

Bloodborne Pathogens

Oklahoma State University

Objectives

- What is a Bloodborne Pathogen?
- Types, modes of transmission and causes.
- Who is at risk? Could you be exposed at work?
- Why do we have osha standards regarding Bloodborne pathogens and what are your employer's responsibilities?
- What is an exposure control plan, and how do I get one?
- How do I know when I could be exposed to a Bloodborne pathogen?
- How do I prevent or reduce exposure or the spread of Bloodborne Pathogens?
- Types of Ppe, proper use, location, removal, handling, decontamination and disposal.
- Emergency actions and contact following the exposure or presence of BBP

What is a BBP, and why are they important?

- Microorganisms that are carried in blood that can cause disease in *humans*.
- These pathogens include, but are not limited to: HBV, HCV, HIV, cutaneous anthrax, rabies and vaccinia.
- Osha estimates 5.6 million workers in health care and other facilities are at risk of exposure to Bloodborne pathogens, such as HIV and HBV.
- Bloodborne pathogens can be transmitted through blood or *OPIM*, such as?



Could you contract a bloodborne pathogen doing these things?

- Administering First-Aid?
- Cleaning the restroom?
- Using a tool covered with dried blood?
- A co-worker sneezes on you?
- Working in a sewer manhole?
- Cleaning up after an accident?
- Shaking a sick coworkers hand?
- Cut yourself with glass that is contaminated with blood?

Modes of Transmission

Direct

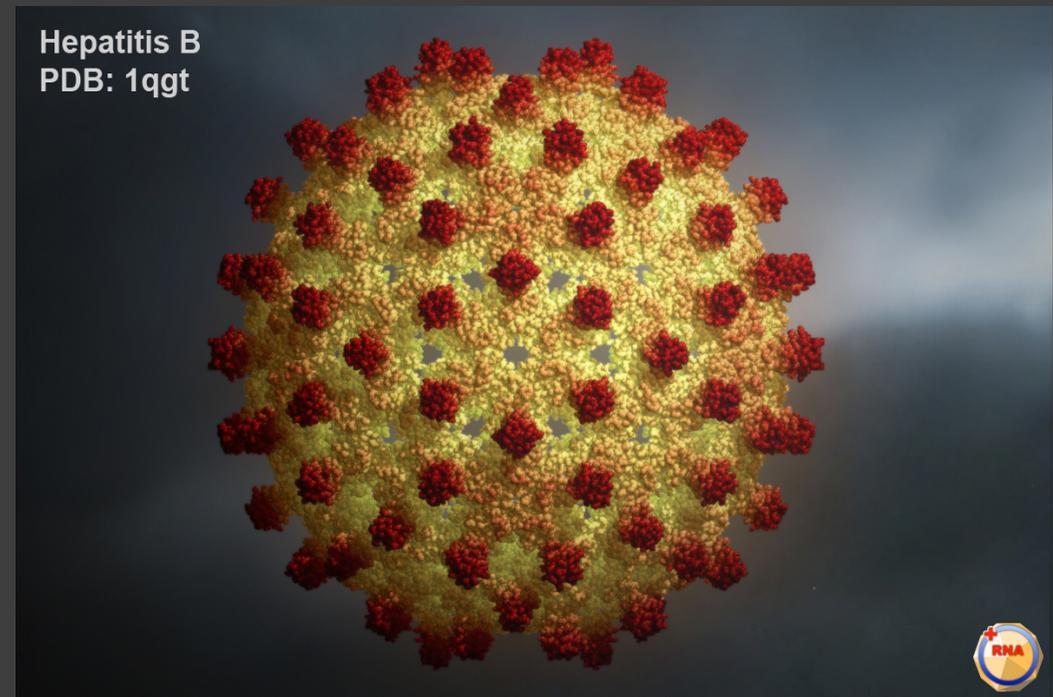
Direct contact transmission requires physical contact between an infected person and a susceptible person, and the physical transfer of microorganisms. Direct contact includes touching an infected individual, kissing, sexual contact, contact with oral secretions, or contact with body lesions.

Indirect

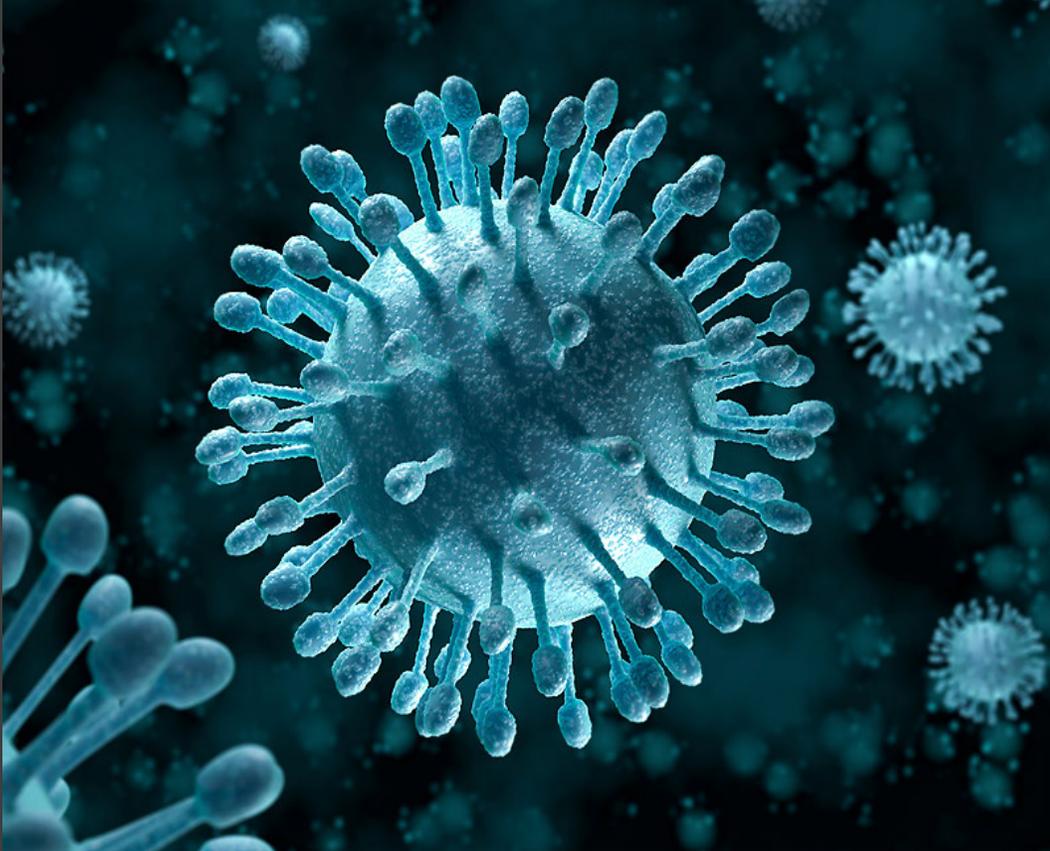
Indirect contact transmission refers to situations where a susceptible person is infected from contact with a contaminated surface. Some organisms are capable of surviving on surfaces for an extended period of time. To reduce transmission by indirect contact, frequent touch surfaces should be properly disinfected.

Hepatitis B (HBV)

- 1-1.25 million Americans are **chronically** Infected, however, there has been a HBV vaccination available since 1982!
- Hepatitis B could lead to chronic liver disease.
- HBV can survive for at least one week in dried blood.
- Symptoms, such as: jaundice, fatigue, abdominal pain nausea and vomiting can occur 1-9 months post-exposure.
- HBV is transmitted when blood or OPIM enters body of non infected person.
- Employees are at risk of exposure when drug-injection materials are shared, direct contact is made with blood, or exposure to other sharp materials.



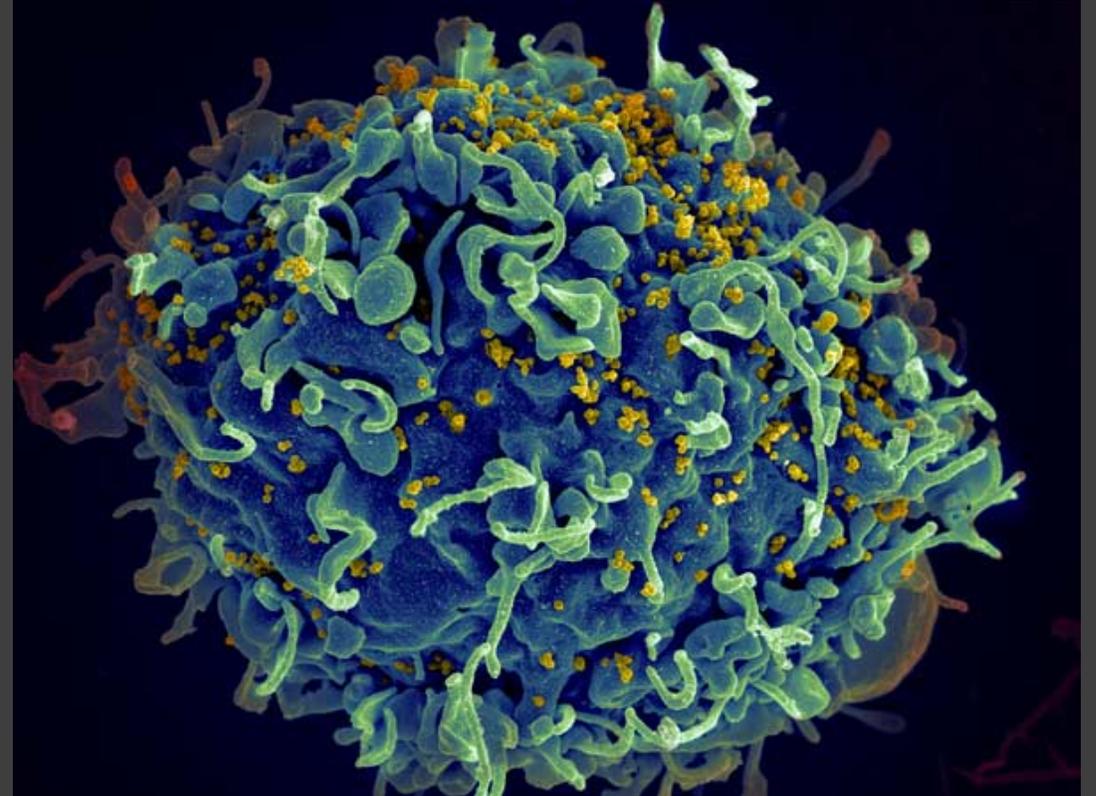
Hepatitis C (HCV)



- HCV is the most common chronic Bloodborne infection in the united states, it affects about 3.5 million people in the united states.
- Hepatitis C can also lead to chronic liver disease and is a leading cause of liver cancer.
- Symptoms are similar to hepatitis B, including jaundice, fatigue, abdominal pain and nausea and vomiting.
- HCV spreads through direct contact with infected blood.

Human immunodeficiency virus (HIV)

- HIV is the virus that leads to _____?
- HIV depletes the immune system by destroying blood cells that help the body fight diseases.
- HIV does not survive well outside the body.
- HIV can be transmitted through unprotected sex with someone who has HIV, sharing needles and even during childbirth
- less common transmission methods include: being stuck with an HIV-contaminated needle or sharp, and contact with broken skin or wounds or contaminated body fluids.
- The CDC reports that HIV cannot be spread by: air or water; insects; saliva, tears or sweat; casual contact; or closed mouth contact.





Cutaneous Anthrax

Occupational exposure could occur when:

- Non-intact skin or mucous membrane is exposed to drainage from cutaneous anthrax lesion.
- There is entry through skin with sharp instrument contaminated with lesion drainage.



Rabies

Occupational exposure could occur when:

- Non-intact skin or mucous membrane is exposed to saliva, nerve tissue, or cerebral spinal fluid from infected person or animal.
- There is entry through skin with sharp instrument contaminated with infected nerve tissue.



Vaccinia

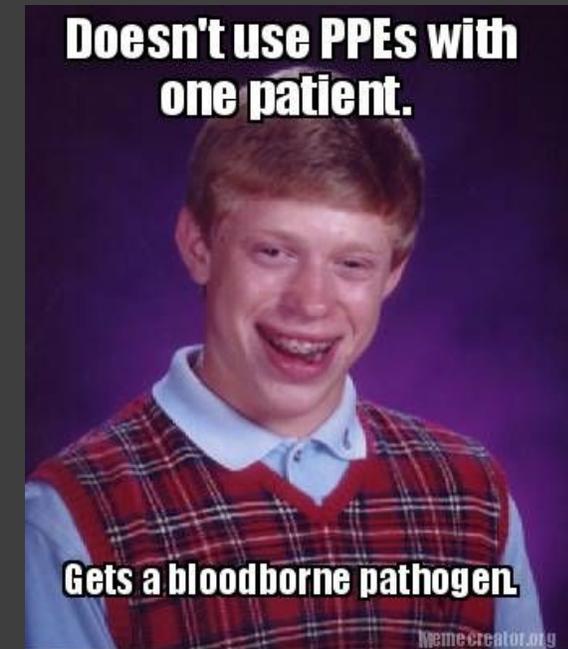
Occupational exposure could occur when:

- Mucous membranes or non-intact skin contact with drainage from a vaccinia infection.
- Susceptible skin comes into direct contact with object contaminated with lesion material.

Who is at risk? Could you be exposed at work?

- Workers in many occupations are at risk of exposure, including first responders, housekeeping personnel in some industries, Lab Personnel, Facilities Management, nurses and other healthcare personnel, although, all may be at risk for exposure to Bloodborne pathogens.
- What other occupations could be at risk for Bloodborne pathogen exposure?
- **Remember**, Exposures can occur when working in animal laboratories.

DON'T BE LIKE BAD LUCK BRIAN





OSHA 29CFR 1910.1030

In March 1992, OSHA's Bloodborne Pathogen Standard, 29 CFR 1910.1030 took effect. This standard was designed to prevent more than 200 deaths and 9,000 Bloodborne infections every year. While the standard was primarily aimed at hospitals, funeral homes, nursing homes, clinics, law enforcement agencies, emergency responders, and HIV/HBV research laboratories, anyone who can "reasonably expect to come in contact with blood or potentially infectious materials" as part of their job is covered by the standard.

Employer Responsibilities

Osha's Bloodborne pathogen standard states that anyone whose job requires exposure to BBP is required to complete BBP training.

- Initial training is conducted face to face; not online
- Training is required annually

Anyone whose job requires exposure to bbp shall be offered vaccines and post exposure evaluation following any possible exposure incidents at no cost to the employee.

The Standard also requires employers to offer PPE and a written exposure plan.

- EHS has an example exposure plan

Exposure Control Plan: Elements of the plan

- Your exposure control plan should be updated annually to implement any changes and should be available within your department.
 - EHS can provide current template
- address the implementation of ***Universal Precautions*** and the identification and use of engineering controls.
- provisions for PPE and training.
- hep B vaccinations available for all employees with occupational exposure.
- Post exposure evaluation and follow-up for any occupational exposure
- Use of signs and labels to communicate hazards.
- Record keeping

Bloodborne Pathogen Binder

Suggested binder set up:

- OSHA Bloodborne Pathogen standard 1910.1030
- ECP with all appendixes
- List of all employees under plan
- Copies of completed/signed Hep b vaccination forms
- Training documentation
- Self inspection documentation
- Completed parameter sheet

EHS can assist with program set up and may do periodic checks

Recognizing Potentially Hazardous Situations

What situations may involve BBP or OPIM?

Drawing blood

Providing emergency treatment

Cleaning up blood spills or OPIM

How are these situations recognized?

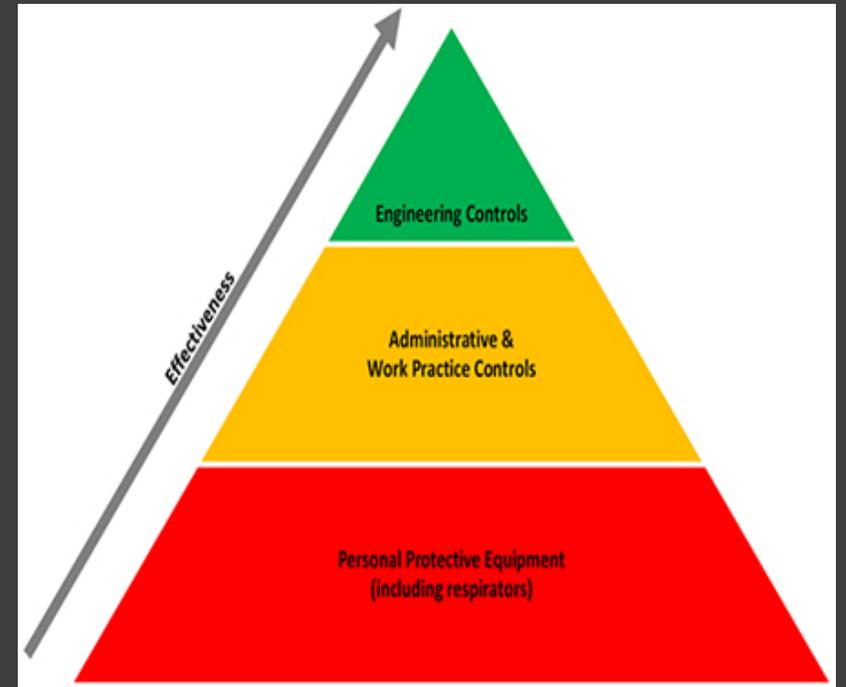
SURVIVAL RULE:



**IF IT'S WET AND
NOT YOURS,
USE GLOVES**

Exposure Prevention

- Engineering Controls (First Line of defense): Change the work environment to reduce work related hazards.
- Work practice controls: practice of accomplishing tasks in a proper way to reduce duration, frequency or intensity of exposure to a hazard.
- Administrative Controls: Controls employees' exposure by scheduling tasks to minimize exposure levels.
- PPE: Clothing and other work accessories designed to create a barrier against work place hazards.



Engineering Controls

- Reduce exposure by either removing or isolating the hazard or isolating the worker from exposure.
- Are limited in effectiveness to proper selection, examination, and maintenance.



Workplace Controls

- Restricting eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses.
- Prohibiting mouth pipetting.
- Preventing the storage of food or drink in refrigerators or other locations where blood or OPIMs are kept.
- Providing and requiring the use of handwashing facilities.
- Routinely checking equipment and decontaminating it prior to servicing and shipping.
- Washing hands when gloves are removed and as soon as possible after skin contact with blood or OPIMs is required.
- Always using gloves when cleaning up any blood spills.
- Prohibiting recapping, bending, removing, shearing, or breaking contaminated needles.



Universal Precautions

Precautionary measures based on the principle that all blood, body fluids, secretions, excretions except sweat, non-intact skin, and mucous membranes may contain transmissible infectious agents.

These include:

- Hand hygiene
- Use of gloves, gown, mask, eye protection, or face shield, depending on the anticipated exposure; and
- Safe injection practices

Personal Protective Equipment

hand, eye, face, extremities, protective clothing, respiratory devices and protective shields and barriers.

- PPE must be used if engineering controls and work practice control do not eliminate exposure.
- Ppe is only appropriate if it prevents blood or opim from passing through or reaching clothes or body.
- PPE can consist of gloves, gowns, laboratory coats, face shields ore masks and eye and respiratory protection.
- Ppe selection is based on anticipated contact with blood or OPIMS.





Proper Use and Handling of PPE

- For ppe to be effective, observe the following precautions:
- Remove PPE when contaminated, and before leaving work area
- Wear appropriate gloves when there is a reasonable hazard of contact with blood or opim.
- Replace gloves if torn, punctured, contaminated or if they no longer function as a barrier.
- Never reuse disposable gloves
- Only decontaminate utility gloves if integrity is not compromised.
- Wear face and eye protection if risk of splashes, sprays, splatters or droplets of blood or OPIM are present.
- Wear protective body coverings when necessary.
- Remove garments when saturated with Blood or Opim

PPE, Contaminates and Sharps Disposal

- Gloves should be disposed of in an appropriate area.
- Sharps should be disposed of in sharps containers
- Sharps containers must be puncture-resistant, leak-proof and labeled or color coded red.



Precautions for Providing First-Aid to a Co-Worker

Protect yourself before offering assistance by:

- Wearing clean, leak-proof gloves.
- Being aware of personal cuts or broken skin.
- Attempt to have the co-worker self administer first-aid.
- Protect your nose and mouth in the event of splatters or sprays.
- Immediately wash skin if contaminated with blood, or flush eyes with water if contaminated.
- Report the incident to your supervisor.

Disposal of Biological Waste

- Blood and OPIM should be disposed of in a closable, leak-proof and labeled or color coded containers.
- In the event of a spill, each building should have a janitor trained in body fluids cleanup, this is the person in charge of the cleanup. The items are then autoclaved and disposed via Stericycle.
- EHS does not accept any biological waste that has not been autoclaved.

Signs, Labels and Color-Coding

Warning labels will be affixed to items such as:

- Containers of regulated waste
- Containers of contaminated reusable sharps
- Refrigerators and freezers containing blood or OPIMs
- Containers used to store, transport, ship blood or OPIMs
- Contaminated equipment being shipped or serviced
- Bags or containers of contaminated laundry





Signs, Labels and Color-Coding Cont.

Labels will:

- Include appropriate legend in fluorescent orange or orange-red
- Be affixed as close as feasible to the container

Items that do not need labels:

- Labeled containers of blood released for clinical use
- Regulated waste that is decontaminated



What happens after an accidental exposure?

- Post exposure evaluation and follow-up procedures:
- Evaluation will involve documenting exposure root CAUSE and circumstances
- Identifying and documenting the source individual
- Testing individual's blood
- Share results with exposed employee
- Collecting exposed employee's blood
- Post exposure measures and counseling
- Evaluating reported illness.

Remember, for industries that do not work with blood in an occupational manner; any exposure to these potentially hazardous substances by anyone other than the cleaning staff is almost always the result of an accident. We make continual efforts to create safe work conditions, to avoid these accidents.

Real life situations: Rick and Steve

- What are the issues with this situation?
- What went wrong?
- What went right?
- What happens next?



Mike and Tina

- What are the Issues with this situation?
- What went wrong?
- What went right?
- What happens next?



What should you take away?

Bloodborne pathogen rules are in place for your health and safety

Failure to follow these rules is an unnecessary risk that shouldn't be taken

Better safe than sorry

Environmental Health and Safety

Programs and services

Fire protection engineering

Life safety and emergency preparedness

Laboratory safety

Occupational safety

Occupational health and medical surveillance

Materials management

Industrial hygiene

Chemical hygiene

Safety training

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Questions?

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