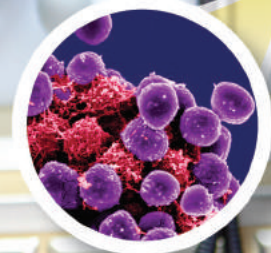


# What would you see?

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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Photo and description credit: SciePro/iStock via Getty Images

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



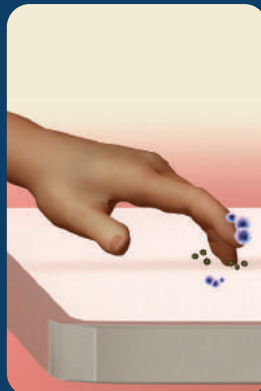
# GERMS LIVE ON THE SKIN.

## 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.



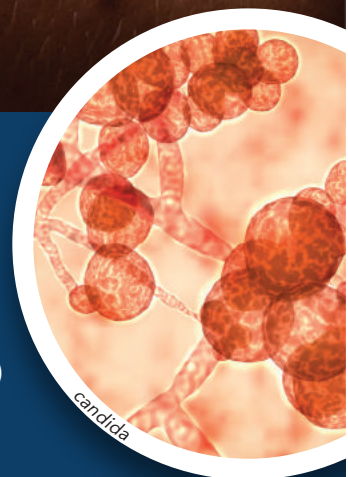
### Germs spread by bypassing or breaking down the body's defenses.

- 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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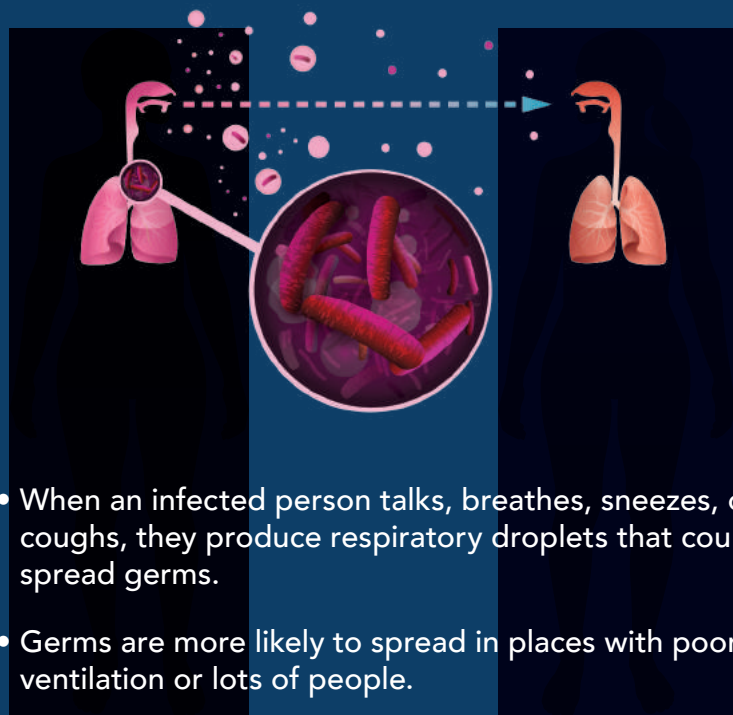


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# GERMS CAN LIVE IN THE RESPIRATORY SYSTEM.

## 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?

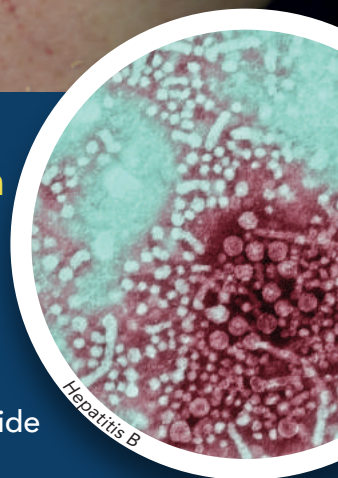
Know where germs live to stop spread  
and protect patients



- 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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# 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

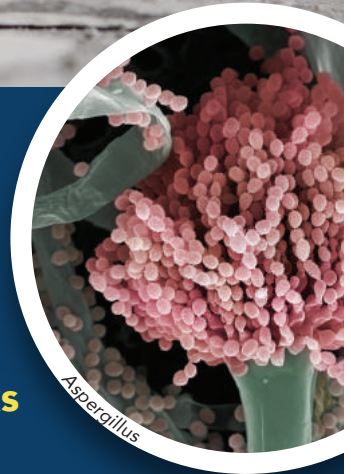
- *Aspergillus*
- *Cryptococcus*

### 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?

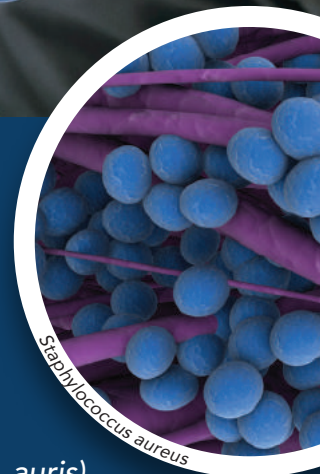
Know where germs live to stop spread  
and protect patients



- 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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