I. Description

Describes the indications and methods for hand hygiene and skin antisepsis.

II. Rationale

Hand hygiene and skin antisepsis are critical components of infection prevention. Hospital personnel are believed to be the mode of transmission for most preventable healthcare-associated infections and, in many outbreaks, hands of personnel have been identified as the probable means of cross-infection. Hand hygiene has been shown to eliminate or markedly reduce hand carriage of pathogenic organisms, most of which are transient flora. Thus, it is an important means of preventing patient exposure to pathogens that have already colonized or infected other patients.

III. Policy

A. Definition of Terms

1. **Alcohol-based hand rub.** A solution containing 60 to 95 percent alcohol (ethanol or isopropanol) and designed to be applied to the hands to reduce the number of viable microorganisms.

2. **Antimicrobial soap.** Soap containing an antiseptic agent.

3. **Antiseptic agent.** Antiseptics are antimicrobial substances that are applied to the skin to reduce the number of microbial flora. Examples include alcohols, chlorhexidine, chlorine, hexachlorophene, iodine, para-chloro-meta-xylene, quaternary ammonium compounds, and triclosan.

4. **Antiseptic hand-wash.** Washing hands with water and soap or other detergents containing an antiseptic agent.

5. **Antiseptic hand rub.** Applying a waterless antiseptic agent to all surfaces of the hands to reduce the number of microorganisms present.

6. **Hand antisepsis.** Refers to either antiseptic hand-wash or antiseptic hand rub.

7. **Hand hygiene.** A general term that applies to handwashing, antiseptic hand-wash, antiseptic hand rub, and use of antiseptics for skin preparation.
8. **Handwashing.** Washing hands with non-antimicrobial or antimicrobial soap and water.

9. **Persistent activity.** Antimicrobial activity that persists after the agent has been rinsed off the skin or has dried.

10. **Plain soap.** Plain soap refers to products that do not contain antimicrobial agents, or contain very low concentrations of antimicrobial agents.

11. **Surgical hand antisepsis.** Antiseptic hand-wash or antiseptic hand rub performed preoperatively by surgical personnel to eliminate transient and reduce resident hand flora. Antimicrobial soap preparations often have persistent antimicrobial activity.

12. **Visibly soiled hands.** Hands showing visible dirt or visibly contaminated with blood or other body fluids/substances (e.g., blood, fecal material, urine).

**B. Transmission of Pathogens on Hands**

Transmission of healthcare-associated pathogens from one patient to another via the hands of health care personnel (HCP) requires four elements:

1. Organisms present on the patient's skin, or that has been shed onto inanimate objects immediately surrounding the patient, must be transferred to the hands of HCP.

2. Organisms must be capable of surviving for at least several minutes on the hands of HCP.

3. Handwashing or hand antisepsis by the worker must be inadequate or omitted altogether, or the agent used for hand hygiene inappropriate.

4. The contaminated hands of the caregiver must come in direct contact with another patient, or with an inanimate object that will come in contact with the patient.

**C. Indications for Handwashing and Hand Antisepsis**

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

2. If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands in all other clinical situations described in items 3-9. Alternatively, HCP may wash hands with an antimicrobial soap and water in all clinical situations described in items 3-10.

3. Perform hand hygiene before having direct contact with patients, even if gloves are worn.

4. Perform hand hygiene before donning sterile or clean gloves and before inserting devices.

5. Perform hand hygiene after contact with a patient's intact skin (e.g., taking a pulse, taking blood pressure, lifting a patient)

6. Perform hand hygiene after contact with body fluids or excretions, mucous membranes, non-intact skin, or wound dressings, as long as hands are not visibly soiled (if soiled see item 1).

7. Perform hand hygiene if moving from a contaminated body site to a clean body site during patient
D. Preparations Used for Hand Hygiene

Chlorhexidine, iodophors and alcohols are the active antimicrobial ingredients recommended for hand hygiene. The hand hygiene products that are most commonly used within UNCHC are chlorhexidine gluconate and alcohol-based waterless hands rub. (For additional information regarding effectiveness of antiseptic agents, refer to Attachment 1, "Characteristics of Antisepsis [Antimicrobial Agents].")

1. **Alcohol**: 70% isopropyl or ethyl alcohol disinfects the skin rapidly. It is effective against bacteria, mycobacteria, fungi and viruses. However, it is also flammable, evaporates quickly, dries the skin, and has no residual antimicrobial effect.

2. **Iodophors**: (e.g., Betadine). These are water-soluble complexes of iodine with organic compounds, which are effective against all Gram-positive bacteria, Gram-negative bacteria, and viruses. The iodophors are not long lasting and, if used frequently, may cause considerable drying of the skin.

3. **Chlorhexidine gluconate** (e.g., CHG). This antiseptic is 2% chlorhexidine gluconate (CHG) with 4% isopropyl alcohol in a sudsing base. CHG is an effective antiseptic for reducing transient and resident microbial hand flora and has a sustained antimicrobial effect. It is also approved for surgical hand antisepsis. It does not appear to have adverse actions on the skin as do some of the other handwashing agents.

4. **Alcohol-based antiseptics**: Most contain 60-95% isopropanol, ethanol, or a combination of these two products. The antimicrobial activity of alcohols is due to their ability to denature proteins. Alcohols have excellent *in vitro* germicidal activity against Gram-positive and Gram-
negative vegetative bacteria.

5. **Other agents**: Other antiseptic agents for hand hygiene include quaternary ammonium compounds, para- chloro-meta-xylene (PCMX), iodine compounds, phenol derivatives, iodophors, and Triclosan. Infection Prevention and/or Occupational Health Service (OHS) must first approve use of these agents for individual use. Studies have shown these agents to be less active in reducing some types of microbes from the hands and some agents may be too irritating for hand hygiene.

**E. Availability and Management of Hand Hygiene Products**

1. Liquid soap dispensers are monitored by Environmental Services and should be replaced when empty. Dispensers must not be "topped off" since this can lead to bacterial contamination of the soap.

2. Alcohol-based waterless hand rubs must be available in all patient care areas. They should be located at the entrance to the patient's room, at the bedside, or in other convenient locations. For areas where hand rubs may not be readily available (e.g., inpatient psychiatric units), the healthcare provider should carry pocket-sized containers.

3. Alcohol-based waterless hand rubs should also be made available in the public waiting areas to promote hand hygiene among patients and visitors.

**F. Hand Hygiene Technique**

1. When decontaminating hands with an alcohol-based hand rub, apply product to palm of one hand and rub hands together, covering all surfaces of hands and fingers, until hands are dry. Follow the manufacturer's recommendations on the volume of product to use. If an adequate volume of an alcohol-based hand rub is used, it should take 15 to 25 seconds for hands to dry.

2. When washing hands with a non-antimicrobial or antimicrobial soap, wet hands first with warm water, apply 3 to 5 mL of detergent to hands, and rub hands together vigorously for at least 15 seconds, covering all surfaces of the hands and fingers to include the nail beds and between the fingers. Rinse hands with warm water and dry thoroughly with a disposable towel. Use towel to turn off the faucet.

**G. Other Aspects of Hand Care and Protection**

1. HCP with a cast or splint below the wrist that is non-removable are not allowed to provide direct patient care as they cannot perform hand hygiene. HCP with a removable splint can only provide direct patient care if the splint is not worn during the entire period of providing patient care.

2. **Gloves**: Single-use, disposable nitrile gloves must be worn when coming into contact with blood or other potentially infectious materials (OPIM).
   
   a. Hand Hygiene with soap and water or with an alcohol-based antiseptic hand rub should be performed prior to donning gloves. Gloves are not intended to replace hand hygiene.
   
   b. Hand hygiene with soap and water or with an alcohol-based antiseptic hand rub should be performed after glove removal.
c. Remove gloves after caring for patient.
d. Do not wear the same pair of gloves for the care of more than one patient. Do not wash gloves or use alcohol-based hand rub on gloves between patients.
e. Change gloves and decontaminate hands during patient care when moving from a contaminated site to a clean site.

3. **Fingernails/Artificial Nails/Nail Polish**
   
   a. Long nails are known to promote growth of Gram-negative bacteria and yeast. It is recommended that nails be kept less than ¼ inch long.
   
   b. Artificial nail application is prohibited for all HCP who have direct contact with patients and/or patient equipment.
      
      - Artificial nails include but are not limited to artificial tips or attachments, gel or shellac nails/polish, dip powder manicures, silicone nails, silk wraps, acrylic nails, nail jewelry, and any other nail application that cannot be immediately removed with standard nail polish remover.
      
      - Clinical studies have implicated artificial nails as a source of healthcare-associated infection in high-risk areas, such as operating rooms and intensive care units.
   
   c. Traditional nail polish, if used, must be intact. Chipped/lifting nail polish is a potential infection risk and should be removed immediately.

4. **Jewelry:**
   
   a. There is little data to determine the effect of jewelry (e.g., rings, bracelets) on the effectiveness of hand hygiene.
   
   b. Rings can make donning gloves more difficult and may cause gloves to tear more readily.
   
   c. Certain high risk areas may prohibit wrist jewelry and rings.

**H. Surgical Hand Antisepsis**

1. Surgical hand antisepsis, using either an alcohol-based waterless surgical hand antiseptic or an antimicrobial soap, will be performed before donning sterile gloves when performing surgical procedures.

2. All rings, watches, and bracelets must be removed prior to performing surgical hand antisepsis.


**I. Dermatitis**

1. Personnel with cracked skin or dermatitis pose an infectious risk and are required to be evaluated by Occupational Health Services (OHS) as to work status and methods to relieve the condition.

2. To prevent and manage irritant contact dermatitis (ICD):
   
   a. Encourage use of alcohol-based antiseptics for routine hand hygiene. These are well
tolerated and associated with less ICD than soap and water handwashing. This does not apply to a situation that requires soap and water hand hygiene (e.g., patients with C. difficile infections).

b. Wash hands with warm or cold water. There is no evidence that warm water is superior to cold water. Hot water should be avoided because it can irritate the skin, leading to dermatitis and bacterial colonization.

c. If dermatitis occurs, OHS may recommend the use of cotton glove liners. Glove liners may help individuals with ICD to maintain healthy skin.

i. When used, cotton glove liners should be replaced at the beginning of each shift with a clean pair. If they become contaminated with blood or OPIM or become generally soiled in appearance, they should be removed promptly and replaced.

J. Skin Care/Lotions

1. HCP should use hand lotion in order to minimize the occurrence of irritant contact dermatitis associated with hand antisepsis and hand hygiene.

2. Hand lotions/creams must be compatible with both the antimicrobial agent and use of nitrile gloves.

   a. Some lotions and creams interfere with the effectiveness of the antimicrobial handwashing agents.

3. Compatible lotion may be ordered from Central Distribution (Lawson #050939) and should be available for use in clinical areas.

   a. The Maintenance Department will install the hand lotion dispenser when requested.

K. Healthcare Worker Behavior and Compliance

Efforts to improve hand hygiene practice will be multifaceted and will include continuing education and feedback to staff on behavior or infection surveillance data. Clean In, Clean Out is UNC Health Care's system-wide hand hygiene program to measure hand hygiene compliance.

L. Disaster Planning

In the event of interruption of water supply, alcohol-based hand rubs and alternative methods of performing hand hygiene, including portable hand washing sinks, will be available. In situations where soiling occurs, baby wipes (Lawson # 135812) should be used to cleanse the hands; alcohol-based hand rubs should then be used to achieve hand antisepsis.

M. Skin Antisepsis: Preparation of Patient's Skin for Nonsurgical and Surgical Procedures

1. Indications for Antisepsis in Clinical Practice (are as follows):

   a. Before invasive procedures

   b. Preparation of the patient's operative site and whole body disinfection (preoperative bath or
shower with CHG product)

i. The appropriate concentration for the antiseptic bath is 1 bottle (120 ml) of 4% CHG to one-half of a green bath basin or 3 liters of water. (Do not use the CHG hand soap because it is a different concentration. The 4% 120 ml CHG bottles can be ordered from Central Distribution.) The antiseptic preoperative bath must be documented in the medical record for inpatients and outpatients.

c. Daily CHG treatments with CHG-containing wipes (e.g., SAGE cloths) should be performed in all ICUs, step-downs, and for inpatients with a central line in the adult oncology unit, adult bone marrow transplant unit, and on 5CH.

i. For pediatric patients, follow manufacturer's weight-based guidance on using CHG wipes. For preterm babies (< 37 weeks), follow NCCC Guidelines for Skin Care for the Preterm/Ill Infant.

2. Antiseptic Agents

a. Preparing Patient's Skin for Medical Procedures

i. Intravenous Device
   Chlorhexidine gluconate with alcohol (e.g., ChloraPrep™) is the preferred antiseptic agent to use for skin preparation prior to insertion of intravenous devices and should be applied per manufacturer's recommendations.

ii. Minor Procedures (IM, Subcutaneous Injections, or heel sticks)
   Alcohol is adequate for preparing skin for these types of procedures.

iii. Minor or Major Surgical Procedures
   Chlorhexidine gluconate with alcohol (e.g., ChloraPrep™) is recommended for preparing a patient's skin prior to minor or major surgical procedures. Follow the manufacturer's directions for use and warnings. (Refer to Attachment 2 - "Recommendations for Hand Hygiene and Cleaning Patients' Skin before Nonsurgical Procedures" and Attachment 3 - "Recommendations for Hand Hygiene and Cleaning Patient's Skin before Surgical Procedures" for detailed recommendations for preparing hands and cleaning skin before nonsurgical and surgical procedures.)

iv. Urinary catheter insertion: Betadine is the preferred antiseptic agent to use for skin preparation prior to insertion of urinary catheters. Allow area to dry or allow at least 2 minutes of contact time prior to inserting catheter.

b. Antiseptic Agents for Neonates and Infants

i. **Always** allow the prep to dry completely.

ii. All skin prep must be thoroughly removed with sterile water or sterile saline after procedures to prevent burns and absorption of the prep; **pay special attention to removing the prep solution that may have pooled beneath the baby during the procedure.**

iii. Antiseptic agents for all babies >1000 g

   - Chlorhexidine gluconate with alcohol (ChloraPrep™) is to be used for the following procedures:
- Starting an IV
- Performing a venous/arterial puncture
- Umbilical line placement
- PICC placement or dressing change

- Betadine is to be used for the following procedures:
  - Lumbar punctures
  - Circumcisions
  - Urinary catheter insertion

iv. For recommendations for skin antisepsis for babies <1000 g, refer to the Nursing Policy: Skin Integrity and NCCC Guidelines for Skin Care for the Preterm/Ill Infant.

c. Alcohols, iodophors and chlorhexidine gluconate can be used to prepare the operative or invasive site. These agents have an excellent spectrum of activity against bacteria.

d. Plain soap, triclosan, PCMX, and aqueous quaternary ammonium compounds are not recommended as single agents for operative site preparation. Contact Infection Prevention if a patient's skin is sensitive to all acceptable antimicrobial products.

e. When preparation of the patient's skin requires cleaning with an antiseptic agent, a fast acting one is desirable.

f. "Defatting" agents such as acetone are not recommended.

N. Implementation

Implementation of this policy is the responsibility of Infection Prevention, Service Line Directors, Nursing Service, Phlebotomy, and the Medical Staff.

IV. References


V. Related Policies

Infection Prevention Guidelines for Perioperative Services
Nursing Policy Skin Integrity.
Infection Prevention Policy Isolation Precautions
Attachments:

01: Characteristics of Antisepsis (Antimicrobial Agents)
02: Recommendations for Hand Hygiene and Cleaning Patients’ Skin before Nonsurgical Procedures
03: Recommendations for Hand Hygiene and Cleaning Patients’ Skin before Surgical Procedures

Approval Signatures

<table>
<thead>
<tr>
<th>Step Description</th>
<th>Approver</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy Stat Administrator</td>
<td>Patricia Ness: Nurse Educator</td>
<td>04/2019</td>
</tr>
<tr>
<td></td>
<td>Thomas Ivester: CMO/VP Medical Affairs</td>
<td>04/2019</td>
</tr>
<tr>
<td></td>
<td>Emily Vavalle: Director, Epidemiology</td>
<td>04/2019</td>
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<tr>
<td></td>
<td>Sherie Goldbach: Infection Prevention Registrar</td>
<td>04/2019</td>
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</tbody>
</table>

Applicability

UNC Medical Center
Attachment 1: Characteristics of Antisepsis (Antimicrobial Agents)

<table>
<thead>
<tr>
<th>Group</th>
<th>Gram-positive bacteria</th>
<th>Gram-negative bacteria</th>
<th>Mycobacteria</th>
<th>Fungi</th>
<th>Viruses (enveloped)</th>
<th>Speed of action</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohols</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>fast</td>
<td>optimum concentration 60-90%; no persistent activity</td>
</tr>
<tr>
<td>Chlorhexidine</td>
<td>+++</td>
<td>+++</td>
<td>+</td>
<td>+</td>
<td>+++</td>
<td>intermediate</td>
<td>persistent activity; rare allergic reactions</td>
</tr>
<tr>
<td>(2% and 4% aqueous)</td>
<td>+++</td>
<td>+++</td>
<td>+</td>
<td>+</td>
<td>+++</td>
<td>intermediate</td>
<td>less irritating than iodine; acceptance varies</td>
</tr>
<tr>
<td>Iodophors</td>
<td>+++</td>
<td>+++</td>
<td>+</td>
<td>++</td>
<td>++</td>
<td>intermediate</td>
<td></td>
</tr>
</tbody>
</table>

Activity: +++ (excellent); ++ (good, but does not include the entire bacterial spectrum); + (fair); - (no activity or not sufficient)
**Attachment 2: Recommendations for Hand Hygiene and Cleaning Patients’ Skin before Nonsurgical Procedures**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Example</th>
<th>Hand Hygiene</th>
<th>Gloves</th>
<th>Preparation of Patient’s Skin</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nonsurgical</strong></td>
<td>Instruments used in the procedure will come in contact with intact mucous membranes</td>
<td>Bronchoscopy; gastrointestinal endoscopy; tracheal suction</td>
<td>Antimicrobial Soap and Water or Alcohol-Based Hand Rub</td>
<td>Clean required</td>
</tr>
<tr>
<td></td>
<td>Cystoscopy; urinary tract catheterization</td>
<td>Antimicrobial Soap and Water or Alcohol-Based Hand Rub</td>
<td>Sterile required</td>
<td>Antiseptics should be used to prepare the urethral meatus. Povidone iodine is recommended. Use chlorhexidine gluconate (2% to 4%) if patient is allergic to povidone iodine.</td>
</tr>
<tr>
<td><strong>Insertion of a peripheral intravenous catheter</strong></td>
<td>Intravenous therapy</td>
<td>Antimicrobial Soap and Water or Alcohol-Based Hand Rub</td>
<td>Clean required</td>
<td>Chlorhexidine gluconate with alcohol (e.g., Chloraprep™) is the preferred agent. Alcohols, iodophors and chlorhexidine gluconate can be used to prepare the site. Apply antiseptic liberally. Allow to dry. Do not re-contaminate site (e.g., palpate the vein after skin antisepsis).</td>
</tr>
<tr>
<td><strong>Insertion of an arterial catheter</strong></td>
<td>Arterial pressure monitoring</td>
<td>Antimicrobial Soap and Water or Alcohol-Based Hand Rub</td>
<td>Sterile required</td>
<td>Chlorhexidine gluconate with alcohol (e.g., Chloraprep™) is the preferred agent. Follow the manufacturer’s directions for using the agent. Alcohols and iodophors can be used to prepare the operative (invasive) site. Apply antiseptic liberally. All skin preparations must be allowed to dry, do not re-contaminate site (e.g. touching site after prep.)</td>
</tr>
<tr>
<td>Procedure</td>
<td>Example</td>
<td>Hand Hygiene&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Gloves</td>
<td>Preparation of Patient’s Skin</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>----------------------------------------------</td>
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</tr>
<tr>
<td>Percutaneous insertion of a central catheter or wire&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Hyperalimentation; central venous and capillary wedge pressure monitoring angiography; cardiac pacemaker insertion</td>
<td>Antimicrobial Soap and Water or Alcohol-Based Hand Rub</td>
<td>Sterile required</td>
<td>Chlorhexidine gluconate with alcohol (e.g., Chloraprep&lt;sup&gt;TM&lt;/sup&gt;) is the preferred agent†. Follow the manufacturer’s directions for using the agent. Alcohols and iodophors can be used to prepare the operative (invasive) site. Apply antiseptic liberally. All skin preparations must be allowed to dry; do not recontaminate site (e.g., touching site after prep).</td>
</tr>
<tr>
<td>Insertion (and prompt removal) of a sterile needle in deep tissues or body fluids, usually to obtain specimens or instill therapeutic agent</td>
<td>Spinal tap (lumbar puncture); thoracentesis; abdominal paracentesis&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Antimicrobial Soap and Water or Alcohol-Based Hand Rub</td>
<td>Sterile required</td>
<td>Chlorhexidine gluconate with alcohol (e.g., Chloraprep&lt;sup&gt;TM&lt;/sup&gt;) is the preferred agent. Follow the manufacturer’s directions for using the agent. Alcohol and iodophors can be used to prepare the operative (invasive) site. For lumbar punctures, chlorhexidine gluconate or betadine should be used to prepare the invasive site. Apply antiseptic liberally. All skin preparations must be allowed to dry; do not recontaminate site (e.g., touching site after prep).</td>
</tr>
</tbody>
</table>

<sup>a</sup>Hands should also be washed after all procedures when microbial contamination of the operator is likely to occur, especially those involving contact with blood, OPIM, and/or mucous membranes, whether or not gloves are worn.

<sup>b</sup>Approved antimicrobial soap at UNC Hospitals is chlorhexidine gluconate.

<sup>c</sup>Refer to Infection Prevention Policy: Guidelines for Adult and Pediatric Inpatient Care for draping procedure.

<sup>†</sup>Many IV kits contain swabs impregnated with CHG and alcohol. Each product must be applied following manufacturer’s recommendations and allowed to dry thoroughly. If applied in a cursory manner or with insufficient contact time, they lose effectiveness.
Attachment 3: Recommendations for Hand Hygiene and Cleaning Patients’ Skin before Surgical Procedures*

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Example</th>
<th>Hand Hygiene&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Gloves</th>
<th>Preparation of Patient’s Skin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion of a sterile tube or device through tissue into a normally sterile tissue or fluid</td>
<td>Chest tube insertion; culdoscopy, laparoscopy, peritoneal catheter insertion</td>
<td>Antimicrobial soap and water or alcohol-based hand rub</td>
<td>Sterile</td>
<td>Antiseptics should be used; if hair removal is considered necessary, hair should be clipped not shaved. Chlorhexidine gluconate with alcohol (e.g., Chloraprep&lt;sup&gt;TM&lt;/sup&gt;) is the preferred agent. Follow the manufacturer’s directions for using the agent. Alcohols and iodophors can be used to prepare the operative (invasive) site. Apply antiseptic liberally. All skin preparations must be allowed to dry; do not re-contaminate site (e.g. touching site after prep.)</td>
</tr>
<tr>
<td>Minor skin surgery</td>
<td>Skin biopsy; suturing of small cuts; lancing boils; mole removal</td>
<td>Antimicrobial soap and water or alcohol-based hand rub</td>
<td>Sterile</td>
<td>Antiseptics should be used; if hair removal is considered necessary, hair should be clipped not shaved. Chlorhexidine gluconate with alcohol (e.g., Chloraprep&lt;sup&gt;TM&lt;/sup&gt;) is the preferred agent. Follow the manufacturer’s directions for using the agent. Alcohols and iodophors can be used to prepare the operative (invasive) site. Apply antiseptic liberally. All skin preparations must be allowed to dry; do not re-contaminate site (e.g. touching site after prep.)</td>
</tr>
<tr>
<td>Other procedures (major and minor surgery) that enter tissue below the skin</td>
<td>Hysterectomy; cholecystectomy; herniorrhaphy</td>
<td>Antimicrobial soap and water or alcohol-based hand rub</td>
<td>Sterile</td>
<td>Antiseptics should be used; if hair removal is considered necessary, hair should be clipped not shaved. Chlorhexidine gluconate with alcohol (e.g., Chloraprep&lt;sup&gt;TM&lt;/sup&gt;) is the preferred agent. Follow the manufacturer’s directions for using the agent. Alcohols and iodophors can be used to prepare the operative (invasive) site. Apply antiseptic liberally. All skin preparations must be allowed to dry; do not re-contaminate site (e.g. touching site after prep.)</td>
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*Hands should also be washed after all procedures when microbial contamination of the operator is likely to occur, especially those involving contact with blood, OPIM, and/or mucous membranes, whether or not gloves are worn.

Refer to Attachment 7 of the Infection Prevention Guidelines for Perioperative Services - for information on draping.

Approved antimicrobial soap at UNC Hospitals is chlorhexidine gluconate.