

BLOODBORNE PATHOGENS

Knowledge & Prevention



Bloodborne Germs

Each of us can prevent diseases caused by contact with germs found in blood and other potentially infectious materials (OPIM). Infection control measures guide health care workers in this prevention. Each health care worker must be aware of these infection control measures and his/her role in order to protect himself/herself and others.

This course discusses the most common diseases caused by germs found in blood and OPIM and explains how infection control measures put into place in this corporation protect you from these diseases.

Knowledge of these measures is very important. This knowledge will protect you only if you are committed to applying this to your day-to-day work. It is the responsibility of each team member to understand his/her risk of exposure to infectious materials and how to protect himself/herself.



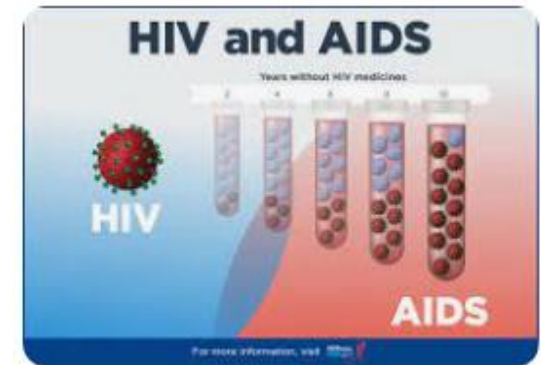
Objectives

- Describe three major diseases spread through contact with blood and bodily fluids.
 - HIV/AIDS
 - Hepatitis B
 - Hepatitis C
- Describe how the diseases can be prevented.



Human Immunodeficiency Virus (HIV) Facts

- **HIV** is a viral infection that attacks the immune system.
- **HIV can** be contracted by:
 - homosexual or heterosexual contact
 - IV drug users who share needles
 - mother to child during pregnancy or labor & delivery - (risk is lowered if the mother receives appropriate treatment)
 - mother to child through breast feeding
- **HIV untreated may lead to AIDS**
- There is no cure for AIDS, but there is treatment to control the symptoms.



Human Immunodeficiency Virus (HIV) Transmission Myths

HIV **CANNOT** be contracted by:

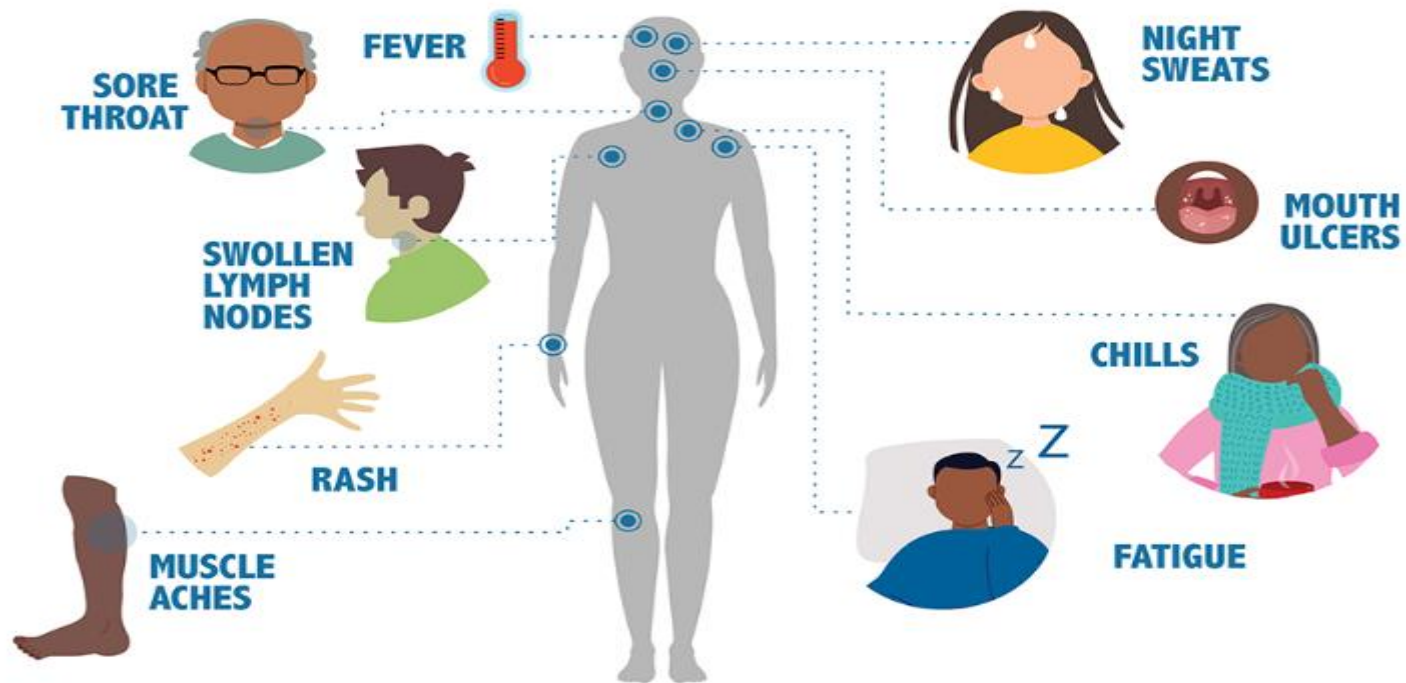
- shaking hands, hugging, being coughed or sneezed on
- mosquito bites
- eating food prepared by an HIV positive individual
- telephones, door knobs, toilet seats

You **CANNOT** get HIV from **donating** blood. The risk of contracting HIV from a blood transfusion is extremely low. The blood supply is tested for HIV.



Human Immunodeficiency Virus (HIV) Symptoms

Most people have flu-like symptoms within 2 to 4 weeks after infection. Symptoms may last for a few days or several weeks. Some people have no symptoms at all. The only way to know if you have HIV is to get tested.



<https://www.cdc.gov/hiv/basics/whatishiv.html>



Human Immunodeficiency Virus (HIV) Stages

Stage 1 – Acute HIV Infection

<https://www.cdc.gov/hiv/basics/whatishiv.html>

- People have a large amount of HIV in their blood and are very contagious.
- Many people have flu-like symptoms.
- Get tested if you have flu-like symptoms and think that you may have been exposed.

Stage 2 – Chronic HIV Infection

- Also called asymptomatic HIV infection or clinical latency.
- HIV is still active and continues to reproduce in the body.
- People may not have any symptoms or get sick during this phase but can transmit HIV.
- People who take HIV treatment as prescribed may never move into Stage 3 (AIDS).
- Without HIV treatment, this stage may last a decade or longer, or may progress faster. At the end of this stage, the amount of HIV in the blood (viral load) goes up and the person may move into Stage 3 (AIDS).

Stage 3 – Acquired Immunodeficiency Syndrome (AIDS)

- The most severe stage of HIV infection.
- People with AIDS can have a high viral load and may easily transmit HIV to others.
- People with AIDS have badly damaged immune systems. They can get an increasing number of opportunistic infections or other serious illnesses.
- Without HIV treatment, people with AIDS typically survive about 3 years.



Risk of Infection for HIV

- For health care workers, the risk of infection from contact with HIV on the job is very low. In fact, based upon the most recent data available, the CDC has documented a total of 58 confirmed cases of infection due to work-related exposure, and of these confirmed cases, only one has been reported since 1999.
- According to the CDC, the chance of becoming HIV positive when exposed to HIV through a needle stick is less than 0.3%. The risk is less for blood splashes onto mucous membranes or on broken or scraped skin.

There is no vaccine to stop the spread of HIV, but we do have post-exposure prophylactic medications available.

<https://www.cdc.gov/hiv/workplace/healthcareworkers.html>



What is Post-Exposure Prophylaxis (PEP)?

PEP drugs may be given to employees who have had an occupational exposure to HIV to try to prevent infection.

- PEP drugs taken as soon as possible after exposure and within 72 hours after exposure may prevent infection
- Centers for Disease Control and Prevention (CDC) guidelines are followed for giving PEP
- Not all exposures need PEP
- Employees may refuse any or all drugs for PEP



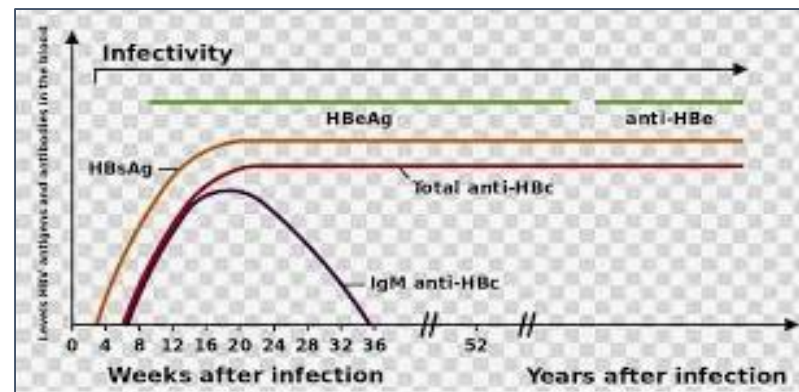
Hepatitis B Virus (HBV)

Hepatitis B is a virus that attacks the liver and can cause lifelong infection, inflammation, cirrhosis (scarring), liver cancer, and death.

- Many people who are infected with the virus do not have symptoms.
- An infected person with no symptoms can still spread the virus to others.

Common ways HBV spreads include:

- Sexual contact
- IV drug use
- Mother to baby



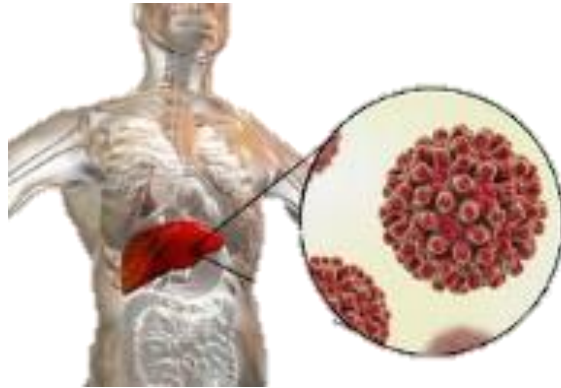
Hepatitis B virus can also spread to others by infected blood and other potentially infectious bodily fluids, and has been shown to live in dried blood for at least one week.



Hepatitis B Virus - Symptoms

Symptoms of **Hepatitis B** infection may include:

- yellow skin color/yellowing of the whites of the eyes
- dark urine
- abdominal pain
- nausea, vomiting
- feeling tired
- loss of appetite



About 30% of infected persons have no signs or symptoms.

Of persons who have symptoms, about half will no longer be infectious 7 weeks after the beginning of symptoms.

The younger a person is when infected with hepatitis B virus, the greater the chance of developing chronic infection.



Risk of Disease with HBV

Hepatitis B infection is a serious risk for health care workers. However, this risk can be decreased with the hepatitis B vaccine available to all health care workers at risk of coming into contact with this virus.

If you are exposed to HBV through a needlestick injury, the risk of infection is at least 30% if you have not received the hepatitis B vaccine series. The risk is less for blood splashes onto mucous membranes or on broken or abraded skin. Your risk drops to almost zero if you have had a successful series of vaccinations.



Of the people who show symptoms of hepatitis B, most have a full recovery. Only 2% to 6% of people infected with HBV will develop a chronic hepatitis B infection. People with chronic infections are at higher risk for cirrhosis of the liver and liver cancer.

<https://www.cdc.gov/mmwr/PDF/rr/rr6210.pdf>



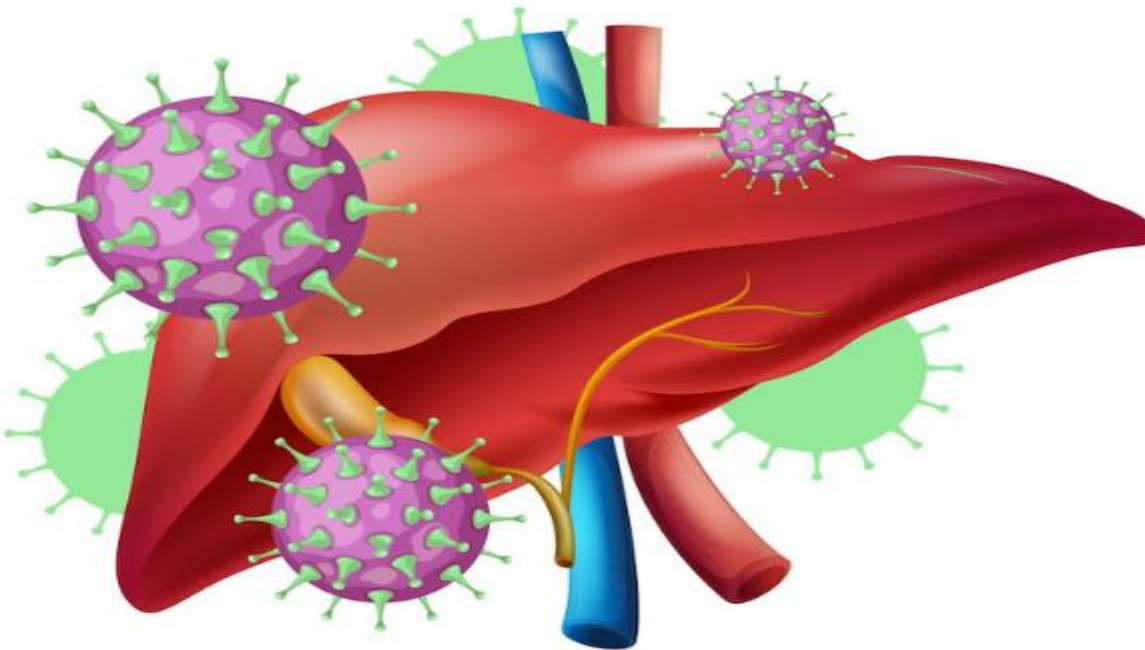
What Is Hepatitis C Virus? (HCV)

Hepatitis C virus (HCV) is a virus that, similar to Hepatitis B, attacks the liver. HCV causes liver disease that ranges in severity from a mild illness lasting a few weeks to a serious, lifelong illness. It is spread primarily through contact with the blood of an infected person.

- Spontaneous clearance occurs in approximately 25% to 45% of acute infections.
- In 2016, an estimated 2.4 million people were living with hepatitis C in the U.S.
- Serious long-term effects include liver damage/failure, cirrhosis (scarring) of the liver, liver cancer and death.
- Most people with chronic hepatitis C do not have any symptoms or have only general symptoms like chronic fatigue and depression. However, asymptomatic infected people can spread the virus to others.
- HCV is the most common reason for a liver transplant in the U.S.



Hepatitis C - Symptoms



SYMPTOMS

- Fever
- Fatigue
- Loss of appetite
- Nausea and vomiting
- Abdominal pain
- Dark urine
- Clay-colored bowel movements
- Joint pain
- Jaundice

https://www.freepik.com/free-vector/explaining-hepatitis-c-with-vector-graphics_40368084.html



Hepatitis C Virus - Transmission

Hepatitis C can be spread in a variety of ways:

- Injection drug use - (most common mode of transmission)
- Birth to an HCV infected mother
- Less common
 - Sex with an HCV-infected person
 - Sharing personal items contaminated with infectious blood, such as razor or toothbrushes
 - Unregulated tattooing
 - Receipt of donated blood, blood products, and organs (extremely rare in the U.S. since blood screening became available in 1992)
 - Exposure to blood or OPIM in the health care setting.



Risk of Disease with Hepatitis C

- According to a 2017 publication, the estimated risk for HCV infection after a needle stick is approximately 0.2% and after an eye splash or broken skin exposure is 0%.
- There is no vaccine available to **prevent** this disease. Treatments are available that can cure most people with hepatitis C in 8 to 12 weeks.
- It is not recommended that healthcare workers who experience a workplace exposure to blood or other potentially infectious material receive post-exposure prophylaxis (PEP) medications for Hepatitis C.

<https://www.cdc.gov/mmwr/volumes/69/rr/pdfs/rr6906a1-H.pdf>



In the Workplace

Exposure to **bloodborne pathogens** in the workplace is a major concern for workers and employers.

The Occupational Safety and Health Administration (OSHA) is a government agency that requires employers to provide the safest work environment possible for employees. The **Bloodborne Pathogens Rule** requires both employers and workers to prevent the spread of bloodborne diseases.

Avoiding occupational blood exposure, providing Hepatitis B vaccinations, and appropriate management after an exposure are important parts of a complete program to prevent infections and improve workplace safety.



Employee Exposure Determination

OSHA requires employers in the health care field to develop an exposure control plan. This plan provides protection for all health care workers who might be exposed to germs found in blood and OPIM.

The plan is updated each year to include:

- Changes in technology that reduce or eliminate exposure
- Documentation that safer medical devices are adopted, if available.

The exposure control plan must include an employee exposure determination, which lists:

- Health care worker classification that have exposure to blood or OPIM
- Tasks or groups of related tasks that may result in exposure to blood or OPIM

This information is available to all health care workers by calling Infection Prevention.



Contents of the Exposure Control Plan

The exposure control plan must also contain information regarding how this corporation will:

- Implement Standard Precautions
- Provide the hepatitis B vaccination to employees at no cost to the employee
- Conduct post-exposure evaluation and follow-up
- Communicate hazards to employees
- Maintain records concerning all of the above issues.
- Procedures for evaluating the circumstances during which an exposure to blood or OPIM occurs

A copy of OSHA's Bloodborne Pathogen Standard is available to all employees in the Infection Prevention Office or by calling 270-745-1145.

Med Center Health's Exposure Control Plan is available online in *Citrix* (Policies and Manuals).



Implementation of Standard Precautions

Standard Precautions are used by all healthcare workers with all patients.

If healthcare workers are at risk of coming into contact with blood, body fluids, secretions and excretions (except sweat), non-intact skin, or mucous membranes, they should follow Standard Precautions and wear personal protective equipment (PPE).

PPE includes:

- Gloves
- Masks
- Eye protection
- Face shields to protect worker's mucous membranes
- Gowns to protect worker's skin and clothing from becoming soiled.



Personal Protective Equipment

Required use of Personal Protective Equipment:

- Wear a **mask and eye protection** whenever you might get splashed in the face (in the operating room, in the room with a ventilator patient, when suctioning or irrigating tubes, when a patient is coughing or sneezing, when emptying fluids that might splash, when removing central lines or NG tubes, etc.).
- Use a **CPR mask** when performing cardiopulmonary resuscitation.
- Wear a **disposable gown** when your clothing may have blood, body fluid, or pathogen exposure.
- Use **gloves** any time you may have contact with blood, other body fluids, mucous membranes, or non-intact skin (e.g., when you treat an open wound, draw blood, or handle dirty laundry).



Hepatitis B Vaccine

The hepatitis B vaccine is offered at no charge to protect health care workers. You cannot contract hepatitis B from the vaccine. Adults generally receive a series of 3 injections with dose #2 following 1-2 months after dose #1 and dose #3 following 4-6 months after dose #1.

You may elect not to take the vaccine. If you later decide to take the vaccine you may access it at any time by contacting Employee Health at Ext. 1263.



Medical Follow-Up and Evaluation

This corporation has a post-exposure plan in place for HIV, hepatitis B and hepatitis C. If you come in contact with blood or OPIM, it is important that you report this exposure. The post-exposure evaluation consists of four steps:

- Testing the patient who is the source immediately (Note: that you cannot restrain the patient to keep him or her from leaving the facility)
- Offering the exposed health care worker baseline testing
- Offering the exposed health care worker treatment as needed
- Offering the exposed health care worker counseling.

Infection Prevention is available 24/7 by calling the Bowling Green operator at (270)745-1000 and ask for the Infection Prevention nurse on-call. The Exposure Packet is located on the desktop or at the Start Menu of every Med Center Health computer.



Communication of Hazards to Health Care Workers

- As part of its worker protection responsibility, this corporation must clearly communicate hazards to health care workers. For instance, regulated waste must be bagged in leak proof plastic bags that feature the biohazard symbol. This special labeling will prevent the waste from coming into contact with patients, workers, and visitors.
- The biohazard symbol is a universal symbol placed on any container or area that may contain regulated waste. Biohazard signs are usually red or orange and include the biohazard symbol.
- Used sharps are to be placed in puncture-resistant containers.



How To Dispose Of Sharps

Dispose of sharps only in **proper sharps containers**. These are rigid, puncture-resistant containers labeled **as *biohazard***.

- When the container is **3/4 full**, it should be replaced
- The container should be securely closed and placed in the appropriate area for pickup

Never attempt:

- to bend or break needles
- to remove needles from sharps containers



Additional Guidelines

Protect yourself from infection by practicing personal hygiene and frequent hand hygiene. Wearing gloves does **NOT** replace hand hygiene (hand washing or using alcohol hand sanitizer).

Cleanup of Spills

If a spill of blood or body fluid occurs, you are responsible for initiating the cleanup.

- If **no** broken glass is involved, put on gloves and wipe the majority of the spillage from the floor using paper towels/cloths. Dispose of spillage in red bags and place in hazardous waste barrel. Notify ESD for final cleaning.
- If broken glass is involved, page ESD immediately. They will take total responsibility for the cleanup.



Work Practice Controls

In work areas where exposure is likely, **do not:**

- eat, drink, or put objects in your mouth
- apply cosmetics, lip balm, or contact lenses

Practice **good housekeeping** by observing established practices, schedules, and procedures for cleaning and disinfecting work areas at your facility.

Follow **recommended practices** for handling contaminated clothing and laundry.

- Bag soiled linens (including isolation linens) in blue bags.
- Do not sort, rinse, double bag, or place any linen in red bags.
- Do not carry soiled linen or other items next to your clothing.
- All linen is handled with Standard Precautions (i.e., treated as if it was infectious) at the laundry.



Circumstances during Exposure to Blood or OPIM

OSHA requires that exposure to blood or OPIM be reported. When an injury with a contaminated sharp occurs, the following information must be recorded in the manner required by OSHA:

- Type and brand of device involved
- Department or area where the injury occurred
- Explanation of how it occurred

It is important to remember that the corporation will protect the confidentiality of the injured employee.



Protecting Yourself from Exposure

To decrease the risk of coming into contact with the germs in blood and OPIM, health care workers should know and follow our corporation's procedures.

These procedures include:

- Using PPE
- Maintaining proper hygiene
- Cleaning up spills properly
- Utilizing engineering and work practice controls
- Properly working with medical devices

AND always perform proper hand hygiene!



Protecting Yourself -- ***It's Your Responsibility***

You are responsible for understanding the risk of exposure to **blood** or **other potentially infectious materials** at your workplace.

When working with blood or other potentially infectious materials:

- avoid splashing, spraying, splattering, and generating droplets
- mouth pipetting/suctioning is prohibited



In Summary...

Know the risks in your work area

- Use Standard Precautions
- Use appropriate Personal Protective Equipment
- Receive the Hepatitis B vaccination series when it is offered
- Properly dispose of hazardous/infectious wastes
- Contact your supervisor or Infection Prevention immediately if you are exposed to blood or other potentially infectious materials

For more information about Bloodborne Pathogens and how to protect yourself, contact Infection Prevention.

- **You will have three chances to pass the test.**
- **If you do not pass the test after the third attempt, please contact Infection Prevention at x1145 to make arrangements to retake the test.**
- **Passing score is 80%.**

