

BLOODBORNE PATHOGENS

IN THE WORKPLACE



OBJECTIVES

- ✓ Identify bloodborne pathogens (BBP's)
- ✓ How to determine your risk of exposure
- ✓ Preventative steps to protect yourself from exposure
- ✓ Understand how diseases are transmitted
- ✓ The appropriate way to respond if you are exposed to BBP's
- ✓ Understand your rights for medical evaluations

Bloodborne Pathogens



- Workplace exposure to Bloodborne Pathogens is regulated by the Washington State Department of Labor & Industries' Division of Occupational Safety and Health
 - Regulations are codified in Washington Administrative Code (WAC) 296-823. A copy of these regulations can be obtained from EHS at 372-7163, or online at <http://www.lni.wa.gov/Safety/Rules/Chapter/823/WAC296-823.pdf>
- These regulations require employers to do the following:
 - Identify employees and activities with potential occupational exposure to Bloodborne Pathogens
 - Develop and maintain a written Exposure Control Plan, describing the activities with potential exposure and the methods utilized to protect employees
 - Provide training to ensure that impacted employees are familiar with the hazards, protective measures, and how to respond to exposure incidents
 - Offer Hepatitis-B vaccination to all impacted employees
 - Implement control measures and provide necessary protective equipment
 - Make post-exposure medical monitoring available

What are Bloodborne Pathogens?



- Bloodborne Pathogens are infectious microorganisms such as viruses, bacteria, parasites, and fungi that are carried in human blood or “Other Potentially Infectious Material” (OPIM) and can cause disease in people
- “Other Potentially Infectious Material” includes:
 - Semen
 - Vaginal Secretions
 - Pleural, cerebrospinal, pericardial, peritoneal, synovial, and amniotic fluids
 - Any undifferentiated bodily fluids, and bodily fluids containing blood
 - Any unfixed tissue or organ (other than intact skin) from a human (living or dead)
 - HIV, Hep-B, or Hep-C containing cultures, culture media, or solutions
 - Blood, organs, and tissues from an animal infected with any bloodborne pathogen

What are Bloodborne Pathogens?



The main pathogens of concern under the Bloodborne Pathogen rule are:

- Hepatitis B (HBV)
- Hepatitis C (HCV)
- Human Immunodeficiency Virus (HIV)

Some other diseases which may also be contracted through contact with blood or OPIM, and which are also covered by the bloodborne pathogen rule:

Syphilis

Arbovirus

Babesiosis

Relapsing Fevers

Brucellosis

Creutzfeld-Jakob Disease

Leptospirosis

Viral Hemorrhagic Fever

Hepatitis B Virus (HBV)

- Hepatitis B is a virus that can cause acute or chronic infection in the liver.
- HBV is spread through contact with infected people's blood or other body fluids.
- HBV can live in dried blood on surfaces for 7 days or more
- 100 times more contagious than HIV, responsible for 3,000 deaths per year
- There is no cure for HBV, but there is a preventative vaccine

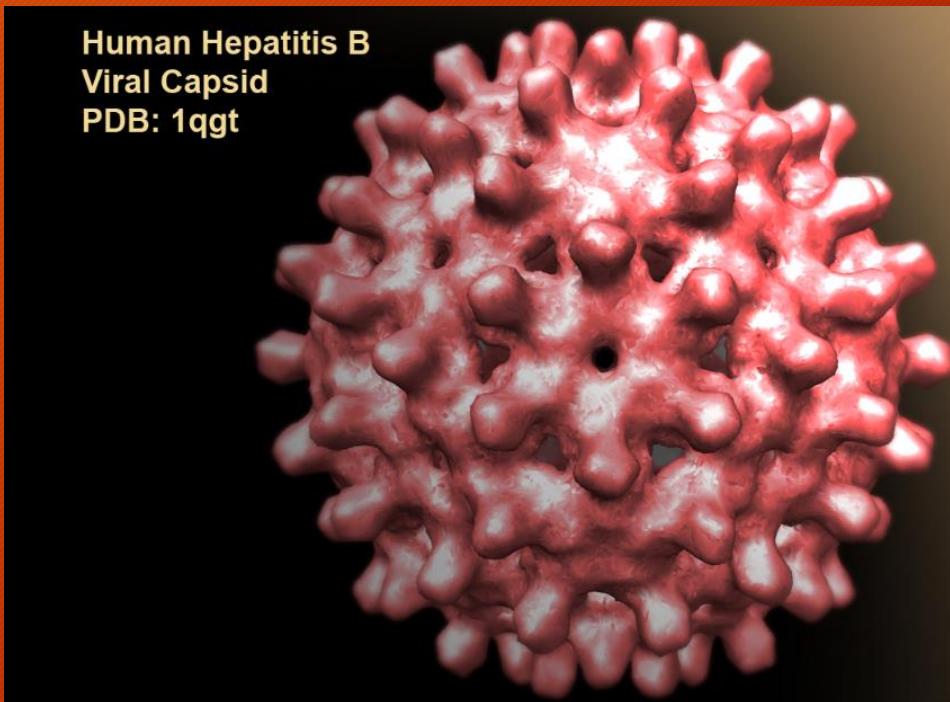


Photo from the Institute for Molecular Virology-University of Wisconsin-Madison

Hepatitis B Symptoms

- Flu-like symptoms
- Fatigue
- Abdominal pain
- Loss of appetite
- Nausea, vomiting
- Joint pain
- Jaundice, including yellowing of the eyes
- Dark urine, grey-colored stools

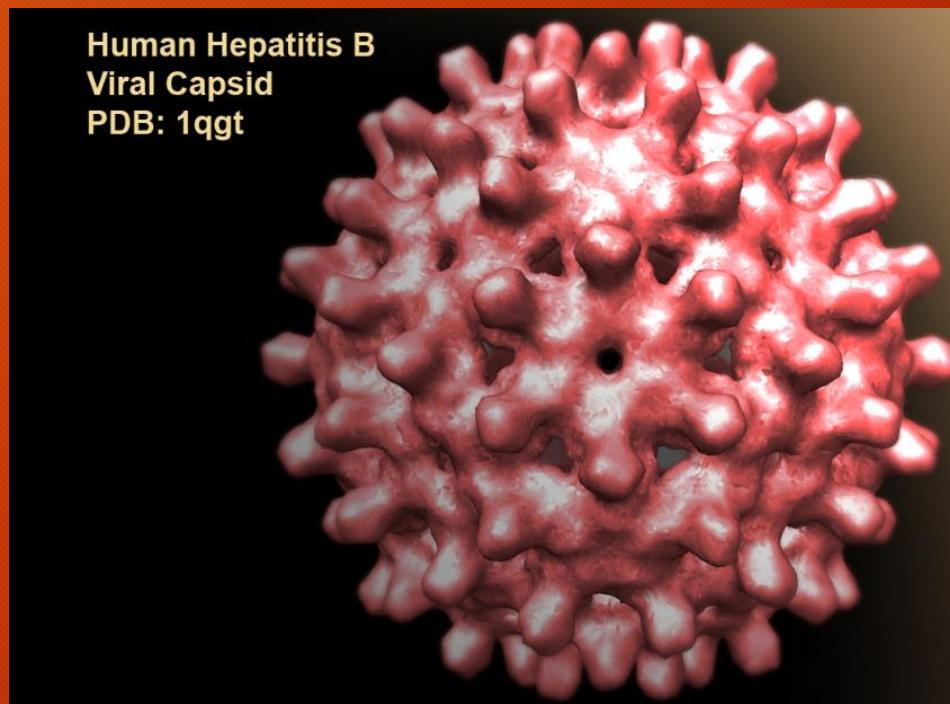


Photo from the Institute for Molecular Virology-University of Wisconsin-Madison

HBV Transmission

Methods of Transferring HBV

- Sharing Needles with infected people
- Getting tattoos or piercings with unsterilized tools
- Having unprotected sex with an infected person
- Sharing toothbrushes and razors with an infected person
- Infected mother to fetus
- Mucous membranes- eyes, mouth, nose
- Sharps and needle sticks

Hepatitis C Virus (HCV)

- Hepatitis C can also cause acute or chronic disease in the liver.
- HCV is the most common bloodborne infection in the US - 3.2 million people infected per year, and 12,000 deaths
- HCV can be spread the same ways as HBV and through small amounts of blood, not visible to the eye. The virus can also live outside the body for up to three weeks
- There is no cure or vaccine for HCV



- Photo from the European Monitoring Centre for Drugs and Drug Addiction

Hepatitis C Symptoms

70-80% of those infected have no symptoms

Some people have symptoms similar to HBV:

- Flu-like symptoms
- Jaundice
- Fatigue
- Dark urine
- Abdominal pain
- Loss of appetite
- Nausea



- Photo from the European Monitoring Centre for Drugs and Drug Addiction

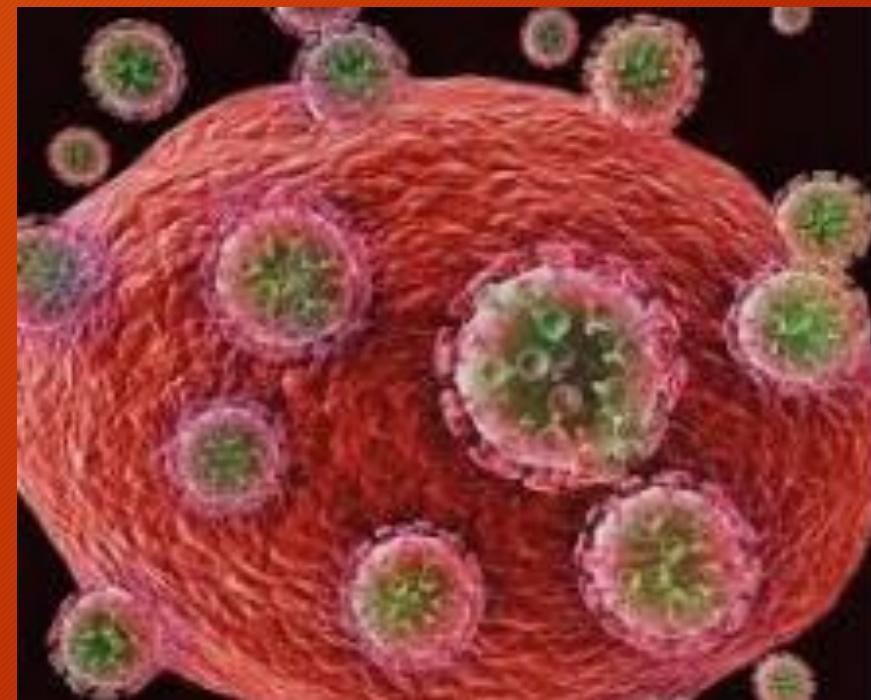
HCV Transmission

Methods for Transferring HCV

- Sharing Needles with infected people
- Getting tattoos or piercings with unsterilized tools
- Having unprotected sex with an infected person
- Sharing toothbrushes and razors with an infected person
- 6% chance of Infected mother to fetus
- Contact with mucous membranes- eyes, mouth, nose
- Transmission via household contact is possible, but rare...and requires contact of infected fluids with open wounds or mucous membranes

Human Immunodeficiency Virus (HIV)

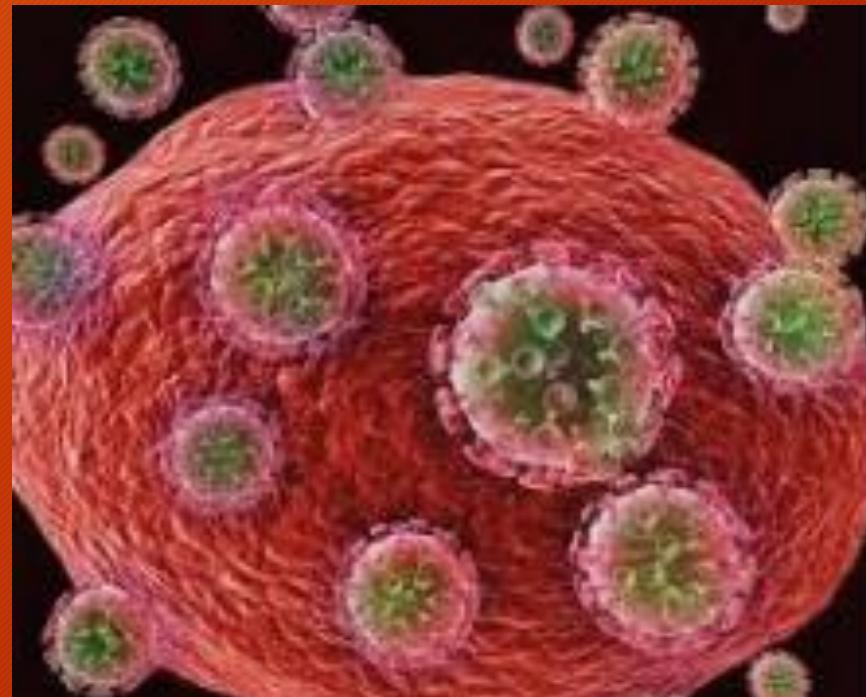
- The Human Immunodeficiency Virus attacks the body's immune system. The virus destroys CD4 cells, which help your body fight diseases. HIV can severely damage your immune system and lead to Acquired Immune Deficiency Syndrome (AIDS)
- More than 1 million infected people in the US
- Fragile virus, it survives only a few hours in a dry environment
- No vaccine available



• Photo from Medical News Today

HIV Symptoms

- Most HIV-infected people have no symptoms, or have mild, flu-like symptoms
- Many of those infected with HIV will develop AIDS within 10-12 years. AIDS can be accompanied by a number of opportunistic infections and cancers with a wide range of symptoms, such as:
 - Tuberculosis
 - Pneumonia
 - Kaposi's Sarcoma
- No cure or vaccine available



• Photo from Medical News Today

HIV Transmission

Methods for Transferring HIV

- Sexual Activity - contact with blood, semen, and mucous membranes
- Sharing of needles
- From infected woman to babies during pregnancy, delivery, and (rarely) breastfeeding
- Contact with infected fluids on open wounds or mucous membranes
- Needle sticks (rarely)

Potential Routes of Exposure to BBP's at WSUTC

- Handling contaminated syringes or sharps
- Cleaning surfaces or broken containers contaminated with blood or OPIM
- Disposing of wastes containing blood or OPIM
- Providing emergency first aid
- Transporting equipment contaminated with blood or OPIM
- Other routes of exposure may exist based on your job duties. Refer to your department's Bloodborne Pathogen Exposure Control Plan for details.

Bloodborne Pathogen Exposure Control Plan



- All Departments with potential occupational exposure to Bloodborne Pathogens must develop an Exposure Control Plan, which includes:
 - Positions and procedures/tasks in which potential for exposure is anticipated
 - Engineering and work practice controls to be implemented
 - Person Protective Equipment (PPE) requirements
 - Waste Handling & Spill Cleanup requirements
 - How to respond to incidents/exposures
 - Training requirements
 - Medical surveillance
 - Free HBV vaccination
 - Signs and labels
 - Other equipment and procedures
- Department supervisors and lab PIs are responsible for completing Exposure Control plans for their employees

“Universal Precautions”

Universal Precautions limit potential exposure to pathogens, by requiring that *all* human blood and body fluids be treated as if they contain potentially infectious materials.

Universal Precautions requires the use of controls (engineering and work practices plus PPE) to minimize or eliminate employee exposure. In addition, all other provisions of the BBP Exposure Control Plan must also be followed.

Universal Precautions is the practice adopted to reduce exposure to BBP and OPIM at WSUTC, whenever employees are exposed to any blood, OPIM, contaminated materials, sharps, or regulated wastes.

Engineering Controls



Engineering controls are the primary method utilized to reduce employee exposure by either removing the hazard or isolating the employee from exposure. Examples of engineering controls are:

- Splatter shields
- Self-sheathing and self-blunting needles
- Ventilation (Biosafety cabinets)
- Sharps disposal containers
- Enclosures
- Material handling devices (tongs, forceps, etc.)

Engineering controls used for specific tasks must be identified in the Exposure Control Plan



Work Practice Controls

Work practice controls are methods that must be implemented to reduce potential for exposure to Bloodborne Pathogens, including:

- Remove gloves before leaving the work area, and change gloves frequently
- Wash hands immediately after gloves are removed, or whenever blood or OPIM get on gloves
- Eating, drinking, smoking, and applying cosmetics is prohibited in any area where blood or OPIM exposure may occur
- Placing food or drink in any area where blood or OPIM is located is also prohibited

Additional work practice controls for specific tasks must be identified in the Exposure Control Plan

Personal Protective Equipment (PPE)



Personal Protective Equipment is the last line of defense to protect workers from exposure.

At a minimum, gloves will be required whenever exposure to blood or OPIM may occur. In many cases, eye/face protection will also be required.

Aprons, shoe covers, or other protective equipment may be required in some cases. Specific PPE requirements are included in the Exposure Control Plan. Any PPE required by the plan must be provided to employees free of charge, and must be replaced whenever it becomes soiled, worn out, or damaged.

The plan must also include instructions on how to remove, dispose of, and/or launder used PPE

Specific Issue - Sharps

Sharps include any needles, syringes, lancets, scalpels, razors, or any other blade. They may also include broken glass or plastic, if those pieces may penetrate the skin.

Sharps must be handled properly to prevent exposure

- Don't bend, recap, remove, shear, or break needles
- Place all sharps immediately into an appropriate container, such as those pictured here
- Disposal containers must be:
 - Closable
 - Puncture-resistant
 - Leak-proof
 - Labeled or color-coded
 - Upright, and available where sharps are used



Cleaning Contaminated Surfaces, Broken Glass, and Sharps

- Always wear gloves. Wear eye and face protection if splashing may occur
- Remove broken glass, needles, and any other sharps with a brush and dust pan, tongs, or forceps. Never use your hands. Discard these materials in a puncture-resistant waste container
- Use absorbent towels to soak up spilled liquids
- Saturate the surface with a 10% bleach solution or other disinfectant. Leave for 10 minutes (or as specified by manufacturer).
- Discard all absorbent materials, other cleanup materials, and used PPE (not sharps!) into an approved and labeled waste container



Labeling



Biohazard warning labels are fluorescent orange, red, or orange-red. They must be applied to:

- containers of regulated waste;
- refrigerators and freezers containing blood or other potentially infectious materials; and other
- containers used to store, transport, or ship blood or other potentially infectious materials

Bags used to dispose of regulated waste may be red or orange-red. Bags must be placed in appropriate, pre-labeled waste containers.

CAUTION



BIOHAZARD

Regulated Wastes-Biohazard Disposal

Biohazardous wastes, also called a regulated waste, must be disposed of properly. A regulated waste is any of the following:

- Liquid or semi-liquid blood or other potentially infectious materials (OPIM);
- Contaminated items that would release blood or OPIM in a liquid or semi-liquid state, if compressed;
- Items that are caked with dried blood or OPIM and are capable of releasing these materials during handling;
- Contaminated sharps;
- Pathological and microbiological wastes containing blood or OPIM.

CAUTION



BIOHAZARD

Regulated Wastes-Biohazard Disposal

All regulated waste must be disposed of in properly labeled containers and/or red biohazard bags. Biohazard bags are not to be disposed of in the regular trash. Custodians will not handle regulated waste.

Sharps must be placed in a puncture-resistant sharps container. All bags & sharps containers must be disposed of through an approved vendor.

Refer to your site specific Bloodborne Pathogens Exposure Control Plan and SPPM 4.24 for disposal procedures.

CAUTION



BIOHAZARD

Non-Regulated Wastes-Biohazard Disposal

Non-regulated waste may be disposed in regular plastic trash bags in a dumpster *if it has been decontaminated or autoclaved prior to disposal.*

Use plain autoclave bags if they are to be disposed of in the regular trash after autoclaving. All bags containing non-regulated waste materials must be labeled, signed, and dated, verifying that the materials inside have been decontaminated according to acceptable procedures and pose no health threat. These bags must not be red, orange or include a biohazard symbol.

Custodians will not remove bags containing any form of blood or biohazardous waste, and will not handle any red or orange bags, or any containers with a biohazard symbol.

Spills

- In the event of a spill, inform your supervisor of the incident. Take steps to block off the area to keep people away from the spill but do not attempt to clean it up unless you are properly trained and equipped to do so. Refer to your site specific Bloodborne Pathogens Exposure Control Plan for specific emergency procedures.
- Fill out a WSU Incident Report form. Include the following information:
 - The type and brand of any device involved in the incident
 - The department or work area where the exposure incident occurred
 - An explanation of how the incident occurred

Exposure Incidents

In any situation involving blood or potentially infectious materials, always use Universal Precautions to minimize your exposure by wearing gloves, splash goggles, mouth-to-mouth resuscitation masks, and other barrier devices.

If you get blood on your skin, mucous membranes or in your eyes you should:

- Wash the exposed skin thoroughly with soap and running water. Use non-abrasive, antibacterial soap if possible.
- Flush mucous membranes and eyes with running water for at least 15 minutes.
- Report the exposure to your supervisor as soon as possible.
- Fill out a WSU Incident Report form. Include the following information if exposure involved a sharps injury:
 - The type and brand of device involved in the incident
 - The department or work area where the exposure incident occurred
 - An explanation of how the incident occurred

Post-Exposure Evaluation

If you are exposed to blood or OPIM, your employer must:

- Allow you to visit a Licensed Health Care Professional (LHCP) as soon as possible, and provide information requested by the LHCP. This visit will be at no cost to you. Apart from the circumstances of the exposure, all findings and diagnoses will remain confidential.
- Arrange for testing of the source person's blood, whenever possible
- Results should be provided to the source person and exposed individual
 - The exposed person must keep these results confidential, in accordance with applicable regulations
- A copy of the LHCP's written opinion within 15 days, unless the LHCP provides this directly to the employee
 - This opinion must be limited to indication that the employee has been advised of the results of the evaluation, and any resulting conditions that require further assessment or treatment. No other findings or diagnoses are to be included.

Hepatitis B Vaccination

Employees who have occupational exposure to HBV are entitled to HBV vaccination at no cost.

HBV vaccination consists of 3 shots - the initial injection, followed by a second dose after 1 month and a third dose after 6 months. The vaccine is 95% effective at preventing HBV infection in adults, even after exposure.

Vaccination is not required if:

- The employee has already received HBV vaccination
- An antibody test shows the employee is immune to HBV
- There are medical reasons not to receive the vaccination
- The employee's exposure is only related to providing first aid as a secondary duty. However, any employee exposed to blood or OPIM while rendering first aid assistance must be offered vaccination within 24 hours after the incident
- The employee declines to receive vaccination (this must be in writing). The employee may change their mind, and receive vaccination after initially declining.

Key Points to Remember

- Bloodborne Pathogens can cause serious diseases
- Be aware of exposure risks
- Take Universal Precautions (PPE and decontamination)
- Understand and follow exposure incident procedures
- Report exposure incidents
- Get HBV vaccination, if desired, prior to exposure
- Refer to Exposure Control Plan for your department for requirements specific to your job functions

Questions?

If you have questions, or need further information about Bloodborne Pathogens, contact your supervisor or EHS:

Scott Tomren, stomren@tricity.wsu.edu, 372-7163

Whitney LaMarche, whitney.lamarche@tricity.wsu.edu, 372-7018

You can also complete a Safety Concern Report (this can be done anonymously) online from the EHS website at <http://tricities.wsu.edu/ehs>