HAND HYGIENE/SURGICAL HAND SCRUB

I. PURPOSE

Hand Hygiene is the single most important strategy to reduce the risks of transmitting organisms from one person to another or from one site to another on the same patient. Cleaning hands promptly and thoroughly between patient contact and after contact with blood, body fluids, secretions, excretions, equipment and potentially contaminated surfaces is an important strategy for preventing health-care associated infections.

II. POLICY

A. The choice of hand hygiene product; alcohol based gel, antimicrobial soap or surgical hand antiseptic is based on:

1. The degree of hand contamination
2. The degree to which reduced bacterial burden is required according to activity
3. Transmission and patient risk factors:
   a. Practice patient care
   b. High risk patient care (e.g., adult, pediatric, neonatal critical care, hematology, transplant or immunosuppressed)
   c. Confirmed or suspected resistant organisms
   d. Confirmed or suspected C. diff infections
4. Invasive or surgical procedures

B. Hand Hygiene

1. For routine decontamination of hands in the clinical setting, use an alcohol-based waterless antiseptic. Hand washing with soap and water is still required for specific situations, as described below.

   a. Antimicrobial-impregnated wipes (i.e. towelettes) are not as effective as alcohol-based hand rubs or washing hands with an antimicrobial soap and water for reducing bacterial counts on the hands of healthcare workers. They are not a substitute for using an alcohol-based hand rub or antimicrobial soap. They may be considered as an alternative only to washing hands with non-antimicrobial soap and water.

2. For hand washing/hand decontamination only products approved by the facility Infection Control Committee may be used.

   a. Exclusions:
• Hand scrub procedures required by specific departments (e.g. surgery) are covered in the next section.
• This policy is not intended for food service preparation areas.

3. Hand washing with soap and water (either non-antimicrobial or antimicrobial) is required if contact with spores (e.g. *Bacillus* spp. or *C. difficile*) is anticipated; specific directions will be given in this case. The physical action of washing and rinsing hands under such circumstances is recommended because alcohols, chlorhexidine, idophors, and other antiseptic agents have poor activity against spores.

<table>
<thead>
<tr>
<th>Cleansing Agents – Routine clinical hand hygiene</th>
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</thead>
<tbody>
<tr>
<td>Non-antimicrobial soap</td>
</tr>
<tr>
<td>Antimicrobial soap – Triclosan</td>
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<tr>
<td>Antimicrobial soap - PCMX</td>
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C. Surgical Hand Scrub

1. The purpose of the surgical hand scrub is to remove transient micro-organisms from the nails, hands and forearms. This scrub reduces the residual microbial count.

2. All personnel, in anticipation of gowning and gloving for surgery or invasive procedures requiring surgical asepsis, will perform a surgical hand scrub.

3. Surgical attire will be worn during the hand scrub where required.

4. An effective antimicrobial surgical scrub solution or agent, approved by the Infection Control Committee, will be used for all surgical hand scrubs. The approved agents and their scrub times are as follows:

<table>
<thead>
<tr>
<th>Cleansing Agents – Surgical hand scrub</th>
<th>Scrub Time+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorhexidine Gluconate (CHG)</td>
<td>2-4% CHG</td>
</tr>
<tr>
<td>Providone-Iodine</td>
<td>At least 5%</td>
</tr>
<tr>
<td>Para-chloro-meta-xyleneol (PCMX) *</td>
<td>At least 3%</td>
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<tr>
<td></td>
<td>Must contain a chelating agent such as EDTA</td>
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<tr>
<td>Brushless Waterless</td>
<td>Alcohol-based 60-70%</td>
</tr>
</tbody>
</table>

+ The surgical hand scrub time of **3 minutes** has been selected based on the published research.
* PCMX should be reserved for use by those with documented skin reaction to other agents.

III. HAND HYGIENE

A. General Information

1. When to wash with soap and water
   - When hands are visibly soiled or contaminated with blood / body fluids.
   - After using the rest room.
   - After using alcohol-based waterless antiseptic approximately 10-15 times (due to a build-up of emollients and thickeners).
   - Before eating or drinking.
   - If contact with spores (e.g. *Bacillus* spp. or *C. difficile*) is anticipated.
2. When to use an alcohol-based waterless antiseptic:
   a. For any routine clinical situation, except in situations described in section III A above:
   b. Before and after your work shift.
   c. Before and after patient contact. After contact with a patient's intact skin (as in taking a pulse or blood pressure, or lifting a patient.
   d. Before caring for patients with severe neutropenia or other forms of severe immune suppression.
   e. Before donning sterile gloves when inserting a central intravascular catheter.
   f. Before inserting indwelling urinary catheters or other invasive devices that do not require a surgical procedure.
   g. Before eating or drinking.
   h. Before preparing or administrating medication.
   i. After blowing nose or covering a sneeze (if visibly soiled must wash hands).
   j. After removing gloves.
   k. After contact with body fluids or excretions, mucous membranes, non-intact skin, or wound dressing, as long as hands are not visibly soiled.
   l. If moving from a contaminated body site to a clean body site during patient care.
   m. After contact with inanimate objects (including medical equipment) in the immediate vicinity of the patient.

3. Skin Care
   a. Lotions may be used to minimize the occurrence of dryness associated with hand washing or hand decontamination
   b. Only facility-approved lotions may be used, to ensure compatibility with other facility or approved products.

4. Finger Nails
   a. Artificial fingernails or extenders must not be worn when providing direct patient care (direct patient care defined as having direct contact with patients as part of job requirements).
   b. Natural nail tips must be kept less than ¼ inch long. Nail polish must be intact and must not be chipped.
   c. Care providers who provide direct hands-on care in clinical areas which require a surgical scrub (e.g. Surgery, Cath Lab), should wear no artificial nails or nail polish.

B. Procedures

1. Soap and water handwashing
   a. Wet hands first with warm water.
   b. Apply 3-5 ml of soap to hands (either non-antimicrobial or antimicrobial).
   c. Rub hands together vigorously for at least 15 seconds covering all surfaces of the hands and fingers.
   d. Rinse hands with warm water, keeping hand directed down.
   e. Dry thoroughly with disposable towel.
   f. Use towel to turn off the faucet.

2. Alcohol gel hand decontamination
   a. Apply one pump of product to palm.
b. Rub hands together covering all surfaces, including nails, until product evaporates.
c. After every 10-15 uses of alcohol-based waterless antiseptic, hands should be washed with soap and water, to remove build-up of emollients and thickeners.

| Table: Method of Hand Hygiene Indicated for Reducing Bacterial Burden Based on Activity |
|-----------------------------------------------|---------------------------------|---------------------------------|--------------------------------|---------------------------------|---------------------------------|
| Routine Patient Care | High Risk Patient Care | Invasive Procedure | Resistant Organisms | Clostridium difficile | Surgery and procedures requiring surgical asepsis |
| Alcohol based waterless antiseptic | ✓ | ✓ | ✓ | ✓ | Soap and water followed by gel |
| Antimicrobial soap and water | ✓ | ✓ | ✓ | ✓ | Soap and water followed by gel |
| Surgical hand asepsis: alcohol based surgical prep or soap and water surgical prep | | | | | ✓ |

IV. SURGICAL HAND SCRUB

A. General Information:

1. Effective surgical hand preparation provides rapid bacterial action and persistent protection against a broad spectrum of organisms while maintaining the skin’s natural barrier function.

2. An efficient scrub is important in reducing the risks to patients from perforations in surgical gloves occurring during the surgical procedure.

3. Surgical hand scrubs are an effective method of removing transient microorganisms from the nails, hands and forearms. This can be a scrub using water and solution or a scrub using a waterless solution.

4. Mechanical scrubbing with friction and brushes increases shedding of skin squamae that contain viable bacteria. Scrubbing with a brush actually is associated with an 18-fold increase in skin cell shedding.

5. “Poor skin quality, which can result from traditional scrubbing with a brush, increases health care workers’ risk of infection and the rate of transmission of infection to patients”.

6. Skin moisturizing products can prevent drying, discomfort and dermatitis and help reduce bacterial shedding of skin.

7. Scrub brushes are not to be used for surgical hand hygiene.
8. The pre-wash of the day must include cleaning under the nails with a tool designed for that use and a brushless soap and water pre-wash to remove organic material prior to the surgical scrub.

B. Brushless Soap and Water Scrub Procedure:

1. Turn on faucet and bring water to a comfortable temperature.
   a. Most scrub sinks have automatic or knee controls for the faucets.

2. Moisten hands and forearms.

3. Clean nail beds with a disposable nail cleaner under running water. Discard nail cleaner after use.

4. Using a foot control, dispense a few drops of the anti-microbial soap or detergent into the palms. Add small amounts of water to make a lather.

5. Wash hands and forearms using the anti-microbial soap or detergent into the palms. Rinse before beginning the surgical hand scrub.
   a. The amount of time needed varies with the amount of soil and the effectiveness of the cleansing agent.

6. Dispense palm-full (approximately 5 ml) of cleaning agent of choice. Dip fingertips into opposite hand and work it into fingernails. Spread remaining cleaning agent over the hand and up the forearm to above the elbow.
   a. 5 ml are equivalent to quarter-size.
   b. Effective surgical hand scrubbing is dependent on compliance to methods comprised of both the mechanical methodology and the action of the antimicrobial agent.

7. Repeat for opposite arm.

8. Rinse hands and arms under running water starting at the fingertips and working toward the elbows.
   a. Maintain aseptic technique during the surgical scrub. Keep hands upright and elbows down when rinsing. Allow water to drip off elbows and maintain this position when entering the surgical suite.

9. Dry hands thoroughly prior to donning gloves, using a sterile towel.

10. Decontaminate hands according to Hand Hygiene policy following each surgical procedure.
   a. Complies with CDC Hand Hygiene Guidelines.

C. Brushless Waterless Scrub Procedure:

1. Turn on faucet and bring water to a comfortable temperature.
   a. Most scrub sinks have automatic or knee controls for the faucets.

2. Moisten hands and forearms.
3. Clean nail beds with a disposable nail cleaner under running water. Discard nail cleaner after use.

4. Using a foot control, dispense a few drops of the anti-microbial soap or detergent into the palms. Add small amounts of water to make a lather.

5. Wash hands and forearms using the anti-microbial soap or detergent into the palms. Rinse and thoroughly dry hands and arms.
   a. The amount of time needed varies with the amount of soil and the effectiveness of the cleansing agent.

6. Dispense 2ml of antiseptic hand preparation (one pump) into the palm of one hand.
   a. **Do not use water.** Be sure hands are dry when using the waterless antiseptic hand preparation.

7. Dip the fingertips of the opposite hand into the prepared solution in palm and work solution under the nails.

8. Spread the remaining hand preparation over the hands and up to just above the elbow, covering all surfaces.
   a. Work antiseptic hand preparation into the hand, up arms to just above the elbow. Rub hand preparation briskly into the hands until completely dry.

9. Using another 2ml of the antiseptic hand preparation, repeat above procedure with the other hand.

10. Dispense another 2ml of the antiseptic hand preparation into either hand and reapply to all aspects of both hands up to the wrist.

11. Allow hands to dry before donning sterile gloves.

12. Decontaminate hands according to Hand Hygiene Policy following each surgical procedure.
   a. Complies with the CDC’s Hand Hygiene Guidelines.

V. RESPONSIBILITY

The Aurora Health Care System Infection Control Practitioners Team is responsible for updating this policy annually.

VI. REFERENCES:

A. Alexanders’s Care of the Patient in Surgery, (2003). Pgs. 139-140.


E. Guideline for Hand Hygiene in Healthcare Settings (2002). CDC. Supported by the American College of Surgeons.


