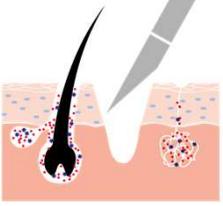


3M Science.
Applied to Life.™

Do you have skin in the game? The high stakes of SSIs



Date:
Presenter

Disclosure

- Name
- Terri Sontheimer RN, CNOR, CRNFA
3M Medical Market
- Clinical Specialist

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Objectives

- ▶ Examine the relationship between microbial cells and human cells
- ▶ Recognize the financial and personal impact of surgical site infections
- ▶ Explain the CDC's conceptual formula for SSI Risk in relation to patient and process variables
- ▶ Describe the considerations for surgical skin prep selection
- ▶ Discuss the importance of creating a sterile surface to help manage the risk of surgical site infections

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Impact of Surgical Site Infections

Surgical site infections (SSIs) are a huge burden on healthcare systems, providers and patients

Occur in 2-5% of all patients undergoing inpatient surgery ¹	Cost on average \$20,785 per patient ²	Affect quality of life ³
Result in 2-11X increased risk of mortality ⁴	Increase length of stay by 7-11 days ⁵	Increase nursing care ⁶
Lower patient satisfaction ⁷	Increase litigation ⁸	Are more than 5X as likely to result in readmission ⁹

1. Anderson D, et al. Strategies to Prevent Surgical Site Infections. In: Acute Care Hospitals: 2016 Update. Infection Control and Hospital Epidemiology. 2016; 37(1): 657-677. doi:10.1093/infdis/jiv244. 2. Zaslavsky A, et al. The Burden of Surgical Site Infections. Infection Control and Hospital Epidemiology. 2016; 37(1): 657-677. doi:10.1093/infdis/jiv244. 3. Wrenn J, et al. The Burden of Surgical Site Infections. Infection Control and Hospital Epidemiology. 2016; 37(1): 657-677. doi:10.1093/infdis/jiv244. 4. Kohnen M, et al. The Burden of Surgical Site Infections. Infection Control and Hospital Epidemiology. 2016; 37(1): 657-677. doi:10.1093/infdis/jiv244. 5. Kohnen M, et al. The Burden of Surgical Site Infections. Infection Control and Hospital Epidemiology. 2016; 37(1): 657-677. doi:10.1093/infdis/jiv244. 6. Kohnen M, et al. The Burden of Surgical Site Infections. Infection Control and Hospital Epidemiology. 2016; 37(1): 657-677. doi:10.1093/infdis/jiv244. 7. Kohnen M, et al. The Burden of Surgical Site Infections. Infection Control and Hospital Epidemiology. 2016; 37(1): 657-677. doi:10.1093/infdis/jiv244. 8. Kohnen M, et al. The Burden of Surgical Site Infections. Infection Control and Hospital Epidemiology. 2016; 37(1): 657-677. doi:10.1093/infdis/jiv244. 9. Kohnen M, et al. The Burden of Surgical Site Infections. Infection Control and Hospital Epidemiology. 2016; 37(1): 657-677. doi:10.1093/infdis/jiv244.

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Why do we wear gloves during surgery?

We scrub our hands before surgery to decrease the amount of bacteria

But still we wear gloves to prevent residual bacteria and regrowth from our hands getting into the incision and causing an infection

Why wouldn't we take similar precautions with the patients skin?

What about the patients skin makes it a risk factor in the development of surgical site infections?

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Meet Your Microbiome

the microorganisms that call you home and where they live

37 Trillion Human Cells
100 Trillion Microbial Cells

Kinds of cells in the human body

- Human
- Bacterial
- Fungal

American Society for Microbiology Academy. FAQ: Human Microbiome 2014. Retrieved December 08, 2016, from <http://the-assembly.com/index.php/faq-series/522-humanmicrobiome>

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"We exist in the bacterial world, not bacteria in ours. Unfortunately, we believe that we can rid ourselves of bacteria when, in fact, we cannot."

International Conference on Emerging Infectious Diseases 2000; Atlanta, Georgia
Antibacterial Household Products: Cause for Concern
Stuart B. Levy

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Risk of Surgical Site Infection (SSI)

Conceptual Model

RISK OF SSI = $\frac{\text{Dose of bacteria} \times \text{Virulence of bacteria}}{\text{Patient risk factors}}$

PROCESS VARIABILITY

PATIENT VARIABILITY

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Patient Variability: Resistance of the Host (Patient)

- ▶ Age
- ▶ Co-morbidity, eg, Diabetes
- ▶ Compromised Immune System
- ▶ Obesity
- ▶ Nutritional Status
- ▶ Nicotine Use
- ▶ Prolonged Preoperative Stay
- ▶ Steroid Use
- ▶ Duration of Surgery
- ▶ Remote Site Infection (Not treated prior to surgery)

CDC Guideline For Prevention Of Surgical Site Infection, 1999 http://www.cdc.gov/hicpd/d/hspp/g_surgicalsite.html

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Process Variability: Dose of Bacteria (Contamination)

- ▶ Hand hygiene
- ▶ Appropriate antimicrobial prophylaxis
- ▶ Preoperative bathing
- ▶ Nasal decontamination
- ▶ Oral decontamination
- ▶ Hair removal
- ▶ Skin preparation
- ▶ Surgical hand antisepsis
- ▶ Appropriate surgical attire and drapes
- ▶ Operating room characteristics
 - Ventilation, traffic, environmental surfaces
 - Sterilization
- ▶ Patient management
 - Normothermia
 - Glucose control
 - Oxygenation
- ▶ Surgical technique
 - Hemostasis
 - Failure to obliterate dead space
 - Tissue trauma

CDC Guideline For Prevention Of Surgical Site Infection, 1999 http://www.cdc.gov/hicpd/d/hspp/g_surgicalsite.html

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Risk of Infection

According to the CDC's conceptual formula for SSI Risk, SSIs are impacted by the number of microbes that contaminate an incision during surgery!

Most surgical site infections are caused by contamination of an incision with microbes from the patient's own skin

The skin can contain over 1,000,000 bacteria per sq. cm.²

It can take as few as 10 microbes per sq. cm.² to cause a surgical site infection³

If we can reduce the number of microorganisms, we can reduce the risk of infection

*Wiley, copyright preserved.

1. CDC Guideline For Prevention Of Surgical Site Infection, 1999 http://www.cdc.gov/hicpd/d/hspp/g_surgicalsite.html

2. Petersen DJ, Lemieux C, Lortie AJ, Hillinger DM. Microbiology of the skin and the risk of bacterial infection. *Int Wound J*. 2012;15:28-32.

3. Fildesman G, et al. Bacterial adherence to the skin: microbes, colonization, infection, degenerative skin disease, health care, and antibiotic resistant strains. In: Austin MC, Klein GE, eds. *Recent Advances in Orthopaedic Rheumatology*. PA: Taylor Medical Inc; 2016. 205.

© 2011 CDC. All Rights Reserved. 12

SSI Risk Formula (CDC)

CONCEPTUAL MODEL

Reducing the contamination level (dose of bacteria) will consequently reduce the risk of infection

RISK OF SSI = $\frac{\text{Process Variability} \times \text{Patient Risk}}{\text{Wound Variability}}$

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We cannot predict who will get an infection because...

- Each patient has a unique immune system
- Each patient has different risk factors
- Surgery is different for each patient
- Bacteria have different levels of virulence (strength)
- Bacteria may form biofilms

Therefore whatever we can control through prevention and standardization should be done to reduce the risk of infection and ensure the best outcome for each patient

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How can we reduce contamination from the patient's own skin?

Skin is decontaminated through the use of skin preps

Skin Preps are antimicrobial and reduce the number of microbes on the skin surface. But bacteria in the deeper layers remain

Immediately after skin decontamination, microbes from the lower layers of the skin will migrate to the skin surface

Iodine-impregnated incise drapes work in the deeper skin layers and form a barrier between the patient and the surgical wound

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Surgical Skin Preps

History of Skin Preps:

- The first use of an antiseptic skin agent in surgery is credited to the English surgeon, Joseph Lister (1827–1912).

Today:

- There are a variety of skin antiseptic solutions
- No one antiseptic can be used universally¹



IN THE ANTISEPTIC PRINCIPLES OF THE PRACTICE OF SURGERY

By the use of carbolic acid in the case of a patient who had been operated on, the author has been enabled to perform a large number of operations, and to save the lives of many patients who would otherwise have died. The use of carbolic acid is not only a means of preventing infection, but it is also a means of destroying the germs which are already present on the skin and in the wounds. The use of carbolic acid is therefore a most important part of the antiseptic practice of surgery.

Joseph Lister and "Antiseptic Principles of the Practice of Surgery" 1867, in which Lister advocates the use of carbolic acid (phenol)

1. AORN. Guideline for Preoperative Patient Skin Antisepsis. Guidelines for Perioperative Practices. Denver, Colorado: AORN, Inc. 2007.

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Surgical Skin Preps

What is a Surgical Skin Prep?

- An antiseptic solution applied to the skin to remove soil and transient microorganisms (including bacteria) at the surgical site

- Reducing bacteria at the surgical site may help reduce surgical site infection.
- Effective skin antiseptics rapidly and persistently remove transient microorganisms and reduce resident microorganisms to subpathogenic levels with minimal skin and tissue irritation.



AORN. Guideline for Preoperative Patient Skin Antisepsis. Guidelines for Perioperative Practices. Denver, Colorado: AORN, Inc. 2007.

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Preoperative Skin Antisepsis

Should, per guidelines:

- Significantly reduce microorganisms on intact skin
- Contain non-irritating antimicrobial preparation
- Be broad-spectrum
- Be fast-acting
- Have persistent activity

Additional Information:

- Kills bacteria by attacking multiple cell processes
- Non-toxic at relatively high concentrations
- Relatively inexpensive
- Resistance usually does not form



AORN, Guidelines for Preoperative Patient Skin Antisepsis, Guidelines for Perioperative Practices Denver, Colorado: AORN, Inc. 2007.

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Antiseptic Fundamentals



Basic Antiseptics



Alcohol



Iodine / Iodophor



Chlorhexidine
Gluconate



Dual-active
Antiseptic Products



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Alcohol ^{1,2,3}

-  The oldest antiseptic (131-201 AD)
-  Rapid broad-spectrum antimicrobial activity
-  Denatures cell wall proteins
-  No Persistence
-  Concentration determines effectiveness 60-95% Range (TFM)
-  Isopropyl alcohol (isopropanol) – most commonly used in surgical skin preparations
-  Ethyl alcohol (ethanol) – most commonly used in hand sanitizers

Irritation increases with higher concentration

1. Ali Y, Dolan M, Farrell J, Larson E. Alcohols. In: Block SS, Disinfection, Sterilization, and Preservation. 5th ed. Philadelphia, PA: Lippincott and Wilkins; 2001.
 2. Edwards PS, Lipp A, Holmes A. Preoperative skin antiseptics for preventing surgical wound infections after clean surgery. Cochrane Database of Systematic Reviews. 2004. DOI:10.1002/14651858.CD003949.pub2.
 3. Larson E. Guidelines for use of topical antimicrobial agents. American Journal of Infection Control. 1988; 16(8):523-266.
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Iodine ^{1,2,3}

-  History dating back 170 years
-  Broad-spectrum antimicrobial activity
-  Oxidation /substitution with iodine
-  Iodine very irritating to the skin

Iodophors were developed to minimize side effects while maintaining efficacy

1. Gottard W. Iodine and iodine compounds. In: Block SS, Disinfection, Sterilization, and Preservation. 5th ed. Philadelphia, PA: Lippincott and Wilkins; 2001.
 2. Edwards PS, Lipp A, Holmes A. Preoperative skin antiseptics for preventing surgical wound infections after clean surgery. Cochrane Database of Systematic Reviews. 2004. DOI:10.1002/14651858.CD003949.pub2.
 3. Larson E. Guidelines for use of topical antimicrobial agents. American Journal of Infection Control. 1988; 16(8):523-266.
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Iodophor (Example: Povidone Iodine) ^{1,2,3}

-  Introduced in 1960s
-  Same antimicrobial activity and mechanism of action as iodine...less irritating
-  Iodophor = iodine + water soluble polymer reservoir (eg, povidone)
-  Slowly releases iodine
-  Requires time to release iodine – application may be as long as 5 minutes

1. Gottard W. Iodine and iodine compounds. In: Block SS, Disinfection, Sterilization, and Preservation. 5th ed. Philadelphia, PA: Lippincott and Wilkins; 2001.
 2. Edwards PS, Lipp A, Holmes A. Preoperative skin antiseptics for preventing surgical wound infections after clean surgery. Cochrane Database of Systematic Reviews. 2004. DOI:10.1002/14651858.CD003949.pub2.
 3. Larson E. Guidelines for use of topical antimicrobial agents. American Journal of Infection Control. 1988; 16(8):523-266.
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Chlorhexidine Gluconate ^{1,2,3,4}

-  Introduced in 1950s
-  Good broad spectrum antimicrobial coverage
-  Disrupts cell membrane and precipitates cytoplasm
-  Binds to protein in stratum corneum leaving a persistent residue and residual effect
-  Repeated use = further reduction of bacteria
-  Typical concentrations - 0.5% - 4%

1. Centers for Disease Control. Guidelines for the Prevention of Intensive Care Unit Acquired Infections. Infection Control Hospital Epidemiology. 2010; Supplement 1, 2011.
 2. Denton D. Chlorhexidine. In: Black SS, Disinfection, Sterilization, and Preservation. 5th ed. Philadelphia, PA: Lippincott and Wilkins; 2006.
 3. Edwards RL, Upp A, Holmes K. Povidone-iodine antiseptics for preventing surgical wound infections after clean surgery. Cochrane Database of Systematic Reviews 2004. DOI: 10.1002/14651958.CD003949.pdf.
 4. Infection Nurses Society. Infection Nursing Standards of Practice. Journal of Infection Nursing. 24(3), 2011

Dual-active Antiseptic Products

Common dual-active antiseptics:

- Iodine Povacrylex and Isopropyl Alcohol
- Povidone Iodine and Isopropyl Alcohol
- Chlorhexidine Gluconate and Isopropyl Alcohol

"The whole is greater than the sum of its parts"

Aristotle

Considerations for Selection of Preps

- The most commonly used patient skin preps must meet regulatory criteria for immediate microbial kill and persistent antimicrobial activity
- It is important to look at other factors that may affect performance when choosing a prep for surgical patients
- There is **NO** one prep that will meet all prepping needs



Preoperative Skin Antisepsis

SHEA IDSA¹	"Wash and clean skin around incision site; Use a dual agent skin preparation containing alcohol, unless contraindication exists"
CDC² Guideline for the Prevention of Surgical Site Infection²	"Perform intraoperative skin preparation with an alcohol-based antiseptic agent unless contraindicated. (Category IA—strong recommendation; high-quality evidence.)"
AORN³	Recommendation III "The collective evidence indicates that there is no one antiseptic that is more effective than another for preventing SSI."
NQF: Safe Practice #22⁴	Preoperatively use solutions that contain isopropyl alcohol as skin antiseptic preparation until other alternatives have been proven as safe and effective, and allow appropriate drying time per product guidelines

None of these state that one antiseptic agent is preferred over another

1. Anderson, D. J. et al. Strategies to Prevent Surgical Site Infection in Acute Care Hospitals: 2014 Update. Retrieved from www.aahr.org DOI: 10.1098/076022
2. CDC/NOPAC Guideline for the Prevention of Surgical Site Infection. JAMA, May 2007. <http://www.cdc.gov/nopac/guidelines/2007/05/07/0507022007.pdf>
3. AORN. Guideline for Preoperative Patient Skin Antisepsis. Guidelines for Perioperative Practice. Denver, Colorado: AORN, Inc. 2015.
4. National Quality Forum 2010 safe practice #22 on surgical site infection.

Things to Consider when Choosing a Surgical Prep

Baseline Considerations

Patient Factors

- Allergies / sensitivities
- Age of patient
- Skin condition
- Location / Type of procedure

Active Ingredients

- Aqueous solution
- Dual active solution

Size of Area Being Prepped

- Use an appropriately sized applicator

- ✓ Does the patient have any allergies or sensitivities?
- ✓ Is the patient under two months of age?
- ✓ Is the skin intact?
- ✓ Where is the surgical procedure site?
- ✓ What are the active ingredients in the prep?
- ✓ Does the procedure involve prepping a large surface area?

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Things to Consider when Choosing a Surgical Prep

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Active Ingredients

- Aqueous solution
- Dual-active solution

Size of Area Being Prepped

- Use an appropriately sized applicator

Other Important Factors

Ability to maintain antimicrobial effectiveness



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The need for protection doesn't end when the surgery ends

Hospitals are some of the most contaminated environments

- We go to the hospital for care, but in fact are exposed to microorganisms which can cause infection, including multi-drug resistant organisms
- Risk of cross contamination is high
- If you stay in a room that was previously occupied by a patient with a multi-drug resistant organism, your risk of acquiring that same organism / infection goes up

Outpatient: Patients are going home sooner

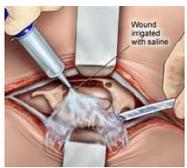
- Patients going home quickly
- Less clinical monitoring and oversight once they leave
- Uncontrolled home environment
- Competence / compliance of person caring for wound post-operative

Protecting the surgical wound post surgery is more important than ever

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After you prep the skin and start surgery, its important the prep stays on the skin and continues to provide protection

- Not all preps are created equal
- Some preps are water soluble, which means they can easily be washed or rubbed off in surgery
- If prep is removed, then it is no longer working and providing antimicrobial protection for the patient



Wound irrigated with saline

Its important clinicians understand that preps vary in their ability to remain on the skin throughout surgery and provide antimicrobial efficacy

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Not all skin preps perform to the same level under surgical conditions

Prep Needs to Stay on the Skin to Remain Effective

During surgery, most preps can be removed by a number of factors, including:

- saline irrigation
- dabbing with sponges or gauze
- bodily fluids

If surgical prep is removed during surgery, patients lose the critical protection of the active ingredient



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Things to Consider when Choosing a Surgical Prep

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- Dual-active solution

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Other Important Factors

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Hours of antimicrobial persistence

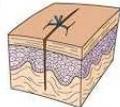
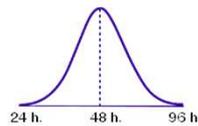


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Surgical wounds can take up to 96 hours to seal following surgery

- Many clinicians believe 48 hours is enough protection
- However, 48 hours for a wound to seal is an average, but many factors impact the time to seal
- Patient co-morbidities, age, weight, smoking, environment, etc. can effect sealing time¹
- The time required can be as short as **24 hours all the way up to 96 hours²**
- The type of closure, e.g., fully closing, partially closing, packing a wound, etc. can also effect sealing time...beyond 96 hours for some



Length of antimicrobial persistence is important when choosing a surgical prep

1. Guo S, Di Pietro LA. Factors affecting wound healing. J Dent Res. 2010; 89(3): 219-229.
2. Emrich S, Langer DJ. Basic science of wound healing. Surgery. 2008; 26(2): 31-37

Things to Consider when Choosing a Surgical Prep

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Hours of antimicrobial persistence



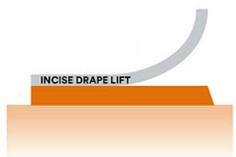
Are you using an incise drape?



Why does incise drape adhesion matter?

When a drape lifts, it allows for bacteria to be transferred into the wound

In a study, drape lift was associated with a **6-fold increase** in SSI. ¹



1. Alexander, J.W., Arns, S, and Plattner, J.P. 1985. Development of safe and effective One-Minute Skin Preparation. Arch Surg. 120:1307-1310.

The prep you use can dramatically effect the ability of an incise drape to adhere well to the skin

Many different active ingredients are used in the various surgical skin preps currently available

Formulations of the skin prep can effect how well the incise sticks to the skin

Some prep actually improve adhesion while others interfere with adhesion and lead to increased drape lift.

iodine
povacrylex
alcohol
CHG
povidone
iodine





Loss of drape adhesion.



Better drape adhesion.

Your choice of skin prep matters when using incise drapes

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Size of Area Being Prepped

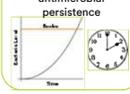
- Use an appropriately sized applicator

Other Important Factors

Ability to maintain antimicrobial effectiveness



Hours of antimicrobial persistence



Are you using an incise drape?



Ability to see on all skin tones



Things to Consider when Choosing a Surgical Prep

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Active Ingredients

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Size of Area Being Prepped

- Use an appropriately sized applicator

Other Important Factors

Ability to maintain antimicrobial effectiveness



Hours of antimicrobial persistence



Are you using an incise drape?



Ability to see on all skin tones



Dripping, running, and pooling



Proper application and protection makes a difference

Scrub



Paint



Use repeated back and forth strokes



AORN Guidelines State...

"Sheets, padding, positioning equipment, and adhesive tape should be protected from dripping or pooling of skin antiseptics beneath and around the patient...removal of materials that are saturated with the skin antiseptic before the patient is draped"

- Guidelines for Perioperative Patient Skin Antisepsis, AORN 2017

What are you doing for fire safety?

- Many preps contain alcohol. While this helps improve efficacy of the prep, it is also highly flammable and poses a fire risk to the patient
- For this reason, it is required to wait a minimum of 3 minutes for the prep to dry before beginning the procedure
- However, there is always risk that the solution pools on or around the patient, not fully evaporating and increasing risk for fire



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Things to Consider when Choosing a Surgical Prep

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- Age of patient
- Skin condition
- Location / Type of procedure

Active Ingredients

- Aqueous solution
- Dual-active solution

Size of Area Being Prepped

- Use an appropriately sized applicator

Other Important Factors

Ability to maintain antimicrobial effectiveness



Hours of antimicrobial persistence



Are you using an incise drape?



Select the prep that is best for the patient and their procedure

Ability to see on all skin tones



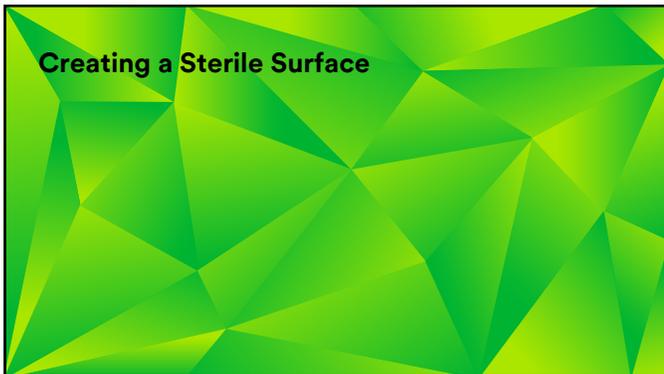
Dripping, running, and pooling



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Creating a Sterile Surface



Why do we wear gloves during surgery?

We scrub our hands before surgery to remove bacteria

But still we wear gloves to prevent residual bacteria and regrowth from our hands getting into the incision and causing an infection

How can we apply the same standard of care to the patient's skin?



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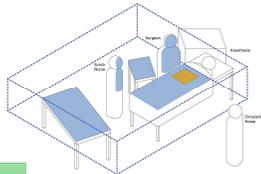
Creating a Sterile Surface on the Patient's Skin

Applying the same standard of care to the patient's skin as we do our hands requires creating a **sterile surface**

A sterile surface cannot be created on the skin until the sterile field has been established

We start by applying an effective surgical prep to reduce as much bacteria on the skin as possible

Surgical drapes are then placed to create the sterile field on the patient and surrounding tables and mayo stand



The sterile field is now established, but have we created a sterile surface on the patient's skin?

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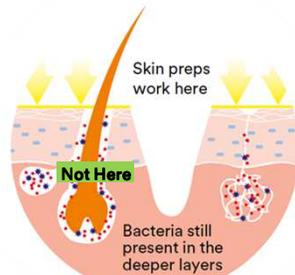
Preps Alone Can't Eliminate Bacteria on a Patient's Skin

Use a skin prep to reduce as much bacteria on the skin as possible

However, antiseptics work primarily on the skin surface, **NOT** in the deeper layers of the skin

The skin is **NEVER** sterile

According to a study, CHG in skin preps does not penetrate into the deeper layers of the skin. Below a **depth of 300 μm**, CHG concentration may not be effective for killing bacteria¹



¹ Karpanen T.A, Worthington T, Conway BR, Hiltan AC, Ellison TSL, and Lambert PA. Penetration of chlorhexidine into human skin. Antimicrobial Agents and Chemotherapy. 2008.

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Incise Drapes Help Prevent Contamination of the Incision

An incise drape is a plastic film coated with adhesive that is placed on the skin over the incision area

It immobilizes residual bacteria on the skin and helps prevent items in surgery from touching the skin and transferring bacteria into the incision

Some incise drapes, contain a breathable film and iodine in the adhesive layer of the incise drape. The breathable film helps prevent moisture build up, and the iodine in the adhesive helps kill residual bacteria under the drape

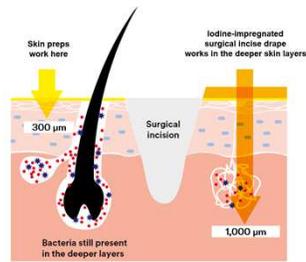


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New Evidence in the Fight Against Infection

Skin penetration of skin preps and iodine-impregnated incise drape



1. Cooney AL, Kapanan TJ, Nightingale P, Conway BR, Elliott TSJ. Antimicrobial activity and skin permeation of iodine present in an iodine-impregnated surgical incise drape. J Antimicrob Chemotherapy. 2006. © 2008. All Rights Reserved.

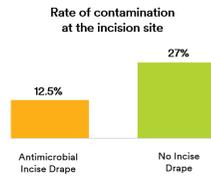
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Using and incise drape was shown to be significantly more effective at reducing microbial contamination vs. using no drape

Chen et al.
Incise draping is protective against surgical site contamination during hip surgery: a prospective, randomized trial

In a prospective, randomized clinical study of patients undergoing hip preservation surgery the use of an antimicrobial incise drape versus not using an incise drape showed:

- Antimicrobial Incise Drape was significantly more effective at reducing microbial wound contamination at the incision site compared to not using an incise drape
- At surgery end 12.5% of incisions with antimicrobial incise drape and 27% of incisions without an incise drape were positive for bacteria
- When controlling for preoperative colonization and other factors, patients without incise drapes were significantly more likely to have bacteria at the incision than patients with antimicrobial incise drape at the time of closure



1. Chen AF, Beegler MR, Tan TL, Maheshwari MS, Pavicic JP. Incise draping (Iodine) is protective against surgical site contamination during hip surgery: a prospective, randomized trial. Paper presented at 2010 Annual Open Scientific Meeting of the Musculoskeletal Infection Society. August 2010. Charlotte, NC. © 3M 2008. All Rights Reserved.

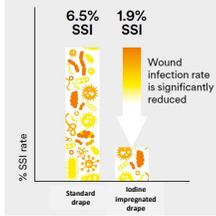
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New clinical study shows that an iodine impregnated drape can help reduce the risk of infection as well as reduce overall cost

Bejko et al.
Comparison of efficacy and cost of iodine impregnated drape vs. standard drape in cardiac surgery

In a new prospective randomized study of 5,100 patients undergoing cardiac surgery, 3M Ioban was associated with:

- A significant reduction (71%) in the overall incidence of SSIs when compared with the use of a non-antimicrobial incise drape¹
- Cost-effective direct patient-related care, delivering overall cost savings of \$828,000 (or about \$1,025 per patient)¹



1. Bejko et al. Comparison of efficacy and cost of iodine impregnated drape vs. standard drape in cardiac surgery. Study in 5100 patients. J Cardiovasc Trans Res. 2015;8:433-437

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Conclusion

- ▶ Control process variability factors that can reduce the bacterial load
- ▶ Use effective antiseptic skin preps to kill as much bacteria as possible on the skin
- ▶ Whenever possible create a sterile surface using an iodine-impregnated surgical incise drape

Questions?

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Thank You!