

Hand-Care Plan: Skin Wellness and Hand Hygiene

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There has been a renewed emphasis placed on hand hygiene as a result of the CDC's "Guideline for Hand Hygiene in Health-care Settings." Improved adherence to hand hygiene practices and multidisciplinary approaches to skin wellness may significantly impact patient outcomes and occupational health. Maintenance of intact, healthy skin reduces the risk of transmission of pathogenic organisms and the risk of occupational-related skin disease. Understanding the key components of an effective hand-care plan and implementing a therapeutic regime are fundamental components of any patient and employee safety program.

A hand-care plan should include the following:

- Hand hygiene
- Dermal hydration and moisturization
- Hand covering and barrier protection options

By Diane Sosovec, RN, MS

Hand washing and hand antisepsis

When hands are visibly dirty or contaminated with proteinaceous material or visibly soiled with blood or other body fluids, wash with water and either a non-antimicrobial soap or an antimicrobial soap.¹

- When washing hands with soap and water, wet hands first with water, apply the 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.¹
- Rinse hands thoroughly to remove all residual soap.
- Dry hands thoroughly with disposable single-use towels or warm air dryer.

If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands. Follow manufacturer's recommendations.

Concerns

- Frequent and repeated use of hand hygiene products are the primary causes of irritant contact dermatitis¹, and may result in a denatured stratum corneum and transepidermal water loss (TEWL) and thus compromising skin barrier function.
- Alcohol-based products may cause dryness and irritation of the skin.

Recommendations

- Select hand hygiene products with low irritancy potential.
- Perform hand hygiene before glove donning and after glove removal.
- Follow manufacturer's recommendations for appropriate use of all products.

Dermal hydration and moisturization

Preventing dry skin and reducing the risk of dermal irritation and contact dermatitis should be the goal of every health-care employer and employee.

Skin moisturizers are used to help prevent skin from becoming dry and restore dry skin to its normal condition.² The CDC's "Guideline for Hand Hygiene in Health-care Settings" recommends that health-care workers be provided with products that will minimize the occurrence of irritant dermatitis associated with hand antisepsis or hand washing.¹

Concerns

- Not all lotions, moisturizers and creams are compatible with hand hygiene products.
- Hydrocarbon-based products are not compatible with natural rubber latex or synthetic polyisoprene gloves. (Products containing mineral oil petrolatum or lanolin are hydrocarbon-based products.)

Recommendations

- Use products with therapeutic glycerin-containing moisturizers to heal dry skin.²

- Use other lotions and moisturizers and skin creams only if approved for use by your Infection Control Department.
- Amino+Derm® lotion and other water-based lotions are preferred when wearing latex gloves.
- Do not use highly fragranced, over-the-counter products in the clinical setting. (These are not approved for use as medical products.)

Appropriate glove usage

Some individuals may experience a dermal reaction in response to either the chemicals in the formulation of natural rubber or synthetic gloves or to the protein allergens in natural rubber latex gloves.

Concerns

- Repeated donning and removal of multiple pairs of gloves may cause a friction-related irritation across the dorsum of the hands.
- Prolonged wear may result in skin occlusion and either dryness or maceration.

Recommendations

- Select gloves with low irritancy potential.
- Use powder-free gloves, if powder is a concern.
- Consider gloves that have moisturizing and rehydrating properties.

Dermal reactions

Dermal reactions may manifest as irritations, contact dermatitis, a chemical delayed Type IV sensitivity or allergy or a protein immediate Type I sensitivity or allergy.

Most dermal reactions are irritations or contact dermatitis and can be treated and managed by improved hand hygiene, skin care and appropriate glove selection.



Irritant dermatitis

Irritations (irritant dermatitis, contact dermatitis), non-allergic disease

An agent that, when used locally, produces more or less local inflammatory reaction, including anything that induces or gives rise to irritation. Irritations are non-immunologic responses.

Signs and Symptoms:

Acute: Dry, itching, flaking, redness, burning, local inflammation and possible pain.

Chronic: Dry, crusty hard bumps, sores, fissures and cracks.

Etiology

- Hand hygiene products, soaps, hand antiseptic agents, surgical hand antiseptics, alcohol-based antiseptics
- Mechanics of repeated hand washing or scrubbing
- Gloves, glove chemicals, glove lubricants and donning agents
- Seasonality and weather related – cold, dry climates or hot and arid
- Transepidermal water loss associated with repeated hand washing
- Emotional stress
- Inappropriate hand care
- Inappropriate glove usage

Management

- Identify and remove causative agent.
- Allow hands to completely heal.
- Practice daily hand care.
- Use products that support a total skin wellness program.

Recommendations

- Do not assume that the glove is the only causative agent.
- Glove liners may be indicated.
- Use powder-free gloves.
- Attempt to identify and rule out other probable causes, such as the recent introduction of a new hand hygiene product.
- Use moisturizing, rehydrating products that are approved by Infection Control.
- Synthetic gloves may be indicated since they do not contain the same chemical formulation as natural rubber latex gloves.
- Understand the potential cause and effect of products used outside of the work environment, including bath soaps, dish soaps, scented products, etc.



Chemical allergy



Protein allergy



Protein allergy

Chemical allergy: Type IV hypersensitivity

Signs and symptoms

Itching, drying, redness, crusting, thickening of skin, hard bumps, sores, papules, vesicles. Signs and symptoms may spread up the arm beyond the border of the glove.

Potential causes or predisposers

- Glove chemicals: accelerators, preservatives, colorants, other additives
- Poison ivy, poison oak
- Soaps, detergents, disinfectants
- Individuals with chronic eczema
- Individuals who have other allergies

Management

- Identify and remove causative agent.
- Allow hands to heal.
- May seek intervention from a dermatologist or an allergist.
- Glove selection: Nitrile, synthetic or one that is designed with reduced concentrations of chemical accelerators.

Protein allergy: Type I hypersensitivity

Signs and symptoms

Local: Moist, pink, raised hives or urticaria, often blanched in center.

Systemic: May produce swollen eyelids or face or respiratory distress; rarely progresses to anaphylaxis.

Potential causes or predisposers

- Natural rubber latex protein allergen
- Individuals who are atopic or have a history of allergy or clinical reactivity
- Individuals with asthma
- Possible cross-reactivity to certain food allergies: avocado, banana, chestnut, kiwi and other fruits and vegetables

Management

- Identify and remove causative agent.
- Seek medical management from a physician.
- Glove selection: Synthetic or nitrile exam gloves; synthetic surgical gloves, such as neoprene or polyisoprene.

Recommendations

- If you suspect that you may be sensitive to latex protein allergen, seek medical advice from your physician or employee/occupational health department.

¹ Boyce, J. M., Pittet, D. (2002). Guideline for Hand Hygiene in Health-Care Settings.

² Loden, M., Maibach, H. (2002). Dry Skin and Moisturizers. CRC Press.

Seasonal dermal reactions

Climate and environmental factors may increase some individual's susceptibility to dry skin or even chronic irritant dermatitis. In the fall and winter months, the cold, dry and windy weather may cause exposed skin to become dry, itchy and reddened. Indoor air that has been heated and lacks proper humidity may have the same effect. Combine these variables with frequent hand washing and glove use, and the result may be compromised skin integrity.

The practice of adhering to a simple hand-care plan will minimize the effects of cold weather and low-humidified air by promoting healthy, intact skin.

Practices that may increase the risk of dermal reactions:

- Frequent hand washing
- Use of traditional surgical scrub brushes
- Surgical scrub longer than 5 minutes
- Use of harsh antimicrobial soaps, i.e., chlorhexidine gluconate, iodophors, Dial® or Safeguard® hand soaps
- Indoor air quality; heated and dry in winter months
- Personal hand-care products not approved by an infection control professional
- Use of highly fragranced, commercial hand lotions
- Inappropriate use of topical agents
- Absence of an approved hand-care plan

Practices that may decrease the risk of dermal reactions:

- Use of powder-free gloves
- Use of a milder soap or scrub
- Use of an alcohol gel or rub with emollients
- Reduced surgical scrub time (2 to 3 minutes is adequate) contingent on department policy
- Frequent use of an approved hand lotion/moisturizer

Most seasonal dermal reactions are temporary and are effectively managed through improved hand care.

If symptoms associated with a dermal reaction persist, seek advice from occupational health services.

Hand-care plan

Hand washing

- Use tepid water.
- Use a mild soap or antimicrobial agent.
- Rinse hands thoroughly.
- Dry gently.

Hand disinfection (when hands are not visibly dirty)

- Apply an alcohol-based rub, gel or sanitizer.

Skin wellness

- Liberally apply a water-based lotion/moisturizer or other approved hand-care product.
- Use gloves that moisturize, promote healing and soothe and protect skin from the symptoms of irritant dermatitis.


NOTE: Do not use over-the-counter hand-care products in the clinical environment. Only products that have been evaluated and approved by the Infection Control Department should be used.

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