American Red Cross

Scientific Advisory Council

ARC SAC Advisory
Hand Hygiene for Home Healthcare

Overall Recommendation:

Home caregivers should sanitize hands using soap and water after using the bathroom, prior to food preparation or eating, and when their hands are visibly soiled prior to or after providing patient care. If their hands are not visibly soiled, home caregivers should sanitize hands using alcohol-based gels or alternatively soap and water prior to and after patient care as well as after removing gloves when gloves are worn. Hand sanitization using soap and water requires vigorous rubbing for at least 15 seconds, rinsing, and drying hands using warm air drying without rubbing or clean paper towels. Hand sanitizing using alcohol-based gels requires use of sufficient gel to meet the manufacturer's recommendations and to cover the hands and fingers entirely. In either case, caregivers should keep their fingernails trimmed to minimize harboring microorganisms under the nails and remove rings during care giving and hand sanitizing. To minimize skin irritation, caregivers may use a hand lotion twice daily that does not compromise the integrity of the gloves.

Recommendations and Strength:

Standards: Home caregivers should sanitize hands using soap and water after using the bathroom, prior to food preparation or eating, and when their hands are visibly soiled prior to providing patient care. If their hands are not visibly soiled, home caregivers should sanitize hands using alcohol-based gels or alternatively soap and water prior to and after patient care and after removing gloves.

Guidelines: Use of soap and water requires vigorous rubbing for at least 15 seconds, rinsing, and drying hands using clean paper towels. Sufficient gel complies with manufacturer's recommendations and covers the hands and fingers entirely. Keep fingernails trimmed. Remove rings.

Options: To minimize skin irritation, use a hand lotion twice daily that does not compromise the integrity of the gloves.

Question:

For those providing care in the home for someone who is sick or disabled, what is the best method of hand hygiene to protect the patient, the caregiver, and other members of the household from disease transmission?

Introduction/Overview:

Good hand hygiene reduces the transference of microbes that can cause disease. The Centers for Disease Control and Prevention (CDC)[i] provides recommendations for those who work in health care settings, based on current science. However the home health care provider will not have the same resources, level of training, or risks of cross-contamination as health care workers (HCS) in hospital settings. Therefore, this advisory utilizes CDC's recommendations as a starting point

but makes adaptations based on more recent literature reviews and applicability to the home care situation.

The options for hand hygiene include soap (with and without microbials) & water, wipes impregnated with alcohol or other cleaning agent, and anti-microbial agents in aqueous, gel or foam solutions. No universal consensus exists on the best types of hygiene agents, the most effective quantities, the contact time with the agent required, or the best method of applying agents to eliminate sufficient infectious agents on the hands to prevent disease transmission.

Summary:

Prior to rendering care, home care providers should:

1. Trim long fingernails.
2. Remove rings.[ii]
3. For visibly soiled hands, wash with soap and water.
4. For not-visibly soiled hands, use an alcohol-based hand rub. Alternatively, wash with an antimicrobial soap and water.
5. Don vinyl, nitrile, or similar gloves when appropriate. Be sure hands are dry prior to donning gloves as alcohol hand rubs can agglutinate the cornstarch powder in gloves and alcohol can harden latex.[iii]

During care:

1. Wear vinyl, nitrile, or similar gloves when providing care for “dirty” patient care procedures.
    a. While wearing gloves, avoid touching unclean objects (including self) except the patient and items required for the patient’s care.
    b. Avoid touching eyes, nose, and mouth while giving care.
    c. Avoid eating while providing care wearing gloves.
2. Properly remove gloves, sanitize or wash hands, and don a new clean pair of gloves between caring for more than one patient or between "dirty" and "clean" body-site care on the same patient.
    a. Remove gloves by turning them inside out.

Post-care:

1. Properly dispose of dressings, bandages, sharps, gloves and soiled clothing.
    a. Place waste materials inside a plastic bag, and then place that bag inside another plastic bag. Tie both securely. Do not place in rubbish bin. Seek advice from your local health department on disposal options.
    b. Place sharp objects in a special container that they cannot penetrate prior to placing the container in the plastic bag.
2. Remove gloves if worn.
3. Sanitize hands or wash hands thoroughly with soap and water.

Prior to food preparation:

1. Wash hands with soap (with or without antibacterials agents) and water.

Hand hygiene technique

1. When decontaminating hands with an alcohol-based hand rub, apply product to the palm of one hand and rub hands together, covering all surfaces of hands and fingers until hands are dry. Follow manufacturer's recommendation regarding volume of product to use. The routine use of soap and water following using alcohol-based hand sanitizers can lead to dermatitis and is not recommended.
2. When washing hands with soap and water, wet hands first with water, apply an amount of product recommended by the manufacturer to hands and rub hands together vigorously for at least 15 seconds, covering all surfaces of the hands and fingers. Liquid, bar, leaflet or powdered forms of plain soap are acceptable when washing hands with a non-antimicrobial soap and water. When using bar soap, use soap racks that facilitate drainage and small bars of soap [iv].
3. Rinse hands with water. Avoid using hot water, because repeated exposure to hot water may increase the risk of dermatitis[v]. Use paper towel to turn off the faucet.
4. Dry the hands using warm air without rubbing or disposable paper towels [vi]. Do not use multiple-use cloth towels of the hanging or roll type.
5. Skin care

1. If desired, apply hand lotions or creams twice daily to minimize the occurrence of irritant contact dermatitis associated with repeated hand sanitizing or hand washing.

Other aspects of hand hygiene

1. Wear gloves when providing care, especially when contact with blood or other potentially infectious materials, mucous membranes and non-intact skin is likely to occur
2. Remove gloves after caring for a patient. Do not wear the same pair of gloves for the care of more than one patient and do not wash gloves between uses with different patients.
3. Before eating and after using a restroom, both home care givers and their patients should wash hands with a non-antimicrobial soap and water or with an antimicrobial soap and water [vii].
4. Consider antimicrobial-impregnated wipes (i.e., towelettes) as an alternative to washing hands with non-antimicrobial soap and water because they are not as effective as alcohol-based hand rubs or washing hands with an antimicrobial soap and water [viii].
5. In the case of exposure to potential spore-forming pathogens such as anthrax or *Clostridium difficile*, wash hands with soap (either non-antimicrobial or antimicrobial) and water. The physical action of washing and rinsing hands is recommended because alcohols have poor activity against spores [ix], [x].
6. No recommendation regarding the routine use of nonalcohol-based hand rubs for hand hygiene.

[i] Centers for Disease Control and Prevention (2002). 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 51(RR-16)*: 1-44. http://www/cdc.gov/mmwr/PDF/rr/rr5116.pdf accessed 4/15/2006.

[ii] Trick WE, Vernon MO, Hayes RA, Nathan C, Rice TW, Peterson BJ, Segreti J, Welbel SF, Solomon SL, Weinstein RA (2003). Impact of ring wearing on hand contamination and comparison of hand hygiene agents in a hospital. *Clin Infect Dis 36(11):* 1383-90.
[iii] Centre for Health Protection, Department of Health, Hong Kong Special Administrative Region (2005). Recommendations on integrating glove and hand washing practices. http://www.chp.gov.hk/files/pdf/grp_recommend_integrating_gloves_20050128.pdf accessed 4/15/2006.
[iv] Based on CDC's 2002 Guideline using the following references:
McBride ME (1984). Microbial flora of in-use soap products. *Apply Environ Microbiol 48*: 338-41.
Kabara JJ, Brady MB (1984). Contamination of bar soaps under "in use" condition. *J Environ Pathol Toxicol Oncol 5*: 1-14.
Heinze JE, Yackovich F (1988). Washing with contaminated bar soap is unlikely to transfer bacteria. *Epidem Inf: 101*: 135-42
Bannan EA, Judge LF (1965). Bacteriological studies related to hand washing: the inability of soap bars to transmit bacteria. *Am J Public Health 55*:915-21.
[v] Based on CDC's 2002 Guideline using the following references:
Ohlenschlaeger J, Friberg J, Ramsing D, Agner T (1996). Temperature dependency of skin susceptibility to water and detergents. *Acta Derm Venereol 76*: 274-6.
Emilson A, Lindberg M, Forslind B (1993). The temperature effect of in vitro penetration of sodium lauryl sulfate and nickel chloride through human skin. *Acta Derm Venereol 73*: 203-7.
[vi] Yamamoto Y, Ugai K, Takahashi Y (2005). Efficiency of hand drying for removing bacteria form washed hands: comparison of paper towel drying with warm air drying. *Infect Control Hosp Epidemiol 26*(3): 316-20.
[vii] Based on CDC's 2002 Guideline using the following references:
Drusin LM, Sohmer M, Groshen SL, Spiritos MD, Senterfit LB, Christenson WN (1987). Nosocomial hepatitis A infection in paediatric intensive care unit. *Arch Dis Child 62*: 690-5.
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Standaert SM, Hutcheson RH, Schaffner W (1994). Nosocomial transmission of *Salmonella gastroenteritis* to laundry workers in a nursing home. *Infect Control Hosp Epidemiol 15*: 22-6.
Rodriquez EM, Parrott C, Rolka H, Monroe SS, Dwyer DM (1996). An outbreak of viral gastroenteritis in a nursing home: importance of excluding ill employees. *Infect Control Hosp Epidemiol 17*: 587-92.
Schaffner W, Lefkowitz LB Jr, Goodman JS, Koenig MG (1969). Hospital outbreak of infections with group A streptococci traced to an asymptomatic anal carrier. *N Engl J Med 280*:1224-5.
Viglionese A, Nottebart VF, Bodman HA, Platt R (1991). Recurrent group A streptococcal carriage in a health care worker associated with widely separated nosocomial outbreaks. *Am J Med 91*(Suppl 3B): 329S-33S.
[viii] Based on CDC's 2002 Guideline using the following references:
Jones MV, Rowe GB, Jackson B, Pritchard NJ (1986). The use of alcoholic paper wipes for routine hand cleansing: results of trials in two hospitals. *J Hosp Infect 8*: 268-74
Butz AM, Laughon BE, Gullette DL, Larson EL (1990). Alcohol-impregnated wipes as an alternative in hand hygiene. *Am J Infect. Control 18*: 70-6.
[ix] Based on CDC's 2002 Guideline using the following references:
Larson EL, Morton HE (1991). Alcohols [Chapter 11] in Block SS ed. *Disinfection, Sterilization, Preservation*. 4th ed. Philadelphia PA: Lea and Febiger.
Denton GW (1991). Chlorhexidine [Chapter 16] in Block SS ed. *Disinfection, Sterilization, Preservation*. 4th ed. Philadelphia PA: Lea and Febiger.
Gershenfeld L (1962). Povodone-iodine as a sporicide. *Am J Pharm 134*:79-81.
Russell AD (1991). Chemical sporicidal and sporostatic agents [Chapter 22] in Block SS ed. *Disinfection, Sterilization, Preservation*. 4th ed. Philadelphia PA: Lea and Febiger.

[x] Weber DJ, Sickbert-Bennett E, Gergen MF, Rutala WA (2003). Efficacy of selected hand hygiene agents used to remove *bacillus atrophaeus* (a surrogate of *bacillus anthracis*) from contaminated hands. *JAMA 289*(10): 1274-1277.