IPC for Marburg Virus Disease (MVD):

Environmental Cleaning & Disinfection for Facilities Management

Speaker's Notes and Script

Slide 1:

*Intended Audience: This presentation focuses on what **facilities management staff** should know about environmental cleaning and disinfection in the context of Marburg virus disease.*

Please note that the IPC for Marburg Virus Disease topics are presented in sequence, with the expectation that participants will progress through the series. You may, however, mix and match content to meet participant needs, and you might need to adjust the sample script below accordingly.

Script:

Welcome! Today we'll be focusing the role of facilities management staff in environmental cleaning and disinfection in the context of Marburg virus disease.

Slide 2:

Script:

We have two learning objectives for today. By the end of our time together today, you should be able to explain why environmental cleaning is important and describe at least three general principles of environmental cleaning.

Slide 3:

[This slide comes from Session 13_EnvCleaning_Sterilization of the supervisor training.]

Activating background knowledge.

A key benefit of working with adult learners is that they likely already have some knowledge or experience related to the topic you are teaching. Activating background knowledge helps students connect new learning to what they already know and may help them understand new information better. It also helps you, the instructor, to identify gaps in knowledge where you may need to spend extra time or add emphasis while teaching. Use this slide as an opportunity to let students share what they already know.

Script:

To get us started today, I have a multiple choice question for you. What can Marburg virus live one? Your options are surfaces such as tables and chairs, medical equipment like thermometers and stethoscopes, and personal protective equipment such as masks, boots, and aprons. More than one of these options might be correct. I'll give you a minute to think before revealing the answer.

[Give participants 1-2 minutes to think quietly before revealing the answer on the next slide.]

Slide 4:

[This slide comes from Session 13_EnvCleaning_Sterilization of the supervisor training.]

Activating background knowledge.

A key benefit of working with adult learners is that they likely already have some knowledge or experience related to the topic you are teaching. Activating background knowledge helps students connect new learning to what they already know and may help them understand new information better. It also helps you, the instructor, to identify gaps in knowledge where you may need to spend extra time or add emphasis while teaching. Use this slide as an opportunity to let students share what they already know.

Script:

And the answer is: all of these options. Marburg virus can live on surfaces, medical equipment, and personal protective equipment. If you were to touch one of these surfaces that Marburg virus was living on, and then touch a mucous membrane such as your eyes, nose, or mouth, you could potentially infect yourself with Marburg virus disease.

Slide 5:

Script:
That's why environmental cleaning and disinfection is so important for stopping the spread of Marburg virus disease in healthcare facilities. Let's begin our discussion of environmental cleaning with an overview of what environmental cleaning is.

Slide 6:
Script:
Environmental cleaning is the general term used to refer to 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.

Slide 7:
Script:
So why is environmental cleaning so important? As we already talked about, Marburg virus can live on surfaces like tables, chairs, and medical equipment. If you touch contaminated surfaces or use contaminated equipment, you can spread Marburg virus disease to yourself and your patients. Appropriate cleaning and disinfection helps prevent the spread of Marburg virus disease in facilities. This protects you, your co-workers, and patients. By keeping yourself safe, you also protect your friends, family, and others you come in contact with in your community.

Slide 8:

Script:
These are some general principles of environmental cleaning. Some of these may sound familiar to you because these principles are not just for cleaning when Marburg virus may be present. They are principles that help to generally prevent healthcare-associated infections of many kinds.

Always clean before disinfecting. When cleaning, organic material left on surfaces should be removed. If that organic material isn't removed, it can decrease the effectiveness of disinfectants. Soap and water should be used to clean and chlorine to disinfect,. This means soap and water are used first so that chlorine can do its job.

Cleaning should begin in the cleanest area and move towards the dirtiest area. Isolation areas should always be cleaned last and preferably should have their own cleaning staff and protocols.

Patient care equipment such as stethoscopes or blood pressure monitors should be cleaned and disinfected between each patient.

Where possible, dedicate cleaning supplies in higher risk areas such as the delivery area or the operating room so that they are not used elsewhere. In the case of Marburg virus disease, **always** dedicate cleaning supplies for Marburg virus disease isolation areas so that they're not used in other patient care areas.

Slide 9:
Script:
Now let's talk about supplies and equipment needed for environmental cleaning.

Slide 10:
Script:

When performing environmental cleaning in the context Marburg virus disease, appropriate personal protective equipment, also called PPE, is needed to protect from exposure to infectious agents.

Staff performing environmental cleaning should always wear double gloves – an outer pair of thick, rubber gloves for protection from the chemicals used to clean and disinfect, and an inner pair of gloves to assist when removing PPE. To protect the body, they should wear a gown or coverall and an apron. To protect eyes, nose, and mouth, they should wear a face mask with a face shield or a face mask with goggles. If staff find that face masks collapse from getting soaked with sweat, they can wear a respirator in place of the face mask. The structure of the respirator will prevent this problem and also provide proper protection.
Rubber boots or shoe covers and a head cover should also be worn.

You can learn more about PPE from the PPE-focused sessions:
HCW Slide Deck 6: PPE Part 1 - What, When, and How to Use PPE and
HCW Slide Deck 7: PPE Part 2 - How to Put On and Remove PPE for Marburg Virus Disease.

Slide 11:
Script:
Materials that your facility will need to have on hand for environmental cleaning and disinfection include clean water, soap, and disinfectant such as Jik or HTH. You'll need both 0.5% and 0.05% chlorine solutions available. You'll also need

- small buckets or containers for surfaces and buckets or trolleys for floors,
- cleaning cloths,
- and either squeegees with handles or mops.

Slide 12:
Script:
When using chlorine solutions for environmental cleaning in Marburg virus disease isolation areas, a 0.05% concentration is needed for soft surfaces such as bed sheets and other linens. Generally, to disinfect, these items should be soaked for about half an hour in the chlorine solution.

A concentration of 0.5%, sometimes called "strong chlorine", is needed for hard surfaces such as floors, counters, and bed rails. The contact time of chlorine is 15 minutes. This is how long chlorine needs to be on a surface to kill the microorganisms. The surface should be sufficiently wet for 15 minutes to make sure there is enough time to disinfect.

Chlorine should never be sprayed, especially on people. This includes direct spraying, disinfectant tunnels, or any other "creative" solutions because of potential adverse health effects which we'll discuss on another slide. When cleaning surfaces, wiping is preferred over spraying.

Further reading:
Deliberate exposure of humans to chlorine-the aftermath of Ebola in West Africa - PubMed (nih.gov)

Slide 13:

Script:
The power of chlorine to disinfect is reduced over time, when exposed to sunlight, or when mixed with organic matter, so it needs to be made fresh everyday and stored in closed buckets away from sunlight. Remember that before disinfecting with chlorine, items should be cleaned with soap and water first to remove organic material from surfaces. Dirty cloths shouldn't be dipped into chlorine buckets.

Slide 14:

Script:

Chlorine can cause adverse health effects including respiratory problems and burns **when handled without the proper PPE**. This picture shows a chlorine burn from dunking hands in a bucket of chlorine. The concentration was unknown, and by the time this person could get the rest of her PPE off safely, about 10 minutes, she had chlorine burns on her arms.

Chlorine is also potentially explosive. Calcium hypochlorite may be combustible when mixed with some other types of powdered chlorine. At an Ebola treatment unit during a previous outbreak in West Africa, an explosion happened in a chlorine mixing area, which had two separate types of chlorine present: HTH Granular (Calcium Hypochlorite) and SDIC Powder (Sodium Dichloroisocyanurate). The blast was strong enough to be heard several hundred meters away, scattered chlorine powder around a wide area, and blew out a nearby tarpaulin wall.

Finally, if chlorine is mixed with any other disinfectants or cleaning products, particularly acids and ammonia based products, there is the potential for the creation of toxic gases, which can cause eye, nose, and throat irritation and other severe reactions.

In sum, always use caution when using chlorine.

Slide 15:

Script:
Now let's talk about managing environmental cleaning activities.

Slide 16:
Script:
Job aids can help guide the daily workflow for cleaning staff and ultimately become records. They should specify the location cleaned, such as the room or ward; the cleaning session, for example, terminal cleaning; the date, and the name and signature of the cleaning staff.

Slide 17:
Script:
Staff should be trained before working independently, and refresher trainings should be given as needed (such as every six months). Training should be participatory; practical with hands-on learning, demonstrations, and practice; at an appropriate literacy level for the audience; and led by experienced trainers.

Slide 18:
Reflection: Encourages participants to apply, analyze, and/or evaluate what they've learned, helps them to deepen their understanding of the topic and also allows you to check their comprehension of what they learned..

Personalization: Helps participants think about how what they have learned applies to their specific situations. Connecting learning to personal experiences helps learners to better understand and remember the ideas taught.

Script:
Now that we've discussed environmental cleaning in the context of Marburg virus disease in general, I'd like to allow you some time to think about how this applies to your facility specifically. 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 Marburg virus disease? Consider things such as environmental cleaning principles, PPE needed, appropriate use of chlorine, and staff training.

Take a minute to write down or think about the three things (or more!) that you might do differently based on what you learned today.

[Give participants 1-2 minutes to write down their ideas. After participants are finished, you may ask for volunteers to share their answers, but as this is a personal question, and some might feel embarrassed about what they feel has not been done properly in the past, don't require anyone to answer in front of the group.]

Slide 19:
Script:
To wrap up, there are several key ideas that I hope you take away from this session:
First, remember that environmental cleaning is crucial for preventing the spread of Marburg virus disease. It protects you and your co-workers and patients. By protecting yourself, you also protect your friends, family, and others in your community.

Remember that environmental cleaning involves cleaning and disinfection. Cleaning with soap and water should always happen before disinfection with chlorine.
Chlorine should never be sprayed on people.
And finally, staff training and cleaning logs can help manage environmental cleaning activities.