Module 2: Standard & additional Precautions on infection prevention and control in health care facilities.

Session 3: Waste Management

3.1 Learning Objectives

➢ **At the end of this session, the participants will be able to**:

- Define healthcare waste
- Identify different types of waste in a healthcare setting
- Identify key steps in healthcare waste management
- Describe the best practices for minimizing, segregation, collection, transport and healthcare waste.

3.2 Introduction

- Healthcare waste includes all waste generated by health, research, and laboratory facilities in the course of providing healthcare services.
- Healthcare waste in a facility should be managed from point of generation to final disposal and removal.
- Improper handling of healthcare waste can endanger staff, patients, and the community.
- Hazards include exposure to infectious agents, toxic chemicals and radioactivity, and injury from sharp objects.

3.3 Categories of Healthcare Waste

- Healthcare waste is divided into two main categories:
  - hazardous and
  - non-hazardous.
- If waste is not segregated correctly, hazardous waste can contaminate non-hazardous waste.
- This can make collection, transport, treatment, and disposal of waste difficult and hazardous.
- Treating non-hazardous waste as though it is hazardous results in wasted resources and effort.

3.3.1 HAZARDOUS

- Hazardous waste can harm people and the environment.
- Categories of hazardous waste
  - Infectious,
  - Toxic, and
  - Radioactive
- The types of hazardous waste in a facility vary according to the size of the facility and the services offered.

3.3.2 NON-HAZARDOUS

Non-hazardous waste does not pose biological, chemical, radioactive, or physical risk to people or the environment, and can be disposed of as municipal waste.

3.4 Sources of healthcare Waste

Health Care Waste includes all the waste generated by healthcare facilities, research facilities, and laboratories related to healthcare services.

3.5 Safe Waste Management Benefits

- Reduces risk of infections transmission
- Reduces risk of injury
- Creates clean and safe workplaces in the healthcare facilities
- Reduces waste-related odors and attraction for vermin
- Assures well protected environment (soil, water, and air)

3.6 Healthcare Waste Management

All staff have a responsibility to dispose of healthcare waste safely for the safety of patients, visitors, other healthcare workers, and the community.

3.6.1 Key Steps in Waste Management

- Waste minimization
- Segregation (separation)
- Handling and Storage
- Collection
- Transportation
- Treatment
- Disposal

3.6.1.1 Waste Minimization

- Where feasible, minimizing the amount of waste that is produced by a healthcare facility is a good waste management practice.
- Waste minimization is most commonly applied at the point of generation, but it can also happen before items even enter the healthcare facility. Examples of good waste minimization practice include:
  - Select materials with minimal packaging.
  - Choosing equipment that can be reprocessed locally that is, appropriately cleaned, disinfected, and or sterilized for reuse.

3.6.1.2 Segregation

- Waste should be segregated at point of generation by all health care workers
- Waste should be segregated in the correct color coded bins based on their potential hazard
- Proper segregation using clearly labelled waste containers reduces hospital costs

3.6.1.2 Segregation cont…

➢**Type of Waste**

A. General Waste

Put general healthcare waste, such as food scraps and office waste, in a container lined with a plain plastic bag.

Do not put this kind of waste in containers or bags with biohazard symbols on them.

3.6.1.2 Segregation cont…

- **B. Hazardous sharps waste**
- Dispose of hazardous sharps waste, such as syringes, scalpels, suture needles, and glass, in a puncture-resistant sharps container to prevent needle sticks, cuts, and puncture injuries.
- Sharps containers should be labelled with a biohazard symbol and designated “sharps.”
- Sharps containers should be located within arm’s reach of where sharps are used.
- Avoid overfilling sharps containers seal and discard them when they’re three-quarters full to prevent needle stick injury.
- Sharps containers should be single-use; never empty a container and then reuse it.

3.6.1.2 Segregation cont…

C. Hazardous non-sharps waste

Other hazardous waste, such as pathological and pharmaceutical waste, should go in a container that is:

- Leak proof and puncture-resistant
- Covered with a lid
- Appropriately labelled and color-coded
- Lined with a plastic bag that is closed and discarded when three-quarters full to enable bag closure and safe transport

3.6.1.2 Segregation cont…

Look at this example of waste segregation. It is easy to see that the red bin is labelled as infectious waste.

3.6.1.3 Collecting Waste

- Always wear personal protective equipment (PPE)
  - A minimum of gloves, heavy duty apron and boots
- Maintain segregation patterns during waste generation and **NEVER** sort waste when in storage ready for disposal.
- Keep written records of the waste quantities generated and treated
- Collect and remove waste daily from healthcare settings to avoid accumulation hence increasing risk of infection transmission.

3.6.1.3 Collecting Waste

PPE for waste collection and incinerator operators:

- Eye goggles
- Respirator mask
- Heavy duty gloves
- Heavy duty boots
- Overall
- Apron

3.6.1.3 Collecting Waste

- ✓Remember to remove PPE and perform hand hygiene after handling waste. it is important to collect waste according to type.
- ✓If you are collecting bags, tie them securely closed.
- ✓Do not shake or squeeze bags to create more space in the bag when sealing them.
- ✓Carry sealed bags at the top that is, by the neck and away from your body. Lifting or holding bags by the bottom or sides could cause injury (such as by sharp objects piercing through the bag), especially if they contain waste that was incorrectly discarded.
- ✓ Be sure that the bags are not broken, opened, dropped, or thrown.

3.6.1.4. Transporting to Treatment

- All bins and bags must be closed/lids in place
- Bins must not be dragged or touch the body of carrier
- On site transport:
    - Trolley, cart, etc.
    - If by hands, bags must always be carried by their top and not by sides (off the ground to avoid dragging on the ground)
    - Transport each waste category separately

3.6.1.4. Transporting to Treatment

➢**Precautions during transport**

- Ensure separation of different types of waste during transportation
- Keep sharps containers/boxes upright and dry
- Hazardous waste is ultimately disposed by incineration
- After transport, clean vehicle surfaces with disinfectant preferably chlorine base

3.6.1.5. Waste Storage

- Store waste until it can be either treated or transported offsite.
- Healthcare facilities should have an operating plan for waste so that the need to store waste is minimized.
- When creating an operating plan, consider the volume of waste produced daily, waste management staffing needs, the size of storage areas, and final disposal method.
- Waste storage areas can be located within the healthcare facility or in a designated area on the grounds.

3.6.1.5. Waste Storage cont…

- Whether kept indoors or outdoors, waste should be secured from people and animals, and protected from rain.
- Make sure the waste storage area is easily accessible by staff in charge of handling waste.
- If waste is transported offsite, consider placing the storage area where waste-collection vehicles have easy access.
- Waste storage areas should be of appropriate size for the volume of waste generated by the healthcare facility. Waste should not be allowed to accumulate for more than one or two days.

3.6.1.6 Treating and disposing of waste

- After collection, healthcare waste is treated and/or disposed of according to its type.
- WHO recommends treating hazardous waste before disposal to minimize risk and hazard.
- The disposal method depends on how it has been treated, as well as on the type and quantity of waste, available space on site, and access to offsite disposal options.
- While general non-hazardous healthcare waste (municipal waste) can be disposed of without treatment, hazardous waste should be treated prior to final disposal.
- Healthcare facilities should conduct a risk assessment based on the type and quantity of waste and access to resources, and choose the methods that will pose the least risk to the community and the environment.

3.6.1.6 Treating and disposing of waste cont…

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Treatment	Disposal
Sharps Waste	
Autoclave followed by shredding	Landfill or sharps pit
Incineration (sharp objects may not be completely destroyed by incineration, but it does make them less likely to be reused or repurposed and less risky to handle)	Sharps pit
Infectious, non-sharps waste	
Autoclave	Landfill
Autoclave followed by shredding	Encapsulation
Incineration	Ash pit

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3.6.2 Summary

- Unsafe waste management practices can result to serious injuries and infection transmission
- Proper waste segregation at generation point should be practiced at all times
- Ensure proper handling of healthcare waste
- Choose the most effective treatment and/or disposal method to enhance safety
- Personnel handling waste should do so while wearing personal protective equipment (PPE)

THANK YOU!