

NEW EMPLOYEE INFORMATION: **BLOODBORNE PATHOGENS**

In this handout, you will explore:

- How you can be exposed to bloodborne diseases
 - Bloodborne diseases found in a hospital setting
 - The parts of an Exposure Control Plan
 - The meaning of the term “Standard Precautions”
 - An important vaccination for the healthcare worker
 - Personal Protective Equipment (PPE)
 - Hazard Communications
 - Sound workplace practices which guard against exposure to bloodborne diseases
-

Keyword Definitions

Bloodborne Pathogen– A disease-causing microorganism that is present in human blood and can cause disease in humans.

OSHA – Occupational Safety and Health Administration

Bloodborne Pathogens Standard – OSHA reference: 29 CFR 1910.1030. Check the Infection Control/Employee Health manual if you would like to see this information. Your employer is required to make this information available to you.

Other potentially infectious materials - Blood and other materials that can carry pathogens that cause serious diseases. Materials include human body fluids, unfixed tissue or organs, and HIV/HBV-containing cell or tissue cultures.

Direct – Exposure which occurs when one touches or otherwise comes in direct contact with blood or other potentially infectious materials. An example is a stick from a needle previously used on an infected patient.

Sharps – Any object that can cut, puncture, or penetrate the skin. Examples are needles, scalpels, broken glass, knives and blades.

HIV – Human Immunodeficiency Virus. A virus that infects human T-cells. Infection with this virus may ultimately lead to the development of AIDS (Acquired Immune Deficiency Syndrome).

Hepatitis B – HBV. A virus that causes inflammation of the liver and is transmitted by infected blood.

Hepatitis C – A virus that causes inflammation of the liver and is transmitted by infected blood.

Mucous membrane – A lining of the body that secretes a protective lubricant for all body passages that come in contact with the air. Examples include the lining of the eyes, nose and mouth.

Exposure Control Plan – This plan outlines the steps employers must take to provide protection against bloodborne pathogens. The Exposure Control Plan includes exposure determination, procedures for protecting workers (Standard Precautions, worker vaccinations, personal protective equipment, hazard communications, workplace practices), medical follow-up and evaluation when an employee is exposed to a bloodborne disease, and way that employer receives input from employees about effective engineering controls including safer medical devices. The Exposure Control Plan is located in the Infection Control/Employee Health Manual.

Exposure Determination – This OSHA requirement has employers determine and list all job classifications in which employees may incur occupational exposure to bloodborne pathogens or other potentially infectious materials, regardless of frequency or the use of PPE (personal protective equipment).

PPE – Personal Protective Equipment. Specialized clothing and equipment meant to provide protection against contact with bloodborne pathogens or other potentially infectious materials.

CPR – Cardio-Pulmonary Resuscitation

Regulated waste – Blood or other potentially infectious materials, contaminated items that could release blood or other potentially infectious materials, contaminated sharps, and pathological/microbiological wastes. Sometimes called “infectious waste”.

Biohazard symbol – A universal symbol placed on any container or area that may contain infectious waste.



Proper sharps container – A rigid, puncture resistant container labeled as “biohazard”. It is designed especially for the purpose of storing sharps. When the container is $\frac{3}{4}$ full it should be securely closed and disposed of appropriately.



Engineering controls – Control measures that isolate or remove a hazard from the workplace (i.e. sharps disposal containers, self-sheathing needles, safer medical devices such as sharps with engineered sharps injury protections and needleless systems).

Percutaneous – exposure to fluids from needle sticks through the skin.

Post-Exposure Evaluation – An evaluation which tests the source and the employee after an exposure has occurred. Counseling and treatment are offered for positive test results.

Medical follow-up – This OSHA requirement ensures testing, evaluation, and preventative treatment for an employee following an exposure incident.

In the Workplace

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

The Occupational Safety and Health Administration (**OSHA**) has a standard to address this concern.

The **Bloodborne Pathogens Standard** requires both employers and workers to prevent the spread of bloodborne diseases.

What is a Bloodborne Pathogen?

Bloodborne Pathogens are germs which may be present in blood that are capable of causing disease.

Bloodborne pathogens are an important consideration in dealing with blood and **other potentially infectious materials**.

How are People Exposed to Bloodborne Pathogens?

You can be exposed to a bloodborne pathogen by performing a task or being in an areas where you might come in contact with blood or **other potentially infectious materials**.

The majority of exposures to bloodborne diseases in a hospital is by **direct** exposure from needle sticks or other injuries from **sharps**.

Some people (though not as many) have been infected from splashing blood or other body fluids

- On broken or scraped skin
- Into the eyes, nose or mouth.

Be careful with anything wet that comes from the human body.

What Happens If You Are Exposed to a Bloodborne Pathogen?

Even one exposure to a bloodborne pathogen can lead to serious and disabling diseases such as:

- **HIV**
- Hepatitis

You may not know you are infected with a bloodborne disease at the time of exposure. You may not realize it until years later.

Does Everyone Exposed to a Bloodborne Pathogen Become Infected?

Whether or not you become infected depends on:

- The number and strength of the germs.
- Your resistance to disease.
- The germ having an entrance into your body.

Bloodborne Diseases of Major Concern

Three bloodborne diseases of major concern to the healthcare workers are:

- **HIV**
- **Hepatitis B**
- **Hepatitis C**

Needle sticks from used needles or other sharps injuries are the primary means of transmission of these diseases to healthcare providers in the workplace.

What is HIV?

HIV is a viral infection of the immune system. This infection robs a person of the ability to fight off other disease-causing germs.

How Is HIV Contracted?

HIV **CAN** be contracted by:

- homosexual or heterosexual contact
- IV drug users who share needles
- an unborn baby from its mother (though the risk is lowered with appropriate prenatal treatment). Infection to the baby can also occur through breast feeding.

HIV **CANNOT** be contracted by:

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

The risk of contracting HIV from a blood transfusion is extremely low. The blood supply is carefully tested.

What Happens If You Are Exposed to HIV?

If you are exposed to HIV through a needle stick or other sharps injury, your risk of contracting the disease is about 0.3%.

- The risk is less for blood splashes into **mucous membranes** or on broken or scraped skin.

Symptoms do not usually occur until several years after the infection.

- A person can infect others even though he does not look or feel sick.
 - HIV is usually spread to others when the infected person does not yet know he has the disease.
-

Symptoms of Hepatitis B?

Symptoms may include:

- Yellow skin color
- Dark urine
- Lightened stool color
- Nausea
- Vomiting
- A general feeling of illness

How is Hepatitis B Contracted?

Hepatitis B can be contracted by:

- Sexual contact
- IV drug users who share needles
- An unborn baby from its mother. Infection can also occur through breast feeding. Prenatal screenings check for hepatitis B infection. If the mother has hepatitis B, treatment may begin on the baby at birth.

What Happens If You Are Exposed to Hepatitis B?

Of the people who show symptoms, most have a full recovery.

- Ten percent of people who contract the virus develop a chronic infection.

Chronic hepatitis B puts a person at a higher risk for:

- Cirrhosis of the liver
- Liver cancer

There is a vaccine for hepatitis B, but medical treatment for this disease is still in the experimental stage.

If you are exposed to hepatitis B through a needle stick or other sharps injury, your risk of contracting the disease is about five to thirty percent if you have not had a series of three vaccinations.

- The risk is less for blood splashes into **mucous membranes** or on broken or abraded skin.
 - Your risk drops to almost zero percent if you have had a successful series of vaccinations.
-

What is Hepatitis C?

Hepatitis C (HCV) is a virus that is similar to hepatitis B.

- Seventy percent of hepatitis C patients appear to have no symptoms.
- The virus may remain dormant 10-20 years before patients experience fatigue, loss of appetite, and abdominal pain.
- People who have the infection are contagious even if they have no symptoms.
- Approximately 15% of people who become infected with HCV fight off the infection and are no longer contagious.

How is Hepatitis C Contracted?

If you are exposed to **hepatitis C** through a needle stick or other sharps injury, your risk of contracting the disease is about 3 to 10%.

Blood transfusions were formerly a major means of transmission of hepatitis C, but that is no longer the case.

- Screening tests were put into place in the early 1990s.

Unlike hepatitis B, there is no vaccine to prevent the disease.

What Happens If You Develop Hepatitis C?

The hepatitis C virus causes chronic disease in about 85% of the people who contract it.

- Hepatitis C is a major cause of cirrhosis of the liver and liver cancer.

While there is no cure for hepatitis C, the symptoms may be treated with antiviral drugs.

Treatment usually leads to long-term improvement.

- Complications of hepatitis account for the majority of liver transplants in the United States.
-

What Does OSHA Require?

OSHA requires employers to develop an **Exposure Control Plan**.

- This plan provides protection for **all hospital employees** who might be exposed to bloodborne diseases.

It is updated at least annually to include:

- Changes in technology that reduce and/or eliminate exposure
- Documentation of consideration and implementation of safer medical devices
- Solicitation of input from non-managerial employees.

Exposure Determination

OSHA requires an **Exposure Determination** in every facility.

- It is available to **all employees**.
- It identifies employee positions that may be exposed to blood or **other potentially infectious materials**.

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, spattering and generation of droplets.

- Mouth pipetting/suctioning is prohibited.

Standard Precautions treats all blood and **other potentially infectious materials** as if they were **known** to be infected with bloodborne diseases.

- Standard Precautions includes Universal Precautions as well as additional measures to protect **patients** and **hospital personnel** from disease causing germs.

Worker Vaccinations

OSHA requires that a **hepatitis B** vaccine be available to all hospital employees who may be exposed to:

- Blood
- **Other potentially infectious materials**

Personal Protective Equipment

Always use the required Personal Protective Equipment (**PPE**).

- This specialized clothing and equipment provides protection against contact with blood or **other potentially infectious materials**.

Wear a mask and eye protection when you might get splashed in the face (in the operating room, emergency room, or critical care).

- Use a **CPR** mask when performing CPR.

Wear a gown when your clothing could be soiled with blood or other body fluids.

Use gloves anytime you have contact with blood or other body fluids (when you treat an open wound, draw blood, or handle dirty laundry).

Regulated Waste

Place **regulated waste** in

- A receptacle that exhibits a **biohazard symbol**
- Policy designated color-coded receptacle

Regulated waste includes

- Blood
- **Other potentially infectious materials**
- Contaminated sharps
- Any pathological or microbiological wastes.

How to Dispose of Sharps

Dispose of sharps in **proper sharps containers**. Never attempt

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

Engineering Controls

Protect yourself by practicing personal hygiene and by washing your hands frequently. Wearing gloves does **NOT** replace handwashing.

- Every time you do something for a patient, take your gloves off, dispose of them, and wash your hands.
- Do **NOT** go from patient to patient wearing the same pair of gloves.

Give feedback to your supervisor about how to improve **engineering 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 at your facility.

- Bag soiled linens (including isolation linens) in single blue plastic bags. Double-bag laundry if the outside of the first bag is visibly soiled.

Healthcare workers suffer nearly 600,000 **percutaneous** injuries annually with contaminated sharps.

Use effective safer devices to eliminate or reduce risk of exposure to bloodborne pathogens (e.g. sharps disposal containers, self-sheathing needles, sharps with engineered sharps injury protections and needleless systems).

Cleanup of Spills

Minimize your risk of exposure by:

- Containing
- Removing
- Disinfecting

all blood or body fluid spills as quickly and effectively as possible.

No one medical device is considered appropriate or effective for all circumstance. Choose medical devices that:

- Do not jeopardize associate or patient safety
- Make an exposure incident with a contaminated sharp less likely to occur.

Medical Follow Up and Evaluation

When you have contact with blood or **other potentially infectious materials**, immediately cleanse the area.

- Flush **mucous membranes** with a large amount of water
- Wash exposed skin with soap and water
- Report the exposure incident to your supervisor **immediately**. Document routes, circumstances and source of exposure.
- Go through the evaluation and follow up.

The **Post-Exposure Evaluation** consists of four steps for the infection control nurse or employee health nurse:

- Follow policy to have source patient tested. The source patient cannot be restrained to keep him from leaving the hospital.
- Offer the exposed employee baseline testing.
- Offer the exposed employee treatment if needed.
- Offer the employee counseling.

The process is confidential and the exposed employee will be notified of the results of the tests.

Your facility's Exposure Control Plan explains:

- How to report an exposure
- What **medical follow-up** is available

OSHA requires that an employee be notified of the **post-exposure evaluation** and the follow-up actions taken.

Know and Practice Your Exposure Control Plan

- Know the risks in your work area
- Use Standard Precautions
- Use Personal Protective Equipment
- Receive the hepatitis B vaccination series when it is offered
- Properly dispose of infectious waste
- Contact your supervisor immediately if you are exposed to blood or other potentially infectious materials
- For more information about bloodborne pathogens, see a member of the Infection Control department in your facility.