

## Florida HIV: 3 Units

3 contact hours - \$20.00

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## Course Objectives

When you finish this course, you will be able to:

- Describe the cause of HIV and its mechanism of infection.
- Outline the basic components of HIV antibody testing and confirmation.
- Describe infection control and prevention practices that have been shown to prevent transmission of HIV and other STDs.
- Summarize the occupational exposure management of HIV other bloodborne pathogens.
- Describe initial evaluation and clinical management of HIV patients, including antiretroviral therapy.
- Discuss HIV prevention strategies, including behavioral change management and needle exchange programs.
- Discuss the psychosocial issues associated with HIV and AIDS infection.
- Outline the main components of the Florida Omnibus AIDS Act.

## Introduction

In 2007, more than 33 million people worldwide were living with human immunodeficiency virus (HIV) infection. During that time, roughly 2.5 million new infections occurred and about 2.1 million people died from their existing infections. These estimates indicate that HIV infection remains a global problem but the numbers also show a notable downward trend in the estimated global HIV prevalence and incidence. Based on the best available evidence, it appears that the global epidemic stabilized in the late 1990s and that the annual number of new infections may have since modestly declined (Global HIV Prevention Working Group, 2008).

Yet the dimensions and pace of the epidemic remain staggering. The news is especially dire in southern Africa, where little progress in curbing the rate of new infections has occurred outside of Zimbabwe. HIV infections continue to increase in a number of countries, including China, Indonesia, Mozambique, Russia, Ukraine, Vietnam, and several high-income countries (Global HIV Prevention Working Group, 2008). The progress made in Zimbabwe in recent years will likely be reversed due to the recent collapse of the government and a nationwide cholera epidemic.

In the United States, there are approximately 1.2 million people living with HIV. The majority of cases are among men, accounting for about 74 percent of cases. Throughout the United States, minorities are disproportionately affected by HIV, with African-Americans accounting for 48 percent and Hispanics 18 percent of newly diagnosed HIV or acquired immunodeficiency syndrome (AIDS) cases in 2005 (UNAIDS, 2008).

Through the end of 2007 Florida ranked 3rd in the nation in the number of cumulative AIDS cases with nearly 106,000 cases. Women (age 13+) account for approximately 31 percent of these cumulative cases while men account for the remaining 69 percent. The Florida Bureau of HIV/AIDS estimates that there were 5,550 new cases of HIV in Florida in 2006, a rate nearly 60 percent higher than the national rate for newly-acquired infections. Seventy-two percent of new infections were in males, 48% in African-Americans, 33 percent in people aged 13 to 29, and 58 percent in men who have sex with men (Florida Department of Health, 2008a).

In 2008, for the 16th consecutive year HIV was the leading cause of death in Florida among black males and females ages 25 to 44. When broken down by gender, HIV remains the leading cause of death for black females but has dropped to the third leading cause of death for black males. HIV is the 4th and 9th leading cause of death for white males and females respectively and 3rd leading cause of death for Hispanic males and females for individuals in the same age group (Florida Department of Health, 2008a).

Through December 2006, the five metropolitan areas reporting the highest cumulative number of AIDS cases were (Florida DOH, 2007):

- |                  |         |
|------------------|---------|
| • New York City  | 198,083 |
| • Los Angeles    | 58,246  |
| • Miami          | 56,804  |
| • San Francisco  | 40,248  |
| • Washington, DC | 31,445  |

## Cause of AIDS

Acquired immunodeficiency syndrome (AIDS) is a complex condition caused by a retrovirus called the human immunodeficiency virus (HIV), which attacks the cells of the immune system and progressively destroys the body's ability to fight infection and disease. People with damaged immune systems are vulnerable to diseases that do not threaten people with healthy immune systems. AIDS is “acquired”—it is not hereditary and it is not passed casually from one person to another—and it is a “syndrome” because it causes a combination of symptoms, diseases, and infections.

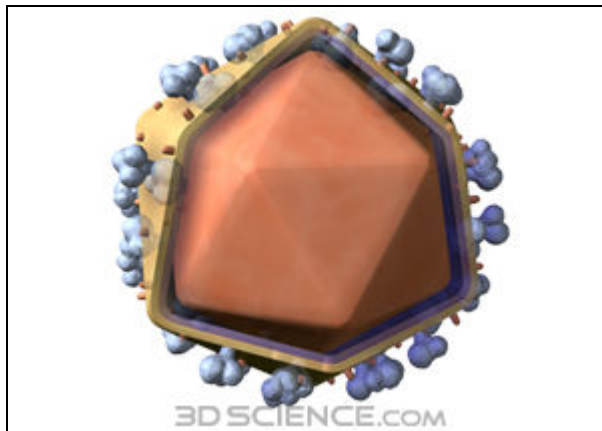


Figure 1: The physical structure of HIV is characterized by a protein shell encapsulating the genetic information and enzymes of the virus; a lipid membrane that circles the protein capsule; and glycoproteins that dot the surface of the virus, which aid in processes such as entry into macrophages and T-helper cells of the host. Courtesy of Zygot Media Group, Inc.

The term AIDS applies to the most advanced stages of HIV infection. The diagnosis of AIDS requires 1) a positive HIV antibody test or evidence of HIV infection and 2) the appearance of specific conditions or diseases. All people diagnosed with AIDS have HIV, but not all those with HIV have reached an AIDS diagnosis.

How AIDS is defined and diagnosed has changed since the beginning of the AIDS epidemic. In 1987, the Centers for Disease Control and Prevention (CDC) defined AIDS using a positive HIV antibody test plus a list of conditions that indicated a deficient immune system. In 1993, the CDC revised the definition of AIDS to include more “defining conditions” and something called a “CD4-cell count”. Counting of the number of CD4 cells in a cubic millimeter of blood provides a good indication of the health of the immune system. A very low CD4 count (less than 200) is an indication that the HIV infection is progressing or has progressed to AIDS.

The 1993 revised definition meant that more people were considered to have AIDS. That year there was a “jump” in the number of people with AIDS, which reflected the change in classification system. Currently, an AIDS diagnosis is only made by a licensed healthcare provider, based on a confirmed HIV test result, the presence of certain defining physical conditions, and the person's CD4-cell count.

In children, HIV has a wider spectrum of clinical presentations than in adults. The CDC developed a revised pediatric HIV classification system in 1994, placing HIV-infected pediatric patients into categories based on their immune system, CD4 cells, and clinical category. Pediatric classification

of AIDS is different than the classification for adults.

The 1993 AIDS Surveillance Case Definition for Adolescents and Adults, which is the most current definition, is comprised of a 3 x 3 staging system. In this definition, any person who is HIV-infected and has either: 1) an AIDS indicator condition (see table 1), or 2) a CD4+ ("T-cell count") less than 200 cells/mm<sup>3</sup> (or less than 14%) is considered to have AIDS.

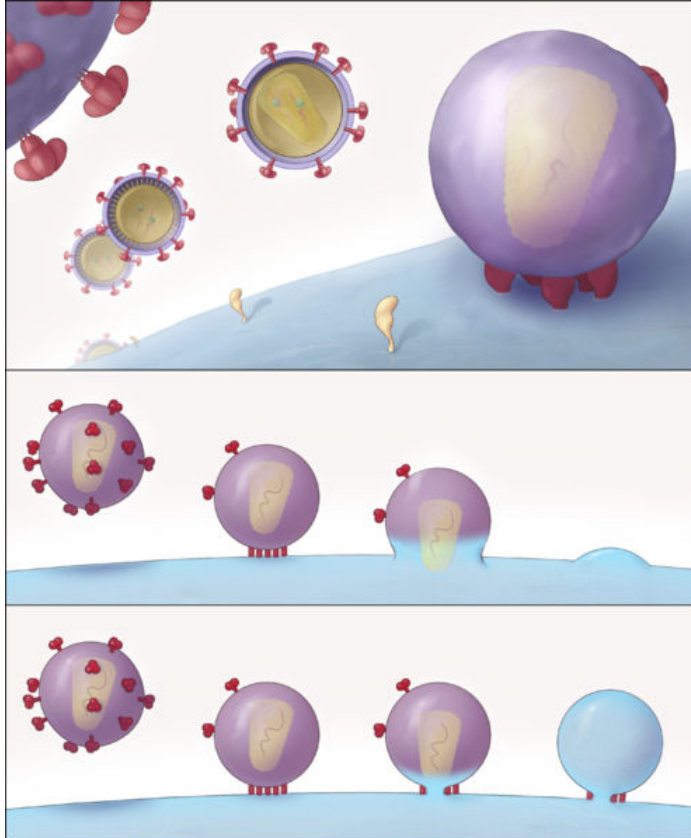
**Box 1 AIDS Indicator Conditions (Adults)**

A positive HIV test plus one or more of the following:

- 1) Candidiasis, of esophagus, trachea, bronchi or lungs
- 2) Cervical cancer, invasive
- 3) Coccidioidomycosis, extrapulmonary
- 4) Cryptococcosis, extrapulmonary
- 5) Cryptosporidiosis with diarrhea greater than one month
- 6) Cytomegalovirus of any organ other than liver, spleen, or lymph nodes
- 7) Herpes simplex with mucocutaneous ulcer lasting longer than one month or bronchitis, pneumonitis, esophagitis
- 8) Histoplasmosis, extrapulmonary
- 9) HIV-associated dementia: disabling cognitive or motor dysfunction interfering with activities of daily living
- 10) HIV-associated wasting: involuntary weight loss greater than 10 percent of baseline plus chronic diarrhea (2 loose stools/day for 30 days) or chronic weakness and documented enigmatic fever 30 days
- 11) Kaposi's sarcoma
- 12) Lymphoma of brain
- 13) Lymphoma, non-Hodgkins of B-cell or unknown immunologic phenotype and histology showing small, noncleaved lymphoma or immunoblastic sarcoma
- 14) *Mycobacterium avium* complex or *M. kansasii*, disseminated
- 15) Tuberculosis
- 16) Nocardiosis
- 17) *Pneumocystis carinii* pneumonia
- 18) Pneumonia, recurrent-bacterial (2 episodes in 12 months)
- 19) Progressive multifocal leukoencephalopathy
- 20) Salmonella septicemia (non-typhoid), recurrent
- 21) Strongyloidiasis, extraintestinal
- 22) Toxoplasmosis of internal organs

## Mechanism of Infection and Transmission

When the HIV virus enters the bloodstream it seeks out T-helper lymphocytes, white blood cells essential to the functioning of the immune system. The T-helper lymphocyte cells are also called T4 or CD4 cells. These cells regulate immune response in the event of attack from disease-causing organisms such as bacteria or viruses. When the HIV virus infects the T-helper lymphocyte, the cell sends signals to other cells, which produce antibodies. HIV infects and destroys T-helper lymphocytes and damages their ability to signal for antibody production. This results in the eventual decline of the immune system.



The top panel shows the HIV virion finding and attaching to a T cell. The second and third panels show HIV viruses, (dotted with red glycoproteins) attaching to the T cell and depositing the HIV virus particle into the T cell. From: [http://commons.wikimedia.org/wiki/Image:HIV\\_entry\\_into\\_T\\_cell\\_schematic.png](http://commons.wikimedia.org/wiki/Image:HIV_entry_into_T_cell_schematic.png)

A person with untreated HIV infection will go through several stages of infection:

- Viral transmission
- Primary HIV infection—lasting 1 to 2 weeks as the virus establishes itself in the body.
- Seroconversion—when antibodies to the HIV virus are produced by the immune system.
- Asymptomatic HIV infection—when a person is infectious but looks and feels healthy. The virus is active and continuing to damage the immune system.
- Symptomatic HIV infection—symptoms such as skin rash, night sweats, mouth ulcers, weight loss, and fungal infections appear.
- AIDS—the Centers for Disease Control and Prevention (CDC) defines AIDS as an HIV positive person who has a CD4 count of less 200/mm<sup>3</sup> or a history of an "AIDS-defining illness".

These stages are sometimes called the "natural history" of disease progression. The natural history of HIV infection has been altered dramatically in developed countries because of new medications. In countries where there is no access to these expensive medications, or in cases where people do not become aware of their HIV infection until very late in the cycle, the disease progresses as described above.

HIV is a relatively fragile virus—it is not "easy to catch"—and it is not spread by casual contact. In order for HIV to be transmitted, three conditions must occur: 1) there must be an HIV source, 2) there must be a sufficient dose of virus, and 3) the virus must have access to the bloodstream, mucous membranes, or broken skin of another person.

One of the predictors of how infectious an HIV-positive person is their viral load—how much HIV is present in the bloodstream. Studies show a clear connection between higher viral load in the blood and increased transmissibility of HIV.

HIV can be transmitted through:

- Unprotected anal, vaginal, and oral intercourse.
- A mother passing the virus to her baby either before or during birth.
- An infected woman breastfeeding her infant.
- Accidental needlestick injuries.
- Infected body fluid coming into contact with the broken skin or mucous membranes of another person.
- A transfusion prior to 1986 of HIV-infected blood or blood products.
- Sharing needles or other injection equipment.

In settings such as hospital operating rooms, other fluids (cerebrospinal, synovial, pleural, pericardial, and amniotic fluid) may be considered infectious if the source is HIV positive. These fluids are generally not found outside the hospital setting. Sweat, tears, saliva, urine and feces are not capable of transmitting HIV unless visibly contaminated with blood.

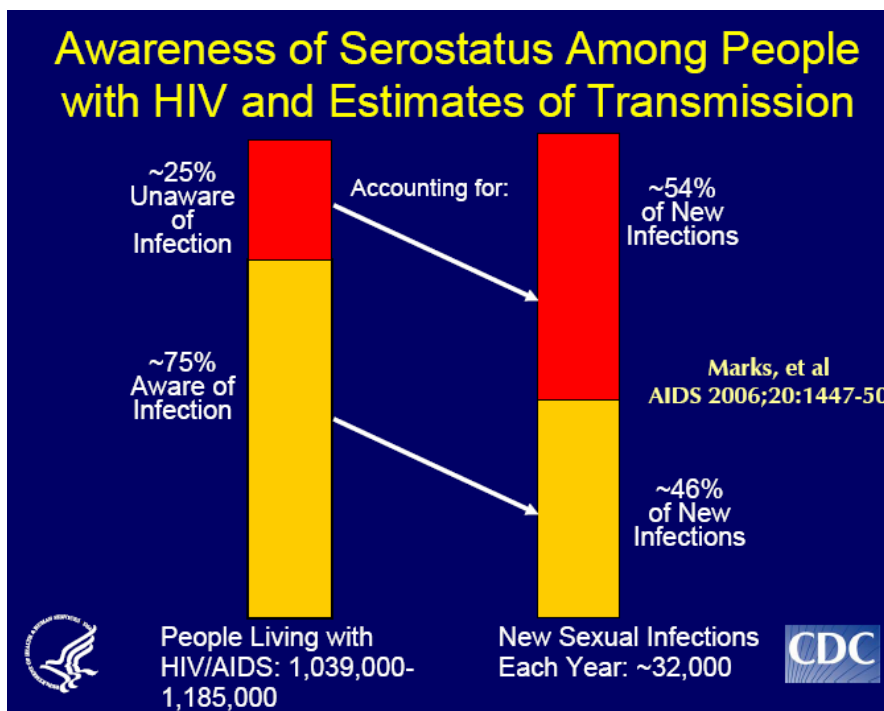
HIV transmission can occur during practices such as tattooing, blood-sharing activities such as "blood brother" rituals, or any other type of ritualistic ceremony where blood is exchanged or when un-sterilized equipment contaminated with blood is shared. HIV transmission may also occur

in occupational settings. In extremely rare cases, HIV can be transmitted by sharing razors or toothbrushes if infected blood from one person were deposited on the toothbrush or razor, and the blood were to enter the bloodstream of another person.

## People Unaware of Their Positive Status

Approximately 25 percent of people in Florida (as well as in the United States) who are infected with HIV do not know they are infected. The Florida Bureau of HIV/AIDS has set a goal for 2009 to use voluntary testing and counseling to decrease this number to 5 percent. To accomplish this goal, routine screening has become an increasingly important tool for reducing the spread of HIV. People who are infected with HIV but not aware of their positive status cannot take advantage of the therapies that can keep them healthy and extend their lives (CDC, 2008).

Studies have shown that infected people often decrease behaviors that transmit infection to sex or needle-sharing partners once they are aware of their positive HIV status. HIV-infected persons who are unaware of their infection do not reduce risk behaviors. Persons tested for HIV who do not return for test results might even increase their risk for transmitting HIV to partners. Because medical treatment that lowers HIV viral load might also reduce risk for transmission to others, early referral to medical care could prevent HIV transmission in communities while reducing a person's risk for HIV-related illness and death (CDC, 2008).



From: [http://www.cdc.gov/hiv/topics/testing/resources/slidesets/pdf/testing\\_healthcare.pdf](http://www.cdc.gov/hiv/topics/testing/resources/slidesets/pdf/testing_healthcare.pdf).  
Slide 5

## HIV Testing

The first HIV antibody test was available in 1985. Since then, new antibody tests have been developed and approved by the Food and Drug Administration (FDA). These tests do not detect the presence of the HIV virus itself but detect the body's reaction to the virus—the presence of antibodies to HIV. Currently, these antibody tests have a two step process of 1) a screening test and—when the screening test is reactive or positive—2) a confirmatory test.

Anyone who has put themselves at risk through anal, vaginal or oral sex, or shared needles and anyone who has had an occupational exposure should be tested for HIV. Many people may have partners who have risk factors and—along with their partners—should be tested. People may get an HIV test at public health departments, through their medical provider, family planning or sexually transmitted disease clinics, and in some cases at community clinics.

New drug therapies for HIV infection can sustain an infected person's health for long periods of time. Early detection allows people with HIV the option to receive medical treatment sooner, take better care of their immune system, and stay healthier longer. Additionally, early detection of HIV allows people to take precautions not to infect others.

### The Window Period

HIV antibody testing has a “window period”—the time between infection with the virus and when the HIV-infected person develops enough antibodies to be detected by the antibody test. Until the infected person's immune system makes enough antibodies to be detected, the test will be negative even though the person is infected with HIV. Some infected people are able to produce antibodies as early as two weeks after infection and almost everyone will develop enough antibodies to be detected by 12 weeks after infection. Unfortunately, there is no way to know how long each infected person will take to develop antibodies. Therefore, to be sure people should test three months after the last potential HIV exposure.

Because people who are newly infected have so few antibodies to fight HIV, the virus can grow and multiply unchecked. During this time, they can have a large amount of virus in their blood making them highly infectious for HIV. Therefore, during the window period it is possible for an infected person to test negative but still be able to infect another person.

### Confidential and Anonymous Testing

HIV testing can only be done with the person's consent. Consent may be contained within a comprehensive consent for medical treatment. It can be verbal or written, but must be specific to HIV and must be documented. There are some rare exceptions where a person can be tested without their consent.

With confidential HIV testing, the clients give their real name and the information about the testing is maintained in their medical records. The results are confidential. Results and testing information are not released to others except when medically necessary or under special circumstances including when a release is signed for the results to be given to another person or agency.

HIV is a reportable condition in most states—including Florida—so confidential HIV results are reported to local public health officials. An anonymous HIV antibody test means that the client doesn't give his or her name and the person who orders or performs the test does not maintain a record of the name of the person they are testing.

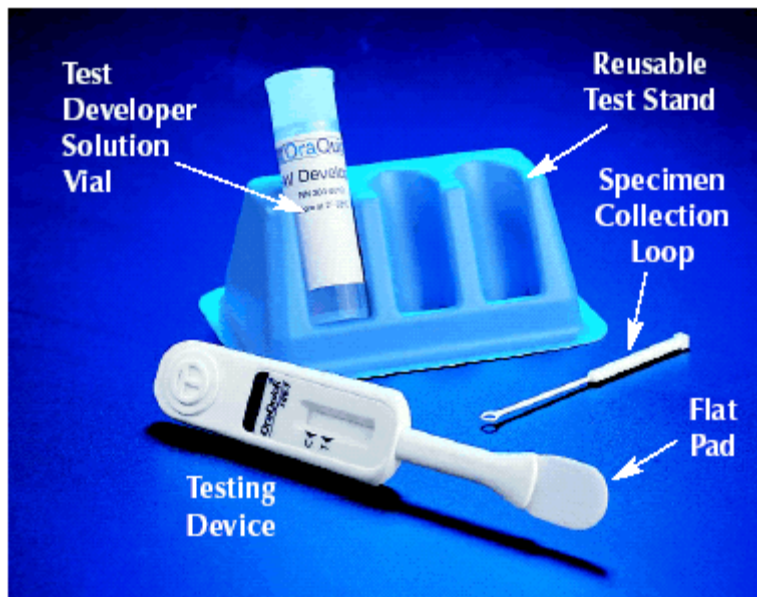
### Screening and Confirmation

In most cases the first test done on a blood specimen is a screening test called an Enzyme Linked Immunosorbent Assay (“EIA” or “ELISA”). This type of test screens for the presence of antibodies to HIV in blood, urine, or oral fluid. This and other types of screening tests are inexpensive tests and highly accurate. The ELISA test can produce a result in as little as 3.5 hours but because most samples are sent to a laboratory and tested in batches, it can take one to two weeks to receive the results.

Fast confirmatory tests or “rapid tests” can also be used for screening and have an accuracy rate exceeding 99%. Rapid screening tests are conducted at the test site—often with the client present—and negative results are available in under an hour. A positive rapid test is considered to be preliminary until a confirmatory test verifies the result.

Rapid tests are most commonly performed on a sample from the oral mucosa. Because this test relies on a swab from the mouth many people erroneously think that HIV can be transmitted through saliva via kissing or sharing of utensils.

One of the most common types of rapid test is the OraQuick Advance. It takes about 20 to 40 minutes for a result—if the test is “reactive” (antibodies detected) results must be confirmed by an additional test. This is because there is a small chance that an HIV screening test may detect proteins related to other autoimmune diseases and “react” to these proteins with a “positive” result.



From: [http://www.cdc.gov/hiv/topics/testing/rapid/images/OraQuick\\_Test.gif](http://www.cdc.gov/hiv/topics/testing/rapid/images/OraQuick_Test.gif)

In addition to the OraQuick, five other rapid tests are approved for commercial use in the United States by the Food and Drug Administration:

- Reveal G3 Rapid HIV-1 Antibody Test
- Uni-Gold Recombigen HIV Test
- Multispot HIV-1/HIV-2 Rapid Test
- Clearview HIV 1/2 Stat Pak
- Clearview Complete HIV 1/2 (CDC, 2007a)

A positive test result means you are HIV positive and can infect others who come in contact with your blood, semen, or vaginal fluids. A negative result means there are no antibodies to HIV in your blood at the time of the test. A negative test does not mean you are HIV negative—you may be infected but be in the window period—a period lasting up to 6 months in which an infected person has no detectable antibodies in the blood.

If a screening test is negative, the results can be given to the client. The CDC recommends that laboratories retest all positive ELISA tests. If the screening test is reactive at the laboratory, a confirmatory test called the Western Blot is conducted on the same sample. The Western Blot is only used if the ELISA or another test is positive.

## Counseling

In most states, HIV test counseling is offered to clients who are at risk for HIV or who request counseling. The goal of HIV counseling and testing is help individuals assess risk, understand test results, and help them develop a personalized prevention plan. Florida law requires those who perform HIV tests in county health departments and other registered testing sites to obtain the informed consent of the test subject, make private counseling available both before and after the test, and confirm positive preliminary results with a supplemental test before informing the test subject of the result (Florida Dept of Health, 2008c).

Those who refuse counseling should not be denied an HIV test and the person conducting the HIV test does not have to provide the counseling themselves. They can refer the client to another person or agency for counseling. The person who provides HIV test counseling to clients should direct the counseling towards increasing the client's understanding of their own risk of acquiring or transmitting HIV, motivate the client to reduce their risk, and assist the client to build skills to reduce their risk.

Florida law also requires any healthcare provider who attends a pregnant woman for conditions relating to her pregnancy to offer testing for HIV and counsel her on the availability of treatment if she tests positive. When a pregnant woman tests positive for HIV, in addition to medical and support services, she should also be referred to the Healthy Start Care Coordination System. For more information on the availability of services, contact the Family Health Line at 1-800-451-BABY or the Florida AIDS Hotline at 1-800-FLA-AIDS (Florida Department of Health, 2008c).

## Infection Control Strategies in Healthcare Facilities

Preventing HIV infection is a universal goal and within healthcare facilities prevention is an important component of any infection control program. Environmental control factors, engineering and work practice controls, as well as training and education of healthcare workers are all part of a comprehensive infection prevention program.

Universal and standard precautions should be used at all times. Under universal precautions, blood and other potentially infectious materials should always be considered potentially infectious for HIV and other pathogens. Standard Precautions is a newer system that considers all body fluids (except sweat) to be potentially infectious. Universal and Standard Precautions involve the use of protective barriers such as masks, gloves, protective eyewear, and face shields to reduce the risk of exposure through skin or mucous membranes.

### Hand Hygiene

Hand hygiene is the single most important procedure for preventing the spread of infections and strict adherence protects both patients and workers. Despite its simplicity and effectiveness in preventing the spread of infectious disease, hand hygiene adherence remains unacceptably low throughout the world. Adherence varies among professional categories of healthcare workers and between hospital departments but is usually estimated as less than 50% (Pittet, 2001).

Hand hygiene should be done when you first come on duty, before you touch any clean equipment, and before and after every patient contact, including after touching intact skin. Hand hygiene should be performed after contact with body fluids, including your own—for example, after coughing, sneezing, or blowing your nose. In addition, perform hand hygiene:

- Before any clean or invasive procedure.
- Before contact with any portal of entry, your patient's or your own.
- Before putting on sterile gloves.
- Before and after eating.
- Each time you remove your gloves.
- When leaving an isolation room.
- When going from a dirtier to a cleaner part of the patient's body.
- When your hands feel or look dirty.
- After contact with contaminated things or environments, such as charts.
- After handling used equipment or linen.
- After using the bathroom.

If you can see dirt on your hands—whether from blood, body fluid, or dirt from the ground—wash your hands with soap and water. Washing with soap and water physically removes the dirt from your hands but does not kill germs.

Alcohol products kill most germs—including viruses—but they do not remove dirt and debris from your hands. If you use alcohol choose a product that contains alcohol as part of its overall formulary—plain alcohol should not be used because it evaporates too quickly to provide enough contact time to kill germs. It is also advisable to keep fingernails short and to wear a minimum of jewelry.

## Personal Protective Equipment

The Occupational Safety and Health Administration (OSHA) defines personal protective equipment (PPE) as “specialized clothing or equipment worn by an employee for protection against infectious materials”. PPE must be provided and worn by employees in all instances where they will or may come into contact with blood or other infectious material. Gloves, masks, gowns, protective eyewear, and plastic face shields are examples of PPE.

Latex gloves are recommended when dealing with blood or potentially infectious material. If a person is allergic to latex, nitrile, vinyl, and other glove alternatives meet the definition of “appropriate” gloves and may be used in place of latex gloves. Employers are required to provide non-latex alternatives to employees with latex and other sensitivities.

Lab coats and scrubs are generally considered to be worn as uniforms or personal clothing. When contamination is reasonably likely protective gowns should be worn. If lab coats or scrubs are worn as PPE they must be removed as soon as practical and laundered by the employee. Reusable PPE must be cleaned and decontaminated, or laundered by the employer.

## Percutaneous Exposures

Percutaneous exposure incidents (needlestick, sharp injuries, as well as splashes leading to exposure of the skin or mucosa to blood) are a potential mode of exposure to—and transmission of—bloodborne infectious diseases among healthcare workers. According to the Centers for Disease Control and Prevention (CDC) approximately 600,000 healthcare workers in the United States experience exposures to blood each year. These can occur in any department and may be related to faulty needle insertion techniques, needle recapping, or incautious disposal of contaminated needles and sharps. Needlestick and sharp injuries may be combined with failure to use appropriate barrier garments (for example, hand gloves of proper size) (Falagas et al, 2007).

Because injuries from needles and other sharps have been associated with transmission of hepatitis B, hepatitis C, and HIV the prevention of sharps injuries is an essential goal of Universal and Standard Precautions. Needles and other sharp devices should be handled in a manner that will prevent injury to the user and to others who may encounter the device during or after routine patient care.

Do not recap, purposely bend or break, remove or otherwise manipulate needles by hand. After they are used, disposable syringes and needles, scalpel blades, and other sharp items are to be immediately placed in puncture-resistant, labeled containers for disposal. Phlebotomy needles must not be removed from holders unless required by a medical procedure. The intact phlebotomy needle/holder must be placed directly into an appropriate sharps container.

## Tags and Labels

Tags or labels must be used to protect employees from exposure to potentially hazardous biological agents. Tags must contain a signal word (BIOHAZARD) or biohazard symbol and a major message. The major message must indicate the specific hazardous condition or the instruction to be communicated to the employee. The signal word must be readable at a minimum of five feet or such greater distance as warranted by the hazard.

The tag's major message must be presented in either pictographs, written text, or both. The signal word and the major message must be understandable to all employees who may be exposed to the identified hazard. All employees will be informed as to the meaning of the various tags used throughout the workplace and what special precautions are necessary.



From: <http://www.osha.gov/needlesticks/biohazard-sample2.jpg>

## Personal Activities

Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas that carry occupational exposure. Food and drink must not be stored in refrigerators, freezers or cabinets where blood or other potentially infectious materials are stored, or in other areas.

## Management of Occupational Exposures

The need to protect healthcare workers from bloodborne exposures resulted in the publication of the Bloodborne Pathogens Standards by the Occupational Safety and Health Administration (OSHA) in 1991. The Standard requires employers whose employees have exposure to blood to provide safe work practices, education, and barriers to exposure. The Standard was later amended to add requirements for the safe use of sharps devices.

Part of the OSHA Bloodborne Pathogens Standard is the requirement that every healthcare worker who may have contact with body fluids on the job must receive specific annual education. This education includes:

- Instruction in the basics of infection control and prevention.
- Bloodborne pathogens training.
- Instruction in modes of transmission, needlestick precautions, and contact precautions.

## Factors Influencing Risk of Bloodborne Infection

Factors influencing the risk of infection from HIV, HBV, HCV, or other bloodborne pathogen include:

- Whether the exposure was from a hollow-bore needle or other sharp instrument.
- Whether the exposure was to non-intact skin or mucus membranes such as the eyes, nose, or mouth.
- The amount of blood that was involved and the amount of virus present in the source's blood.

## Risk of HIV Transmission

The risk of HIV infection to a healthcare worker through a needlestick is less than 1 percent; approximately 1 in 300 exposures through a needle or sharp instrument result in infection. The risk of HIV infection through splashes of blood to the eyes, nose, or mouth is even smaller—approximately 1 in 1,000.

There have been no reports of HIV transmission from blood coming into contact with intact skin. There is a theoretical risk of blood contact to an area of skin that is damaged, or from a large area of skin covered in blood for a long period of time. Through December 2002, the CDC reports 57 documented cases and 139 possible cases of occupational exposure to HIV since reporting started in 1985.

## Risk of Hepatitis B and C Transmission

The risk of getting HBV from a needlestick is 22 to 31 percent if the source person tests positive for hepatitis B surface antigen (HBsAg) and hepatitis B e antigen (HBeAg). If the source person is HBsAg positive and HBeAg negative there is a 1 to 6 percent risk of getting HBV unless the exposed person has been vaccinated. As of 1999, about 800 healthcare workers a year were reported to have been infected with HBV following an occupational exposure.

The risk of getting HCV from a needlestick is 1.8 percent. The risk of getting either HBV or HCV from a blood splash to the eyes, nose or mouth is possible but believed to be very small. There are no exact estimates on how many healthcare workers contract HCV from an occupational exposure, but the risk is considered low.

## Treatment after a Potential Exposure

As soon as safely possible following an exposure, wash the affected area with soap and water—application of antiseptics is not a substitute for washing. It is recommended that any potentially contaminated clothing be removed as soon as possible. It is also recommended that you familiarize yourself with existing protocols and the location of emergency eyewash or showers and other stations within your facility. If there is exposure to the eyes, nose or mouth, flush thoroughly with water, saline, or sterile irrigants. The risk of contracting HIV through this type of exposure is estimated to be 0.09 percent.

In the event of a sharps injury, wash the exposed area with soap and water. Do not "milk" or squeeze the wound. There is no evidence that shows using antiseptics (such as hydrogen peroxide) will reduce the risk of transmission for any bloodborne pathogens; however, the use of antiseptics is not contraindicated. In the event that the wound needs suturing, emergency treatment should be obtained. The risk of contracting HIV from this type of exposure is estimated to be 0.3 percent. Exposure to saliva is not considered substantial unless there is visible contamination with blood or the saliva emanates from a dental procedure. Wash the area with soap and water, and cover with a sterile dressing as appropriate. All bites should be evaluated by a healthcare professional. For human bites, the clinical evaluation must include the possibility that both the person bitten and the person who inflicted the bite were exposed to bloodborne pathogens. Exposure to urine, feces, vomit or sputum is not considered a potential bloodborne pathogens exposure unless the fluid is visibly contaminated with blood.

## Reporting the Exposure

After cleaning the exposed area as recommended above, report the exposure to the department or individual at your workplace that is responsible for managing occupational exposures. Obtain a medical evaluation as soon as possible. Discuss the extent of the exposure, treatment, follow-up care, personal prevention measures, the need for a tetanus shot, and other care. Your employer is required to provide an appropriate post-exposure management referral at no cost to you. In addition, your employer must provide the following information to the evaluating healthcare professional:

- A description of the job duties the exposed employee was performing when exposed.
- Documentation of the routes of exposure and circumstances under which exposure occurred.
- Results of the source person's blood testing, if available.
- All medical records that you are responsible to maintain, including vaccination status, relevant to the appropriate treatment of the employee.

## Post-Exposure Prophylaxis

Post-exposure prophylaxis (PEP) provides anti-HIV medications to someone who has had a substantial exposure, usually to blood. PEP has been the standard of care for occupationally-exposed healthcare workers with substantial exposures since 1996. PEP for HIV does not provide prevention of other bloodborne diseases, like HBV or HCV (MMWR, 2005).

Cellular HIV infection happens within 2 days of exposure to HIV and the virus is detectable in the blood within 5 days. Therefore, PEP should be started as soon as possible—within hours not days—after exposure and continued for 28 days. If PEP is offered and taken and the source is later determined to be HIV-negative, PEP should be discontinued. Although concerns have been expressed regarding HIV-negative sources being in the window period for seroconversion, no case of transmission involving an exposure source during the window period has been reported in the United States (MMWR, 2005).

Rapid HIV testing of source patients can help with timely decisions regarding use of HIV PEP after occupational exposures to sources of unknown HIV status. Because the majority of occupational HIV exposures do not result in transmission of HIV, potential toxicity must be considered when prescribing PEP. Because of the complexity of selecting HIV PEP regimens, someone with expertise in antiretroviral therapy and HIV transmission should be consulted. Reevaluation of exposed healthcare personnel should be strongly encouraged within 72 hours postexposure, especially as additional information about the exposure or source person becomes available (MMWR, 2005). In suspected cases of hepatitis B, post-exposure prophylaxis using hepatitis B immune globulin (HBIG) and hepatitis B vaccine and active PEP using hepatitis B vaccine alone are highly effective in preventing infection after exposure to HBV. HBIG alone has also been demonstrated to be effective in preventing HBV transmission, but with the availability of hepatitis B vaccine, HBIG typically is used as an adjunct to vaccination (MMWR, 2006).

## Evaluation and Clinical Management

When a person's immune system is suppressed, they have weaker defenses against the wide variety of bacteria, viruses, fungi, and other pathogens that are present almost everywhere. The opportunistic diseases and infections associated with HIV infection are any of the infections that are part of the AIDS-defining classification mentioned in Table 1 above. The original case definition of HIV infection was based on the clinical symptoms seen in men. In 1993, the CDC revised the classification system for HIV infection and expanded the case definition for AIDS to include invasive cervical cancer, obviously a condition found only in women. Since 1993, scientists have reported further differences in the way that HIV affects men, women, and children.

### Initial Evaluation

Each HIV-infected patient initially entering into care should have a complete medical history, physical examination, laboratory evaluation, and counseling. The purpose is to confirm the presence of HIV infection, obtain appropriate baseline historical and laboratory data, assure patient understanding about HIV infection, and initiate care. Baseline information then is used to define management goals and plans (DHHS, 2008).

The CD4+ T-cell count (or CD4 count) serves as the major clinical indicator of immunodeficiency in patients who have HIV infection. It is the most important factor in deciding whether to initiate antiretroviral therapy and opportunistic infection prophylaxis, and it is the strongest predictor of subsequent disease progression and survival according to clinical trials and cohort studies (DHHS, 2008).

### Treatment

Before 1996, there were three medications available to treat HIV. These drugs were used singly and were of limited benefit. In 1996 researchers discovered that taking combinations of these medications with new medications dramatically reduced the amount of HIV, or viral load, in the bloodstream of a person infected with HIV. When used in combination each drug targets a separate part of the HIV virus and its replication. The reduction of deaths from AIDS in the United States has been primarily attributed to this combination therapy, called "highly active antiretroviral therapy" (HAART).

HAART is made up of several different kinds of medications:

- Nucleoside Reverse Transcriptase Inhibitors (NRTIs)
- Nonnucleoside Reverse Transcriptase Inhibitors (NNRTIs)
- Protease Inhibitors
- Fusion Inhibitors
- Integrase Inhibitors
- Entry Inhibitors
- Combination Drugs

The addition of new drugs to combination therapy has contributed to a decline in morbidity and mortality in those infected with HIV and AIDS; it has also added to the cost of HAART. A Canadian study, which analyzed healthcare costs in HIV-infected patients during 1995 to 2002, noted a substantial increase in healthcare expenditures per patient per month since the advent of HAART (Sendi and Gafni, 2003). However, when other factors are taken into consideration—such

as increased productivity due to a longer lifespan—the increased cost of HAART appears to be offset by other societal gains.

In 2003, the lack of access to HIV/AIDS treatment was declared a global health emergency and world leaders have set a goal of universal access to HAART by 2010. The World Health Organization (WHO) estimates that globally, 2 million AIDS patients in developing countries were receiving highly active antiretroviral therapy (HAART) in December of 2006, a more than five-fold increase since 2001. However, this number is only about 26 percent of the estimated 7.1 million people needing HAART. Even the lowest price—US\$142 per person per year for the first-line HAART regimen remains out of reach for many patients in resource-limited settings. Because large-scale treatment began only recently in many developing countries, little is known about the long-term costs of drugs for AIDS treatment (Nunn et al, 2007).

As patients receive HAART for longer periods, AIDS case management has become more complex. Over time new antiretrovirals have emerged, offering therapeutic improvements with fewer pills. Although the prices of some new second-line antiretrovirals have also declined in some countries, second-line treatment is nearly always more expensive than first-line treatment because of the high costs associated with developing new technologies and the monopoly prices innovator companies enjoy during patent terms. As treatment scales up globally, many AIDS patients now receiving first-line therapies will need therapeutic alternatives. The cost of second- and third-line AIDS treatment and access to the latest ARV therapies is therefore a problem of global public health concern (Nunn et al, 2007).

Many studies have demonstrated that better outcomes are achieved in HIV-infected outpatients cared for by a clinician with HIV expertise. Appropriate training and experience, as well as ongoing continuing education, are important components for optimal care. Primary care providers without HIV experience, such as those who provide service in rural or underserved areas, should identify experts in the region who will provide consultation when needed (DHHS, 2008).

## **HIV and HCV Co-Infection**

As many as one quarter of HIV-infected people in the United States may be co-infected with hepatitis C virus (HCV). People who are co-infected with both HIV and HCV and have immune system impairment, may progress more rapidly to serious, chronic, or fatal liver damage. The majority of hemophiliacs who received blood products contaminated with HIV also are infected with HCV. Most new hepatitis C infections occur among injecting drug users.

In those with HIV, co-infection with HCV puts a person at higher risk for liver disease and may cause an altered response to HAART as well as increased risk of HAART-related hepatotoxicity. This is why all HIV-infected persons should be screened for HCV infection. Prevention of HCV infection for those not already infected and reducing chronic liver disease in those who are infected are important concerns for HIV-infected individuals and their healthcare providers (CDC, 2007c).

Susceptible coinfecting patients should receive hepatitis A vaccine because the risk for fulminant hepatitis associated with hepatitis A is increased in persons with chronic liver disease. Susceptible patients should receive hepatitis B vaccine because most HIV-infected persons are at risk for HBV infection (CDC, 2007c).

## Special Populations

Although HIV infection affects people from all ethnic groups, genders, ages, and income levels, some groups have been significantly affected by the AIDS epidemic. These groups include men who have sex with men, injecting drug users, people with hemophilia, infants and children, women, and people of color.

### Men Who Have Sex with Men

American society has issues with homosexuality. Grief may not be validated when relationships are viewed through prejudice and considered unacceptable. An example of this may be the reaction of churches to those who are living with, or have families living with AIDS. Many congregants report that they do not get the support they need from their church families because of the stigma attached to HIV, AIDS, and homosexuality. Self-esteem issues and psychological issues including depression, anxiety, diagnosed mental illness, and risk-taking behaviors may also complicate the lives of these men.

### Injecting Drug Users

People who continue to use injecting drugs, despite warnings and information about risks, may be viewed by some as "deserving" their infection. Harm reduction measures such as needle exchange programs have been proven to reduce the transmission of bloodborne pathogens such as HIV, HBV, and HCV. In addition, poverty, self-esteem issues, and psychological issues (including depression, anxiety, diagnosed mental illness, and risk-taking behaviors) may also complicate the lives of injection drug users.

### People with Hemophilia

Many hemophiliacs were infected with HIV prior to the advent of blood testing. During the 1980's, 90 percent of severe hemophiliacs contracted HIV or HCV through use of contaminated blood products. There is anger within this community because there is evidence to show that the companies manufacturing the concentrates knew their products might be contaminated, but continued to distribute them anyway.

Some people considered hemophiliacs to be innocent victims of HIV, but there has been significant discrimination against them. The Ryan White Care Act, funding HIV services, and the Ricky Ray Act, which provides compensation to hemophiliacs infected with HIV, were both named after HIV-positive hemophiliacs who suffered significant discrimination (arson, refusal of admittance to grade school) in their hometowns.

### HIV in Infants and Children

Florida ranks second, behind New York, in the number of cumulative pediatric AIDS cases reported through 2006. Ninety-five percent of pediatric AIDS cases were acquired perinatally—the remaining 5 percent were acquired through blood transfusions. There has been significant progress in combating perinatally-acquired AIDS—its incidence has declined from a peak of 194 HIV-infected babies born in Florida in 1992 to 13 cases in 2007.

Compared to adults, children show significant differences in their HIV disease progression and their virologic and immunologic responses. Without drug treatment, children may have developmental delay, pneumocystis carinii pneumonia, failure to thrive, recurrent bacterial infections, and other conditions related to HIV. The antiretroviral treatments that are available for HIV infection may not be available in pediatric formulations. The medications may have different

side effects in children than they do in adults.

It is vital that women know their HIV status before or during pregnancy. Antiretroviral treatment significantly reduces the chance that their child will become infected with HIV. Prior to the development of antiretroviral therapies, most HIV-infected children were very sick by seven years of age. In 1994, scientists discovered that a short treatment course of the medication AZT for pregnant women dramatically reduced the number and rate of children who became infected perinatally. As a result, perinatal HIV infections have substantially declined in the developed world. C-sections for delivery in certain cases may be warranted to reduce HIV transmission.

Early diagnosis of HIV infection in newborns is now possible. Antiretroviral therapy for infants is now the standard of care, and should be started as soon as the child is determined by testing to be HIV-infected. Current recommendations are to treat apparently uninfected children who are born to mothers who are HIV-positive with antiretroviral medicines for six weeks, to reduce any possibility of HIV transmission.

## HIV in Women

HIV affects women differently than men—certain strains of HIV may infect women more easily. The strain of HIV present in Thailand seems to transmit more easily to women through sexual intercourse. Compared to the insertive partner, scientists believe that women and receptive partners are more easily infected with HIV. Receptive partners are at greater risk for transmission of any sexually transmitted disease, including HIV. Women infected with HIV are at increased risk for a number of gynecological problems, including pelvic inflammatory disease, abscesses of the fallopian tubes and ovaries, and recurrent yeast infections. Several studies have shown that women with HIV in the United States receive less healthcare services and HIV medications, compared to men. This may be because women aren't diagnosed or tested as frequently as men.

Some studies have found that HIV-infected women have a higher prevalence of infection with the human papilloma virus (HPV). Certain strains of HPV cause cervical dysplasia, a precancerous condition of the cervix, which—in HIV-infected women—often becomes more aggressive as the woman's immune system declines. This may lead to invasive cervical carcinoma, which is an AIDS-indicator condition. For this reason, it is recommended that women with HIV have more frequent Pap tests.

An HIV-infected woman can transmit HIV to her baby during pregnancy, during the birth process, or following pregnancy by breastfeeding. One of the predictors of how infectious a pregnant woman will be to her baby is her viral load. Women with new or recent infections or people in later stages of AIDS tend to have higher viral loads and may be more infectious.

HIV is transmitted from an HIV-infected woman to her baby in about 25 percent of pregnancies if intervention with antiretroviral medications does not occur. The perinatal transmission rate has dropped dramatically in the United States due to the widespread use of AZT (zidovudine) by HIV-infected pregnant women. When a woman's healthcare is monitored closely and she receives a combination of antiretroviral therapies during pregnancy the risk of HIV transmission to the newborn drops below 2 percent.

In some pregnancies, caesarian section (C-section) may be recommended to reduce the risk of transmission from woman to baby. Advice about medications and C-section should be given on a case-by-case basis by a medical provider with experience in treating HIV+ pregnant women.

Most states, including Florida, require pregnant women to be counseled regarding risks around HIV and offered voluntary HIV testing.

### **People of Color**

African Americans and Hispanics have disproportionately higher rates of AIDS cases in the United States, despite the fact that there are no biological reasons for the disparities. African American and Hispanic women make up less than 25 percent of the total U.S. population, but account for 77 percent of all reported AIDS cases in women. In some areas, disparities also exist in the number of AIDS cases in American Indians.

There is a significant amount of denial about HIV risk, which continues to exist in these communities. As with other groups, there may also be fear and stigmatization of those who have HIV. Prevention messages must be tailored and presented in a culturally and linguistically appropriate manner. The messages must be carried through channels that are appropriate for the individual community. These channels may include religious institutions or through respected "elders" in the community.

Ironically, it may be these institutions or elders who, in the past, have contributed to the misinformation and stigma associated with HIV. Many HIV prevention programs are recognizing the importance of working with diverse communities. Input from these communities must be included in planning, delivering, and evaluating HIV prevention activities.

## HIV Prevention

Many programs are seeking to address the HIV epidemic through prevention programs. These efforts include national, international, and local programs.

### CDC Advancing HIV Prevention

The CDC's Advancing HIV Prevention (AHP) program aims to reduce barriers to early diagnosis of HIV infection and increase access to quality medical care, treatment, and ongoing prevention services for HIV-positive persons and their partners using a 4-point strategy:

1. Incorporate HIV testing as a routine part of care in traditional medical settings.
2. Implement new models for diagnosing HIV infections outside medical settings.
3. Prevent new infections by working with people diagnosed with HIV and their partners.
4. Further decrease mother-to-child HIV transmission (CDC, 2007b).

Clinicians can greatly affect patients' risks for transmission of HIV to others by performing a brief screening for HIV transmission risk behaviors; communicating prevention messages; discussing sexual and drug-use behavior; positively reinforcing changes to safer behavior; referring patients for such services as substance abuse treatment; facilitating partner notification, counseling, and testing; and identifying and treating other STDs. These measures may also decrease patients' risks of acquiring other STDs and bloodborne infections (MMWR, 2003).

### Syringe Exchange Programs

Syringe exchange programs (SEPs) provide free sterile syringes in exchange for used syringes to reduce transmission of bloodborne pathogens among injection-drug users. SEPs in the United States began as a way to prevent the spread of HIV and other bloodborne infections such as HBV and HCV. The National Institute on Drug Abuse recommends that persons who continue to inject drugs use a new, sterile syringe for each injection. As of November 2007, a total of 185 SEPs were operating in 36 states, the District of Columbia, and Puerto Rico (MMWR, 2007). Despite the documented success of needle exchange programs in curbing the spread of bloodborne diseases such as HIV, SEPs are banned in the state of Florida.

### Behavior Change and HIV Prevention

In instances where national epidemics have been reversed a number of evidence-based studies have shown that broad-based behavioral changes were central to success. Hundreds of randomized controlled trials have demonstrated that individual, small group, and community-level interventions can generate safer behaviors (Global HIV Prevention Working Group, 2008).

Studies in low- and middle-income countries among young people, sex workers, and other populations have demonstrated that prevention programs have the ability to change sexual and drug-use behaviors in resource-limited settings to prevent HIV transmission. The prevention programs have used the following approaches to prevent HIV infection:

- Programs are targeted to individual behavior.
- Emphasis is on broad-based efforts to alter social norms and address the underlying drivers of the epidemic.

In addition, there is effective use of available tools such as:

- Treatment of sexually transmitted infections.
- Medical male circumcision.
- Substitution therapy for chemical dependence.
- Programs that provide access to clean injecting equipment.

Using these and other interventions aimed at behavioral change, several countries, including Brazil, Australia, Uganda, Thailand, and Senegal, among others have had dramatic successes in curbing the spread of HIV within their borders. Together, these examples suggest that countries in a wide variety of settings have contributed to changes in HIV risk behaviors and, in doing so, have saved countless lives by averting HIV transmission. Based on the totality of epidemiological evidence, it appears that national implementation of evidence-informed combination HIV prevention efforts in the 1990s was associated with a 50 to 90 percent decline in HIV incidence and prevalence in key populations (Global HIV Prevention Working Group, 2008).

### **Brazil**

In Brazil public health campaigns have encouraged discussion of HIV, including frank public-awareness campaigns, condom promotion, focused behavioral interventions, syringe and needle exchange, school-based HIV education, prevention services in prisons, and voluntary HIV counseling and testing. Brazil's has been particularly successful in reversing a serious epidemic among injection drug users. Condom use increased by almost 50 percent among sexually active adults between 1998 and 2005, and focused behavior change prevention programs helped maintain HIV prevalence at low levels among sex workers. Although the World Bank had predicted in 1990 that 1.2 million Brazilians would be infected by 2000, fewer than 600,000 were living with HIV in 2002 (Global HIV Prevention Working Group, 2008).

### **Australia**

In Australia, public awareness campaigns have focused on behavioral interventions among gay men, syringe exchange programs, and voluntary counseling and testing for HIV. As a result of Australia's early, comprehensive response, focused largely on behavior change, annual HIV incidence peaked in 1985 and declined through the end of the 1990s. Between 1990 and 2000, the annual number of new HIV diagnoses fell by half (Global HIV Prevention Working Group, 2008).

### **Uganda**

In what is perhaps the world's best-documented national prevention success, Uganda began in the mid-1980s to address the rapid spread of HIV. It implemented public-awareness campaigns that encouraged young people to delay initiation of sex and urged sexually active adults to reduce the number of sex partners. In the 1990s, the country supplemented these early measures with condom promotion and investment in voluntary counseling and testing. From the earliest years, community-generated programs played a major role in the country's AIDS response.

The results of these efforts were remarkable. The percentage of young people who were sexually active fell by more than half between 1989 and 1995, and Ugandans were significantly less likely to have multiple sex partners than people living in neighboring countries. Increases in condom use in the 1990s helped preserve and accelerate early prevention gains. By the late 1990s, infection levels in capital city Kampala had fallen by two-thirds, and national HIV prevalence had been cut in half (Global HIV Prevention Working Group, 2008).

## Thailand

In Thailand the annual incidence of HIV has declined from 143,000 in 1991 to 19,000 in 2003 through the country's innovative 100 percent condom program, which promoted the use of condoms in brothels. The government also promoted public education about HIV and fair treatment of those infected with the virus. Had Thailand not brought comprehensive HIV prevention to scale, it would now have 7.7 million HIV infections, rather than the estimated 580,000 residents currently living with HIV (Global HIV Prevention Working Group, 2008).

## Senegal

In Senegal, early investment in awareness-raising, condom promotion, intensive prevention services for populations at greatest risk, and engagement of community leaders and faith-based organizations, combined with high rates of medical male circumcision, succeeded in keeping national HIV prevalence below 1 percent, when neighboring countries experienced significant increases in infections (Global HIV Prevention Working Group, 2008).

## Psychosocial Issues

Most states, including Florida, have systems to link people with HIV infection and AIDS to care and support services. Case managers in the HIV/AIDS Programs are the primary contact people for services. They can usually be found by contacting the local health department or health district. HIV infected or affected persons can be linked with medical care, insurance programs, volunteer groups, hospice, and other types of care and support services that may be needed during the course of a person, or family's, time of living with HIV.

## Difficult Realities

Persons with HIV and their families and friends face a multitude of difficult realities. Even with the advent of antiretroviral drugs, persons with AIDS still die prematurely. Men who have sex with men and injection drug users—who may already be stigmatized and subjected to social and job-related discrimination—may encounter even more societal pressure and stress with a diagnosis of HIV or AIDS.

Ninety percent of all adults with AIDS are in the prime of life and may not be prepared to deal with death and dying. The infections and malignancies that accompany AIDS—along with side effects of certain medications—can diminish and disfigure the body. People who are living with HIV face the need to practice "safer sex" and take medications for the remainder of their lives.

One thing that characterizes the grief around AIDS is the repetition of deaths that one person may experience. Many people working with or living with AIDS for years have gone to countless funerals and have seen a succession of their friends pass away. This is sometimes termed chronic grief. Chronic grief intensifies when one realizes that, before the grieving process for one death is complete many more people may have died.

The idea of "cumulative" multiple loss or grief saturation is not new. The emotions felt by long-term survivors of HIV and the HIV-negative friends and families are similar to the emotions of the survivors of the Holocaust, survivors of natural disasters (earthquakes, tornadoes, etc.), and to battle fatigue described by soldiers.

## Psychological Suffering

Infection with HIV can cause distress for those who have HIV, their caregivers, family, lovers, and friends. Grief can manifest itself in physical symptoms, including clinical depression, hypochondria,

anxiety, insomnia, and the inability to get pleasure from normal daily activities. Dealing with these issues may lead to self-destructive behaviors, such as alcohol or drug abuse.

Disbelief, numbness, and inability to face facts occur for some. The "fear of the unknown," the onset of infections, swollen lymph nodes, or loss of weight (or unusual weight gain) can be accompanied by fear of developing AIDS, or of getting sicker. Rejection by family, friends, and co-workers is often experienced. In some cases, guilt develops about the disease, about past behaviors, or about the possibility of having unwittingly infected someone else.

People living with HIV may feel as though their "normal" lives have completely ended, as they must plan detailed medication schedules and medical appointments. The cost of the medications for HIV may result in financial hardship, even if the person has medical coverage.

Sadness, hopelessness, helplessness, withdrawal, and isolation are often present. Anger is common: at the virus, at the effects of the medications, or the failure of some of the medications, at the prospect of illness or death, and at the discrimination that can often be encountered. Some people with HIV consider suicide or attempt suicide, and some may kill themselves. Call your local Crisis Line listed in your phone book, or call the National Suicide hotline at 1-800-784-2433 or 1-800-273-8255.

## Caregivers

Often feelings experienced by the caregiver will mirror those of the patient, such as a sense of vulnerability and helplessness. Caregivers may experience the same isolation as the person with HIV infection. Finding a support system, including a qualified counselor, can be just as important for the caregiver as for the person who has HIV disease. Support from co-workers can be especially important. Caregivers may find it necessary to acknowledge their own experiences and feelings when dealing with all aspects of this disease. Good self-care for the caregiver is important. There are other issues for people who share a home with, or provide home care for persons with HIV or AIDS.

## The Florida Omnibus AIDS Act

In 1988 Florida became one of the first states to enact legislation to address the AIDS epidemic. The Florida Omnibus AIDS Act stipulates that all licensed healthcare providers must take a course on HIV/AIDS and healthcare facilities must educate their workforce on HIV infection. It also sets standards for testing, confidentiality, informed consent, reporting requirements, and discrimination. For more information see: [http://www.doh.state.fl.us/DISEASE\\_CTRL/aids/legal/hartog.pdf](http://www.doh.state.fl.us/DISEASE_CTRL/aids/legal/hartog.pdf).

## Testing, Informed Consent, and Confirmation

The Florida Omnibus AIDS Act stipulates that HIV testing must be "informed, voluntary, and confidential" and "shall be preceded by an explanation of the right to confidential treatment of information identifying the subject of the test and the results of the test to the extent provided by law" (Florida Senate, 2008).

Consent does not have to be in writing but an explanation of the test and an indication that consent was obtained must be recorded in the medical chart. In addition, the person tested must be informed that a positive test will be reported to the county health department with sufficient information to identify the test subject. "All reasonable efforts" must be made to inform the subject of a positive test result. In addition, healthcare providers are required to confirm positive

test results through corroborating tests before informing the test subject of the result. There are some exceptions in Florida law to the requirement to obtain informed consent prior to conducting a test for HIV (Florida Senate, 2008):

- When a person is convicted of prostitution or procuring another to commit prostitution.
- When an inmate is released from prison.
- When deemed necessary by a medical examiner.
- During bona fide medical emergencies.
- When obtaining informed consent is detrimental to the patient.
- Following commission of a sexual offense.
- For epidemiological research.
- When a child is deemed too young to give informed consent.
- When a healthcare worker has had significant exposure to a patient's blood.
- When donating blood, tissue, or sperm to specialty banks.
- From a juvenile during the intake process at a juvenile assessment center or juvenile detention facility.

The Florida Omnibus AIDS Act also directs the Florida Department of Health to conduct epidemiologic studies and provide testing and patient care services throughout the state. In 2007, there were 323,028 HIV tests performed in Florida by county public health departments, with 1.6% of the tests being positive (Florida Department of Health, 2007).

## **Confidentiality**

In Florida, all patient medical records are confidential but to encourage voluntary testing the Omnibus AIDS Act makes HIV test results “superconfidential”. The superconfidentiality applies only to the results of laboratory reports and does not extend to clinical observations regarding symptoms associated with AIDS. Breach of confidentiality of sexually transmitted disease information is a third degree felony.

## **Pregnancy**

During pregnancy every person—including physicians and midwives—attending a pregnant woman for conditions relating to pregnancy during the period of gestation and delivery must offer the woman tests for sexually transmissible diseases, including HIV. The woman must be informed of the tests and has the right to refuse testing. If a woman objects to testing, the healthcare provider must make a “reasonable attempt” to obtain a written statement of objection, signed by the woman, which must be placed in the woman's medical record (Florida Senate, 2008).

## **Minors**

Minors under the age of 18 do not need parental consent for HIV and STD testing. Florida law specifically forbids informing the parents of the minor's HIV test or results.

## **Discrimination**

The Florida Omnibus AIDS Act prohibits discrimination against those who are HIV positive in employment, housing, public services, health and life insurance, and public accommodations.

## Notifiable Disease

HIV and AIDS are notifiable diseases in Florida. Licensed practitioners who diagnose, treat, or suspect a case of HIV or AIDS should make a report to their local health department within two weeks of examining a patient. In 1996 the Act was amended to require physicians and laboratories to report positive test results to state health authorities.

## Conclusion

There have been many well-documented and successful strategies employed in the United States and throughout the world to curb the devastating expansion of the AIDS epidemic. Nevertheless, the cost in lives and lost productivity remains a staggering problem. In the United States there are 40,000 new infections each year and worldwide there are about 2.5 million new infections annually.

AIDS remains the 4th leading cause of death among Floridians between the age of 25 and 44 and it is the leading cause of death for African-American Floridians in this age group. Although more men are infected with HIV, women are equally at risk for the disease.

As healthcare workers, we have the ability to encourage practices that are known to reduce the spread of AIDS including behavioral change, prompt treatment of sexually transmitted disease, encouraging use of clean injection drug equipment, routine HIV testing, patient education and counseling, and consistent condom use. The goal is to eliminate new HIV infections entirely in Florida and throughout the United States and the world—we all play a vital and important role in accomplishing this goal.

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## Post Test

Circle one answer per question.

1. According to the best available data, it now appears that the global HIV epidemic:
  - a. Has increased markedly since the 1990s.
  - b. Is no longer a threat to life because of new AIDS drugs.
  - c. Stabilized in the late 1990s.
  - d. Has been nearly eradicated in the United States.
  
2. The majority of HIV cases in the United States:
  - a. Are in African-American women.
  - b. Occur in men, accounting for about 74 percent of cases.
  - c. Occur in women of European ancestry.
  - d. Are seen in teenage boys.
  
3. Through the end of 2007, Florida ranked 3rd in the nation in the number of cumulative AIDS cases. In 2008, HIV was the leading cause of death in Florida among:
  - a. Black males and females ages 25 to 44.
  - b. White males and females ages 25 to 44.
  - c. Hispanic males and females ages 25 to 44.
  - d. Russian-born males and females ages 25 to 44.
  
4. AIDS is caused by a:
  - a. A retrovirus that attacks the heart and eventually causes heart failure.
  - b. A variant of the hepatitis virus that attacks the liver and brain.
  - c. A retrovirus that attacks the immune system destroying the body's ability to fight infection and disease.
  - d. Genetic abnormality passed from father to son.
  
5. Currently, an AIDS diagnosis is only made by a licensed healthcare provider, based on a confirmed HIV test result, the presence of certain defining physical conditions, and the person's CD4-cell count.
  - a. True.
  - b. False.
  
6. If left untreated the "natural history" of HIV infection:
  - a. Begins with viral transmission of the disease and ends with AIDS.
  - b. Refers to the history of the spread of AIDS from Africa to the rest of the world, and how the disease has affected humans.
  - c. Tells how the HIV virus has changed since it first infected humans.
  - d. Begins with symptomatic HIV infection and ends with AIDS.
  
7. Transmission of HIV can occur through:
  - a. Sitting in the same room with an infected person.
  - b. An infected woman breastfeeding her infant.
  - c. Shaking the hand of an infected person.
  - d. Sharing food with an infected person.

8. Approximately 25 percent of people in the United States who are infected with HIV do not know they are infected. All of the following is true about routine screening except:
  - a. Routine screening can lead to early medical treatment that lowers HIV viral load.
  - b. Infected people who are aware of their HIV status often decrease risky behaviors.
  - c. People who learn they have HIV are more likely to engage in high-risk behaviors.
  - d. It has become an increasingly important tool for reducing the spread of HIV.
  
9. There are several tests available to test for HIV infection. A positive test means you:
  - a. Do not have HIV.
  - b. Are infected with HIV, but cannot infect another person for at least 6 months.
  - c. Are infected with HIV and can infect others who come into contact with your blood, semen or vaginal fluids.
  - d. Do not have HIV, but may be in the “window period” with no detectable antibodies for up to 6 months.
  
10. Universal and Standard Precautions:
  - a. Are not implemented unless a patient has been diagnosed with AIDS or hepatitis C.
  - b. Must include the use of latex gloves.
  - c. Include PPEs such as masks, gloves, protective eyewear, and face shields.
  - d. Consider all body fluids, including sweat, to be potentially infectious.
  
11. Hand hygiene:
  - a. Is required only after contact with blood or other infectious materials.
  - b. Is not required after removing gloves.
  - c. Includes the use of lotion to prevent dry skin.
  - d. Is required after removal of gloves or other personal protective equipment and upon leaving the work area.
  
12. An example of a percutaneous exposure is:
  - a. Carrying a red-bagged urine specimen to the lab.
  - b. Taking the temperature of an HIV infected patient using Universal Precautions.
  - c. A needlestick from a patient who does not have HIV.
  - d. Assisting an HIV infected patient to walk in the hallway using Universal Precautions.
  
13. Biohazard labels:
  - a. Must be written in the three major languages of the workers employed in that area.
  - b. Can only be presented in pictographs.
  - c. Are used to protect employees from hazardous biological exposure.
  - d. Need not be understood by housekeeping staff.
  
14. HIV transmission to healthcare workers:
  - a. Has not been reported from blood coming into contact with intact skin.
  - b. Is most likely through a blood splash to the eyes, nose or mouth.
  - c. Is approximately 22 to 31 percent from a needlestick from an infected patient.
  - d. Does not depend on the amount of blood or virus present in the exposure.

15. Treatment after a potential exposure includes all of the following except:
  - a. Washing the affected area with soap and water.
  - b. Flushing exposed eyes, nose or mouth with water, saline or sterile irrigants.
  - c. Removal of potentially contaminated clothing.
  - d. Application of antiseptics in place of washing.
  
16. Sharps injuries:
  - a. Should be "milked" or squeezed.
  - b. Must not be treated with antiseptics.
  - c. Should be washed with soap and water.
  - d. Are not considered an occupational exposure.
  
17. When an occupational exposure occurs:
  - a. You only need to obtain a medical evaluation if the source is known to have HIV.
  - b. Your employer is required to provide an appropriate post exposure management referral at no cost to you.
  - c. Bites should be cleaned with hydrogen peroxide.
  - d. You are responsible for the cost of any treatment deemed necessary by your employer.
  
18. Following HIV exposure, the employee must:
  - a. Call their personal physician to set up an appointment.
  - b. Report the incident to the person responsible for managing exposure immediately after cleansing exposed area.
  - c. Be assigned to another department until the incident is fully investigated.
  - d. "Milk" the wound if it is a needlestick.
  
19. The combination drug therapy currently used to treat HIV is called:
  - a. Toxoplasma gondii.
  - b. IGRA.
  - c. HAART.
  - d. CD4 count.
  
20. The number and rate of children infected perinatally with HIV has decreased dramatically in Florida due to:
  - a. Use of C-section to deliver the baby prior to term before HIV infection can occur.
  - b. A short treatment course of the medication AZT for pregnant women.
  - c. The use of HAART therapy injected into the fetus during the third trimester.
  - d. The use of an enzyme immunoassay to determine fetal fibronectin levels.
  
21. Treatment for HIV infection in infants:
  - a. Is the same as treatment as adults.
  - b. Should be started as soon as the child is determined by testing to be HIV-infected.
  - c. Should not be used in apparently uninfected children who are born to mothers who are HIV-positive.
  - d. Should not be started until two years of age or later.

22. During pregnancy:
- An HIV infected woman rarely passes the infection to the baby.
  - C-sections actually increase the risk of infecting the baby with HIV.
  - The HIV transmission rate to the baby drops with the use of AZT.
  - HIV counseling is voluntary in most states.
23. Programs aimed at interventions to change behavior:
- Are rarely successful.
  - Have changed sexual and drug-use behavior in resource-limited settings.
  - Have shown that providing access to clean injecting equipment actually encourages drug addiction.
  - Have shown that use of condoms is not effective in preventing spread of HIV.
24. Chronic grief is a characteristic associated with AIDS because of the repetition of deaths that one person may experience.
- T
  - F
25. According to the Florida Omnibus AIDS Act HIV testing must be “informed, voluntary, and confidential”.
- True
  - False
26. To encourage voluntary testing, Florida law makes HIV test results “superconfidential” and breach of this confidentiality is:
- A misdemeanor.
  - Cause for dismissal.
  - Punishable by a \$10,000 fine.
  - A third degree felony.

## Evaluation Learning Activity

Please answer each of the following questions. Questions with an asterisk (\*) are required.

1. This course met the goals and learning objectives.

Yes  No

2. The author was well prepared to write about the content in a way that facilitated my learning.

Yes  No

3. This course was free from commercial bias.

Yes  No

4. The learning activity met my continuing education needs.

Yes  No

5. The learning activity took me 60 minutes per contact hour.

(If you answer "No", please enter the total time it took to finish the course, test, and evaluation.)

Yes

No. How long did it take to finish the course, test, and evaluation? \_\_\_\_\_

6. My professional educational level is (check one):

### Nursing

Nurse Aide  LVN/LPN  RN (diploma)  RN (AD)

BSN  MSN  Nurse Practitioner / Advanced Practice Nurse

PhD / DNSc

### Therapy

OT Aide  COTA  OT  MOT  OTD

PT Aide  PTA  PT  MPT  MSPT  DPT  PhD

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(continued on next page)

7. I heard about ATrain Education from:

- Search engine
- Government or Board website
- Friend
- Advertisement
- Returning customer
- Other \_\_\_\_\_

8. I found the ATrainCEU.com website easy to use:

- Yes  No\_\_\_\_\_

9. Comments or suggestions (optional): \_\_\_\_\_

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## Registration Information

Please answer all of the following questions (\*required).

\* Name: \_\_\_\_\_

\* Address: \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_

\* Phone: \_\_\_\_\_

\* Professional Designation: \_\_\_\_\_

\* License Number and State: \_\_\_\_\_

Please e-mail my certificate:  Yes  No

Email (required if you want your certificate sent by email): \_\_\_\_\_

(Note: If you request an email certificate we will not send a copy of your certificate by US Mail.)

### Payment Options

You may pay by credit card or by check.

Course Price: 3 contact hours - \$20.00

### Fill out this section if paying by credit card

Name \_\_\_\_\_

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### Test Completion and Mailing Instructions

Complete all forms:

Post Test

Evaluation Learning Activity

Registration Form (this page)

If you are **not** paying by credit card, prepare a check for the amount of the class made out to ATrain Education, Inc.

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