

NURSING & INFECTION CONTROL

AUTOCLAVING PROCEDURE IN NURSING

Steps, Principle, Uses & Important Tips



Autoclaving is a sterilization method that uses steam under high pressure and temperature to destroy all microorganisms, including spores.



PRINCIPLE



121°C

Steam under pressure penetrates items and kills microorganisms by protein denaturation.

USES OF AUTOCLAVE



Sterilizing
Surgical Instruments



Sterilizing
Dressings & Linen



Sterilizing
Laboratory Glassware



Dental & Hospital
Equipment

STEPS OF AUTOCLAVING PROCEDURE

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1 CLEAN THE INSTRUMENTS



Remove dirt and organic matter.
Clean instruments thoroughly.

2 PACK THE ITEMS



Wrap or pack items properly.
Use autoclave-safe packaging.

3 LOAD THE AUTOCLAVE



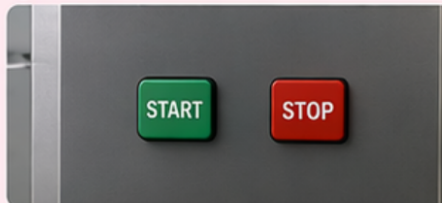
Place the packed items in the autoclave.
Do not overload. Allow proper air circulation.

4 SET TIME, TEMPERATURE & PRESSURE



Set the required cycle.
Standard: 121°C at 15 PSI for 15-20 minutes.

5 START THE AUTOCLAVE



Close the door properly
and start the cycle.

6 DRY AND STORE



After the cycle, allow items to dry.
Store in a clean, dry place.

QUICK TIPS



- ✓ Always clean items before autoclaving.
- ✓ Use autoclave indicator tape or chemical indicators.
- ✓ Do not open the door until pressure is fully released.
- ✓ Check water level regularly.
- ✓ Follow manufacturer's instructions.

REMEMBER!



**A CLEAN ITEM
IS NOT ALWAYS STERILE.
STERILIZATION
MAKES IT SAFE!**



AUTOCLAVING KILLS SPORES. ENSURES SAFE PATIENT CARE.



NURSING & INFECTION CONTROL

BIOMEDICAL WASTE MANAGEMENT IN NURSING


Types, Segregation, Treatment & Safe Disposal



WHAT IS BIOMEDICAL WASTE?

Biomedical waste is any waste generated during the diagnosis, treatment, or immunization of humans or animals, or in research activities. It may be infectious, hazardous, or non-hazardous.

TYPES OF BIOMEDICAL WASTE & COLOR CODES

COLOR	TYPE OF WASTE	EXAMPLES	DISPOSAL METHOD
 YELLOW	Infectious Waste	Soiled Dressings, Plaster, Cultures, Lab Waste	Incineration or Deep Burial
 RED	Contaminated Plastics	IV Sets, Syringes, Gloves, Catheters, Tubing	Autoclaving or Microwaving, then Shredding
 BLUE	Glass Waste	Vials, Ampoules, Broken Glass, Glass Slides	Disinfection or Autoclaving, then Recycling
 WHITE	Sharps	Needles, Blades, Lancets, Scalpels	Puncture-proof Container, then Incineration or Encapsulation

STEPS OF BIOMEDICAL WASTE MANAGEMENT

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ROLE OF NURSES



-  Follow proper waste segregation and disposal.
-  Educate patients, visitors, and staff about biomedical waste.
-  Handle and store waste safely.
-  Prevent infections and protect the environment.

WHY IS IT IMPORTANT?

-  Prevents the spread of infections.
-  Protects healthcare workers, patients, and the community.
-  Reduces environmental pollution.
-  Follows government rules and regulations.

QUICK TIPS

- ✓ Always segregate waste immediately at the point of generation.
- ✓ Use color-coded bins correctly.
- ✓ Wear gloves while handling waste.
- ✓ Never overfill waste containers.
- ✓ Ensure sharps are discarded in puncture-proof containers.








REMEMBER: RIGHT SEGREGATION TODAY, SAFE HEALTHCARE TOMORROW!

DISINFECTION VS STERILIZATION

KEY DIFFERENCES, METHODS & EXAMPLES



Both disinfection and sterilization are important infection control measures, but they are not the same. Know the difference!

FEATURE	DISINFECTION	STERILIZATION
 DEFINITION	Process that kills most harmful microorganisms on surfaces. It does not kill bacterial spores.	Process that destroys or eliminates all microorganisms, including bacterial spores.
 LEVEL OF ACTION	Reduces the number of microorganisms to a safe level.	Completely eliminates all forms of microbial life.
 USE FOR	Floors, walls, patient care equipment, and surfaces.	Surgical instruments, needles, catheters, and items that enter sterile body areas.
 METHODS	<ul style="list-style-type: none"> • Chemical disinfectants (Bleach, Alcohol) • Boiling (for some items) • UV Light (limited use) 	<ul style="list-style-type: none"> • Autoclaving (Steam under pressure) • Dry Heat (Hot air oven) • Radiation (Gamma rays, Electron beam) • Gas Sterilization (Ethylene oxide)
 EXAMPLES	<ul style="list-style-type: none"> • 70% Alcohol • 1% Sodium Hypochlorite (Bleach) • Phenol 	<ul style="list-style-type: none"> • Autoclave cycle at 121°C for 15 minutes • Hot air oven at 160°C for 2 hours • Ethylene oxide gas

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QUICK TIP FOR NURSES



Use disinfection for cleaned surfaces.



Use sterilization for sterile instruments.



Proper choice protects patients and prevents hospital infections.

REMEMBER!



Disinfection is cleaning with chemicals. Sterilization is complete elimination of all microbes!

+ RIGHT PROCESS. SAFE CARE.

NURSING PROCEDURE

HAND WASHING PROCEDURE IN NURSING

Step-by-Step Guide with WHO Technique



Hand hygiene is the most effective way to prevent infections and ensure patient safety.

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STEPS OF HAND WASHING

1

Wet Hands



Wet your hands with clean, running water.

2

Apply Soap



Apply enough soap to cover all hand surfaces.

3

Rub Palms Together



Rub your palms together thoroughly.

4

Clean Between Fingers



Rub between your fingers to clean interlaced areas.

5

Clean Thumbs & Nails



Rub the back of fingers, clean thumbs and nails.

6

Rinse Thoroughly



Rinse hands well under clean water.

7

Dry Hands



Dry hands using a clean towel or single-use tissue.

IMPORTANT POINTS



Wash hands before and after patient contact.



Wash hands for at least 20 seconds.



Use alcohol-based hand sanitizer if soap and water are not available.

PURPOSE

- ✓ Prevent cross-infection
- ✓ Protect patients and healthcare workers
- ✓ Maintain hygiene and safety



**CLEAN HANDS
SAVE LIVES!**



1 HAND WASHING PROCEDURE IN NURSING

Step-by-Step Guide (WHO Technique)

- 1 Wet Hands**
Use clean, running water
- 2 Apply Soap**
Take enough soap
- 3 Rub Palms Together**
Rub palm to palm
- 4 Clean Between Fingers**
Interlace your fingers
- 5 Clean Thumbs & Nails**
Rub thumb & fingertips
- 6 Rinse Thoroughly**
Remove all soap
- 7 Dry Hands**
Use a clean towel



Hand Hygiene Saves Lives!

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2 STERILIZATION METHODS IN HOSPITAL

Types, Techniques & Uses

1. HEAT STERILIZATION

- Autoclaving
- Hot Air Oven
- Flaming



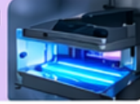
2. CHEMICAL STERILIZATION

- Ethylene Oxide Gas
- Glutaraldehyde
- Hydrogen Peroxide



3. RADIATION STERILIZATION

- Gamma Rays
- Electron Beam



Uses:

- ✓ Surgical Instruments
- ✓ Dressings & Bandages
- ✓ Medical Equipment

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3 DISINFECTION VS STERILIZATION

Key Differences You Must Know!

Feature	Disinfection	Sterilization
Definition	Reduces most harmful microorganisms	Eliminates all microorganisms including spores
Level of Action	Kills many pathogens	Destroys all forms of microbial life
Use For	Surfaces, floors, equipment	Surgical, instruments, needles
Examples	Bleach, Alcohol, Dettol	Autoclave, Hot Air Oven

Both are important in Infection Control!



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4 SURGICAL ASEPSIS VS MEDICAL ASEPSIS

Differences & Nursing Uses

Surgical Asepsis

- ✓ Complete elimination of all microorganisms
- ✓ Used in sterile areas like OT and surgical procedures
- ✓ Requires sterilized instruments, gloves, gowns

Medical Asepsis

- ✓ Reduces the number of microorganisms to a safe level
- ✓ Used in general care, patient handling, injections, dressing
- ✓ Focuses on clean technique

Both protect patients and prevent infections!



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5 BIOMEDICAL WASTE MANAGEMENT IN NURSING

Types, Segregation & Disposal

TYPES OF BIOMEDICAL WASTE

YELLOW
Infectious Waste
Soiled Dressings, Plaster, Cultures



RED
Contaminated Plastic
Syringes, IV Sets



BLUE
Glass Waste
Vials, Ampoules, Broken Glass



WHITE
Sharps
Needles, Blades, Lancets



Proper Waste Management Prevents Infection & Saves Lives!

STEPS OF MANAGEMENT

- ✓ Segregation at Source
- ✓ Collection & Transportation
- ✓ Treatment
- ✓ Safe Disposal



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6 PERSONAL PROTECTIVE EQUIPMENT (PPE) IN NURSING

Types, Uses & Importance

TYPES OF PPE



GLOVES
Protect hands from infection



MASK
Protects from droplets & germs



GOWN
Protects skin and clothing



FACE SHIELD
Protects face and eyes

IMPORTANCE OF PPE

- ✓ Protects Nurses & Patients
- ✓ Prevents Spread of Infection
- ✓ Essential for Safe Nursing Practice



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7 AUTOCLAVING PROCEDURE IN NURSING

Steps, Principle & Uses

STEPS OF AUTOCLAVING



1. CLEAN
Clean the instruments thoroughly



2. PACK
Place instruments in autoclave pouches



3. LOAD
Arrange in autoclave chamber



4. SET
Set temperature 121°C and pressure 15 PSI



5. START
Run the sterilization cycle



6. DRY & STORE
Allow to dry and store in sterile area

PRINCIPLE

Steam under pressure kills all microorganisms including spores.



USES

- Surgical Instruments
- Dressings & Linen
- Rubber & Glassware






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SURGICAL ASEPSIS VS MEDICAL ASEPSIS

Differences, Uses & Importance in Nursing



Asepsis means “absence of microorganisms.” Nurses must understand the difference between surgical asepsis and medical asepsis to prevent infection effectively.

FEATURE	SURGICAL ASEPSIS	MEDICAL ASEPSIS
 DEFINITION	Complete elimination of all microorganisms, including spores, from an area.	Reduces the number of microorganisms to a safe level. Does not destroy spores completely.
 PURPOSE	Used to prevent infection in sterile body areas during surgery.	Used to prevent infection in routine care and non-sterile procedures.
 LEVEL OF STERILITY	Requires a sterile environment and sterile equipment.	Requires clean techniques and reduces microbial growth.
 EXAMPLES	<ul style="list-style-type: none"> • Sterilizing surgical instruments • Using sterile gloves, gowns, and drapes • Operating room procedures 	<ul style="list-style-type: none"> • Hand washing • Cleaning patient’s skin before injection • Changing dressings • Using disinfectants on surfaces
 NURSING ROLE	Maintain sterility, assist in surgery, follow strict sterile technique.	Practice hand hygiene, clean equipment, follow standard precautions.

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KEY POINTS FOR NURSES



- ✓ Both are important for infection prevention.
- ✓ Surgical asepsis is for sterile areas and surgery.
- ✓ Medical asepsis is for daily nursing care and reduces infection risk.
- ✓ Understanding the difference helps provide safe and effective patient care.

REMEMBER!



Surgical asepsis aims for **“ZERO MICROBES.”**
Medical asepsis aims for **“SAFE LEVEL OF MICROBES.”**



RIGHT TECHNIQUE. SAFE PATIENT. BETTER CARE.

PERSONAL PROTECTIVE EQUIPMENT (PPE) IN NURSING

Types, Uses & Importance



PPE acts as a barrier between the nurse and hazardous microorganisms, blood, body fluids, and chemicals. It protects both the healthcare worker and the patient.

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TYPES OF PPE

1 GLOVES



Protect hands from contact with blood, body fluids, and germs.

2 MASKS



Protect nose and mouth from droplets and prevent the spread of infection.

3 GOWNS



Protect skin and clothes from contamination.

4 FACE SHIELDS



Protect the face and eyes from splashes and sprays.

5 GOGGLES



Protect eyes from blood, body fluids, and infectious particles.

IMPORTANCE OF PPE



Prevents the spread of infections



Protects nurses and healthcare workers



Ensures patient safety



Reduces hospital-acquired infections (HAIs)

WHEN TO USE PPE?



During procedures and patient care



When there is a risk of exposure to blood or body fluids



In isolation rooms or outbreak situations



When handling contaminated equipment or waste



ROLE OF NURSES



- ✓ Select the right PPE for each situation
- ✓ Wear PPE correctly and remove it safely
- ✓ Follow standard precautions and hospital protocols
- ✓ Educate patients and families about infection prevention

QUICK TIPS



- Always perform hand hygiene before and after using PPE.
- Remove PPE without contaminating yourself and dispose of it properly.
- Never reuse single-use PPE.
- Check PPE for damages before use.



REMEMBER:
RIGHT PPE. RIGHT PRACTICE. SAFE CARE.



NURSING & INFECTION CONTROL

STERILIZATION METHODS IN HOSPITAL

Types, Techniques & Uses in Nursing



Sterilization is the process of destroying or removing all forms of microorganisms, including bacterial spores, from an object or surface.

TYPES OF STERILIZATION

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1 HEAT STERILIZATION

Uses high temperature to kill microorganisms.

Moist Heat



Autoclaving

121°C at 15 PSI
for 15-20 minutes

Dry Heat



Hot Air Oven

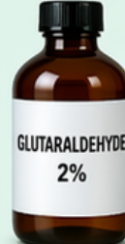
160°C for 2 hours
or 180°C for 1 hour

2 CHEMICAL STERILIZATION

Uses chemicals or gases to destroy microorganisms.



Used for heat-sensitive equipment like plastics, rubber, catheters.



High-level disinfectant, can also sterilize with longer exposure.

3 RADIATION STERILIZATION

Uses radiation to eliminate microorganisms.



Gamma Rays

Penetrates deep into materials. Used for disposable medical supplies.



Electron Beam

Used for thin, single-use items.

USES OF STERILIZATION



Surgical Instruments



Dressings & Bandages



Medical & Dental Equipment



Catheters & Needles

IMPORTANT POINTS

- ✓ Sterilization does not mean cleaning. Always clean items before sterilizing.
- ✓ Choose the method based on the type of material.
- ✓ Proper sterilization prevents hospital-acquired infections (HAIs).
- ✓ Nurses play a key role in ensuring safe and sterile equipment.



REMEMBER:

A sterile item is completely free from all microorganisms.

STERILIZATION SAVES LIVES!