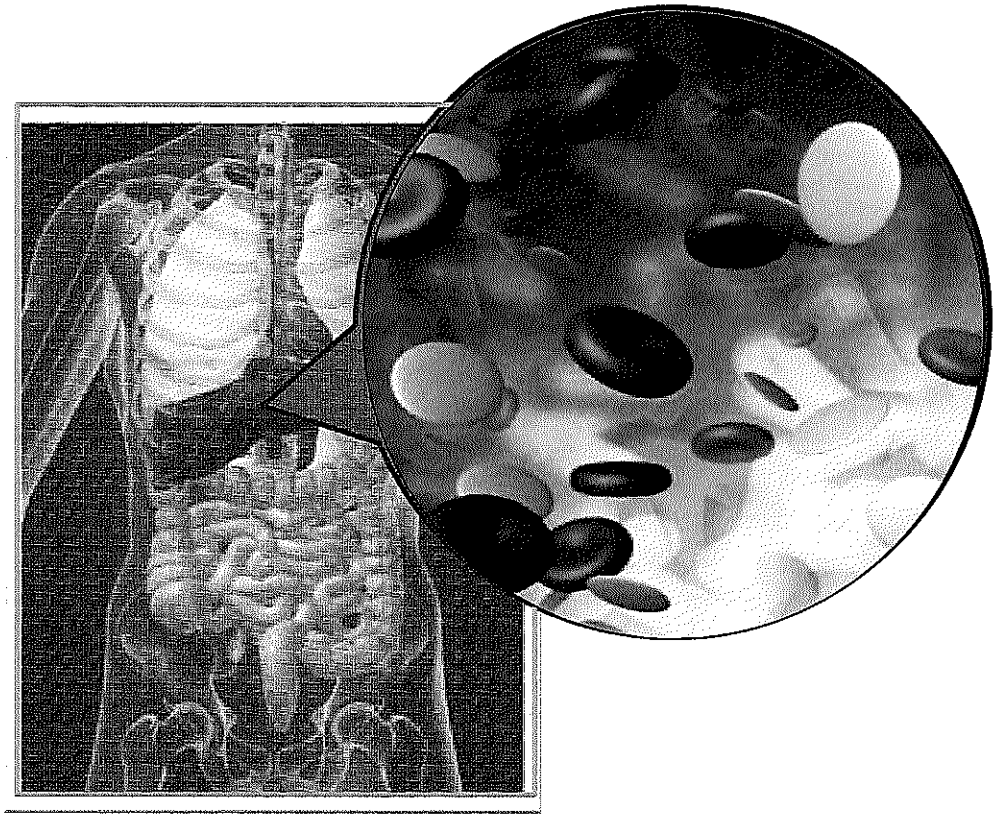
Bloodborne Pathogens (BBPs)

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



Other

Potentially

Infectious

Materials

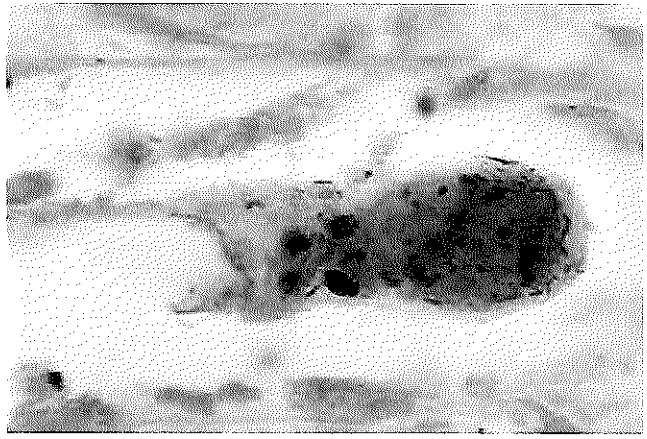
(OPIM)

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

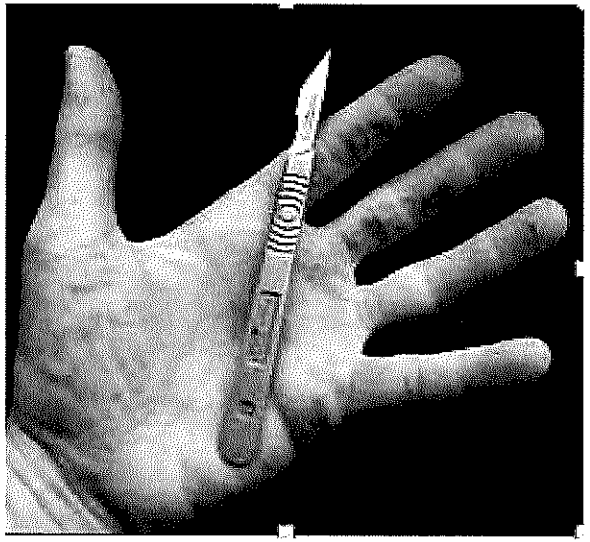


Photo by Jason Rogers in Creative Commons

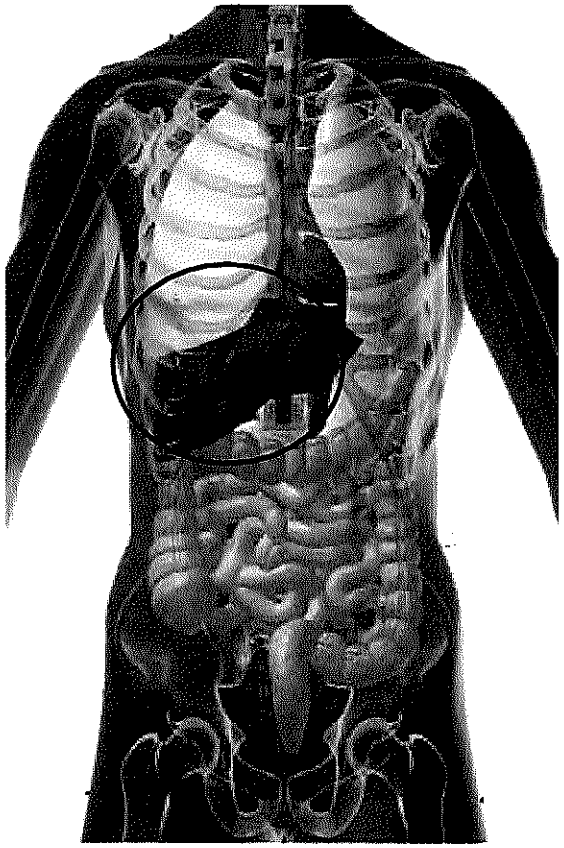
Photo by Sharonoa Gott in Creative Commons

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

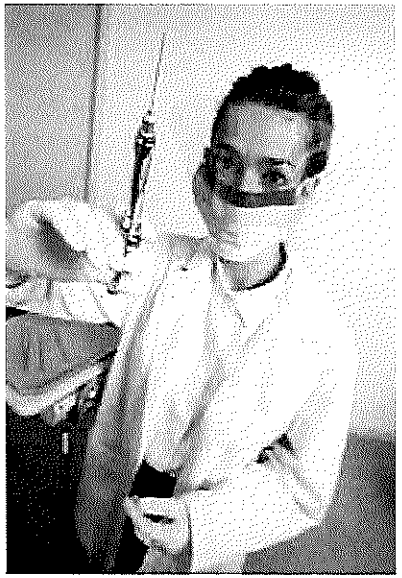
Hepatitis B Transmission

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

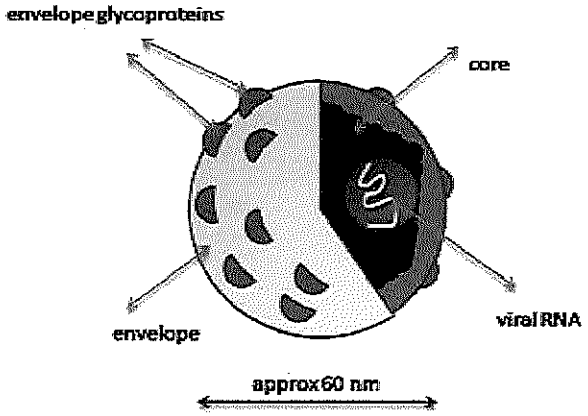
More information about Hepatitis B

Hepatitis C Virus (HCV)

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

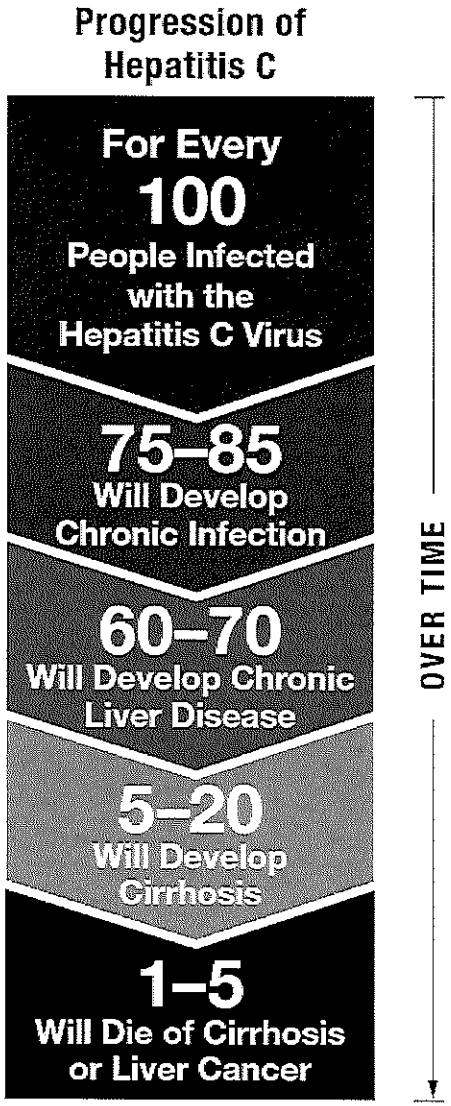
12,000 deaths from HCV infections each year

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

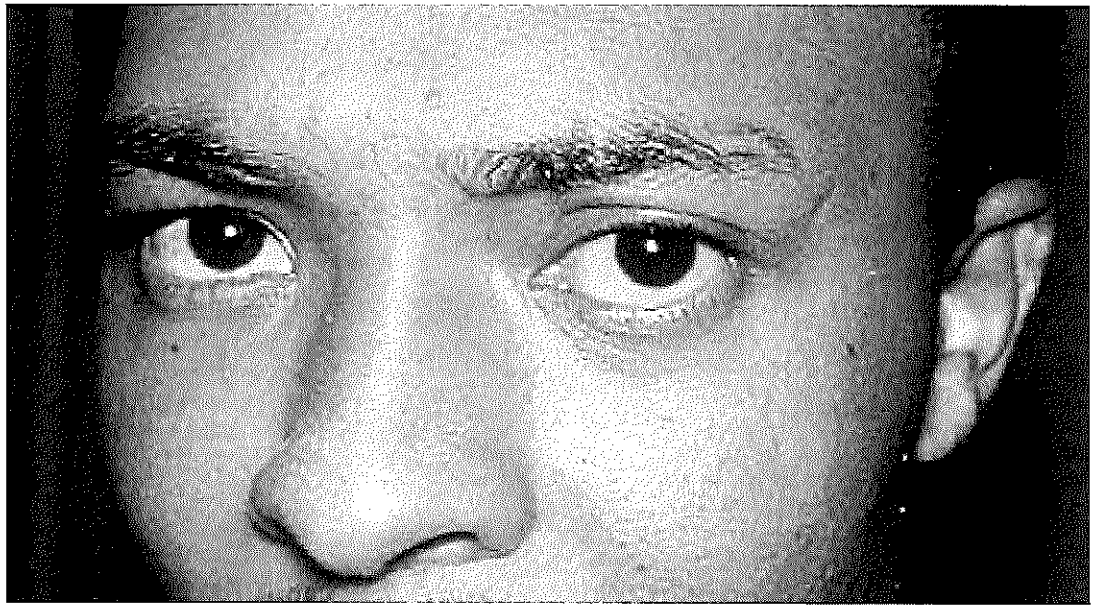


Photo courtesy Center of Disease Control (CDC)

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

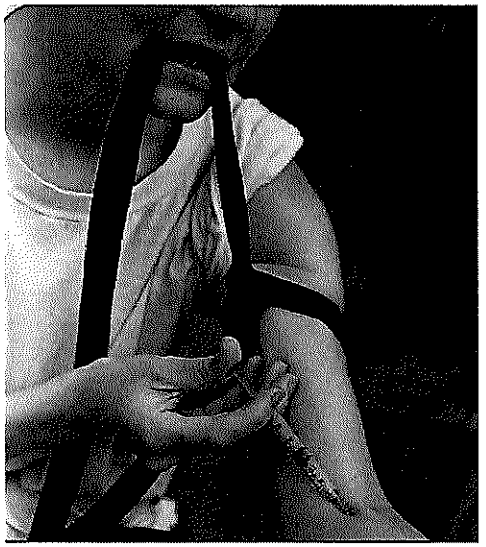


Photo by Neil Hester in Creative Commons

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

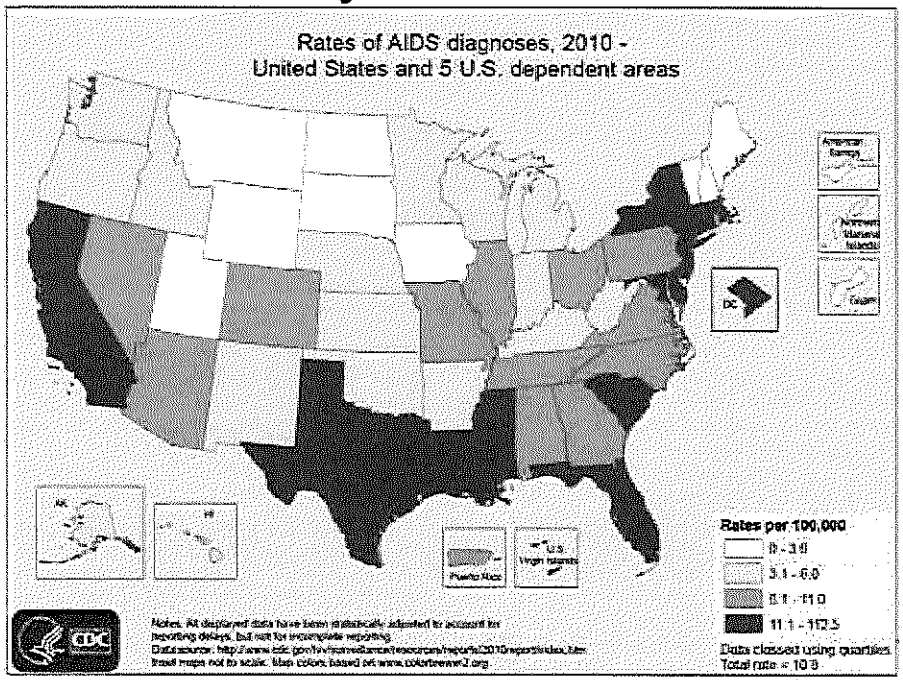
HIV infection = AIDS

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

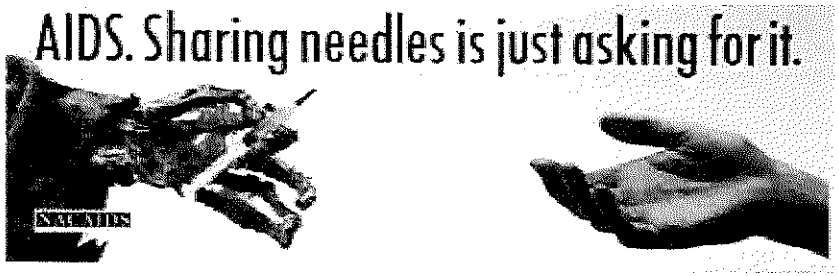
Available treatments do not yet cure



How is HIV transmitted?

Sharing needles or syringes

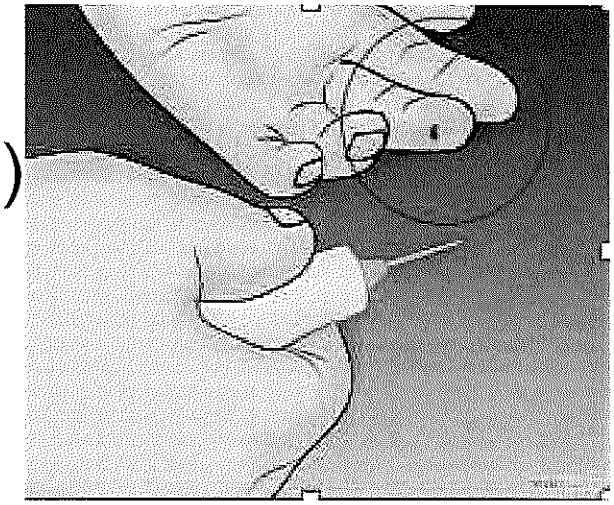
Sexual contact



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

Breast-feeding

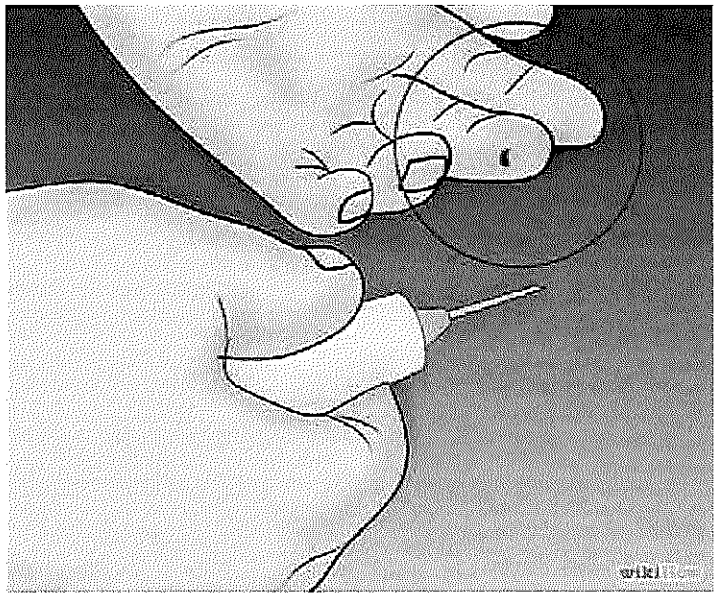
Needlesticks (rare)



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

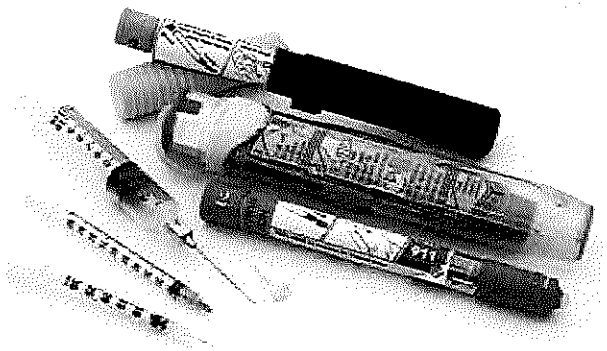
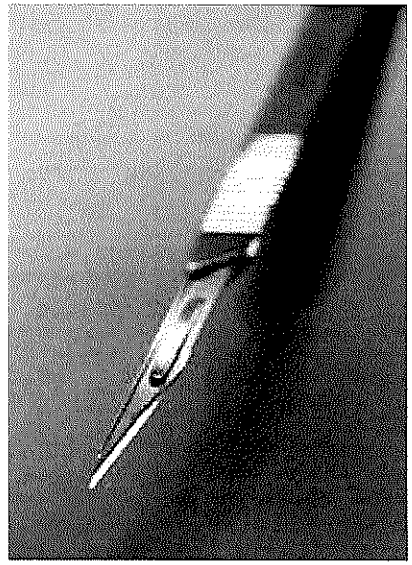


Photo from FDA



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

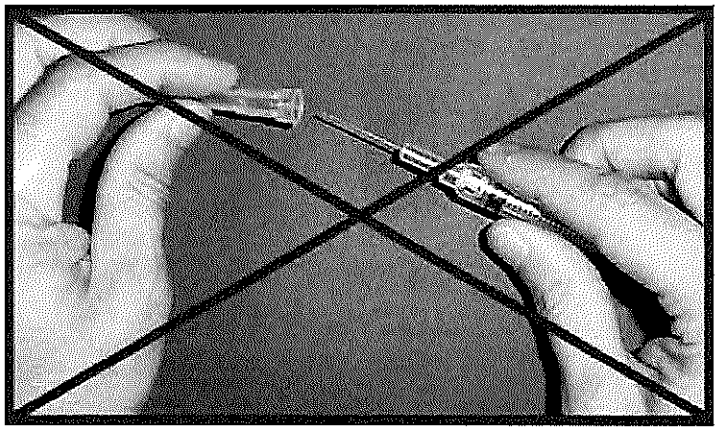
Exposure Controls

Universal precautions

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

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.

Handling Discarded Syringes

Image by Massachusetts Dept. of Labor Standards

Photo by Val Savarese in Creative Commons

Picking up discarded syringes

Needle/Sharps Disposal

Sharps disposal containers must be:

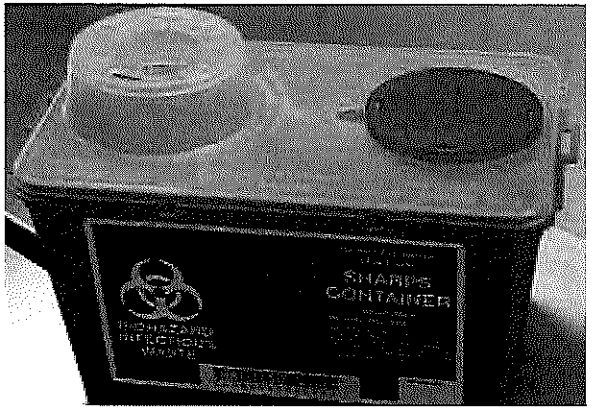
Closable

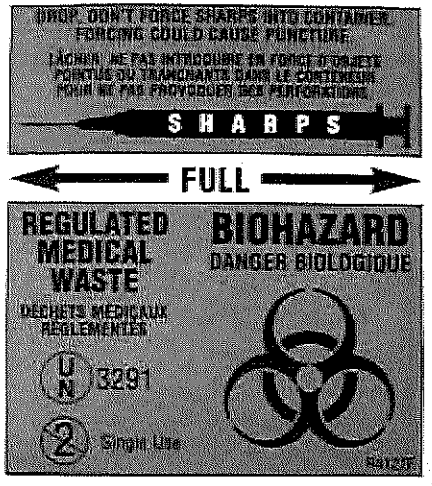
Puncture-resistant

Leak-proof

Labeled or color-coded

Upright, conveniently placed in area where sharps used



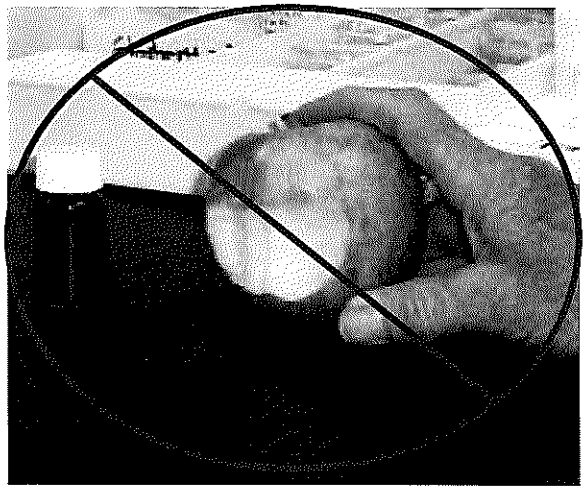


More Safe work practices

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.

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

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.



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

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

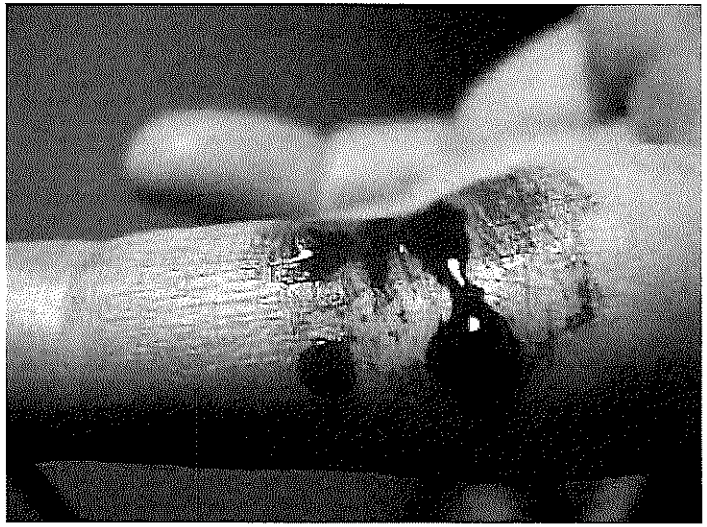


Photo from Wikipedia and creative commons

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.

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