



# **IPC for Marburg Virus Disease (MVD):** Environmental Cleaning & Waste Management for HCWs

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**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 Marburg virus disease.
- Describe at least three general principles of environmental cleaning.
- Describe 3 common streams for waste in healthcare facilities.

# Environmental Cleaning Overview

# Why Environmental Cleaning?

- **Marburg virus can live/persist on surfaces** (tables, chairs, etc.)
- Touching contaminated surfaces or using contaminated equipment can spread Marburg virus to you and your patients.
- Appropriate cleaning and disinfection helps prevent the spread of Marburg virus disease 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 Marburg virus disease isolation areas**

# PPE for Marburg Virus Disease 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. After 15 minutes, let the surface dry
7. Discard waste and remove PPE
8. Perform hand hygiene





# Using Chlorinated Solutions

- Use chlorine solution for environmental cleaning in Marburg virus disease 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.mercyteams.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)

# 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:

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# 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?

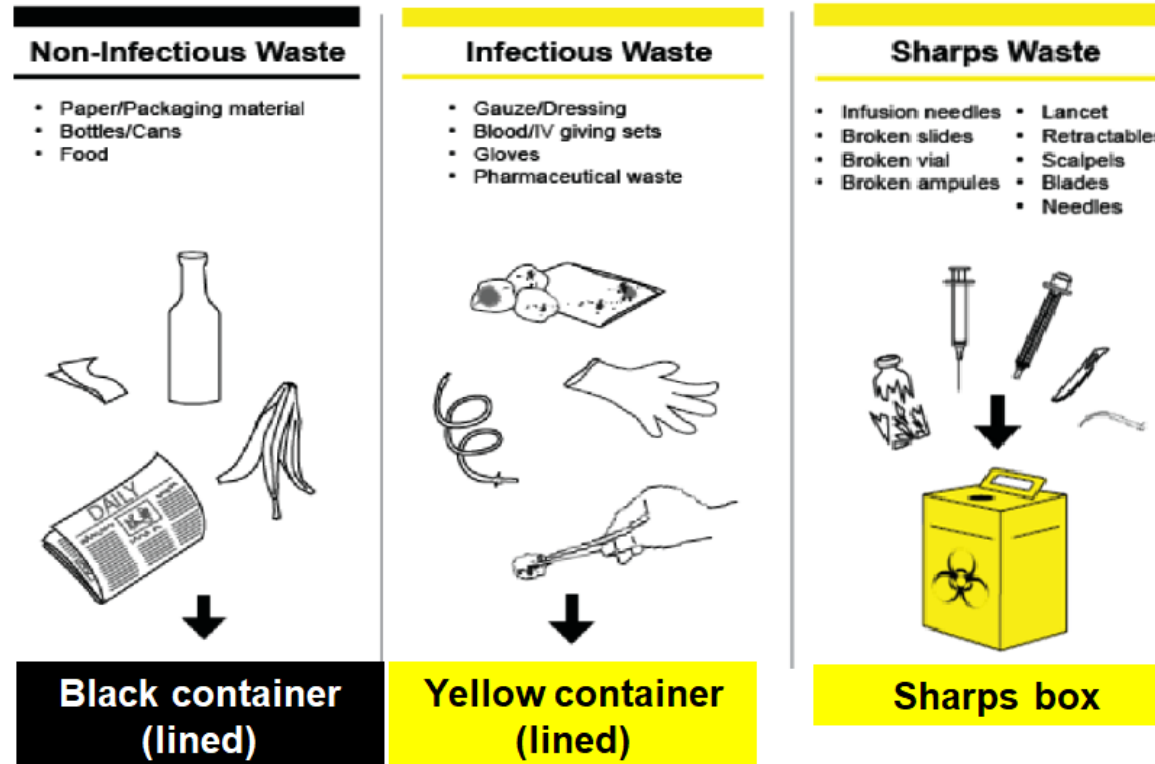
- Healthcare facilities are **responsible for managing waste.**
- Inappropriate waste management **poses potential health risks** to you, your patients, and your co-workers, as well as to your community.



# Waste Segregation

## 3-bin system

(most common)



## Other waste streams

(less common)

Pathological waste	
Chemical and pharmaceutical waste	
Radioactive waste	

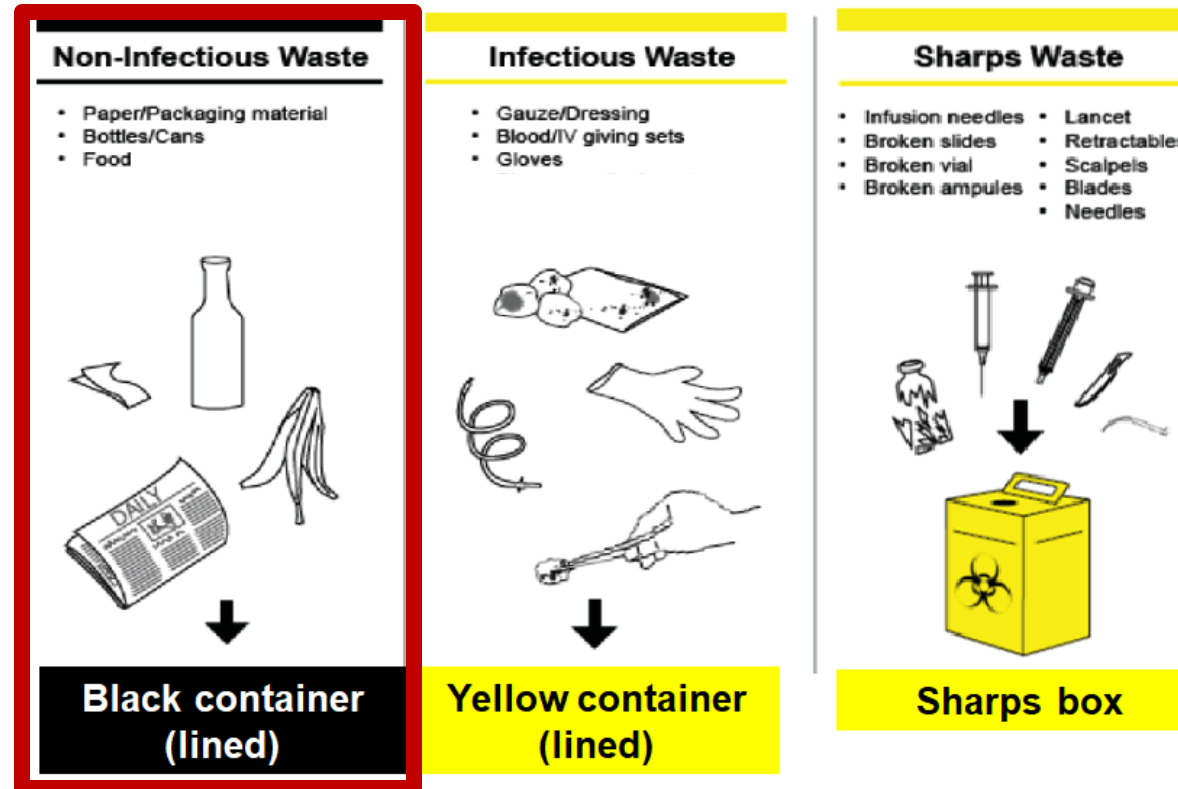
<https://www.washinhcf.org/resource/wash-fit-training-package/>



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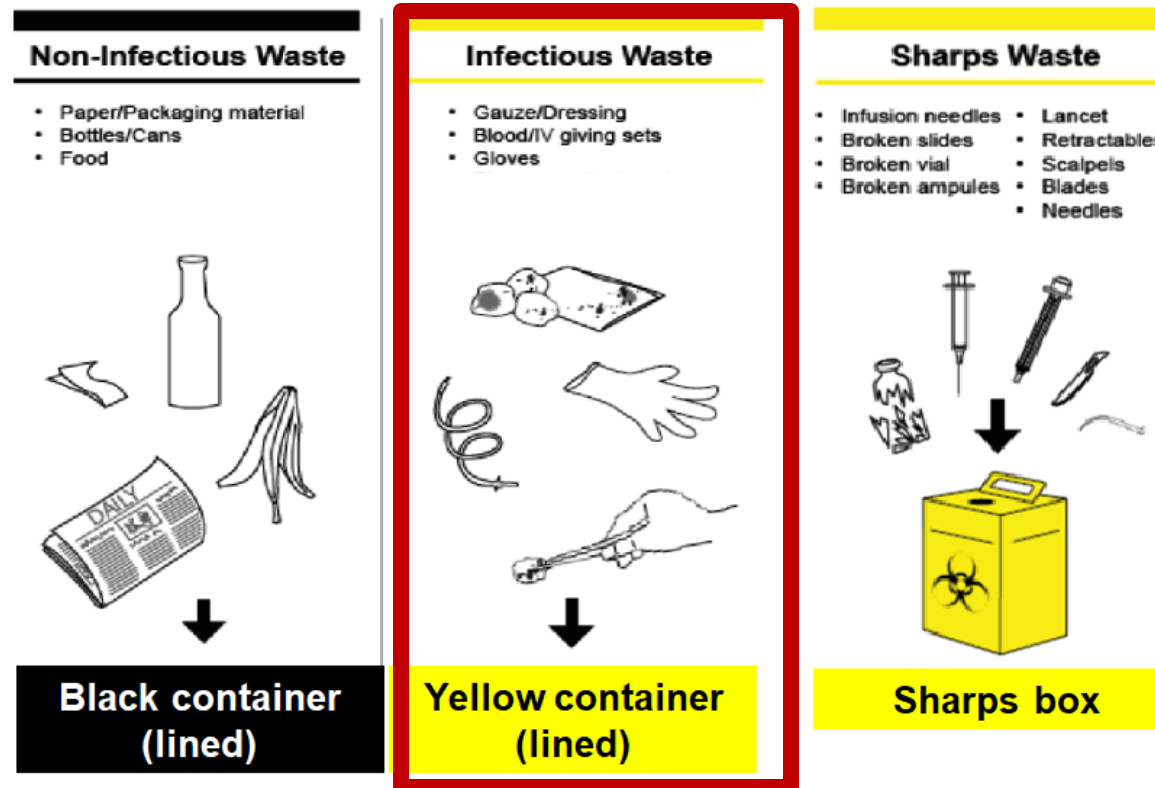
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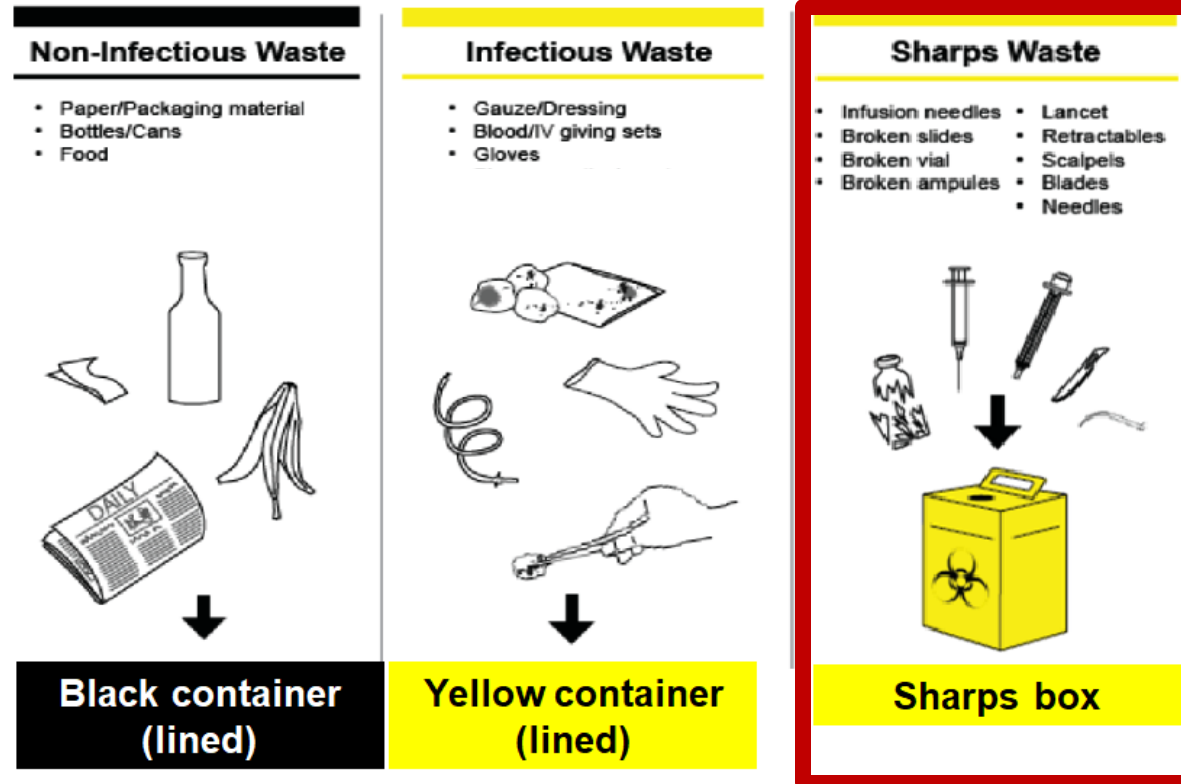
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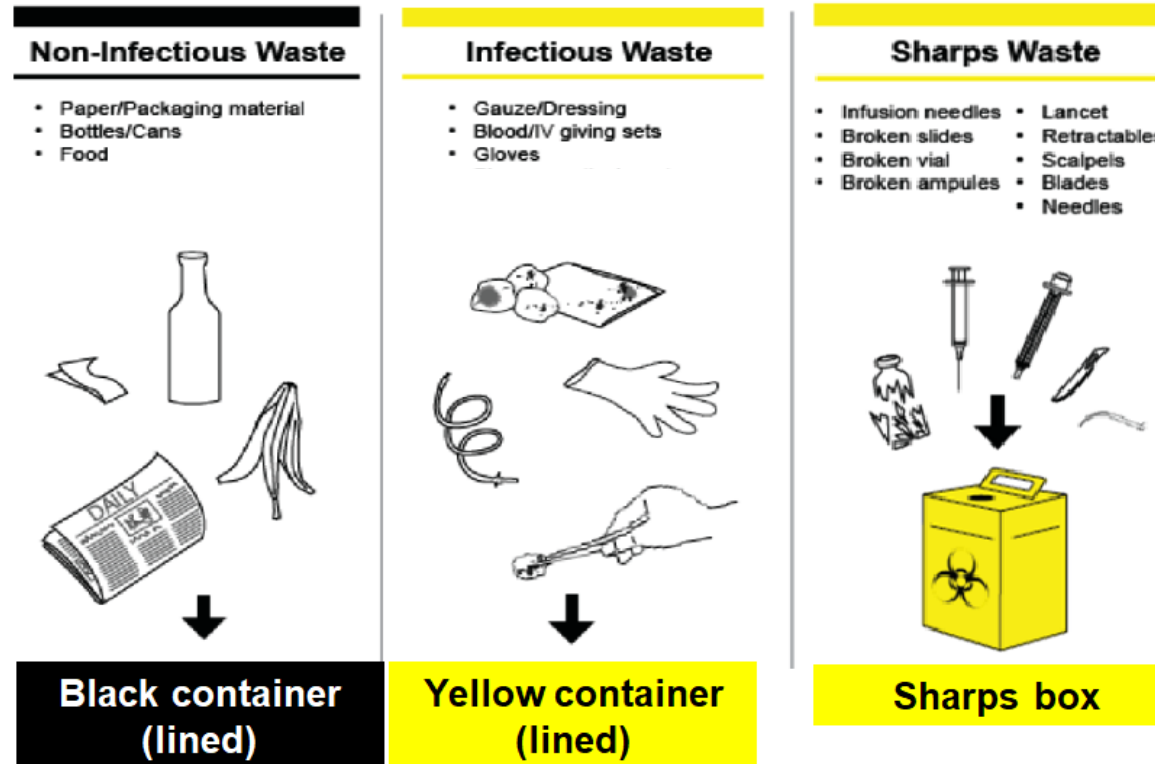
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# Collecting and Transporting Waste



- 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 Marburg virus disease 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](http://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.

