

## Bloodborne Pathogens Training



## What is DBPP?

- DEATH BY POWERPOINT



*"I need someone well versed in the art of torture—  
do you know PowerPoint?"*

## Oregon and Federal OSHA

- Why are you attending this training
  - You may have an exposure to blood or other potentially infectious materials that may contain bloodborne pathogens.
  - Big Brother says you have to!

## CFR 1910.1030(g)(2)(vii)

Minimum Training Requirements for a Bloodborne Pathogens Training Class

- An accessible copy of regulatory text
- Explanation of epidemiology & S&S of BBP
- General explanation of modes of transmission of BBP
- Methods to recognize tasks that may involve BBP
- Use and limitations of methods that will prevent or reduce exposure
- Information on types, use, location, removal, handling & disposal of PPE
- Basis for the selection of PPE
- Hep B vaccine, its safety, efficacy, benefits of vaccination & no cost to you
- An explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan
- Actions to take and who to contact in case of an exposure
- Procedure to follow if an exposure incident occurs
- Post-exposure follow-up
- Signs & Labels required by paragraph (g)(1)
- Q & A

## Regulatory Text

- An accessible copy of the regulatory text of this standard and an explanation of its contents
- [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_id=10051&p\\_table=STAN DARDS](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=10051&p_table=STAN DARDS)

## General explanation of modes of transmission of BBP

## Group Activity

- What is the difference between
  - Virus
  - Bacteria
  - Fungus
  - Parasite

## General Overview



**PATHOGEN:**  
a microorganism that causes disease

Examples of Illnesses Pathogens Cause

- Viruses
- Bacteria
- Fungi
- Parasites

## Bloodborne Pathogens (BBPs)

Present in

**BLOOD**

or



**Other  
Potentially  
Infectious  
Material**

## Group Activity

- Name as many OPIM in a minute

## Other Potentially Infectious Material

- Semen
- Vaginal secretions
- Body fluids such as pleural, cerebrospinal, pericardial, peritoneal, synovial, and amniotic
- Saliva
- Any body fluids visibly contaminated with blood
- Body fluid where it is difficult to differentiate



- Any unfixed tissue or organ (other than intact skin) from a human (living or dead)

- HIV- or HBV-containing cultures (cell, tissue, or organ), culture medium, or other solutions

- Blood, organs, & tissues from animals infected with HIV, HBV, or BBPs

## Transmission of Diseases

- **Inhalation**
  - Droplet Contact
  - Suspended particles
- **Ingestion**
- **Direct Contact**
- **Indirect Contact**



## Transmission of Disease

- **Inhalation:**
  - Pathogen carried on droplets in the air and enters the respiratory system;
  - for example, colds, flu, and tuberculosis are transmitted when an infected person coughs or sneezes and spreads the microorganism through the air to others.



## Transmission of Disease

- **Ingestion:**
  - The pathogen is ingested, usually via contaminated hand or food.
  - For example, in food-borne outbreaks of Hepatitis A, the virus is shed in the feces of an infected restaurant worker who doesn't wash his/her hands properly after going to the bathroom, and then spreads the virus by handling or preparing uncooked foods or foods after cooking.

## Transmission of Disease

- **Direct contact**
  - Sexual Contact
  - Blood drops on broken skin
- **Indirect Contact:**
  - Contaminated Surface
  - Needle Sticks

## Group Activity

- What method of transmission freaks you out the most?

## Epidemiology and Signs & Symptoms of BBP

- Name as many BBP as you can

## Bloodborne Pathogen Diseases

Some examples of bloodborne pathogens:

- Malaria
- Syphilis
- Brucellosis
- Leptospirosis
- Arboviral infections
- Relapsing fever
- Creutzfeld-Jakob Disease
- Viral Hemorrhagic Fever

Main bloodborne pathogens and diseases of concern

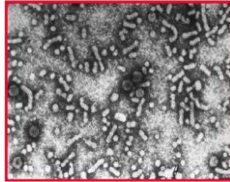
- Hepatitis B Virus (HBV)
- Hepatitis C Virus (HCV)
- Human Immunodeficiency Virus
- AIDS

## HBV – Hepatitis B

### General Facts

- Hearty - can live for 7+ days in dried blood
- 100 times more contagious than HIV
- Approximately 78,000 new infections per year (2001)
- 1.25 million carriers
- 5,000 deaths/year
- No cure, but there is a preventative vaccine

### Hepatitis B Virus



## HBV – Hepatitis B

- Incubation Period → Average 60-90 days  
Range 45-180 days
- No Signs or Symptoms → 30%
- Acute Illness (Jaundice) → 30%-50% (35 y/o)
- Chronic Infection (carrier) → 2%-10% (of infected adults)  
→ 15-25% (of chronically infected)
- Immunity → Protected from future infection

## HBV – Hepatitis B

### Symptoms

- flu-like symptoms
- fatigue
- abdominal pain
- loss of appetite
- nausea, vomiting
- joint pain
- jaundice



Normal Eyes



Jaundiced Eyes

## HBV – Hepatitis B

### HBV Transmission

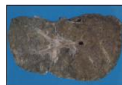
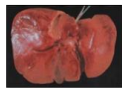
- Unprotected sex with multiple partners
- Sharing needles during injecting drug use
- From infected mother to child during birth
- Sharps/needle sticks



## HCV – Hepatitis C

### General Facts

- The most common, chronic bloodborne infection in the U.S.
- 3.9 million (1.8%) Americans infected; 2.7 million chronically infected
- 25,000 new infections per year (2001)
- Leading cause of liver transplantation in U.S.
- 8,000-10,000 deaths from chronic disease/year
- No broadly effective treatment
- No vaccine available



A healthy human liver contrasted with a liver from an individual who died from hepatitis C. Note the extensive damage and scarring from chronic liver disease.

## HCV – Hepatitis C

Incubation Period	Average 6 – 7 weeks Range 2 – 26 weeks
No Signs or Symptoms	80%
Acute Illness (jaundice)	≤ 20% (Mild)
Chronic Infection	75% - 85%
Chronic Liver Disease	10% - 70% (most are asymptomatic)
Deaths from Chronic Liver Disease	1% - 5%
Immunity	No protection from future infection identified

## HCV – Hepatitis C

### Symptoms

- flu-like symptoms
- jaundice
- fatigue
- dark urine
- abdominal pain
- loss of appetite
- nausea



## HCV – Hepatitis C

### HCV Transmission

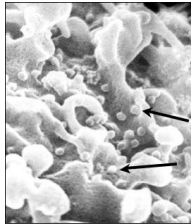
- Injecting drug use
- Hemodialysis (long-term)
- Blood transfusion and/or organ transplant before 1992
- From infected mother to child during birth
- Occupational exposure to blood - mostly needlesticks
- Sexual "inefficient means of transmission"



## HIV – Human Immunodeficiency Virus

### General Facts

- Fragile – few hours in dry environment
- Attacks the human immune system
- Cause of AIDS
- >1 million infected persons in U.S.
- No cure; no vaccine available yet



HIV - seen as small spheres on the surface of white blood cells

## HIV – Human Immunodeficiency Virus

### HIV Infection → AIDS

- Many have no symptoms or mild flu-like symptoms
- Most infected with HIV eventually develop AIDS
- Incubation period >10-12 yrs
- Opportunistic infections & AIDS-related diseases - TB, toxoplasmosis, Kaposi's sarcoma, oral thrush (candidiasis)
- Treatments are limited but do not cure



## HIV – Human Immunodeficiency Virus

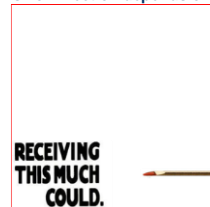
### HIV Transmission

- Sexual contact
- Sharing needles and/or syringes
- From HIV-infected women to their babies during pregnancy or delivery
- Breast-feeding
- Needlesticks



## Risk of Infection

Risk of infection depends on several factors:



- The pathogen involved
- The type/route of exposure
- The amount of virus in the infected fluid at the time of exposure
- The amount of infected fluid involved in the exposure
- Whether post-exposure treatment was taken
- Specific immune response of the infected individual

## Methods to recognize tasks that may involve BBP

- What tasks may involve BBP?

## Health Care Workers and BBPs

### Occupational Transmission

- Most common: **needlesticks**
- Cuts from other contaminated sharps (scalpels, broken glass, etc.)
- Contact of mucous membranes (eye, nose, mouth) or broken (cut or abraded) skin with contaminated fluid

## Health Care Workers and BBPs

### Occupational Transmission

- Risk of infection following needlestick/cut from a positive (infected) source
- HBV: 6%-30%
- HCV: 1.8% (range 0%-7%)
- HIV: 0.3%



## The Exposure Control Plan

- An explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan

## Exposure Control Plan

### To eliminate/minimize your risk of exposure

- Exposure determination
- Exposure controls
- Training and Hazard Communication
- Hepatitis B Vaccine
- Post exposure evaluation & follow-up
- Recordkeeping



## Exposure Determination

- Do we have job classifications where some employees/volunteers are occupationally exposed?
  - Yes

What tasks or procedures could these employees/volunteers have exposure to blood and OPIM?

- *Providing emergency care*
- *Finding needles*
- *Cleaning contaminated surfaces*
- *Disposing of contaminated waste*

## Use & limitations of methods that will prevent or reduce exposure

## Exposure Controls



### Reducing your risk

- Universal precautions
- Equipment and Safer Medical Devices
- Work practices
- Personal protective equipment
- Housekeeping
- Laundry handling
- Hazard communication - labeling
- Regulated Waste



## Exposure Controls

### UNIVERSAL PRECAUTIONS

A system of infection control:

**TREAT ALL HUMAN BLOOD AND OPIM AS IF KNOWN TO BE INFECTIOUS WITH A BLOODBORNE DISEASE.**



## Exposure Controls

### Equipment and Safer Medical Devices

- Physical Guard
  - Sharps disposal containers
  - Closable
  - Puncture-resistant
  - Leak-proof
  - Labeled or color-coded
  - Upright, conveniently placed in area where sharps used
  - DO NOT OVERFILL!



## Exposure Controls



### Safe Work Practices

- Wash hands
  - Before and after each patient contact
  - After each glove use
  - After using the restroom
  - Handling contact lenses, make up or lip balm
  - After wiping nose or eyes

*(Note: If handwashing facilities are not possible or immediately available, waterless antiseptic hand cleanser and towels or towelettes must be available. When hands are visibly contaminated, follow with washing using soap and water as soon as possible.)*

## Exposure Controls



### Safer Work Practices

**Clean-up of spills and broken glassware/sharps contaminated with blood or OPIM**

- Wear disposable gloves. Double glove if severe contamination
- Wear protective eyewear and mask if splashing is anticipated. Remove glass and other sharps materials using a brush and dust pan, forceps, hemostat, etc. **Do not use your hands.** Properly discard all materials into a sharps or puncture-resistant biohazardous waste container.
- Use paper/absorbent towels to soak up the spilled materials.

## Information on types, use, location, removal, handling & disposal of PPE

## Exposure Controls

### Personal Protective Equipment (PPE)

- You must wear all required PPE
- The District provides you with the following
  - Disposable gloves (non-latex)
  - Protective eye-wear
  - Gowns
  - Hepa filtration masks

## Exposure Controls

### Personal Protective Equipment (PPE)

#### Gloves

- Latex
- Nitrile
- Utility
- Thermal/Extraction



In your groups, name dos and don'ts for wearing gloves

## Exposure Controls

### Personal Protective Equipment – Gloves

- Gloves must be worn when hand contact with blood or OPIM can be reasonably anticipated or when you handle or touch contaminated items or surfaces.
- The types of gloves and other hand protection that are provided are *latex, nitrile*,
  - Latex gloves are being phased out due to sensitivity
- Don't reuse disposable gloves.
- Change gloves frequently because they might develop pinhole leaks that are not visible but can allow passage of microscopic organisms.
- If you tear or damage your gloves, remove them and wash your hands thoroughly with soap and water before putting on a new pair and also between each glove use.

## Safe and proper glove removal



**DO NOT TOUCH  
UNCOVERED SKIN  
WITH CONTAMINATED  
GLOVE**

**DO NOT TOUCH  
CONTAMINATED OUTER  
GLOVE SURFACE WITH**

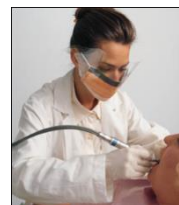


## Exposure Controls

### Personal Protective Equipment (PPE)

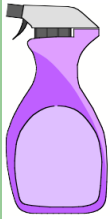
#### Eye-Face Protection and Masks

- Safety glasses with side shields
- Face shield
- Mask
- ? Do regular glasses provide enough eye protection?





## Exposure Controls



- Housekeeping**  
Maintain a clean and sanitary workplace
- Written cleaning and decontamination schedule and procedures
  - Approved disinfectant
  - Contaminated waste disposal methods
  - Laundry

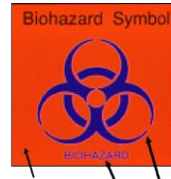
## Exposure Controls

- Laundry**
- **Contaminated articles: (sheets, blankets, uniforms)**
    - Handle as little as possible
    - Bag/containerize where used
    - Don't sort or rinse where used
  - **Place in leak-proof, labeled or color-coded containers or bags**
    - Wear PPE when handling and/or sorting
  - **Gown**
    - If contamination is severe
  - **Schedule**
    - In house laundry is to be completed as part of daily chores.



## Signs & Labels required by paragraph (g)(1)

## Exposure Controls



### Communication of Hazards Biohazard Labels and Signs

- Must have biohazard symbol
- Labels attached securely to any containers or items containing blood/OPIM
- Red bags/containers may substitute for labels

## Exposure Controls

### Regulated Waste

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



## Hep B vaccine, its safety, efficacy, benefits of vaccination & no cost to you

## Vaccinations

- Hepatitis B
  - Given at 0, 1, and 6 months
  - Effective for 95% of adults
  - Given at the District's expense
  - May refuse, but must sign a waiver



## You've been exposed, now what?

- Actions to take and who to contact in case of an exposure
- Procedure to follow if an exposure incident occurs
- Post-exposure followup

## Exposure Incident

- Exposure Incident
  - means a specific eye, mouth, other mucous membrane, non-intact skin or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

## Exposure Incident

### If you have an exposure incident to blood or OPIM, immediately do the following:

- Thoroughly clean the affected area
  - Wash needlesticks, cuts, bites and skin with soap and water
  - Flush with water splashes to the nose and mouth
  - Irrigate eyes with clean water, saline, or sterile irrigants
- Report exposure to the shift lieutenant or duty officer
- Fill out an Incident Report Form
  - In the Incident Report Form, try to describe the exposure event in as much detail as possible and submit the report to your supervisor or district officer.

## Post-exposure evaluation

- The District's Responsibility
  - Provide immediate post-exposure medical evaluation and follow-up to exposed employee:
  - At no cost
  - Confidential
  - Testing for HBV, HCV, HIV
  - Preventive treatment when indicated
  - Test blood of source person if HBV/HCV/HIV status unknown, if possible; provide results to exposed employee, if possible



## Post-Exposure Evaluation

- The District's Responsibility: (cont.)
  - Provide exposed employee with copy of the evaluating health care professional's (HCP) written opinion within 15 days of completion of evaluation
  - Provide employee with information about laws on confidentiality for the source individual
  - Provide post-exposure treatment as needed, including counseling



## Recordkeeping

- Training Records
  - Dates
  - Content summary
  - Trainer name & qualifications
  - Attendee's names & job titles
  - Maintain for 3 years

## Questions

- Contact the \_\_\_\_\_ for any Exposure Control Plan questions