

# BLOODBORNE PATHOGENS TRAINING

**This training module is designed to provide a basic understanding of bloodborne pathogens, common modes of their transmission, methods of prevention, and other pertinent information. A copy of Huron School District's Bloodborne Pathogen Exposure Control Plan is available upon request from Linda Baranski. This program is designed to meet the requirements of the Occupational Safety and Health Administration's (OSHA's) Bloodborne Pathogen Standard 29 CFR 1910.1030.**

## Bloodborne Diseases

**Bloodborne pathogens** are microorganisms such as viruses or bacteria that are carried in blood and can cause disease in people. There are many different bloodborne pathogens including malaria, syphilis, and brucellosis, but Hepatitis B (HBV) and the Human Immunodeficiency Virus (HIV) are the two diseases specifically addressed by the OSHA Bloodborne Pathogen Standard.

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### Hepatitis B (HBV)

In the United States, approximately 300,000 people are infected with HBV annually. Of these cases, a small percentage are fatal.

*"Hepatitis"* means *"inflammation of the liver,"* and, as its name implies, Hepatitis B is a virus that infects the liver. While there are several different types of Hepatitis, Hepatitis B is transmitted primarily through "blood to blood" contact. Hepatitis B initially causes inflammation of the liver, but it can lead to more serious conditions such as cirrhosis and liver cancer.

There is no "cure" or specific treatment for HBV, but many people who contract the disease will develop antibodies, which help them get over the infection and protect them from getting it again. It is important to note, however, that there are different kinds of hepatitis, so infection with HBV will not stop someone from getting another type.

The Hepatitis B virus is very durable, and it can survive in dried blood for **up to two weeks**. For this reason, this virus is the primary concern for employees such as custodians and other employees who may come in contact with blood or potentially infectious materials in a non first-aid or medical care situation.

### Symptoms:

The symptoms of HBV are very much like a mild "flu". Initially there is a sense of fatigue, possible stomach pain, loss of appetite, and even nausea. As the disease continues to develop, jaundice (a distinct yellowing of the skin and eyes), and a darkened urine will often occur. However, people who are infected with HBV will often show no symptoms for some time. After exposure, it can take **1-9 months** before symptoms become noticeable. Losses of appetite and stomach pain, for example, commonly appear within 1-3 months, but can occur as soon as 2 weeks or as long as 6-9 months after infection.

## Human Immunodeficiency Virus (HIV)

**AIDS**, or acquire immune deficiency syndrome, is caused by a virus called the human immunodeficiency virus, or HIV. Once a person has been infected with HIV, it may be many years before AIDS actually develops. HIV attacks the body's immune system, weakening it so that it cannot fight other deadly diseases. AIDS is a fatal disease, and while treatment for it is improving, there is no cure.

Estimates on the number of people infected with HIV vary, but some estimates suggest that an average of 35,000 people are infected every year in the US (in 2000, 45,000 new infections were reported). It is believed that as of 2000, 920,000 persons were living with HIV/AIDS in the United States. These numbers could be higher, as many people who are infected with HIV may be completely unaware of it.

The HIV virus is very fragile and will not survive very long outside of the human body. It is primarily of concern to employees providing first aid or medical care in situations involving fresh blood or other potentially infectious materials. It is estimated that the chances of contracting HIV in a workplace environment are only 0.4%. However, because it is such a devastating disease, all precautions must be taken to avoid exposure.

AIDS infection essentially occurs in three broad stages. The **first stage** happens when a person is actually infected with HIV. After the initial infection, a person may show few or no signs of illness for many years. Eventually, in the **second stage**, an individual may begin to suffer swollen lymph glands or other lesser diseases, which begin to take advantage of the body's weakened immune system. The second stage is believed to eventually lead to AIDS, the **third and final stage**, in all cases. In this stage, the body becomes completely unable to fight off life-threatening diseases and infections.

### Symptoms:

Symptoms of HIV infection can vary, but often include weakness, fever, sore throat, nausea, headaches, diarrhea, a white coating on the tongue, weight loss, and swollen lymph glands.

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If you believe you have been exposed to HBV or HIV, especially if you have experienced any of the signs or symptoms of these diseases, you should consult your physician or doctor as soon as possible.

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### Modes of Transmission

Bloodborne pathogens such as HBV and HIV can be transmitted through contact with infected human **blood** and **other potentially infectious body fluids** such as:

- Urine
- Vomit
- Saliva
- Any body fluid that is visibly contaminated with blood.

It is important to know the ways exposure and transmission are most likely to occur in your particular situation, be it providing first aid to a student in the classroom or cleaning up blood from a hallway.

### HBV and HIV are most commonly transmitted through:

- Sexual Contact

- Sharing of hypodermic needles
- From mothers to their babies at/before birth
- Accidental puncture from contaminated needles, broken glass, or other sharps
- Contact between broken or damaged skin and infected body fluids
- Contact between mucous membranes and infected body fluids



Accidental puncture from contaminated needles and other sharps can result in transmission of bloodborne pathogens.

In most work situations, transmission is most likely to occur because of accidental puncture from contaminated needles, broken glass or other sharps; contact between broken or damaged skin and infected body fluids; or contact between mucous membranes and infected body fluids. For example, if someone infected with HBV cut his or her finger on a piece of glass and then you cut yourself on the now infected piece of glass, it is possible that you could contract the disease. Anytime there is **blood-to-blood contact** with infected blood or body fluids, there is a slight potential for transmission.

Unbroken skin forms an impervious barrier against bloodborne pathogens. However, **infected blood can enter your system through:**

- Open sores
- Cuts
- Abrasions
- Acne
- Any sort of damaged or broken skin such as sunburn or blisters

Bloodborne pathogens may also be transmitted through the **mucous membranes** of the

- Eyes
- Nose
- Mouth

For example, a splash of contaminated blood to your eye, nose or mouth could result in transmission.

## **PPE, Work Practices & Engineering Controls**

It is extremely important to use personal protective equipment and work practice controls to protect yourself from bloodborne pathogens.

“**Universal Precautions**” is the name used to describe a prevention strategy in which all blood and potentially infectious materials are treated as if they are, in fact, infectious, regardless of the perceived status of the source individual. In other words, whether or not you think the blood/body fluid is infected with bloodborne pathogens, *you treat it as if it is*. This approach is used in all situations where exposure to blood or potentially infectious materials is possible. This also means that certain engineering and work practice controls shall **always** be utilized in situations where exposure may occur.

## Personal Protective Equipment

Probably the first thing to do in any situation where you may be exposed to bloodborne pathogens is to ensure you are wearing the appropriate personal protective equipment (PPE). For example, you may have noticed that emergency medical personnel, doctors, nurses, dentists, dental assistants, and other health care professionals always wear latex or protective gloves. This is a simple precaution they take in order to prevent blood or potentially infectious body fluids from coming in contact with their skin.

To protect yourself, it is essential to have a barrier between you and the potentially infectious material.

### Rules to follow:

- Always wear personal protective equipment in exposure situations.
- Remove PPE that is torn or punctured or has lost its ability to function as a barrier to bloodborne pathogens.
- Replace PPE that is torn or punctured.
- Remove PPE before leaving the work area.



### Gloves:

Gloves should be made of latex, vinyl, nitril, rubber or other water impervious materials. If glove material is thin or flimsy, double gloving can provide an additional layer of protection. Also, if you know you have cuts or sores on your hands, you should cover these with a bandage or similar protection as an additional precaution before donning your gloves. You should always inspect your gloves for tears or punctures before putting them on. **If a glove is damaged, don't use it!** When taking contaminated gloves off, do so carefully. Make sure you don't touch the outside of the gloves with any bare skin, and be sure to dispose of them in a proper container so that no one else will come in contact with them, either.

Normal clothing that becomes contaminated with blood should be removed as soon as possible because fluids can seep through the cloth to come into contact with skin. Contaminated laundry should be handled as little as possible, and it should be placed in an appropriately labeled bag or container until it is decontaminated, disposed of, or laundered.

**Remember to use universal precautions and treat all blood or potentially infectious body fluids as if they are contaminated. Avoid contact whenever possible, and whenever it's not, wear personal protective equipment.** If you find yourself in a situation where you have to come in contact with blood or other body fluids and you don't have any standard personal protective equipment handy, you can improvise. Use a towel, plastic bag, or some other barrier to help avoid direct contact.

## Hygiene Practices

**Handwashing** is one of the most important (and easiest) practices used to prevent transmission of bloodborne pathogens. Hands or other exposed skin should be thoroughly washed as soon as possible following an exposure incident for **at least 20 seconds**. Use soft, antibacterial soap, if possible. Avoid harsh, abrasive soaps, as these may open fragile scabs or other sores.



Hands should also be washed immediately (or as soon as feasible) after removal of gloves or other personal protective equipment.

Because hand washing is so important, you should familiarize yourself with the location of the handwashing facilities nearest to you. If you are working in an area without access to such facilities, you may use an antiseptic cleaner in conjunction with clean cloth/paper towels or antiseptic towelettes. If these alternative methods are used, hands should be washed with soap and running water as soon as possible.

## Decontamination and Sterilization

All surfaces, tools, equipment and other objects that come in contact with blood or potentially infectious materials must be decontaminated and sterilized as soon as possible. **Equipment and tools must be cleaned and decontaminated before servicing or being put back to use.**

Decontamination should be accomplished by using

- An effective disinfectant for contaminated surfaces and cleaning implement is one part bleach to 10 parts water
- NABC or some other EPA-registered tuberculocidal disinfectant. Check the label of all disinfectants to make sure they meet this requirement.

If you are cleaning up a spill of blood, you can carefully cover the spill with paper towels or rags, then gently pour the solution over the towels or rags, and leave it for *at least 10 minutes*. This will help ensure that any bloodborne pathogens are killed before you actually begin cleaning or wiping the material up. By covering the spill with paper towels or rags, you decrease the chances of causing a splash when you pour the solution on it.

If you are decontaminating equipment or other objects (be it scalpels, microscope slides, broken glass, saw blades, tweezers, mechanical equipment upon which someone has been cut, first aid boxes, or whatever) you should leave the disinfectant in place for a least 10 minutes before continuing the cleaning process.

Of course, any materials you use to clean up a spill of blood or potentially infectious materials must be decontaminated immediately, as well. This would include mops, sponges, re-usable gloves, buckets, pails, etc.

## Sharps

Far too frequently, custodians and others are punctured or cut by improperly disposed needles and broken glass. This, of course, exposes them to whatever infectious material may have been on the glass or needle. For this reason, it is especially important to handle and dispose of all sharps carefully in order to protect yourself as well as others.



**Needles must be disposed of in sharps containers. Improperly disposed needles can injure custodians and other people.**

- Needles should never be recapped.
- Needles should be moved only by using a mechanical device or tool such as forceps, pliers, or broom and dustpan.
- Never break or shear needles.
- **Needles shall be disposed of in labeled sharps containers only.**
  - Sharps containers shall be closable, puncture-resistant, leak-proof on sides and bottom, and must be labeled or color-coded.
  - When sharps containers are being moved from the area of use, the containers should be closed immediately before removal or replacement to prevent spillage or protrusion of contents during handling or transport.

## Broken Glassware

- Broken glassware that has been *visibly contaminated with blood* must be sterilized with an approved disinfectant solution before it is disturbed or cleaned up.
  - Glassware that has been decontaminated may be disposed of in an appropriate sharps container: i.e., closable, puncture-resistant, leak-proof on sides and bottom, with appropriate labels. (Labels may be obtained from Linda Baranski.)
- Broken glassware will not be picked up directly with the hands. Sweep or brush the material into a dustpan.
  - Uncontaminated broken glassware may be disposed of in a closable, puncture resistant container such as a cardboard box or coffee can.

**By using Universal Precautions and following these simple engineering and work practice controls, you can protect yourself and prevent transmission of bloodborne pathogens.**

## Signs, Labels & Color Coding

**Warning labels need to be affixed to containers of regulated waste containing blood or other potentially infectious material; and other containers used to store, transport, or ship blood or other potentially infectious materials. These labels are fluorescent orange, red or orange-red, and they are available from Linda Baranski. Bags used to dispose of regulated waste must be red or orange red and they too, must have the biohazard symbol readily visible upon them. Regulated waste should be double bagged to guard against the possibility of leakage if the first bag is punctured.**

**Regulated waste** refers to

- Any liquid or semi-liquid blood or other potentially infectious materials
- Contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed
- Items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling
- Contaminated sharps

**All regulated waste must be disposed in properly labeled containers or red biohazard bags.**

Custodians will not handle regulated waste.

**Non-regulated waste** (i.e., does not fit the definition of regulated waste provided above) may be disposed in regular plastic trash bags. Such as tissues from nose bleeds that cannot be rung out, band-aids, etc.

## **EMERGENCY PROCEDURES**

If an emergency situation involving blood or potentially infectious materials, you should always **use Universal Precautions** and try to minimize your exposure by wearing gloves, splash goggles, pocket mouth-to-mouth resuscitation masks, and other barrier devices.

If you are exposed, however, you should:

1. Wash the exposed area thoroughly with soap and running water. Use non-abrasive, antibacterial soap if possible.

If blood is splashed in the eye or mucous membrane, flush the affected area with running water for at least 15 minutes.

2. Report the exposure to your supervisor as soon as possible. **All incidents involving the presence of blood or OPIM shall be reported to Linda Baranski by the end of the workday on which the incident occurs.**
3. Fill out an exposure incident investigation form (Appendix D). This form will be kept in your personnel file for 40 years so that you can document workplace exposure to hazardous substances. This report is available from your building secretary or from Linda Baranski.
4. The District's exposure incident investigation form (Appendix D) must be used to report incidents involving blood or OPIM. The incident description must include a determination of whether or not, in addition to the presence of blood or OPIM, an "exposure incident", as defined by the standard, occurred.

An exposure incident is defined as contact with blood or OPIM on an employee's non-intact skin, eye, mouth, other mucous membrane or by piercing the skin or mucous membrane through such events as needle sticks.

5. This determination is necessary in order to ensure that the proper post-exposure evaluation, treatment and follow-up procedures are made available immediately if there has been an exposure incident as defined by the Standard.
6. The full Hepatitis B vaccination series shall be made available as soon as possible, but in no event later than 24 hours, to all unvaccinated first aid providers who have rendered assistance in any situation involving the presence of blood or OPIM regardless of whether or not a specific "exposure incident", as defined by the Standard, has occurred.

## **POST-EXPOSURE EVALUATION AND FOLLOW-UP:**

1. Following a report of an exposure incident, Huron School District will immediately refer the exposed employee to for a confidential medical evaluation and follow-up, which will include at least:
2. Documentation of the route of exposure and the circumstances under which exposure occurred;
3. Identification of the source individual, and, if possible, the status of the source individual.

The source individual's blood shall be tested as soon as feasible (after consent is obtained) in order to determine infectious status. If the source individual is already known to be infected, blood tests need not be repeated. Results of testing of the source individual will be made available to the exposed employee and the exposed employee shall be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.

1. Post-exposure prophylaxis (i.e., immune globulin, in addition to the vaccination series), when medically indicated, will be provided for employees who have had an exposure incident. All medical evaluations and procedures are provided to employees at no cost, within a reasonable time period, under the supervision of a licensed health care professional, according to current recommendations of the U.S. Public Health Service. Counseling shall be made available by the district at no cost to employees and their families on the implications of testing and post-exposure prophylaxis. Reported illnesses shall be evaluated.
2. The district shall ensure that all medical evaluations and procedures, including prophylaxis are made available at a reasonable time and place, at no cost to the employee. All medical evaluations and procedures shall be conducted by licensed personnel and laboratory tests shall be conducted in accredited laboratories.

**When the employee incurs an exposure incident, it should be reported immediately to Linda Baranski. (Appendix D)**

## **INTERACTION WITH HEALTH CARE PROFESSIONALS:**

Huron Schools shall obtain from the health care professional who evaluates district employees a written opinion. The employee will be provided a copy of the evaluating health care professional's written opinion within 15 days of the completion of the evaluation. Written opinions will be obtained in the following instances:

- When the employee is sent to obtain the Hepatitis B vaccine.
- Whenever the employee is sent to a health care professional following an exposure incident.
- The health care professionals shall be instructed to limit their written opinions to:
- Whether the Hepatitis B vaccine is indicated and if the employee has received the vaccine, or for evaluation following an incident;
- That the employee has been informed of the results of the evaluation; and
- That the employee has been told about any medical conditions resulting from the exposure incident, which require further evaluation and or treatment.

Diagnoses shall remain confidential and shall not be included in the written report. The written opinion to the employer is not to reference any personal medical information.

The employer shall provide the evaluating health care professional with:

1. A copy of the OSHA regulations.
2. Description of the employee's duties as they related to the exposure incident.
3. Documentation of the route and circumstances under which exposure occurred.
4. Results of source individual's blood testing, if available.
5. All medical records relevant to the appropriate treatment of the employee, including vaccination status which are the district's responsibility to maintain.

## Hepatitis B Vaccinations

Employees who have routine exposure to bloodborne pathogens shall be offered the Hepatitis B vaccine series at no cost to themselves unless:

- They have previously received the vaccine series
- Antibody testing has revealed they are immune
- The vaccine is contraindicated for medical reasons

In these cases they need not be offered the series.

Although Huron School District must offer the vaccine to you, you do not have to accept that offer. You may opt to **decline** the vaccination series, in which case, you will be asked to sign a declination form. **Even if you decline the initial offer, you may choose to receive the series at anytime during your employment thereafter**, for example, if you are exposed on the job at a later date.

As stated in the Emergency Procedures section, if you are exposed to blood or potentially infectious materials on the job, you may request a Hepatitis B vaccination at that time. If the vaccine is administered immediately after exposure it is extremely effective at preventing the disease.

The Hepatitis B vaccination is given in a series of three shots. This series gradually builds up the body's immunity to the Hepatitis B virus.

The vaccine itself is made from yeast cultures; there is no danger of contracting the disease from getting the shots, and, once vaccinated, a person does not need to receive the series again. The Hepatitis B immunization is safe and effective.

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**This is the end of the Bloodborne Pathogens Training Module. If you have questions, contact Linda Baranski. To receive credit for this training, print the Quiz on the following page, print the quiz and give to your building secretary.**

# OSHA BLOODBORNE PATHOGENS

1. T F Children who appear healthy probably are not infected with the HIV or Hepatitis B virus.
2. T F Bloodborne infections may be transmitted through an open cut or small breaks in the skin.
3. T F Some people infected with Hepatitis B virus show no signs or symptoms and may in fact not know they are infected.
4. T F Universal Precautions means treating all blood and body fluids as if they are infected.
5. T F Only teachers and custodial staff are at risk of encountering bloodborne pathogens at school.
6. T F An effective disinfectant for contaminated surfaces and cleaning implements is one part bleach to 75 parts water.
7. T F Surfaces contaminated with blood or other potentially infectious materials can easily lead to the spread of the hepatitis B virus.
8. T F Bloodborne pathogens are only transmitted by sexual contact or sharing of infected needles.
9. T F The hepatitis B immunization is safe and effective.
10. T F Your employer does not have an Exposure Control Plan for dealing with bloodborne pathogens.
11. T F The method of removal of protective gloves is not important.
12. T F Hands need to be washed for at least 5 seconds after protective gloves are removed.
13. T F HIV infection is life threatening, but hepatitis B infection is always mild and not serious.
14. T F If you contract Hepatitis B, you can put your family at risk for infection.
15. T F Blood, vomit or urine may contain bloodborne pathogens.
16. T F If you have an exposure to bloodborne pathogens, you are to immediately contact your Supervisor and Linda Baranski.

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Print Your Name

Sign Your Name

**Print this quiz, circle T or F for each line, sign your name and give to your building secretary or fax to Linda Baranski at the Maintenance Department.**