Washington State Department of Labor & Industries
Division of Occupational Safety and Health

Keep Washington safe and working.

Bloodborne Pathogens

Employee training on the hazards of bloodborne pathogens in the workplace

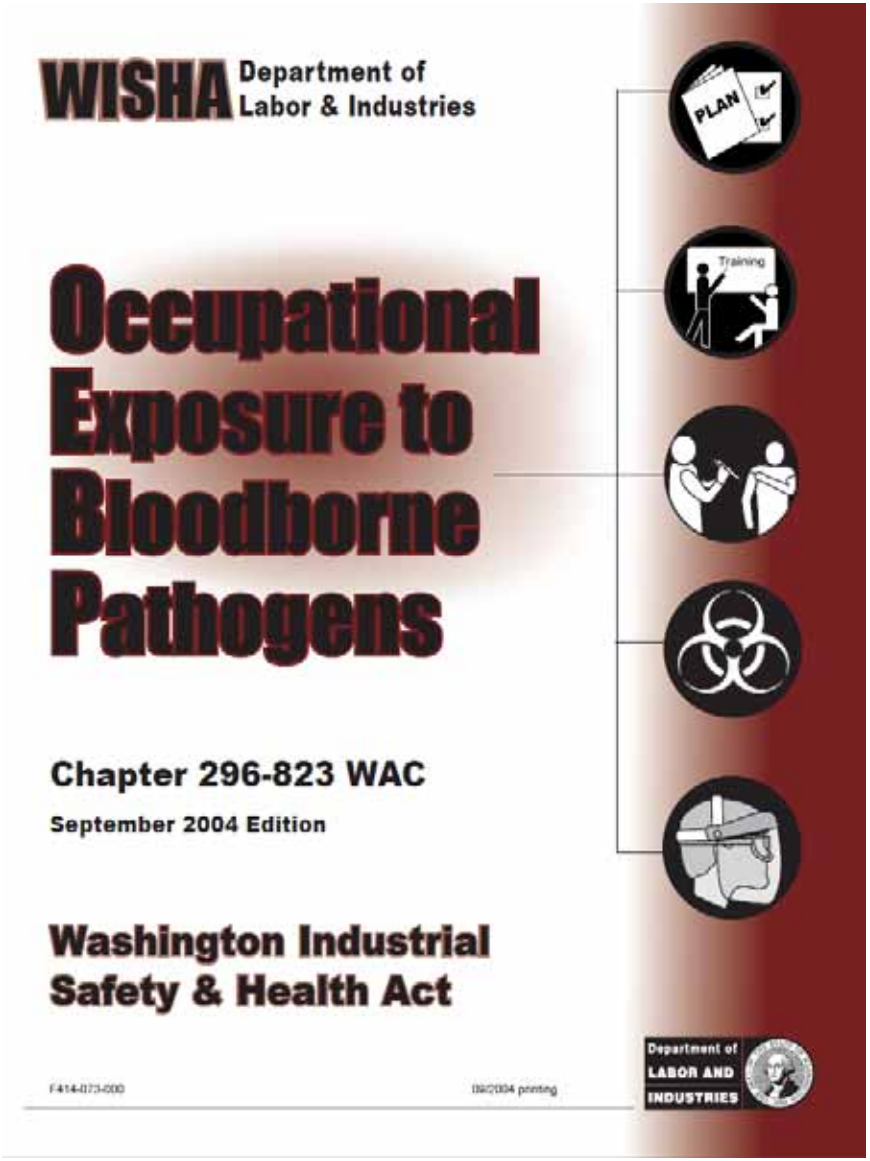
Division of Occupational Safety and Health
www.Lni.wa.gov/Safety
1-800-423-7233

Bloodborne Pathogens (BBP) Training

Washington Industrial Safety and Health Rules

Department of Labor & Industries

Division of Occupational Safety and Health (DOSH)



Link to Bloodborne Pathogen Rule

What this training will cover

What are bloodborne pathogens and how are they transmitted

Our exposure control plan to protect you from BBP

How to recognize the workplace activities that could expose you to blood and other possibly infectious materials

Methods that will prevent or reduce exposure including equipment and safer medical devices, work practices and personal protective equipment

General information about personal protective equipment

Hepatitis B vaccine

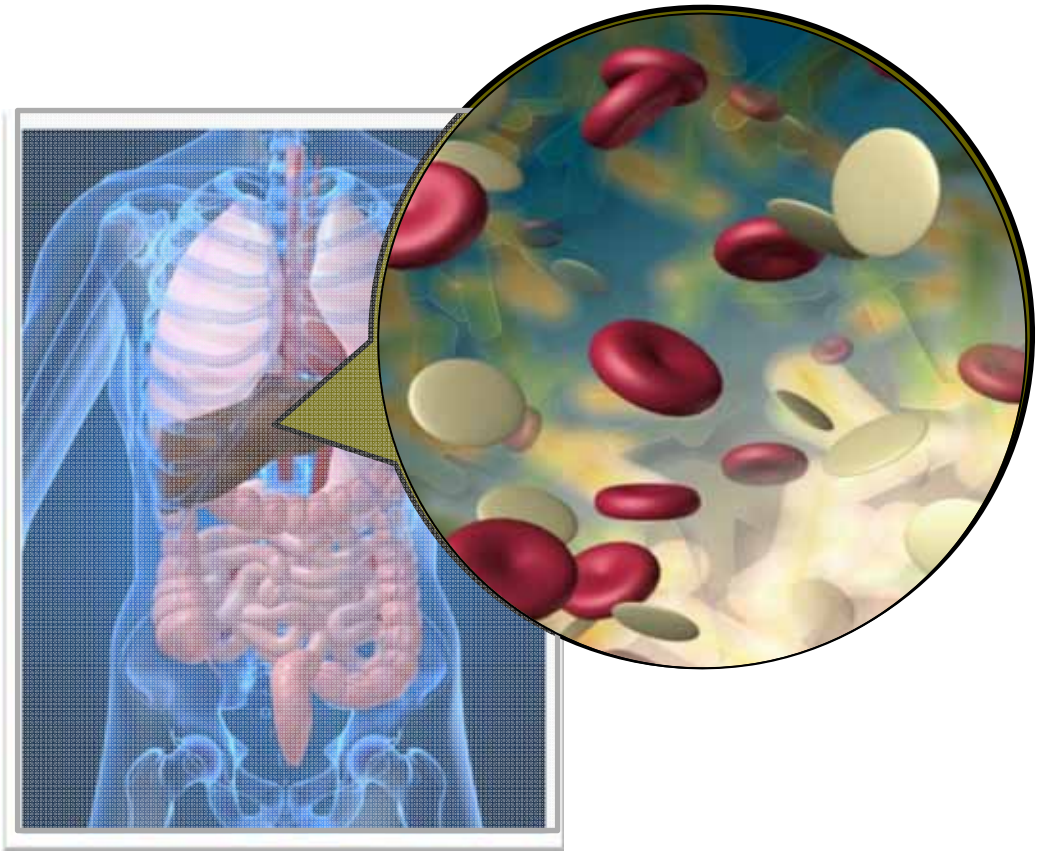
What to do if you are exposed to BBP

What BBP signs and labels mean

A question and answer session with our trainer

Bloodborne Pathogens (BBPs)

BBPs are primarily Hepatitis B & C and HIV viruses present in blood, or in:



Other

Potentially

Infectious

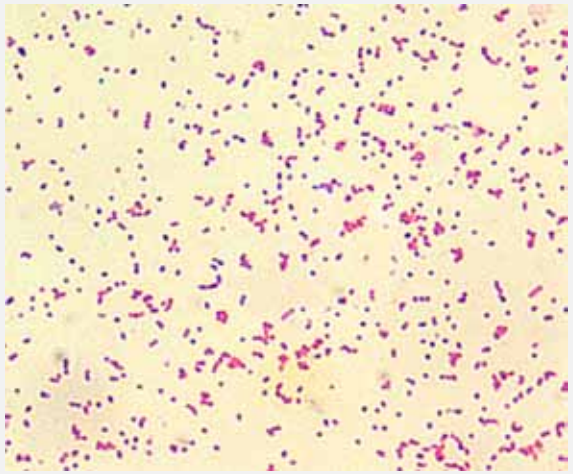
Materials

(OPIM)

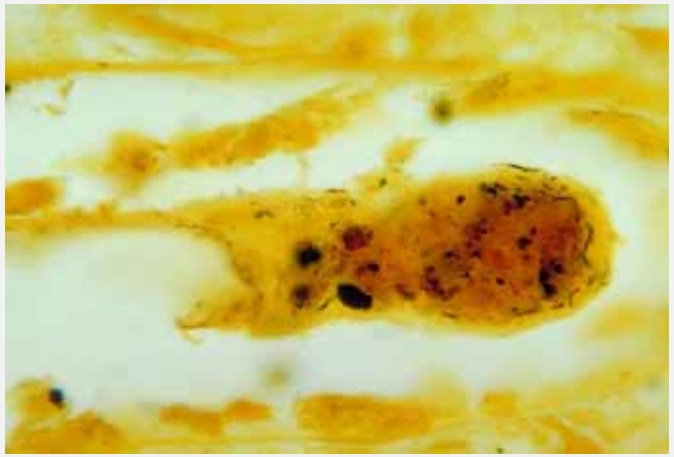
Lesser known Bloodborne Pathogens

Lesser known BBPs include:

- Syphilis
– Babesiosis
– Brucellosis
– Leptospirosis
– Arboviral infections
– Relapsing fever
– Creutzfeld-Jakob Disease
– Human T-lymphotrophic virus Type I
– Viral Hemorrhagic Fever



Brucellosis bacteria



Leptospira bacteria in kidney tissue

Bloodborne Pathogens - OPIM

OPIM includes the following:

- Semen
- Vaginal secretions
- Pleural, cerebrospinal, pericardial, peritoneal, synovial, and amniotic body fluids
- Saliva with blood in dental procedures
- Any body fluids visibly contaminated with blood
- Undifferentiated body fluids
- Any unfixed tissue or organ (other than intact skin) from a human (living or dead)
- HIV, HCV or HBV-containing cultures (cell, tissue, or organ), culture medium, or other solutions
- Blood, organs, & tissues from animals infected with HIV, HCV HBV, or other BBPs

Transmission of BBPs

Bloodborne pathogens can enter your body through:

- Contaminated instrument injuries
- A break in the skin (cut, lesion, etc.)
- Mucus membranes (eyes, nose, mouth)
- Other modes

Photo by Jason Rogers in Creative Commons

Photo by Sharonoa Gott in Creative Commons

Viral Hepatitis—General Facts

The virus attacks the liver causing inflammation, enlargement, and tenderness.

Infections can be acute or chronic.

Liver damage can range from mild to fatal.

Hepatitis B Virus - HBV

Can live for 7+ days in dried blood

100 times more contagious than HIV

46,000 new infections per year

1.25 million carriers

3,000 deaths/year

No cure, but there is a preventative vaccine

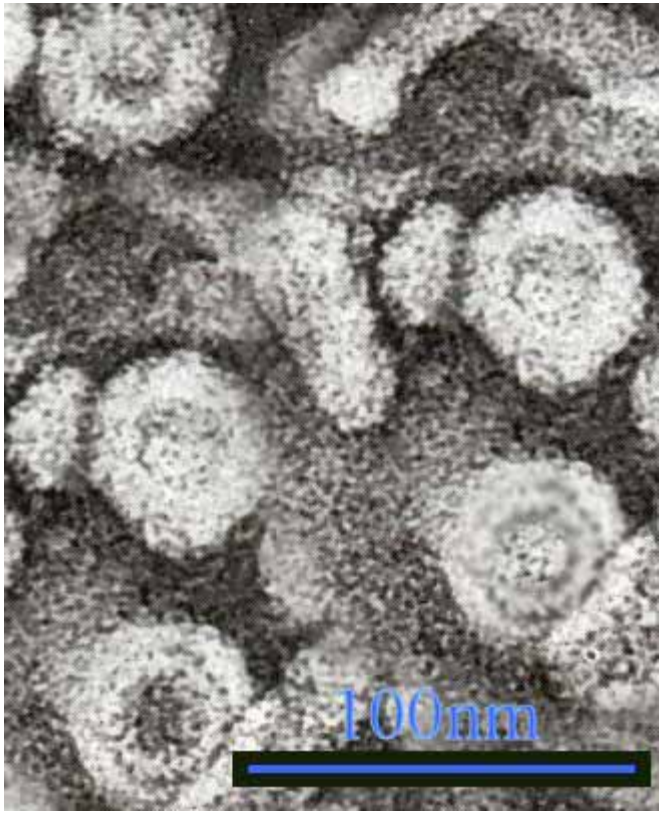


Photo by Graham Colm in Wikemedia Commons

Hepatitis B Transmission

Unprotected sex with infected partner

Sharing needles during injecting drug use

From infected mother to child during birth

Sharps/needle sticks

Hepatitis B Symptoms

- Flu-like symptoms
- Fatigue
- Abdominal pain
- Loss of appetite
- Nausea, vomiting
- Joint pain
- Jaundice

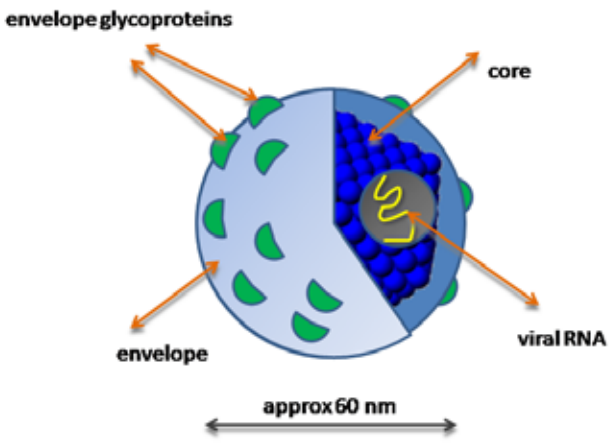
More information about Hepatitis B

Hepatitis C Virus (HCV)

The most common chronic bloodborne infection in the U.S.

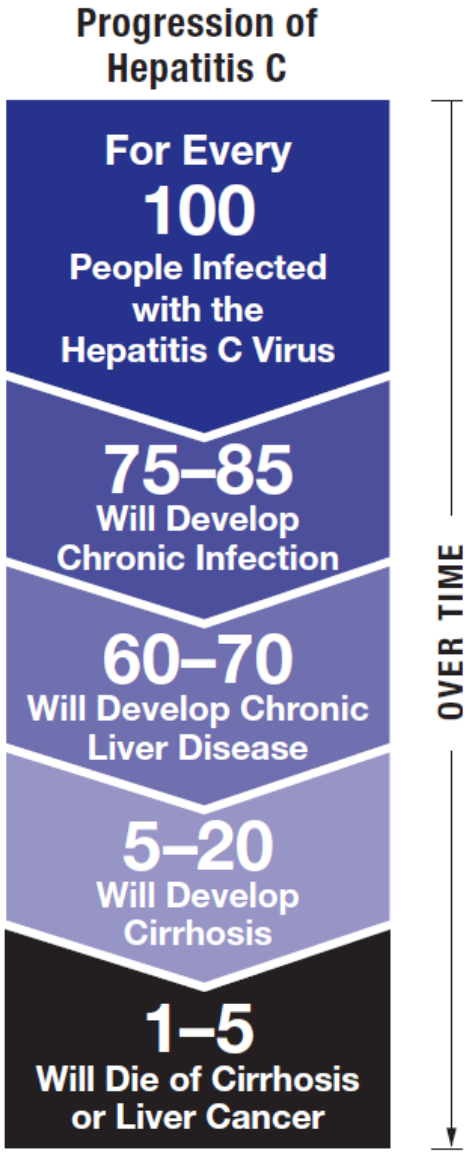
12,000 deaths from HCV infections each year

No vaccine currently available



Structure of Hepatitis C Virus

Graphic by Graham Colm in Creative Commons



From CDC 2010 Hepatitis C Fact Sheet

Hepatitis C Symptoms

Flu-like symptoms

Jaundice

Fatigue

Dark urine

Abdominal pain

Loss of appetite

Nausea

Photo courtesy Center of Disease Control (CDC)

Hepatitis C Transmission

Transmitted by:

Injecting drugs

Hemodialysis (long-term)

From infected mother to child during birth

Occupational exposure to blood—mostly needlesticks

Sexual or household exposures—rare

Photo by Neil Hester in Creative Commons

More information about Hepatitis C

Human Immunodeficiency Virus (HIV)

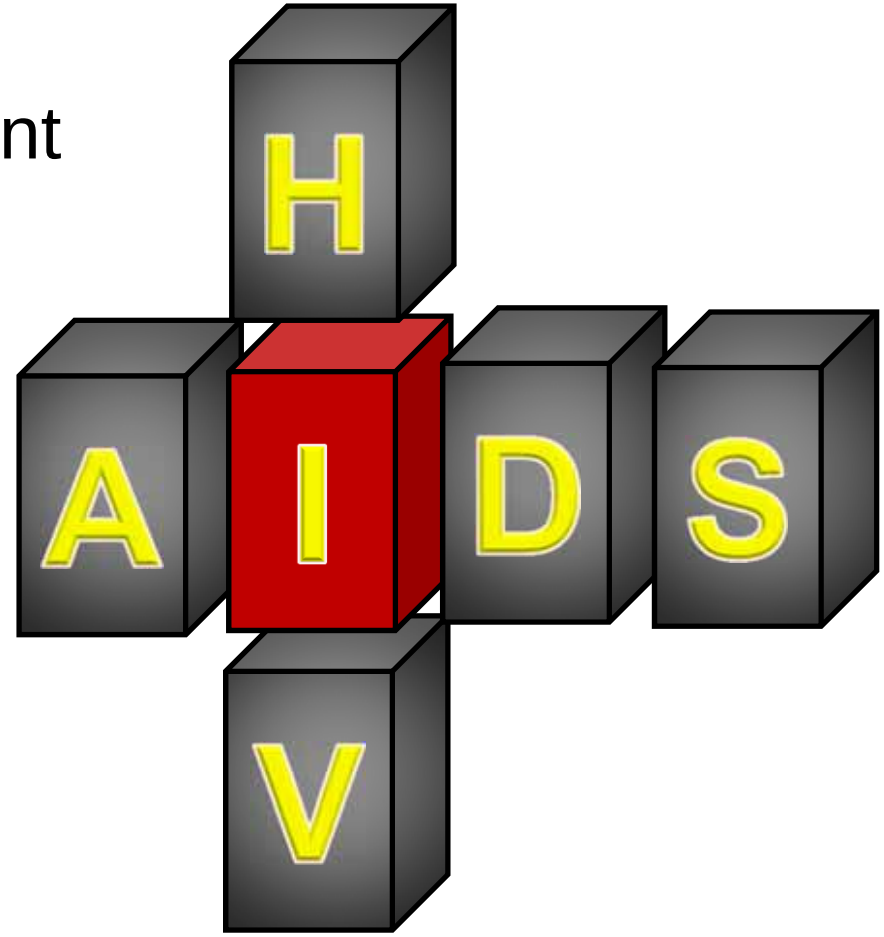
Fragile—survives only
a few hours in dry environment

Attacks the human immune system

One million+ infected in U.S

Cause of AIDS

Vaccine not yet available



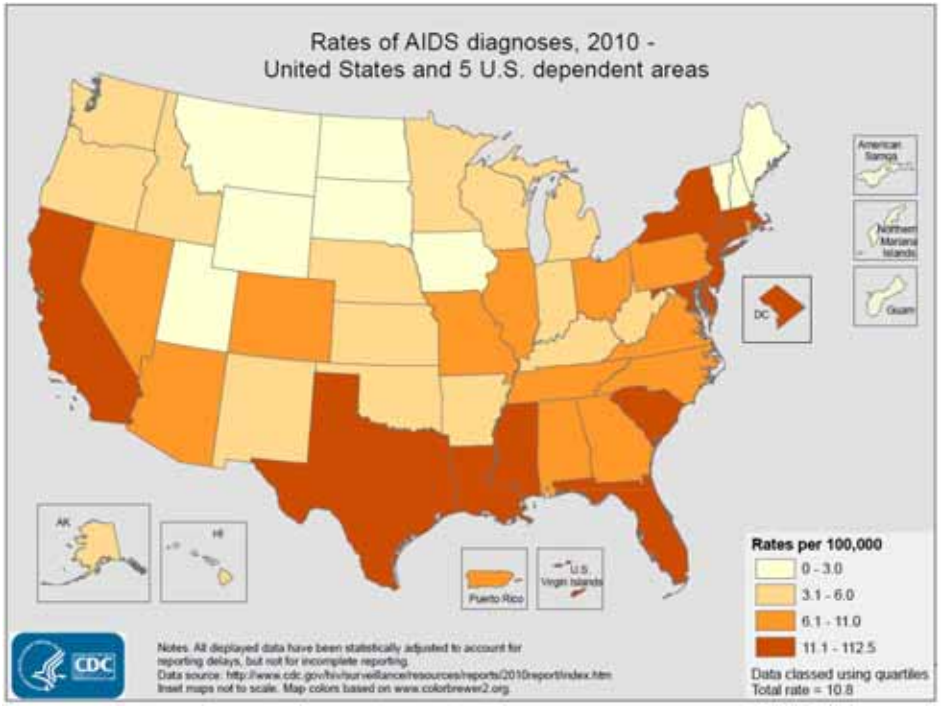
HIV infection = AIDS

Many have no symptoms or mild flu-like symptoms

Most infected with HIV eventually develop AIDS within 10-12 years

Opportunistic infections & AIDS-related diseases—TB, toxoplasmosis, Kaposi's sarcoma, oral thrush

Available treatments do not yet cure



How is HIV transmitted?

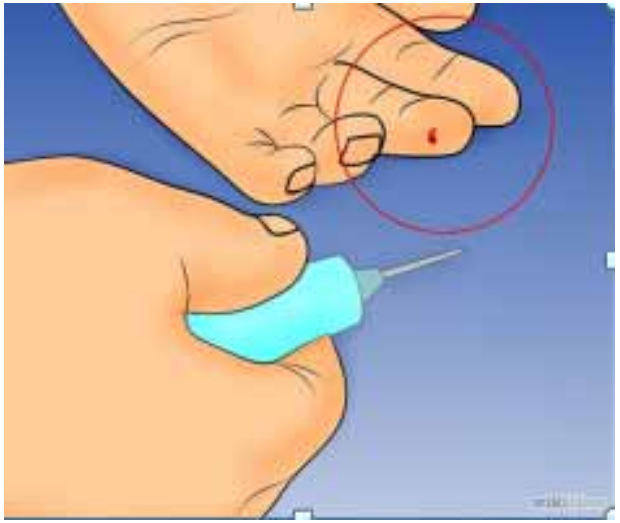
Sharing needles or syringes

Sexual contact

From HIV-infected women to their babies during pregnancy or delivery

Breast-feeding

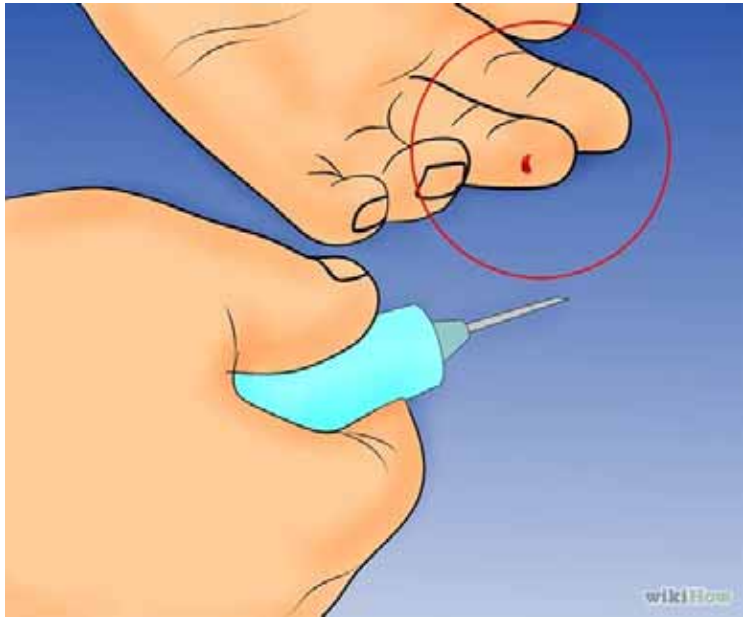
Needlesticks (rare)



Exposure to BBPs at Work

Some Definitions

"Occupational Exposure" means *reasonably anticipated* skin, eye, mucous membrane, or piercing of the skin, contact with blood or OPIM that may result from the performance of an employee's duties.



Graphic courtesy of WikiHow in Creative Commons

"Exposure Incident" means an *actual* eye, mouth, other mucous membrane, non-intact skin or skin piercing contact with blood or OPIM while performing your work duties.

How people can be exposed to BBPs at work

Handling syringes or other sharps

Cleaning up broken containers containing blood or OPIM

Transferring a body fluid from a container

Dental work involving blood exposure

Surgery or any other healthcare work involving exposure to body fluids

Restraining an infected combative patient, suspect, or inmate

Handling laundry contaminated with blood or OPIM

Cleaning surfaces contaminated with blood or OPIM

Disposing of bloodborne pathogen hazardous waste

Picking up discarded syringes in public places

Providing emergency first-aid treatment

What are “Sharps”?

Needles

Syringes

Lancets

Auto Injectors

Infusion Sets

Connection needles/sets

Scalpels

Razors or other blades

Broken glass or plastic containers

Photo from FDA

Risk of Infection

(from a contaminated sharps injury)

HIV ⟶ 0.3 % (1 in 300)

Hepatitis C ⟶ 1.8 % (5.4 in 300)

Hepatitis B ⟶ 23-62% (69-186 in 300)

(HBV vaccine is 90% effective)

Source: CDC

Preventing sharps injuries is the best way to protect yourself from infection

Our BBP Exposure Control Plan

The purpose is to eliminate or minimize your risk of exposure

The Control Plan includes:

- Exposure determination
- Exposure controls
- Training and hazard communication
- Hepatitis B vaccine
- Post exposure evaluation & follow-up
- Recordkeeping

Copies of our plan are located at:

Exposure Determination

At our site ALL employees have occupational exposure to bloodborne pathogens in the following job classifications:

Job Title	Department/Location
(example: Phlebotomist)	*(example: Clinical Lab)*

The following are job classifications in our establishment in which SOME employees have occupational exposure to bloodborne pathogens:

Job Title	Department/Location	Task/Procedure
(example: Housekeeper)	*(Environmental services)*	*(Handling Regulated Waste)*

BBP Exposure Controls

Universal precautions (or an equivalent system)

Equipment and safer medical devices

Safe work practices

Personal protective equipment

Housekeeping

Laundry handling

Handling BBP waste materials

Exposure Controls

Universal precautions

A system of infection control that treats all human blood and OPIM as if it is infected with a bloodborne disease.

Exposure Controls

Equipment and safer medical devices

Sharps with engineered sharps injury protections (SESIP)

Needleless systems

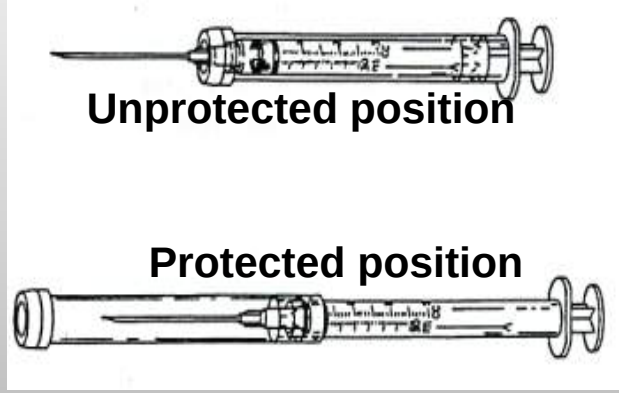
Self-blunting needles

Plastic capillary tubes

Photo by Richardelainechamber in Wikipedia Commons for public domain

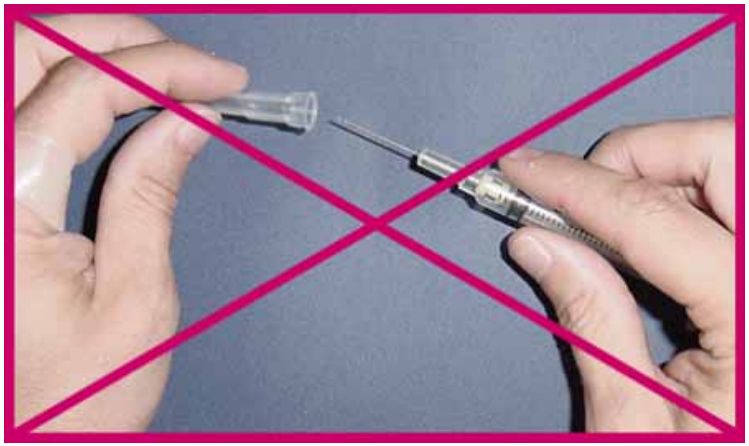
Vacutainer kit

Example of needle guard with protected sliding sheath that is pushed forward after use and locks



Safe needle handling practices

Do the job/task in safer ways to minimize any exposure to blood or OPIM.



No recapping!

- Don’t bend, recap, or remove needles or other sharps.
- Don’t shear or break needles.
- Place contaminated reusable sharps immediately in appropriate containers until properly decontaminated.

Don’t let this happen to you!

Video Clip

Handling Discarded Syringes

Photo by Val Savarese in Creative Commons

[Picking up discarded syringes]

Image by Massachusetts Dept. of Labor Standards

Needle/Sharps Disposal

Sharps disposal containers must be:

Closable

Puncture-resistant

Leak-proof

Labeled or color-coded

Upright, conveniently placed in area where sharps used

Barriers and shields for laboratory workers

Hood Barrier

Centrifuge Shield

Photos courtesy of WA State Department of Labor & Industries, DOSH Lab, Photographer Victoria Jenichen

Hoods and Biological Safety Cabinets

A barrier plus ventilation control provides added protection.

Photo by Sanofi Pasteur in Creative Commons

Other Safe work practices

Don’t ever pipette or suction blood or OPIM by mouth.

Remove gloves or other protective clothing before leaving work area.

Wash hands after each glove use immediately after an exposure.

More Safe work practices

Don’t eat, drink, smoke, apply cosmetics or lip balm, or handle contact lenses in any work areas where there is the possibility of exposure to blood or OPIM.

Don’t place food or drink in refrigerators, freezers, shelves, cabinets, countertops or bench tops in any other work areas where blood or OPIM is located.

Photo courtesy of Lena Wang – Dept. of Labor & Industries

Cleaning Contaminated Surfaces

All work surfaces and equipment contaminated with blood or OPIM must be cleaned up with an appropriate disinfectant as soon as possible or according to our written schedule as follows:

Photo courtesy of Center for Disease Control

Clean-up of spills and broken glassware/sharps

Use paper/absorbent towels to soak up the spilled materials

Clean the area with 10% bleach or EPA-registered disinfectant.

Saturate the spill area with disinfectant. Leave for 10 minutes (or as specified by product manufacturer) or allow to air dry.

Properly dispose of paper towels and cleaning materials into proper waste containers.

Photo by Debbie Ramone in Creative Commons

Spills and Sharps Cleanup

During clean-up of spills and broken glassware/sharps contaminated with blood or OPIM:

Wear protective eyewear and mask if splashing is anticipated.

Remove glass and other sharps materials using a brush and dust pan, forceps, hemostat, etc. Don't use your hands.

Properly discard all materials into a sharps or puncture-resistant biohazardous waste container.

Photo by Emily Hoyer in Creative Commons

Photo courtesy Kansas City First Aid

Personal protective equipment (PPE)

You must wear all required PPE. We provide you with all necessary PPE at no cost including one or more of the following:

Gowns

Gloves

Lab coats

Shoe covers

Face shields or masks

Eye protection

Resuscitation devices

Photo by "Hospital" in Creative Commons

Our PPE contact person is:

Gloves must be worn whenever:

- you have hand contact with blood, OPIM, mucous membranes or non-intact skin,

- you draw blood, insert an IV or do other vascular access procedures,

- you handle or touch items or surfaces contaminated with blood or OPIM

Photo courtesy U.S. Navy

Removing Gloves Safely

Video clip

PPE – Eye/Face Protection

You must wear either a full face shield or combination of eye protection and mask if splashes, sprays or spatters of blood or OPIM to the face could occur.

photo from CDC

PPE - Protective Clothing

Appropriate protective clothing must be worn if splashes to skin or regular clothes could occur. They include one or more of the following:

- Lab coat
- Gown
- Apron
- Clinic jacket
- Surgical cap or hood
- Shoe cover or boot

Workers Who Perform Resuscitation Procedures

Appropriate resuscitation equipment is provided, either:

- Masks,
- Mouthpieces,
- Resuscitation bags, or
- Shields/overlay barriers

Photo courtesy of UNFPA in Creative Commons

Photo by Rene Passat in Creative Commons

Procedures for paramedics

Handling Contaminated Laundry

Handle as little as possible

Bag/containerize at point of use

Don’t sort or rinse at point of use

Place wet laundry in leak-proof, labeled or color-coded containers or bags

Photo courtesy of OSHA

Photo courtesy Lawrence Berkley Laboratory

Handling regulated waste containers

Close immediately before removing or replacing.

Place in second container if leaking possible or if outside contamination of primary container occurs.

If reusable: open, empty, and clean it in a manner that will not expose you and other employees.

Photo by Brian Bald in Creative Commons

Hepatitis B Vaccine for exposed workers

Photo courtesy U.S. Navy

No cost to you

3 shots: 0, 1, & 6 months

Effective for 95% of adults

Post-vaccination testing for high risk workers

If not vaccinated, post-exposure treatment with Immune globulin & vaccination shots is done

If you decline, you must sign a “Declination Form”

Vaccine available at later date if desired

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

Photo from Wikipedia and creative commons

Thoroughly clean the affected area.

Wash needlesticks, cuts, and skin with soap and water.

Flush splashes to the nose and mouth with water.

Irrigate eyes with clean water, saline, or a sterile irrigant.

Report exposure to your supervisor, or the person responsible for managing exposures.

Post-Exposure Evaluation

We will provide the following:

A post-exposure medical evaluation and follow-up to for you:

- at no cost
- confidential
- to include testing for HBV, HCV, HIV
- preventive treatment when indicated

With their consent, we will test blood of source person if their HBV/HCV/HIV status is unknown, and provide the results to you.

Biohazard labels and signs:

Containers with blood or OPIM must have the biohazard symbol

Labels attached securely to any containers or items containing blood/OPIM

Red bags/containers may substitute for labels

Signs are posted at entrance to specified work areas

Recordkeeping –Medical Records

These records are confidential and include:

- Hepatitis B vaccination and post-exposure evaluations

- Health care provider's written opinions

- Information provided to healthcare provider as required

Must be maintained for length of employment + 30 years

Sharps Injury Log

We document sharps injuries in a separate sharps injury log. The injury is recorded as a confidentiality case.

The following information is recorded in the log:

- Type and brand of device involved.
- Work area where exposure occurred.
- An explanation of how the incident occurred.

Recordkeeping

Training records

Dates of training

Content summary

Trainer name & qualifications

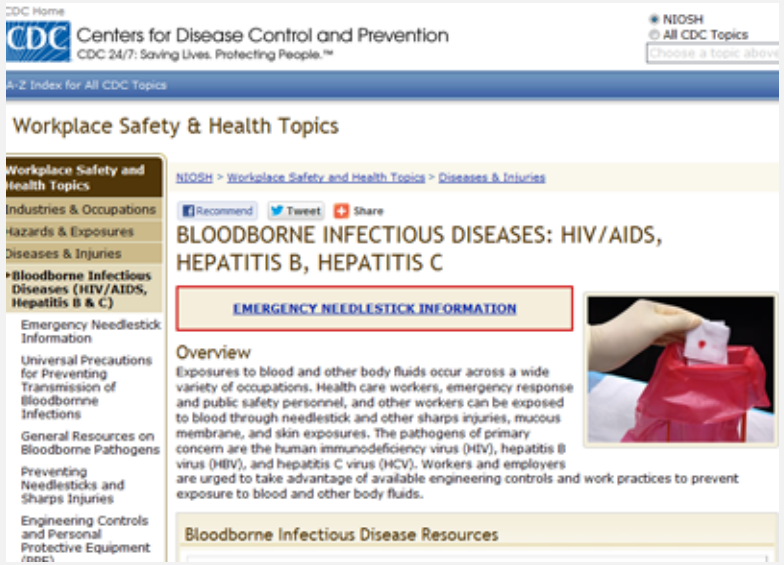
Attendee’s names & job titles

Maintained for 3 years

More information

[L & I Bloodborne Pathogen Webpage]

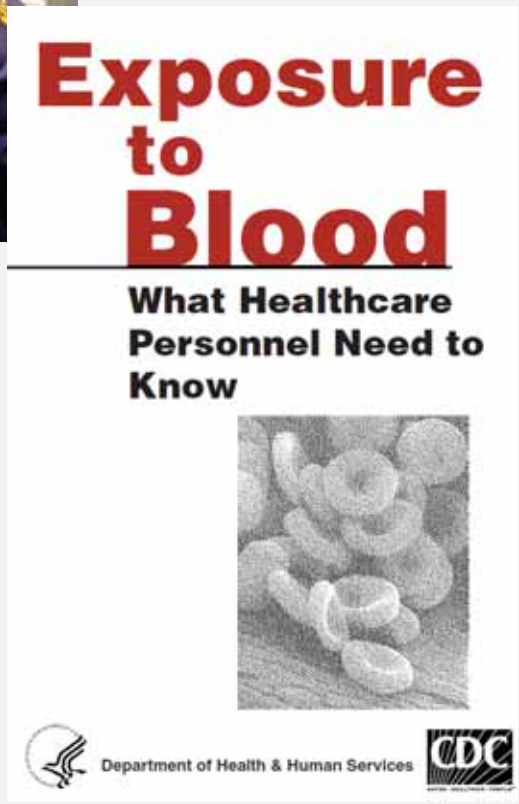
[CDC Bloodborne Pathogen Webpage]



Additional Information for specific jobs

Tattoo artists

Paramedics



General Healthcare Workers

Correctional Healthcare Workers

Dentistry

Quiz Question 1

Which of the following is not considered OPIM?

a) Blood

b) Tears

c) Body fluids containing blood

d) Semen

Quiz Question 2

Which of the following infections can be prevented with a vaccine?

a) HIV

b) Hepatitis A

c)Hepatitis B

d) Hepatitis C

Quiz Question 3

What are Universal Precautions?

a) What everybody does with bloodborne pathogens

b) Protective methods used throughout the world

c) treating all blood as if it is contaminated with BBP

d) Methods used to treat someone with Hepatitis C

Quiz Question 4

When does a face shield have to be worn?

a) when handling blood sample vials

b) When there is a risk of splash to the eyes

c) In a medical laboratory setting

d) Around patients known to be HIV positive

Quiz Question 5

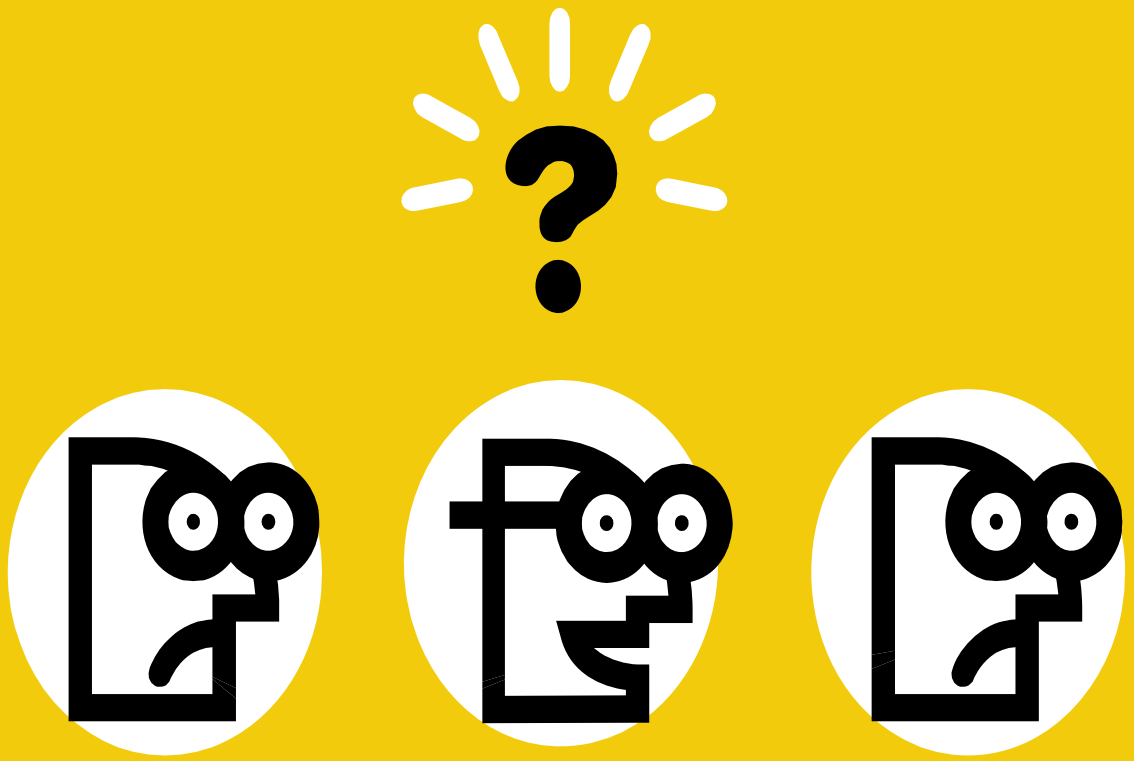
When is a post-exposure medical evaluation required?

a) Whenever you have a needlestick

b) After having the hepatitis B vaccination

c) Whenever you have to pick up contaminated syringes

d) After you handle blood-contaminated laundry



It's QUESTION TIME!!