In-Service Training Program

HIV/AIDS: General Overview
OBJECTIVES

1. Define Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS).
2. Name three ways HIV is transmitted and three ways it is not transmitted.
3. Explain three methods of control to prevent the transmission of bloodborne pathogens and give an example of each.
5. Describe the steps to be completed if an exposure occurs.
INTRODUCTION

Although it is possible to become infected with Human Immunodeficiency Virus (HIV) in a healthcare facility, the risk can be reduced by following guidelines designed to prevent transmission.
INTRODUCTION

To keep matters in perspective, less than one percent of healthcare workers have been infected with HIV/AIDS, while between six and thirty percent of healthcare workers have contracted hepatitis B (HBV).
United States Statistics

1. The estimated number of AIDS diagnoses through 2002 in the United States was 886,575. Adult and adolescent AIDS cases total is 877,275, with 718,002 cases among males and 159,271 cases among females. Through the same time period, 9,300 AIDS cases were estimated in children under age 13.
STATISTICS

2. The estimated rate of adult/adolescent AIDS diagnoses in the United States in 2002 (per 100,000 population) was 76.4 among blacks, 26.0 among Hispanics, 11.2 among American Indians/Alaska Natives, 7.0 among whites and 4.9 among Asians/Pacific Islanders.
STATISTICS

3. As of December 31, 2002, an estimated 501,669 people with AIDS in the United States had died.  

International Statistics
AIDS was first reported in the United States in 1981. It has since become a major worldwide epidemic.
1. As of the end of 2003, an estimated 40 million people worldwide - 37 million adults and 2.5 million children younger than 15 years - were living with HIV or AIDS. Approximately two-thirds of these people (26.6 million) live in Sub-Saharan Africa; another 18 percent (7.4 million) live in Asia and the Pacific.
STATISTICS

2. Worldwide, approximately 11 of every 1000 adults aged 15 to 49 are HIV-infected. In Sub-Saharan Africa, about eight percent of all adults in this age group are HIV-infected.
3. An estimated five million new HIV infections occurred worldwide during 2003; that is about 14,000 infections each day. More than 95 percent of these new infections occurred in developing countries, and nearly 50 percent were among females.
STATISTICS

4. In 2003, approximately 2,000 children under the age of 15 years, and 6,000 young people aged 15 to 24 years became infected with HIV every day.

5. In 2003 alone, HIV/AIDS-associated illnesses caused the deaths of approximately three million people worldwide, including an estimated 500,000 children younger than 15 years.  

HIV INFECTION AND AIDS: AN OVERVIEW

AIDS is caused by HIV. HIV kills or damages cells of the body's immune system, progressively destroying the body's ability to fight infections and certain cancers.
HIV INFECTION AND AIDS: AN OVERVIEW

AIDS often leads to clinical conditions called “opportunistic infections,” such as pneumocystis carinii pneumonia (PCP), Candida esophagitis (thrush) and cytomegalovirus (CMV) that generally do not affect healthy people.
HIV INFECTION AND AIDS: AN OVERVIEW

The Centers for Disease Control and Prevention (CDC) has developed the official criteria for AIDS and is responsible for tracking the spread of AIDS in the United States.

The CDC defines AIDS as all people infected with HIV who have fewer than 200 CD4 positive T cells per cubic millimeter of blood.
HIV INFECTION AND AIDS: AN OVERVIEW

CD4 positive T cells are the immune system’s key infection fighters. (Healthy adults usually have CD4 positive T-cell counts of 1,000 or more).
HIV INFECTION AND AIDS: AN OVERVIEW

Transmission

HIV can be spread by:

- Direct exposure to body fluids (e.g., semen, vaginal secretions)
- Direct exposure to blood:
  - Sharing needles or syringes
  - Accidental transmission
HIV INFECTION AND AIDS: AN OVERVIEW

- Unprotected sexual contact (e.g., anal, vaginal, oral)
- Transfusions of blood or blood products contaminated by HIV or contact with HIV contaminated blood via mucous membranes or non-intact (open) skin
- Perinatal transmission from an infected mother to her infant
HIV INFECTION AND AIDS: AN OVERVIEW

HIV is not spread through:

- Everyday contact with an infected person
- Touching items that an infected person touched:
  - Clothes
  - Drinking fountain
  - Telephone
  - Toilet seat
  - Dishes and dinner table utensils
HIV INFECTION AND AIDS: AN OVERVIEW

- Eating food prepared by an infected person
- Mosquito bites or other insects
- Sweat, saliva or tears
- A simple kiss
HIV INFECTION AND AIDS: AN OVERVIEW

Disease Progression

- Many people have no symptoms when they first become infected with HIV
- Symptoms usually appear a week to a month later and are often mistaken for a mild viral infection
HIV INFECTION AND AIDS: AN OVERVIEW

Early signs and symptoms of HIV include:

- Chills, night sweats, fatigue, fever, headache, sore throat, mouth sores, a rash resembling roseola, skin changes and swollen lymph nodes
- Gastrointestinal symptoms including diarrhea and unexplained weight loss
- Respiratory symptoms including shortness of breath and dry cough
HIV INFECTION AND AIDS: AN OVERVIEW

During this early period, the newly exposed individual is very infectious. HIV is present in large quantities in genital fluids.
HIV INFECTION AND AIDS: AN OVERVIEW

More persistent or severe symptoms may not appear for 10 years or more after HIV first enters the body in adults. This period of "asymptomatic" infection varies greatly from individual to individual.
HIV INFECTION AND AIDS: AN OVERVIEW

Even during the asymptomatic period, the virus is actively multiplying, infecting and killing cells of the immune system. HIV's effect is shown by a decline in the blood levels of CD4 positive T cells.
HIV INFECTION AND AIDS: AN OVERVIEW

As the immune system weakens, various complications develop. The following signs and symptoms may develop months or years before the onset of AIDS:

- Persistent or frequent yeast infections (oral or vaginal)
- Persistent skin rashes or flaky skin
HIV INFECTION AND AIDS: AN OVERVIEW

- Pelvic Inflammatory Disease (PID) in women that does not respond to treatment
- Short-term memory loss
HIV INFECTION AND AIDS: AN OVERVIEW

People with AIDS are particularly prone to developing various cancers, especially:

- Kaposi's sarcoma
- Cervical cancer
- Cancers of the immune system known as lymphomas

When these cancers occur in people with AIDS, they are usually more aggressive and more difficult to treat.
Diagnosis

- The HIV infection is diagnosed by using two different antibody tests:
  - Enzyme-linked immunosorbent assay (ELISA) test to detect antibodies to HIV
  - Western Blot test to confirm a positive result on the ELISA test
HIV INFECTION AND AIDS:
AN OVERVIEW

There are several FDA-approved rapid HIV tests available.

- ORAQUICK® or Reveal™ provide results in 10-20 minutes. (A negative result is definitely negative. A positive result must be “confirmed positive” by the ELISA).
ORAQUICK® is the only FDA-approved HIV test that uses oral fluid taken from the mouth rather than blood. The results are available in about 20 minutes.

Calypte HIV-1 Urine ELA is a FDA-approved HIV test that uses urine. A positive result must be “confirmed positive” by the ELISA.
Once infected with HIV, it can take the body three to six months to develop enough antibody to HIV for test results to be positive. False-negative test results are possible if tests are administered too early.
HIV INFECTION AND AIDS: AN OVERVIEW

Points to remember:

- Individuals can be tested anonymously
- Most healthcare providers complete HIV testing and offer counseling at the same time
HIV INFECTION AND AIDS: AN OVERVIEW

- People exposed to the virus should be tested within six weeks to 12 months.
- Early treatment helps the immune systems to combat HIV, helps prevent the emergence of certain opportunistic infections, and alerts HIV infected people to avoid high-risk behaviors.
HIV INFECTION AND AIDS: AN OVERVIEW

Treatment
The U.S. Food and Drug Administration (FDA) has approved drugs for treating HIV infection.

- Nucleoside reverse transcriptase inhibitors (NRTIs) interrupt the process whereby, in the early stages of the disease, the virus makes copies of itself
- Examples include AZT, (Retrovir®), ddC (Hivid®), d4T/stavudine (Zerit®), 3TC/lamivudine (EPIVIR®), abacavir (Ziagen®) and tenofovir (Viread®)
Non-nucleoside reverse transcriptase inhibitors (NNRTIs) may slow the spread of HIV in the body and delay the start of opportunistic infections.

Examples include delvaridine (Rescriptor®), nevirapine (Viramune®) and efravirenz (Sustiva®)
More recently, the FDA has approved another class of drugs for treating HIV infection. These drugs, called protease inhibitors, interrupt virus replication at a later stage in the life cycle.
HIV INFECTION AND AIDS: AN OVERVIEW

These drugs include:

- Ritonavir (Norvir®)
- Saquinivir (Invirase®)
- Indinavir (Crixivan®)
- Amprenivir (Agenerase®)
- Nelfinavir (Viracept®)
- Lopinavir (Kaletra®)
A number of drugs are available to help treat opportunistic infections. These drugs include:

- Foscarnet and ganciclovir to treat cytomegalovirus (CMV) eye infections
- Fluconazole to treat yeast and other fungal infections
- Trimethoprim/sulfamethoxazole (TMP/SMX) or pentamidine to treat Pneumocystis carinii pneumonia (PCP)
HIV INFECTION AND AIDS: AN OVERVIEW

HIV infected individuals who develop Kaposi's sarcoma or other cancers are treated with:

- Radiation
- Chemotherapy
- Injections of alpha interferon, a genetically engineered, naturally occurring protein
HIV INFECTION AND AIDS: AN OVERVIEW

Prevention

➤ There is no vaccine for HIV
➤ Prevention is achieved by avoiding behaviors that put a person at risk of infection, such as sharing needles and having unprotected sex
HIV INFECTION AND AIDS: AN OVERVIEW

To prevent the spread of HIV, people should either abstain from sex or use male latex condoms or female polyurethane condoms.

- Only water-based lubricants should be used with male latex condoms to prevent weakening of the condom.
HIV INFECTION AND AIDS: AN OVERVIEW

- Although some laboratory evidence shows that spermicides can kill HIV, research has not shown that these products can prevent a person from being infected with HIV.
To help prevent the transmission of disease, the CDC has defined how diseases are spread and what preventive actions can be taken. Preventive actions include “isolation precautions,” which consist of:

- Standard precautions: designed for all residents regardless of diagnosis or presumed infection status
Transmission-based precautions: designed for residents known or suspected to be infected by pathogens and need additional precautions beyond Standard Precautions
Standard Precautions

Standard Precautions apply to:

- Blood
- All body fluids
- Secretions and excretions except sweat, regardless of whether or not they contain visible blood
- Non-intact skin
- Mucous membranes
Standard precautions are basic infection control guidelines to follow when performing daily work. Guidelines for preventing the spread of bloodborne diseases include:

- Regarding all resident specimens as biohazardous
- Changing gloves after contact with each resident
Handling sharps carefully to prevent accidental injury

- Not recapping, bending or breaking used needles
- Placing puncture-resistant containers as close as practical to areas where sharps are used
CENTER FOR DISEASE CONTROL AND PREVENTION (CDC) PRECAUTIONS

- Locating resuscitation and ventilation equipment in areas where resuscitation is likely, to minimize the need for emergency mouth-to-mouth resuscitation
- Refraining from all direct resident contact and handling of resident equipment if one has exudative lesions or weeping dermatitis
PRECAUTIONS

- Reporting all sharps injuries, mucosal splashes, and other exposure incidents immediately
- Using appropriate barrier precautions: gloves, gown, mask and eye protection, as appropriate
- Washing hands immediately, using proper technique, after gloves are removed
CENTER FOR DISEASE CONTROL AND PREVENTION (CDC) PRECAUTIONS

- Washing hands thoroughly, using proper technique, whenever they are contaminated with blood or other body fluids
- Cleaning up blood spills immediately, wearing gloves and using an EPA-approved solution such as a 1:10 dilution of bleach and water
METHODS OF CONTROL

Exposure Control Plan


The standard applies to all employees who have occupational exposure to blood or other potentially infectious materials (OPIM).
METHODS OF CONTROL

- Occupational exposure is defined as "reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or OPIM that may result from the performance of the employee's duties".

- Blood is defined as human blood, human blood components and products made from human blood.
METHODS OF CONTROL

OPIM is defined as the following human body fluids:

- Saliva in dental procedures
- Semen
- Vaginal secretions
- Cerebrospinal
- Synovial
- Pleural
METHODS OF CONTROL

➢ Pericardial, peritoneal, and amniotic fluids
➢ Body fluids visibly contaminated with blood
➢ All body fluids in situations where it is difficult or impossible to differentiate between body fluids
➢ Unfixed human tissues or organs (other than intact skin)
METHODS OF CONTROL

- HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture media or other solutions
- Blood, organs or other tissues from experimental animals infected with HIV or HBV
METHODS OF CONTROL

All facilities must have a written Exposure Control Plan. A copy must be located in the work area where the hazard is located and must be easily accessible to all employees. The plan should contain polices and procedures for:

- Identifying risk exposure
- Implementing precautions
METHODS OF CONTROL

➢ Using engineering and work practice controls
➢ Using Personal Protective Measures
➢ Implementing housekeeping practices
➢ Receiving the HBV vaccination series
METHODS OF CONTROL

- Post-exposure evaluation and follow-up
- Identification of hazards to employees
- Implementing education and training programs
- Complying with recording requirements
METHODS OF CONTROL

The plan should be reviewed:

- At least annually
- When there are modified tasks and procedures which affect occupational exposure
- When there are new or revised employee positions with potential for occupational exposure
METHODS OF CONTROL

There are six methods of control to prevent the transmission of bloodborne pathogens. They include:

- Engineering controls
- Needlestick Safety
- Work Practice Controls
- Personal Protective Equipment (PPE)
- Housekeeping Practices
- Laundry Practices
METHODS OF CONTROL

Engineering Controls

Engineering controls are equipment or devices used to remove or prevent exposure to blood or body fluids. Examples include:

- Puncture resistant containers (color-coded red or labeled according to standard) used to discard used needles, razors, broken glass or other “sharps” items that could cause a cut or puncture wound.
METHODS OF CONTROL

- Single-use devices (disposable needles)
- Self-sheathing (retractable) needles
- Needleless systems
METHODS OF CONTROL

Work Practice Controls

Work practices are procedures designed to decrease occupational exposure. Safe work practices include, but are not limited to, the following:

- Not eating, drinking, smoking, applying cosmetics or lip balm or handling contact lenses in areas of occupational exposure
METHODS OF CONTROL

- Not storing food or drink in refrigerators or other locations where blood or other potentially infectious materials are kept
- Washing hands when gloves are removed and as soon as possible after skin contact with blood or other potentially infectious materials
- Availability of an eyewash station
METHODS OF CONTROL

- Handling sharps carefully to prevent accidental injury
- Discarding contaminated needles and sharps in containers that are closeable, puncture resistant, leak-proof, colored red or labeled with the biohazard symbol
- Providing containers that are accessible, maintained upright and cannot overflow
METHODS OF CONTROL

Personal Protective Equipment (PPE)
PPE is used to reduce exposure to blood or body fluids. The use of each item depends on the procedure or task being performed. PPE includes:

- Gloves
- Gowns
- Masks
METHODS OF CONTROL

- Face shields
- Eye protection
- Lab coats
- Mouth pieces (airways)
- Resuscitation bags
- Masks for CPR
Housekeeping Practices
Proper housekeeping practices include the following:

- Maintaining a schedule for cleaning and decontaminating the facility
- Cleaning and decontaminating equipment
- Disposing regulated waste properly
METHODS OF CONTROL

- Processing contaminated laundry properly
- Discarding utility gloves when they show signs of cracking, peeling, tearing or puncturing (utility gloves may be decontaminated for reuse if their integrity is not compromised)
METHODS OF CONTROL

Laundry Practices

Proper laundry practices include the following:

- Handling contaminated laundry as little as possible and with a minimum of agitation
- Wearing gloves or other appropriate personal protective equipment when handling contaminated laundry
- Removing contaminated laundry in areas of its use before sorting and rinsing
- Bagging contaminated laundry at its location of use
WHAT TO DO IF AN EXPOSURE INCIDENT OCCURS

Treatment of an Exposure Site

- Wounds and skin sites that have been in contact with blood or body fluids should be washed with soap and water; mucous membranes should be flushed with water.
METHODS OF CONTROL

Evaluation of the Exposure

- All blood and body fluids should be considered potentially infectious
- If an occupational exposure occurs, report the incident to the supervisor immediately
- All evaluations, laboratory tests and follow-ups must be arranged by the facility at no cost to the employee and at a reasonable time and place
METHODS OF CONTROL

➢ After a report of occupational exposure, the facility must provide a confidential medical evaluation to the exposed employee

➢ The medical evaluation should include a corresponding exposure report
METHODS OF CONTROL

Exposure Report

- If an occupational exposure occurs, the circumstances and post exposure management should be recorded in the exposed person's confidential medical record.
METHODS OF CONTROL

In addition, employers should follow all federal (including OSHA) and state requirements for recording and reporting occupational injuries and exposures.
METHODS OF CONTROL

The exposure report should include the following:

- Documentation of the route(s) of exposure
- HIV and HBV status of the source individual, with consent of the source individual
- Initial blood testing of the source individual, with consent of the source individual
METHODS OF CONTROL

- Initial blood testing of the exposed employee, with consent of the employee
- Follow-up blood testing of the exposed employee
- Counseling, as medically indicated
METHODS OF CONTROL

Recordkeeping
There are two types of records required by the Bloodborne Pathogens Standard:

Medical Records

- A medical record must be maintained for each employee who has experienced an occupational exposure (for at least the duration of employment plus 30 years). This record is confidential and separate from other personnel records.
METHODS OF CONTROL

Training Records

- Training records document each training session and are to be kept for three years
HIV/AIDS LAWS AND REQUIREMENTS

All caregivers should be familiar with HIV/AIDS legal requirements.

Americans with Disabilities Act

The Americans with Disabilities Act (ADA) is intended to make society more accessible to persons with disabilities. The ADA's protection applies primarily, but not exclusively, to disabled individuals.
HIV/AIDS LAWS AND REQUIREMENTS

A person is considered disabled if he or she meets at least one of the following criteria:

- Has a physical or mental impairment that substantially limits one or more of his/her major life activities
- Has a history or record of such an impairment; or is perceived by others as having such impairment
HIV/AIDS LAWS AND REQUIREMENTS

The ADA does not specifically name all the impairments that are covered. However, in June 1998, the U.S. Supreme Court ruled that HIV infected people are protected by the Federal ban on discrimination against the disabled even if they suffer no symptoms of AIDS.
SUMMARY

There is no cure or vaccine for AIDS. Prevention is crucial. Learning about the disease and about proper work practices will help prevent the spread of infection and safeguard your health.