Centers for Disease Control and Prevention
National Center for Emerging and Zoonotic Infectious Diseases

Infection Prevention and Control (IPC) for Marburg Virus Disease (MVD):

Environmental Cleaning & Disinfection for Facilities Management

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Healthcare Settings with Limited to Intermediate Resources

Updated: March 2023

Learning Objectives

After this presentation, participants will be able to

- Explain why environmental cleaning is important in the context of MVD
- Describe at least three general principles of environmental cleaning.

What can Marburg virus live on? (More than one may apply.)

- ❑ Surfaces (tables, chairs, etc.)
- ❑ Medical equipment (thermometer, stethoscope, etc.)
- ❑ Personal Protective Equipment (masks, boots, aprons, etc.)

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Environmental Cleaning Overview

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.

Why Environmental Cleaning?

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

YOU
Your co-workers & patients
Your community

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**

Supplies and Equipment for Environmental Cleaning

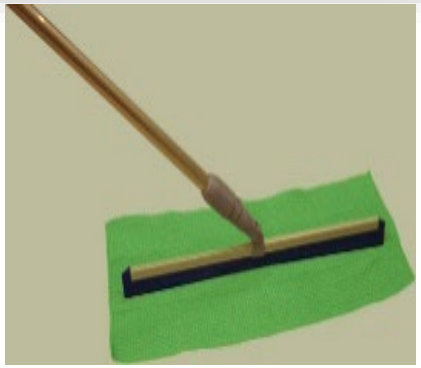
PPE for MVD Environmental Cleaning

- 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)

Materials for Environmental Cleaning and Disinfection

- Clean water
- Soap
- Disinfectant (e.g., Jik, HTH)
  - 0.5% chlorine solution
- Small buckets/containers (for surfaces)
- Buckets / trolley (for floors)
- Cleaning cloths
- Squeegees with handles or mops



Using Chlorinated Solutions

- Use chlorine solution for environmental cleaning in MVD isolation areas
  - **0.5%***for hard/non-porous surfaces (floors, counters, bed rails)
    - Make sure it stays wet on the surface for 10 minutes
- Do NOT spray chlorine
  - **Never spray people**
  - For surfaces, wiping is preferred

https://www.[illegible]rcycorps.org/blog/Marburg-outbreaks-africa-guide/chapter-3

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

Ensuring Chlorine Potency

- **Chlorine loses potency:**
  - Over time
  - When exposed to sunlight
  - When mixed with organic matter

- **To ensure potency:**
  - Make fresh every day
  - Keep in closed buckets away from sunlight
  - Use only after cleaning with soap and water
  - Avoid dipping dirty cloths into a bucket of chlorine

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)

Managing Environmental Cleaning Activities

Cleaning Schedules or Logs

- Job aids can help guide the daily workflow for cleaning staff and ultimately become records.
- They specify the:
  - Location (i.e., room, ward)
  - Cleaning session (e.g., terminal cleaning)
  - Date
  - Name/signature of cleaning staff

General Medicine	Daily Cleaning	Date	Staff Name / Signature
Patient Room 1	☑	17 /11 /22	*Fill in name here*
Patient Room 2	☑		
Patient Room 3	☑		
Patient Toilet	Shift 1: Shift 2:		

Training for Environmental Cleaning Staff

- Staff should be trained before working independently and refresher trainings should be given as needed (e.g., every 6-months)
- Training should be:
  - Participatory
  - Practical (hands-on, demonstration, practice)
  - At an appropriate literacy level
  - Led by experienced trainers

Reflection

Based on what we've discussed today, what are three things that could be changed at your facility related to environmental cleaning that would help to better protect cleaning staff and others in your facility from MVD?

Consider things such as environmental cleaning principles, PPE needed, appropriate use of chlorine, and staff training.

Key Takeaways

- Environmental cleaning helps prevent the spread of MVD and helps protect you, your co-workers and patients, and your community.
- Cleaning with soap and water should always happen before disinfection with chlorine.
- Chlorine should never be sprayed on people.
- Staff training and cleaning logs can help manage environmental cleaning activities.

Thank you!

For more information, contact CDC
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TTY: 1-888-232-6348 www.cdc.gov