PARTICIPANT BOOKLET

Introduction to Reservoirs: Where Germs Live

Session 2

Healthcare Environment Reservoirs

Project Firstline **Infection Control Training Toolkit**

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

PROJECT FIRSTLINE

Overview

Session 2: Healthcare Environment Reservoirs

Learning Objectives

- Describe four environmental reservoirs where germs live that are important for infection control in healthcare.
- Explain how germs can be spread from each healthcare environment reservoir and cause harm.

Key Takeaways

- "Reservoirs" are the places on and in our bodies and in the environment where germs live. Germs frequently spread between and among these reservoirs.
- Four reservoirs in the healthcare environment that are important for infection control are water and wet surfaces; dry surfaces; dirt and dust; and devices.
- Understanding where germs live helps us recognize where there is risk for them to be spread, and helps us understand why infection control actions work to stop them from spreading and making people sick.

Water and Wet Surfaces

Key facts about water and wet surfaces	■ Tap water is safe to drink, but it is not sterile. It always has some germs in it. ■ Most of the time, the germs in tap water aren't a problem for healthy people, but they can cause illness in patients with very weak immune systems.
Special considerations about water and wet surfaces	■ Water is used a lot in healthcare, and in many different ways, including in sinks and faucets, drains, ice machines, and therapy pools. ■ Because most water and wet surfaces aren't sterile and can be a good place for germs to grow, it's important to be careful with water in healthcare. ■ If medical instruments and equipment, like devices or central lines, get wet, they can start growing bacteria.
Common germs in water and on wet surfaces	■ *Acinetobacter* ■ *Serratia* ■ *Pseudomonas* ■ *Legionella*
Pathways to infection	■ Touch, especially skin and hands ■ Splashes and sprays onto equipment or hands ■ Breathing in water that gets into the air as very small droplets, which can carry germs to the lungs
Common healthcare actions involving water and wet surfaces	■ Toileting ■ Cleaning ■ Bathing
Infection control actions	■ Cleaning and disinfecting ■ Sterilizing devices ■ Cleaning hands ■ Using personal protective equipment (PPE), like gloves, gowns, and eye protection

Dry Surfaces

Key facts about dry surfaces	■ Germs that are found on the body, in the air, and in stool can often be found on dry surfaces. These germs are mostly harmless to people, but can sometimes cause problems in healthcare. ■ Germs on dry surfaces spread very easily. ■ Dry surfaces include "high-touch" surfaces like bed rails, door handles, and light switches, as well as countertops, bed curtains, floors, and things that might not be touched as often.
Special considerations about dry surfaces	■ Certain germs, like spores from *C. difficile*, can live on dry surfaces for a very long time – even years. ■ Other germs survive for only hours, as opposed to days or years.
Common germs on dry surfaces	■ *Clostridioides difficile* (*C. difficile*, or *C. diff*) ■ Norovirus ■ *Candida*, a type of yeast ■ Rotavirus
Pathways to infection	■ Touch, especially hands ■ Breaking down or bypassing the body's defenses, like with medical devices that have dry surfaces, such as needles
Common healthcare actions involving dry surfaces	■ Using equipment like pulse oximeters ■ Handling supplies like bandages, tape, gauze, and linens ■ Touching high-touch surfaces like door handles, call buttons, and light switches
Infection control actions	■ Cleaning and disinfecting ■ Sterilizing devices ■ Cleaning hands ■ Using personal protective equipment (PPE), like gloves and gowns

Dirt and Dust

Key facts about dirt and dust	■ Germs live in dirt and soil, and usually do not make people sick. But if they get inside a healthcare facility, they can harm patients with weakened immune systems. ■ Both outdoor and indoor dirt and dust contain germs than can be carried through the air. ■ Indoor air has been filtered to remove some of the dirt and dust so that it can't be breathed in.
Special considerations for dirt and dust	■ Outdoor building construction can send large amounts of dirt and dust into the air. This dirt and dust can make it through a building's filter and into indoor air. ■ Smaller construction and maintenance projects inside a building, like taking out parts of a wall, removing ceiling tiles, or renovating a room, can also create dust that can have germs in it.
Common germs in dirt and dust	■ *Aspergillus* ■ *Cryptococcus*
Pathways to infection	■ Breathing in ■ Touch, especially with hands, which can carry germs from dirt and dust to devices or to wounds on a patient's body
Common healthcare actions involving dirt and dust	■ Construction ■ Maintenance and repair projects ■ Renovation
Infection control actions	■ Ensuring good ventilation ■ Using barriers and other construction containment ■ Cleaning and disinfecting ■ Cleaning hands

Devices

Key facts about devices	■ Medical devices used in healthcare can have germs on them and are often in contact with multiple surfaces and people. ■ Devices can be used **on** a patient's body, such as stethoscopes and pulse oximeters. ■ Devices can also be used **in** a patient's body, such as an IV needle, an endoscope, or an artificial hip.
Special considerations about devices	■ If devices that are used in a patient's body aren't handled correctly, germs can grow on those devices. ■ Most germs on devices are those commonly found on the skin and in the gastrointestinal (GI) system.
Common germs on devices	■ *Staphylococcus aureus* (including MRSA) ■ *Streptococcus* ■ *Candida*, a type of yeast ■ Gut bacteria like *Escherichia coli* (*E. coli*), *Klebsiella*, and *Clostridioides difficile* (*C. difficile*, or *C. diff*)
Pathways to infection	■ Breaking down or bypassing the body's defenses, like when devices are used on or in a patient's body ■ Touch, especially hands
Common healthcare actions involving devices	■ Procedures, such as colonoscopies and surgeries ■ Inserting an IV ■ Taking blood pressure and vital signs
Infection control actions	■ Cleaning and disinfecting ■ Sterilizing high-risk devices ■ Cleaning hands ■ Using personal protective equipment (PPE), like gloves

Notes

For more information, please contact

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