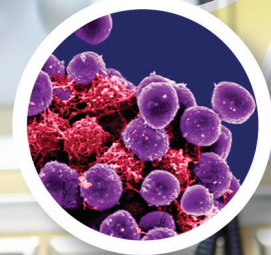
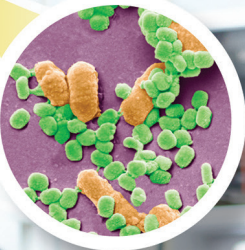


What would you see?

if you could examine the people, surfaces,
and devices around you under a microscope?

Knowing where germs live
helps you understand how
to stop their spread –
and protect your patients.



Recognize the risks.
Protect your patients.
Learn more with
Project Firstline
Rhode Island.

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**There are thousands
of germs on this booklet...
and everywhere else.**

**Recognize the risks.
Protect your patients.**

Bacteria found on mobile phone, including
E. coli, *Haemophilus influenzae*, and MRSA.



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Cited paper: Chirca, I. (2019). The hospital environment and its microbial burden: challenges and solutions. *Future Microbiology*, 14, 1007–1010.

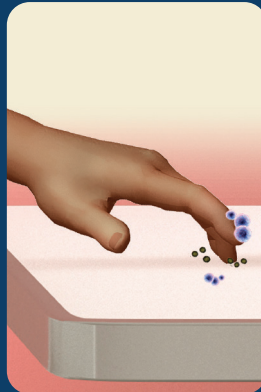
GERMS LIVE ON THE SKIN.

WHERE IS THE RISK?

Know where germs live to stop spread
and protect patients

Germs spread through touch.

- Many germs grow on healthy skin.
- Germs on skin can get onto surfaces, other people, and things that will touch other people.
- Skin – especially hands – carries many germs and spreads them easily.
- When one's hands touch surfaces, germs can spread from those surfaces to that person and to others.



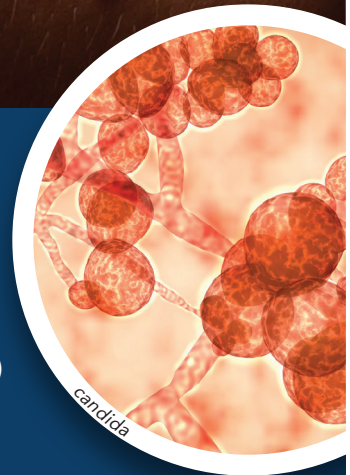
Germs spread by bypassing or breaking down the body's defenses.

- Healthcare tasks often involve breaking the skin.
- Breaking the skin – from putting in an IV, drawing blood, surgery, or trauma – creates a pathway for germs to spread into the body.



Germs That Live on Skin

- *Staphylococcus aureus* (staph, including MRSA)
- *Streptococcus* (strep)
- *Candida* (including *C. auris*)



Healthcare Tasks Involving Skin

- Anything that involves touch
- Needlesticks
- Surgery

Infection Control Actions to Reduce Risk

- Hand hygiene
- Appropriate glove use
- Injection safety
- Cleaning and disinfection
- Source control (covering cuts and wounds)



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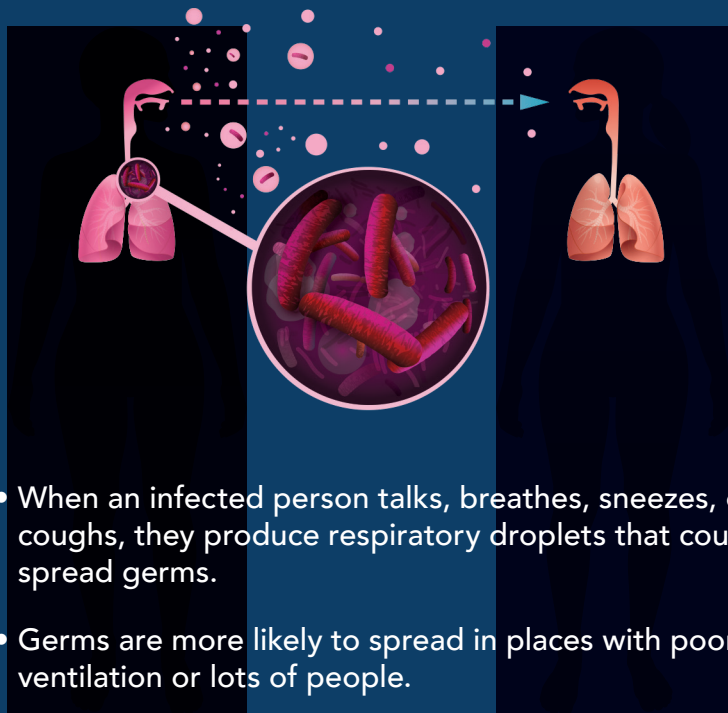


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GERMS CAN LIVE IN THE RESPIRATORY SYSTEM.

WHERE IS THE RISK?

Know where germs live to stop spread and protect patients



- When an infected person talks, breathes, sneezes, or coughs, they produce respiratory droplets that could spread germs.
- Germs are more likely to spread in places with poor ventilation or lots of people.
- Germs in the nose and mouth can be spread to the skin and hands when people touch their faces, which can then spread to surfaces or other people.

Germs That Live Live in the Respiratory System

- *Pseudomonas*
- *Staphylococcus aureus* (staph, including MRSA) (tip of the nose)
- Viruses, like influenza and SARS-CoV-2



Healthcare Tasks Involving the Respiratory System

- Oral care (e.g., toothbrushing)
- CPAP use for sleep apnea
- Intubation
- Giving nebulized medication

Infection Control Actions to Reduce Risk

- Hand hygiene
- Use of personal protective equipment (respirators, eye protection)
- Source control (masking)
- Cleaning and disinfection
- Respiratory hygiene/cough etiquette
- Ventilation



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GERMS CAN LIVE IN BLOOD.



WHERE IS THE RISK?

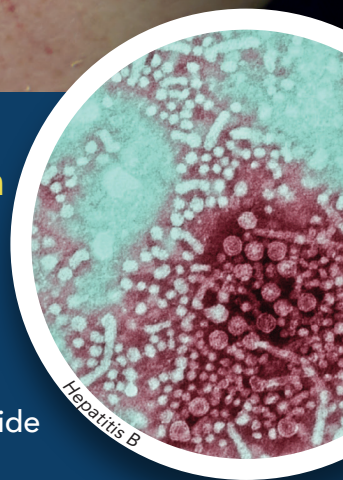
Know where germs live to stop spread
and protect patients



- Viruses like HIV, hepatitis B, and hepatitis C can spread in healthcare when contaminated blood is on a sharp item.
- If that item causes a cut or break in someone else's skin (e.g., an accidental needlestick), germs can spread to that person and cause a new infection.
- Reusing needles or syringes is especially risky because germs in the blood can spread from one person to another.
- Blood in the environment – like on linens or a device – grows bacteria and spreads via touch or devices.

Germs That Can Live in Blood

- HIV
- Hepatitis B
- Hepatitis C
- Bacteria (when outside the body)



Healthcare Tasks Involving Blood

- Putting in an IV
- Giving an injection
- Surgery and procedures
- Changing soiled laundry

Infection Control Actions to Reduce Risk

- Hand hygiene
- Use of personal protective equipment (gloves, gowns, eye protection)
- Safe injections
- Cleaning and disinfection
- Textile management



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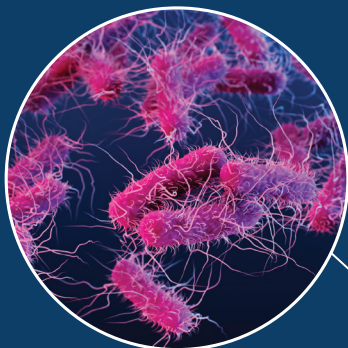


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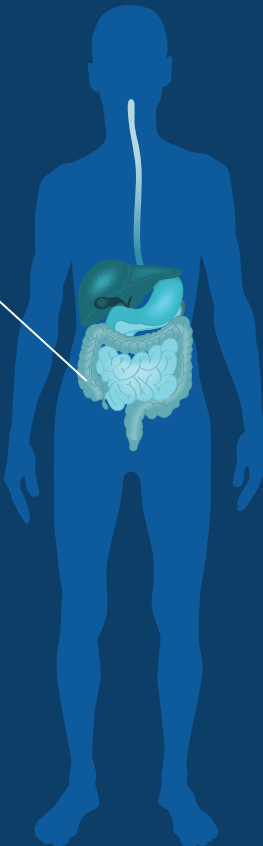
GERMS LIVE IN "THE GUT."

WHERE IS THE RISK?

Know where germs live to stop spread
and protect patients



- The gut is filled with bacteria and some yeasts, which are part of a healthy immune system.
- Most gut germs don't cause problems in healthy people, but they can cause infection when they spread.
- Germs in stool can spread onto hands and skin when wiping or changing a diaper.



Germs That Live in the Gut

- *E. coli*
- *Klebsiella*
- *Candida*
- *Clostridioides difficile* (*C. diff*)



Healthcare Tasks Involving the Gut

- Toileting/changing diapers
- Bathing a patient
- Laundry

Infection Control Actions to Reduce Risk

- Hand hygiene
- Use of personal protective equipment (gloves and gowns)
- Cleaning and disinfection
- Textile management
- Waste management



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GERMS LIVE IN WATER AND ON WET SURFACES.

WHERE IS THE RISK?

Know where germs live to stop spread
and protect patients



- 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.
- Germs in water can spread to surfaces and people and cause harm.
- If medical instruments and equipment (e.g., devices and central lines) get wet, bacteria can grow. When those devices are used, that bacteria can then get into a patient's body or blood and cause infection.

Germs That Live in Water

- *Acinetobacter*
- *Serratia*
- *Pseudomonas*
- *Legionella*



Healthcare Tasks Involving Water

- Toileting
- Cleaning
- Handwashing

Infection Control Actions to Reduce Risk

- Cleaning and disinfection
- Device sterilization
- Hand hygiene
- Use of personal protective equipment (gloves, gowns, eye protection)



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GERMS CAN LIVE ON DRY SURFACES.

WHERE IS THE RISK?

Know where germs live to stop spread and protect patients



- Germs found on the body, in the air, and in stool can often be found on dry surfaces, and some can live for a long time.
- Dry surfaces include “high-touch” surfaces like bed rails, door handles, and light switches. They also include countertops, bed curtains, floors, and things that might not be touched as often.
- Hands can pick up germs from dry surfaces and move them to other surfaces and people.
- Germs from dry surfaces can also get onto devices that are used on or in patients.

Germs That Live on Dry Surfaces

- *Clostridioides difficile* (*C. diff*)
- Norovirus
- *Candida* (including *C. auris*)
- Rotavirus



Healthcare Tasks Involving Dry Surfaces

- Anything involving touch
- Using devices
- Patient transport

Infection Control Actions to Reduce Risk

- Cleaning and disinfection
- Device sterilization
- Hand hygiene
- Use of personal protective equipment (gloves and gowns)



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GERMS CAN LIVE IN DIRT.

WHERE IS THE RISK?

Know where germs live to stop spread
and protect patients



- Germs live in dirt and soil. The fungus *Aspergillus*, a common germ that can live in dirt, can cause serious illness in some patients who don't have strong immune systems or whose lungs are damaged. and protect patients
- Building construction can send dirt and the germs in it into the air, which can then get inside a healthcare facility.
- 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 has germs in it.

Germs That Live in Dirt

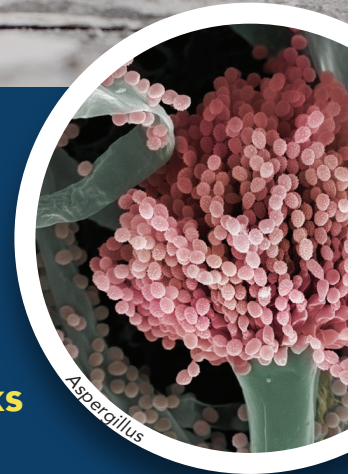
- *Aspergillus*
- *Cryptococcus*

Healthcare Tasks Involving Dirt

- Construction
- Renovation

Infection Control Actions to Reduce Risk

- Cleaning and disinfection
- Ventilation
- Using barriers and other types of construction containment
- Hand hygiene



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GERMS CAN LIVE ON DEVICES.

WHERE IS THE RISK?

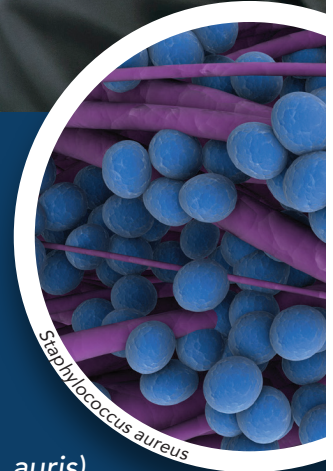
Know where germs live to stop spread
and protect patients



- When a device, like a pulse oximeter, is used on a patient's body to provide care, any germs on that device can be spread to places in or on the patient's body.
- When a device is put into a patient's body, like an IV needle, endoscope, or artificial hip, any germs on the device can spread into the body.
- If not handled correctly, shared medical devices can spread germs from one patient to another.

Germs That Can Live in Devices

- *Staphylococcus aureus* (staph, including MRSA)
- *Streptococcus* (strep)
- *Candida* (including *C. auris*)
- Gut bacteria like *E. coli*, *Klebsiella*, and *C. difficile* (*C. diff*)



Healthcare Tasks Involving Devices

- Surgery and procedures like colonoscopies
- Starting IVs
- Taking vital signs

Infection Control Actions to Reduce Risk

- Cleaning and disinfection
- Device sterilization
- Hand hygiene
- Use of personal protective equipment (gloves)



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