

# Bloodborne Pathogens



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# Objectives

- ▶ **At the end of this training module you should have a basic understanding of bloodborne pathogens:**
  - **common modes of their transmission**
  - **methods of prevention**
  - **significant bloodborne pathogens**

# Bloodborne Diseases

- ▶ **Bloodborne pathogens** are microorganisms such as viruses or bacteria that are carried in blood and other body fluids and can cause disease in people

# Bloodborne pathogens

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

# Hepatitis B (HBV)

- ▶ During 2011-2012, there were almost 847,000 noninstitutionalized persons in the United States with chronic hepatitis B virus infection.
- ▶ *"Hepatitis" means "inflammation of the liver,"*
- ▶ Hepatitis B is transmitted through blood and body fluids.

# Hepatitis B (HBV)

- ▶ very durable
- ▶ can survive in dried blood for up to seven days
- ▶ virus is the primary concern for employees who may come in contact with blood or potentially infectious materials.

# Hepatitis B (HBV)

## Symptoms:

- ▶ Initially mild "flu" like
- ▶ Fatigue
- ▶ Possible stomach pain
- ▶ Loss of appetite
- ▶ Nausea
- ▶ As the disease continues to develop:
  - jaundice (a distinct yellowing of the skin and eyes), and a darkened urine will often occur.

# Hepatitis B Vaccinations

- ▶ The Hepatitis B vaccination is given in a series of three shots. This series gradually builds up the body's immunity to the Hepatitis B virus
- ▶ Employees who have routine exposure to bloodborne pathogens should be offered the Hepatitis B vaccine series.



# Hepatitis C (HCV)

- ▶ In 2016, a total of 2,967 cases of acute hepatitis C were reported to CDC from 42 states.
- ▶ An estimated 3.5 million people in the United States have chronic hepatitis
- ▶ Most infections are due to illegal injection drug use.
- ▶ Transfusion-associated cases occurred prior to blood donor screening (1992).

# ***HCV TRANSMISSION***

- ▶ Occurs when blood from an infected person enters the body of a person who is not infected.
- ▶ HCV is spread through sharing drug paraphernalia and personal items.
- ▶ Also spread by non-professional tattoos and body piercings.
- ▶ It can also be spread by sex.

# ***HCV SIGNS & SYMPTOMS***

- ▶ 80% of persons have no signs or symptoms
- ▶ jaundice
- ▶ fatigue
- ▶ dark urine
- ▶ abdominal pain
- ▶ loss of appetite
- ▶ nausea

Majority of cases are diagnosed in baby boomers  
(1945-1965)

# ***HCV* PREVENTION**

- ▶ There is no vaccine to prevent hepatitis C.
- ▶ Do not share needles or other drug items.
- ▶ Do not share personal care items that might have blood on them (razors, toothbrushes).

# Human Immunodeficiency Virus (HIV)

- ▶ Caused by a virus called the human immunodeficiency virus, or HIV
- ▶ Once infected with HIV, may be many years before AIDS actually develops
- ▶ Attacks and weakens the body's immune system and those infected cannot fight infections.

# Human Immunodeficiency Virus (HIV)

- ▶ AIDS is a fatal disease with no known cures.
- ▶ Treatment is improving
- ▶ 39,782 new cases in 2016
  - 26,570 Bisexual and gay men
  - 9,578 Heterosexuals
  - 3,425 People who inject drugs

# Human Immunodeficiency Virus (HIV)

- ▶ You cannot get HIV from casual contact.
- ▶ HIV is spread primarily by sexual contact and injecting drug use.
- ▶ The virus can also be spread from mother to child such as during pregnancy, labor, delivery or breastfeeding.
- ▶ The virus does not survive well outside the body.

# (HIV) Symptoms:

- ▶ Symptoms of HIV infection can vary, but often include:
  - ▶ Weakness
  - ▶ Fever
  - ▶ sore throat
  - ▶ Nausea
  - ▶ Headaches
  - ▶ Diarrhea
  - ▶ A white coating on the tongue
  - ▶ Weight loss



# Bloodborne pathogens

## Modes of Transmission

- ▶ Bloodborne pathogens can be transmitted through contact with infected human **blood** and **other potentially infectious body fluids** such as:
  - ▶ Semen
  - ▶ Vaginal secretions
  - ▶ Cerebrospinal fluid
  - ▶ Synovial fluid
  - ▶ Pleural fluid

# Bloodborne pathogens

## Modes of Transmission

- ▶ Peritoneal fluid
- ▶ Amniotic fluid
- ▶ Saliva (in dental procedures), and
- ▶ Any body fluid that is visibly contaminated with blood.
- ▶ It is important to know the ways exposure and transmission are most likely to occur in your particular situation

# Bloodborne pathogens may be transmitted through

- Open sores
- Cuts
- Abrasions
- Acne
- Any sort of damaged or broken skin such as sunburn or blisters
- ▶ Unbroken skin forms an impervious barrier against bloodborne pathogens

# Bloodborne pathogens may be transmitted through

- ▶ the **mucous membranes** of the
  - Eyes
  - Nose
  - Mouth
- ▶ For example, a splash of contaminated blood to your eye, nose, or mouth could result in transmission.

# Exposure Control Plan

- ▶ *Definition:* a plan to eliminate or minimize employee exposures to blood borne pathogens utilizing engineering and work practice controls.

As determined by the Occupational Safety and Health Administration (OSHA), an exposure control plan must contain the following three elements:

**I. Exposure determination**

**II. Method of compliance**

**III. Procedure for the evaluation of  
circumstances surrounding exposure  
incidents**

# Exposure Determination

- ▶ Every job involves certain risks
- ▶ Important factors may determine the overall risk of occupational transmission of a bloodborne pathogen

# "Universal Precautions"

- ▶ Used to describe a prevention strategy for infection control
- ▶ Whether or not you think the blood/body fluid is infected with bloodborne pathogens, *you treat it as if it is*



# Methods of Compliance

- ▶ **Engineering and work practice controls** shall be utilized to eliminate or minimize employee exposure.
- ▶ Controls are to be examined, maintained, or replaced on a regular schedule to ensure their effectiveness.

# Methods of Compliance

- ▶ **Personal protective equipment –**
  - Needs to be available to employees
  - Examples: gloves, masks, eye protection, gowns
- ▶ Remove before leaving work area

# Methods of Compliance

- ▶ **Post-exposure follow-up –**
  - Evaluation
  - Hepatitis B vaccine
  
- ▶ **All follow-up must remain confidential**

# Housekeeping

- ▶ Cleaning/decontaminate
  - Work surfaces
  - Equipment
  
- ▶ Regulated waste

# Housekeeping

- ▶ Communicate hazards
  - Labels and signs
- ▶ Training for workers
- ▶ Maintain worker medical & training records

# Any Questions?

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