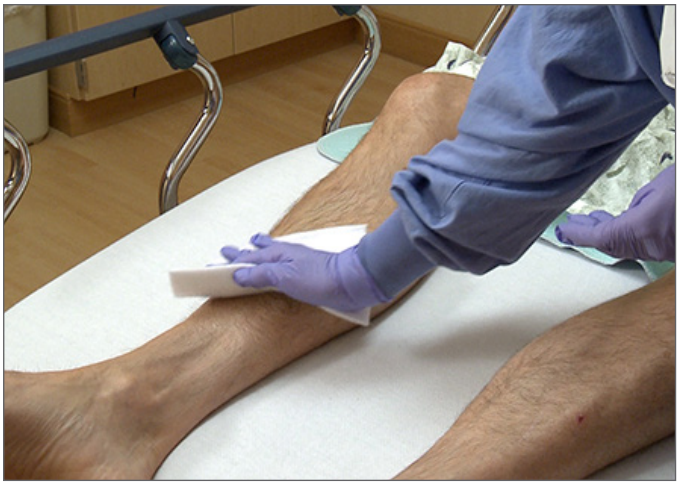
GUIDELINE *ESSENTIALS*
QUICK VIEW

Patient Skin Antisepsis



DECOLONIZATION

- Convene an interdisciplinary team to determine the need to implement a *Staphylococcus aureus* decolonization program within the organization.
- If indicated by the interdisciplinary team, establish a preoperative *S aureus* decolonization program with either a
  - universal approach (ie, nasal or body decolonization for every member of a general population),
  - targeted approach (ie, targeting a specific organism [eg, *S aureus*] for screening and laboratory testing before decolonization), or
  - blended approach that implements both universal and targeted strategies.
- Determine a decolonization protocol specific to the implementation strategy.
- Establish a timeline for initiation and completion of the decolonization protocol.
- Educate health care personnel who will participate in the decolonization program on the benefits and details of the decolonization program.
- Educate patients on the benefits of the decolonization program and the patient's responsibilities in adhering to the decolonization protocol.
- Assess patients' adherence to the decolonization regimen.
- If using an antimicrobial such as mupirocin, include surveillance for antibiotic resistance as part of the antimicrobial program.

★ *The objective of decolonization is to decrease the bacterial load on the patient's body and in the nares as part of a multimodal approach for preventing surgical site infections (SSIs).* S aureus *colonizes the skin and intranasal cavities of approximately 30% of the population. Patients colonized with* S aureus *have a two- to nine-fold increased risk for developing an SSI compared to patients not colonized with* S aureus. *Eighty percent of* S aureus *SSIs can be attributed to the patient's own bacteria.*

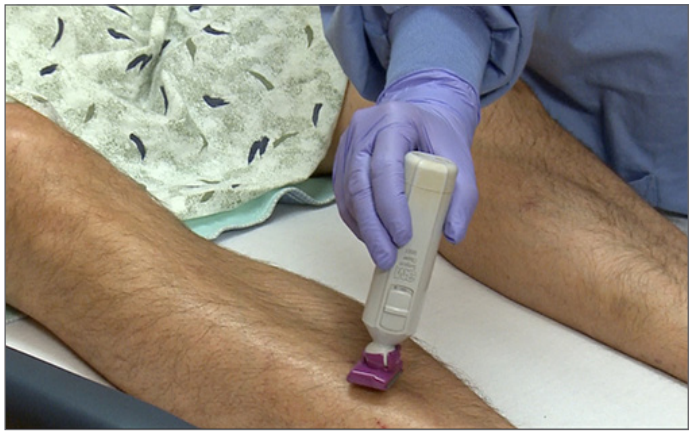
PREOPERATIVE BATHING

- Convene an interdisciplinary team to develop a mechanism for evaluating and selecting products for preoperative patient bathing.
- Develop a standardized protocol for preoperative bathing that includes the:
  - dose (ie, volume or amount of the product)
  - frequency (ie, number of applications)
  - duration (ie, exposure time of skin to the antiseptic)
- Instruct patients to perform preoperative bathing with either soap or an antiseptic at least once on the night

before or the day of the operative or other invasive procedure.

- Provide patients and caregivers with clear verbal and written instructions for preoperative bathing.
- Instruct the patient to follow the manufacturer's instructions when applying the skin antiseptic product.
- Instruct the patient not to apply:
  - alcohol-based hair or skin products
  - deodorant (when the axilla will be in the sterile field)
  - lotions
  - emollients
  - cosmetics
- Instruct the patient that the nails on an operative extremity should be clean and natural, without artificial nail surfaces.
- Instruct patients undergoing procedures of the head or neck to shampoo their hair before surgery.

★ *High-quality evidence supports that preoperative bathing may reduce the microbial flora on the patient's skin before a surgical or other invasive procedure and lower the patient's risk of developing an SSI. The risks of preoperative bathing with an antiseptic may include skin irritation, allergic reaction, or unnecessary treatment with antiseptics.*



SURGICAL SITE HAIR

- Leave hair at the surgical site in place unless hair removal is indicated.
- Keep hair removal to a minimum when hair removal is indicated.
- Remove hair at the surgical site by clipping or use a depilatory method.
- Remove hair as close to the time of surgery as feasible in a location outside the OR.
- If it is necessary to remove hair in the OR, remove hair in a manner that prevents dispersal of hair into the air (eg, wet clipping, use of a vacuum device).
- Use single-use clipper heads and dispose of them after each use.
- Disinfect the reusable clipper handle after each use, in accordance with the manufacturer's instructions for use (IFU).
- When using depilatories for hair removal, follow the manufacturer's IFU, including testing for skin allergy and irritation reactions in an area away from the surgical site at least 24 hours before the surgical procedure.
- Document in the patient's health care record the person performing hair removal, the hair removal method, time of removal, and area of hair removal.

★ *The benefits of leaving hair in place at the surgical site include preventing potential skin trauma from hair removal, potentially reducing the risk for SSI, and greater patient satisfaction. The harms of leaving the hair in place at the surgical site include risk of fire when flammable skin antiseptics are used.*

SELECTION OF THE SURGICAL SITE ANTISEPTIC

- Form an interdisciplinary team to evaluate and select antiseptic products for surgical site preparation.
- Select products for surgical site preparation that meet US Food and Drug Administration (FDA) requirements for over-the-counter (OTC) antiseptic products intended for use by health care professionals in a hospital or other health care situation.
- Purchase selected skin antiseptic products packaged in single-use containers.
- Select products that are tinted (ie, not clear) and are most visible on the individual patient's skin.

- When patient assessment is completed, select the antiseptic agent before taking the patient to the operating room.
- Select an alcohol-based skin antiseptic for surgical site preparation unless contraindicated.
- Select the antiseptic product based on the anatomical location of the surgical procedure.
- Assess the patient for allergies and sensitivities to preoperative skin antiseptics before selecting the antiseptic.
- Use caution when selecting iodine and iodophor-based preoperative patient skin antiseptics for patients susceptible to iodism (eg, patients with burns, patients with thyroid disorders, patients who are pregnant or lactating).
- Use caution when selecting chlorhexidine gluconate and povidone iodine and alcohol-based preoperative patient skin antiseptics for a neonate.
- Assess the surgical site for skin integrity; presence of hair; and proximity to mucosa, eyes, or ears before selecting a preoperative patient skin antiseptic product.
- When FDA-approved antiseptic products are contraindicated, collaboratively evaluate the risks and benefits of using nonmonograph antiseptics or alternative solutions (eg, soaps, saline).
- Select skin markers for surgical site marking based on the:
  - effect on sterility of skin antisepsis (ie, no bacterial growth; does not transmit infection)
  - visibility on different skin tones
  - visibility after surgical site preparation
  - non-transferability
  - non-sensitization
  - cost

★ *Decisions about which preoperative skin antiseptic to use in the practice setting are complex. A variety of products may be necessary to meet the needs of various patient populations. Input from an interdisciplinary team with diverse experience and knowledge of skin antiseptics is helpful during review of the current research, clinical guidelines, and information provided by the manufacturers of surgical antiseptic agents.*

APPLICATION OF THE SURGICAL SITE ANTISEPTIC

- Apply the preoperative patient skin antiseptic according to the manufacturer's IFU.
- Perform a standardized surgical site preparation protocol that includes:
  - site preparation before application of the skin antiseptic
  - application of the skin antiseptic using sterile technique
  - safety measures to prevent patient injury related to skin antiseptic use
- Before application of a surgical skin antiseptic:
  - confirm the surgical site
  - assess the condition of the patient's skin
  - remove the patient's jewelry (eg, rings, piercings) within the area of surgical site preparation
  - verify that the skin is free of:
    - » soil or debris
    - » emollients
    - » cosmetics
    - » alcohol-based products
  - if soiled, cleanse the areas in the surgical site that are of greater contamination than the surrounding area (ie, umbilicus, foreskin, under nails, intestinal or urinary stoma)
  - isolate highly contaminated areas (eg, anus, colostomy) near the surgical site with a sterile barrier drape
- Apply the surgical skin antiseptic using sterile technique.
- Apply the antiseptic to an area large enough to accommodate:
  - inadvertent shifting of the surgical drapes
  - extension of the incision (eg, during conversion of a minimally invasive procedure to an open procedure)
  - potential additional incisions
  - all potential drain sites
- Start at the incision site and move toward the periphery of the surgical site.
- Discard the applicator after contact with a peripheral or contaminated area and use another sterile applicator for additional applications.
- Prep the area with a lower bacterial count first when the incision site is more highly contaminated than the surrounding skin (eg, anus, perineum, stoma, open wound, catheter, drain, axilla), then prep the area of high contamination (as opposed to working from the incision toward the periphery).
- Complete two separate surgical site preparations and prep the more-contaminated site first when performing procedures with different surgical wound classifications (eg, abdominal-perineal, abdominal-vaginal).
- Document surgical site preparation in the patient's record.

- Provide education and competency verification related to the principles and processes of skin antisepsis.

The purpose of the surgical site preparation is to reduce the microbial load on the patient's skin and inhibit rapid rebound growth of microorganisms from the skin where the incision will be made.

SAFETY MEASURES

- Implement patient safety measures when performing surgical site preparation, to include:
  - following the manufacturer's IFU for maximum and minimum surface area per applicator when using a pre-filled antiseptic applicator
  - using radiopaque sponges when applicators are not available
  - applying the antiseptic with care (eg, gentle friction) on fragile tissue, burns, open wounds, or malignant areas
  - verifying the antiseptic is applied to all surfaces between fingers or toes for surgical site preparation that includes the hand or foot
  - taking care to prevent patient aspiration of the skin antiseptic (eg, throat pack application for surgical site preparation that includes the mouth)
  - preventing prolonged contact with skin antiseptics by:
    - » protecting sheets, padding, and positioning equipment from the dripping or pooling of skin antiseptics beneath and around the patient
    - » protecting electrodes (eg, electrocardiogram, electrosurgical unit dispersive electrode) and tourniquets from contact with skin antiseptics
    - » placing a fluid-resistant pad under the patient's buttocks during perineal preoperative skin antisepsis for patients in the lithotomy position
    - » removing the pad after the antiseptic is dry and before applying the sterile drape
  - removing any material near the patient that is in contact with the skin antiseptic, including electrodes and tourniquet materials (ie, cuff, padding), and replacing them as necessary
  - allowing the antiseptic to dry completely (ie, for the full time recommended in the manufacturer's IFU) before applying drapes
- Implement personnel safety measures when lifting and holding the patient's extremity by:
  - using two hands to hold the extremity
  - obtaining assistance from another team member
  - using an assistive device
  - using a combination of these methods
- Minimize the risk of fire by:
  - performing a fire risk assessment and communicating the use of flammable skin antiseptics before beginning the procedure
  - minimizing oxygen delivery
  - not heating flammable skin antiseptics
  - using sterile towels to absorb drips and excess solution during application
  - wicking excess solution with a sterile towel or cotton tip applicator
  - removing materials that are saturated with the skin antiseptic before the patient is draped
  - moving flammable skin antiseptic–soaked materials away from the patient care vicinity
  - allowing time for the flammable skin antiseptic to dry completely and for fumes to dissipate before surgical drapes are applied or a potential ignition source is used
- When an alcohol-based skin antiseptic is used for a procedure involving an ignition source and hair is present in the surgical site preparation area, follow the antiseptic manufacturer's IFU.
- Do not apply microbial sealant after surgical skin preparation.
- Remove the skin antiseptic from the patient's skin before application of an occlusive dressing or tape, unless otherwise indicated in the skin antiseptic manufacturer's IFU.
- Assess the patient's skin for injury after the procedure.

Active communication regarding the use of flammable skin antiseptics alerts all perioperative team members to the inherent risks and facilitates taking collaborative precautions. Antiseptic manufacturers' IFU convey important safety and efficacy instructions to the user. Failure to adhere to manufacturers' IFU may result in patient harm or ineffectiveness of the preoperative skin antisepsis.

HANDLING AND STORAGE

- Follow the skin antiseptic manufacturers' IFU and safety data sheets (SDS) for handling, storing, and disposing of skin antiseptics.
- Do not dilute skin antiseptics.
- Do not warm flammable skin antiseptics and only warm nonflammable skin antiseptics if it is allowed in the manufacturer's IFU.
- Do not warm skin antiseptics in a microwave oven or steam sterilizer.
- Store antiseptics in the original, single-use container.
- Store flammable skin antiseptics according to local, state, and federal regulations.
- Dispose of unused flammable skin antiseptics in a manner that decreases the risk of fire and is in accordance with local, state, and federal regulations.

★ *Following the skin antiseptic manufacturer's IFU and SDS is the safest method for handling, storing, and disposing of skin antiseptics. The SDS provides information about the flammability of the antiseptic and the maximum storage temperature.*

SSI PREVENTION BUNDLES

- Use professional organization guidelines to select preoperative patient skin antisepsis elements specific to the surgical population for inclusion in a bundle.
- Preoperative skin antisepsis bundle elements may include:
  - bathing or showering with soap or an antiseptic agent
  - decolonization of nares if the patient is *S aureus* positive
  - decolonization of skin if the patient is *S aureus* positive
  - decolonization of nares and skin for all patients
  - hair management
  - use of a skin antiseptic with chlorhexidine gluconate-alcohol
  - use of a skin antiseptic with iodine-based alcohol
  - use of a skin antiseptic without alcohol
- Determine outcome measures for selected bundled interventions.
- Outcome measures may include:
  - patient satisfaction scores
  - risk for wound complications
  - readmissions
  - incidence of postoperative sepsis
  - facility SSI rate compared to rates in similar studies
  - sustainment of SSI reduction
- Monitor adherence to and outcomes of bundled interventions.
- Evaluate and revise bundles when new interventions or evidence becomes available.

★ *The multifactorial nature of SSI prevention makes it difficult to know which bundle element is the most effective; however, the most benefit is seen when multiple elements are implemented together, so it is likely that the cumulative effect of all bundle components produces the best outcome. Identifying outcome measures provides an attainable goal, facilitates progress to be measured, and supports team engagement.*