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Basic Components of Infection Prevention

URC

Learning Objectives

By the end of the session, participants should be able to:

- Discuss the steps of hand washing and use of antiseptic handrub
- Name and describe four types of personal protective equipment
- Describe the basic components of environmental management at facilities
- Explain how and where to dispose of infectious clinical waste

Basic Components of Infection Prevention

- Wash hands
- Wear personal protective equipment (gloves, eye protection, face shields, & gowns)
- Use sharps carefully
- Correctly process instruments and client-care equipment
- Maintain appropriate waste-disposal practices
- Handle, transport, and process used/soiled linens appropriately

Handwashing

One of the **most important** and well-known ways of preventing infection yet compliance is often poor.
WHY?

- Frequent hand washing is a chore
- It is time-consuming
- May irritate the skin in some individuals
- Not necessary when gloves are worn
- Any other ideas?



Handwashing Basics

After hands are wet and soap applied be sure that:

- All areas of the hands and fingers are rubbed together for at least 10-15 seconds
- Be sure to clean under fingernails and between fingers
- Rinse hands thoroughly
- Dry hands with paper towel and use towel to turn off faucet

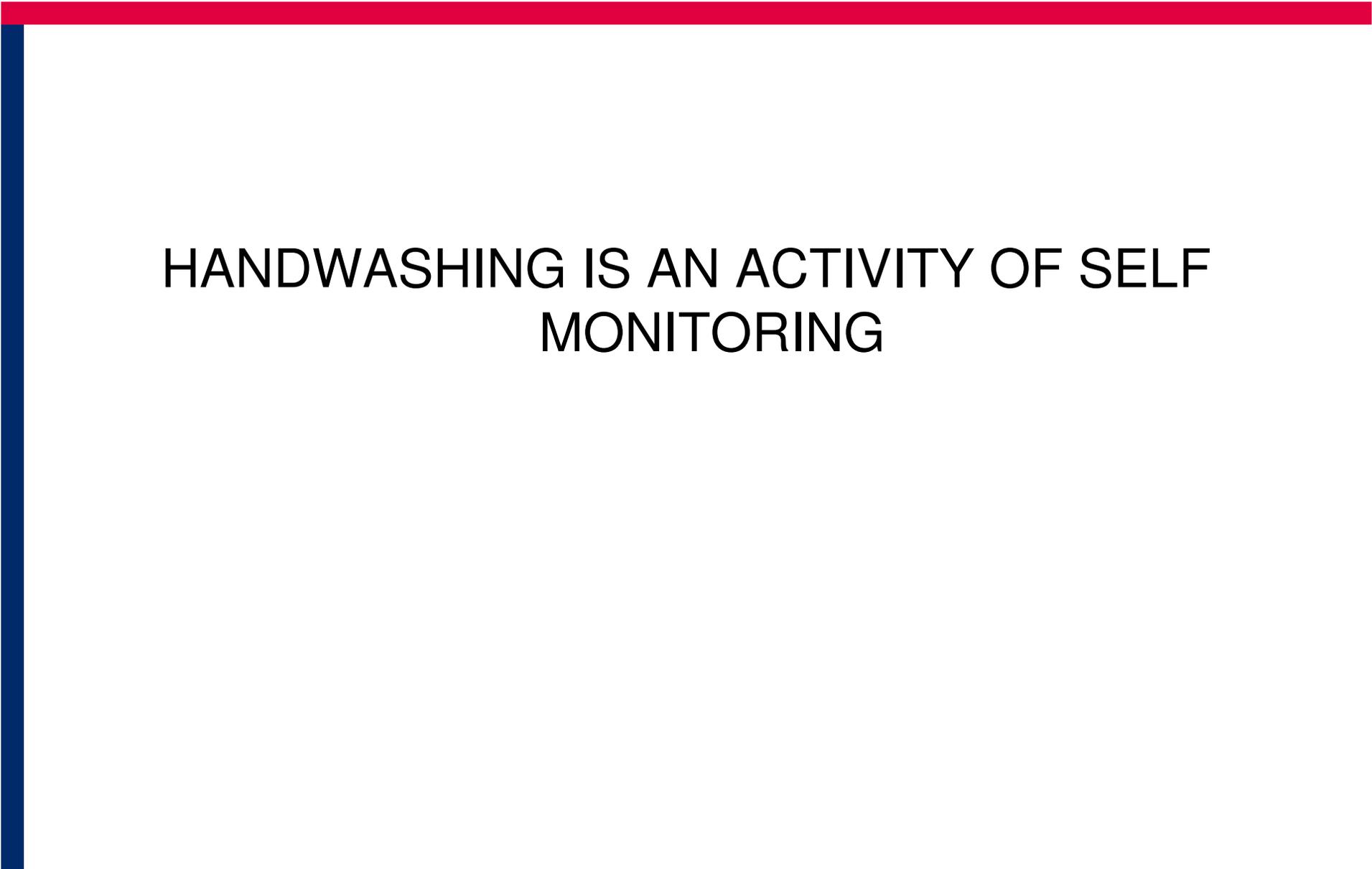
Hand washing (2)

Always wash hands or use an antiseptic hand rub:

- After touching any bodily fluid or after handling contaminated instruments
- Before putting on gloves and immediately after removal
- Before and after each patient contact

Antiseptic Handrub

- Wash hands first if visibly soiled or contaminated with bodily fluids
- Use enough **antiseptic** to cover both hands and fingers
- Be sure to clean under fingernails and between fingers
- Rub rapidly into fingers and hands until dry



HANDWASHING IS AN ACTIVITY OF SELF
MONITORING

Personal Protective Equipment Gloves

- Wearing gloves doesn't replace the need for hand washing
- Clean gloves should be worn when:
 - Chance of contact with bodily fluids or contaminated skin
 - Performing invasive medical procedures
 - Handling contaminated items or surfaces

Personal Protective Equipment: Glove Dos

- DO wear the correct size glove
- DO change gloves during prolonged cases
- DO keep fingernails relatively short
- DO pull gloves over cuffs of gown to protect wrists
- DO use water-soluble hand creams and moisturizers

Source: JHPIEGO, 2003



Personal Protective Equipment: Glove Don'ts

- DON'T use oil-based hand lotions or creams
- DON'T use perfumed hand lotions or creams
- DON'T store gloves in areas with extreme temperatures

Source: JHPIEGO, 2003

Personal Protective Equipment: Facial Mask

Why wear a facial mask?

- To help block infectious organisms from being expelled when healthcare workers speak, cough, or sneeze
- To help protect health care workers from accidental splashes of blood or other bodily fluid from entering their nose or mouth



Source: JHPIEGO, 2003

Personal Protective Equipment: Facial Mask

In order for facial masks to be most effective:

- Must be large enough to fully cover the nose, lower face, jaw, and facial hair
- Must be made of fluid-resistant materials



Surgical mask



N 95 respirator

RESPIRATOR FITTING TEST

- Use of N95 recommended for HCW treating MDR-TB patients, they are disposable but may be reused
- Humidity, dirt or crushing are main factors that lead to deterioration of respirators



Personal Protective Equipment: Surgical Gowns/Aprons

- Need to be made of fluid-resistant material to provide some protection from blood & body fluids
- Don't provide protection against large spills, worker should bathe immediately after exposure
- Protect patients from microorganisms on the skin of healthcare staff
- Sleeves need to be tapered at the wrist or have elastic to prevent accidental contamination

Personal Protective Equipment: Eyewear

- Includes clear plastic goggles, safety glasses, face shields, and visors
- Regular prescription eyeglasses or clear lenses may also be acceptable
- Protects eyes against accidental splash of blood or bodily fluid during a procedure or when cleaning
- Goggles provide the best eye protection



Use of Needles & Other Sharps

What are sharps?

“Any sharp instrument or object used in the delivery of health care services – including hypodermic needles, suture needles, scalpel blades, sharp instruments, IV catheters, and razor blades.”

Injuries from needles or other sharp objects are the leading cause of worker exposure to blood borne infection in healthcare settings.

Source: EngenderHealth, 2001

How to Prevent Injuries from Sharps

- Handle sharps carefully, especially when passing items to others:
 - Never pass uncapped or unprotected sharps directly from one person to another
 - Use the hands-free technique of placing the sharp in a sterile kidney basin where another worker can pick up the instrument



How to Prevent Injuries from Sharps

Use of Needles:

- Always warn client before giving injection
- Do NOT recap needles unless it is absolutely necessary (when immediate disposal is not possible)
- If you must recap needle, use the **one-hand technique**

Disposal of Sharps



- Place needles immediately after use in puncture-resistant sharps disposal container
- Do NOT bend or break needles before disposal
- Incinerate sharps disposal container when it is three-quarters full

Instrument Processing

Infection risk from contaminated instruments is dependent upon:

- Presence of microorganisms and their virulence
- Type of procedure (invasive vs. non-invasive)
- Part of body where instrument/equipment used

Spaulding Classification

Used to classify risk of transmission by instruments/equipment

- **Critical** – High risk items that penetrate tissue or come in contact with blood
- **Semi-Critical** – Moderate risk items that directly or indirectly contact mucous membranes, but no tissue penetration
- **Non-Critical** – Low risk items that touch intact skin only, no tissue penetration or contact with mucous membranes

Instrument Reprocessing

Classification	Level of Reprocessing Required
Critical	STERILIZATION <ul style="list-style-type: none">• Pressurized steam• Automated low-temp chemical sterilization
Semi-Critical	DISINFECTION <ul style="list-style-type: none">• <i>Heat-tolerant items</i> - Use steam sterilization or thermal disinfection• <i>Heat-sensitive items</i> - Automated low-temp chemical sterilant or chemical disinfectant
Non-Critical	CLEANING <ul style="list-style-type: none">- After each use with detergent & water- Disinfect if necessary

Source: WHO, 2003

Important Things to Remember About Reprocessing

- Level of reprocessing should be determined by intended use of instrument
- Steam sterilization is most effective where available & feasible
- For instruments that can't withstand steam sterilization, ethylene oxide or automated low-temperature sterilant is effective

Environmental Management

- Appropriate facility design
- Safe water supply
- Protective environment for patients with lowered immune systems
- Routine cleaning of facility

Facility Design & Planning

- Adequate floor space for beds & space between beds
- Regulation of traffic flow to minimize exposure of/to high-risk patients
- Sufficient hallway space to transport patients and equipment
- Appropriate ventilation
- Precautions to control pest and rodents

Water Supply

- Safe water should always be available
- If using storage tanks, they need to be regularly cleaned & checked for bacterial contamination
- If tap water isn't safe, it needs to be boiled for 5 minutes and/or purified
- All water storage containers or water coolers needed to be regularly cleaned

Protective Environment for Patients with Lowered Immune Systems

- Strong air circulation through opened windows (and use of filters if available)
- Minimize health worker & visitor contact with patient & wear personal protective equipment when needed
- Avoid flowers & plants in room
- Clean room twice daily with damp dusting
- Follow strict aseptic techniques

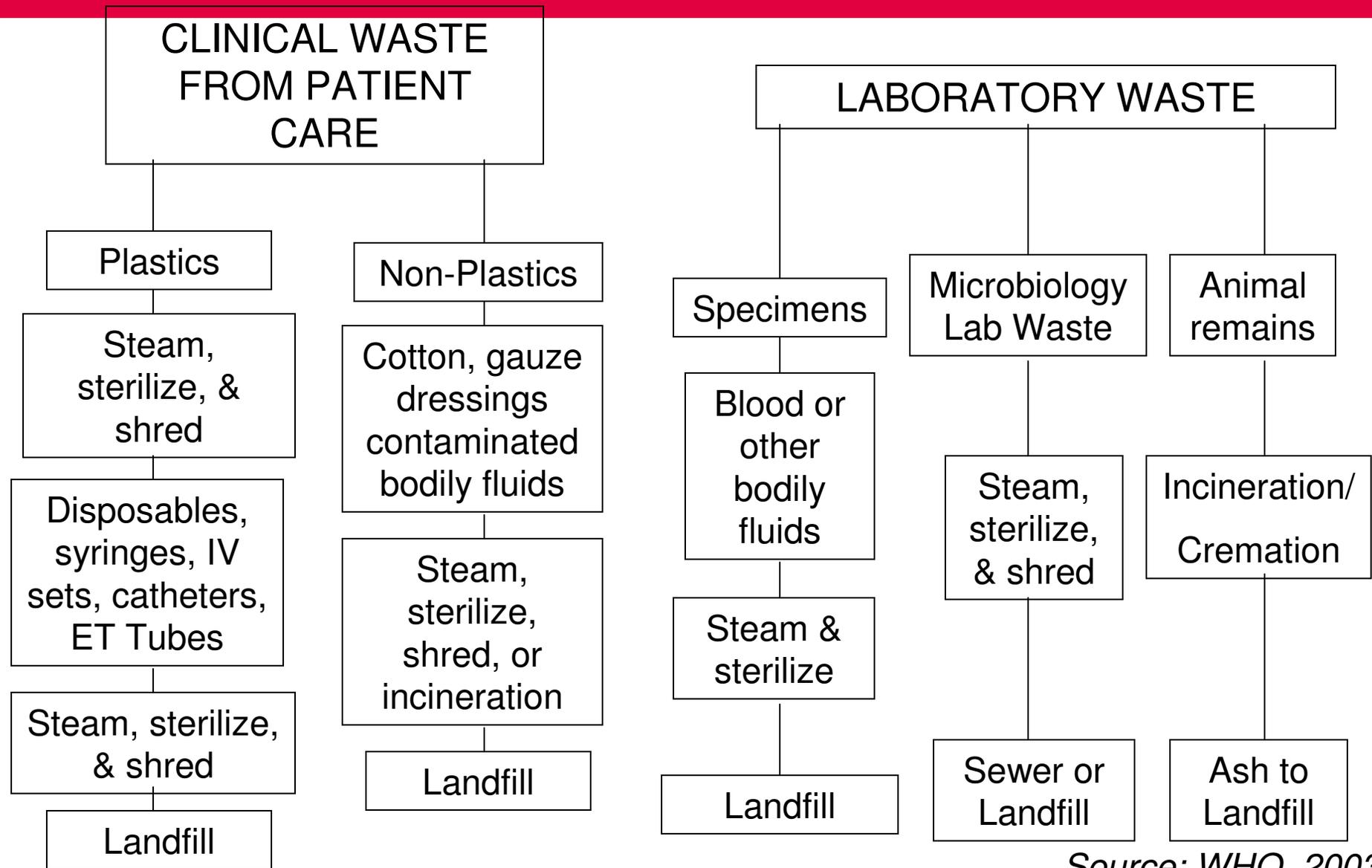
Principles of Waste Management

- Create a waste management plan based on the current situation & minimize the amount of waste generated
- Separate infectious & non-infectious waste in clearly-marked containers
- Dedicate specific area for waste storage & restrict access
- Store sharps in sharps containers

Disposal Of Hazardous Waste

- Waste That Should be Incinerated:
 - Body parts & animal carcasses
 - Cytotoxic drugs
 - Toxic laboratory chemicals
- Disposal of Sharps
 - Steam, sterilize or shred
 - Secure, deep burial
- Disposal of Clinical Infectious Waste
 - See next slide

Disposal of Infectious Clinical Waste (Non sharps)



Source: WHO, 2003



Handling of Soiled Linen

- Place used linen in bags directly after removal
- Linen soiled with harmful substances should be secured before transport
- Linen should not be rinsed or sorted in patient care areas
- Wash in hot water (70-80 °C) and dry in the hot sun or in dryer

Handling of Bedding

- Bedding with plastic covers should be wiped with neutral detergent
- If contaminated, mattresses without plastic covers need to be steam cleaned if possible or manually cleaned
- Pillows should be laundered or dry cleaned (if contaminated)

Key Interventions

Key Interventions (1)

- Visible organizational support for infection control, demonstrated by management
- Establish & empower infection control committee
- Develop an infection control plan
- Solicit staff feedback on personal protective equipment
- Continuously train staff on use of personal protective equipment

Key Interventions (2)

- Ensure availability of personal protective equipment
- Accessible antiseptic hand rub dispensers
- Monitor & supervise staff to ensure compliance & correct inappropriate behavior

Checklist – How is Your Facility Doing?

Standard Precaution	Yes	No	Comments
Appropriate Handwashing or Use of Handrub			
Use of Gloves			
Use of Other Personal Protective Equipment			
Careful Handling of Sharps			
Appropriate Sharps Disposal			

Checklist – How is Your Facility Doing

Standard Precaution	Yes	No	Comments
Instrument Processing According to Spaulding Classification			
Safe Water is Always Available			
Bedding & Soiled Linens Properly Cleaned/Launched			
Disposal of Infectious Waste According to Guidelines			

Discussion Questions

- What aspects of infection control does your facility do well?
- In what areas could improvements be made?



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