

Infection Prevention and Control (IPC) for Ebola or Marburg:

Environmental Cleaning & Waste Management for HCWs

Healthcare Settings with Limited to Intermediate Resources

Learning Objectives

After this presentation, participants will be able to

- Explain why environmental cleaning is important in the context of Ebola or Marburg.
- Describe at least three general principles of environmental cleaning.
- Describe 3 common streams for waste in healthcare facilities.

Which is correct?

- ☐ Cleaning is killing germs. Disinfecting is removing dirt and some germs.
- ☐ Disinfecting is a type of cleaning (cleaning with chemicals).
- ☐ Cleaning is a type of disinfecting (disinfecting with soap or detergent).
- ☐ Cleaning is removing dirt and some germs. Disinfecting is killing germs.

Answer:

- ☐ Cleaning is killing germs. Disinfecting is removing dirt and some germs.
- ☐ Disinfecting is a type of cleaning (cleaning with chemicals).
- ☐ Cleaning is a type of disinfecting (disinfecting with soap or detergent).
- ☒ Cleaning is removing dirt and some germs. Disinfecting is killing germs.

Environmental Cleaning Overview

Why Environmental Cleaning?

- **Viruses that cause Ebola or Marburg can live/persist on surfaces** (tables, chairs, etc.)
- Touching contaminated surfaces or using contaminated equipment can spread Ebola or Marburg to you and your patients.
- Appropriate cleaning and disinfection helps prevent the spread of Ebola or Marburg in facilities. This protects:

YOU

Your co-workers & patients

Your community

Definition: Environmental Cleaning

Environmental cleaning is the general term for **cleaning and disinfecting the patient care environment**.

- **Cleaning:** removes dirt and some germs and is performed with soap and water
- **Disinfecting:** kills germs using chemicals such as 0.5% chlorine solution

Principles of Environmental Cleaning

- Always **clean *before* disinfecting**
 - Organic material left on surfaces decreases effectiveness of disinfectants
- Always proceed from the **cleanest area to the dirtiest area**
 - Isolation area should always be cleaned last
- Always clean in a **systematic manner (e.g., clockwise)** to avoid missing areas
- Always be sure to **clean and disinfect patient care equipment between each patient**
- Where possible, **dedicate cleaning supplies** in higher risk areas (e.g., delivery, operation room)
 - **Always dedicate cleaning supplies for Ebola or Marburg isolation areas**

PPE for Ebola or Marburg Environmental Cleaning



- Inner gloves (to assist when removing PPE)
- Outer gloves (thick, rubber gloves given use of chemicals while cleaning and disinfecting)
- Gown or coverall
- Apron
- Mucous membrane protection (*face mask + face shield) OR (*face mask + goggles)
- Rubber boots (or shoe covers)
- Head cover

*Respirator can be used in place of face mask (structure of respirator keeps it from collapsing when soaked with sweat; may be preferred in hot, humid climates)

How to Clean Up a Spill of Body Fluids

✗ **DO NOT spray** disinfectant directly on body fluid spills ✗

1. Perform hand hygiene
2. Put on appropriate PPE for the task
3. Use a cloth or absorbent towel to remove excess liquid
4. Clean surface with soap and water
5. Disinfect with 0.5% chlorine solution
6. Keep the surface wet for at least 15 minutes
7. Discard waste and remove PPE
8. Perform hand hygiene



Using Chlorinated Solutions

- Use chlorine solution for environmental cleaning in Ebola or Marburg isolation areas
 - **0.05%** for soft surfaces / porous items (bed sheets, cloth gowns)
 - Soak for 30 minutes
 - **0.5%*** for hard/non-porous surfaces (floors, counters, bed rails)
 - Make sure it stays wet on the surface for 15 minutes
- Do NOT spray chlorine
 - **Never spray people**
 - For surfaces, wiping is preferred



<https://www.mercy-corps.org/blog/ebola-outbreaks-africa-guide/chapter-3>

* Alternatives: Alcohol at 70-90% (ethanol, isopropyl), improved hydrogen peroxide $\geq 0.5\%$

Chlorine—A Word of Caution

- Adverse health effects
 - Respiratory problems
 - Burns
- Potentially explosive when mixed
 - Calcium hypochlorite + sodium dichloroisocyanurate = potential explosion
- Potential for creating toxic gases when mixed with ammonia or other cleaning products
 - Eye, nose, and throat irritation and other severe reactions



Chlorine burn from dunking hands with gloves on in bucket –unknown concentration in bucket (Sierra Leone 2014 Ebola Virus Disease outbreak)

Waste Management

Waste management includes:

- sorting/segregating waste
- collecting waste
- transporting waste
- storing waste
- treating waste
- disposing of waste

Safe management of waste generated during patient care is the **responsibility of all staff.**

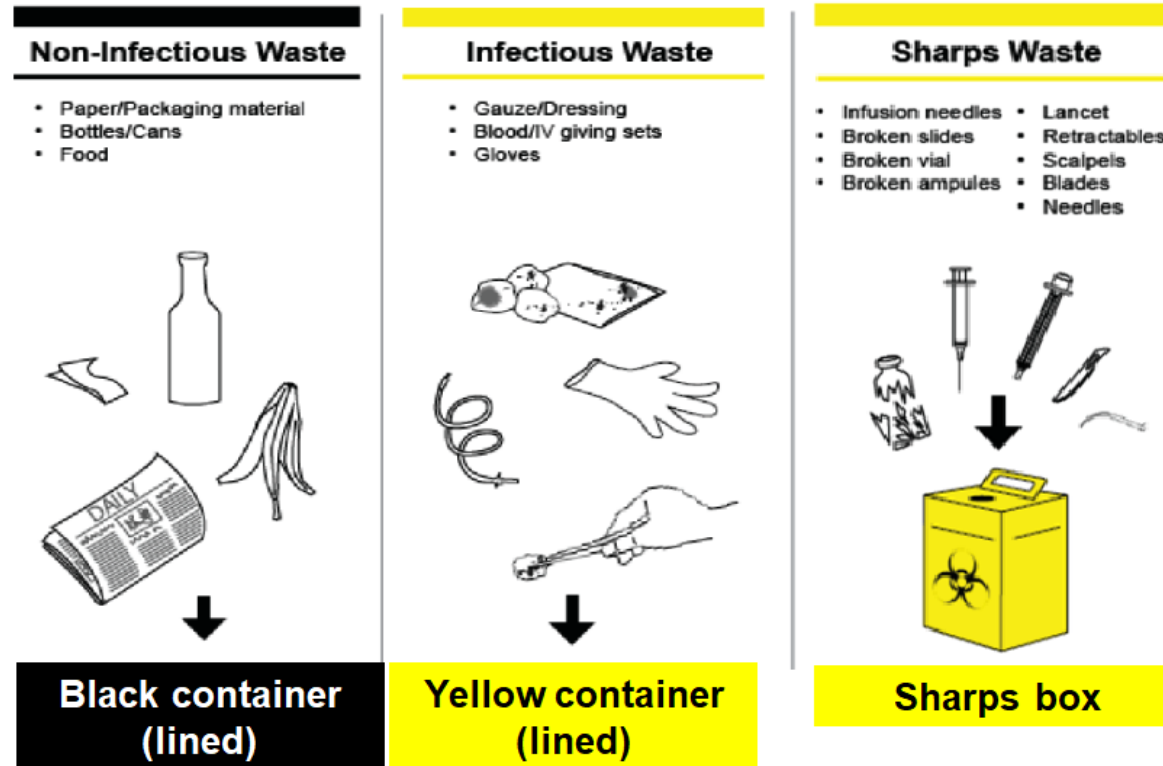
Why Waste Management?

- Healthcare facilities are **responsible for managing waste.**
- Inappropriate waste management **poses potential health risks** to you, your patients, and your co-workers, as well as to your community.



Waste Segregation

3-bin system (most common)



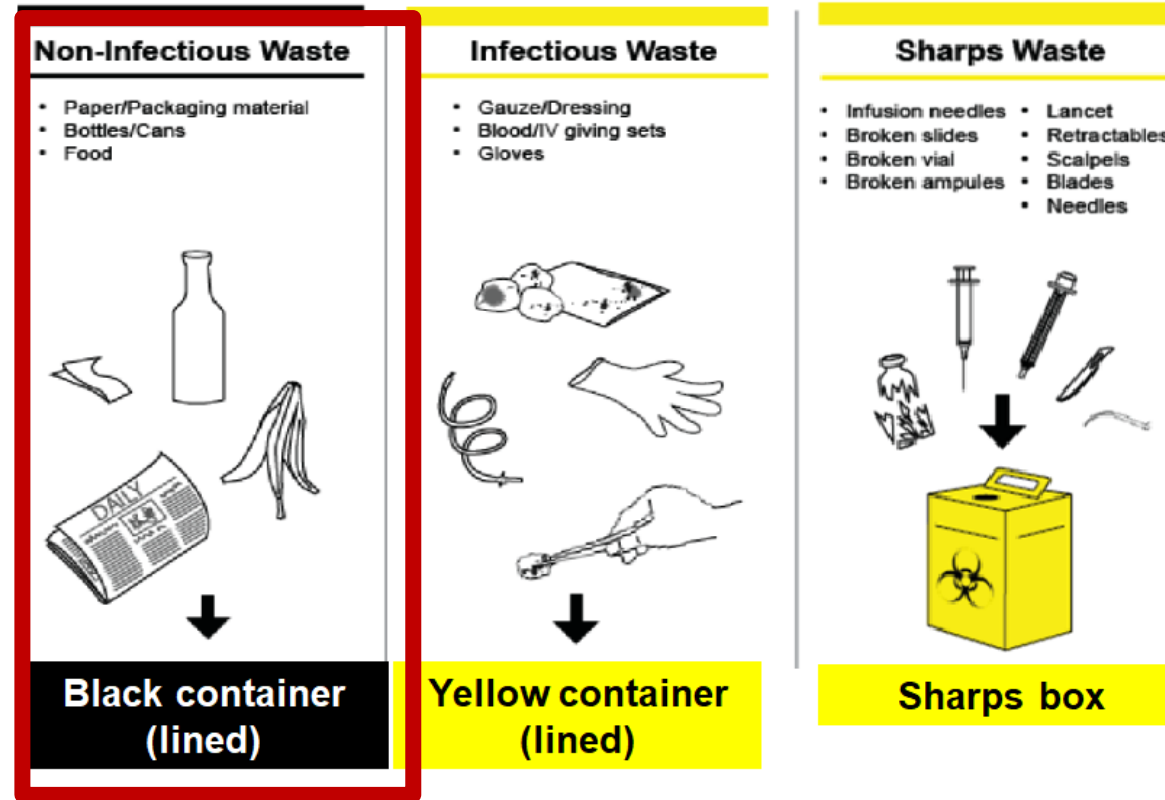
Other waste streams (less common)

Pathological waste	
Chemical and pharmaceutical waste	
Radioactive waste	

<https://www.washinhcf.org/resource/wash-fit-training-package/>

Waste Segregation

3-bin system (most common)

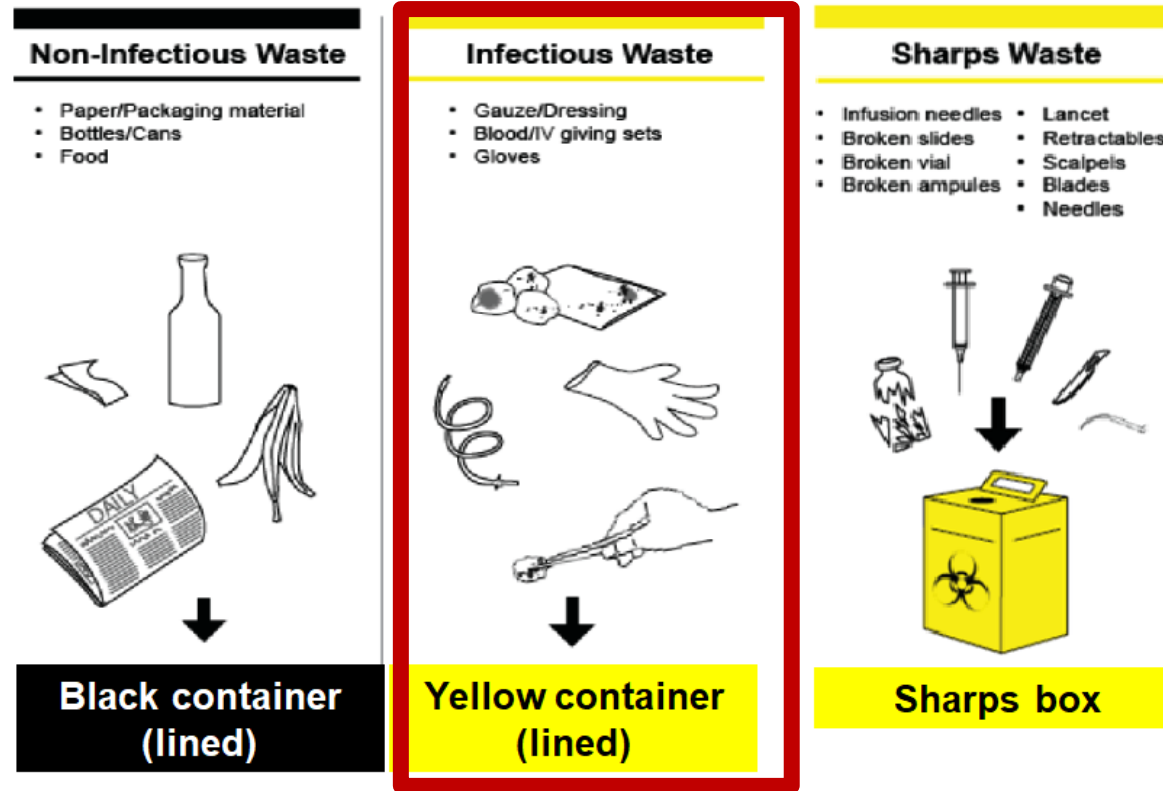


Other waste streams (less common)

Pathological waste	
Chemical and pharmaceutical waste	
Radioactive waste	

Waste Segregation

3-bin system (most common)

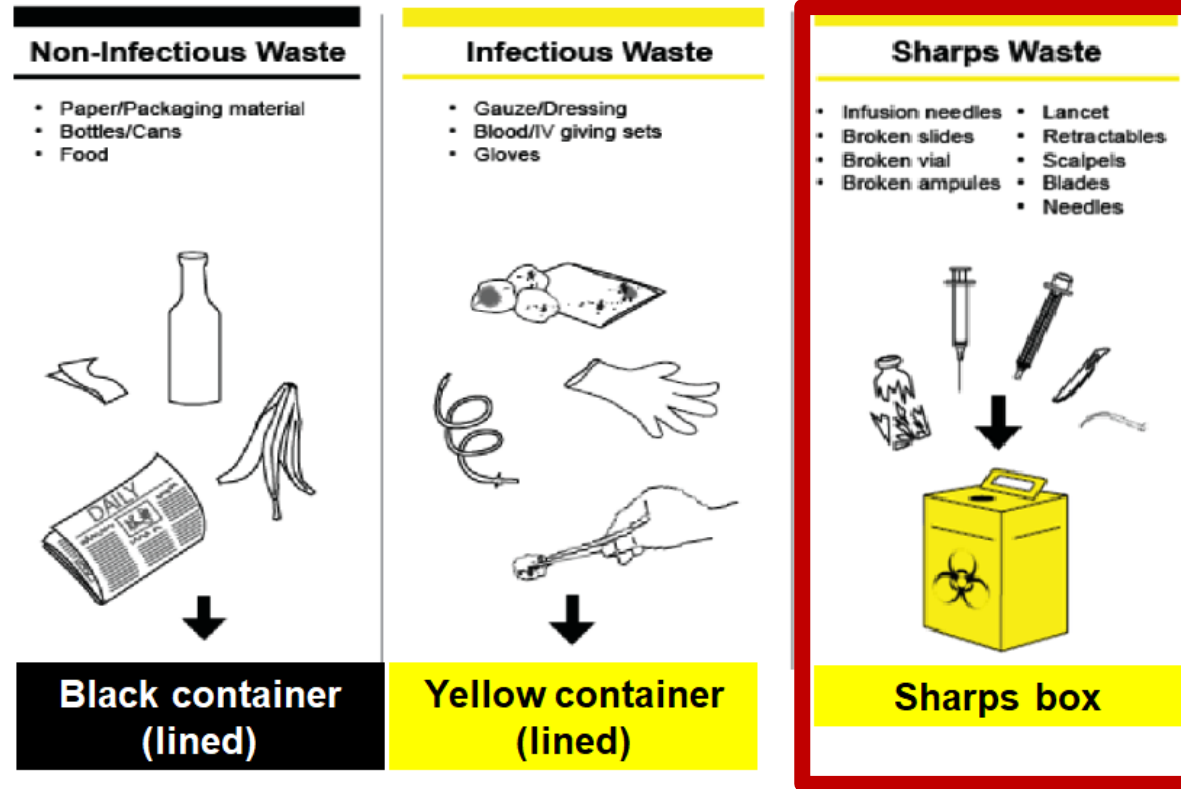


Other waste streams (less common)

Pathological waste	
Chemical and pharmaceutical waste	
Radioactive waste	

Waste Segregation

3-bin system (most common)

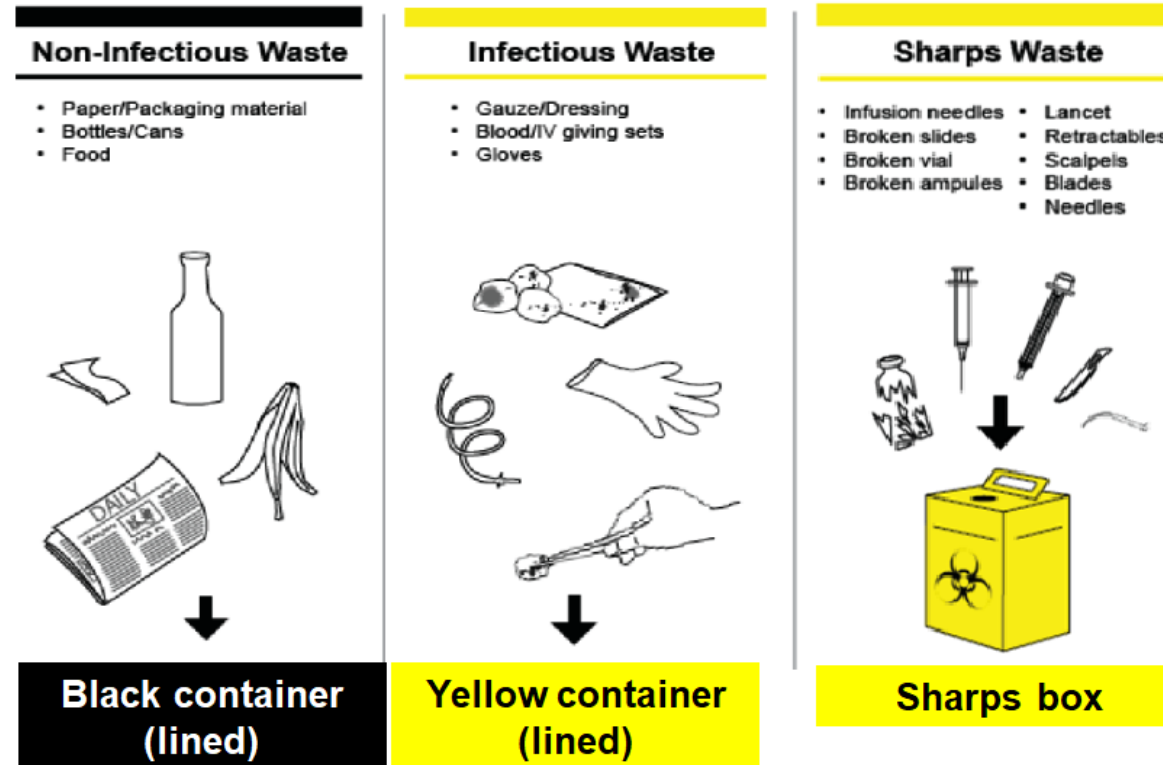


Other waste streams (less common)

Pathological waste	
Chemical and pharmaceutical waste	
Radioactive waste	

Waste Segregation

3-bin system (most common)



Other waste streams (less common)

Pathological waste	
Chemical and pharmaceutical waste	
Radioactive waste	

<https://www.washinhcf.org/resource/wash-fit-training-package/>

Collecting and Transporting Waste



- Waste bags should be collected on a regular schedule or when bin is 2/3 full
 - Wear appropriate PPE (heavy duty gloves, gown or coveralls, face mask, eye protection, foot covers or boots) when handling contaminated waste
 - Transport the waste in a cart or wheelbarrow from place of segregation to place of storage or disposal
 - Follow a designated transportation route

Waste Disposal

- Healthcare facilities must have a **functional system** for the final disposal of waste
- Infectious and potentially infectious waste must be:
 - Incinerated

OR

- Treated with a non-burn treatment (autoclaving/grinding or other alternative treatment) before being placed in regular waste stream

OR

- Buried

Reflection

Based on what you learned today, will you do anything differently when performing environmental cleaning or disposing of waste in your healthcare facility?



Key Takeaways

- Because viruses that cause Ebola or Marburg can live on surfaces, it's important to keep the healthcare environment clean and dispose of waste properly to keep yourself, your co-workers and patients, and your community safe.
- You should always **clean before disinfecting** to remove organic material left on surfaces that can prevent disinfectants from working well.
- **All facility employees** play a role in waste management. Always dispose of waste in the proper bin.

Thank you!

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

