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MEDICAL ASEPSIS INSTRUCTIONAL OBJECTIVES

Define infection and health care associated infection (HCAI"S)

Identify the sequence of events in the "Chain of Infection"

Differentiate between Medical and Surgical asepsis

MEDICAL ASEPSIS INSTRUCTIONAL OBJECTIVES

Define (Standard) Universal Precautions and list the principles used when delivering client care

Discuss (Standard) Universal Precautions and how they protect health workers and clients from infection

MEDICAL ASEPSIS INSTRUCTIONAL OBJECTIVES

Discuss principles of isolation and the category-specific isolation recommended by the Center of Disease Control and Prevention

Discuss the psychological needs of a client in isolation

Demonstrate medical aseptic techniques in the skills lab and clinical environment (hand washing, isolation technique)

Value own role in preventing infection

MICROORGANISMS

Microorganisms that live naturally in the body are not considered infections. For example, bacteria that normally live within the mouth and intestine are not infections (medical dictionary, 2016)

Most are harmless, and some beneficial

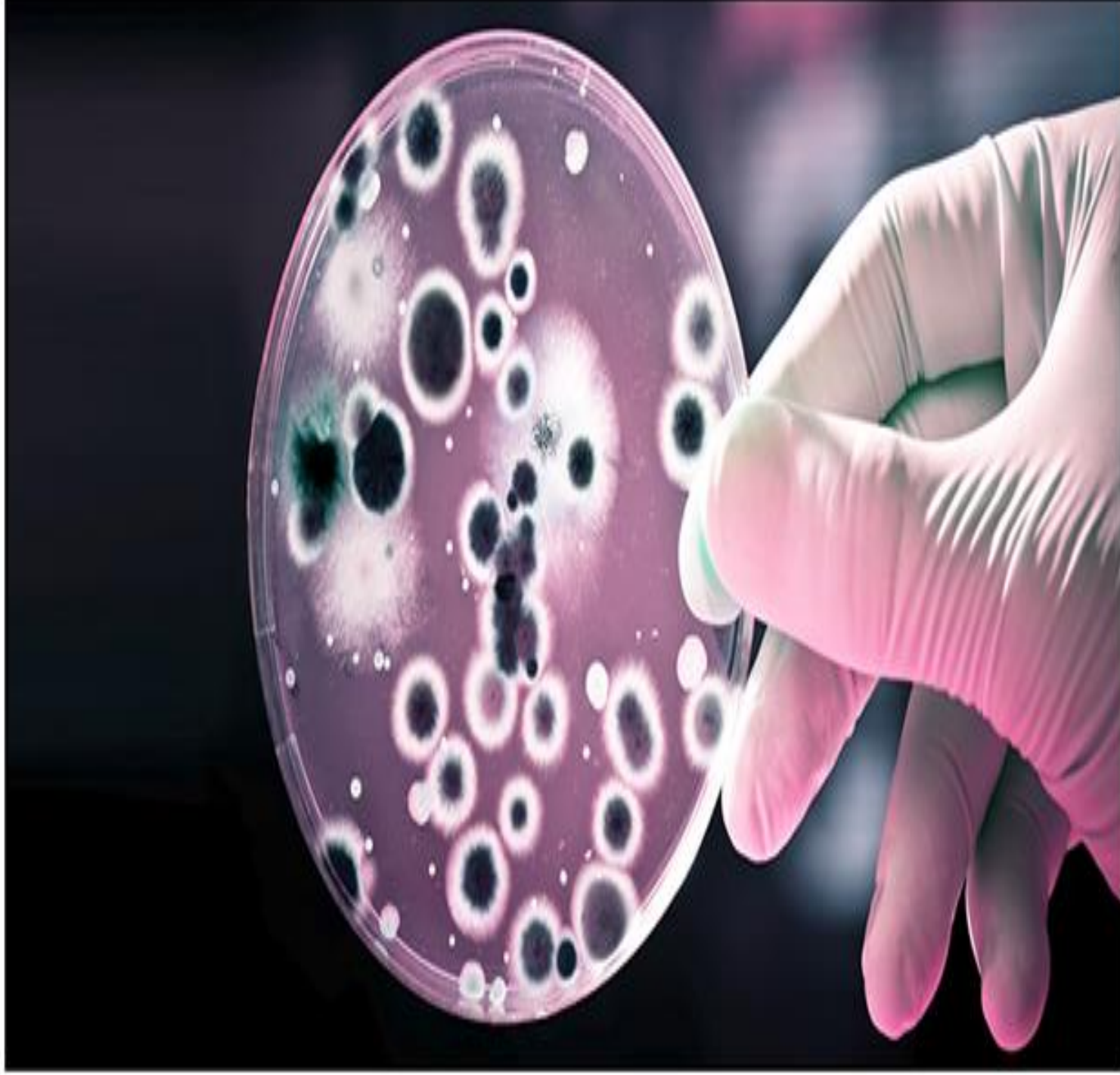
Table 31-1: Examples of Common Resident Microorganisms

MICROORGANISMS

Found everywhere

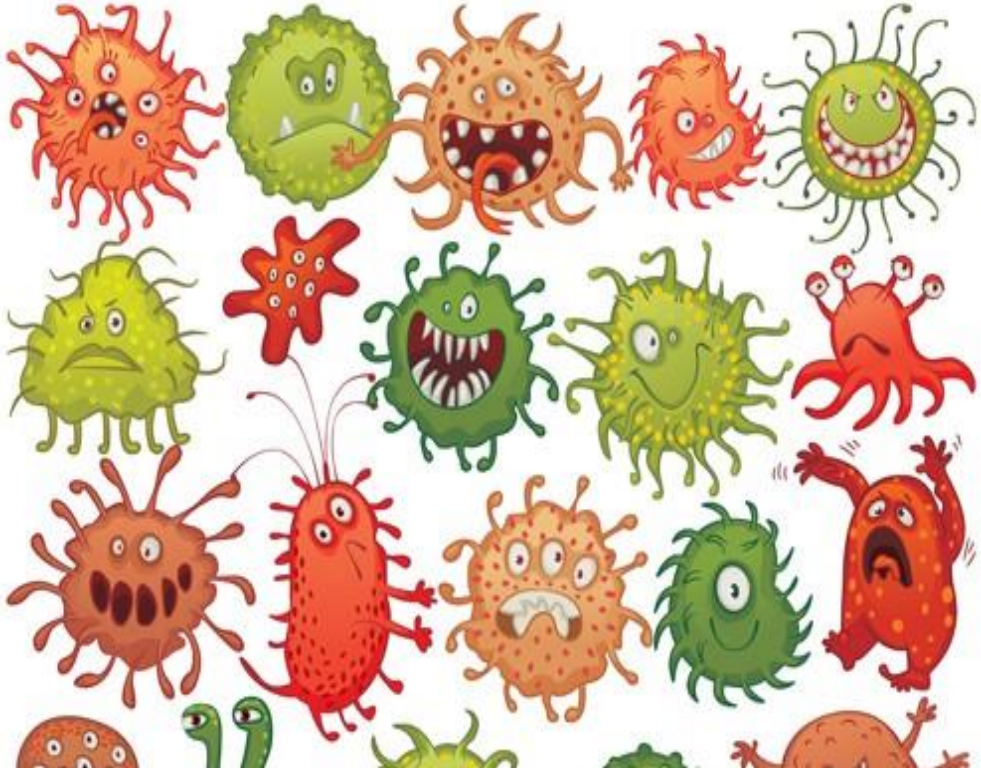
- Water
- Soil
- Body surfaces
- Skin
- Intestinal tract

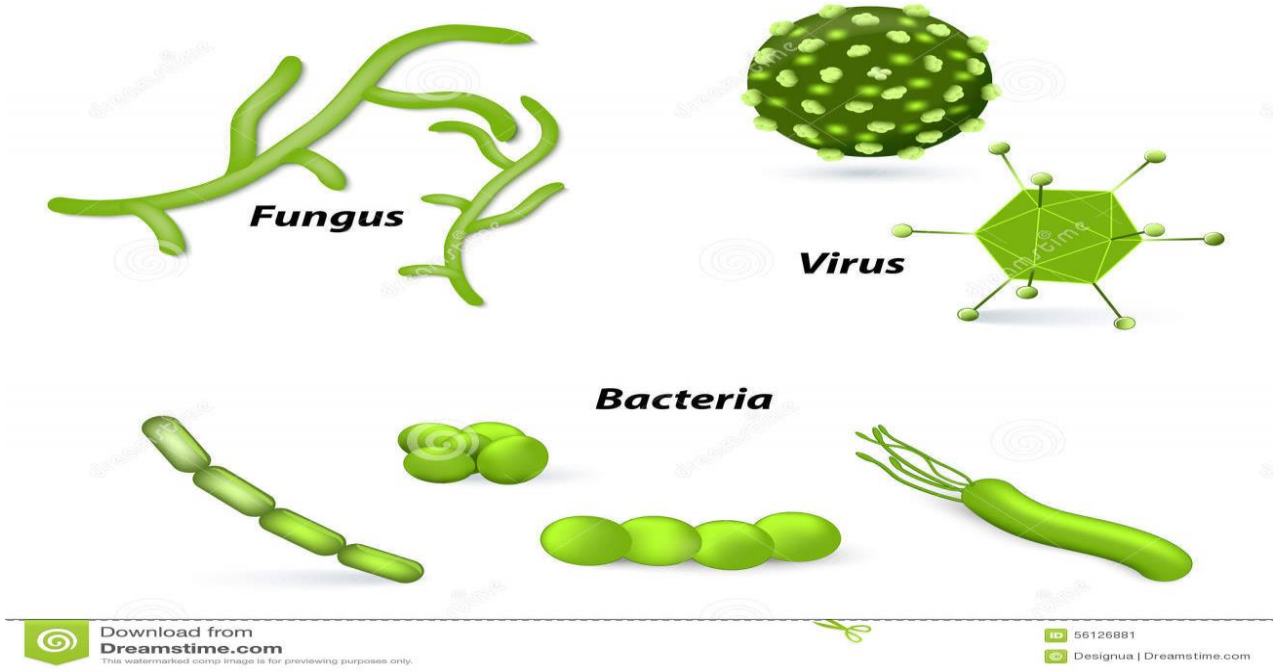
- Think about this in the hospital setting…



INFECTION

"An **infection** is the growth of microorganisms in body tissue where they are not usually found" Berman p. 602





HEALTH CARE ASSOCIATED INFECTIONS (HCAI'S) NOSOCOMIAL INFECTIONS

- ✓ **HCAI's** acquired by exposure to microorganisms in any health care setting

- ✓ **Nosocomial Infections** originate in the hospital/facility or appear after discharge

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HEALTH CARE ASSOCIATED INFECTIONS (HCAI'S) NOSOCOMIAL INFECTIONS

Increased healthcare costs, extended hospital stays and prolonged recovery time

JOINT COMMISSION NATIONAL PATIENT SAFETY GOAL #7

Reduce the Risk of Health Care- Associated Infections (2/3 of all HAI's)

- Central line-**associated** bloodstream **infections (CLABSI)**
- Catheter-**associated** urinary tract **infections (CAUTI)**
- Ventilator-**associated** pneumonia **(VAP)**

Reference: National Healthcare Safety Network Data

HEALTH CARE ASSOCIATED INFECTION: WHO IS AT RISK?

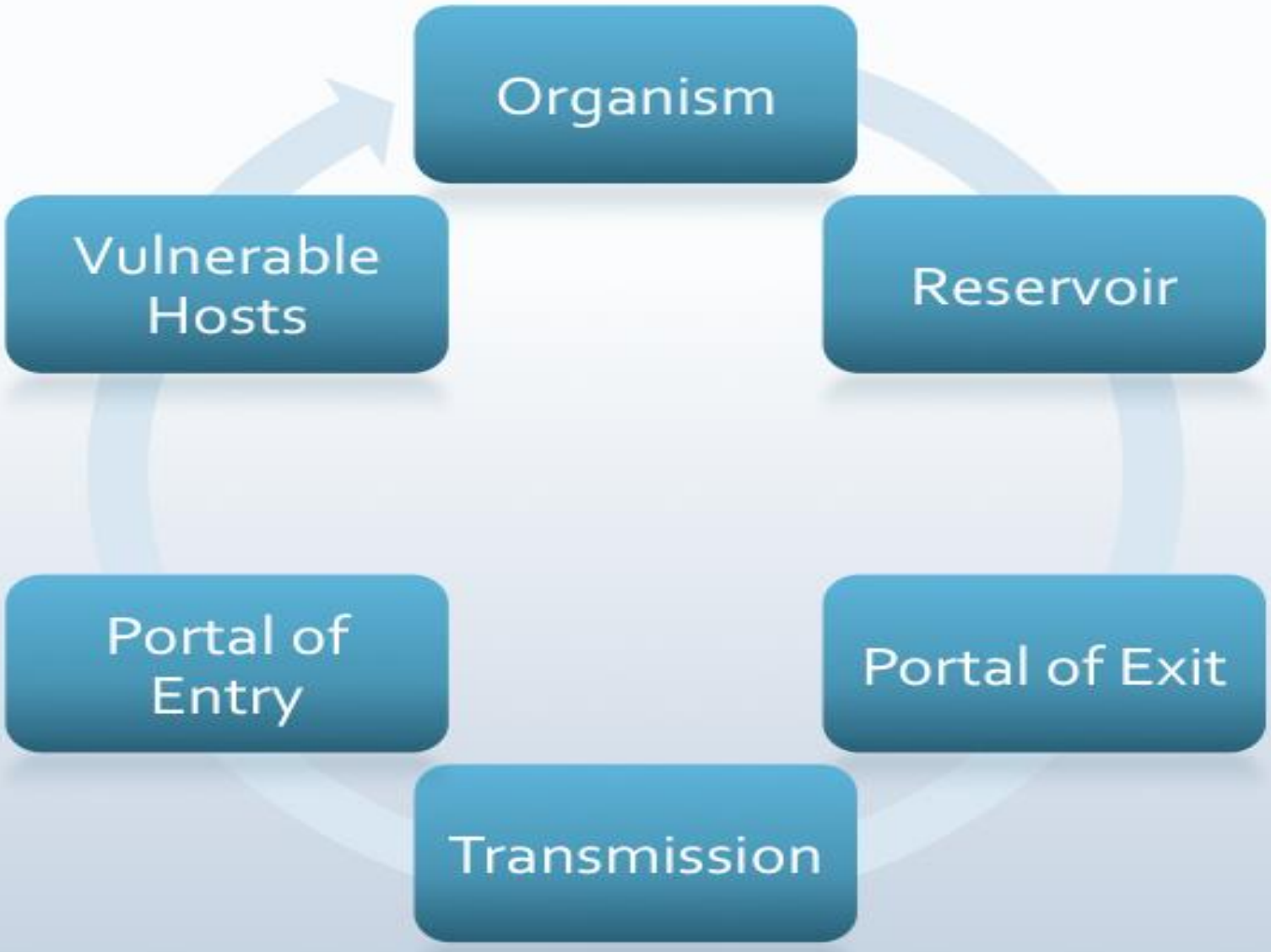
Lower resistance to infectious microorganisms (due to illness or disease)

Exposure to an ↑ number of and more types of disease-causing organisms

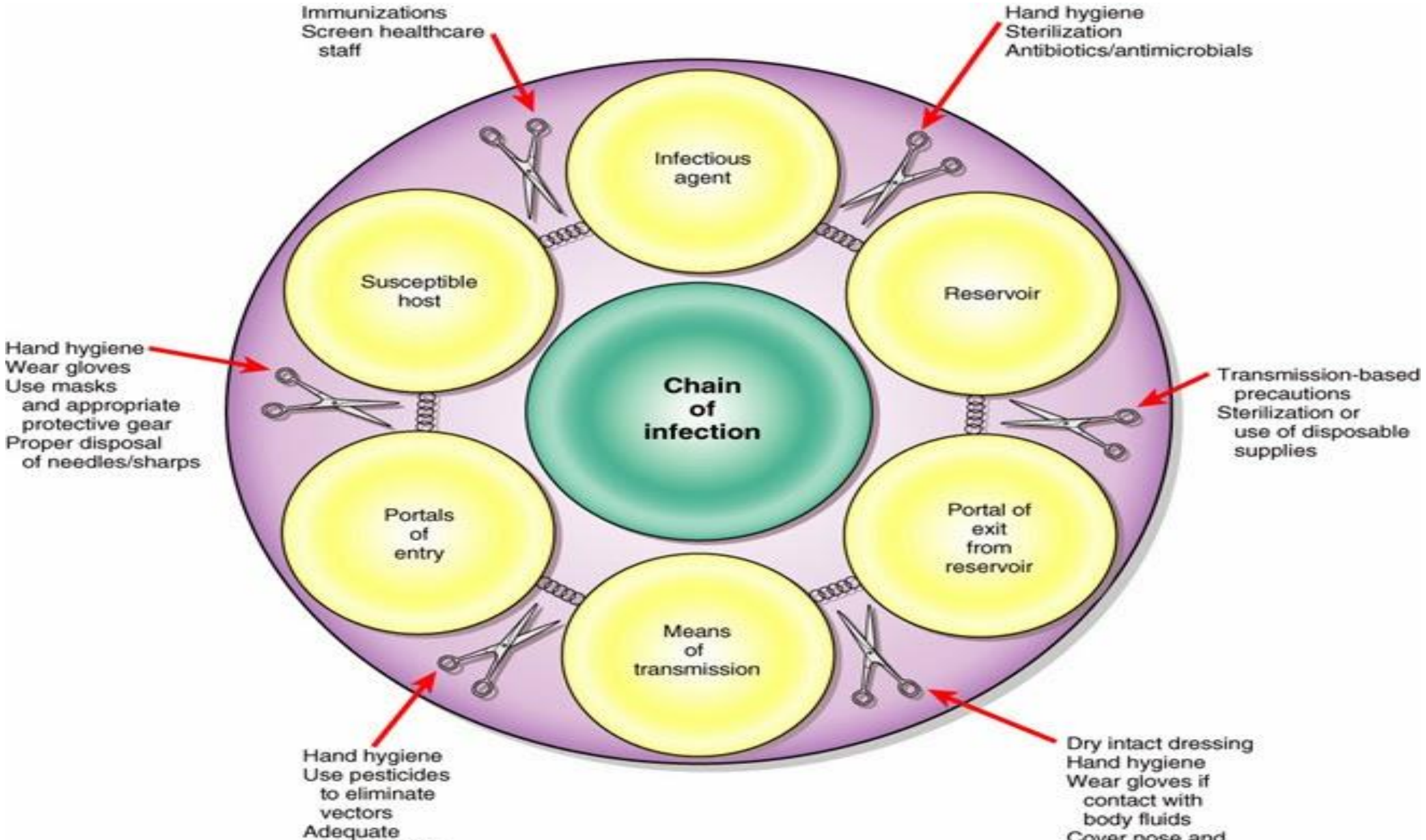
(Hospital harbors a high population of virulent strains of microorganisms that are resistant to antibiotics) MRSA, VRE – ***super bugs***.

The performance of invasive procedures. (IV catheters etc… Anything that crosses protective barriers)

INFECTION TRANSMISSION- CHAIN OF INFECTION



HOW TO BREAK THE CHAIN OF INFECTION:



NURSING INTERVENTIONS

Goals are to break the chain of infection by:

- ❑ Preventing infection
  - ✓ Hand washing & identifying ↑ risk patient
- ❑ Preventing spread of infectious agent
- ❑ Teaching prevention
  - ✓ Diet
  - ✓ Immunizations
- ❑ Treat existing infection

HAND HYGIENE

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HAND WASHING
WHEN?

Beginning of the shift

Hands are visibly soiled

After using the toilet

HAND WASHING
HOW?

Wet hands with warm, running water

Add 2-3 pumps of soap in palm of one hand

Rub hands vigorously for 20 seconds, washing all surfaces (about the time it takes to sing “Happy Birthday” twice)

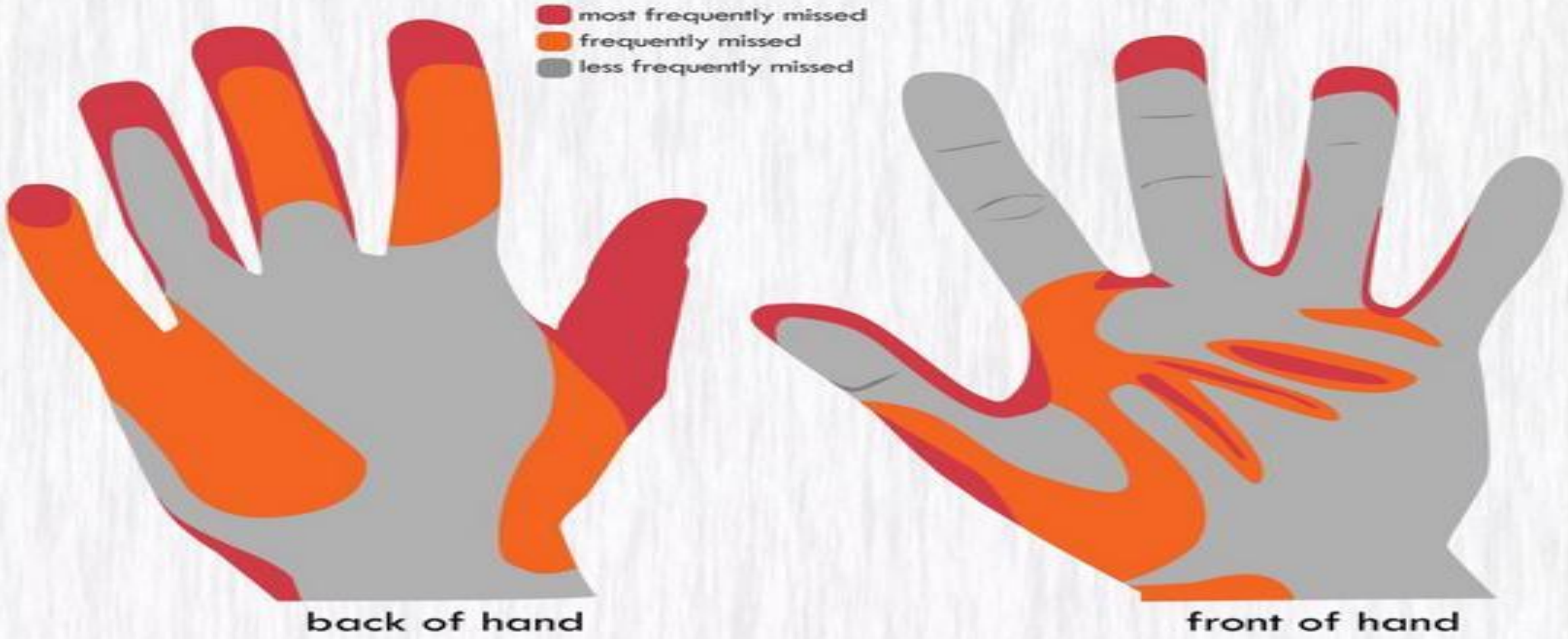
HAND WASHING
HOW?

Rinse well, keeping fingers pointing down

Dry thoroughly with paper or clean cloth towel

Turn off faucet with towel and open door with towel

ARE YOU BETTER THAN AVERAGE?



CDC DEMONSTRATION

HAND WASHING

HTTPS://WWW.CDC.GOV/CDCTV/HEALTHYLIVING/HYGIENE/FIGHT-GERMS-WASH-HANDS.HTML

HAND SANITIZER
WHEN?

Before direct contact with patients

After contact with patient's skin

After contact with inanimate objects, i.e. medical equipment, the bed, etc..

After removing gloves- If NOT visibly soiled with blood or body fluid

Artificial nails are not permitted with healthcare providers

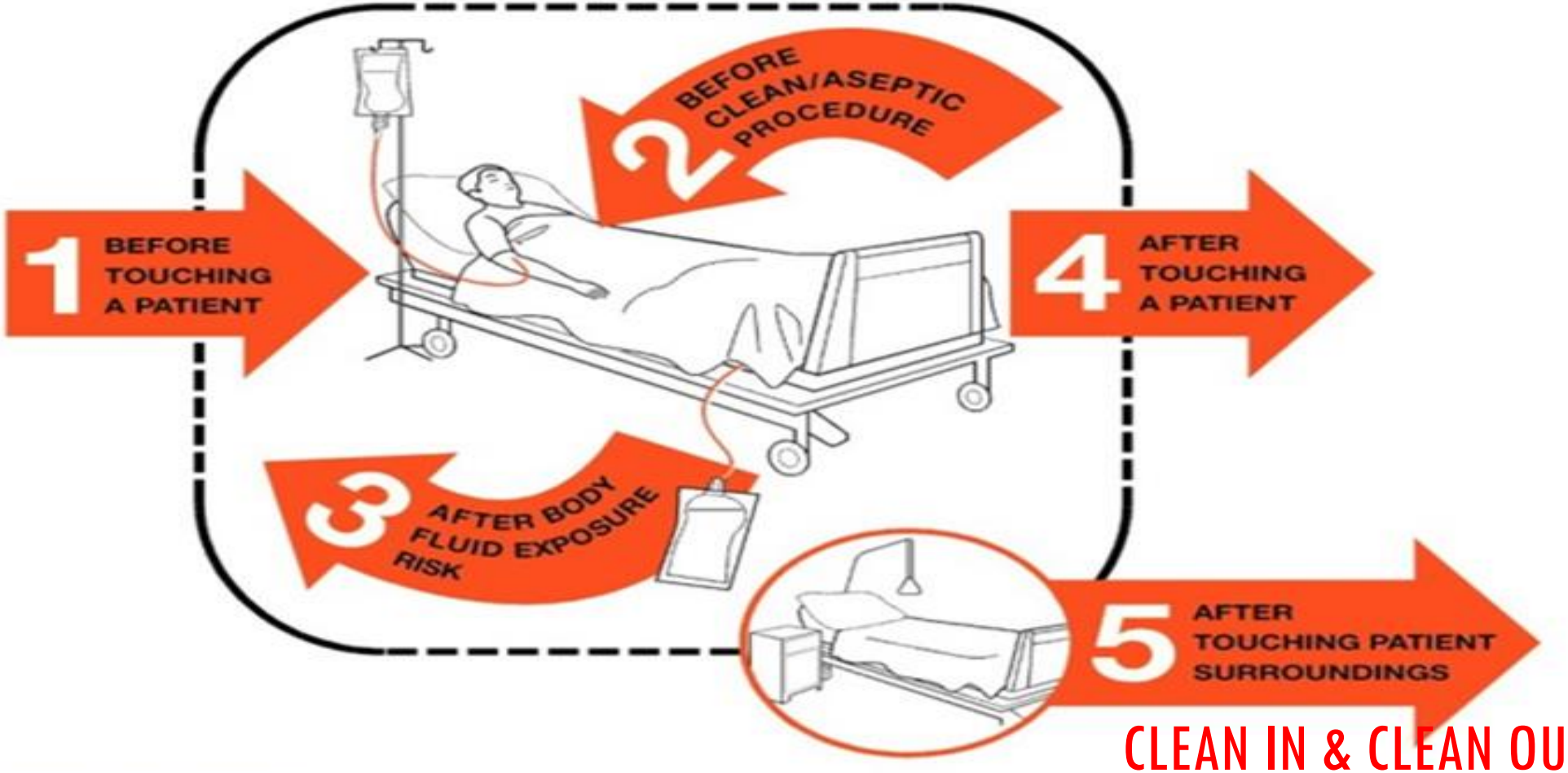
HAND SANITIZER

CLEAN IN & CLEAN OUT

HAND SANITIZER

1. **Apply palm-full of product**
2. **Rub palms against palms**
3. **Interlace fingers palm to palm**
4. **Rub all surfaces of each finger with opposite hand**
5. **Continue until product is dry approx. 20-30 seconds**

Your 5 Moments for Hand Hygiene



CLEAN IN & CLEAN OUT

ASEPSIS

"Freedom from disease causing microorganisms"

Two basic types of asepsis

- Medical
- Surgical

MEDICAL ASEPSIS

"Includes all practices intended to confine a specific microorganism to a specific area, limiting the number, growth and transmission"

- Clean
  - Absence of most microorganisms
- Soiled (dirty)
  - Likely to have microorganisms (stool, sputum etc)

ASEPTIC TECHNIQUE

Goal of the aseptic technique is to prevent harmful organisms from spreading and causing infection

Aseptic technique is used in various clinical settings to prevent the spread of pathogens:

Hospitals, clinic, outpatient, nursing homes, and etc

ASEPTIC TECHNIQUE ASPECTS

According to The Joint Commission, there are four chief aspects of the aseptic technique. Each plays an important role in infection prevention and includes:

- **Barriers**
- **Environmental Controls**
- **Contact Guidelines**
- **Aseptic technique VS Clean technique**

SURGICAL ASEPSIS (STERILE TECHNIQUE)

"Practices that keep an area or object free of all microorganisms"

- Includes: practices that destroy all microorganisms and spores

PRINCIPLES OF SURGICAL ASEPSIS

Surgical asepsis is necessary for any surgically invasive procedure

Requires :

- Sterile scrub
- Sterile gloves
- Sterile technique when handling material

ASEPTIC TECHNIQUE BARRIERS

Barriers- are used during medical procedures to protect the patient from contamination that can come from a healthcare worker, the environment, or both

Examples of barriers used in aseptic technique include:

- Sterile gloves, Sterile gowns, and Sterile drapes
- Masks
- Use sterile equipment and instruments
- Cleansing and bacteria-killing preparations are also applied to the skin before a procedure

ASEPTIC TECHNIQUE ASPECTS ENVIRONMENTAL CONTROL

Maintaining a clean environment require all medical personal to wash hands, wearing personal protective equipment for isolation rooms

Maintaining a sterile environment requires keeping doors closed during an operation

Only necessary health personnel should be at the procedure

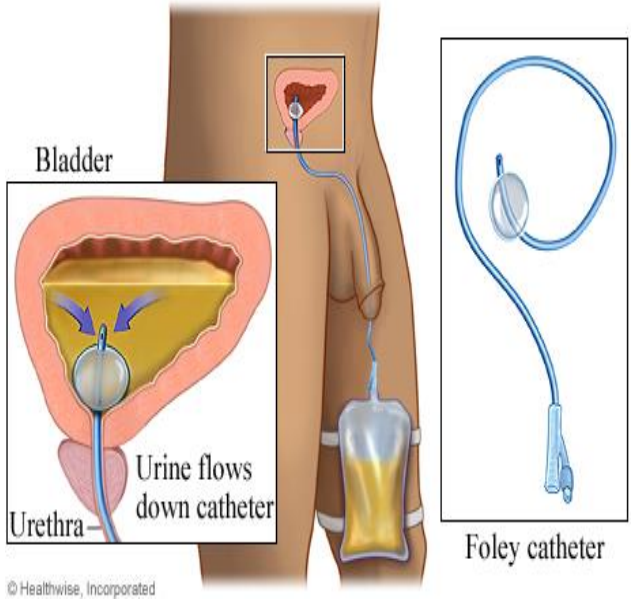
Aseptic Technique Aspects

Contact Guidelines

Once healthcare providers have on their sterile equipment, they should only touch other sterile items

Sterile to Sterile

Example: Catheter-associated urinary tract infections (CAUTIs) are a serious health concern, inserting these require aseptic technique



CLEAN TECHNIQUE VS. ASEPTIC TECHNIQUE

Keeping the environment as clean as possible is always important in preventing infections.

However, some situations call for clean technique while others call for aseptic technique

Clean techniques are important for all healthcare providers and their patients because they prevent infections on a daily basis

CLEAN TECHNIQUE

Examples of clean technique

- ✓ Washing hands and applying clean gloves when needed
- ✓ Administering an injection
- ✓ Emptying a urinary catheter drainage bag
- ✓ Giving a bed bath
- ✓ Inserting/ Removing a peripheral IV
- ✓ Removing an indwelling urinary catheter

STANDARD (UNIVERSAL) PRECAUTIONS PRINCIPLES

Microorganisms move through air currents

Avoid shaking or tossing linen

Microorganisms are transferred from one surface to another whenever objects touch

A clean item touching a less clean item becomes “dirty” – keep hands away from face, keep linens away from uniforms, <u>an item dropped on the floor is considered dirty</u>

STANDARD (UNIVERSAL) PRECAUTIONS PRINCIPLES

Microorganisms are transferred by gravity when one item is held above another avoid passing dirty items over clean items

Microorganisms are released into the air on droplet nuclei whenever a person breathes or speaks – avoid breathing directly in someone's face; when someone coughs/sneezes, cover mouth with Kleenex, discard, wash hands.

STANDARD (UNIVERSAL) PRECAUTIONS PRINCIPLES

Microorganisms move slowly on dry surfaces, but very quickly through moisture – use paper towel to turn facets off, dry bath basin before returning to bedside table

Proper hand washing removes many of the microorganisms that would be transferred by the hands from one item to another – always wash hands between patients

STANDARD (UNIVERSAL) PRECAUTIONS STANDARDS OF CARE

- Universal precautions are infection control guidelines
  - Designed to protect workers from exposure to diseases spread by blood and certain body fluids

- Always treat blood, body fluids, broken skin and mucous membranes as if they were infected

- Always follow Universal Precautions because you cannot tell by looking at a person whether they have a contagious disease

STANDARD (UNIVERSAL) PRECAUTIONS STANDARDS OF CARE

- Use practical, common sense
- Wash your hands before putting on gloves and immediately after removing gloves
- Do not touch clean objects with contaminated gloves

STANDARD(UNIVERSAL) PRECAUTIONS STANDARDS OF CARE

- Wear gloves if you may come in contact with blood, body fluids, secretions and excretions, broken or open skin, human tissue of mucous membranes

- Bag all disposable contaminated supplies

- Clean all surfaces that may be contaminated with infectious waste, such as beds, wheelchairs and shower chairs

ISOLATION-THE CATEGORY SPECIFIC (CDC)

Isolation measures designed to prevent the spread of infections or potentially infectious microorganisms to health personnel, clients, and visitors

6. ISOLATION-THE CATEGORY SPECIFIC (CDC)

Isolation measures are used in addition to Standard Precautions for known or suspected infectious illness:

- **Contact Isolation- Transmitted by direct or indirect contact**
- **Droplet Isolation- Transmitted by particle droplets > 5 microns**
- **Airborne Isolation- Transmitted by particle droplets < 5 microns**
- **Protective Isolation- Transmitted by air, droplet, and contact**

6. ISOLATION-TRANSMISSION BASED PRECAUTIONS

CONTACT PRECAUTIONS

Source of Transmission- **Contact**

Diphtheria, Hepatitis A, Lice, Salmonella, Scabies, C. difficile infectious diarrhea, VRE(Vancomycin-Resistant Enterococci), ORSA (Oxacillin- Resistant Staphylococcus Aureus)

Special Requirements- **Private room; door may be open, gown, gloves for direct contact**

***Isolation Sign*-Contact (Green)**

CONTACT PRECAUTIONS

- Gowns are to be put on outside patient's room and removed prior to exiting the room
  - What if I put my gown on and realize I forgot my supplies?

- Infectious diarrhea, Rabies, C. difficile, Diphtheria (cutaneous)
- Campylobacter, E. Coli 015:H7, Hep A, Lice
- Multi Drug Resistant Organism(MDRO), Rotavirus, Salmonella
- VRE, RSV, ORSA, Scabies, Localized Herpes Zoster, SARS
- For scabies and/or lice a head shield can be worn to protect the hair

CONTACT PRECAUTIONS FOR C. DIFFICILE

Hand hygiene with positive or suspected patients:

Do not used alcohol-based hand rub

USE SOAP AND WATER to cleanse hands

Routine cleaning:

Only bleach kills spores

Use Clorox bleach wipes

No not use disinfectant wipes (Cavi wipes)

AIRBORNE PRECAUTIONS

Source of Transmission- **Airborne (TB, R/O TB, Chicken pox, Measles)**

Special Requirements- **Private room with 6 – 12 air exchanges/hour and negative pressures to corridor**

Door closed

N95 mask

Isolation Sign- **Airborne (Pink)**

DROPLET PRECAUTIONS

Source of Transmission- **Droplet with contact (Disseminated herpes zoster, Mumps, Diphtheria (pharyngeal), Meningitis, Pertussis, Pneumonia (group A strep, ORSA, MDRO), Rubella)**

Special Requirements- **Private room, *Door closed, mask*, gown, gloves, goggles**

Isolation sign- **Droplet (Orange)**

PROTECTIVE ISOLATION PRECAUTIONS

Source of Transmission- Airborne, Contact, Droplet

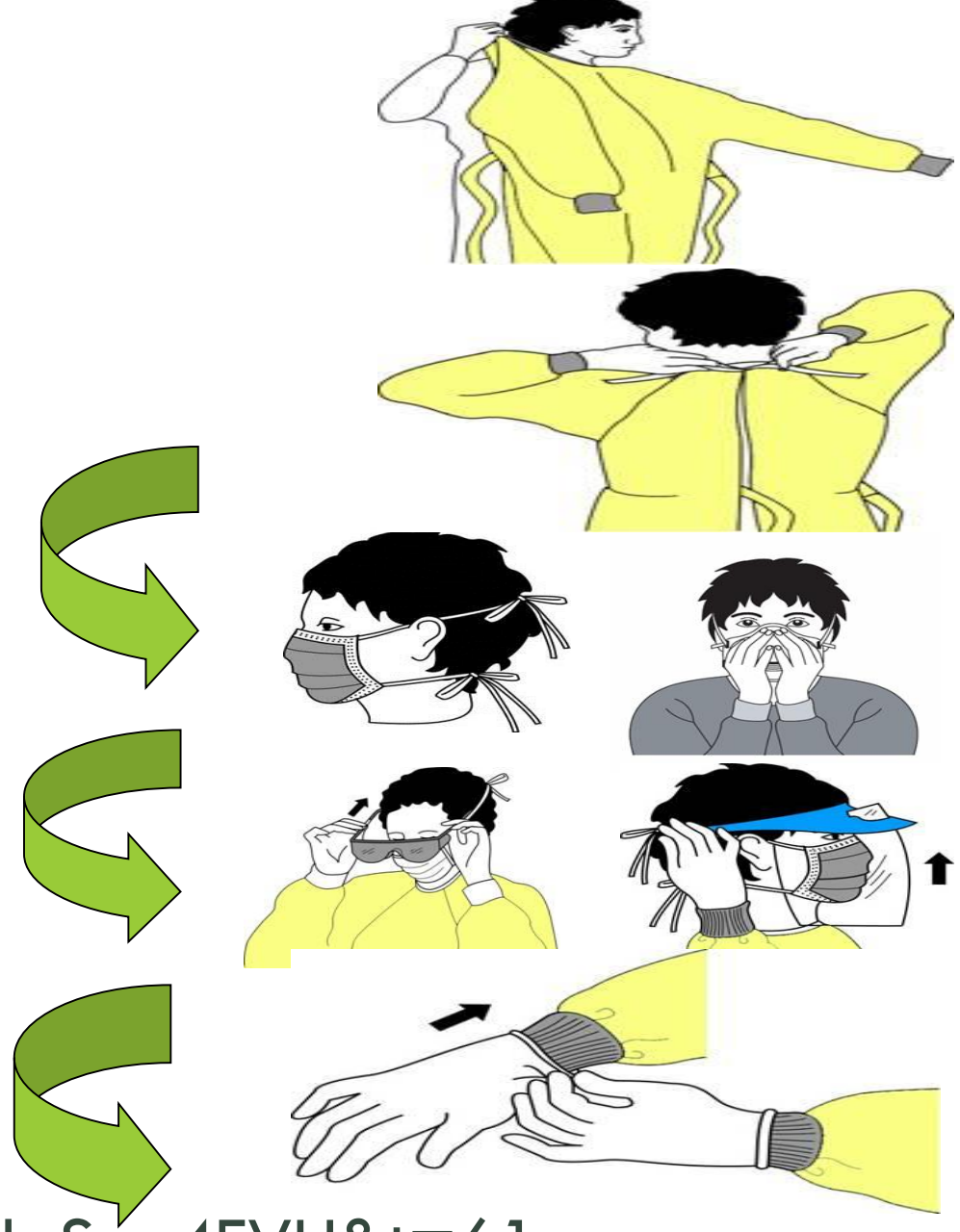
Special Requirements- Private room, ***Door closed, m***ask, gown, gloves, goggles

Isolation sign- Protective (Yellow)

Example of disease- Neutropenia

SEQUENCE FOR DONNING PPE

1. Hand hygiene
2. Gown- open to back w/ snug fit
3. Face Mask- Perform seal check
4. Eyewear
5. Gloves

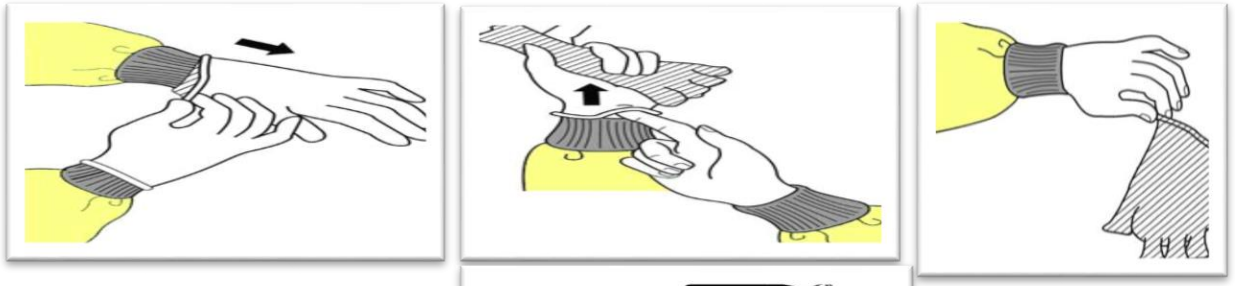


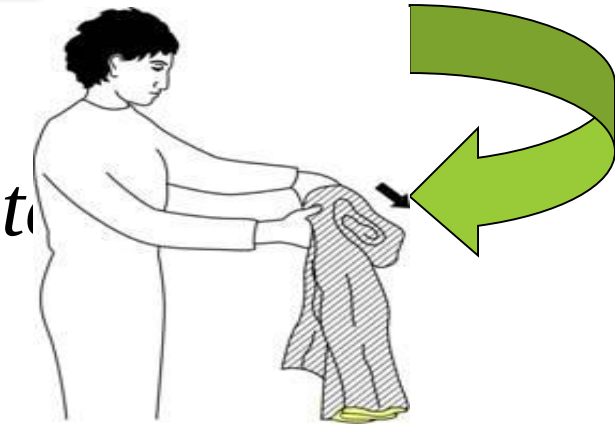
6. https://www.youtube.com/watch?v=oxdaSeq4EVU&t=61s

SEQUENCE FOR REMOVING (DOFFING) PPE

✓ Before leaving the patient's room

1. Gloves
2. Hand hygiene*
3. Eyewear
4. Gown
5. Mask
6. Hand hygiene
7. *Video #1038:Using Protective Precautions-30 minut*





Sequence for Removing Personal Protective Equipment (PPE)

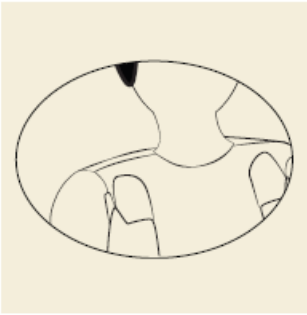
Except for respirator/face mask, remove PPE at doorway or in anteroom.
Remove respirator/face mask after leaving patient room and closing door.

1. Remove gloves either before removing gown or rolled into The gown as demonstrated below.

How to take gown off:

Step 1:
- DO NOT remove by lifting gown over your head

Step 2:
- Grab the gown material on both sides of the waist
- Pull forward; this will cause the ties to break
- Continue pulling forward; this should cause the back of the gown to tear away



Step 3:
- IF back of gown has fully torn away, skip to **Step 5**
- IF the back of the gown has not fully torn away, grab the gown at the upper chest (DO NOT place hands inside the neck of the gown) and go to **Step 4**

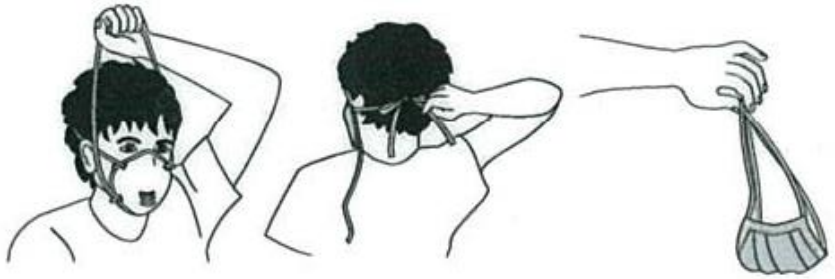
Step 4:
- Maintain your grip on the gown
- Pull forward; this will cause the back to break away (if it has not already)

Step 5:
- Roll gown into itself, removing your gloves per your facility's protocol

Step 6:
- Dispose of gown in accordance with your institution's policy

2. Remove face shield or goggles

3. Remove face mask



4. Perform hand hygiene immediately after Removal of all PPE

CDC PPE EQUIPMENT

DONNING AND DOFFING PPE

HTTPS://WWW.YOUTUBE.COM/WATCH?V=0XDASEQ4EVU&T=61S

PSYCHOSOCIAL NEEDS OF A CLIENT ON ISOLATION

Sensory deprivation

Feeling of inferiority

Risk for situational low self-esteem

PSYCHOSOCIAL NEEDS OF A CLIENT ON ISOLATION

1. Assess need for stimulation
2. Initiate conversation and diverse activities
3. Explain the infection associated procedures
4. Demonstrate warm, accepting behavior
5. Use the least strict precautions indicated by dx

- DVD: Asepsis (available in Library)

WHAT IS YOUR ROLE IN PREVENTING INFECTION?

IT'S EVERYONE'S RESPONSIBILITY

REVIEW: MEDICAL AND SURGICAL ASEPSIS

Medical

- ✓ All practices intended to confine a specific organism to a specific area, limiting the number, growth, & transmission of microorganisms
- ✓ "Clean technique"

Surgical

- ✓ Practices that keep an area or objects free of all microorganisms
- ✓ Practices that destroy all microorganisms & spores
- ✓ "Sterile technique"

SAFE
DISEASE
SANITATION
OCTOBER 15
NAILS
PERSONAL
PREVENTION
HANDLING
CHEMICAL
WIPES
GELS
CLEANER
FINGERS
ALCOHOL
SOAP
CLEAN
SAVE LIVES
INFECTIONS
WASH
DISEASE
DANGER
IMPORTANT
WASHING
RUB
SANITIZER
ANTIBACTERIAL
SODIUM HYDROXIDE
DIRT
GERMS
CLEAN
DISINFECT
HANDS
WC
WATER
HYGIENE
AGENTS
SOAP
CONTROL
HEALTH
CLEAN
TOUCHING
FREQUENT
PUBLIC
STAY HEALTHY!
ANTIOXIDANT
FOAM
PALM
RUB
SICK
PREVENT
PRESERVATION
SANITIZERS
GERMS
EFFECTIVE
LEARN
HANDS
LIQUID
MICROBES
GELS
CLEANING
DIRTY
BACTERIA
TOWEL
FAUCET
INFECTION
HANDWASHING
CHEMICAL
HYGIENE
AIR DRY
DESTROY
INGREDIENTS
GARBAGE
LATHER
WASTE
HYGIENE
SAVE
DRY
VIRUSES
SEPTIC
PUBLIC HEALTH
RUNNING WATER
HANDWASHING
WARNING
LATHER
FOAM
DANGER
ALCOHOL BASED
PEOPLE
MICROBES
ANTISEPTIC
CARE
DISPENSER
HANDSOAP
METHODS
RINSE
BASIN
HEALTH
BACTERIUM
DRY

REVIEW

감사합니다 Natick

Grazie Danke Ευχαριστίες Dalu Obrigado

Thank You Köszönöm

Tack

Спасибо Dank Gracias

谢谢 Merci Seé ありがとう

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