BLOODBORNE PATHOGENS

A sharper image

Introduction

Our image of bloodborne diseases has sharpened in recent years due to research and technological advances. More is known about the transmission, prevention and treatment of diseases such as hepatitis B, hepatitis C and HIV (Human Immunodeficiency Virus) infection.

Research shows that safety precautions such as handling all blood and body fluids as though infectious, disposing of sharps properly, and using sharps safety devices have decreased the numbers of exposures to bloodborne pathogens. However, healthcare workers fail to use safety precautions consistently. You can change that by following safety measures. Let's take a closer look at the bloodborne pathogens putting you at greatest risk on the job: hepatitis B virus, hepatitis C virus and HIV.

Hepatitis B Virus

Hepatitis B virus (HBV) causes serious liver disease. About half of the people infected with hepatitis B have no symptoms. Those with symptoms may experience jaundice, fatigue, abdominal pain, loss of appetite, occasional nausea or vomiting. Most people infected with HBV recover and clear the infection. But about 10 percent become chronically infected. Each year, more than 5,000 people die from chronic liver disease and liver cancer linked to hepatitis B. As many as 200 of those who die are healthcare workers.

The hepatitis B virus poses a greater risk to healthcare workers than either the hepatitis C virus or HIV, since it is more easily transmitted. Fortunately, the hepatitis B vaccine can prevent the disease.

Hepatitis C Virus

Hepatitis C virus (HCV) causes a serious liver disease known as hepatitis C. This liver disease may cause symptoms similar to hepatitis B. However, there are important differences between hepatitis B and hepatitis C.

While 85 percent of people infected with HCV have chronic infections, only about 10 percent of those infected with HBV are chronically infected. The Centers for Disease Control and Prevention (CDC) reports about three million people in the United States are chronically infected with the hepatitis C virus while about 1.25 million are chronically infected with the hepatitis B virus. Further, many people infected with these two viruses have no symptoms at all: that includes about 50 percent of those infected with HBV and up to 75 percent of the people infected by HCV.

People chronically infected with hepatitis C may have no symptoms for up to 30 years, yet during that time the infection may be slowly damaging the liver. Hepatitis C is the leading indicator for liver transplants. Every year, up to 10,000 people die from hepatitis C related chronic liver disease. There is no vaccine to prevent hepatitis C. However, newly approved antiviral drugs have been effective in some people who have contracted the infection.

HIV

HIV attacks the immune system and causes it to break down. The clinical picture of HIV infection differs widely from person to person. A number of those infected remain apparently healthy for many years. The infected person becomes seriously ill when the immune system loses its ability to fight infections. Some infected people go on to develop AIDS.

As many as 900,000 people in the United States are infected with HIV, according to the CDC. The number of HIV-infected people who develop serious illness and who die from AIDS has decreased, thanks to the success of recent treatments. People with HIV now live longer and healthier lives. There is no preventive vaccine against HIV.

Transmission

The Big Picture

Hepatitis B, hepatitis C and HIV spread most easily through contact with blood. They also spread through contact with other potentially infectious materials, or OPIM, including semen and vaginal secretions, as well as any other body fluid or tissue containing visible blood.

OPIM also includes cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, amniotic fluid and saliva in dental procedures. Non-intact skin or organs from living or dead humans and, cell tissue or organ cultures and other biological matter from laboratory experiments are also considered to be OPIM.

In our society, bloodborne viruses are most commonly transmitted through sharing needles to inject drugs, by having unprotected sexual intercourse with an infected person, or passed from mother to unborn child before or during birth.

Focus on Exposures at Work

At work, you can be exposed to bloodborne pathogens if:

- A contaminated sharp punctures your skin
- Blood or OPIM splash your broken skin or mucous membranes of your eyes, nose or mouth.

According to the research, needlestick injuries cause 80 percent of exposures to healthcare workers. The Occupational Safety and Health Administration (OSHA) reports most needlestick injuries occur when disposing of needles, including cleaning up after a procedure, giving medications, drawing blood, recapping needles or handling trash and dirty linens.

Safety Guidelines

A Safe Picture
Your facility's Exposure Control Plan (ECP) details bloodborne pathogen safety measures, including a method of identifying and evaluating safety devices such as protective sharps. Your Exposure Control Plan is based on OSHA's Bloodborne Pathogen Standard and CDC guidelines for healthcare personnel. Here's a snapshot of the safety precautions you should take.

Hepatitis B Vaccine
According to OSHA, immunization against the hepatitis B virus has proven very effective. In 1985, 12,000 healthcare workers were infected with HBV on the job. By 1995, after immunizations were promoted, only 800 healthcare workers were infected at work, and that's currently true.

Today's vaccines are safe and very effective at protecting you from getting hepatitis B infection if the series is completed.

Standard Precautions

Standard Precautions means treating blood, all body fluids, excretions and secretions (except sweat), plus non-intact skin and mucous membranes as though infected with bloodborne or other pathogens. Standard Precautions incorporates features of both Universal Precautions and Body Substance Isolation practices to protect you against the risk of bloodborne pathogens as well as pathogens from moist body substances. Remember: all body fluids pose a potential risk of infection.

Personal Protective Equipment

To follow Standard Precautions you must use barrier protection, or personal protective equipment (PPE), when you anticipate touching blood, body fluids, secretions, excretions and contaminated surfaces. PPE may include gloves, gowns, lab coats, face shields or masks and eye protection, resuscitation bags, pocket masks or other ventilation devices. Some tasks require more PPE, some less and some none at all. The point is, you need to wear only as much equipment as necessary. Read your Exposure Control Plan for details.

Gloves
Gloves are the most common type of PPE. Single-use, disposable gloves that are low protein and powder-free are used for medical procedures, and heavy-duty utility gloves are used for some housekeeping duties. Gloves can be torn or punctured, so cover any hand cuts you may have before being gloved. They should fit snugly over your fingers and be pulled as far over your wrists as possible.

Single-use, disposable gloves should be worn only once, then thrown away. Always change gloves between each patient. If a glove tears, punctures, leaks or becomes contaminated, remove it as soon as you can and discard. Never reuse gloves. Utility gloves may be cleaned or decontaminated and reused if not damaged. If they are damaged, throw them out.

Avoid touching the outside of contaminated gloves when removing them. Then, wash your hands.

Other PPE
- Wear a mask and eye protection or a face shield to protect your eyes, nose and mouth during activities that may generate splatters of blood or OPIM.
- Wear a gown if you need to protect your clothing or skin from exposure. Use a fluid-resistant gown if you anticipate contact with large amounts of blood or body fluids, such as during childbirth.
- Wear a surgical cap or hood and shoe covers or boots when large amounts of blood may be encountered, for instance, during surgery or trauma care.
- Wear PPE when resuscitating a patient. Emergency respiratory devices and pocket masks isolate you from contact with a patient's body fluids. Make sure emergency ventilation devices are available where they're most needed, such as on crash carts and in certain patient and procedure rooms.

Your facility will provide you with necessary PPE and train you to use it. Make sure PPE fits properly. Check it routinely for physical flaws or damage. Remove as soon as possible if blood or OPIM penetrates PPE. Always remove PPE before leaving the work area. Immediately dispose of used PPE or have it laundered or decontaminated according to your facility's policy. Always wash your hands after removing PPE.

Safe Work Practices

Handwashing
Handwashing is your number one protection against infection, and it keeps you from infecting other people or objects. Wash hands with soap and running water for at least 15 seconds. Also wash your hands between all patient contacts to avoid transferring pathogens to other patients. Here's how. Wash hands with soap and running water for at least 10 to 15 seconds. Rub vigorously over all surfaces including above your wrists. Rinse thoroughly. Then dry with a clean paper towel and discard. Now using a clean paper towel, turn off the faucet. Use antimicrobial soaps only when indicated since they remove your skin's natural protective defenses and may cause dryness. The Centers for Disease Control and Prevention (CDC) recommends use of approved waterless alcohol antiseptic hand rubs if hands are not visibly soiled. Apply the product to the palm of one hand, rub hands together covering all hand surfaces and fingers until hands are dry. If hands are visibly soiled, you still must wash your hands with soap and water as soon as you can.

More of the Picture on Safe Work Practices

- You should not eat, drink or smoke where you are likely to be exposed to blood or body fluids. Also do not handle contact lenses or apply cosmetics or lip balms where exposure is possible. Never keep food or drinks in places where blood or OPIM are present.
- Never mouth-pipette or mouth-suction blood or OPIM.
- Always minimize splashing, spraying and spattering when performing procedures involving blood or OPIM.
- Transport specimens of blood or OPIM in closed, leak-proof containers. Wear gloves and handle carefully.
- Handle contaminated patient equipment with care. Do not let it touch your skin, mucous membranes, clothing, other patients, visitors or items in the environment. Clean reusable equipment properly before using it on another patient. Discard single-use items appropriately.
- Clean all blood and fluid spills promptly, according to your facility's policy. Keep work surfaces and protective coverings clean.
- Handle contaminated laundry carefully to prevent exposure of your clothing and skin. Wear gloves. Place in an appropriate container in the area where used. Deposit wet laundry in a leak-resistant container.
- Never use your hands or feet to push down trash since it may contain sharps or OPIM. Instead, gently shake down waste containers. Carry waste bags by the top, away from your body.
- Dispose of blood and other regulated medical waste in appropriately labeled, closable, leak-proof containers. Follow your state's regulations, as specified in your Exposure Control Plan.
- Be aware of fluorescent orange-red labels, red bags and containers, and warning signs. They warn you that the contents contain blood or OPIM.

Sharps Safety

You are at greatest risk of exposure to bloodborne pathogens when handling contaminated sharps. More than half a million sharps-related injuries occur each year, according to OSHA. Studies show that sharps safety devices may significantly reduce your risk of injury during procedures such as joining IV lines, drawing blood, injecting medications and suturing during surgery. The FDA and OSHA now recommend use of breakage-resistant blood capillary tubes to decrease exposure. Safety devices include needleless systems and engineered protective devices for needles and other sharps. You will be trained in the proper use of safety devices beforehand and will help evaluate their effectiveness.

Your Exposure Control Plan details sharps safety rules you should follow. Here are some general guidelines.

- Use a safe-needle device or needleless system for withdrawal of body fluids, accessing a vein or artery, or administering medications or fluids.
- Use either a needleless system or a needle with engineered sharps protection for any other procedure requiring needle devices, when available.
- Use non-needle sharps with engineered sharps protection when available.
- When using sharps, always follow effective, safe handling techniques to prevent injury.
- Never shear, break, bend, or recap contaminated needles or sharps, except in cases when recapping is required by the procedure. Then, use a resheathing device or a one-handed "scoop" method.
- Never reuse disposable sharps.
- Do not pick up contaminated broken glass (also a sharp) with your hands. Instead, use a broom and dustpan, forceps or tongs.
- Discard contaminated sharps immediately after use in an appropriate, puncture-resistant, color-coded container. Nearly one-third of all sharps injuries happen during disposal. The National Institute for Occupational Safety and Health (NIOSH) suggests this risk can be decreased by placing sharps containers within easy reach and slightly below eye level. Do not allow containers to overfill. Never reach into a container of contaminated sharps.
- Report all sharps injuries as directed in your Exposure Control Plan. Document sharps exposure incidents including date, time and type of sharp used; effectiveness of any safety device used; and how the injury could have been prevented, if possible. This information, entered into the Sharps Injury Log, is used to judge the effectiveness of current sharps safety devices.

What to Do if Exposed

Immediately, wash the exposed skin area, needlesticks and cuts with soap and water. Flush eyes and exposed mucous membranes with large amounts of clean water. Do not use caustic agents, such as bleach. Next, report the exposure to the designated person right away, so that post-exposure evaluation, counseling and any necessary treatment can begin. Act quickly, because for some infections, treatment should start right away. If you are exposed, don't panic. Remember: Most exposures do not lead to infection. To become infected, a large enough dose of the live virus must enter your bloodstream and overcome your body's defense system. To put it in perspective, here are the risks of contracting a bloodborne infection after a sharps injury. Studies report the risk of acquiring hepatitis B if unvaccinated is between 6-30 percent; for hepatitis C it's 1.8 percent; and for HIV the risk is approximately 0.3 percent or 1 in 300.

Summary

The risks of infection are real and should be taken seriously. You can protect yourself by using safe work practices. Research, better surveillance, preventive treatment and advances in technology will continue to give us a sharper image of bloodborne pathogens. The more we know about preventing the risks, the better we can protect ourselves.