FACT SHEET

Occupational Bloodborne Pathogen Exposures

A significant number of employees are at risk of occupational exposure to human blood and other body fluids containing microorganisms that can cause disease in humans.

The most common pathogens of concern are the human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV). HIV is the virus that causes Acquired Immune Deficiency Syndrome (AIDS). Hepatitis is inflammation of the liver, an essential organ that filters blood and detoxifies the body.

This Fact Sheet describes bloodborne pathogen exposure risk, preventive measures and post-exposure response.

Exposure and Infection Risk

Bloodborne pathogens are not passed by adults through casual contact in the workplace. HIV, HBV and HCV are not spread through food or water, sharing eating utensils, hugging, kissing, holding hands, coughing or sneezing. HBV and HIV are spread through direct contact with certain body fluids including blood, semen and vaginal fluids. HCV is typically spread through direct contact with infected blood.

The vast majority of occupational exposures do not result in infection. For example, after a needlestick or sharps exposure to HCV-positive blood, the risk of HCV infection is approximately 1.8 percent. Even so, any exposure can cause emotional distress that may manifest as anger, anxiety, fear, sleep loss and other conditions that can diminish work performance.

The Occupational Safety and Health Administration's Bloodborne Pathogens Standard (OSHA Standard 29 CFR 1910.1030) applies to employers and employees with occupational exposure risk. Such risk is defined as reasonably anticipated employee contact with blood or other potentially infectious materials (OPIM) that may result from the performance of an employee's duties.

OPIM includes fluids surrounding the brain, spine, knees, heart and lungs, sperm and vaginal secretions, and amniotic fluid. The following are not considered potentially infectious: tears, feces or urine, saliva (except in dental procedures where saliva may be mixed with blood), nasal secretions, sputum, sweat or vomit. Human bites have been shown to transmit HBV. Risk of HCV and HIV transmission by human bite is considered low. (A 2013 study on human bite pathogen risk recommends an algorithm for selective post-exposure testing depending on the nature of the bite.)

Examples of non-occupational risk factors include unprotected sex, body piercings with non-sterile instruments and sharing contaminated needles.
The Centers for Disease Control and Prevention (CDC) estimates 5.6 million workers in the health care industry and related occupations are at risk of exposure. Health care personnel include those in medical, surgical, dental, emergency response, public safety and corrections settings. Other occupations with limited exposure risk include the funeral industry; maintenance and waste removal services; teaching, mental health and social services; meat packing and food preparation; body art and the adult film industry.

In health care settings, occupational exposures typically occur through needlesticks or cuts from sharp instruments contaminated with an infected person’s blood, or through contact of the eye, nose, mouth or non-intact skin with blood or OPIM. Direct contact with concentrated HIV, hepatitis B or C (for example, in a lab without the presence of barrier protection) may be considered an exposure.

Some studies estimate that health care employees annually experience more than 400,000 parental exposures (puncturing of the skin by a needle or other sharp instrument) and that 1-in-10 health care workers in the U.S. sustain a splash exposure or needlestick injury. Industry observers believe many incidents are not reported.

Factors that may determine the overall risk for occupational transmission of a pathogen include the number of infected individuals in a population, the chance of becoming infected after a single contact from an infected person, and the type and number of contacts.

Prevention

Approaches to the prevention of bloodborne pathogen exposures include universal and standard precautions. Universal precautions treat all human blood and certain human body fluids as if they are infectious. Standard precautions include the use of hand washing and personal protective equipment such as gloves, gowns and masks whenever exposure to body fluids is anticipated.

In general, hand washing with soap and warm water is recommended to prevent the spread of all types of contagious diseases. Hands should always be washed after gloves are removed and after contact with blood, body fluids or OPIM. If soap and water are not immediately available, hand washing may be performed using antiseptic towelettes or moist sanitizer.

The following summarizes OSHA’s prevention requirements.
Exposure Control Plan

Employers must have a written exposure control plan designed to minimize occupational exposures in the workplace. The plan must identify job classifications, tasks and procedures in which workers have occupational exposure. It must be updated annually to reflect any changes in operations, hazards and work practices.

Employers also must document:
• Consideration and use of appropriate, commercially available safe medical devices
• Input from frontline workers on effective engineering and work practice controls

Warning Signs and Labels

Warning labels must be affixed to containers of regulated waste; containers of contaminated reusable sharps; refrigerators and freezers containing blood or OPIM; other containers used to store, transport or ship blood or OPIM; contaminated equipment that is being shipped or serviced; and bags or containers of contaminated laundry, except as provided in the standard. Facilities may use red bags or containers instead of labels. In research laboratories and production facilities, signs must be posted at all access doors when OPIM or infected animals are present.

Engineering and Work Practice Controls

Controls include:
1. Providing and ensuring the use of appropriate personal protective equipment.
2. Providing training on and enforcing practices for safe handling and disposal of contaminated sharps, specimens, laundry and other items.
3. Instructions for cleaning potentially contaminated surfaces and instruments.
4. Ensuring that contaminated sharps and bio-waste are always disposed of in secure containers.

Recommended practices include:
1. Use of personal protective equipment monitored and enforced by line management.
2. All personal protective equipment removed and placed in an appropriately designated area or container for disposal before any employee leaves the work area.
3. Protective equipment easily accessible and extra supplies stored at designated locations.
4. Immediate replacement of protective equipment used during an exposure incident.
Housekeeping
The following are examples of recommended housekeeping measures:

1. Decontaminate work surfaces with 10 percent solution of bleach or disinfectant in accordance with manufacturer’s instructions.

2. Pick up contaminated debris up with a dust pan and brush, tongs or other mechanical means. Do not allow employees to clean up broken glassware or contaminated sharp objects with their hands.

3. Place contaminated sharp objects in containers which are: 1) puncture-resistant, 2) labeled or color-coded, 3) leak proof on the sides and bottom, and that 4) do not require employees to reach by hand into a container.

4. Decontaminate equipment that may have become contaminated with blood or OPIM. When decontamination cannot be performed, bag equipment in leak-proof containers (such as red plastic bags labeled “bio-hazard”). If an injured employee’s contaminated clothing must be removed, place it in a plastic bio-hazard bag.

5. Prohibit eating, drinking, smoking, handling contact lenses or applying makeup at the site of an incident where there is the likelihood of exposure to blood/body fluids.

Hepatitis B Vaccination
The hepatitis B vaccination series should be made available at no cost after employee training and within 10 days of initial assignment to a job with occupational exposure risk. The vaccine is usually given as three or four shots over a six-month period. Vaccination is typically encouraged unless:
- An employee has previously received the series
- Antibody testing reveals the employee is immune
- Medical evaluation shows vaccination is contraindicated

If an employee chooses to decline vaccination, he or she must sign a declination form. Employees who decline may obtain the vaccination at a later date at no cost.

Training
A knowledgeable person must train occupationally exposed employees on preventive methods at initial assignment and at least annually. Mandatory training materials and topics include:

1. Access to a copy of OSHA’s Bloodborne Pathogens Standard.
2. Information on the epidemiology and symptoms of bloodborne diseases.
3. Information on modes of transmission of bloodborne pathogens.
4. A description of the employer’s Exposure Control Plan and how to get a copy.
5. How to recognize tasks that may involve exposure to blood or OPIM.
6. Use and limitations of methods to reduce exposure.
7. Information on the hepatitis B vaccine.
8. What to do and whom to contact after an exposure.
10. An opportunity for interactive questions and answers.

Post-Exposure Response

Covered employers must maintain a sharps injury log in compliance with OSHA Recording and Recordkeeping requirements. (Refer to the standard for exceptions).

In the event of an exposure, employers are expected to:
- Quickly evaluate the risk of infection
- Inform the employee about treatments available to help prevent infection
- Monitor the employee for treatment side effects
- Determine if infection occurs

Employers must make a free, post-exposure medical evaluation, appropriate treatment and counseling available to any employee who experiences an exposure incident. OSHA requires employers to document the route(s) of exposure. With consent, the response may involve testing the blood of the exposed employee and the source individual (as available).

Participation by the exposed employee is voluntary. The following procedures are recommended:

1. Refer an exposed employee for post-exposure evaluation and follow-up by a licensed physician or other health care professional as soon as possible.
2. Assign a supervisor or manager to be responsible for completing and submitting any required documents.

Hepatitis B vaccination may be administered within 24 hours of the time of exposure. The vaccine is as effective up 72 hours post-exposure as it is when given prophylactically (as a prevention measure) before exposure.

Components of a confidential medical evaluation typically include:

1. Documentation of the route of exposure and related circumstances.
2. Identification and documentation of the source individual unless prohibited by state or local law.
3. With consent, collection and testing of the exposed individual’s blood for serological status.
4. Post-exposure prophylaxis when medically indicated and follow-up counseling.
5. Evaluation of any reported illnesses.
Post-exposure anti-retroviral drug therapy for HIV is started as soon as possible and must be initiated within 72 hours of possible exposure. The mainstay of post-exposure prophylaxis (PEP) for hepatitis B is the HBV vaccine. In some cases hepatitis B immune globulin is recommended in addition to vaccine for added protection. A hepatitis C algorithm for follow-up and testing was updated in February 2017, with PEP not recommended. Refer to Information for Healthcare Personnel Potentially Exposed to Hepatitis C.

Recordkeeping
For recordkeeping purposes, employers are advised to establish and maintain a secure and confidential record of the following:

- A copy of the employee's hepatitis B vaccination status, vaccine administration dates and any related medical records
- A copy of all results of examinations, medical testing and follow-up procedures
- The employer's version of the health care professional's written opinion
- A copy of documents provided to the health care professional after the employee was exposed

Training records should include the following:
- Dates of training sessions
- Contents or summary of training sessions
- Names and qualifications of persons conducting training
- Names and job titles of all persons attending training sessions

Questions? Contact WorkCare at www.workcare.com or info@workcare.com.

Resources
1. Bloodborne Infectious Diseases: HIV/AIDS, Hepatitis B, Hepatitis C, Centers for Disease Control and Prevention
2. Bloodborne Pathogens and Needlestick Prevention, Occupational Safety and Health Administration

OSHA Citations
The most commonly violated sections of OSHA's Bloodborne Pathogens Standard that can result in citations include:

3. Use of engineering and work practice controls.
4. Availability of HBV vaccination.
5. Employee training program.