

Infection Control and Diabetic Care

This project is sponsored by the South Dakota Healthcare Associated
Infections/Antibiotic Resistance Program







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Objectives

- Understand the core principles of infection control in healthcare settings
- Identify key infection control challenges and solutions in healthcare
- Apply infection control strategies to improve patient and healthcare worker safety

WHERE ARE THE GERMS....





Recognize *Infection* ***RISKS*** in **HEALTHCARE**



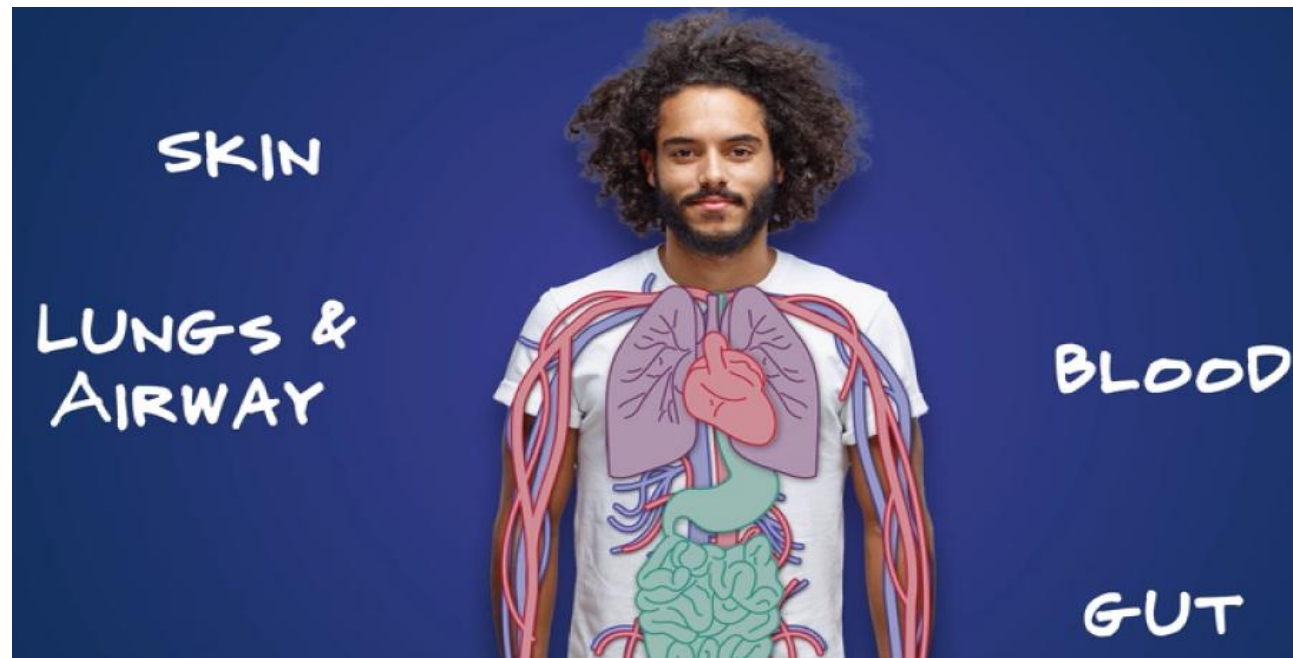


ENVIRONMENTAL SURVIVAL OF KEY PATHOGENS ON HOSPITAL SURFACES

Pathogen	Survival Time
<i>S. aureus</i> (including MRSA)	7 days to >12 months
<i>Enterococcus</i> spp. (including VRE)	5 days to >46 months
<i>Acinetobacter</i> spp.	3 days to 11 months
<i>Clostridium difficile</i> (spores)	>5 months
Norovirus (and feline calicivirus)	8 hours to >2 weeks
<i>Pseudomonas aeruginosa</i>	6 hours to 16 months
<i>Klebsiella</i> spp.	2 hours to >30 months

Adapted from Hota B, et al. Clin Infect Dis 2004;39:1182-9 and
Kramer A, et al. BMC Infectious Diseases 2006;6:130

What is the #1 thing we can do to prevent the spread of germs?



Strategies for Preventing HAIs

Hand hygiene- [Clinical Safety: Hand Hygiene for Healthcare Workers](#) | [Clean Hands](#) | [CDC](#)

Personal Protective Equipment- [Personal Protective Equipment \(PPE\) 103](#)

Antibiotic Stewardship- [Antibiotic Resistance and Stewardship](#) | [South Dakota Department of Health](#)

Standard Precautions- [Standard Precautions for All Patient Care](#) | [Infection Control](#) | [CDC](#)

Surveillance and Monitoring- [Tools and resources](#) | [Infection Control](#) | [CDC](#)

[CDC's Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings](#) | [Infection Control](#) | [CDC](#)

Environmental Cleaning & Disinfection- [Environmental Infection Control Guidelines](#) | [Infection Control](#) | [CDC](#)

Education & Training (Healthcare & Patients)- [Training](#) | [SD Project Firstline](#)

[Project Firstline](#) | [Project Firstline](#) | [CDC](#)

How we stop the spread



Standard Precautions, every client,
every interaction, every time.

**Who are we protecting when using
standard precautions?**

Hand Hygiene and PPE



5 Moments for Hand Hygiene



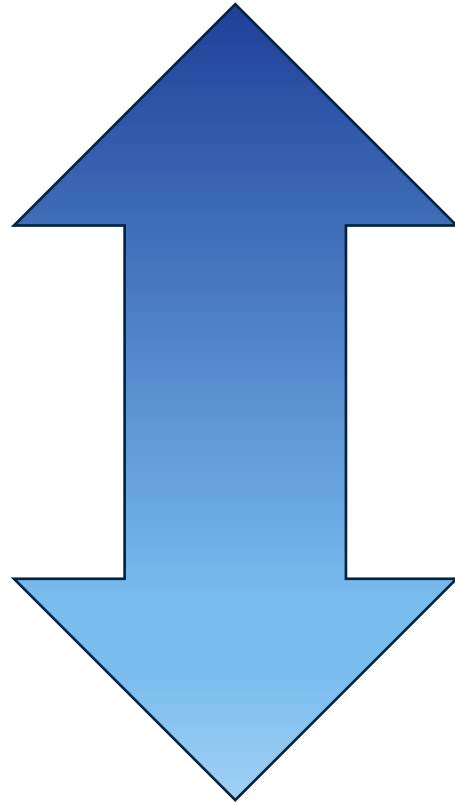
[item/five-moments-for-hand-hygiene](#)

Hand Hygiene Product Efficacy

Best

Better

Good

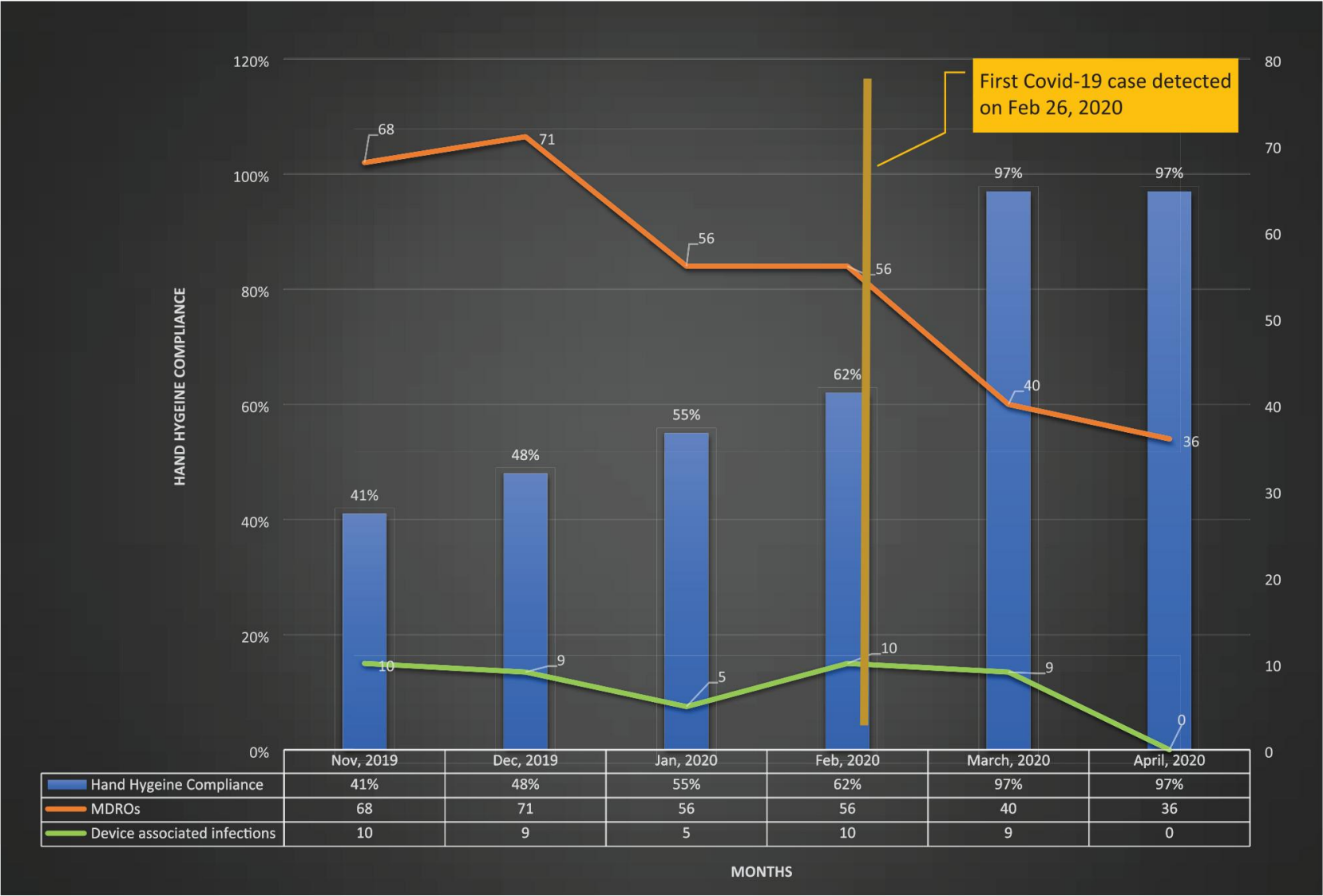


Alcohol based hand sanitizer

Antimicrobial soap

Plain Soap

Hand hygiene compliance trends before and after COVID-10 outbreak



Hands Remain Contaminated if Hand Hygiene is Missed or Poorly Performed



Missed Opportunities

Poor Hand Hygiene

Transient Microorganisms

Transmission from One Patient to Another via Healthcare Worker Hands



Contact with Patient or Object

Invasive Devices

BEFORE Patient Contact

- Shaking hands
- Stroking a child's forehead
- Helping a patient move
- Before performing activities of daily living.
- Applying an oxygen mask
- Giving physiotherapy
- Taking pulse, blood pressure, chest auscultation, or abdominal palpation
- Recording ECG

BEFORE Clean / Aseptic Procedures

- Brushing the patient's teeth
- Instilling eye drops
- Skin lesion care
- Wound dressing
- Administering injection
- Catheter insertion
- Opening a vascular access system or a draining system
- Secretion aspiration
- Preparation of food, medication, pharmaceutical products, sterile material

AFTER Body Fluid Exposure Risk

- Brushing the patient's teeth
- Instilling eye drops
- Secretion aspiration
- Skin lesion care
- Wound dressing
- Administering injection
- Drawing and manipulating any fluid sample
- Opening a draining system
- Endotracheal tube insertion and removal
- Clearing up urine, feces, vomit
- Handling waste (bandages, napkins, incontinence pads)
- Cleaning of contaminated and visibly soiled material or areas (soiled linen, bathroom, urinal, bedpan, medical instruments)

AFTER touching the care environment

Changing bed linen, with the patient out of the bed

IV perfusion adjustment

Monitoring alarm

Holding a bed rail, leaning against the bed

Clearing the bedside table



Personal Protective Equipment (PPE)

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

- 1. GOWN**
 - Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
 - Fasten in back of neck and waist
- 2. MASK OR RESPIRATOR**
 - Secure ties or elastic bands at middle of head and neck
 - Fit flexible band to nose bridge
 - Fit snug to face and below chin
 - Fit-check respirator
- 3. GOGGLES OR FACE SHIELD**
 - Place over face and eyes and adjust to fit
- 4. GLOVES**
 - Extend to cover wrist of isolation gown

USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene



HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 1

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. **Remove all PPE before exiting the patient room except a respirator, if worn. Remove the respirator after leaving the patient room and closing the door. Remove PPE in the following sequence:**

- 1. GLOVES**
 - Outside of gloves are contaminated!
 - If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
 - Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
 - Hold removed glove in gloved hand
 - Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
 - Discard gloves in a waste container
- 2. GOGGLES OR FACE SHIELD**
 - Outside of goggles or face shield are contaminated!
 - If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
 - Remove goggles or face shield from the back by lifting head band or ear pieces
 - If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container
- 3. GOWN**
 - Gown front and sleeves are contaminated!
 - If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
 - Unfasten gown ties, taking care that sleeves don't contact your body
 - Roll gown away from neck and shoulders, touching inside of gown only
 - Turn gown inside out
 - Fold or roll into a bundle and discard in a waste container
- 4. MASK OR RESPIRATOR**
 - Front of mask/respirator is contaminated! — DO NOT TOUCH!
 - If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
 - Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
 - Discard in a waste container
- 5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE**

PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE



HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 2

Here is another way to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. **Remove all PPE before exiting the patient room except a respirator, if worn. Remove the respirator after leaving the patient room and closing the door. Remove PPE in the following sequence:**

- 1. GOWN AND GLOVES**
 - Gown front and sleeves and the outside of gloves are contaminated!
 - If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
 - Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloved hands
 - While removing the gown, fold or roll the gown inside-out into a bundle
 - As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into a waste container
- 2. GOGGLES OR FACE SHIELD**
 - Outside of goggles or face shield are contaminated!
 - If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
 - Remove goggles or face shield from the back by lifting head band and without touching the front of the goggles or face shield
 - If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container
- 3. MASK OR RESPIRATOR**
 - Front of mask/respirator is contaminated! — DO NOT TOUCH!
 - If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
 - Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
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- 4. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE**

PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE



Hand Hygiene and Glove Use

When to wear gloves

- According to Standard Precautions (when you anticipate contact with blood or other infectious materials, mucous membranes, non-intact skin, potentially contaminated skin or equipment).
- Gloves are not a substitute for hand hygiene.
- If your task requires gloves, perform hand hygiene before donning gloves and touching the patient or the patient's surroundings.
- Always clean your hands after removing gloves.
- Remember to remove gloves carefully to prevent hand contamination as dirty gloves can soil hands.

When to change gloves and clean hands

- If gloves become damaged.
- If gloves become soiled with blood or body fluids after a task.
- If moving from work on a soiled body site to a clean body site on the same patient or if a clinical indication for hand hygiene occurs.
- If moving from care on one patient to another patient.
- If they look dirty or have blood or body fluids on them after completing a task.
- Before exiting a patient room

Glove Use Reminders



Perform hand hygiene:

- Prior to putting on gloves
- Immediately after removing gloves
- When a change of gloves is needed

Never wear the same pair of gloves in the care of more than one patient.

Do not double glove.

Cleaning and Disinfection



CLEANING AND DISINFECTION

• **Cleaning** removal of foreign material (soil, dust, organic material) from objects and is normally accomplished using water and detergents.

• **Disinfection**
elimination of many or all organisms except bacterial spores. Surfaces must be cleaned before they are disinfected.



How to Read a Disinfectant Label

Read the entire label.

The label is the law!

Note: Below is an **example** of information that can be found on a disinfectant label

Active Ingredients:
What are the main disinfecting chemicals?

EPA Registration Number:
U.S. laws require that all disinfectants be registered with EPA.

Directions for Use (Instructions for Use):
Where should the disinfectant be used?

What germs does the disinfectant kill?

What types of surfaces can the disinfectant be used on?

How do I properly use the disinfectant?

Contact Time:
How long does the surface have to stay wet with the disinfectant to kill germs?



Signal Words (Caution, Warning, Danger):
How risky is this disinfectant if it is swallowed, inhaled, or absorbed through the skin?

Precautionary Statements:
How do I use this disinfectant safely? Do I need PPE?

First Aid:
What should I do if I get the disinfectant in my eyes or mouth, on my skin, or if I breathe it in?

Storage & Disposal:
How should the disinfectant be stored? How should I dispose of expired disinfectant? What should I do with the container?



Alcohol Free
3min Contact Time



High Alcohol (55%)
2min Contact Time



Bleach
4min Contact Time



What is...
“CONTACT TIME”
“DWELL TIME”
“WET TIME”



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



WWW.CDC.GOV/PROJECTFIRSTLINE

Blood Borne Pathogens, Sharps and Exposures



What are Bloodborne Pathogens (BBP)?

BBPs are microorganisms that cause disease and are present in human blood. They include, but are not limited to:

- Human immunodeficiency virus (HIV)
- Hepatitis B virus (HBV)
- Hepatitis C virus (HCV)



Always Assume Blood is Infectious

Bloodborne pathogens can be spread when infected blood enters the body, like:

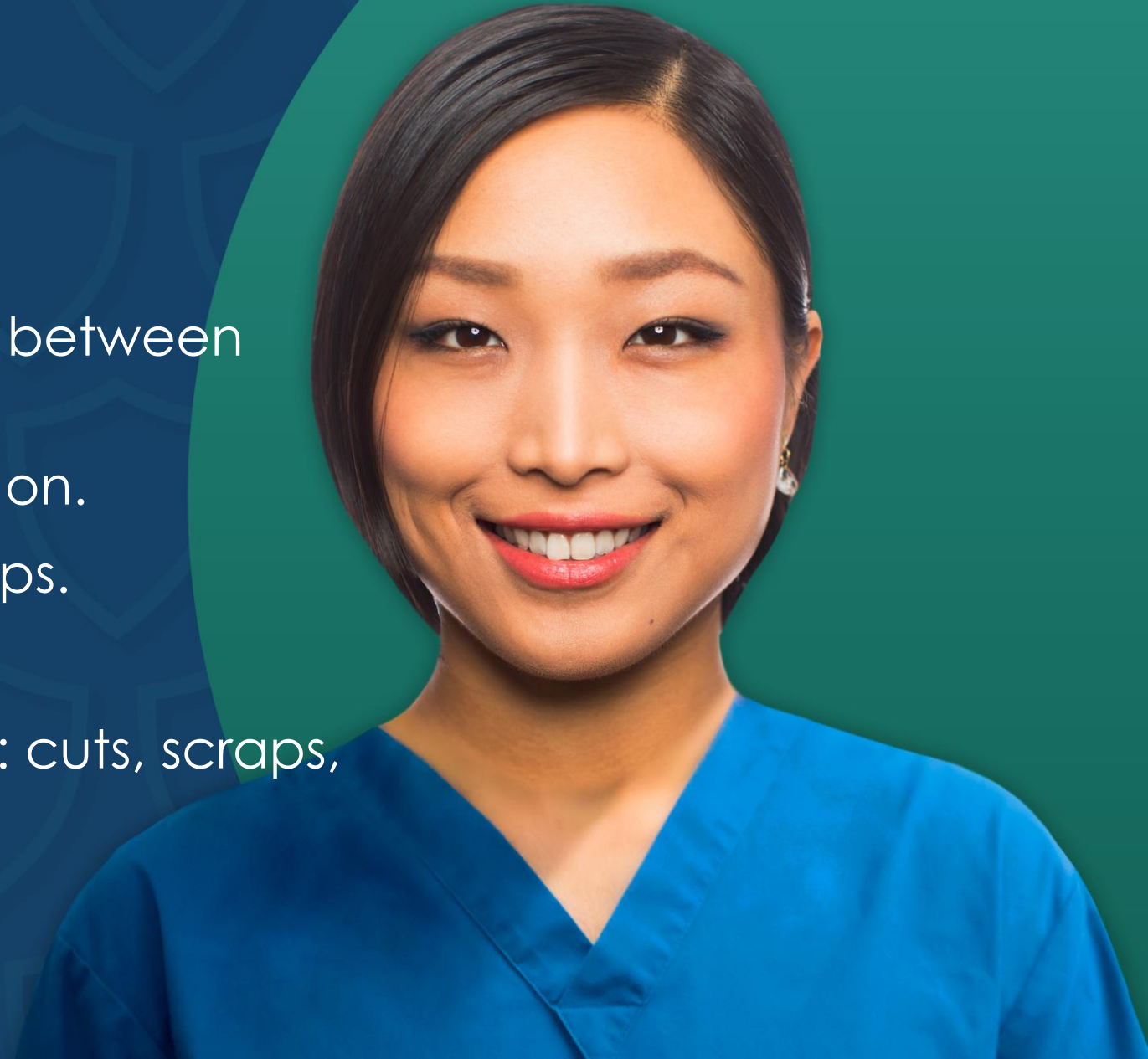
- From a needlestick,
- Through breaks or cracks in the skin,
- By splashes or sprays to the eyes, nose, or mouth



Prevent Infectious Blood From Entering Your Body

Limit spread in the environment and between people

- Don't touch blood without gloves on.
- When you see blood, look for sharps.
- When using sharps, plan ahead.
- Sharps are more than just needles: cuts, scraps, sticks from any sharp object.



If we see blood, what do we do?

- Take proper PPE measures
- Clean and disinfect the area according to what contains the blood.
 - If it's a hard surface such as a lab bench use the proper cleaning solutions in your workplace and know your wet times. Each cleaner has specific guidelines so know what is required of yours when you use it.
 - If the blood is on a linen material such as bedding or a patients gown properly place that material in a clearly labeled, leak proof container.
 - Never carry soiled linen against your body, do not try to shake out linen but instead carefully roll in so that any soiled area is contained and doesn't spread to the air or other surfaces.

Engineering Prevention Controls

- **Sharps disposal containers.**
 - They are made with puncture-resistant plastic or metal.
 - They have specially designed lids that only allow sharps to be deposited.
 - They are too small for a hand to enter.
 - It is important to place sharps disposal containers in areas where needed and making sure they are not overfilled.
- **Safety-engineered sharps devices.**
 - Using safety-engineered sharps devices can prevent injuries and resulting infections with bloodborne pathogens in both patients and healthcare workers.
 - Safety-engineered devices include retracting needles, sliding sheaths, and hinged needle shields.
 - Safety features are especially helpful when the device is not in use and during disposal.

What if Exposure Occurs?

- Wash needlesticks and cuts with soap and water.
- Flush splashes to the nose, mouth, or skin with water.
- Irrigate eyes with clean water, saline, or sterile irrigation.
- Report the incident to your supervisor.
- Immediately seek medical treatment.
- **Get answers about treating exposures**

Call the Clinicians' Post Exposure Prophylaxis (PEP) Line at **1-888-448-4911** if you have questions about proper medical treatment for workplace exposures.



Safe handling for medical waste disposal



- PPE is important during any task where blood exposure might occur.
- Medical Waste Disposal
- Laundry that may be contaminated in blood
 - Soiled laundry
 - Changing/Cleaning patients' rooms

Workplace Prevention Measures

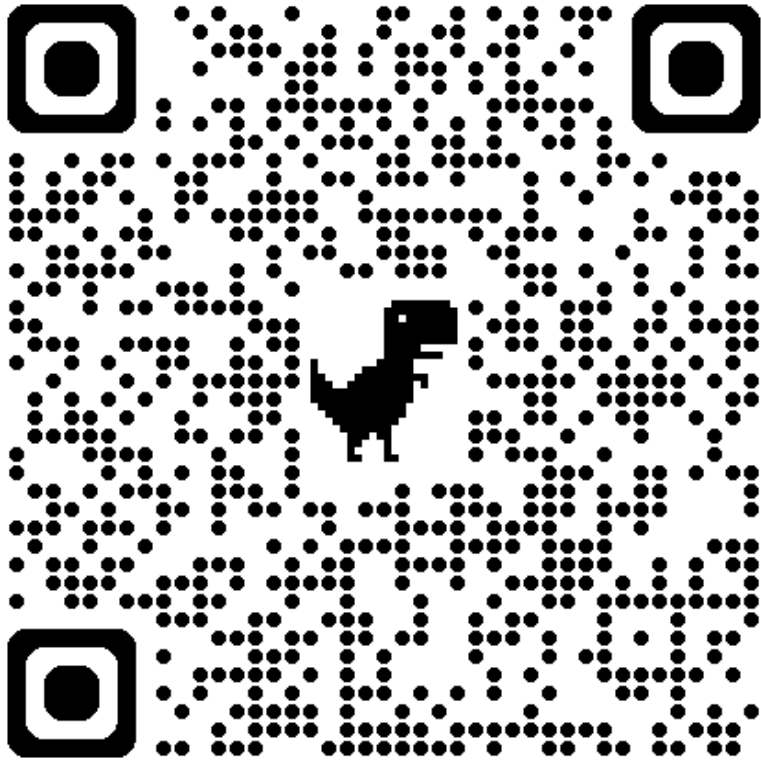
- Policies and procedures can help protect healthcare workers from bloodborne pathogens. Does your workplace/working environment have a policy and procedure in place?
- Policies and Procedures should include:
- **An exposure control plan** to identify work practices at risk of exposures to bloodborne pathogens.
- **Policies to reduce exposure risks**, such as:
 - Clearly labeling biohazardous waste.
 - Procedures for safely disposing of biohazardous waste.

Exposure Control Plan

This plan focuses on reducing exposure to blood and other disease-causing pathogens in human blood, body fluids, and tissues. It includes activities such as:

- Identifying employees at risk
- Decontaminating work surfaces and equipment
- Inspecting and replacing sharps disposal containers
- Providing guidelines for using personal protective equipment (PPE)
- Encouraging hepatitis B vaccination
- Establishing a procedure for reporting exposures
- Planning for immediate medical evaluation and follow-up

Exposure Control Plan



Do you have an exposure control plan?



Do you know where to find it?



Do you know what is in it?

Sharps Injury Prevention Programs

These programs are designed to minimize the risk of sharps injuries by addressing all aspects of the risk.

They include:

- Training on safe handling and disposal
- Providing puncture-resistant containers
- Establishing procedures for reporting injuries
- Analyzing sharps injury data
- Evaluating and selecting safety devices
- Educating healthcare personnel on sharps injury prevention

Scan the QR Code to access CDC Workbook for Designing, Implementing, and Evaluating a Sharps Injury Prevention Program



Infection Prevention and Diabetes Care



Point of Care

- Review of types of POC blood testing performed
- Equipment used
- Risk of exposure to pathogens
- Proper cleaning/disinfection
- Policies
- PPE



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.



Wounds

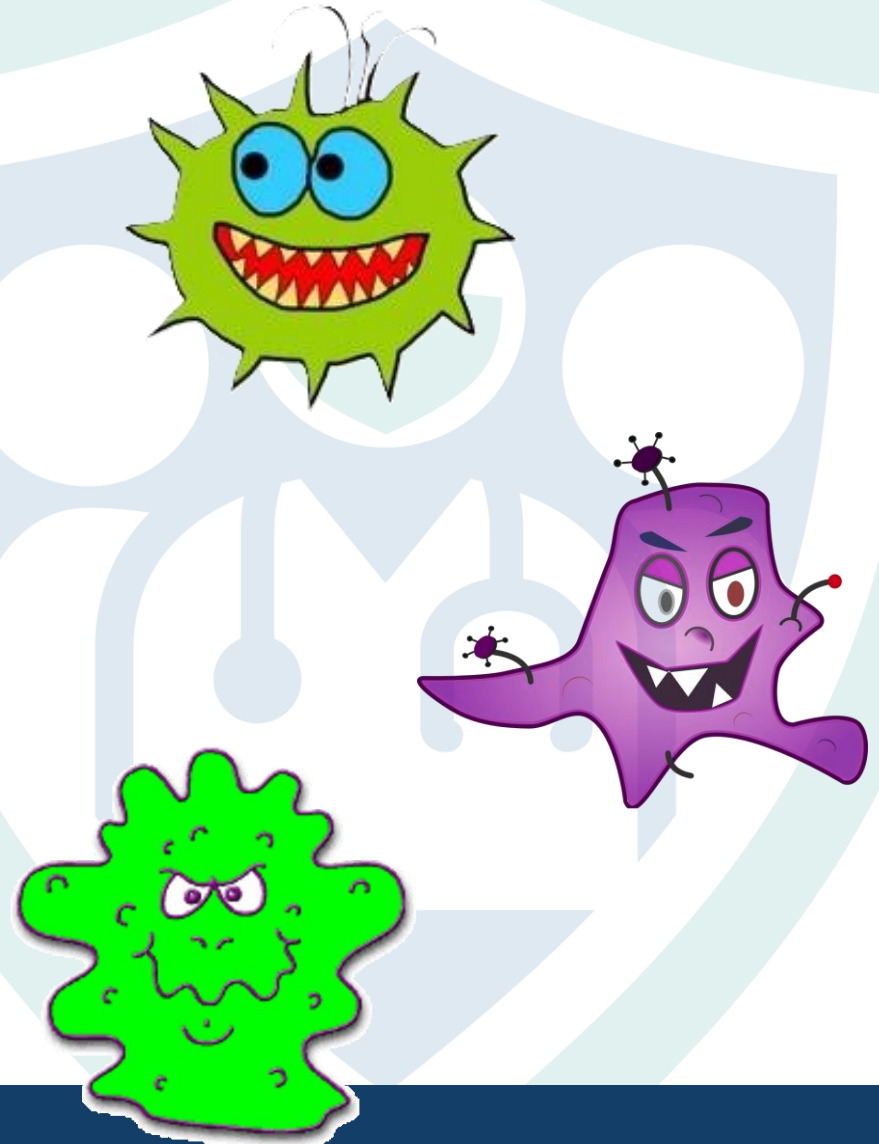
When you see a draining wound

- Assume the liquid in a draining wound is infectious.
- Do not touch the liquid or the wound if you don't have to.
- Cover the wound and contain the drainage and protect the open tissue.
- Rarely, wounds should not be covered.
- Consult with the clinical team.



Draining wounds can be caused by or contain:

- **MRSA and group A strep**- germs that can spread easily by touch
- **Klebsiella and VRE**- germs commonly found in stool
- **HIV, Hepatitis B and Hepatitis C**- germs that spread by blood and bodily fluids



If you must touch the wound or drainage:

- Clean your hands and use gloves.
- Always clean your hands as soon as you take your gloves off.
- Determine if you need additional PPE, like a gown or eye protection.
- Use the appropriate cleaner and EPA approved disinfectant for surfaces, linens, etc.



Diabetic Wounds

Diabetic ulcers result from complications of diabetes including neuropathy and microvascular disease.



Ways pathogens spread to and from wounds

- Failure to clean hands at the right times.
- Improper selection and use of PPE.
- Improper use of medications (creams and ointments).
- Failure to clean and disinfect or sterilize shared equipment.
- Failure to separate clean and dirty supplies or equipment.
- Splashes or sprays generated during procedures contribute to environmental contamination.

Hand Hygiene and Wound Care



- Before and after wound care.
- Before donning gloves.
- After doffing gloves.
- **Every time** gloves are changed.

Gloves are not a substitute for Hand Hygiene.

Supplies



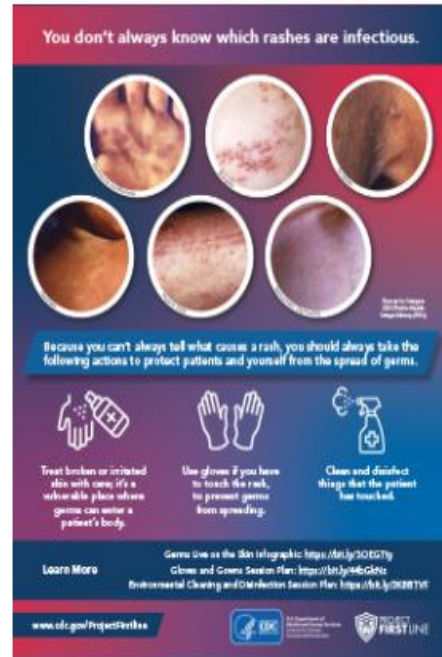
Resources



Micro-learns



[Blood Micro-Learn](#)
 [PDF – 3 Pages]



[Rash Micro-Learn](#)
 [PDF – 3 Pages]



[Cough and Congestion Micro-Learn](#)
 [PDF – 3 Pages]



[Draining Wound Micro-Learn](#) [PDF – 3 Pages]



[Diarrhea Micro-Learn](#)
 [PDF – 3 pages]

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 health care through contact with contaminated blood.
- Items that cause a cut or break in someone else's skin, like fingerstick blood specimens, can spread viruses in blood and cause new infections.
- Reusing equipment like glucometers or multi-dose vials is especially risky because germs in the blood can spread from one person to another.
- Viruses in blood can live on surfaces and spread even when blood is not visible.

Germs That Can Live in Blood

- HIV
- Hepatitis B
- Hepatitis C

Healthcare Tasks Involving Blood

- Putting in an IV
- Performing a fingerstick
- Collecting blood specimens
- Changing wound dressings

Infection Control Actions to Reduce Risk

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

 U.S. Department of Health and Human Services
 PROJECT FIRSTLINE
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- CDC Project Firstline Infographic: Blood
- [Germ can live in blood \(cdc.gov\)](http://www.cdc.gov)

Check out South Dakota Project Firstline
www.sdprojectfirstline.org

FREE infection prevention training.

FREE Dental, EMS & CHW CE Credits now available



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Logos: CDC, U.S. Department of Health and Human Services, SOUTH DAKOTA PROJECT FIRSTLINE

LOS MICROBIOS PUEDEN VIVIR EN LA SANGRE.

¿DÓNDE ESTÁ EL RIESGO?
Aprenda dónde viven los microbios para detener la propagación y proteger a los pacientes



Microbios que pueden vivir en la sangre

- VIH
- Hepatitis B
- Hepatitis C
- Bacterias (cuando están fuera del cuerpo)

Tareas de la atención médica relacionadas con la sangre

- Colocación de una vía intravenosa
- Poner una inyección
- Cirugía y procedimientos
- Cambio de ropa sucia

Acciones de control de infecciones para reducir los riesgos

- Higiene de las manos
- Uso de equipo de protección personal (guantes, batas, protección ocular)
- Uso seguro de las inyecciones
- Limpieza y desinfección
- Gestión de artículos de tela

Logos: CDC, U.S. Department of Health and Human Services, SOUTH DAKOTA PROJECT FIRSTLINE

Infection Control Micro-Learns User Guide

About the Micro-Learns

The Project Firstline Infection Control Micro-Learns are a series of guided infection control discussions that provide brief, on-the-job educational opportunities. Each micro-learn focuses on a single infection control topic and connects infection control concepts to immediate, practical value. Healthcare workers can easily apply the key points to their daily work and perform the recommended actions to keep germs from spreading.

Using the Micro-Learns

The micro-learns can be incorporated into existing opportunities where group as pre-shift "huddles" or team meetings. The sessions should be led or facilitated by a healthcare worker with infection control expertise.

Microaprendizajes de control de infecciones Guía del usuario

Acerca de los microaprendizajes

Los microaprendizajes de control de infecciones del Proyecto Firstline son una serie de discusiones guiadas sobre el control de infecciones que brindan oportunidades educativas breves en el trabajo. Cada microaprendizaje se centra en un solo tema de control de infecciones y conecta los conceptos de control de infecciones con un valor práctico e inmediato. Los trabajadores de la salud pueden aplicar fácilmente los puntos clave a su trabajo diario y realizar las acciones recomendadas para evitar la propagación de microbios.

Uso de los microaprendizajes

Los microaprendizajes pueden incorporarse a oportunidades existentes en las que se encuentran grupos de trabajadores de la salud, como reuniones cortas ("huddles") previas al turno o reuniones de equipo. Las sesiones deben ser dirigidas o facilitadas por un miembro del equipo con experiencia en control de infecciones.

QUESTIONS OR COMMENTS?



Thank you!

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