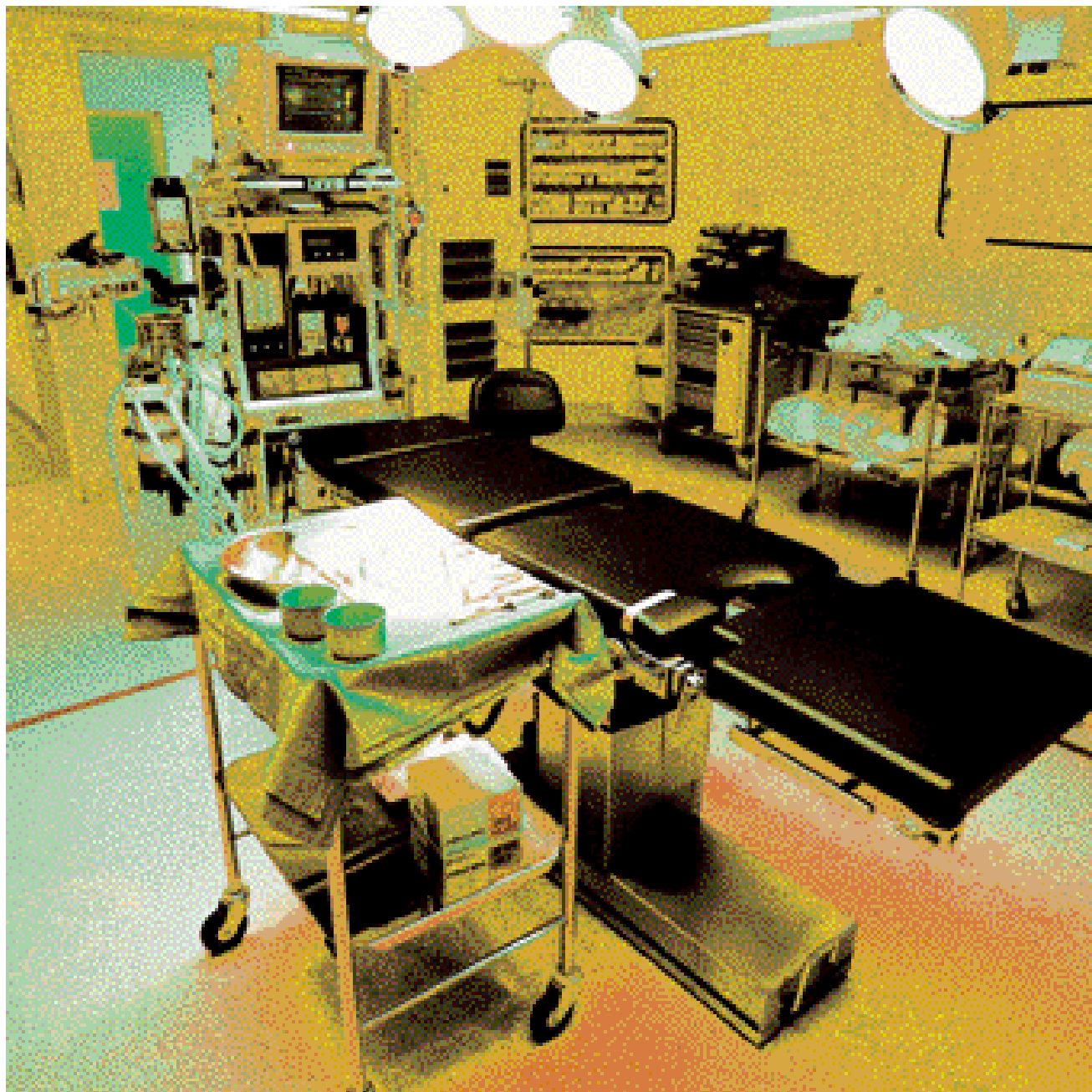


# Clipping, Prepping and Draping for Surgical Procedures

by **Ellen Anderson Manz, RN, BSN; Debbie Gardner, LPN, OPAC; and Maret Millard, NREMT-B**



## Objectives

After completion of this self-study activity, the learner will be able to:

1. Differentiate the clinical benefits of hair removal by means of clipping versus shaving.
2. Identify the properties of effective surgical skin preparation agents.
3. Describe the principles of draping as they relate to prevention of infection.

## Test Questions

True or False

1. Nowhere in the CDC Guideline for Prevention of Surgical Site Infection Recommendations does it state that one antiseptic agent is preferred over other antiseptics.
2. If hair at or around the incision site needs to be removed, the method that best preserves the patient's skin integrity is a clippers.
3. Aseptic technique and sterile technique are synonymous terms.
4. Alcohol, Iodophors and CHG are the most common antimicrobials used for patient skin preps.
5. Most commonly used patient skin preps meet the FDA criteria for immediate kill and persistent activity.
6. Fluid strike-through associated with drape materials is always visible to the surgical team.
7. The longer the time between hair removal and the operation, the lower the infection rates.
8. An ideal preoperative skin prep agent should be broad spectrum, safe, fast-acting and persistent.
9. Prior to the draping process, it is critical to plan ahead and anticipate what drapes will be used for the procedure.
10. Preoperative skin preparation sterilizes the patient's skin.

## Introduction

Because of the number of factors that can contribute to surgical site infections (SSI), experts generally talk in terms of reducing the risk rather than the rate of SSI. It is well recognized that the major microorganisms responsible for SSIs reside on the patient's skin, making preoperative skin preparation and creation of a sterile field/surface a logical approach to risk reduction.

The early 19th century surgeon "operated in a Prince Albert coat and used the same sponges for every patient he treated." It wasn't until mid-19th century that the idea of protecting the surgical wound from contamination became a subject of great interest and concern in the operating room.<sup>1</sup> Prior to this time, all emphasis was on cleaning of the room and the instruments used.

As members of the healthcare team, surgeons, nurses and other healthcare professionals are entrusted with the safety and welfare of those who undergo surgical intervention. As a patient advocate, the perioperative nurse has, as one of his or her most important functions, the responsibility for monitoring and maintaining best practices during the perioperative period.

A surgical conscience (that concept which allows for no compromise in the principles of aseptic technique) builds on the principles of asepsis and is an act of mental discipline. It involves inspection and regulation of one's own practice, with particular attention to deviations from acceptable, safe practices, especially during the intraoperative phase of the surgical experience.<sup>2</sup>

As the surgical conscience is fully developed, the perioperative nurse is always asking himself or herself:

1. Is this the best practice?
2. Do I have everything necessary for this procedure?
3. Have I done all I can do to provide a safe, therapeutic environment for my patient?

Every attempt must be made toward preventing the invasion of microorganisms into the surgical wound. Two methods are utilized that, if practiced with precision, can prevent serious complications to the already compromised surgical patient:

- ▶ Aseptic Technique—The methods by which microbial contamination is prevented in the environment.<sup>3</sup>
- ▶ Sterile Technique—Refers to creating and working within the sterile field. To protect the patient during invasive procedures, microorganisms in the sterile field are kept to an irreducible minimum.<sup>3</sup>

By using the best theoretical knowledge available today to prepare the patient, and create and maintain the sterile field, perioperative nurses play a vital and significant role in protecting the patient from infection.

*Many thanks to the team at 3M Health Care for working with Managing Infection Control to provide the following accredited course. This inservice is 3M Health Care Provider approved by the California Board of Registered Nurses, CEP 5770 for one (1) contact hour. This form is valid up to five (5) years from the date of publication. Instructions for submitting results are on page 97.*

*Managing Infection Control and 3M Health Care will be working collaboratively to provide continuing education courses in monthly editions of Managing Infection Control.*

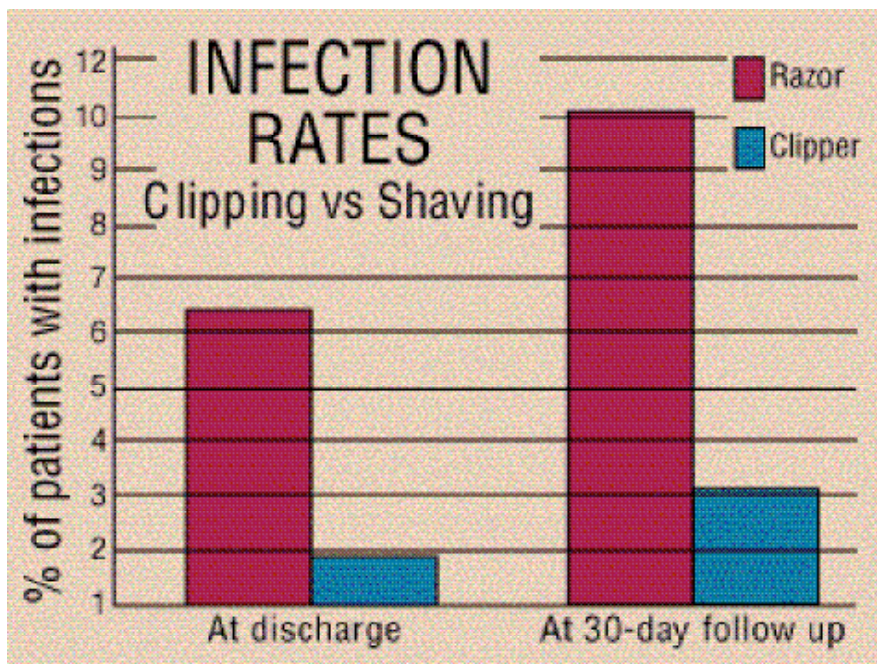
# SURGICAL SITE INFECTIONS (SSI)

are the second most common healthcare associated infection (HAI) among hospitalized patients.

Skin is the patient’s first line of defense against infection. Because the skin cannot be sterilized, it must be properly prepared in order to reduce the microbial count to the lowest possible, thereby reducing the risk of infection. According to the Centers for Disease Control and Prevention (CDC) Guideline for Prevention of Surgical Site Infections (SSI), for most SSIs, the source of pathogens is the endogenous flora of the patient’s skin, mucous membranes or hollow viscera. When mucous membranes or skin are incised, the exposed tissues are at risk for contamination with endogenous flora.<sup>4</sup> Two methods are used to prepare the surgical site prior to draping:

1. Hair removal (only when it compromises the incisional area);
2. The surgical skin prep during the intraoperative phase.

Figure 1. Infection Rates: Clipping vs. Shaving



## Hair Removal

Disruption of the skin surface compromises the line of defense by creating an entry for microorganisms. As part of your patient preoperative skin-prepping regimen, hair removal may be necessary. Shaving the surgical site began in the late 1800s and until recently has been accepted. We now have clear and convincing research that shows shaving can create nicks and microscopic epidermal cuts that permit bacterial contamination. Use of a clipper rather than razors has been shown to decrease infection rates. Studies such as those conducted by Jepsen et al<sup>5</sup>, Alexander et al<sup>6</sup>, and Sellick et al<sup>7</sup> present comparative data on infection rates in surgical patients whose incision sites were clipped rather than shaved. In all articles the authors concluded that hair removal using an electrical clipper appeared to decrease the infection rates postoperatively (see Figure 1 on page 86).

## Recommended Practices and Guidelines

The research results have been so overwhelmingly in favor of clipping that several healthcare organizations recommend a procedural change from shaving to clipping. The Association of periOperative Registered Nurses (AORN) Recommended Practices for Skin Preparation of Patients states, “When hair removal is necessary, an electric or battery powered clipper with a disposable or reusable head that can be disinfected between patients should be used, if possible.<sup>8</sup>” The CDC states, “If hair is removed, remove immediately before the operation, preferably with electric clippers.<sup>4</sup>” The CDC has rated this category 1A, meaning it is supported by well-designed experimental, clinical or epidemiological studies. In the July 2000 Bulletin of the American College of Surgeons (ACS), the

CDC Guideline was summarized and endorsed. The Association of Practitioners in Infection Control (APIC) also recommends clipping, stating, “A depilatory or clipping in preference to shaving for hair removal is an intervention that reduces microbial contamination of the wound and lowers the infection risk.”<sup>9</sup>

Hair should only be removed when it interferes with the incision site. But if hair is to be removed, it should take place immediately prior to surgery, in a preoperative environment and with an electrical clipper in order to minimize the risk of infection.<sup>4,8</sup> Concerns about stubble length have existed since clippers first entered the hair removal market in 1986. Studies show that remaining stubble demonstrates preserved skin integrity. Razors cause microscopic cuts and nicks, some of which are not visible to the naked eye. “In fact, the stubble should be reassuring,” commented William C. Beck, MD, FACS, in a 1986 editorial in *Surgery, Gynecology & Obstetrics*. “It gives assurance that the superficial skin squames have not been disturbed.”<sup>10</sup> Comments made by panelists at an AORN question-and-answer session in

1982 recommended clipping the hair, leaving 1 to 2 mm on the skin. It was noted, “When properly used this way, the electrical clippers do not damage or abrade the skin.”<sup>11</sup> As long as clippers are used according to the manufacturer’s directions, stubble length will be 1 to 2 mm in length, which is desirable. If your staff is concerned about stubble length, make sure the correct angle of clipping is performed when using clippers.

### Patient Skin Preparation

After the patient has been anesthetized and positioned on the operating table, the incision site, as well as an extensive area surrounding it, must be disinfected using a topical antimicrobial agent immediately prior to draping.

### Recommended Practices and Guidelines

The 1999 CDC Guideline for Prevention of Surgical Site Infection states: “Use an appropriate antiseptic agent for skin preparation.” Nowhere in the recommendations does it state that one antiseptic agent is preferred over other antiseptics. The

recommendations continue to state that the skin prep should be applied in concentric circles moving toward the periphery, and that the prep area should be large enough to extend the incision, or create new incisions or drain sites.<sup>4</sup> The AORN Recommended Practices for Skin Preparation of Patients state:<sup>8</sup>

1. Remove soil and transient organisms:
  - a. Patient showers;
  - b. Special cleansing of the surgical site;
  - c. Washing the site immediately before prepping.
2. Reduce resident microbial counts to subpathogenic amounts:  
Use antimicrobial preoperative skin prep.
3. Inhibit rapid rebound growth of microorganisms:  
Use persistent antimicrobial preoperative skin prep agent.

### **Food and Drug Administration (FDA)**

The Food and Drug Administration (FDA) regulates antimicrobial products used in the healthcare setting, including patient preoperative skin preps. It regulates active ingredients allowed in the formulation of these products, the labeling of products, and the claims that manufacturers can make.

FDA testing for patient skin preparation measures the effectiveness and persistence of a product against normal skin flora. Two prep sites are tested: the abdomen, which is considered a dry site, and the groin, which is considered a moist site and will thus have more resident flora. The skin sites are prepped following manufacturer's directions for use, allowed to dry, and then covered with a sterile gauze and tape dressing. The scrub cup test is followed to sample the sites at 10 minutes and six hours post-prep. The FDA pass criteria for a patient prep at the 10-minute time point is a two-log reduction on the abdomen and a three-log reduction on the groin, with both sites maintaining counts below baseline out to six hours post-prep.<sup>12</sup>

Table 1 on page 90 shows a comparison of the most common types of patient skin preparations and their ability to meet the FDA criteria. As you can see, both the aqueous-based preps as well as the alcohol-based preps meet the FDA criteria, although application time and method will vary by product.

Because the most commonly used patient skin preps meet the FDA criteria for immediate kill and persistent activity, and

**Table 1. Preoperative Skin Preparations Meeting FDA Criteria**<sup>13,14,15,16,17</sup>

	Meets FDA Criteria Abdomen		Meets FDA Criteria Groin	
	10 min	6 hour	10 min	6 hour
Aqueous Iodophor scrub and paint (i.e., Cardinal® Scrub Care® brand)	Yes	Yes	Yes	Yes
Aqueous CHG skin prep (i.e., Hibiclens® brand)	Yes	Yes	Yes	Yes
Aqueous Iodophor one-step prep with polymer (i.e., One-Step Prep by 3M™)	Yes	Yes	Yes	Yes
Alcohol-Iodophor with water-insoluble polymer (i.e., DuraPrep™ brand)	Yes	Yes	Yes	Yes
Alcohol-CHG skin prep (i.e., ChloroPrep® brand)	Yes	Yes	Yes	Yes

because most patients only get prepped once so that cumulative activity is not a factor, let's consider what other factors are important in surgery.

- ▶ **Drape adhesion:** Incise drapes are commonly used in surgery, particularly for high-risk procedures like open heart surgery, joint replacement and other implant surgeries, neurosurgery, and trauma. Because preps do not sterilize but only disinfect the skin, incise drapes provide a sterile surface at the start of surgery. When the drape lifts at the wound edge, the exposed skin allows for the potential of bacteria being transferred into the wound. In one study, drape lift was associated with a six-fold increase in surgical site infections.<sup>18</sup>
- ▶ **Blood and Saline Challenge:** Another critical factor to consider for a surgical patient prep is the challenge by blood and saline during the surgical procedure. In the FDA-required testing, once the prep is dry, it remains dry and covered without any fluid challenges. Studies show

that blood and saline irrigation can significantly reduce the microbial effectiveness of some surgical patient preps. When iodophor-based preps have a polymer that keeps them from being removed by blood and saline, they remain bactericidal.<sup>13,14</sup>

- ▶ **Application Instructions:** The efficacy of an antimicrobial product is based on its proper application. Failure to follow manufacturers' directions for use could significantly impact the product's ability to kill microorganisms. It is well documented that bacteria from the skin are the leading causes of surgical site infections.

Even among one-step preps, there is a wide range of instructions for use, and some preps actually have different instructions depending on whether the area is considered to be a dry site, like the abdomen, or a moist site, like the groin or axilla. Compliance to protocol is much easier to attain when directions are the same, regardless of the area being prepped.

- ▶ **Product Warnings:** Product warnings are part of the FDA-required labeling and are present to protect the patient from misuse of the product. Healthcare facilities that choose to disregard specific warnings may increase their facility's liability.

Product warnings will vary significantly between patient skin preps based on the active ingredients. It is important that the end user carefully reads all directions for use, warnings and all other label information before using any product to provide safe and effective patient prepping.

The challenges that face surgical preps are very different from those for surgical hand antisepsis and even intravascular catheter site preps. Choosing the right antimicrobial for the right indication is critical in helping reduce the risk of surgical site infection for your patients.

### **Draping**

Part of the role of the perioperative nurse is to “pull” the correct drapes as well as instruments prior to each procedure.

In order to provide the best protection for each procedure, the perioperative nurse needs to think through the basic principles of draping.

### **Principles of Draping**

1. *Isolate*  
Dirty from clean (e.g., groin, colostomy and equipment from the area to be prepped). Isolation is accomplished by using an impervious drape, usually fabricated from a plastic material. Any impervious material can be used.
2. *Barrier*  
Provides an impervious layer; must have a plastic film to prevent strike-through.
3. *Sterile Field*  
Creation of a sterile field is through sterile presentation of the drape and aseptic application technique. If the drape used is not impervious, an additional impervious layer needs to be added.

#### 4. *Sterile Surface*

Because skin cannot be sterilized, it is necessary to apply an incise drape to create a sterile surface. Only an incise drape can create a sterile surface.

#### 5. *Equipment Cover*

Sterile drapes cover nonsterile equipment or organize equipment used on the sterile field. This helps to protect the patient from the equipment as well as to protect and prolong the life of the equipment.

#### 6. *Fluid Control*

Collection of fluid keeps the patient dry, decreases healthcare worker exposure and decreases clean up. A fluid control system should be used any time the procedure is known to include large amounts of body fluids or irrigating solution.

Everyone has his or her opinion with regard to what constitutes an acceptable drape material. It is important to recognize there is no one material that meets all the needs of the clinician. Rather, each material has characteristics that make it either more or less suited for draping specific surgical procedures. In other words, a material characteristic that makes a material an excellent choice for an ophthalmic drape might make it a poor choice for an orthopedic drape.

### **Surgical Drape Characteristics**

Regardless of which materials are used, all surgical drape materials should possess the following traits:

- ▶ *Abrasion resistance*—The material surface should not abrade during normal use, under wet and dry conditions.
- ▶ *Barrier properties*—The ability of a material to resist the penetration of liquids and/or micro organisms.
- ▶ *Biocompatibility*—A material free of toxic ingredients.
- ▶ *Drapeability*—The ability of a material to conform to the shape of the object over which it is placed.
- ▶ *Electrostatic properties*—In the context of a surgical drape, the ability of the material to accept or dissipate an electrical charge is desirable.
- ▶ *Nonflammability*—The materials should not support open combustion.
- ▶ *Nonlinting*—Drape materials should not contain, or generate with normal use, free fiber particles.
- ▶ *Tensile strength*—Drape materials should be strong enough to withstand the stresses encountered during typical use when wet or dry.

In addition to the required traits referenced above, some applications call for the drape materials to be:

- ▶ *Breathable*—Capable of allowing gas and moisture vapor to pass through the material while maintaining a barrier to fluids and microorganisms.
- ▶ *Absorbent*—The ability to absorb and hold fluid while maintaining a barrier to penetration of fluid and microorganism through the drape.

OR staff separate draping materials into two general categories:

1. Reusable or multiple use products, which are usually constructed of textiles.
2. Disposable or single use products, which are usually constructed of nonwoven materials.

# **STRIKE THROUGH** is a serious problem and the reason surgeons and nurses believe multiple layers of drapes are necessary.

Sterile surgical drapes protect the patient from infection by preventing microorganisms from making their way into the skin opening created during surgery. Surgical drapes are effective because microorganisms cannot move by themselves and rely on dust, fluids or contact to move them. If a drape material allows fluid to penetrate, it creates a pathway and a mode of transportation for organisms to invade the sterile field. The penetration of a drape, gown or mask by fluids is known as “strike through.” Strike through is a serious problem and the reason surgeons and nurses believe multiple layers of drapes are necessary.

The second common material failure that can lead to infection is failure of the adhesive interface. Everything under the sterile surgical drape is a source of contamination. If the drape gapes or moves, contamination can be introduced into the sterile field and an infection arise. Another source of potential infection associated with drape

materials is the introduction of free fiber particles (lint) into the operating room environment. Once airborne, lint can settle on contaminated surfaces and then become airborne again, settling on the sterile field and in the surgical incision, contaminating other material or tissue on which it settles. Lint also clogs OR ventilation filters, decreasing their effectiveness.

Standards only apply to these materials when they are converted into drapes, gowns or masks intended for sale. The FDA then regulates these products as Class 1 sterile medical devices, per Rule 1 for noninvasive devices, meeting all standards for basic safety and efficacy. Every surgical drape on the market has met these basic standards to gain approval for sale. Drape manufacturers also receive guidance from industrial associations such as the Association of the Nonwoven Fabric Industry (INDA) and the Association for the Advancement of Medical Instrumentation (AAMI). These organizations are comprised of representatives from interested companies such as 3M, Kimberly Clark, Johnson & Johnson, and others. The purpose of these industrial associations is to create standardized terms and test methods that will protect the interests of the industry at large and member companies specifically. Standards and test methods developed under these organizations are voluntary and enforced by the member manufacturers.

## **AORN Recommended Practices**

The most followed recommendations are the AORN Recommended Practices for Selection and Use of Gowns and Drapes. These recommended practices state that surgical drapes should:<sup>19</sup>



- ▶ Provide appropriate barriers to microorganisms, particulate matter and fluids;
- ▶ Be appropriate to methods of sterilization;
- ▶ Maintain adequate integrity and durability;
- ▶ Withstand physical conditions;
- ▶ Resist tears, punctures, fiber strains and abrasions;
- ▶ Be free of toxic ingredients;
- ▶ Be low linting;
- ▶ Have positive cost:benefit ratios;
- ▶ Have an acceptable quality level;
- ▶ Be used and processed according to manufacturers' written instructions.

Contamination of equipment and personnel is prevented by the placement of a bacterial barrier or sterile drape over an item located within the boundary of the sterile field. During surgery, the patient, once covered with the sterile drape, becomes the center of the sterile field. Should the drapes become permeated or moist, they must be considered contaminated. Corrective action must be initiated to cover the area in question, or the drapes must be changed.

### Summary

When preparing for each procedure, always walk through each step to assure the best practice for that procedure. Surgical site infections (SSI) are the second most common healthcare associated infection (HAI) among hospitalized patients. These infections number approximately 500,000 per year, among an estimated 27 million surgical procedures, and account for approximately one quarter of the estimated two million HAIs in the United States each year.<sup>20</sup> Infections result in longer hospitalizations and higher costs. It is everyone's duty to always know your procedure in order to reduce the risk to yourself as well as to your patient. By knowing your procedure and developing your surgical conscience, you decrease the risk to your patients. (See Table 2 on page 96.) †

### References

1. Manley YB. Surgical scrubbing, then and now. *JORRI*. 1980;1(1):28-31.
2. Fairchild SS. *Perioperative Nursing Principles and Practice*. 2nd ed. Boston, Mass: Little, Brown, and Company. 1996.
3. Phillips N. Berry & Kohn's Operating Room Technique. 10th ed. St. Louis, Mo: Mosby. 2004:247.
4. CDC .Guideline for Prevention of Surgical Site Infection. 1999. Available at: [http://www.cdc.gov/ncidod/dhqp/gl\\_surgicalsites.html](http://www.cdc.gov/ncidod/dhqp/gl_surgicalsites.html).
5. Jepsen OB, Bruttomesso KA. The effectiveness of preoperative skin preparations: an integrative review of the literature. *AORN J*. 1993;58:477-484.
6. Alexander JW, Fischer JE, Boyajian M, Palmquist J, Morris MJ. The influence of hair-removal methods on wound infections. *Arch Surg*. 1983;118:347-352.
7. Sellick JA, Stelmach M, Mylotte JM. Surveillance of surgical wound infections following open-heart surgery. *Infect Control Hosp Epidemiol*. 1991;12(10):591-596.
8. AORN. Recommended practices for skin preparation of patients. Standards, Recommended Practices, and Guidelines. Denver, Colo: AORN, Inc. 2005:443-446.
9. Surgical site infections. APIC Infection Control and Applied Epidemiology Principles and Practice. St. Louis, Mo: Mosby Year Book; 1996:11-1.
10. Sacred Cows: Hair Clipping Superior to Preoperative Shave. *OR Manager*. 1990;6(2):2.
11. The Experts Research Q:A. *AORN J*. 1982;35(6):3.
12. Food and Drug Administration. Topical antimicrobial drug products for over-the-counter human use: tentative final monograph for healthcare antiseptic drug products- proposed rule. *Federal Register*. 1994;59:31441-31452.

**Table 2. Glossary**

<b>Antiseptic</b>	Any substance that inhibits the growth of bacteria; they may be physical or chemical.
<b>Aseptic Technique</b>	The methods by which microbial contamination is prevented in the environment.
<b>Barrier</b>	Material used to reduce or inhibit the migration or transmission of microorganisms in the environment.
<b>Contamination</b>	The presence of pathogenic microorganisms, organic debris and dirt; generally refers to a specific object, substance, or tissue that contains microorganisms, especially disease-producing microorganisms.
<b>Depilatory</b>	Topical chemical agent used to remove hair from the patient's skin.
<b>Healthcare Associated Infection</b>	An infection that originates during the patient's hospitalization.
<b>Infection</b>	The invasion and multiplication of microorganisms in body tissues that cause cellular injury and clinical symptoms.
<b>Microorganism</b>	An organism that is too small to be seen with the naked eye and requires a microscope. Bacteria, viruses, fungi and protozoa are generally called microorganisms.
<b>Preoperative Skin Preparation Agent</b>	Antiseptic product category of the FDA's Tentative Final Preparation Monograph for Antiseptic Drug Products used to describe an agent used for the preparation of the skin prior to surgery or an injection that helps reduce bacteria that potentially can cause skin infection.
<b>Resident Microorganisms</b>	Microorganisms persistently isolated from most people's skin. These microorganisms are considered to be permanent residents of the skin and are not readily removed by mechanical friction.
<b>Skin Preparation</b>	The process of chemical and mechanical cleansing of the skin.
<b>Sterile Field</b>	The area around the site of incision into tissue or introduction of an instrument into a body orifice that has been prepared for the use of sterile supplies and equipment. This area includes all furniture covered with sterile drapes and all personnel who are properly attired.
<b>Sterile Technique</b>	Refers to creating and working within the sterile field. To protect the patient during invasive procedures, microorganisms in the sterile field are kept to an irreducible minimum.
<b>Surgical Site Infections</b>	Infections that occur 30 days after an operation; classified as superficial incisional, deep incisional, or organ/space.
<b>Transient Microorganisms</b>	Microorganisms isolated from the skin, but not demonstrated to be consistently present in the majority of people. They are considered transient because they can be readily transmitted on hands unless removed by mechanical friction, and soap and water washing.



13. 3M™ DuraPrep Surgical Solution Safety and Efficacy Data; Evaluating Antimicrobial Effectiveness of DuraPrep™ Surgical Solution Against Resident Human Skin Flora on Abdomen and Groin Sites. [St. Paul, Minnesota]: [3M Medical Division]. 2006:19.
14. 3M™ One-Step Patient Prep Safety and Efficacy Data. [St. Paul, Minnesota]: [3M Medical Division].2006:4-5.
15. Chloraprep® Clinical Compendium. [Leawood, Kansas]: [Medi-Flex®, Inc]. 2005:25.
16. Dyna-hex® Chlorhexidine Gluconate [Technical Information Packet]. [Chicago, IL], Xttrium Laboratories Inc. 1986.
17. Scrub Care® Povidone Iodine Antimicrobial Solutions, In Vivo Efficacy Study. [McGaw Park, Illinois]: [Cardinal Health]. 2004:8.
18. Alexander JW, Aerni S, Plettner JP. Development of a safe and effective one-minute preoperative skin preparation. *Arch Surg.* 1985;120:1357-1361.
19. AORN. Recommended practices for selection and use of gowns and drapes. *Standards, Recommended Practices, and Guidelines.* Denver, Colo: AORN, Inc. 2005:371-376.
20. Graves EJ, Gillum BS. Detailed diagnoses and procedures, National Hospital Discharge Survey, 1994. *Vital Health Stat 13.* 1997;(127):1-145.

*Ellen Anderson Manz is currently the 3M Technical Service Specialist for topical antimicrobial products in St. Paul, Minn. She lectures extensively on antimicrobials, hand hygiene and patient prepping. Ellen has 13 years experience in the operating room. She was the OR Clinical Educator for the HealthEast Health Care System in St. Paul. She is a member of AORN and AORN Assembly, Industry and Consulting.*

*Deborah Gardner, LPN, OPAC, CIC, is a technical service specialist for 3M Health Care, St. Paul, Minn. She has more than 30 years experience in the medical field, including operating room nursing and clinical assessment. She has written several publications dealing with infection prevention and has spoken to local AORN groups.*

*Maret Millard is currently the 3M Technical Service Specialist for surgical clippers, masks and respirators in St. Paul, Minn. Maret also works in the emergency room of Regions Hospital, a level I trauma center, as an Emergency Medical Technician; and is a member of the National Association of Emergency Medical Technicians (NAEMT). Maret is a speaker and instructor for the Infection Prevention Interactive Education CD Rom program.*

70-2009-7475-9

### Nursing CEU Application Form

This inservice is 3M Health Care Provider approved by the California Board of Registered Nurses, CEP 5770 for (1) contact hour. This form is valid up to five years from the date of publication.

1. Make a photocopy of this form.
2. Print your name, address and daytime phone number and position/title.
3. Add your social security number or your nursing license number.
4. Date the application and sign.
5. Answer the CE questions.
6. Submit this form and the answer sheet to:  
Workhorse Publishing  
Managing Infection Control  
PO Box 25310, Scottsdale, AZ 85255-9998
7. Participants who score at least 70% will receive a certificate of completion within 30 days of *Managing Infection Control's* receipt of the application.

### Application

Please print or type.

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City, State, Country, Zip: \_\_\_\_\_

Daytime phone: (        ) \_\_\_\_\_

Position/Title: \_\_\_\_\_

Social Security or Nursing License Number :

\_\_\_\_\_

Date application submitted: \_\_\_\_\_

Signature: \_\_\_\_\_

*Offer expires August 2011*

### ANSWERS

- |      |      |      |      |       |
|------|------|------|------|-------|
| 1. T | 2. T | 3. F | 4. T | 5. T  |
| 6. F | 7. F | 8. T | 9. T | 10. F |

Reprint with permission from Workhorse Publishing L.L.C.  
Copyright©2006/Workhorse Publishing L.L.C./All Rights Reserved.