Bloodborne Pathogens – The Basics

Unit 2: Preventing Blood-borne Pathogen Exposure

Objectives:

1. Describe the government regulations and workplace policies created to reduce occupational exposure to blood-borne pathogens.
2. Define Body Substance Isolation.
3. Define and differentiate the terms Universal Precautions and Standard Precautions
4. Describe employer responsibilities in prevention of occupational exposure to blood-borne pathogens.
5. Define employee responsibilities in prevention of occupational exposure to blood-borne pathogens.
6. Describe the main issues targeted in the Blood-borne Pathogen Regulations.
7. Describe practical methods to prevent needle-stick and sharps exposures.
8. Describe the role of workplace Exposure Control Plans in preventing exposure to blood-borne pathogens.
9. Describe the components that should be included in a workplace Exposure Control Plan.

Introduction

The potential for transmission of human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV), and other blood-borne pathogens is a concern for healthcare workers (HCWs) and public safety workers including firefighting, emergency, law-enforcement, and correctional service personnel.

There may also be a higher risk for personnel in mortuary, autopsy, funeral, camp, day-care, playground, school, foster care, home health care, long-term care, rehabilitation, and personal care services (i.e. body piercing, tattooing, electrolysis and acupuncture) than in the general population.

HBV infection is preventable to a large degree through immunization; however, currently there is no vaccine available to prevent HCV and HIV infections. Therefore, primary prevention measures are necessary to prevent occupational exposures to blood and body fluids and reduce the risk of occupationally acquired infections.
Primary prevention measures include government regulations; workplace policies and committees, including an exposure control plan; engineering controls; protective equipment; safety devices; education; and personal and professional practice; and spill and waste management.

**Canadian Regulations**

*Detailed information of relevant government regulations can be found at the sites listed below. Click on the topic to be redirected to the site.*

Canada Labour Code  
Occupational Health and Safety Act  
http://www.ccohs.ca/oshanswers/information/govt.html  
Hazardous Product Act  
Workplace Hazardous Materials Information System  
http://www.ccohs.ca/oshanswers/legisl/intro_whmis.html

**US Regulations**

*Detailed information of relevant government regulations can be found at the sites listed below. Click on the topic to be redirected to the site.*

Occupational Safety and Health Administration (OSHA)  
http://www.osha.gov  
National Institute of Safety and Health (NIOSH)  
http://www.cdc.gov/niosh
Standards and Guidelines

A series of standards and guidelines have been developed to prevent occupational exposure to blood and body fluid and occupationally acquired infection.

Blood and Body Fluid Precautions

In 1983, the CDC published the *Guideline for Isolation Precautions in Hospitals* containing a section titled *Blood and Body Fluid Precautions*. These guidelines recommended precautions for blood and body fluids when patients were known or suspected to be infected with blood-borne pathogens.

Guideline for Isolation Precautions in Hospitals.
http://wonder.cdc.gov/wonder/prevguid/p0000419/p0000419.asp
Universal Precautions

In 1987, the CDC published the document *Recommendations for Prevention of HIV Transmission in Health-Care Settings* containing a section titled *Universal Blood and Body Fluid Precautions*.

Universal Precautions, as it was commonly referred to, recommended that blood and certain body fluids of all patients be considered potentially infectious for HIV, HBV, and other blood-borne pathogens.

Recommendations for Prevention of HIV Transmission in Health-Care Settings.

http://www.cdc.gov/mmwr/preview/mmwrhtml/00023587.htm

Infection Control

Universal Precautions were to be used in addition to other transmission-specific isolation precautions (i.e. droplet precautions for influenza, airborne isolation for pulmonary tuberculosis, contact isolation for methicillin-resistant Staphylococcus aureus).
Prevention

Universal precautions were intended to prevent percutaneous, mucous membrane, and nonintact skin exposures of HCWs to blood-borne pathogens. Universal precautions should be followed with blood, amniotic fluid, pericardial fluid, peritoneal fluid, pleural fluid, synovial fluid, cerebrospinal fluid, semen, and vaginal secretions, or any body fluid visibly contaminated with blood.

Protective Barriers

Universal precautions involve the use of protective barriers (gloves, gowns, aprons, masks, or protective eyewear) to reduce the risk of skin or mucous membrane exposure to potentially infectious materials. Universal precautions also recommend precautions to prevent injuries caused by needles, scalpels, and other sharp instruments or devices.
Laboratory Centers for Disease Control

Because HIV and HBV transmission has not been documented from exposure to other body fluids, universal precautions do not apply to feces, nasal secretions, sputum, sweat, tears, urine, and vomitus, unless these substances are contaminated with blood. Universal Precautions also do not apply to saliva, except in the dental setting, where it may be contaminated with blood.

Universal Precautions help protect all employees who may be exposed to blood and body fluids containing blood:

- fire-fighters and other emergency responders
- law-enforcement and correctional-facility officers
- research laboratory staff
- schools, day-care centres and other child care settings
- home health care.

Preventing the Transmission of Bloodborne Pathogens in Health Care and Public Service Settings.

**Standard Precautions**

In Canada and the U.S. the principles of Universal Precautions are considered the minimum standard of practice for preventing the transmission of blood-borne pathogens.

In 1996, the CDC published new guidelines – **Standard Precautions** – encompassing the major features of Body Substance Isolation and Universal Precautions to prevent transmission of a variety of organisms in hospitals.

Centers for Disease Control and Prevention: Standard Precautions

http://www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html

**Bloodborne Pathogen (BBP) Standard**

In 1991, the Occupational Safety and Health Administration (OSHA) issued the Blood-borne Pathogen (BBP) Standard to protect workers from occupational exposure to blood-borne pathogens. Although compliance with the BBP Standard has significantly reduced the risk of occupational exposure, accidental sharps injuries continues to be a serious problem.
More than 600,000 sharps injuries (needlestick and other percutaneous injuries) occur among health care workers each year in the U.S.

Unsafe technique can result in sharps injury and potential blood-borne pathogen infection

Bloodborne Pathogens Standard

http://www.pp.okstate.edu/ehs/training/oshabbp.htm

Needle-stick Safety and Prevention Act

In 2001, the Needlestick Safety and Prevention Act (NSPA) initiated amendments to the BBP Standard, requiring employers to update their exposure control plans to reflect how employers:

- implement new developments in control technology (i.e safer devices)
- solicit input from employees responsible for direct patient care in the identification, evaluation, and the selection of engineering and work practice controls
- establish and maintain a log of percutaneous injuries from contaminated sharps, as appropriate.

Needle-stick Safety and Prevention Act (NSPA)

http://www.afscme.org/health/needle08.htm