduct workshops on hand hygiene, I use a product called "Glo-Germ". Glo-Germ is lotion that when applied to hands, glows under an ultra-violet light. My workshop participants apply the Glo-Germ to their hands, rub around to coat all surfaces and thoroughly wash their hands. After washing, the ultra-violet light reveals areas that were missed. Frequently missed areas include under fingernails, cuticles, in between fingers, backs of hands and around the wrists. You can use this product in your office to help promote effective hand washing.

Another way to ensure enough time is dedicated to hand-washing is by using the second hand on your watch. First, time co-workers on how long they spend washing their hands. Then use the same routine to apply Glo-Germ to the freshly washed and dried hands. Instruct everyone to wash the product off, but allow only the amount of time "clocked" with the first round of washing. This dramatic visual helps remind dental professionals to spend extra time and attention to hand washing. Hand hygiene should be performed before donning gloves and immediately after gloves are removed.

Selection of Hand Hygiene Products

There are a variety of preparations used for hand hygiene from plain soap to waterless antiseptic agents. In the United States, antiseptic hand wash products intended for use by healthcare workers are regulated by the Food and Drug Administration (FDA) division of Over the Counter Drug Products. Below are some examples of preparations used for hand hygiene.

- Plain Soap
- Alcohols
- Chlorhexidine
- Chloroxylenol
- Hexachlorophene
- Iodine and Iodophors
- Quaternary Ammonium Compounds
- Triclosan

The proper selection of hand hygiene products can help reduce the colonized bacteria that are present on hands. The preferred method for hand hygiene depends on the type of procedure, the degree of contamination, and the desired persistence of antimicrobial action on the skin. For routine dental examinations and nonsurgical procedures, hand washing and hand antisepsis is achieved by using either plain or antimicrobial soap and water. If the hands are not visibly soiled, hand antisepsis can also be achieved by using an alcohol-based hand rub.

Frequent hand washing with soap and water can be irritating to skin. The 2002 CDC Guidelines for Hand Hygiene in Health-Care Settings cite that the use of alcohol-based hand rubs containing various emollients were better tolerated by healthcare workers than washing hands with non antimicrobial soaps or antimicrobial soaps. Soap and water as well as alcohol dissolves natural skin oils. When using an alcohol based

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How the best perform





Photo A: Sterillium® Comfort Gel™

hand rub with emollients, oils are rubbed back into the hands rather than being washed away with soap and water. An example of a good alcohol-based moisturizing, hand sanitizer is Sterillium® Comfort Gel™ (Photo A). The purpose of an antiseptic hand rub is to remove or destroy transient microorganisms and reduce resident flora. It is important to keep in mind that although solutions containing 60%–95% alcohol are most effective for killing bacteria, they are not appropriate to use when hands are visibly soiled or contaminated with proteinaceous materials. In these instances, soap and water must be used.

The primary defense against infection and transmission of pathogens is healthy, unbroken skin.³ Lotions are often recommended to ease the dryness resulting from frequent hand washing or hand antiseptics. When selecting hand lotions or barrier cream, be sure to choose a medical grade product. Hand lotions and creams that contain humectants and various fats and oils can increase skin hydration and replace altered or depleted skin lipids that contribute to the barrier function of normal skin. Several controlled trials have demonstrated that regular use (e.g., twice a day) of such products can help prevent and treat irritant

contact dermatitis caused by hand-hygiene products.¹ These products should be compatible with latex gloves and not interfere with antimicrobial properties of chlorhexidine gluconate (CHG). In addition, petroleum-based lotion formulations can weaken latex gloves and increase permeability. For that reason, lotions that contain petroleum or other oil emollients should only be used at the end of the work day to help lock in moisture after a day of sanitizing and washing.³ A good hand lotion that delivers all of the essential nutrients necessary for optimal skin health, CHG Compatible, non-sensitizing and latex-friendly is Hand Essentials™ Skin Repair Cream (Photo B).



Photo B: Hand Essentials™ Skin Repair Cream

To facilitate better hand washing and ease of donning gloves, fingernails should be no longer than one-quarter inch from the nail bed. Hand carriage of gram negative organisms has been determined to be greater

among wearers of artificial nails than among non-wearers, both before and after hand washing. In addition, artificial fingernails or extenders have been epidemiologically implicated in multiple outbreaks involving fungal and bacterial infections in hospital intensive-care units and operating rooms. Freshly applied nail polish on natural nails does not increase the microbial load from periungual skin if fingernails are short; however, chipped nail polish can harbor added bacteria.³ Wearing jewelry, such as rings, can make effective hand hygiene more difficult. Several studies have demonstrated that skin underneath rings is more heavily colonized than comparable areas of skin on fingers without rings. One study found that 40% of nurses tested harbored gram-negative bacilli on skin under rings and that certain nurses carried the same organism under their rings for several months.¹

Another type of jewelry sometimes worn by dental workers is a “friendship” bracelet. Friendship bracelets are usually made of thread or embroidery floss and are a type of macramé. Moisture, droplets, or aerosols generated from dental procedures can land on the bracelets and be absorbed. Since the bracelet can’t be effectively washed between patients, it becomes a point of cross-contamination. This means potentially transporting oral microorganisms from patient to patient and from office to home.

Gloves

Because gloves are task-specific, their selection should be based on the type of procedure to be performed (e.g., surgery or patient examination). Gloves used in dentistry are usually made of natural rubber latex and synthetic non latex materials (e.g., vinyl, nitrile, and neoprene). In addition to different types of glove materials, and glove sizes, there are two different types of glove fit.

“Ambidextrous” gloves fit either hand; and “fitted” gloves are hand specific (right hand glove and left hand glove). Wearing hand specific gloves may be more comfortable as they allow the hands to rest in a more relaxed position than ambidextrous gloves. All gloves should fit well as gloves that are too small may cause hand discomfort, and gloves that are too large may interfere with performing tasks.

Chemical and puncture resistant utility gloves worn when working with chemicals and when processing contaminated instruments greatly reduce the risk of accidents and exposure incidents. It is best to don utility gloves in the treatment room before gathering and transporting contaminated instruments to the sterilization area. Utility gloves should also be worn for disinfecting the treatment room. As an example, Hu-Friedy’s Lilac Utility Gloves come in a variety of sizes and can be washed, disinfected, or even heat sterilized (Photo C). Never use dishwashing gloves for instrument processing.

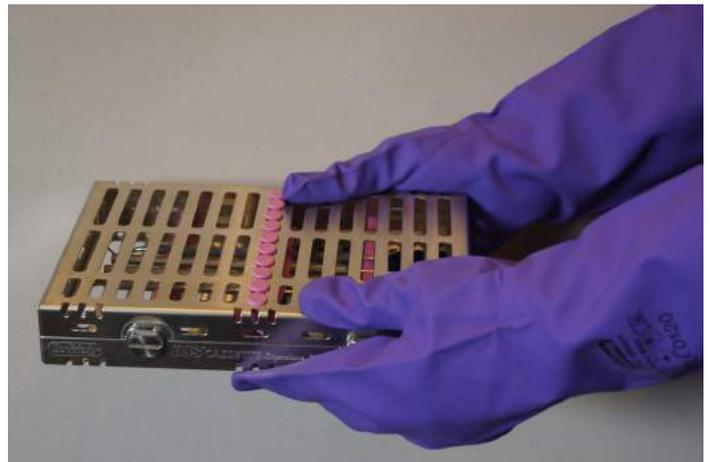


Photo C: Utility Gloves

Summary

Dental professionals have an obligation to prevent the spread of health care associated infections. Adhering to proper hand hygiene procedures, selecting appropriate hand hygiene products and the use of gloves are all important elements of infection control. Spending enough time to perform adequate hand hygiene is important. The use of Glo-Germ and a timer helps dental professionals see how spending more time and attention to hand hygiene will reduce hand contamination.

Since the primary defense against infection and transmission of pathogens is healthy, unbroken skin, dental professionals must take steps to ensure that their skin remains healthy and intact. These steps include evaluating different types of hand hygiene

products, lotions, and gloves for the best compatibility. If dental professionals see a breakdown of their skin barrier, steps should be taken to determine the cause and remedy. Remedies can include the use of alcohol based hand sanitizers containing emollients and moisturizers and regular use of a medical grade hand lotion. Selection and use of appropriate hand hygiene products, including moisturizers are an essential part of a dental office infection control program.

Resources

These are reliable resources about hand hygiene for health care professionals:

Centers for Disease Control and Prevention (www.CDC.gov):

Guidelines for Hand Hygiene in Health-Care Settings-2002

Guidelines for Infection Control in Dental Health-Care Settings -2003

The Organization for Safety, Asepsis and Prevention (www.OSAP.org)

Association for Professionals in Infection Control and Epidemiology (www.APIC.org)

References

¹ Boyce, John. "Guideline for Hand Hygiene in Health-Care Settings ." Morbidity and Mortality Weekly Report 51(RR16)25 Oct 2002 27.1-30 Sep 2008 <<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5116a1.htm>>.

² OPRP, "General information on Hand Hygiene." Centers for Disease Control and Prevention 11 Oct 2008 <http://www.cdc.gov/nceh/vsp/cruiselines/hand_hygiene_general.htm>.

³ Kohn WG, Collins AS, Cleveland JL, et al. Guidelines for infection control in dental health-care setting—2003. MMWR Recomm Rep. 2003;52(RR-17):15-18 Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5217a1.htm>



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