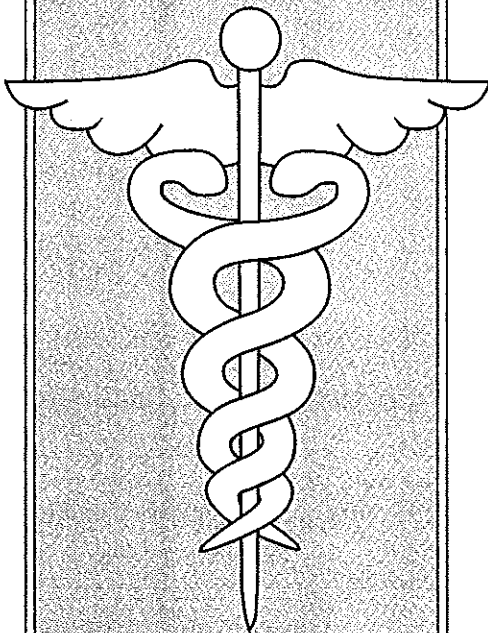


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Infection Control: Bloodborne Pathogens

EDA 311-0155

presenter

Sue Sebazco, RN, BS, CIC

Infection Control/Employee Health Director

Arlington Memorial Hospital

Arlington, Texas

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INTRODUCTION

Diseases that are spread by bloodborne pathogens are of concern to healthcare workers. Human immunodeficiency virus (HIV) and the hepatitis B and C viruses are included in this group. This program's presenter discusses the possible sources of bloodborne pathogens, the characteristics of the diseases caused by bloodborne pathogens, how these agents may be transmitted in the healthcare setting, and what precautions are effective in preventing their spread.

TARGET AUDIENCE

The target audience for this activity is certified nursing assistants.

LEARNING OBJECTIVES

After completing this activity, the participant should be able to:

1. name three bloodborne pathogens.
2. list four signs and symptoms of hepatitis.
3. explain how three "other potentially infectious materials" may be transmitted by one of the bloodborne pathogens from one individual to another.
4. describe how bloodborne pathogens are transmitted in the healthcare workplace.
5. discuss two workplace practice controls that reduce the likelihood of exposure to a bloodborne pathogen.

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This syllabus is designed to be used in conjunction with video program EDA 311-0155 by the Long Term Care Network, a division of PRIMEDIA Healthcare. PRIMEDIA Healthcare is a division of PRIMEDIA Healthcare Learning.

For questions or general information, please contact:

Director of Education
PRIMEDIA Healthcare
4101 International Parkway
Carrollton, TX 75007
(800) 624-2272, ext. 5312

INFECTION CONTROL: BLOODBORNE PATHOGENS

BLOODBORNE PATHOGENS

A *pathogen* is an infectious agent, such as a bacteria or virus, that can cause disease in humans. In the healthcare setting, workers provide care to individuals who may or may not be known to have a bloodborne pathogen. Bloodborne pathogens are spread through human blood, blood products, blood components, or other potentially infectious materials. The bloodborne pathogens most often seen are:

- ❖ hepatitis B virus (HBV).
- ❖ hepatitis C virus (HCV).
- ❖ human immunodeficiency virus (HIV).

OTHER POTENTIALLY INFECTIOUS MATERIAL (OPIM)

In addition to blood, blood products, and blood components, other human products may carry and have the potential for spreading bloodborne pathogens. Overall, these products are referred to as *other potentially infectious materials* (OPIM). These human body fluids are:

- ❖ semen.
- ❖ vaginal secretions.
- ❖ fluids in the spinal cord and the joints.
- ❖ fluids around the heart and lungs and in the abdomen.
- ❖ fluid around an unborn baby.
- ❖ breast milk.
- ❖ any other human product that contains visible blood or has the possibility of containing blood but is difficult to distinguish because of its color.

THE SPREAD OF BLOODBORNE PATHOGENS

For any infection to be spread from one person to another, three elements must exist. These are a:

- ❖ source.
- ❖ mode of transmission.
- ❖ susceptible host.

Infection control practices are directed at eliminating one of these three elements. Individuals who are sources of these pathogens may not be readily identified. Nursing assistants should be familiar with how these agents are spread in both the community and healthcare setting.

In the community, bloodborne pathogens are spread by sexual contact, intravenous needle sharing, and from a mother to her unborn baby. In the healthcare setting, the worker could acquire a bloodborne pathogen if he or she has contact with an infected individual's blood or OPIM in an exposure incident such as:

- ❖ accidental needlestick or other puncture wound.
- ❖ a splash to the eyes, nose, or mouth of the worker (mucous membranes).
- ❖ contact with blood to an open cut or area of non-intact skin.

HEPATITIS B

Hepatitis B is a liver disease caused by the hepatitis B virus (HBV). This disease was the No. 1 occupationally-acquired disease in healthcare workers until a safe and effective vaccine became available in 1983 (Baker, 1996). Now it is common practice for all workers in health care who may or

will have the potential of exposure to this disease when performing their job tasks to be offered the vaccine by their employer. Symptoms of hepatitis B include:

- ❖ jaundice.
- ❖ fatigue.
- ❖ abdominal pain.
- ❖ loss of appetite.
- ❖ intermittent nausea.
- ❖ vomiting.

An individual who acquires this disease may have what is known as a chronic infection and is at increased risk for developing liver cancer.

HEPATITIS C

Hepatitis C is a liver disease caused by the hepatitis C virus (HCV). This disease accounts for 20-40% of all cases of acute hepatitis in the United States (Baker, 1996). The most commonly recognized form of HCV is associated with blood transfusions. However, there are sporadic cases that are not related to *percutaneous* (i.e. needlestick or other puncture wound) exposure. Clinical illness is usually milder than with HBV, but persistent infection with progression to chronic liver disease is more common.

No vaccine exists to protect the healthcare worker from hepatitis C. Therefore, the practice of standard precautions with all patients and being careful not to injure oneself with a sharp is important to prevent infection. The symptoms of HCV are the same as for HBV but usually milder. HCV is the leading indication for liver transplantation (Baker, 1996).

HUMAN IMMUNODEFICIENCY VIRUS

Human immunodeficiency virus (HIV) attacks the infected individual's immune system. Once infected with HIV, a person may progress to Acquired immune deficiency syndrome (AIDS). One to four weeks after exposure, the newly HIV-infected individual has symptoms of a viral syn-

drome. These symptoms include:

- ❖ sudden onset of fever.
- ❖ malaise.
- ❖ fatigue.
- ❖ loss of appetite.
- ❖ nausea.
- ❖ muscle pain.
- ❖ headaches.
- ❖ sore throat.
- ❖ diarrhea.
- ❖ swollen lymph nodes.

Following this event, the individual remains asymptomatic, but the virus continues to reproduce. Most infected adults remain asymptomatic for 6-10 years. Again, no vaccine exists to protect the healthcare worker, so standard precautions are an essential preventive measure that must be practiced at all times when a nursing assistant is caring for any residents.

THE HEALTHCARE FACILITY'S RESPONSIBILITY

Healthcare organizations are required to be in compliance with the Occupational Safety and Health Administration's (OSHA) regulation on bloodborne pathogens. This OSHA standard protects all employees who may reasonably anticipate being occupationally exposed to blood or OPIM.

Nursing assistants are among those healthcare workers covered by this rule. The employer is responsible for a written exposure control plan that identifies the workers and procedures with anticipated exposure and describes the plan of action to prevent exposures and the action to be taken when exposure occurs. Annual training and monitoring for compliance are required.

THE NURSING ASSISTANT'S RESPONSIBILITY

Nursing assistants have a responsibility to be familiar and in compliance with their organization's exposure control plan. Nursing assistants also have a responsibility to maintain a safe workplace for themselves and their co-workers.

EXPOSURE CONTROL PLAN

An organization's exposure control plan must include:

- ❖ exposure determination.
- ❖ communication of hazards to employees.
- ❖ identification of procedures that involve exposure to blood or OPIM.
- ❖ identification of work practices.
- ❖ personal protective equipment (PPE). PPE includes but is not limited to:
 - gloves.
 - gowns.
 - lab coats.
 - protective eyewear.
 - masks or face shields.
- ❖ engineering controls.
- ❖ maintenance of a clean and sanitary workplace.
- ❖ procedures for evaluation and follow-up of an exposure incident.
- ❖ provision for a hepatitis B vaccination program for all workers with anticipated exposure at no cost within 10 days of employment.
- ❖ a training program.
- ❖ annual review.

PPE should be available to employees at no cost, in appropriate sizes, and with necessary alternatives for the worker who has allergies.

SUMMARY

Although the potential for acquiring a bloodborne pathogen is a concern to healthcare workers, risk is greatly reduced by being compliant with recognized infection control practices and maintaining an up-to-date immunization status. The nursing assistant can contribute to a safe work environment by following the organization's exposure control plan.

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POST TEST

INFECTION CONTROL: BLOODBORNE PATHOGENS

1. Diseases caused by bloodborne pathogens include all EXCEPT:
 - a. influenza.
 - b. hepatitis B.
 - c. hepatitis C.
 - d. acquired immune deficiency syndrome (AIDS).
2. Symptoms of hepatitis include:
 - a. loss of appetite and jaundice.
 - b. abdominal pain and fatigue.
 - c. nausea and vomiting.
 - d. All of the above
3. An example of an engineering control used to reduce the risk of acquiring a bloodborne pathogen is:
 - a. handwashing.
 - b. wearing gloves.
 - c. a puncture-proof sharps container.
 - d. All of the above
4. An example of a work practice used to reduce the risk of acquiring a bloodborne pathogen is:
 - a. handwashing after removing gloves.
 - b. bending a needle with the fingers to make sure it is not reused.
 - c. using a mouth pipette to suction blood.
 - d. placing your lunch in the refrigerator used to store blood.
5. In the community, bloodborne pathogens are spread by sexual contact and intravenous drug use.
 - a. True
 - b. False
6. For an infection to spread, a source of infection, a mode of transmission, and a susceptible host must be present.
 - a. True
 - b. False
7. Which is a type of exposure incident?
 - a. Accidental needlestick
 - b. A splash to eyes, nose, or mouth
 - c. Contact with blood to an open cut or area of non-intact skin
 - d. All of the above
8. A vaccine exists to prevent hepatitis C.
 - a. True
 - b. False
9. Hepatitis C is most commonly associated with blood transfusions.
 - a. True
 - b. False
10. Which is/are element(s) of an exposure control plan?
 - a. Work practices
 - b. Maintenance of a clean and sanitary workplace
 - c. Training program
 - d. Annual review
 - e. All of the above