

VICTORIA COLLEGE

ALLIED HEALTH DIVISION

OCCUPATIONAL EXPOSURE TO BLOODBORNE PATHOGENS

INTRODUCTION

Bloodborne Pathogens are microorganisms that are present in human blood that can infect and cause disease in persons who are exposed to blood containing the pathogens. Bloodborne diseases have always been a serious concern in the United States. There are many diseases which are spread from blood to blood contact, but the two that are most prevalent and which cause the most problems are Hepatitis B (HBV) and Human Immunodeficiency Virus (HIV). Most people think of AIDS when they hear the words 'bloodborne pathogens' but actually infection with Hepatitis B is much more common.

In 1991, because of the increasing spread of these diseases, the Occupational Safety and Health Administration (OSHA) passed the Bloodborne Pathogens regulation. This regulation outlines standards for all employers to follow in order to reduce the risk of contracting bloodborne diseases while on the job. Every business must develop its own Exposure Control Plan. The plan must outline how exposure will be limited by using Standard Precautions, Engineering Controls, Safe Work Practices, Personal Protective Equipment, and Good Housekeeping Practices. In this Exposure Control Plan they are also required to list the personnel whose job duties expose them to blood and potentially infectious body fluids. Not every employee is occupationally exposed to bloodborne pathogens, but every employee must understand the risks of infection and safe practices to minimize that risk. The Exposure Control Plan must also cover implementing a Hepatitis B vaccination program, steps to be taken if an employee is exposed, the use of Biohazard Warning Labels and Signs, setting up and conducting Employee Training and Recordkeeping procedures.

TERMS AND DEFINITIONS

++Blood in this context refers to human blood, its components, or products made from human blood.

++Bloodborne Pathogens refers to microorganisms present in blood which can cause disease. HBV and HIV and HCV can be found in blood, spinal fluid, synovial fluid, vaginal secretions, semen, pericardial fluid, breast milk, peritoneal fluid, amniotic fluid and pleural fluid.

++Hepatitis B Virus, which causes inflammation of the liver, has been around the longest. It is the most prevalent form of Hepatitis and an estimated 18,800 new cases per year. One of the reasons it has been a significant threat is that approximately 80% of the people infected are not aware that they carry the infection. There are over one million 'carriers' in the United States. The Hepatitis B virus may survive and remain potentially infectious for up to a week or longer on contaminated surfaces. Some of the symptoms of HBV may be fatigue, weight loss, fever, or diarrhea. Some victims might not exhibit any symptoms and be unaware that they are carrying the virus. Only blood tests can positively identify the virus. Blood, saliva and other body fluids may be infected. The virus can be spread to family members, unborn infants and sexual partners. Fortunately, there is a vaccine for HBV. The complete vaccine series is mandatory for all Allied Health Students in the state of Texas.

++Human Immunodeficiency Virus is a more recent threat and is widespread in the United States. There are an estimated 1.2 million (CDC, 2015) people currently living with HIV in the U.S.

Today with approximately 50,000 new cases reported annually. HIV attacks the white blood cells that play a key role in the body's immune system. The HIV infection may develop into AIDS anywhere from 2 to 10 years after exposure. There is no cure for AIDS. Symptoms include fever, diarrhea and fatigue, flu-like symptoms that can go unnoticed. The victim can carry the virus for several years without exhibiting any symptoms. The most common mode of transmission is through sexual contact, but it can also be spread by contact with blood and body fluids. It is not spread through casual contact or working around an infected person. HIV infects people of all age, sex and race. Currently there is no vaccine for HIV.

++Hepatitis C virus is the most common chronic bloodborne infection in the US, estimating 3.2 million people are chronically infected. Currently there are no vaccine or immune globulin products available to prevent transmission, although therapy is evolving rapidly. HCV is transmitted the same as HBV, and it can lead to serious liver disease and death. Because of these risks, you should always follow Universal/Standard Precautions

++Other Potentially Infectious Materials includes human body fluids, contaminated body materials, unfixed human tissue and organs, HBV, HCV and HIV cultures, and infected experimental animals.

++Personal Protective Equipment (PPE) is specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms) not intended to function as protection against a hazard and are not considered to be PPE.

HEPATITIS B VACCINATION

Hepatitis B vaccination is mandatory; consists of a series of three injections; and must be completed before the student is allowed to go to the clinical setting.

METHODS OF TRANSMISSION

Bloodborne pathogens can enter your body through open cuts, abrasions on the skin, dermatitis, acne and the mucous membranes of your mouth, eyes or nose. You can also become infected by cutting yourself with a contaminated sharp object such as broken glass, sharp metal, needles, knives, and exposed ends of orthodontic wires. Bloodborne diseases can sometimes be transmitted to unborn babies from their Moms or through breast milk.

Potential sources of bloodborne pathogens: blood, body fluids that contain blood, semen, vaginal secretions, amniotic fluid, spinal fluid, fluid around the heart and lungs and joints, tissue removed from the body, and body fluids that may contain blood you cannot see.

Basically – if it is wet and not yours, don't touch it.

These viruses are NOT transmitted by casual contact, only intimate contact. Normally, shaking hands, using telephones, toilet seats and drinking fountains will not cause bloodborne infections, nor will donating blood.

UNIVERSAL / STANDARD PRECAUTIONS

The most important step in preventing exposure to and transmission of infections is to anticipate potential contact with infectious materials in routine and emergency situations. This means treating all human blood and other body fluids as if they contain Bloodborne Pathogens.

Diligent and proper hand washing is an essential component of infection control. Hands shall be washed:

- Immediately before and after physical contact with a patient/client/resident.
- Immediately after contact with blood or body fluids or garments or objects soiled with body fluids or blood;

- After contact with used equipment (e.g., stethoscope, emesis basin, and gloves); and
- After removing protective equipment, such as gloves or clothing.

Procedure for Hand Hygiene:

Handwashing:

1. Adjust water temperature, apply soap.
2. Wash hands vigorously with soap under a stream of running water for approximately 15 seconds.
3. Rinse hands well with running water; thoroughly dry with paper towels.
4. Turn off the faucet with a dry paper towel.

Bacteriostatic/bacteriocidal wet towelettes, 'handi-wipes', or instant alcohol-based hand cleaner can be used. After several uses of hand cleaner, hands should be washed with soap and water.

PERSONAL PROTECTIVE EQUIPEMNT

Gloves:

When possible, avoid direct skin contact with body fluids. Gloves shall be worn when direct care may involve contact with any type of body fluid. Minimize jewelry and wear the correct size and inspect for tears or holes. Gloves are never reused. After each use, gloves should be removed without touching the outside of the glove and disposed of in a lined waste container. After removing the gloves, hands should be cleaned according to the hand hygiene procedure.

There are several types of gloves:

- sterile: for invasive procedures and surgery;
- non-sterile: examination gloves, for many care procedures such as removing a dressing, or bathing broken skin areas;
- general purpose utility for cleaning or decontaminating care areas. These are more tear and puncture resistant, but are not a guarantee against needle-stick injury.

Masks, shields, and protective eyewear:

Wear these whenever there is risk of splash, spatter, or spray of blood or other infectious materials. Remove only after washing hands, handling by the eyepiece arms or masks ties and strings.

Protective Clothing:

You may also need gowns with long sleeves to protect clothing from splash. Remove these by washing hands first, remove without touching the outside of the gown, keep away from body and roll into a ball for disposal.

EXPOSURE CONTROL

Disposal of Infectious Waste

All used or contaminated supplies (e.g., gloves and other barriers, sanitary napkins, Band-Aids), except syringes, needles, and other sharp implements, should be placed into a plastic bag and sealed. Biohazard waste must be collected in a container with the red biohazard label clearly visible.

Used Needles, Syringe, and Other Sharp Objects

Needles, syringes, and other sharp objects should be placed **immediately after use** in a metal or other puncture-proof container that is leak-proof on the bottom and sides. To reduce the risk of a cut or accidental puncture by a needle, **needles should not be recapped, bent, or removed from the syringe before disposal**. Broken glass should never be picked up by hand and should be disposed of in a metal or other puncture-proof container.

Newer Federal requirements call for safer needle devices and engineering controls such as “needless IV systems.”

Body Waste

Body waste (e.g., urine, vomitus, and feces) should be disposed of in the toilet. If such body fluids as urine and vomitus are spilled, the body fluids should be covered with an absorbent sanitary material, gently swept up, and discarded in plastic bags.

Clean-Up

Spills of blood and body fluids should be cleaned up immediately with an approved disinfectant cleaner. A 1:10 solution of household bleach and water is effective against HIV. Procedure for clean up:

1. Wear Gloves
2. Mop up spill with absorbent material
3. Wash the area well, using the disinfectant cleaner supplied in the clinic or a 1:10 bleach solution (mix 1 part household bleach in 10 parts of water). Replace solution daily.
4. Dispose of gloves, soiled towel, and other waste in sealed plastic bags and place in garbage
5. Wash hands

Laundry

Laundry is placed in closed containers/bags to be sent to the laundry. Laundry soiled with blood will be contained in a biohazard bag.

Labels

Any container that holds blood or other potentially dangerous infectious materials must be marked with a 'biohazard' label.

Accidental Exposure

Accidental exposure to blood, body products, or body fluids places the exposed individual at risk of infection. The risk varies depending on the type of body fluid (e.g., blood vs. respiratory vs. feces), the type of infection, and the integrity of the skin that is contaminated.

Procedure:

1. Always wash the contaminated area immediately with soap and water
2. If the mucous membranes (i.e., eye or mouth) are contaminated by a splash of potentially infectious material or contamination of broken skin occurs, irrigate or wash area thoroughly
3. If a cut or needle injury occurs, wash the skin thoroughly with soap and water
4. If broken skin or mucous membranes are contaminated or a needle puncture occurs, the caregiver should document the incident and proceed with college exposure control plan. The person who was exposed to

the infectious matter should contact his/her health care provider for further care. The Exposure Incident Form should be completed and sent to the Division Chair. All information from the medical evaluation will remain confidential.

Bloodborne Pathogens are dangerous. The hazards can be greatly reduced by understanding the risks and becoming familiar with the Exposure Control Plan.

Now that you have reviewed the Bloodborne Pathogen training material, you can take the online test to verify your compliance with this yearly training.