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Bloodborne Pathogens

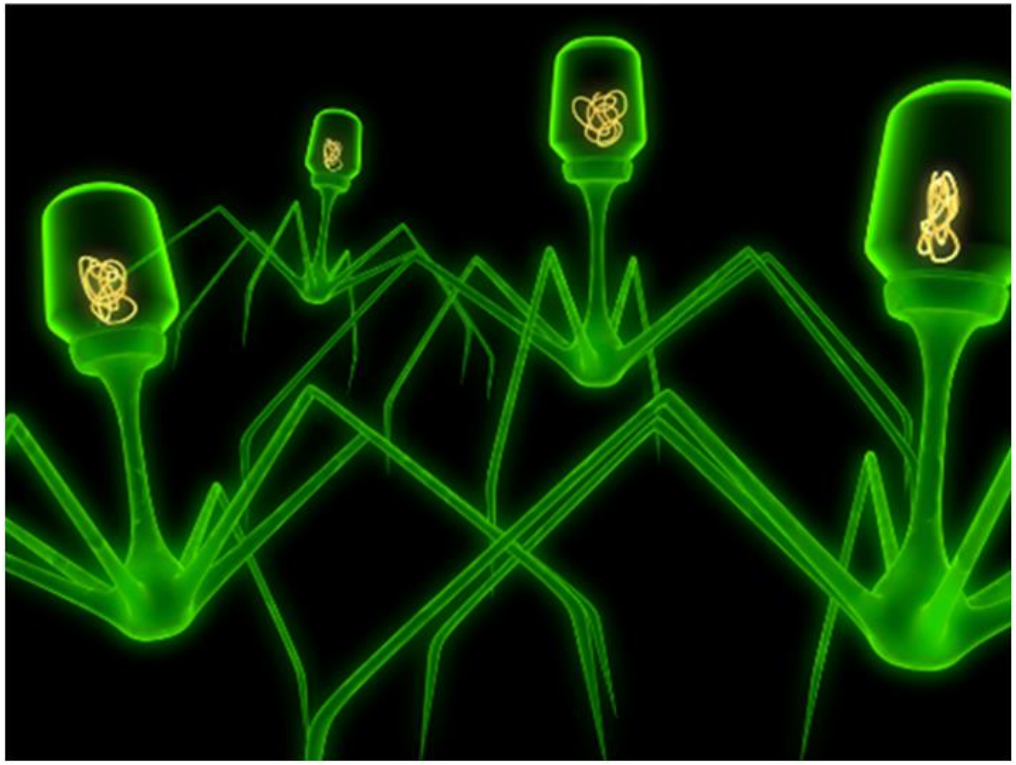
Welcome to:

Bloodborne Pathogens

This course was developed in accordance with the OSHA Bloodborne Pathogen Standard: 29 CFR 1910.1030.

To begin, click on: Course Instructions

Introduction to Bloodborne Pathogens



Course Overview

The Bloodborne Pathogens course is broken up into four sections

The first section will cover basic information about Bloodborne pathogens.

The second will detail a few of the prominent Bloodborne pathogens.

The third section explains proper techniques to reduced the risk of becoming infected with a Bloodborne pathogen.

The fourth section will discuss treatment and follow up steps if you think you have been exposed to a Bloodborne pathogen.

Introduction

All individuals who work in the healthcare field are at risk for exposure to Bloodborne pathogens

Bloodborne pathogens are **microorganisms** that are carried in blood and other body fluids which can cause disease in people.

Bloodborne pathogens include but are not limited to:

- The Hepatitis B virus (HBV)
- The hepatitis C virus (HCV)
- The human immunodeficiency virus (HIV)

Other infections that can be transmitted through contact with body fluids include:

- Hepatitis A, TB, Herpes, Measles, Syphilis, Chicken Pox, Staph infection and Malaria.

Annual training is required for all employees who can reasonably anticipate contact with blood or other potentially infectious body fluid while at work.

Transmission

Exposure to Bloodborne pathogens **(BBP)** can occur through needle sticks or cuts from sharp instruments that are contaminated with blood… or through contact of the eye, nose, mouth, or skin.

Bloodborne pathogens can be carried not only in blood, but also in other ***Potentially Infectious Material (OPIM)***. OPIM includes saliva in dental procedures, vaginal secretions, amniotic fluid, semen and cerebrospinal fluid. Additionally, OPIM includes any fluids that is contaminated with blood, and all body fluids in situations where it is impossible to differentiate between body fluids.

Methods of Transmission

Transmission occurs when pathogens from infected blood or body fluids enter the bloodstream of an uninfected person.

Bloodborne pathogens are most commonly transmitted through sexual contact, sharing hypodermic needles, from mother to infant, by accident puncture or by contact between broken or damage skin with infected body fluids.

The risk of infection may vary depending on the pathogen involved, type of exposure, amount blood involved and the amount of virus in the patient's blood at the time of exposure.

Methods of Transmission

Whenever there is blood to blood contact with infected body or body fluids, there is a potential transmission of Bloodborne pathogens. Unbroken skin forms the best natural barrier against transmission.

Any open sores, cuts, abrasions, acne or broken skin from blisters to sunburns gives Bloodborne pathogens an entry site past that natural barrier. A splash of contaminated blood to your eye, nose or mouth could also result in transmission.

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Bloodborne Pathogens >> 1. Introduction to Bloodborne Pathogens

Select the appropriate answer for the question below.

Q.1. Bloodborne pathogens are microorganisms that are carried in blood and other body fluids which can cause disease in people.

- True
- False

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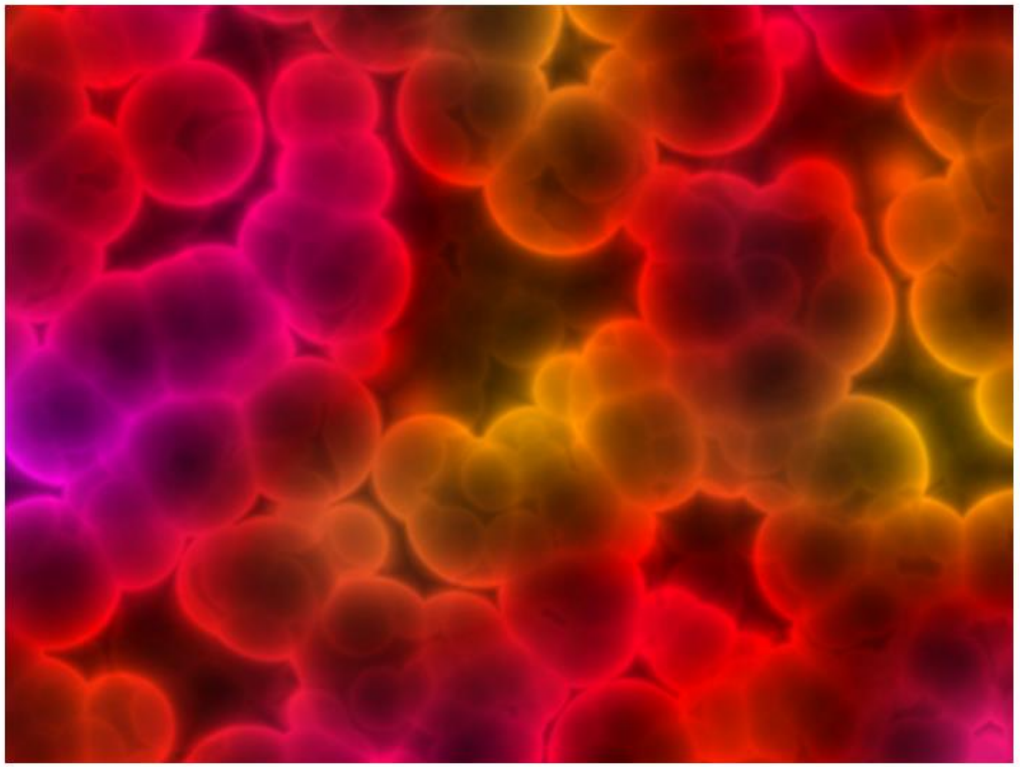
HBV, HCV, HIV

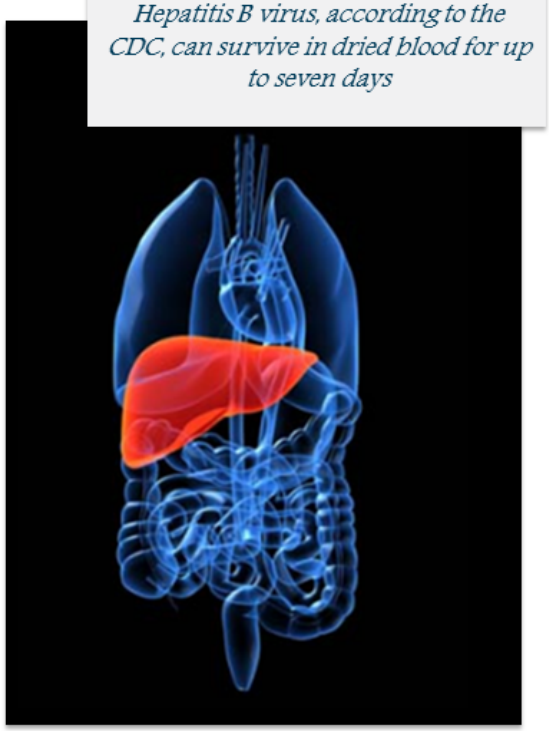


The Greatest Risk

Hepatitis is a virus that infects the liver, causing inflammation. This inflammation can lead to liver damage and/or death. **There is not a cure or treatment for HBV.** Symptoms of HBV are similar to the flu. As the disease develops the person may become jaundiced due to decreased liver function. Symptoms may take up to nine months to become noticeable.

Because of its long survival period HBV is much more transmissible than HIV. **It is estimated that eighty percent of exposures to blood come from needle sticks injuries.** In 1983 there were greater than thousand occupational infections and this number dropped to less than 400 in 2001 – an overall ninety-five percent decrease (CDC, unpublished data).

Hepatitis B virus, according to the CDC, can survive in dried blood for up to seven days



HBV Vaccine

There is a vaccine for hepatitis B!

The series consists of three vaccinations given over a six to eight month period. People who have received the HBV vaccine and developed immunity to the virus have virtually no risk of acquiring the infection. There is no danger of contracting the disease from the vaccine and you only need to do the vaccine series once. Your employer must offer this vaccine to you although you are not required to accept it. You may decline the vaccine but you will be required to sign a declination form.

HBV Vaccine

You can get the Hepatitis B vaccination from several places including your physician's office, a minor emergency clinic or a hospital or clinic that offers immunizations.

Do you need other vaccinations? Do you need a blood draw to test for the past vaccination titer levels? Think about getting these vaccinations or blood draws at the same time as an annual physical. You will be required to give blood for a cholestrol check anyway, so request that you may need for vendor credentialing clearance. Not only is this convenient, but you will save an office visit fee and a separate blood draw fee.

Hepatitis C or (HCV)

HCV is the most common chronic Bloodborne pathogen infection in the United States affecting approximately four million people.

The average risk for the infection after a needle stick or cut exposure to HCV-infected blood is **approximately 1.8 percent.** Most people with this virus are chronically infected and might not be aware of it because they are not chronically ill. A patient with HCV will normally present with mild fatigue, poor appetite, joint and body aches, nausea, and mild abdominal discomfort. According to the CDC chronic infection develops in seventy to eighty five percent of patients. **There is no vaccine for hepatitis C and no treatment after exposure that will prevent infection.**

Human Immunodeficiency Virus or (HIV)

HIV attacks the body's immune system, weakening it so fast that it cannot fight other deadly diseases.

Once a person has been infected with HIV it may be many years before Aids or acquired immune deficiency syndrome actually develops. While treatments are improving there is no cure for this fatal disease. The HIV virus is very fragile and will not survive long outside of the human body.

Approximately three percent of the United States population has evidence of the HIV infection. The average risk of HIV infection after a needle stick or cut exposure to HIV-infected blood is three blood is three-tenths of one percent or about one in three hundred.

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Bloodborne Pathogens >> 2. HBV, HCV, HIV

Select the appropriate answer for each question.

Q.1. Hepatitis B and C are types of bacteria that infect the liver causing inflammation.

- True
- False

Q.2. The average risk of infection from a single needlestick or cut exposure to HCV- infected blood is approximately _____?

- A. 18%
- 2. B. 10%
- C. 2.8%
- D. 1.8%

Q.3. The Hepatitis B virus, according to the CDC, can survive in dried blood for up to how many days?

- A. 2
- B. 14
- C. 10
- D. 7

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Reducing Risk

Reducing Risk

Most occupational exposure can be prevented by using safer techniques, disposing of used needles in appropriate sharps disposal containers, and using medical devices with safety features designed to prevent injuries.

To reduce your risk of exposure to bloodborne pathogens use the following:

- ✓ Engineering controls
- ✓ Work practice controls
- ✓ PPE
- ✓ Housekeeping
- ✓ Taking the appropriate vaccines

Work Practice Controls

Work practice controls are procedures that you must follow to reduce your risk to exposure of Bloodborne pathogens. Examples of this would be the use of **universal precautions, personal hygiene and hand washing.**

Universal precautions simply means treating all blood and body fluids as if they were infectious.

Washing your hands is the most important work practice control. You should wash your hands with soap and water every time you remove your gloves, come in contact with blood or OPIM or if your hands are visible soiled.

Engineering Controls

- Examples of **engineering controls** would be sharps containers, safety sharps such as self-sheathing needles, biohazard bags, and biohazard containers
- ***Engineering controls*** are mechanical systems that are in place to reduce risk as long as you use them appropriately.

Personal Protective Equipment

Personal protective equipment (PPE) is designed to protect you from coming in contact with blood and OPIM.

PPE includes gloves, mask, gowns, face shields, goggles and resuscitation mouthpieces.

All PPE should be inspected before you use it. Ensure that there are no holes, rips, tears, and that it is free of any defects.

Gloves, mask, gowns, face shields, goggles and resuscitation mouthpieces are all designed to keep potentially infectious material from passing through and reaching your skin, eyes, mouth and other mucous membranes.

The type of personal protective equipment required depends upon the task at the hand and the degree of exposure you anticipate.

Housekeeping

When you are working in and around medical facilities you should follow universal precautious with your personal laundry as well.

- According to the CDC the risk of actual disease transmission from soiled linen is negligible.
- At home, using the normal washing and drying cycles including hot or cold cycles with fifty to one hundred and fifty parts per million of chlorine bleach is adequate to ensure your safety.
- You can use commercial dry cleaning as well which render your clothes free from the risk of pathogen transmission.

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Bloodborne Pathogens >> 3. Reducing Risk

Select the appropriate answer for each question.

Q.1. Universal precautions apply only when the patient or individual has tested positive for a bloodborne pathogen.

- True
- False

Q.2. PPE includes:

- A. Gloves, goggles, gown and anti-bacterial soap
- B. Mask, hat and anti-bacterial soap
- C. Gloves, gown, hat, shoe protectors and X-ray vest
- D. mask, gown, face shield, gloves, goggles and a resuscitation mouthpiece

Q.3. Washing your hands is the most important work practice control.

- True
- False

Q.4. According to the CDC the risk of actual disease transmission from soiled linen is negligible.

- True
- False

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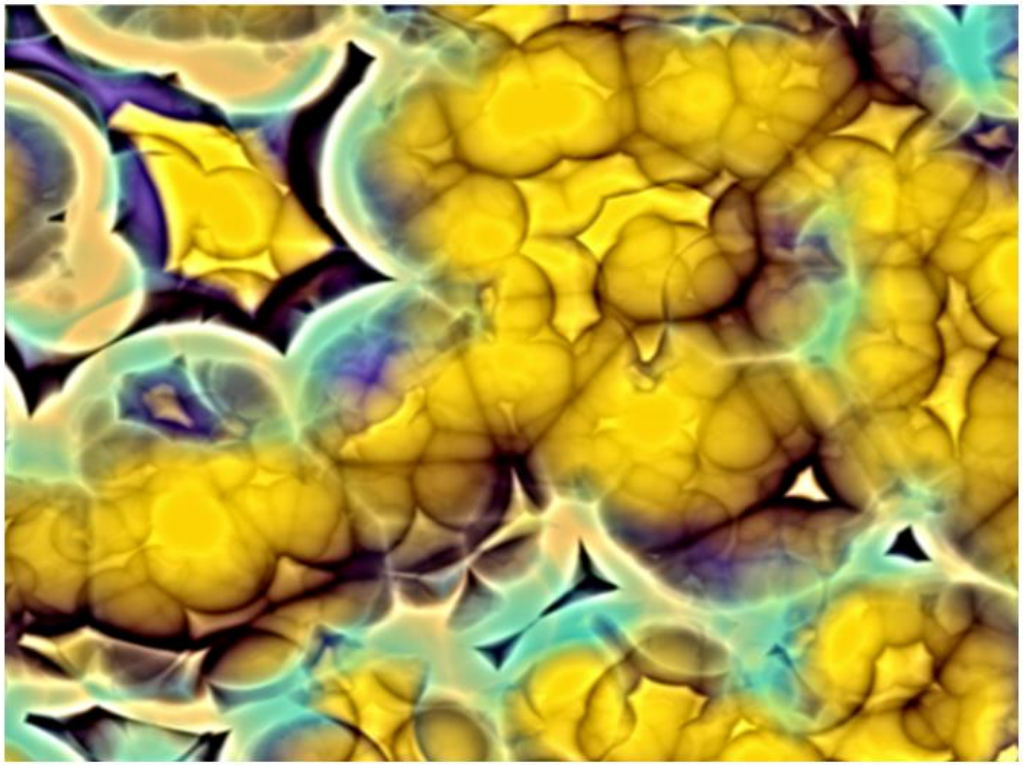
Exposure, Treatment and Follow-up



Exposure

The CDC recommends if you are exposed to Bloodborne pathogens or think you may have been exposed you must follow these steps

- **First, wash the area with soap and water.** Flush any splashes to the nose, mouth or skin with water. Irrigate eyes with clean water, saline, or sterile agents. There is no evidence that shows using antiseptic or squeezing the wound will reduce the risk of transmission. Do nut use a caustic agent, such as bleach, on the affected area.

- **Second, report the exposure to the department head.** You will also need to report the incident to your employer so that they will be able to take additional post exposure measures. You must seek medical attention immediately after exposure. Some treatments are more beneficial if started within 24 hours after initial exposure.

Post Exposure Hepatitis

For the hepatitis V virus (HBV), The Hepatitis B immune globulin (HBIG), alone or in combination with the vaccine is effective in preventing infection after you have been exposed.

The vaccine and the HBIG are both FDA approved. Women who are pregnant or breast-feeding can received the HBV vaccine and HBIG without fear that it will harm the fetus. Treatment for HBV should be started within 24 hours but no later than seven days after exposure.

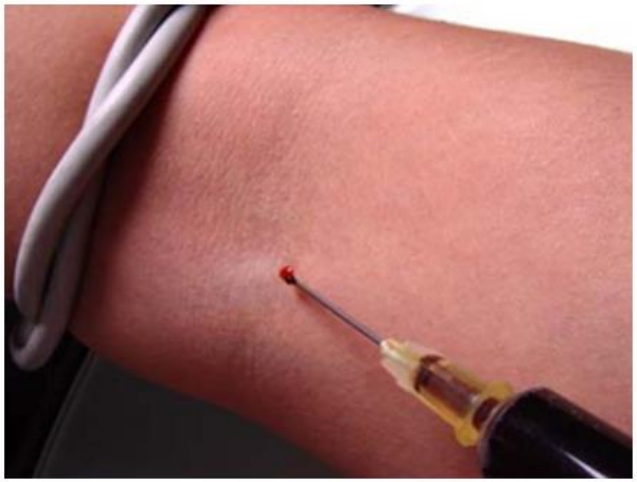
Unfortunately, there is nothing for post exposure treatment of HCV. HBIG and antiviral therapy are not recommended after exposure to HCV.

HIV Treatment

If you are exposed to HIV there are some results available from a small number of studies that shows that the **use of anti-retroviral drugs may reduce** the chance of HIV transmission.

There are side effects in using these drugs and in determining which drugs and at which dosage. Additionally, when to use them is a matter of judgement. **If treatment is determined to be useful you should start treatment within 24 – 36 hours after exposure.** If you wait any longer it may increase the risk of transmission.

Treatment and Follow Up with HBV, HCV and HIV



The HBV treatment is highly effective in preventing HBV infection

The CDC does not recommend routine follow up unless you begin to have symptoms of hepatitis.

Symptoms include: Jaundice, Loss of appetite, Nausea, Vomiting, Fever, Stomach pain, Joint pain and Extreme fatigue.

Treatment and Follow-up... continued

If you are exposed to HCV you should be tested for the HCV antibody and liver enzyme levels immediately after exposure to establish a baseline.

You should also get tested again in four to six months. If you experience any hepatitis symptoms, the same as HBV symptoms, contact your healthcare provider immediately.

Prevention Tips

- Hepatitis B is largely preventable by getting vaccinated.
- Universal Precautions and PPE will prevent occupational exposure to BBP.
- Prevent exposure to prevent infection.

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Bloodborne Pathogens >> 4. Exposure, Treatment and Follow Up

Select the appropriate answer for each question.

Q.1. The Hep B vaccine is FDA approved and can be given to pregnant women and women who are breast feeding.

- True
- False

Q.2. The first thing the CDC recommends that you do if you have been exposed to a BBP is what?

- A. Call the CDC
- B. Wash the area with soap and water
- C. Report it to the department head
- D. Wash the area with antiseptics and squeeze the wound

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Conclusions

You have completed the course. Click on the **View Test Status** button to see your score. If you would like to increase your score, you can correct the questions that you missed. If you passed the course, your certificate is ready to view. Click the **View Certificate** button to view your Certificate. If you can see your certificate, then it has also been added into your symplr account in your Credentials & Policies area. The hospital requirement for this certificate has now been satisfied!

Congratulations!