

ACTIVITY TITLE: **Overview Bloodborne Pathogens and Other Potentially Infectious Materials**

OBJECTIVES LIST OBJECTIVES IN OPERATIONAL/BEHAVIORAL TERMS	CONTENT (TOPICS) LIST EACH TOPIC AREA TO BE COVERED AND PROVIDE A DESCRIPTION OR OUTLINE OF THE CONTENT TO BE PRESENTED	TIME FRAME STATE THE TIME FRAME FOR THE TOPIC AREA.	FACULTY LIST THE FACULTY PERSON OR PRESENTER FOR EACH TOPIC	TEACHING METHODS DESCRIBE THE TEACHING METHODS USED FOR EACH
<ol style="list-style-type: none"> 1. <i>Each employee will review independently and with instructor the presentation of bloodborne pathogens and OPIM.</i> 2. <i>Each employee will retain policy and procedure manuals for resourcing.</i> 3. <i>Each employee will successfully complete a written test.</i> 4. . 	<ol style="list-style-type: none"> 1. <i>Definitions of key terminology and overview of the following: epidemiology of bloodborne pathogens, transmission modes; exposure control plan; population at risk; risk reduction; PPE utilization; vaccination; post-exposure plan.</i> 2. <i>Policy Procedure provided.</i> 3. <i>Test provided.</i> 	<ol style="list-style-type: none"> 1. <i>60 minutes</i> 2. <i>5 minutes</i> 3. <i>15 minutes</i> 	<ol style="list-style-type: none"> 1. <i>Assist DON or designee and employee self study</i> 	<ol style="list-style-type: none"> 1. <i>Training packet</i> 2. <i>Module 1 Presentation and policy manual.</i> 3. <i>Written test, Question & Answer</i>

Evaluation Methods: Objectives will be evaluated through written tests, verbal simulation of entire process, and demonstration of skills in a lab using durable medical equipment, supplies, and mannequins.

Evaluation Level/Category: Alspach’s Evaluation Model.

Overview: Bloodborne Pathogens and Other Potentially Infectious Materials

Definitions

Bloodborne Pathogens are pathogenic microorganisms present in human blood that may cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

Contaminated means the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

Engineering Controls are controls (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems) that isolate or remove the bloodborne pathogen hazard from the workplace.

Exposure Incident is a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that result from the performance of an employee's duties.

Needleless systems are devices that do not use needles for:

1. The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established;
2. The administration of medication or fluids;
3. Any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

Occupational Exposure means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from performance of an employee's duties.

Other Potentially Infectious Materials include:

1. The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids;
2. Any unfixated tissue or organ (other than intact skin) from a human (living or dead); and
3. HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions' and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Parenteral means taken into the human body or administered by means other than the digestive tract such as piercing mucous membranes or the skin barrier via needle sticks, human bites, cuts, and abrasions.

Personal Protective Equipment is specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard is not considered personal protective equipment.

Regulated Waste is a liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

Sharps with engineered sharps injury protections are a non-needle sharp or a needle device used for withdrawal of body fluids, accessing a vein or artery, or administration of medication or other fluids, with built-in safety features or mechanisms that effectively reduce the risk of an exposure incident.

Universal Precautions is an infection control technique. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infected with HIV, HBV or other bloodborne pathogens.

Work Practice Controls are controls that reduce the likelihood of exposure by altering the manner in which a task is performed (egg, prohibiting recapping of needles by a two-handed technique).

Training Program Overview

Explanation of the epidemiology:

Bloodborne pathogens are microorganisms present in blood, tissue, blood products or other potential infectious materials (OPIM) defined by the Centers for Disease Control as: semen, vaginal secretions, cerebrospinal fluid, pleural fluid, peritoneal fluid, pericardial fluid, amniotic fluid, synovial fluid, possibly breast milk, saliva in dental procedures.

PHI employees that provide direct care are at risk for both occupational exposure to blood and OPIM and acquiring bloodborne infections. The agency's clinical staff consisting of licensed practical nurses and registered nurses is identified as the personnel with the greatest risk of exposure. Office personnel do not provide client care and are not identified as an impacted population. The risk level of employee exposure to bloodborne pathogens is increased when care is provided to patients with infection and if exposure to contaminated material without the use of personal protective equipment occurs.

While there are numerous bloodborne diseases, those of primary significance to healthcare workers are hepatitis due to either hepatitis B virus (HBV), or hepatitis C virus (HCV), and acquired immunodeficiency syndrome (AIDS) due to the human immunodeficiency virus (HIV).

Symptoms of HBV, HCV and HIV Infections:

Hepatitis B: The hepatitis B virus has an incubation period of 4 to 28 weeks. Symptoms commonly associated with acute hepatitis B infection include headache, malaise, loss of appetite, nausea and occasional vomiting, moderate fever, and chills. Urine may become dark and stool light or clay colored. Icterus (yellowing of the sclera - "whites of the eyes") may or may not occur. Most patients either develop immunity (87 to 90%) and clear the infection or become chronic carriers (7%); chronic carriage is not associated with subsequent symptoms. One to three percent will develop rapidly progressive, fatal liver disease. The remaining 3 % of infected patients develop chronic active hepatitis and are at increased risk of developing cirrhosis and liver cancer.

Hepatitis C: Hepatitis C virus is predominantly spread through exposure to blood or OPIM by the parenteral route. HCV is the most common cause of post-transfusion hepatitis. Persons at high risk for HCV infection include intravenous drug abusers and past recipients of blood or blood products. Healthcare workers do not have an increased risk; however, acquisition of HCV by healthcare workers in the work place has occurred via inadvertent sharps injuries. The risk of exposure via contaminated environmental surfaces is not yet fully understood although likely minimal due to low concentration of virus in the blood. The incubation period is 2 weeks to 6 months. The clinical signs and symptoms of acute HCV infection cannot be distinguished from those of other types of acute viral hepatitis, such as HBV. Chronic liver disease develops in 50% of individuals with acute HCV infection. About 20% of those with chronic liver disease will develop chronic active hepatitis which is associated with an increased risk of cirrhosis and liver cancer.

Human Immunodeficiency Virus: HIV, the etiologic agent of AIDS, is spread predominantly through exposure to blood or OPIM by the parenteral route, from an infected mother to her unborn infant, or via sexual contact. Persons at high risk of becoming infected with HIV include homosexual or bisexual males, intravenous drug abusers, heterosexuals with multiple sex partners, hemophiliacs, and other persons who received blood or blood products prior to routine screening for HIV antibody began. Healthcare workers account for less than five percent of the reported AIDS cases each year. The most common mode of transmission of HIV to healthcare workers in the work place is inadvertent contaminated sharps injuries. An individual has about a 0.4% chance of becoming infected following an HIV-contaminated needle stick injury. Contaminated environmental surfaces are an unlikely source of transmission. The clinical symptoms in some individuals are flu-like illness occurring within 1 to 6 weeks after exposure to the virus. Fever, sweats, malaise, muscle pains, loss of appetite, nausea, diarrhea, and a sore throat are common symptoms. After a long, symptom-free (latent) period of up to 7 to 10 years, HIV infected individuals become symptomatic with development of enlarged lymph nodes, malaise, headache or diarrhea. AIDS develops when the HIV has destroyed many of the immune cells that protect us. Individuals with AIDS develop certain types of tumors or infections caused by opportunistic bacteria, fungi, viruses, and parasites that infrequently cause infections in otherwise healthy people. These opportunistic infections are the usual cause of death.

Modes of transmission of bloodborne pathogens:

Bloodborne pathogens are transmitted when contaminated blood or body fluids enter the body of another person. In the workplace setting, transmission is most likely to occur through: an accidental puncture by a sharp object contaminated with the pathogen; contact between broken or damaged skin and infected body fluids; or contact between mucous membranes and infected body fluids.

Unbroken skin forms an impervious barrier against bloodborne pathogens. However, infected blood or body fluids can enter your system percutaneously through open sores, cuts, abrasions, acne, and damaged or broken skin such as sunburn or blisters. Bloodborne pathogens can also be transmitted through the mucous membranes of the eyes, nose, or mouth. For example, a splash of contaminated blood to the eye, nose, or mouth could result in transmission.

There are also many ways that bloodborne pathogens are not transmitted. For example, bloodborne pathogens are not transmitted by touching an infected person, coughing or sneezing, or using the same equipment, materials, toilets, water fountains or showers as an infected person. It is important to know what the viable means of transmission for the bloodborne pathogens are in your workplace.

Exposure control plan

Exposure control begins with prevention. Simple interventions to eradicate possible exposures consist of practicing one or more of the following six steps: treat the infectious agents; isolate the reservoir; limit the portals of exit and entry; know transmission routes; and recognize client risk factors. Hand washing is key to successful exposure control prevention. Facilities are readily accessible to employees. If provision of hand washing facilities is not feasible, use either an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels or antiseptic towelettes. If antiseptic hand cleansers or towelettes are used, hands are washed with soap and running water as soon as feasible. Employees wash their hands immediately or as soon as possible after removal of gloves or other personal protective equipment (PPE). Employers shall ensure that employees wash hands and any other skin with soap and water, or flush mucous membranes with water immediately or as soon as possible following contact of such body areas with blood or other potentially infectious materials.

Tasks that may involve exposure to blood and other potentially infectious materials:

Healthcare providers may be exposed to blood and OPIM while providing routine or emergency client care. Examples of services that may potentially expose an employee to client blood or body fluids are as follows: endotracheal suctioning, tracheostomy tube change, continent or incontinent bowel or urine care, phlebotomy, peripheral IV insertion, and administration of SQ or IM medications.

Exposure Reduction (engineering controls, work practice, and PPE):

A safe home environment with utilities such as water and electricity are necessary to ensure a sanitary work environment. Disinfectants are used as indicated. Safety interventions include the use of needleless devices when possible; use of sharps supplies with safety features such as retractable needles; and proximal puncture resistant containers. Employees are required to use the appropriate protective equipment indicated for client care. Contaminated needles and other contaminated sharps are not to be bent or recapped. Immediately or as soon as possible after use, contaminated reusable sharps are to be placed in appropriate containers. These containers are: puncture resistant; labeled or color-coded in accordance with this standard; and leak proof.

Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational exposure. Food and drink are not to be kept where blood or OPIM are present. All procedures involving blood or OPIM are to be performed in such a manner as to minimize splashing, spraying, spattering, and/or generation of droplets of these substances.

Specimens of blood or OPIM are placed in an appropriately labeled and color-coded leak proof container during collection, handling, processing and sealed for storage, transport or shipment. If outside contamination of the primary container occurs, it is placed within an appropriately labeled and color-coded leak proof secondary container during handling and processing then sealed for storage, transport or shipment in accordance with the requirements of this standard. Examine equipment at risk of contamination with blood or OPIM prior to servicing and decontaminate as necessary. Remove and replace protective coverings, such as plastic wrap, aluminum foil, or imperviously-backed absorbent paper used to cover equipment and environmental surfaces, as soon as possible when overtly contaminated or at the end of the work shift. Do not pick up potentially contaminated broken glassware directly with the hands. It is cleaned up by mechanical means, such as a brush and dust pan, tongs, or forceps. Handle contaminated laundry as little as possible with a minimum of agitation. Wet, contaminated laundry that presents a reasonable likelihood of soak-through or leakage are placed and transported in bags or containers which prevent soak-through and/or leakage of fluids to the exterior.

Personal protective equipment used to prevent exposure:

Types: Personal protective equipment is provided to the visiting nurses and maintained in the client's home. Appropriate PPE such as gloves, gowns, face shields, masks, eye protection, resuscitation bags, and pocket masks are provided. PPE does not permit blood or other potentially infectious materials to pass through to employee's work clothes, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment is used. The employee uses appropriate PPE unless under rare and extraordinary circumstances, it was the employee's professional judgment that in the specific instance its use would have prevented the delivery of health care services or would have posed an increased hazard to the safety of the worker. The employer shall ensure that appropriate PPE in the appropriate sizes is readily accessible. Hypoallergenic gloves, powder-less gloves, or other similar alternatives will be readily accessible to employees with allergies.

Proper use: Gloves are worn when it is reasonably anticipated that the employee may have hand contact with blood, OPIM, mucous membranes, and non-intact skin; when performing vascular access procedures; and when handling or touching contaminated items or surfaces.

Masks in combination with eye protection devices, such as goggles or glasses with solid side shields, or chin-length face shields, are worn whenever splashes, spray, spatter, or droplets of blood or OPIM may be generated and eye, nose, or mouth contamination are reasonably anticipated. Appropriate protective clothing such as, but not limited to, gowns or outer garments are worn in occupational exposure situations. The type and characteristics are dependent upon the task and degree of exposure anticipated.

Location: A 30 day supply of PPE is maintained in the client's home. New shipments of PPE are delivered monthly. The client may store the case shipment of items in an appropriate storage area but must maintain an open box in the environment of care for easy access.

Removal-handling-disposal: Disposable gloves such as surgical or examination gloves are replaced as follows: upon completion of procedure; as soon as practical when contaminated; or as soon as possible if the ability to function as a barrier is compromised. If a garment is penetrated by blood or OPIM, the garment is removed immediately or as soon as possible. All PPE is removed prior to leaving the work area. When PPE is removed it is placed in an appropriately designated area or container for storage, washing, decontamination or disposal.

Decontamination: All equipment and environmental and working surfaces are cleaned and decontaminated after contact with blood or OPIM. Contaminated work surfaces are decontaminated with an appropriate disinfectant after completion of procedures; immediately or as soon as possible when surfaces are overtly contaminated; or after any spill of blood or OPIM; and at the end of the work shift if the surface may have become contaminated since the last cleaning. Client equipment and supplies requiring multiple uses are cleaned with warm soapy water and decontaminated as ordered by the physician or manufacturer.

Personal protective equipment selection:

If airborne precautions to prevent dust or small air particles are applicable, the following precautions are recommended: isolation, employee N-95 respirator, surgical mask for family/secondary caregivers, protective covering, and hand washing. The typical home care client has completed treatment in an acute care facility with air flow controls and institution of the indicated precautions.

If droplet precautions to prevent large particles in air from coughing, sneezing, suctioning are applicable use surgical masks, maintain distance of greater than three feet and use hand washing.

If contact precautions to prevent object to skin, or skin to skin are applicable, use gloves, gowns if contact, and hand washing.

Read the client's plan of care to identify the correct precautions required. If in doubt call the RN Case Manager.

Hepatitis B vaccine:

It takes only 3 shots to protect yourself and your loved ones against hepatitis B for a lifetime. The currently used hepatitis B vaccines are made synthetically and have been available in the U.S. since 1986. Common side effects include **soreness, swelling and redness at the injection site**. The vaccine may not be recommended for those with documented yeast allergies or a history of an adverse reaction to the vaccine. The vaccine is readily available at your doctor's office or local health clinic. Three doses are generally required to complete the hepatitis B vaccine series. The three-shot vaccine series is provided free of charge for employees.

If exposure occurs:

In the event of an unavoidable exposure, immediately remove source of contamination. Wash the affected area thoroughly. Notify the RN on Call or Director of Nursing for follow-up treatment of the exposure. Anticipate medical review if exposure is other than intact skin. Event specific details are documented on the report and monitored until resolution is obtained. All employees are required to report exposures to blood and OPIM verbally and in writing on the appropriate report. All employees are instructed on immediate action to control risks and referred for the appropriate medical attention. Diagnostic results are confidential and available to the employee. Exposures are tracked on the appropriate regulatory logs. Directors are responsible for surveillance and risk reduction strategies.

Labels:

Orange or red colored labels are used to indicate a possible biological hazard.

The RN is available to assist with questions and obtain answers.

Regulatory Resource Regarding OSHA's Bloodborne Standards:

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10051

PHI: See Operational Policy Manual for All Infection Control and Related Policies

Test Your Knowledge

Check true or false after each statement below:	True	False
1. Bloodborne pathogens can be transmitted through mucous membranes of the eyes, nose, and mouth, but not through broken skin.		
2. The law says you must have your blood tested following an incident involving exposure to blood or blood products.		
3. The main focus of engineering controls is behaviors that will keep you safe from exposure to contaminated blood.		
4. Regular prescription eyeglasses can be used in place of goggles.		
5. Standard Precautions cover all body fluids, secretions, and excretions (except sweat) whether or not they contain visible blood.		
6. Employees who are allergic to latex must be offered alternative types of protective gloves.		
7. Incidence reporting is required whenever an employee has been exposed to blood or OPIMs.		
8. HIV, HBV, HCV are the bloodborne pathogens that pose the greatest risk to health-care workers.		
9. You should never recap a needle unless no alternative can be found.		
10. Items with dried or caked blood or OPIMs are not considered regulated waste.		

Key: 1. F, 2. F, 3. F, 4. F, 5. T, 6. T, 7. T, 8. T, 9. T, 10. F