

Hand Hygiene

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Alcohol-Based Hand Rubs Before Surgery (5/09)

Question: Can we use alcohol-based hand rubs before surgical procedures?

Answer: Most alcohol-based hand rubs do not provide the residual activity needed for surgical hand antisepsis if used alone. If you want to use an alcohol-based product before surgery, it must be labeled as a surgical hand-scrub product with persistent activity. The actual technique involves two steps. First, prewash your hands and forearms with a plain or non-antimicrobial soap, rinse, and dry your hands and forearms completely. After application of the alcohol-based surgical hand-scrub product with persistent activity, allow hands and forearms to dry thoroughly before donning sterile gloves.

Selected References

- Andrews N, Cuny E, Molinari JA, Harte JA. Antisepsis and Hand Hygiene. In: Molinari JA, Harte JA eds. *Cottone's Practical Infection Control in Dentistry*, 3rd ed. Baltimore: Lippincott Williams & Wilkins, 2009:123–140.

- CDC. Guideline for hand hygiene in health-care settings: recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. *MMWR* 2002;51(No. RR-16).

- CDC. Guidelines for infection control in dental health-care settings – 2003. *MMWR* 2003; 52(No. RR-17):1–66.

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Long Fingernails on Health-Care Personnel (7/06)

Question: Why are long fingernails on health-care personnel contraindicated during patient treatment?

Answer: The relationship between fingernail length and wound infection is unknown, however keeping nails short is considered essential because the majority of flora on the hands are found under and around the fingernails. Fingernails should be short enough to allow dental personnel to thoroughly clean underneath them and prevent glove tears. Also, sharp nail edges or broken nails are also likely to increase glove failure. Long artificial or natural nails may make glove placement more difficult and can result in glove perforation. Hand carriage of gram-negative organisms has been determined to be greater among wearers of artificial nails than among nonwearers, both before and after handwashing. 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.



USAF Guidelines for Infection Control in Dentistry

- Keep fingernails short with smooth, filed edges to allow thorough cleaning and prevent glove tears. Long nails make glove placement more difficult and may result in glove perforation. Follow MTF policy regarding artificial fingernails. Use of artificial fingernails is usually not recommended.
- Chipped nail polish can harbor bacteria. Unchipped nail polish on short natural nails is acceptable.

Selected References

1. CDC. Guideline for hand hygiene in health-care settings: recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. MMWR 2002;51(No. RR-16).
2. CDC. Guidelines for infection control in dental health-care settings - 2003. MMWR 2003; 52(No. RR-17).
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4. Hedderwick SA, McNeil SA, Lyons MJ, Kauffman CA. Pathogenic organisms associated with artificial fingernails worn by healthcare workers. Infect Control Hosp Epidemiol 2000;21:505-9.
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6. McGinley KJ, Larson EL, Leyden JJ. Composition and density of microflora in the subungual space of the hand. J Clin Microbiol 1988;26:950-3.
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8. Moolenaar RL, Crutcher M, San Joaquin VH, et al. A prolonged outbreak of *Pseudomonas aeruginosa* in a neonatal intensive care unit: did staff fingernails play a role in disease transmission? Infect Control Hosp Epidemiol 2000;21:80-5.
9. Parry MF, Grant B, Yukna M, et al. Candida osteomyelitis and diskitis after spinal surgery: an outbreak that implicates artificial nail use. Clin Infect Dis 2001;32:352-7.
10. Passaro DJ, Waring L, Armstrong R, et al. Postoperative *Serratia marcescens* wound infections traced to an out-of-hospital source. J Infect Dis 1997;175:992-5.
11. Pottinger J, Burns S, Manske C. Bacterial carriage by artificial versus natural nails. Am J Infect Control 1989;17:340-4.
12. Rubin DM. Prosthetic fingernails in the OR: a research study. AORN J 1988;47:944-5.

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Artificial Fingernails (7/06)

Question: We do not allow artificial nails to be worn in our dental clinic. An assistant recently had an "acrylic" substance added to her natural nails, is this considered to be an artificial fingernail or is it "ok" to wear?

Answer: According to the USAF Guidelines for Infection Control in Dentistry artificial nails are defined as substances or devices applied or added to the natural nails to augment or enhance the wearer's own nails including but not limited to, bondings, tips, wrappings, and tapes. After about a week the acrylic substance can lift, crack, or peel up allowing debris to enter into the space between the acrylic and the natural nail. This results in bacteria and moisture accumulating under and in the acrylic compound. Therefore, adding an acrylic substance to the natural fingernail is considered to be an artificial product, and therefore would not be acceptable.



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Fire Safety and Alcohol-Based Hand Rubs (7/04)

Question: I've read that it is unsafe to use alcohol-based hand rubs in health-care settings because of the fire risk. Is there any new information about safety precautions that we should take to minimize the risk of fire if using alcohol-based hand rubs?

Answer: In Europe, where alcohol-based hand rubs have been used extensively for years, the incidence of fires associated with such products has been low.¹ The results of a recent survey in the U.S. also supports this.² However, since alcohols are flammable, precautions should be taken to minimize any potential fire risk. Recently, the National Fire Protection Association (NFPA) published amended guidance to the Life Safety Code (LSC) allowing alcohol-based hand rubs in health-care facilities if several safety conditions are met:³



- The egress corridor width is 6 feet or greater and dispensers are separated at least 4 feet apart.
- The maximum individual dispenser fluid capacity is 1.2 liters for dispensers in rooms, corridors, and areas open to corridors, and 2.0 liters for dispensers in suites of rooms.
- If using wall-mounted dispensers, do not install over or directly adjacent to electrical outlets and switches.
- In locations with carpeted floor coverings, dispensers installed directly over carpeted surfaces are permitted only in areas with sprinklers.
- Each smoke compartment may contain a maximum aggregate of 10 gallons of alcohol-based hand rub solution in dispensers and a maximum of 5 gallons in storage.

Adherence of health-care personnel to recommended hand-hygiene procedures has been poor with an overall average rate of 40% in hospital settings. Common self-reported reasons are the lack of sinks, soap, and paper towels. Alcohol-based hand rubs have been proven effective and they may help improve adherence to hand-hygiene protocols in many health-care settings. Although alcohol-based hand rubs have the potential to increase hand hygiene compliance, sinks and other hand-hygiene supplies are readily available in dental operatories, making the use of these waterless hand-hygiene agents optional. In dental settings, alcohol-based hand rubs may be useful in exam rooms or radiology work areas where multiple patients are seen in a short period of time and frequent handwashing is indicated. Another indication may be in dental residencies where staff members perform frequent patient checks. Because dispensers should not be installed near electrical outlets and the restrictions on the amount of product in operatories, dental clinics may want to consider using smaller pump dispensers instead of purchasing wall-mounted dispensing systems. In summary, careful evaluation and ongoing educational and motivational programs to maintain awareness of the importance of hand hygiene are indicated before deciding to introduce alcohol-based hand rubs into a dental practice.

References

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2. Boyce JM, Pearson ML. Low frequency of fires from alcohol-based hand rub dispensers in healthcare facilities. *Infect Control Hosp Epidemiol* 2003;24:618–619.
3. [Air Force Medical Logistics Letter](#) (AFMLL) 05-2004. May 2004.

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OSHA and Alcohol-Based Hand Rubs (1/04)

Question: Is the use of alcohol-based hand rubs consistent with the requirements for handwashing established in OSHA's Bloodborne Pathogen Standard?

Answer: OSHA recently posted an interpretation letter on their Web site addressing this issue. OSHA states that when an employee is removing gloves and has had contact, meaning occupational exposure to blood or other potentially infectious materials (OPIM), hands must be washed with an appropriate soap and running water. If there has been no occupational exposure to blood or OPIM, antiseptic hand cleansers may be used as an appropriate "handwashing" practice. The key is occupational exposure to or potential exposure to blood or OPIM. If gloves are intact upon removal, the use of an alcohol-based hand rub product for hand hygiene is acceptable. If your gloves become torn during the procedure, washing your hands with soap and water after removing the torn gloves and before donning new gloves is indicated. Additionally, if you notice a hole in your gloves upon removal, washing your hands with soap and water is indicated.



The 03/31/2003 OSHA interpretation letter—Acceptable use of antiseptic-hand cleansers for bloodborne pathogen decontamination and as an appropriate handwashing practice—can be found by visiting www.osha.gov.

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The Importance of Handwashing to Proper Infection Control (Updated September 2004)

Question: I always wear gloves during patient treatment. Is handwashing really that important?

Answer: Yes, **handwashing is the single most important procedure for preventing health-care associated infections.** Hands of dental health-care personnel can carry bacteria, viruses, and fungi that are potentially infectious to them and their patients. Handwashing is recommended before and after situations in which hands are likely to become contaminated with blood, body fluids/secretions, or saliva. Also they should be washed when contacting contaminated items, instruments, or equipment. Always wash your hands before and after wearing gloves. **Gloves are not a substitute for handwashing.**

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Preventing and Treating Dry Skin (Originally published in the Jan 2003 issue of InCONTROL)

Question: Are there recommendations for preventing and treating dry skin that is common during the winter months?

Answer: With the cooler temperatures, many of us are experiencing dry skin and subsequent dermatitis most likely resulting from frequent handwashing and glove use. Dental health-care personnel (DHCP) have the potential to wash their hands over 30 times during a typical workday. This can contribute to irritant contact dermatitis, which usually appears as reddened, dry, or chapped skin. Factors such as cold weather and low humidity may also contribute to the problem. Prevention is the key, because dry, irritated skin discourages proper hand hygiene and may harbor potentially pathogenic organisms. Also, if the problem is allowed to become chronic, the irritation may progress to hypersensitivity.



Lotions are recommended to ease the dryness resulting from frequent

handwashing and, more recently, to prevent dermatitis resulting from glove use. Petroleum-based lotion formulations, however, can weaken latex gloves and cause increased permeability. For that reason, lotions containing petroleum or other oil emollients may affect the integrity of gloves and should not be used. At the time of product selection, information should be obtained from the manufacturer regarding interaction between gloves and lotions.

DHCP with open sores or weeping dermatitis must refrain from direct patient contact and handling of patient care equipment until the condition has resolved. Evaluation by a qualified health-care professional is necessary if DHCP experience repeated or unresolved hand irritation.

Some preventive measures include:

- Washing with cool or tepid water
- Wetting hands thoroughly before applying the handwashing agent
- Thoroughly rinsing off all handwashing agents with cool water
- Gently drying hands (vs. rubbing) with disposable soft materials
- Drying hands completely before donning gloves
- Wearing protective gloves when cleaning or handling chemicals
- Using water-based skin care products

References and Additional Resources

1. CDC. Guideline for hand hygiene in health-care settings: recommendations of the healthcare infection control practices advisory committee and the HICPAC/SHEA/APIC/IDSA hand hygiene task force. *MMWR* 2002;51 (No. RR-16): 1-45.
2. Larson EL, 1992, 1993, and 1994 Association for Professionals in Infection Control and Epidemiology Guidelines Committee. APIC guideline for hand washing and hand antisepsis in health-care settings. *Am J Infect Control* 1995;23:251-69.
3. Molinari JA, Rosen S, Runnells RR. Chemical sterilization, disinfection, and antisepsis. In: Cottone JA, Terezhalmay GT, Molinari JA, eds. *Practical infection control in dentistry*, 2nd ed. Baltimore: Williams & Wilkins, 1996: 161-75.

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