BLOODBORNE PATHOGENS
(1 Hour)

Beauty and Health Institute is a recognized provider of continuing education provider # 50-8859 by the Electrolysis Council of the State of Florida and the Florida Department of Health. Our courses fulfill continuing education requirements in all 50 states.

This course covers the requirements for annual bloodborne pathogen training as outlined by the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA).

The Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA) first published the Occupational Exposure to Bloodborne Pathogens Standard in 1991 in Title 29 of the Code of Federal Regulations 1910.1030. In 2001, in response to the Needlestick Safety and Prevention Act, OSHA revised the Bloodborne Pathogens Standard. The standard details what employers must do to protect workers whose jobs put them at risk for exposure to blood and other potentially infectious materials. OSHA regularly inspects healthcare agencies for compliance, and may fine employers if infractions are identified.

The standard requires employers to do the following:

- Establish a written exposure control plan to eliminate or minimize employee exposure to bloodborne pathogens and review and update the plan at least annually or whenever necessary to reflect new or modified tasks or procedures affecting employee exposure.
- Use engineering controls, devices that isolate or remove the bloodborne pathogen hazard such as sharps disposal containers and self-sheathing needles.
- Enforce work practice controls to reduce the likelihood of exposure by changing the way a task is performed, such as appropriate procedures for hand washing, sharps disposing, and handling contaminated materials.
- Provide personal protective equipment (PPE) such as gowns, gloves, and masks.
- Clean, repair, and replace this equipment as needed.
- Provide the Hepatitis B vaccination series to all employees with occupational exposure to bloodborne pathogens.
- Provide post exposure follow-up to any employee who experiences an exposure incident, at no cost to the employee.
- Use labels and signs to communicate hazards. This includes using warning labels affixed to containers of regulated waste and signs to identify restricted areas.
- Provide information and training to employees, upon hire and at least annually.
- Maintain employee medical and training records including a sharps injury log.

THE PATHOGENS

Bloodborne pathogens are microorganisms present in human blood or other potentially infectious materials (OPIM) that can cause disease in individuals who are exposed to the blood containing the pathogen. Many are relatively rare, such as malaria and syphilis. Others are common, such as the Hepatitis virus and the human immunodeficiency virus (HIV), which causes acquired immune deficiency, or AIDS.

In addition to blood, potentially infectious materials include any body fluid that might be infected, such as semen, vaginal secretions, cerebrospinal fluid, pleural (lung) fluid, saliva, tears, synovial (joint) fluid,

amniotic (uterine) fluid, peritoneal fluid (fluid that fills the abdominal cavity).

Two bloodborne pathogens are specifically addressed by OSHA standards because they are the most common and pose the greatest threat to employees who may be exposed. They are Hepatitis B (HBV) and human immunodeficiency virus (HIV).

Hepatitis means inflammation of the liver. Several strains of the Hepatitis virus have been identified: Hepatitis A, Hepatitis B and Hepatitis C are the most common. Hepatitis A is not a bloodborne pathogen and we will not discuss it here. The liver is an organ located at the top of the abdomen, just below the diaphragm. The liver performs several vital functions that serve to detoxify the blood cells, inactivate many chemical compounds, store glucose as glycogen, synthesize triglycerides and cholesterol, and produce plasma proteins. Diseases that inflame or damage the liver adversely affect the body's ability to perform these vital functions, leading to acute or chronic illness and sometimes death.

HEPATITIS B (HBV) Hepatitis B is an infection of the liver caused by the Hepatitis B virus. It is a serious infection responsible for death in 15% to 25% of those who develop chronic liver disease as a result of earlier Hepatitis B infection. In 2004, an estimated 60,000 persons in the United States were infected with HBV (CDC, 2007).

Hepatitis B is transmitted by direct contact with the blood or body fluids of an infected person. It is not spread through food or water or by casual contact. The disease is often chronic. Many people either do not exhibit symptoms or never fully recover. They are considered "carriers" of the virus.

The symptoms of Hepatitis B are often much like a mild flu. Initially there is fatigue, possible stomach pain, loss of appetite, and nausea. As the disease continues to develop, jaundice (a distinct yellowing of the skin and eyes) and darkened urine usually occurs.

People who are infected with HBV often show no symptoms for a period of time. After exposure, it can take up to 9 months before symptoms become noticeable. Loss of appetite and stomach pain, for example, commonly appear within 1 to 3 months, but can occur as soon as 2 weeks or as long as 9 months after infection. About 30% of infected individuals have no signs or symptoms (CDC, 2007). The only way to diagnose Hepatitis B disease is with a blood test.

There is no cure for HBV, but there are medications available to treat long-lasting HBV infection. Adefovir dipivoxil, interferon alfa-2b, pegylated interferon alft-2a, lamivudine, entecavir, and telbivudine are six medications used for the treatment of persons with chronic Hepatitis B. (CDC, 2007). Many people who contract the disease develop antibodies that help them get over the infection and protect them from getting it again. It is important to note that infection with HBV will not prevent someone from getting another type of Hepatitis. The Hepatitis B virus is very resilient, and it can survive in dried blood for up to 7 days (CDC, 2005). For this reason, the virus is a concern for medical personnel such as nurses and paramedics, as well as custodians, laundry personnel, and other employees who may come in contact with blood or potentially infectious materials.

Transmission of the Hepatitis B virus occurs when blood or body fluids from an infected person enter the body of a person who is not immune. HBV is spread by having unprotected sex with an infected person, sharing needles when using drugs, blood transfusions, needle sticks or sharps exposures on the job, or from an infected mother to her baby during birth. The Hepatitis B vaccine is the best protection from the disease.

HEPATITIS B VACCINE All employees who are exposed to blood or other potentially infectious materials as part of their job duties are eligible to be vaccinated against the Hepatitis B virus. The Hepatitis B vaccine is a noninfectious, yeast-based vaccine which is usually given in a series of three injections in the arm. It is prepared from recombinant yeast cultures, rather than human blood or plasma. Thus, there is no chance of developing HBV from the vaccine.

The vaccination consists of a series of three injections. The second injection should be given 1 month after the first, and the third injection 6 months after the initial dose. To ensure immunity, it is important to receive all three injections. The vaccine causes no harm to those who are already immune or to those who may be HBV carriers.

Although employees may opt to have their blood tested for antibodies to determine need for the vaccine, their employers may not make such screening a condition of receiving vaccination—nor are employers required to provide screening. For employees at risk for exposure, an antibody titer can be drawn 1 to 2 months after the vaccination series is completed to determine vaccine effectiveness. If a second vaccine series is indicated, it must be offered free of charge.

Employees who decide to decline vaccination must complete a declination form. An employee may opt to take the vaccine at any time even after initially declining it.

HEPATITIS C (HCV) Hepatitis C is a serious infection of the liver caused by the Hepatitis C virus, a bloodborne pathogen. An estimated 4.1 million Americans have been infected with HCV, of whom 3.2 million are chronically infected. Hepatitis C is becoming a bigger and more dangerous problem than Hepatitis B (CDC, 2008).

Transmission of the virus occurs when blood or body fluids from an infected person enter the body of a person who is not infected. HCV is spread through sharing needles when using drugs, through needle sticks or sharps exposures on the job, through blood transfusions, or from an infected mother to her baby during birth.

Hepatitis C is a progressive disease that varies from person to person. About 75% to 85% develop chronic Hepatitis, 20% develop cirrhosis, and 1% to 5% of those with cirrhosis may die of liver cancer. Some people infected early in life take years to present with the disease symptoms (CDC, 2008).

The symptoms of Hepatitis C include jaundice, fatigue, dark urine, abdominal pain, loss of appetite and nausea. Eighty percent of infected individuals have no signs or symptoms (CDC, 2008).

Treatment is not always effective for HCV, and all infected persons are not candidates for treatment. Interferon and Ribavirin are two drugs licensed for the treatment of persons with chronic Hepatitis C. Combination therapy, using pegylated interferon and ribavirin, is currently the treatment of choice. There is no vaccine to prevent Hepatitis C. At this time, there is no recommendation for the use of antiviral agents upon exposure to HCV.

Adherence to Universal Precautions and Body Substance Isolation (BSI) is the most effective way for healthcare workers to prevent exposure to the virus.

Human Immunodeficiency Virus (HIV) As noted earlier, the human immunodeficiency virus (HIV) causes acquired immune deficiency syndrome, or AIDS. HIV attacks the body's immune system, weakening it so that it cannot fight other deadly diseases. Though a person has been infected with HIV, it

may be many years before AIDS develops. AIDS is a fatal disease, and while treatment for it is improving, there is no known cure.

At the end of 2003, an estimated 1.1 million people in the United States were living with HIV/AIDS. In 2006, 35,314 new cases of HIV/AIDS were diagnosed in the 33 states with confidential HIV reporting (CDC, 2008).

HIV is spread by sexual contact with an infected person, by sharing needles and/or syringes with someone who is infected, and, less commonly, through transfusions of infected blood or blood clotting factors. Babies born to HIV-infected women may become infected before or during birth or through breastfeeding after birth. HIV is not spread through contaminated food or by casual contact.

In the healthcare setting, personnel have been infected with HIV after being stuck with needles containing HIV-infected blood or, less frequently, after infected blood gets into a worker's open cut or a mucous membrane such as the eye, mouth, or nostril. By December 2002, occupational exposure to HIV had resulted in 57 documented cases of positive HIV tests among healthcare personnel in the United States (CDC, 2003).

The symptoms of HIV infection vary, but often include weakness, mild viral illness within 6 weeks, fever, sore throat, nausea, headaches, diarrhea, a white coating on the tongue, weight loss, and swollen lymph glands.

HIV/AIDS infection occurs in three broad stages. In the first stage, the person is actually infected with HIV. After the initial infection, the infected individual may show few, or no signs of illness for many years. During the second stage, the individual may suffer swollen lymph glands or other lesser diseases that begin to take advantage of the body's weakened immune system. The second stage is believed to lead eventually to AIDS. In the third and final stage, that of AIDS itself, the body becomes completely unable to fight off life-threatening diseases and infections.

The HIV virus is fragile and does not survive long outside the human body. It is primarily of concern to employees providing first aid or medical care in situations involving fresh blood or other potentially infectious materials. It is estimated that the chances of contracting HIV in a workplace environment are minimal. However, because it is such a devastating disease, all precautions must be taken to avoid exposure.

There is no vaccine to prevent HIV infection. Adherence to Universal Precautions is the most effective means of protection.

Although preventing blood exposure is the primary means of preventing occupationally acquired human immunodeficiency virus infection, appropriate postexposure management is an important element of workplace safety. Occupational exposure to HIV must be considered an urgent medical concern to ensure timely administration of postexposure prophylaxis. The Centers for Disease Control recommend a four-week regimen of medication for prophylaxis after exposure to infected body substances.

MODES OF TRANSMISSION Bloodborne pathogens such as Hepatitis B and HIV can be transmitted through contact with infected blood and other potentially infectious body fluids such as semen and vaginal secretions, cerebrospinal fluid, pleural and peritoneal fluid, amniotic fluid, saliva in dental procedures, and any body fluid that is visibly contaminated with blood.

Transmission of a bloodborne pathogen can occur through:

- Sexual contact without a condom
- Sharing of hypodermic needles
- From mothers to their babies at or before birth
- Accidental puncture from contaminated needles, broken glass, or other sharps
- Contact between broken/damaged skin and infected body fluids
- Contact between mucous membranes and infected body fluids

Unbroken skin forms an impervious barrier against bloodborne pathogens. However, infected blood and body fluids can enter your system through open sores, cuts and abrasions, acne, any damaged or broken skin, or the mucous membranes of eyes, nose, or mouth if you are splashed with contaminated fluid.

RISK ASSESSMENT It is important to know the ways exposure and transmission are most likely to occur in your work situation. Any time there is blood-to-blood contact with infected blood or body fluids, there is a risk. In most situations, transmission likely occurs because of accidental puncture from contaminated needles or other sharps, contact between broken skin and infected body fluids, or contact between mucous membranes and infected body fluids.

Healthcare personnel are at high risk due to routine exposure to blood and other potentially infectious body fluids such as nasal secretions, saliva, sweat, tears, vomitus, urine, feces, cerebrospinal fluid, uterine fluid, and peritoneal fluid. Accidental puncture from contaminated needles and other sharps is the most prevalent risk for healthcare workers.

PREVENTION Exposure Control Plan Employers are required to develop and make available an exposure control plan (ECP). The plan is in place to protect employees from health hazards associated with bloodborne pathogens and provide appropriate treatment and counseling if an exposure incident occurs. Know where your exposure control plan is located and what it includes.

The exposure control plan includes detailed information about ways your employer provides a safe and healthful work environment, including:

- Who is responsible for implementing the plan
- Determination of employee exposure
- Methods of exposure control such as Universal Precautions, engineering and work practice controls, personal protective equipment (PPE), and housekeeping
- Hepatitis B vaccination
- Postexposure evaluation and follow-up as well as the procedures for evaluating the circumstances surrounding an exposure incident
- Communication of hazards to employees
- Training and recordkeeping

Employers are required to implement a variety of preventive measures to reduce or eliminate the risk of exposure to bloodborne pathogens, including Universal Precautions, work practice controls, PPE, engineering controls, and vaccination.

Universal Precautions is the name used to describe a prevention strategy in which all blood and potentially infectious materials are treated as if they are actually infectious, regardless of the perceived status of the source individual. In other words, whether or not you think the blood/body fluid is infected

with bloodborne pathogens, you treat it as if it is. This approach is used in all situations where exposure to blood or potentially infectious materials is possible. In addition, it means that certain engineering and work practice controls shall always be utilized in situations where exposure may occur.

The Bloodborne Pathogen Standard allows for healthcare facilities to use acceptable alternatives to Universal Precautions. Alternative concepts in infection control are called Body Substance Isolation (BSI) and Standard Precautions. These methods define all body fluids and substances as infectious. These methods incorporate not only the fluids and materials covered by the Bloodborne Pathogens Standard but expand coverage to include all body fluids and substances. (OSHA, 2008).

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Wearing gloves, gowns, masks, and eye protection can significantly reduce health risks for employees exposed to blood and other potentially infectious materials. Employers are required to provide, clean, and maintain appropriate personal protective equipment (PPE) and clothing free of charge to employees. Latex-free PPE must be made available on request.

Personal protective equipment must be readily accessible to employees and available in appropriate sizes. It is important to know what type of personal protective equipment is available to you at work and where it is stored. To protect yourself, you must have a barrier between you and any potentially infectious material.

Personal protective equipment includes:

- Gloves. Nonsterile disposable gloves should be worn when soiling of the hands with blood or body fluids is likely.
- Utility gloves. To prevent injuries during extrication or when working in other hazardous environments where broken glass or sharps may be present.
- Gowns. Outerwear that is impervious to fluids should be worn when soiling of exposed skin or clothing is likely.
- Tyvex suit. One---piece, impervious outerwear with zipper. May have hood and booties attached. To be worn when gross contamination with blood and body fluids is anticipated.
- Face shield. One---piece face protection to be worn while performing invasive techniques including IV therapy, suctioning, and intubations, or any time there is an opportunity for blood or body fluids to be splashed, sprayed, or splattered (not to be used for TB protection).
- Goggles. Eye protection that includes shielding front, sides, and top. Goggles/safety glasses with side and top shields as well as full---face shielding are all acceptable. Prescription glasses are acceptable if side shields are added.
- Mask (surgical). Disposable mask to be placed over the mouth and nose. Should be worn when splashing of blood or body fluids is likely. Should be worn with eye protection.
- Head coverings. Cap that covers hair. Should be worn when splashing of blood or body fluids is likely.
- Booties. Outerwear used to cover shoes/boots when exposed to blood and body fluids.
- Turnout gear. Coat and pants that are fire---resistant and may provide protection during extrication.
- Steel---toed shoes/boots. Protective footwear.
- Hard hats. Protective head covering to be worn during extrication.
- Body armor. Bulletproof vest to be worn for protection when placed in potentially hostile situations.

Gloves, Your First Defense
Gloves are to be worn when contact with blood or other potentially infectious materials or contaminated surfaces is anticipated. Gloves should be made of latex or other water-impervious materials. If the glove material is thin or flimsy, double gloving can provide an additional layer of protection. If you are allergic to standard gloves, you must be provided with an alternative at no charge.

If you know you have cuts or sores on your hands, you should cover these with a bandage or similar protection as an additional precaution before donning your gloves. Always inspect your gloves for tears or punctures before putting them on. If a glove is damaged, don't use it. When taking contaminated gloves off, do so carefully. Make sure you don't touch the outside of the gloves to your bare skin, and be sure to dispose of the gloves in a proper container so that no one else will come in contact with them.

PPE Rules to Follow
- Know how to use the equipment.
- Always wear PPE in exposure situations.
- Remove and replace PPE that is torn, punctured, or has lost its ability to function.
- Remove clothing that becomes contaminated with blood or body fluids as soon as possible.
- Remove PPE before leaving the work area.
- Handle contaminated laundry as little as possible.
- Place contaminated PPE in appropriately labeled bags or containers until disposed of, decontaminated, or laundered.
- Know where these bags or containers are located in your work area.

WORK PRACTICE CONTROLS refer to the processes and procedures used to ensure that work is conducted in a safe and healthy manner. Work practice controls are an essential component of a safe work environment.

Work practices to learn and follow include: proper and timely hand washing; minimize splashing, spraying of any potentially-infectious material; proper decontamination and sterilization of equipment and supplies; cleanup, care, and maintenance of supplies and equipment; proper disposal of used supplies and equipment; keeping all food and drink away from areas where blood or potentially infectious materials are present; no eating, drinking, smoking, applying cosmetics or lip balm, or handling contact lenses where there is a risk of contamination.

Decontamination To minimize exposure to bloodborne pathogens, effective decontamination is essential. Use either a 10% household bleach solution, Lysol, or another EPA-registered disinfectant. Check the label of all disinfectants to be sure they meet this requirement.

If you are cleaning up a blood spill, carefully cover the spill with rags or paper towels. Pour disinfectant solution over the rags or towels and let it sit for 10 minutes or follow the manufacturer's recommendations.

Hand washing is one of the most important and easiest practices used to prevent transmission of Bloodborne pathogens. Hands or other exposed skin should be thoroughly washed as soon as possible following an exposure incident. Hands should also be washed immediately or as soon as feasible after removal of gloves or other PPE.

Use soft antibacterial soap, if possible. Avoid harsh abrasive soaps, as these may open fragile scabs or other sores. Because hand washing is so important, you should familiarize yourself with the location of

the hand washing facilities nearest to you. Public restrooms, janitor closets, and so forth may be used for hand washing if they are normally supplied with soap.

If you are working in an area without access to such facilities, you may use an antiseptic cleanser in conjunction with clean cloth/paper towels or antiseptic hand wipes. If these alternative methods are used, hands should be washed with soap and running water as soon as feasible.

ENGINEERING CONTROLS are controls that isolate or remove the bloodborne pathogens hazard from the workplace. Engineering controls include any physical device or equipment used or installed to prevent occupational hazard exposure, illness, or injury. Examples of engineering controls include sharps disposal containers, self-sheathing needles and safer medical devices, such as needleless systems.

Employers must select and implement appropriate engineering controls to reduce or eliminate employee exposure. It is important for you to learn and use the engineering controls available to you in your work environment.

Sharps Handling
Sharps are anything that can puncture the skin, such as needles, blades, scissors, or broken glass. A needle stick or a cut from a contaminated sharp can lead to infection from a bloodborne pathogen. Proper handling and disposal of sharps greatly reduces this risk. Sharps containers should be closable, puncture-resistant, and leak-proof on the sides and the bottom. They must be labeled or color-coded. Keep the following guidelines in mind when handling sharps:

- Never recap, break, or shear needles.
- To move or pick up needles, use a mechanical device or tool such as forceps, pliers, or broom and dustpan.
- Dispose of needles in labeled sharps containers only.
- When transporting sharps containers, close the containers immediately before removal or replacement to prevent spillage or protrusion of contents during handling or transport.
- Fill a sharps container up to the fill line, or two-thirds full. Do not overfill the container.

Warning Labels
Warning labels need to be affixed to containers of regulated waste; refrigerators and freezers containing blood or OPIM; and other containers used to store, transport, or ship blood or OPIM. These labels are fluorescent orange, red, or orange-red. Bags used to dispose of regulated waste must be red or orange-red, and they too must have the biohazard symbol readily visible upon them.

Regulated waste refers to any liquid or semi-liquid blood or other OPIM, contaminated items that would release blood or OPIM in a liquid or semi-liquid state if compressed, items that are caked with dried blood or OPIM and are capable of releasing these materials during handling, and contaminated sharps.

EXPOSURE INCIDENT If you experienced a needle stick or other sharps injury or were exposed to the blood or other body fluids of a patient during the course of your work, immediately follow these steps:

- Wash needle sticks and cuts with soap and water.
- Flush splashes to the nose, mouth, or skin with water.
- If your eyes were involved in the exposure, irrigate your eyes with clean water, saline, or sterile irrigation solution.
- Report the incident to your supervisor, including how, when, where, and who, and describe events

in as much detail as possible.
- Immediately seek medical treatment.

POSTEXPOSURE FOLLOW-UP

Your employer must provide you with a written report telling you how a bloodborne pathogen might have entered your body and a description of what happened when you were exposed. Your employer must identify the source individual (the person who might have infected you) unless the source individual is unknown or state or local law prohibits disclosure. If the source person is known, many states require that the person be tested for HBV and HIV and notified of the results. Your blood must also be collected and tested, after you have agreed to the test.

Medical care will be provided by your employer at no charge to you. All test records are confidential. You must be given a copy of the healthcare professional's written opinion with 15 days after your medical evaluation is finished. You will be given post exposure prophylaxis if medically necessary, as recommended by the U.S. Public Health Service. If you wish, you will be given counseling that includes recommendations for transmission and prevention of HIV.

FREQUENTLY ASKED QUESTIONS

QUESTION If I accidentally get a patient's blood on my hands, do I need to treat the incident as an exposure?

ANSWER Yes, wash the area with soap and water and report the occurrence to your supervisor as soon as possible. Your supervisor will determine the type of follow---up needed.

QUESTION How great is my risk for Hepatitis B?

ANSWER One out of 20 people living in the United States will get infected with HBV at some time during their lives. Your risk is higher if you have a job that involves contact with human blood.

QUESTION How do I know if I have Hepatitis?

ANSWER A blood test is the only way to diagnose Hepatitis.

QUESTION When should I get the Hepatitis B vaccine?

ANSWER The vaccination must be offered within 10 days of initial assignment to a job where exposure to blood or other potentially infectious materials can be anticipated.

QUESTION If I decline to take the vaccination, can I change my mind later?

ANSWER Yes, you can decide to begin the vaccination series at any time.

QUESTION If I think I've been infected with HIV, how soon can I find out?

ANSWER You will usually develop antibodies against the HIV virus within 6 to 12 weeks after becoming infected. Tests will not reveal whether you had been infected before that time.

QUESTION Can I get HBV, HIV, or AIDS from being bitten by an infected mosquito?

ANSWER No. There is no evidence that the HBV or HIV virus is transmitted through insects such as mosquitoes.

QUESTION If dried blood were to get wet, could the HIV virus become active again?

ANSWER No. Once a virus is no longer active, it cannot be "reconstituted" by adding water.

QUESTION Can I catch HIV from being in the same room or vehicle with someone who has the infection if they cough or sneeze?

ANSWER No, HIV cannot be transmitted through sneezing or coughing (you cannot catch it like the common cold), not by shaking hands or hugging, not by sharing the water fountain, and not by sharing the rest room or work equipment.

QUESTION If the chances of being exposed to a patient with a contagious disease are low, why do I need to take precautions all the time?

ANSWER Universal Precautions are the most effective way to safeguard against exposure to bloodborne pathogens. It is not always possible to predict when an exposure will occur. Bloodborne pathogens are not visible and you don't know if the patient you are working with is infected.

QUESTION Can I refuse to do a job that will expose me to potential infection?

ANSWER No, Universal Standards do not allow you to refuse to take an assignment. Your employer is required to provide you with the appropriate personal protective equipment and training to minimize your risk.