Universal Precautions
and
Bloodborne Pathogens

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Why learn about this?

- This training module is designed to provide a basic understanding of **Bloodborne pathogens**, common modes of their transmission, methods of prevention (**Universal Precautions**), and other pertinent information.
- This program is designed to meet the requirements of the Occupational Safety and Health Administration's (OSHA's) Bloodbourne Pathogen Standard.
- **This training is about protecting you!**

Here is a little history…

- Prior to 1983, when a hospitalized individual was identified as having a bloodborne pathogen, they were isolated from the general population so workers could easily identify these individuals.
- So, back in 1983, Universal Precautions guidelines were developed and implemented by the CDC (Center for Disease Control.)
- These precautions took the place of and eliminated the need for the isolation.
  - Standard precautions were developed to prevent transmission of a variety of organisms.
  - It was determined that if all individuals working in healthcare practice the implementation of “universal precautions” there is no need to insist on isolation in circumstances… everyone is protected with these barriers.

What are Universal Precautions?

- "Universal precautions," as defined by CDC, are a set of precautions designed to prevent transmission of human immunodeficiency virus (HIV), hepatitis B virus (HBV), and other bloodborne pathogens when providing first aid or health care.

- Under universal precautions, blood and certain body fluids of all patients are considered potentially infectious for HIV, HBV and other bloodborne pathogens.

How do we practice Universal Precautions?

Universal precautions involve the use of protective barriers such as:

- gloves, gowns, aprons, masks, or protective eyewear.

How do the protective barriers work?

The barriers can reduce the risk of exposure of the health care worker's skin or mucous membranes to potentially infectious materials.

- All health care workers should routinely use appropriate barrier precautions to prevent skin and mucous membrane exposure during contact with any patient's blood or body fluids that require universal precautions.

Universal Precautions apply to…

- Blood
- Semen
- Vaginal secretions
- Tissues and the following fluids: cerebrospinal, synovial, pleural, peritoneal, pericardial, and amniotic fluids
- Other body fluids containing visible blood

It DOES NOT apply to…

- Feces
- Nasal secretions
- Sputum
- Sweat
- Tears
- Urine
- Vomitus unless it contains visible blood
- Saliva except when visibly contaminated with blood

What are Bloodborne Pathogens?

- Micro-organisms such as viruses or bacteria that are carried in blood and can cause disease in people.
- There are many different bloodborne pathogens including:
  - Malaria
  - Syphilis
  - Brucellosis
  - Hepatitis B (HBV)
  - Human Immunodeficiency Virus (HIV)

Let's talk about some of the Bloodborne Diseases…

Hepatitis B (HBV)

- In the United States, approximately 300,000 people are infected with HBV annually. Of these cases, a small percentage are fatal.
- "Hepatitis" means "inflammation of the liver," and, as its name implies, Hepatitis B is a virus that infects the liver.
- While there are several different types of Hepatitis, Hepatitis B is transmitted primarily through "blood to blood" contact. Hepatitis B initially causes inflammation of the liver, but it can lead to more serious conditions such as cirrhosis and liver cancer.
- There is no "cure" or specific treatment for HBV, but many people who contract the disease will develop antibodies which help them get over the infection and protect them from getting it again.
- The Hepatitis B virus is very durable, and it can survive in dried blood for up to seven days. For this reason, this virus is the primary concern for employees such as housekeepers, custodians, laundry personnel and other employees who may come in contact with blood or potentially infectious materials in a non first-aid or medical care situation.

Symptoms of HBV

- The symptoms of HBV are very much like a mild "flu"
- Initially there is a sense of fatigue, possible stomach pain, loss of appetite, and even nausea
- As the disease continues to develop, jaundice (a distinct yellowing of the skin and eyes), and a darkened urine will often occur
- However, people who are infected with HBV will often show no symptoms for some time. After exposure it can take **1-9 months** before symptoms become noticeable
  - Loss of appetite and stomach pain, for example, commonly appear within 1-3 months, but can occur as soon as 2 weeks or as long as 6-9 months after infection

Another serious Bloodborne Disease

Human Immunodeficiency Virus (HIV)

- Estimates on the number of people infected with HIV vary, but some estimates suggest that an average of 35,000 people are infected every year in the US (in 2000, 45,000 new infections were reported). It is believed that as of 2000, 920,000 persons were living with HIV/AIDS in the United States. These numbers could be higher, as many people who are infected with HIV may be completely unaware of it.
- AIDS, or acquired immune deficiency syndrome, is caused by a virus called the human immunodeficiency virus, or HIV. Once a person has been infected with HIV, it may be many years before AIDS actually develops. HIV attacks the body's immune system, weakening it so that it cannot fight other deadly diseases. AIDS is a fatal disease, and while treatment for it is improving, there is no known cure.
- The HIV virus is very fragile and will not survive very long outside of 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 only 0.4%. However, because it is such a devastating disease, all precautions must be taken to avoid exposure.

Three stages of HIV

- **First stage:** Happens when a person is actually infected with HIV. After the initial infection, a person may show few or no signs of illness for many years.
- **Second stage**: Eventually, more obvious symptoms occur. An individual may begin to suffer swollen lymph glands or other lesser diseases which begin to take advantage of the body's weakened immune system. The second stage is believed to eventually lead to AIDS.
- **Third stage:** In this stage, the body becomes completely unable to fight off life-threatening diseases and infections.

Symptoms of HIV

- Symptoms of HIV infection can vary, but often include:
  - Weakness
  - Fever
  - Sore throat
  - Nausea
  - Headaches
  - Diarrhea
  - A white coating on the tongue
  - Weight loss
  - Swollen lymph glands
- If you believe you have been exposed to HBV or HIV, especially if you have experienced any of the signs or symptoms of these diseases, you should consult your physician or doctor as soon as possible.

Some basic information

Gloves:

- Should be used for touching blood and body fluids requiring universal precautions, mucous membranes, or non-intact skin of all patients and for handling items or surfaces soiled with blood or body fluids to which universal precautions apply
- Should be made of latex, nitril, rubber, or other water impervious materials. If glove material is thin or flimsy, double gloving can provide an additional layer of protection
- Should always be inspected 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 with any bare skin, and be sure to dispose of them in a proper container so that no one else will come in contact with them, either

1. Gloves should be changed after contact with each patient
2. Hands and other skin surfaces should be washed immediately or as soon as patient safety permits if contaminated with blood or body fluids requiring universal precautions
3. Hands should be washed immediately after gloves are removed

Other protective wear

- *Masks and protective eyewear or face shields* should be worn by health care workers to prevent exposure of mucous membranes of the mouth, nose, and eyes during procedures that are likely to generate droplets of blood or body fluids requiring universal precautions.
- *Gowns or aprons* should be worn during procedures that are likely to generate splashes of blood or body fluids requiring universal precautions.

If you find yourself in a situation where you have to come in contact with blood or other body fluids and you don't have any standard personal protective equipment handy, you can improvise. Use a towel, plastic bag, or some other barrier to help avoid direct contact.

Rules to follow:

- Always wear personal protective equipment in exposure situations.
- Remove PPE that is torn or punctured, or has lost its ability to function as a barrier to bloodborne pathogens.
- Replace PPE that is torn or punctured.
- Remove PPE before leaving the work area.

If you work in an area with routine exposure to blood or potentially infectious materials, the necessary PPE should be readily accessible. Contaminated gloves, clothing, PPE, or other materials should be placed in appropriately labeled bags or containers until it is disposed of, decontaminated, or laundered. It is important to find out where these bags or containers are located in your area before beginning your work.

Other ways to protect yourself:

- **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. Use soft, antibacterial soap, if possible. Avoid harsh, abrasive soaps, as these may open fragile scabs or other sores.

If you are working in an area where there is reasonable likelihood of exposure, **you should never**:

- Eat
- Drink
- Smoke
- Apply cosmetics or lip balm
- Handle contact lenses
- No food or drink should be kept in refrigerators, freezers, shelves, cabinets, or on counter tops where blood or potentially infectious materials are present.

A few other items to mention…

Sharps

- Far too frequently, housekeepers, custodians and others are punctured or cut by improperly disposed needles and broken glass.
- This, of course, exposes them to whatever infectious material may have been on the glass or needle. For this reason, it is especially important to handle and dispose of all sharps carefully in order to protect yourself as well as others.

Needles

- Needles should never be recapped.
- Needles should be moved only by using a mechanical device or tool such as forceps, pliers, or broom and dust pan.
- Never break or shear needles.
- Needles shall be disposed of in labeled sharps containers only.
- Sharps containers shall be closable, puncture-resistant, leak-proof on sides and bottom, and must be labeled or color-coded.
- When sharps containers are being moved from the area of use, the containers should be closed immediately before removal or replacement to prevent spillage or protrusion of contents during handling or transport.

Broken Glassware

- Broken glassware that has been visibly contaminated with blood must be sterilized with an approved disinfectant solution before it is disturbed or cleaned up.
- Glassware that has been decontaminated may be disposed of in an appropriate sharps container: ie. closable, puncture-resistant, leak-proof on sides and bottom, with appropriate labels.
- Broken glassware will not be picked up directly with the hands. Sweep or brush the material into a dustpan.
- Uncontaminated broken glassware may be disposed of in a closable, puncture resistant container such as a cardboard box or coffee can.

How to clean up

Decontamination and Sterilization

- All surfaces, tools, equipment and other objects that come in contact with blood or potentially infectious materials must be decontaminated and sterilized as soon as possible. **Equipment and tools must be cleaned and decontaminated before servicing or being put back to use**.

Decontamination should be accomplished by using:

- 1. A solution of 5.25% sodium hypochlorite (household bleach / Clorox) diluted between 1:10 and 1:100 with water. The standard recommendation is to use at least a quarter cup of bleach per one gallon of water.
- 2. Lysol or some other EPA-registered tuberculocidal disinfectant. Check the label of all disinfectants to make sure they meet this requirement.
- If you are cleaning up a spill of blood, you can carefully cover the spill with paper towels or rags, then gently pour the 10% solution of bleach over the towels or rags, and leave it for at least 10 minutes. This will help ensure that any bloodborne pathogens are killed before you actually begin cleaning or wiping the material up. By covering the spill with paper towels or rags, you decrease the chances of causing a splash when you pour the bleach on it.

Emergency Procedures

- In an emergency situation involving blood or potentially infectious materials, you should always use **Universal Precautions** and try to minimize your exposure by wearing gloves, splash goggles, pocket mouth-to-mouth resuscitation masks, and other barrier devices.
- If you are exposed, however, you should:
  - Wash the exposed area thoroughly with soap and running water. Use non-abrasive, antibacterial soap if possible.
  - If blood is splashed in the eye or mucous membrane, flush the affected area with running water for at least 15 minutes.
  - Report the exposure to your supervisor as soon as possible.

Why do it?

By using Universal Precautions and following these simple engineering and work practice controls, ***you*** can protect yourself and prevent transmission of bloodborne pathogens.

Written Guidelines: Universal Precautions

Universal precautions are discussed in the following documents:

- CDC. Recommendations for prevention of HIV transmission in health-care settings. MMWR 1987;36(suppl no. 2S).
- CDC. Update: Universal precautions for prevention of transmission of human immunodeficiency virus, hepatitis B virus, and other bloodborne pathogens in health-care settings. MMWR 1988;37:377-388.
- CDC. Guidelines for prevention of transmission of human immunodeficiency virus and hepatitis B virus to health-care and public-safety workers. MMWR 1989;38(S-6):1-36.