

Principles and Practices of Asepsis

Role of hands and the environment in disease transmission

Objectives

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

Defining Asepsis

(Free from disease producing microorganisms)

	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

Medical Asepsis

Medical asepsis, also known as “clean technique” is aimed at controlling the number of microorganisms.

Medical asepsis is used for all clinical patient care activities.

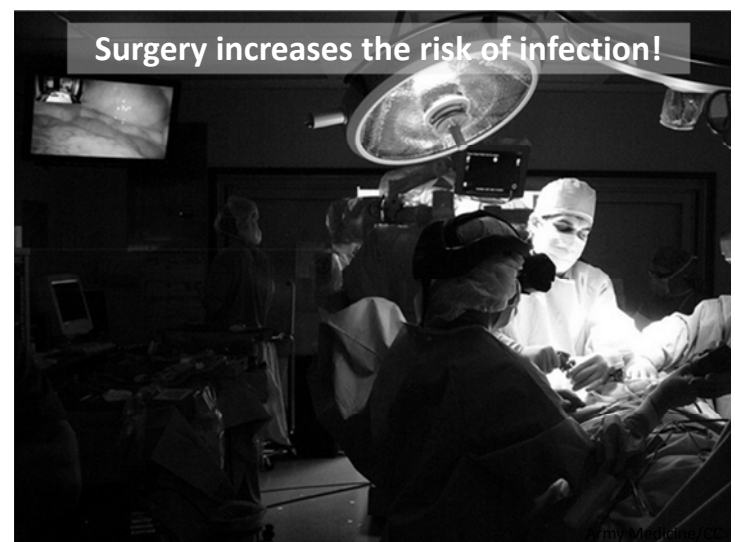
Necessary components of medical asepsis include:

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



Principles of Medical Asepsis

- Perform hand hygiene
- Use of personal protective equipment according to standard precautions
- Clean and disinfect shared patient equipment
- Clean and disinfect the environment
- Healthcare providers:
 - Current with recommended immunizations,
 - Maintaining good personal hygiene and
 - Not working when sick.



Surgical Asepsis

Surgical asepsis, also known as “sterile technique” is aimed at removing all microorganisms.

Surgical asepsis is used for all surgical/sterile procedures.

Necessary components of surgical asepsis include:

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

Principles of Surgical Asepsis

- **The patient should not be the source of contamination**
- **Healthcare personnel should not be the source of contamination**
- **The hand scrub should be done meticulously**
- **Recognize potential environmental contamination**
 - Keep door closed
 - Keep traffic to a minimum

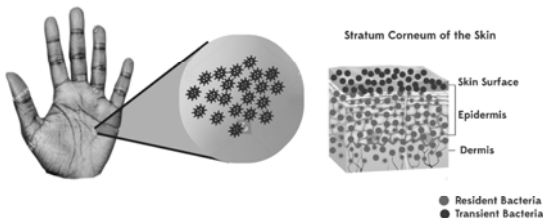


What is Hand Hygiene?

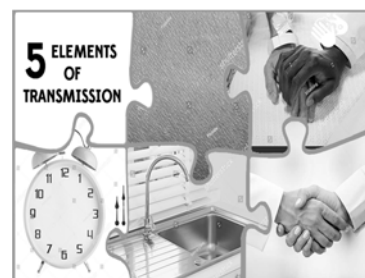
- Handwashing with soap and water
- Antiseptic handwash
- Alcohol-based hand rub
- Surgical antiseptics



THE ROLE OF HAND HYGIENE



THE ROLE OF HAND HYGIENE



Organisms must be:

1. Present on skin or nearby objects
2. Spread to caregiver hands
3. Endure on hands

As well as:

4. Inadequate hand antiseptics
5. Subsequent contact with other patients or objects

THE ROLE OF HAND HYGIENE



34 STUDIES



< 40%
Compliance

Reasons for noncompliance

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

Potential Advantages Alcohol-based handrubs

- Requires less time than hand washing
- Act 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

When to perform hand hygiene

The 5 Moments WHO	Consensus recommendations CDC Guidelines on Hand Hygiene in healthcare, 2002
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 membrane, 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

WASH HANDS ONLY WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB!



HOW TO HAND WASH

To effectively reduce the growth of germs on hands, **handwashing must last at least 15 seconds** and should be performed by following all of the illustrated steps.

Poster credit: World Health Organization (WHO)
http://www.who.int/gpsc/tools/HAND_WASHING.pdf

RUB HANDS FOR HAND HYGIENE! WASH HANDS ONLY WHEN VISIBLY SOILED!



HOW TO HAND RUB

To effectively reduce the growth of germs on hands, **hand rubbing** must be performed by following all of the illustrated steps. **This takes only 20-30 seconds!**

http://www.who.int/gpsc/tools/HAND_RUBBING.pdf

credit: WHO

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

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.

Knowledge check

- Which of the following is not a component of asepsis
 - Hand hygiene
 - Environmental cleaning
 - Use of isolation for individuals with multi-drug resistant organisms.
 - Separation of clean, dirty and sterile items

ASEPSIS COMPONENT: CLEANING DISINFECTION STERILIZATION

Definitions

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

THE ROLE OF THE ENVIRONMENT



Clinical



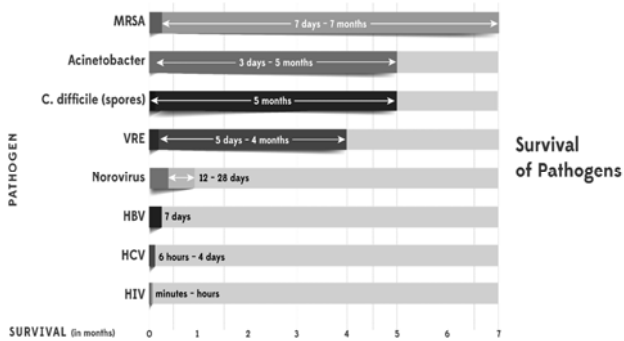
- High potential for direct contamination
- Spray or splatter
- Frequent contact with healthcare personnel's hands

Housekeeping



- No direct contact with patients or devices
- Little risk of transmitting infections

THE ROLE OF THE ENVIRONMENT



THE ROLE OF THE ENVIRONMENT



SELECT, MIX, AND USE DISINFECTANTS CORRECTLY

Right product



Right preparation and dilution



Right application method



Right contact time



Wear appropriate PPE
(gloves, gown, mask, eye protection)



Cleaning Recommendations

Clean and disinfect surfaces using correct technique

- Clean to dirty
- Prevent contamination of solutions
 - Don't use dried out wipes
- Physical removal of soil (elbow grease)
- Contact time
- Correct type of cleaning materials

Knowledge check

Because of the increasing number of resistant organisms all environmental surfaces should be disinfected with bleach.

1. True
2. False

Questions?

