

Module E

## PRINCIPLES AND PRACTICES OF ASEPSIS

Statewide Program for Infection Control and Epidemiology (SPICE)  
UNC School of Medicine

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### OBJECTIVES



- Describe the principles and practice of asepsis
- Discuss the role of hand hygiene in asepsis
- Discuss the role of the environment in disease transmission

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### DEFINING ASEPSIS



	Medical Asepsis	Surgical Asepsis
Definition	Clean Technique	Sterile Technique
Emphasis	Freedom from most pathogenic organisms	Freedom from all pathogenic organisms
Purpose	Reduce transmission of pathogenic organisms from one patient-to-another	Prevent introduction of any organism into an open wound or sterile body cavity

*(Free from disease producing microorganisms)*

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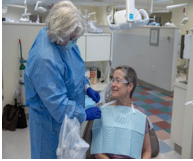
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### MEDICAL ASEPSIS

Medical asepsis, also known as “clean technique” is aimed at controlling the number of microorganisms and is used for all clinical patient care activities.



Necessary components of medical asepsis include:

- Knowing what is dirty versus clean versus sterile
- How to keep the first three conditions separate
- How to remedy contamination immediately



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### PRINCIPALS OF MEDICAL ASEPSIS



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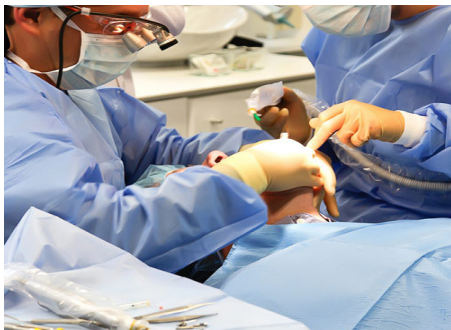
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### SURGICAL ASEPSIS



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### SURGICAL ASEPSIS

Surgical asepsis, also known as “sterile technique” is aimed at removing all microorganisms and is used for all surgical/sterile procedures.

Necessary components of surgical asepsis include:

- Knowing what is and what is not sterile
- How to keep the first two conditions separate
- How to remedy contamination immediately



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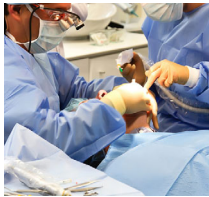
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### PRINCIPLES OF SURGICAL ASEPSIS



- While performing surgical procedures, wear sterile gloves.
- Surgical procedures include:
  - Biopsy
  - Peridontal surgery
  - Implant surgery
  - Surgical tooth extraction



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### KNOWLEDGE CHECK

Which of the following is True?

1. Surgical asepsis should be used for all patient care activities
2. ✓ Medical asepsis is used for all patient care activities
3. Clean and dirty equipment can be stored together as long as they are not touching
4. The goal for medical asepsis is freedom from all pathogenic organisms



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### ROLE OF HAND HYGIENE



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### WHAT IS HAND HYGIENE?

- Handwashing with soap and water
- Antiseptic handwash
- Alcohol-based hand rub
- Surgical antisepsis



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### THE ROLE OF HAND HYGIENE



Stratum Corneum of the Skin

Skin Surface  
Epidermis  
Dermis

● Resident Bacteria  
● Transient Bacteria



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### THE ROLE OF HAND HYGIENE

**5 ELEMENTS OF TRANSMISSION**

- 1 Present on the skin or near by objects
- 2 Transferred to health care workers hands
- 3 Survive for several minutes
- 4 Hand hygiene omitted or inadequate
- 5 Direct contact with patients or equipment

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### THE ROLE OF HAND HYGIENE

**34 STUDIES: 1981-2000**

- Mean baseline rates: 5%-81%
- Overall average: **< 40% Compliance**

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### REASONS FOR NONCOMPLIANCE

- Inaccessible hand hygiene supplies
- Skin irritation
- Too busy
- Glove use
- Didn't think about it
- Lacked knowledge

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### POTENTIAL ADVANTAGES ALCOHOL-BASED HAND RUBS

- Requires less time than hand washing
- Acts quickly to kill microorganisms on hands
- More effective than hand washing with soap and water
- More accessible than sinks
- Less irritating to skin than soap and water and can even improve condition of skin



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### WHEN TO PERFORM HAND HYGIENE



World Health Organization



Centers for Disease Control and Prevention

1. Before touching a patient	Before and after touching the patient
2. Before clean / aseptic procedure	Before donning sterile gloves for central venous catheter insertion; also for insertion of other invasive devices that do not require a surgical procedure using sterile gloves If moving from a contaminated body site to another body site during care of the same patient
3. After body fluid exposure risk	After contact with body fluids or excretions, mucous membranes, non-intact skin or wound dressing If moving from a contaminated body site to another body site during care of the same patient After removing gloves
4. After touching a patient	Before and after touching the patient After removing gloves
5. After touching patient surroundings	After contact with inanimate surfaces and objects (including medical equipment) in the immediate vicinity of the patient After removing gloves



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### Hand Rubbing



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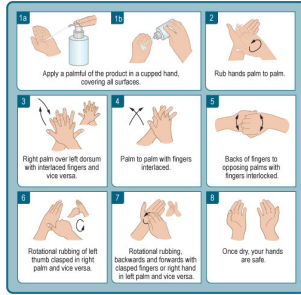
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### HOW TO HAND RUB

- The use of an alcohol based hand rub is preferential to hand washing when hands are not visible soiled:




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### HOW TO HAND WASH

- Hand washing with soap and water should be used when hands are visible soiled or contaminated with blood and/or body fluids and after providing care for patients with diarrhea:




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**HAND HYGIENE PROGRAM**  
*ADDITIONAL ELEMENTS*  
 CDC GUIDELINE FOR HAND HYGIENE IN HEALTHCARE SETTING

- Involve staff in evaluation and selection of hand hygiene products
- Provide employees with hand lotions/creams compatible with soap and/or ABHRs
- Do not wear artificial nails when providing direct clinical care
- Provide hand hygiene education to staff
- Monitor staff adherence to recommended HH practices




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**SUMMARY OF HAND HYGIENE**


Hand hygiene must be performed exactly where **you** are delivering healthcare to patients (at the point-of-care).

During healthcare delivery, there are 5 moments (indications) when it is essential that **you** perform hand hygiene.

To clean your hands, **you** should prefer **hand rubbing** with an alcohol-based formulation, if available. Why? Because it makes hand hygiene possible right at the point-of-care, it is faster, more effective, and better tolerated.

**You** should wash your hands with soap and water when visibly soiled.

**You** must perform hand hygiene using the appropriate technique and time duration.




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**KNOWLEDGE CHECK**

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True or False:  
 Hand washing with soap and water is always the preferred method of hand hygiene



True



False




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### ROLE OF THE ENVIRONMENT

Spaulding Classification of Surfaces:

1. **Critical** – Objects which enter normally sterile tissue or the vascular system and require sterilization
2. **Semi-Critical** – Objects that contact mucous membranes or non-intact skin and require high-level disinfection
3. **Non-Critical** – Objects that contact intact skin but not mucous membranes, and require low or intermediate-level disinfection


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### ROLE OF THE ENVIRONMENT

<h4>Clinical</h4>  <ul style="list-style-type: none"> <li>• High potential for direct contamination</li> <li>• Spray or splatter</li> <li>• Frequent contact with healthcare personnel's hands</li> </ul>	<h4>Housekeeping</h4>  <ul style="list-style-type: none"> <li>• No direct contact with patients or devices</li> <li>• Little risk of transmitting infections</li> </ul>
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### ROLE OF THE ENVIRONMENT

**EXAMPLES OF COMMONLY USED DISINFECTANTS:**

- Alcohol
- Chlorine
- Iodophor\*
- QUAT\*
- Hydrogen Peroxide
  - Robust, versatile, fastest contact time to kill



\*UD= Manufacturer's recommended use dilution




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### KNOWLEDGE CHECK

True or False:  
Because of the increasing number of resistant organisms all environmental surfaces should be disinfected with bleach

True  False

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### KNOWLEDGE CHECK

• Which of the following is **NOT** a component of asepsis

1. Hand hygiene
2. Environmental cleaning
3. Droplet Precautions
4. Separation of clean, dirty and sterile items

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QUESTIONS?



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