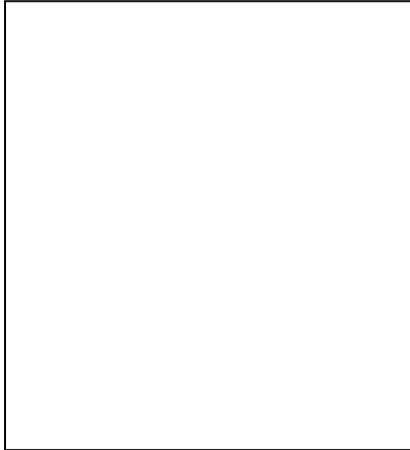


## BLOODBORNE PATHOGENS FOR HEALTH CARE WORKERS CURRICULUM

### INTRODUCTION

The attached materials will assist in teaching the information about bloodborne pathogens for health care workers as required in the OSHA plan. This document serves as an introduction to the teacher/trainer. The course materials include general information as well as multiple resource materials that are useful for teaching and also in the daily provision of health care in the institution.



For each section herein, the objectives are listed which describe the points to cover in the class. The outline curriculum provides information needed to teach the class, as well as references and attachments that provide backup information about the topics of each section of the presentation.

Some of the listed resource materials are found in the teaching materials which will be sent to each institution. Others will be materials that are available at the institution, such as Health Services technical instructions.

A yearly update will be provided by the Central Office Clinical Contract Monitor- Public Health. This updated information may be used to guide the educational presentation for the annual review of bloodborne pathogens. During the annual review, it is suggested that the basic information about the course be available to all students for review, as necessary, while the presentation focuses on new information that is pertinent to health care workers in this setting.

Extra materials, such as current data about bloodborne pathogen exposures in DC personnel or rates of HIV/AIDS cases or deaths, may be available through the Clinical Contract Monitor- Public Health and Clinical Contract Monitor- Quality Management. In addition, any questions that occur when providing the class or at any other time may be directed to the Clinical Contract Monitor- Public Health or the Central Office environmental health- safety and risk management office.

When needed, the Clinical Contract Monitor- Public Health may be consulted 850-717-3236.



**BLOODBORNE PATHOGENS FOR HEALTH CARE WORKERS**  
**ANNOTATED TRAINING OUTLINE**  
**SECTION I BLOODBORNE INFECTIONS**

**OBJECTIVES**

1. Name three bloodborne viruses that pose a risk to health care workers.
2. List the symptoms and effects of each infection.
3. Describe the risk of being infected with these viruses.

**OUTLINE**

Review each disease including:

1. Causative agent
2. Course of the infection
3. Symptoms
4. Outcome of disease
5. Risk of spread

**Hepatitis** means an inflammation of the liver. Symptoms of this disease, no matter what the cause, are loss of appetite, abdominal pain, nausea, vomiting, fatigue, and jaundice (a yellow coloring of the eyes and skin and darkening of the urine). Some people with jaundice will have itching.

**Hepatitis B:** This is one of several bloodborne types of hepatitis. In this case a certain virus, called hepatitis B virus (HBV), causes the problem. Some people who are infected will experience no symptoms at all. Others will have mild to severe symptoms. With this type of hepatitis, the patient might also have joint pain and rash. The risk of this infection related to blood transfusion has almost been eliminated based on testing of donor units and processing of products for hemophiliacs. Many people will recover completely after a hepatitis B infection. From 1 to 10% of people who are infected may develop chronic infection. In the US, about 0.5% have chronic infection related to HBV infection. Up to 25% of people with chronic infection will develop cirrhosis or cancer of the liver.

**Hepatitis C:** This is another type of bloodborne hepatitis. The symptoms are as listed above. More than 60% of the people with this infection develop chronic hepatitis. Since blood donations are now tested for this type of hepatitis, the risk of spread is decreased. The risk of transmission from a blood transfusion is estimated to be less than 0.5%. Transmission occurs by percutaneous exposure to blood and plasma derivatives. Contaminated needles are important vehicles of spread, in injecting drug users and potentially in health care workers.

**HIV/AIDS:** HIV is a virus that infects white blood cells and other certain other body tissues. It affects the immune system and interferes with the ability to fight infection. When a person is first infected, a flu-like syndrome with fever, aches, swollen glands sore throat, etc., may be experienced. This acute illness occurs within several weeks to several months of the time of infection. These symptoms will go away in most people and most will remain symptom free for a long time. The HIV continues to be present in the body. AIDS is diagnosed when certain immune cells (CD<sub>4</sub>) drop below 200 or an opportunistic infection, such as *Pneumocystis carinii* pneumonia, tuberculosis, etc., is diagnosed. With better treatment of the HIV infection itself and better preventative treatment for opportunistic infections, the incidences of AIDS and the death rate related to AIDS is decreasing.

**Risk of spread** of bloodborne pathogens related to needle-stick injuries when the source is positive for the infection:

**HIV 0.3% or 1 out of every 333 needle sticks with HIV positive blood**  
**HBV 30% or 1 out of every 3 needle sticks with HBV positive blood**  
**HCV 3.0% or 1 out of every 33 needle sticks with HCV positive blood**

**REMEMBER** that this is when the blood is positive for the pathogen listed. The risk is smaller in cases where the status of the source blood is unknown because not everyone is infected with a bloodborne pathogen.

The risk of infection with HBV can be eliminated by receiving hepatitis B vaccine. (See attachment section III). The risk of infection with HIV varies with the type of exposure. See appendix D related to postexposure prophylaxis (PEP) assessment of risk.

#### **Other References**

1. OSHA Blood Borne Pathogens Final Standard (see next listed document)
2. *Bloodborne Pathogens Exposure Control Plan*
3. HIV/AIDS class handout 1998
4. Hepatitis (types B and C)—(see materials from ALF and CDC)
5. IC bulletin board messages on hepatitis (check with Clinical Contract Monitor- Public Health)
6. MMWR article on HIV postexposure prophylaxis, Vol. 50, No RR-11, 2001

**BLOODBORNE PATHOGENS FOR HEALTH CARE WORKERS**  
**ANNOTATED TRAINING OUTLINE**  
**SECTION II TRANSMISSION**

**OBJECTIVES**

1. List the body fluids that contain enough HIV, HBV, or HCV to transmit infection.
2. Name the modes of transmission outside the workplace.
3. Describe and give examples of the three major modes of bloodborne transmission in the workplace.

**OUTLINE****A. Body Fluids that May Contain Enough of the Virus to Transmit HBV or HIV Include:**

1. Blood
2. Body fluids that contain blood
3. Body fluids where it is difficult or impossible to differentiate what type of fluid is present
4. Semen
5. Vaginal secretions
6. Fluid from around an unborn baby
7. Fluid from spine, lungs or joints
8. Body tissues

**B. List of Body Fluids Which Are NOT Sources of BBP:**

Other body fluids do not contain enough of HIV or HBV to lead to infection. These include:

1. Urine
2. Feces
3. Saliva
4. Sputum
5. Vomit
6. Tears
7. Sweat
8. Nasal secretions

**It is important to keep in mind that if any of these fluids contain blood or are mixed with other body fluids that are potentially infectious, these fluids should also be considered potentially infectious.**

**Be sure that health care personnel understand that this applies only to bloodborne pathogens. Other pathogens can be spread by most of these fluids. Standard precautions are in place to prevent the spread of other pathogens.**

**C1. List of Modes of Transmission Outside the Workplace:**

- a. **Sexual contact** by exposure to semen or vaginal secretions.
- b. **Sharing needles** by exposure to blood.
- c. **Receiving blood transfusions**—Screening programs have decreased this risk to a minimum. A recent article estimates that of 12 million donations collected nationally each year there would be an estimated 18 to 27 infectious donations available for transfusion.
- d. **Perinatal**—Mother to baby by contact with blood or other body fluids before or at the time of birth **or** mother to baby during nursing through breast milk (for HIV, not HBV).

**C2. List of Modes of Transmission Inside the Workplace:**

- a. Puncture wounds—Contaminated needles or other sharps. Any injury that breaks the skin which involved a needle or sharp that has been used and is contaminated with blood or OPIM.
- b. Nonintact Skin contact—Through wounds, cuts, or broken or damaged skin. If skin is not intact, then getting blood or OPIM onto that open area will possibly allow transfer of bloodborne pathogens
- c. Mucous membrane contact—Eyes, mouth, and nose. Mechanism can be by splashes **or** by touching these areas with your hands when your hands are contaminated by significant body fluids.

**D. Examples of Workplace Risks for Transmission:**

1. Giving injections
2. Disposing of needles
3. Working with a sharp instrument
4. Working with lab specimens
5. IV manipulation
6. Redressing wounds
7. Cleaning up blood spills
8. Others that you can think of that have occurred in your setting

**E. Bloodborne Pathogens are **Not** Spread By Casual Contact Such As:**

1. Shaking hands
2. Using telephones
3. Sitting on toilet seats
4. Using drinking fountains
5. Drinking from the same glass

**Other Reference**

CDC information sheets on transmission

**BLOODBORNE PATHOGENS FOR HEALTH CARE WORKERS**  
**ANNOTATED TRAINING OUTLINE**  
**SECTION III EXPOSURE CONTROL**

**OBJECTIVES**

1. Explain which health care workers should be immunized against hepatitis B.
2. Define Universal Precautions.
3. Describe the appropriate use of protective gloves.
4. Demonstrate how to take off gloves that are contaminated.
5. Describe the appropriate use of face masks and protective eyewear.
6. Describe the appropriate use of protective clothing.

**OUTLINE**

- A. **Hepatitis B vaccine** is provided at no cost to all employees who have possible occupational exposure to bloodborne pathogens and is offered within ten (10) working days of initial assignment.
1. This vaccine is safe and effective.
  2. Immunogenicity: In >90% of healthy adults, protective antibody levels develop after three (3) intramuscular doses of vaccine.
  3. Safety profile: Both of the currently available vaccines are among the safest vaccines available. Severe reactions are rare. Discomfort at the injections site occurs in a minority of recipients, and systemic reactions (e.g., fever and myalgias) are uncommon. No adverse effects have been reported from vaccinating chronic carriers or immune persons.
  4. There are no contraindications to vaccination of pregnant women who are at risk. Any employee who is pregnant or who might be pregnant should contact their private physician for information before receiving vaccine.
  5. Pre- and post- vaccination testing is not provided. Any employee who declines the vaccine may receive the vaccine at a later date.
  6. Employees must sign a consent form to receive the vaccine (DC4-792A, *Hepatitis B Vaccine Informed Consent/Previous Vaccination Documentation*). If the employee refuses vaccine, s/he must sign the declination form (DC4-792B, *Informed Refusal*). If the employee has been vaccinated at a previous time, the employee must provide information and sign DC4-792A. Provide both consent forms that might be needed for HB vaccine.

**OUTLINE**

**B1. Universal precautions** is an approach to patient care that is meant to prevent the spread of bloodborne infections. Control measures are taken with all patients since there is no way to know for sure who is infected and who is not.

Basic Principles:

- a. Treat all human blood, any body fluid containing blood, and any other potentially infectious body fluid (see list) infectious for bloodborne pathogens.
- b. Treat all used needles and other sharps as if they are contaminated and able to infect you if you are injured.

**B2. Standard Precautions and Other Isolation Precautions:**

Using the attached resources, describe the use of standard and other isolation precautions.

Basic Principles:

- a. Standard precautions are universal precautions applied to all body fluids except sweat. If you are following standard precautions, you are following universal precautions.
- b. Isolation precautions add other procedures to standard precautions. The additional directions are based on the specific disease that is present and the risk of spread of that disease when providing health care to the patient.

**C. Specific Procedures for Each Type of Personal Protective Equipment (PPE):**

In **all** situations, you must make an assessment of the activities you will be doing so that you can make a decision about the need for PPE.

1. Gloves:

- a. Wear gloves whenever there is a possibility that you will have to touch blood or OPIM.
- b. Change them as often as needed and always when they are damaged.
- c. Change gloves between patients and before doing a clean procedure and after doing a “dirty” procedure.
- d. Remove gloves before going to another area of the medical facility.
- e. Remove gloves carefully, avoiding contamination of your hands and other surfaces.
- f. Discard gloves in the appropriate container. Generally gloves do not go into biomedical waste.
- g. Always wash your hands after you remove gloves.
- h. Never wash gloves to use again.

**OUTLINE**

## 2. Gowns:

- a. Wear a gown whenever there is a chance that your uniform or other clothing might be contaminated by blood or OPIM.
- b. Remove gown carefully when finished, avoiding contamination of any other surfaces.
- c. Discard disposable gowns into the appropriate container. Generally gowns do not go into biomedical waste unless they are saturated with blood or OPIM.

## 3. Masks:

- a. Wear a mask whenever you can reasonably anticipate the splashing or spraying of blood or OPIM.
- b. Isolation masks may be used for this purpose. Masks are a physical barrier and not a filter for airborne microorganisms.

## 4. Goggles or face shields:

- a. Wear goggles or face shields whenever you can reasonably anticipate the splashing or spraying of blood or OPIM.
- b. Personal glasses do **not** substitute for this equipment.

**NOTE:** In universal and standard precautions, masks and goggles are worn at the same time. One is never worn without the other. The purpose of goggles or face shields is to protect the mucous membrane areas of the face (eyes, nose, and mouth) from splashing and spraying of blood. The goggles and mask are physical barriers to body fluids. There is never a time when only one of these areas would be at risk. Masks (called particulate respirators, N 95) used in AFB isolation are used to protect the worker from inhaling the microorganism.

## 5. Personal resuscitation equipment:

Microshield devices or other equipment (AMBU bag) is used when resuscitation is needed. These have one-way valves to prevent fluids from entering the rescuer's mouth.

**Other References**

1. Info sheet on hepatitis B vaccine
2. Consent and refusal forms for HB vaccine (DC4-792A and DC4-792B)
3. Infection control bulletin board message on standard precautions (check with Clinical Contract Monitor- Public Health)
4. Handout on universal precautions versus isolation
5. Handouts on universal precautions and on standard precautions

**BLOODBORNE PATHOGENS FOR HEALTH CARE WORKERS**  
**ANNOTATED TRAINING OUTLINE**  
**SECTION IV WORK PRACTICE CONTROLS**

**OBJECTIVES**

1. Describe ways to avoid puncture wounds with contaminated sharps.
2. List precautions that must be taken when working with lab materials.
3. Describe decontamination procedures for blood spills.
4. Describe decontamination procedures of the patient care areas and for equipment and instruments.
5. Explain how to safely dispose of waste.
6. Describe precautions that you should take with your personal hygiene and health.

**OUTLINE**

Describe each of the work practice controls in place:

A. Handling Sharps—Disposal and Management of Disposal Containers:

1. Plan for safe handling and disposal before beginning any procedure using needles.
2. Never recap syringes.
3. Dispose of used needles promptly in appropriate sharps disposal containers.
4. Place disposal boxes as near to the site where injections are given as is possible. Always consider security issues.
5. If no disposal box is available where an injection is to be given, provide small portable disposal containers which can be taken to the location. Maintain the security of these boxes at all time.
6. Assign the responsibility for emptying the sharps disposal containers. Assure that they are replaced when they fill to the designated level.
7. Report hazards from needles that you observe in your work environment.
8. Report all needle-stick and other sharps-related injuries promptly to ensure that you receive appropriate follow-up care.

B. Working With Lab Materials:

1. Use extreme care with all lab specimens of all types.
2. Be sure that the outside of the collection container is clean before storage or transfer to the lab. Clean the outside of the container with diluted chlorine bleach if it is contaminated.
3. Wear gloves to handle specimens.
4. Wear other protective equipment to handle specimens if you anticipate other possible exposures to the material.
5. Label all specimens appropriately.
6. Do not list a diagnosis or special precaution on the specimen container.
7. Handle all specimens as if they contain infectious materials.

**C. Decontaminating Work Areas:**

1. Clean up spills as soon as possible.
2. Block contaminated areas to prevent inadvertent exposure while you collect materials to clean up the spill.
3. Use disposable materials such as paper towels to clean up spills whenever possible.
4. Use diluted chlorine bleach (1:10 dilution) to clean up spill.
5. Chlorine bleach is diluted on a daily basis or at the time it is needed. Bottles are labeled with name of product, dilution, and date of preparation.
6. Establish a routine cleaning schedule for areas that might be contaminated with blood, such as counter tops where specimens are placed, refrigerators, and/or lab areas.

**D. Managing Contaminated Instruments and Equipment:**

1. Contaminated instruments that are disposable must be discarded as soon as possible. A sharp instrument must be discarded into the sharps container as specified in section A above.
2. Contaminated equipment that is reusable must be disinfected or sterilized. Handle this equipment in such a way to prevent contamination (cover it, wrap it, or place it in a bag) of any other surface while it is being transported to the area for sterilization. Follow sterilization procedures in HSB15.09.03.

**E. Linen:**

1. Linen will be handled carefully and with a minimum of agitation to prevent contamination.
2. Linen that is saturated with blood will be placed into biohazardous trash.
3. All linen that is to be laundered is bagged at its source point in yellow color-coded "contaminated linen" bags. Facilities utilizing hot water in the laundry operations, will first bag linen in a water-soluble bag before placing it into the yellow bag for transport to the laundry.
4. Gloves will be used to handle contaminated linen until it is placed into a suitable bag.
5. Clean and dirty linen will be transported in separate containers and will be stored in separate areas.

**F. Disposal of Waste:**

1. Other disposable equipment and trash that is saturated with blood or OPIM must be discarded in a red biohazard bag.
2. Materials soiled with other body fluids shall be placed in a trash container that is lined with a plastic bag. If impervious plastic bags are not available, bags with punched holes may be used.
3. Use extreme care when handling bags that contain trash, especially if they have punched holes.
4. Trash containers shall be cleaned with appropriate disinfectant after emptying.

**G. Separation of Medical Care Areas and Eating Areas:**

1. Designate a separate area of the health care area that can be used as a lounge.
2. No eating, drinking, smoking, or application of cosmetics shall be done in a patient care area.
3. Contact lenses should not be manipulated in a patient care area. Careful hand washing should be done before handling contact lenses.

**Other References**

Selected information sheets from Centers for Disease Control and Prevention

Example of the biohazard symbol

**BLOODBORNE PATHOGENS FOR HEALTH CARE WORKERS**  
**ANNOTATED TRAINING OUTLINE**  
**SECTION V POSTEXPOSURE PROPHYLAXIS**

**OBJECTIVES**

1. List the steps that should be taken after an exposure incident in order to prevent infections.
2. Describe employee rights in case of an exposure.
3. Provide for appropriate follow-up of other employees who have bloodborne pathogen exposures.

**DEFINITION: Significant exposure**

An injury that breaks the skin or contact with mucous membranes or non-intact skin where blood, bloody fluid, or other potentially infectious material is involved. (See section II [Transmission] for more details regarding transmission.)

**OUTLINE****A1. Follow-up of an Exposure If You Are the Exposed Person:**

- a. Immediately wash off any blood that remains on your skin, rinse out any mucous membrane surface (eye irrigation, etc.) and/or remove contaminated clothing.
- b. As soon as possible after an exposure, report to your supervisor and begin the follow-up procedure.
- c. With the help of the health care worker who is counseling you on this exposure, complete the description of exposure on the DC4-798, *Bloodborne Pathogens Exposure/Screening Incident Report*.
- d. Follow the directions of the health care staff.
- e. Make a decision about use of post-exposure prophylaxis with drugs for HIV exposure with the assistance of the health care staff.
- f. Follow instructions of institutional personnel and go to the workers' compensation site for complete follow-up of the exposure.

**A2. Follow-Up of an Exposure If You Are the Health Care Person Assisting With the Follow-up Procedure:**

- a. Review the additional resources for this session before the need to do this type of counseling.
- b. Remain as calm as possible and provide clear information to the exposed person.
- c. Provide counseling and assistance to the exposed worker.
- d. Refer to packet of information explaining the steps to assist in this process found in the *Bloodborne Pathogens Exposure Control Plan*.

**OUTLINE****B. Information for Employee to Follow to Ascertain Complete Follow-Up of Exposure:**

The exposed employee has the right to:

1. Documentation of the exposure.
2. Postexposure treatment.
3. Follow-up counseling and treatment through workers' compensation provided for exposures which are significant (as defined by the Centers for Disease Control information).
4. Medical counseling about the risks involved.

**C. Health Care Worker's Responsibility for Assisting With Evaluation of Bloodborne Pathogen Exposures:**

1. Know who in the health services area does the evaluation of exposure so that evaluation can begin as soon as possible.
2. Persons who will do evaluation need to be familiar with the documents attached to this curriculum. See reference list below and documents attached.

**Note to instructor:** Many of the health care workers in the class will simply need to know step one so that they can get the exposed individual to the right place. You will need extra time to do the training for the health care workers who will actually help with evaluation and counseling since they will need to review all the attached materials.

**Other References**

1. "What is a significant exposure?"
2. "Counseling of an Employee who is Exposed to Bloodborne Pathogens" includes steps to follow and information about what to do.
3. "Information Sheet for Counseling" provides details about risk of infection with each bloodborne pathogen.
4. Risks of anti-HIV medications.
5. MMWR article on HBV, HCV, HIV post-exposure prophylaxis, Vol 50, No RR-11. 2001
6. DC4-798, *Bloodborne Pathogens Exposure/Screening Incident Report*.

See also:

8. HSB 15.03.43, *Management of Bloodborne Pathogen Exposures*