Module 3

Sterile Technique
Medical Asepsis

• Infection is a state of illness caused by foreign organisms in the body
• Medical asepsis is also called infection control
• It involves practices that prevent spread of infection in the long-term care facility
Nosocomial Infections

• An infection that originates in the health care facility
• Also known as healthcare associated infection (HAI)
• These are serious risks for health care workers and residents
Localized Infections

• Some infections are localized or confined to one area of the body
• Signs of a localized infection are redness, swelling, and drainage at the site
Generalized Infections

• Spread throughout the body
• Signs are fever, chills, pain, disorientation, fatigue, and nausea
• Report any signs or symptoms of an infection to the nurse immediately
Definitions

• Micro-organism (microbe) = living organisms (germs) that cannot be seen with the naked eye
• Pathogen = microbes that cause disease
• Nonpathogenic microbes = microbes that do not cause disease or infection
• Normal flora = microbes that are necessary for the body to function correctly; they are not harmful when they stay in the area which they usually reside, but can cause infection in other areas
Definitions Continued

• Bacteria are micro-organisms that can be eliminated with antibiotics
• Viruses are tiny pathogens that cause many diseases and cannot be eliminated by antibiotics
• Disinfection is a process that destroys many pathogens
• Sterilization eliminates all microbes
• Antiseptic is used to cleanse the skin
The Immune System

• Part of the Circulatory System
• Recognizes invading germs and works to eliminate them from the body
• If the immune system recognizes a harmful microbe the body’s defenses are stimulated
• The body then works to eliminate the organism and prevent infection
• Susceptibility is the body’s ability to resist infection and is determined by age, presence of any underlying disease, health, nutritional state, and certain medications
Natural Body Defenses

• Intact skin and mucous membranes—no breaks in the skin
• Body hair—cilia in nose to filter
• Body secretions—tears, saliva
• Reflexes—sneeze
• Physiological responses—reaction to antigen
• Temperature regulation—shivering
• Cell repair and replacement—leukocytes
Spread of Infection

• Most common methods are by contact and in the air
• Direct contact infections are caused by touching a resident or person who has the infection; a handshake is an example
• Indirect contact involves touching environmental surfaces and fomites (linen, supplies, or equipment)
Infectious Diseases

• The pathogen will cause an infection if conditions are right
• Pathogens grow best in warm, dark, and moist places when food is present and in hosts who have low resistance
Infectious Process

The Chain of Infection describes six factors necessary for an infection to develop
Causative Agent

• The germ or pathogen that causes a disease
• Includes bacteria, viruses, fungi, and parasites
• Incubation period is the time between when the pathogen enters the body and the time it causes visible signs and symptoms
Reservoir

• The place where the pathogen can grow
• Examples include people, medicine, food, water, and equipment
Portal of Exit

• The way pathogens leave the body
• Can be in excretions, secretions, or body fluids (such as urine, feces, saliva, tears, drainage from open wounds, blood, mucus, or respiratory fluids
Mode of Transmission

• Describes how the pathogen travels
• Main routes of transmission are contact, droplet, and airborne
• The primary route of disease transmission within the healthcare setting is on the hands of healthcare workers
Portal of Entry

• Pathogens enter the human host through different portals of entry

• The portal of entry is any body opening on an uninfected person that allows pathogens to enter

• This includes the nose, mouth, eyes, cuts in the skin, cracked skin, and mucous membranes
Susceptible Host

• A susceptible host is an uninfected person who could become ill

• A person becomes a susceptible host when his or her resistance to disease occurs

• Lowered resistance includes age, existing illnesses, fatigue, poor nutrition, lack of adequate fluid intake, certain medications, and stress
Medical Asepsis

• Refers to practices used to reduce and control the spread of micro-organisms, such as handwashing
• Same as clean technique
Surgical Asepsis

• Method that makes an area or an object completely free of micro-organisms
• Also called sterile technique
• Free from all micro-organisms and spores
• Obtained through sterilization
Principles of Sterile Technique

• Sterile technique is a microbe-free method used for performing procedures within body cavities and during certain dressing changes.
• Only sterile supplies contact the patient’s body during sterile procedures.
• Sterile gloves are worn.
Common Nursing Procedures for Sterile Technique Use

- All invasive procedures
- Procedures in which the skin is broken, such as injections and inserting intravenous needles or catheters
- Procedures in which body cavities are entered, such as catheterization and tracheal suctioning
- Changing surgical dressings
- Changing dressings on central intravenous catheters
- Procedures involving patients with severe destruction of the skin, such as burns
Guidelines For Sterile Procedures

1. Always wash your hands before beginning a sterile procedure.
2. If the sterility of an item is in doubt, consider it unsterile and avoid using it.
3. If a sterile item contacts an unsterile item, the sterile item is contaminated.
4. If a sterile package is cracked, cut, or torn, it is contaminated and should not be used.
5. If a sterile item or package becomes wet, it is contaminated.
6. If a sterile package is dated, do not use it beyond the expiration date.
7. Follow your facility policy. You may be asked to sanitize and dry the table or other surface that the sterile supplies will be placed on before establishing a sterile field.
8. The outside of a sterile wrapper is not sterile. It may be handled with your hands. Avoid touching the inside of the wrapper or items inside the package with your hands.
9. The inside of a sterile package can be used as a sterile field.
10. Never turn your back on a sterile field.
11. Avoid crossing over or touching a sterile field. If you must add an item to the sterile field, drop it onto the field from the sterile package.
12. Avoid touching unsterile articles when wearing sterile gloves. Avoid touching the outside of sterile packages when wearing sterile gloves. Make sure you can see your hands at all times. Keep them above your waist. Avoid touching your clothing or body. If gloves become torn or contaminated, change them immediately.
13. If sterile gloves touch an unsterile item, such as the outside of a package, they are contaminated. Change them before proceeding.
14. Keep sterile items above waist level.
15. Avoid talking, coughing, or sneezing over a sterile field.
Packaging Sterile Supplies

• Many sterile supplies are disposable
• These are purchased in sterile packages
• Extra items in the package are thrown away at the end of the procedure
• Reusable items, such as instruments may be sterilized in your facility
• After sterile items are prepared, they are placed in the autoclave, or sterilizer, for a period of time
Autoclave Use

• The heat and steam from the autoclave eliminate all microbes, sterilizing the item
• Before sterilizing supplies the outer wrapper is sealed with special tape
• The tape changes color during autoclaving, indicating that the contents of the package are sterile
Do’s and Do not’s

• Do not use a sterile package unless the outside wrapper is intact
• Do not use if the outside has become wet
• Do not use if the autoclave tape has not changed color
• Many sterile items have dates listed on the package; do not use them if it is after the date listed
Environmental Conditions

• Before using a sterile item or changing a sterile field, check the environment
• The surface on which you open the package must be clean, dry, flat, and stable
• The area must be free from airborne contamination
• Masks are worn during some sterile procedures either by the healthcare worker or by the patient
• Check with the RN if you are not sure
Patient Care

• Patients can accidentally contaminate sterile supplies and trays
• Explain the procedure to the patient before beginning
• Instruct the patient to avoid touching sterile supplies, crossing over the sterile field, talking, coughing, or sneezing over sterile articles
Opening a Sterile Tray

• Wash your hands
• Check the seal and the outside of the package to ensure they are intact
• Remove the tape of package seal
• Touch only the outside of the package
• Open the package away from your body
• Open the distal flap of the package by touching only the corner (the distal flap is the farthest sway from your body)
• Open the right-hand flap by touching only the corner
Con’t of Opening a Sterile Tray

• Open the left-hand flap by touching only one corner
• Open the proximal flap by touching only the corner, then lifting the flap up and pulling it toward you, allowing it to drop over the edge of the table. The proximal flap is the one closest to your body
• Avoid touching the inside of the wrapper or contents of the package
• Wash your hands
Setting Up A Sterile Field

• A sterile field is a sterile surface that you create to use as a work area for a sterile procedures
• A 1 inch border around the outside of the field is considered not sterile
• Avoid placing sterile items in this border area
• Only the top surface of the work area is considered sterile
• A sterile drape often hangs over the edges of the table; the area below the table top is not sterile
• Sterile supplies can touch only the sterile field
Sterile Field

• Avoid touching the field or items on it with your hands
• If a small surface is needed, the inside of a sterile package can be used.
• If a larger surface is needed, a sterile drape is used
Opening a Sterile Package

• Wash your hands
• Grasp the upper edges of the package securely
• Using your thumbs, slowly peel the edges back and downward, exposing the contents
• When opened, the inside of the wrapper provides a sterile field
• If assisting with a procedure, hold the exposed sterile item toward the RN so he/she can grasp it with sterile gloves
Setting Up a Sterile Field Using a Sterile Drape

• Wash your hands
• Open the sterile package containing the sterile drape
• With the thumb and index finger of your dominant hand, grasp the folded top edge of the drape
• Lift the drape out of the package. Extend your arm, holding the drape away from your body. Allow it to unfold. Make sure it does not touch any other surface, your body, or clothing as it unfolds
Sterile Drape Continued

• Pick up the top corner on the other side of the drape after it is unfolded. Avoid touching the drape to your body, clothing, or other surfaces.

• Beginning with the side opposite your body, slowly lay the drape across the table.

• Open the other packages and add necessary items to the sterile field.
Adding an Item to a Sterile Field

• Wash your hands
• Open the sterile package
• With one hand, grasp the package from the bottom. Using your free hand, pull the sides of the package away from the sterile field
• Drop the sterile item onto the sterile field. Avoid touching the sterile field with the package wrapper
• Discard the wrapper
• Perform your procedure completion actions
Adding Liquids to a Sterile Field

• Wash your hands
• Inspect the container; check to see if the seal is intact and the container should not be cracked or broken
• Open the container of liquid
• Place the cap upright on the table, with the outside of the cap resting on the table surface and the clean inner side facing up
Continuation of Liquids

• Pour a small amount of the solution into the sink or wastebasket to rinse the lip. When adding the solution to the sterile field, pour from the same side of the container. This is done to remove potential microbes.

• Hold the bottle at an angle, 6 to 8 inches above the sterile bowl or other sterile container. Avoid crossing over the sterile field with your arm or hand.
Con’t of Liquids

• From the clean side of the container slowly pour the liquid to prevent splashing. If the liquid is spilled or splashed, the field is contaminated because moisture soaks through to the non-sterile surface beneath.
• Place the cap on the bottle
• Write the date and time the container was opened on the bottle. Write on the label or using a separate piece of tape.
Applying Sterile Gloves

• Wash your hands
• Check the package for sterility
• Open the outer package by peeling the upper edges back with your thumbs
• Remove the inner package containing the gloves and place it on the inside of the outer package
• Open the inner package, handling it only by the corners on the outside
• Pick up the cuff of the right-handed glove using your left hand; avoid touching the area below the cuff
Gloving
Sterile Gloving Con’t

• Insert your right hand into the glove. Spread your fingers slightly, sliding them into the fingers. If the glove is not on correctly do not attempt to straighten it at this time
• Insert the gloved fingers of your right hand under the cuff of the left glove
• Slide your fingers into the left glove, adjusting the fingers of the gloves for comfort and fit. Because both gloves are sterile, they may touch each other. Avoid touching the cuffs of the gloves
Fixing your sterile gloves
Sterile Gloving Con’t

• Insert your right hand under the cuff of the left glove and push the cuff up over your wrist. Avoid touching your wrist or the outside of the cuff with your glove.

• Insert your left hand under the cuff of the right glove and push the cuff over your wrist. Avoid touching your wrist or the outside of the cuff with the glove.

• You may now touch sterile items with your sterile gloves. Avoid touching unsterile items.
Removing Sterile Gloves

• Grasp the outside of the glove on the non-dominant hand, at the cuff. Pull the glove off so that the inside of the glove faces outward. Avoid touching the skin of your wrist with the fingers of the glove.
• Place this glove into the palm of the gloved hand.
• Put the fingers of the ungloved hand *inside* the cuff of the gloved hand. Pull the glove off *inside-out*. The first glove removed should be *inside* the second glove.
Removing Sterile Gloves

• Discard the gloves into a covered container or trash, according to facility policy
• Wash your hands and perform your procedure completion actions
Transfer Forceps

• Some facilities use sterile transfer forceps to add supplies to the sterile field
• The forceps are used for one procedure, then sterilized after use
• Using transfer forceps eliminates the need to use sterile gloves for handling sterile supplies
• The handle of the sterile forceps is contaminated because you have touched it with your hands
• Avoid touching the end of the forceps
• The tips must be kept sterile to contact sterile items
• After using the forceps, the tips must rest on a sterile surface to keep them sterile until the end of the procedure
Using Transfer Forceps

• Wash your hands
• Open the package of sterile supplies in the normal manner
• Grasp the needed item with the tips of the forceps
• Pick the item up, moving it to the sterile field
• Lay the tips of the forceps within the sterile field; keep the handles on the outside of the field.
• If the forceps are needed again, during the procedure, you can pick them up by the handles to use them again
Sterile Techniques Key Points

• Sterile technique is a microbe-free technique
• A sterile item is free from all microorganisms and spores
• Sterile technique is used during procedures within body cavities and for certain changes
• An autoclave is used to sterilize reusable supplies, such as instruments
• The surface on which you open a sterile package must be clean, dry, flat, and stable. The area must be free from airborne contamination. Masks are worn during some sterile procedures
• Always wash your hands before beginning a sterile procedure

• If the sterility of an item is in doubt, consider it unsterile and don’t use it
• If a sterile items contacts an unsterile item, it is contaminated
• If a sterile package is cracked, cut, torn, or wet, it is contaminated
• If a sterile package is dated, do not use it beyond the expiration date
• The outside of a sterile wrapper is not sterile
• The inside of a sterile package can be used as a sterile field
• Never turn your back on a sterile field
• Avoid crossing over or touching a sterile field
• If sterile gloves touch an unsterile item, they are contaminated. Change then before proceeding.
Key Points continued

- Keep sterile items above waist level
- Avoid talking, coughing, or sneezing over a sterile field

- A 1-inch border around the outside edge of the sterile field is considered not sterile
- Only the top surface of the work area is considered sterile
- Sterile supplies may be handled with sterile forceps. Touch them only by the handle, so that the tip remains sterile. The forceps are sterilized after each use