

Florida: HIV, 1 unit

1 contact hour: \$14

This course meets the HIV 1-unit continuing education requirement for healthcare providers in the state of Florida.

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Course Summary: Brief overview of HIV infection, its cause and mechanism, plus modes of transmission and infection control procedures. Presents the basic components of HIV antibody testing and confirmation and includes clinical management of HIV patients. Summarizes the main components of the Florida Omnibus AIDS Act.

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Criteria for Successful Completion: 80% or higher on the post test, a completed evaluation form, and payment where required. No partial credit will be awarded.

This course will be reviewed every two years. It will be updated or discontinued on July 1, 2013.

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Target Audience: Occupational Therapists, OTAs

Instructional Level: Introductory

Content Focus:

- Category 1 - Domain of OT, Client Factors

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See the ATrainCEU Accreditation page at <http://www.ATrainCeu.com/accreditation.php>.

Instructions

1. Read the course material and then complete the following forms:
 - A. Answer Sheet
 - B. Evaluation Learning Activity
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Course Objectives

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

- Explain the cause and mechanism of HIV infection.
- Outline the basic components of HIV antibody testing and confirmation.
- Discuss modes of transmission and infection control procedures to prevent transmission of HIV and STDs.
- Describe initial evaluation and clinical management of HIV patients.
- Summarize HIV prevention strategies, including behavioral change management and its successes throughout the world.
- Spell out the main components of the Florida Omnibus AIDS Act.

Introduction

In 2007 about 33.2 million people worldwide were already living with human immunodeficiency virus (HIV), approximately 2.5 million more became infected, and 2.1 million people died. These numbers are lower than had been forecast. It now appears that the global epidemic stabilized in the late 1990s and that the annual number of new infections may have declined somewhat since then (Global HIV Prevention Working Group, 2008).

The dimensions and pace of the epidemic nevertheless remain staggering. The news is especially dire in southern Africa, where, except for Zimbabwe, there has been little progress in curbing the rate of new infections. HIV infections continue to increase in a number of countries, including China, Indonesia, Mozambique, Russia, Ukraine, Vietnam, and several high-income countries (Working Group, 2008).

In the United States, approximately 1.2 million people are living with HIV. Seventy-three percent of these are men. Minorities are disproportionately affected by HIV, with African Americans accounting for 46% and Hispanics 18% of newly diagnosed HIV or AIDS cases in 2008 (UNAIDS, 2009).

Through the end of 2009, Florida ranked third in the nation in number of AIDS cases (118,283). In Florida in 2009, 5,608 new cases of HIV and 4,429 AIDS cases were diagnosed. Women accounted for 26% of the HIV cases and 33% of the AIDS diagnoses. Racial distribution of new HIV cases was 48% black, 30% white, and 21% Hispanic. Forty-one cases were children under age 13 (FDOH, 2009a, b).

In 2008 HIV was still the leading cause of death in Florida among black females and the second leading cause of death among black males age 25 to 44. It is the fourth and ninth leading cause of death for white males and females and sixth and fifth for Hispanic males and females, respectively, for individuals in the same age group (FDOH, 2009a).

HIV-related deaths decreased in 2007 for the first time in ten years; the 2007 figure was down 13% from the previous year, and down 65% since the peak year in 1995. In 2008 deaths decreased an additional 7%, down to 1,412 (FDOH, 2009a).

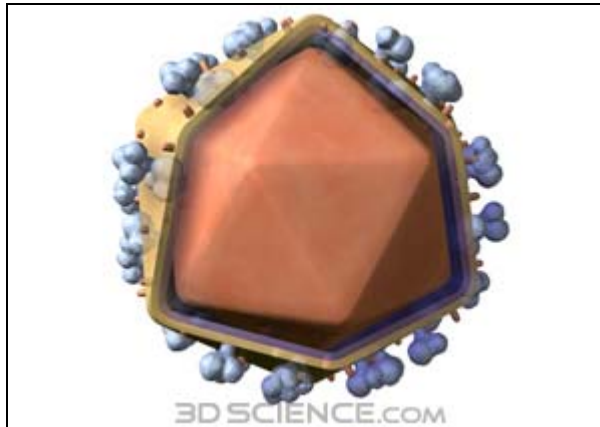
Cumulatively through December 2008, the five leading metropolitan statistical areas (MSAs) reporting the highest number of diagnosed AIDS cases were:

- New York City
- Los Angeles
- **Miami**
- Atlanta
- **Fort Lauderdale** (FDOH, 2009b)

Cause of HIV/AIDS

The human immunodeficiency virus kills or impairs the cells of the immune system and progressively destroys the body's ability to protect itself. Over time, a person with a deficient immune system (**immunodeficiency**) may become vulnerable to infections by disease-causing organisms such as bacteria or viruses. These infections can become life-threatening.

HIV Virus



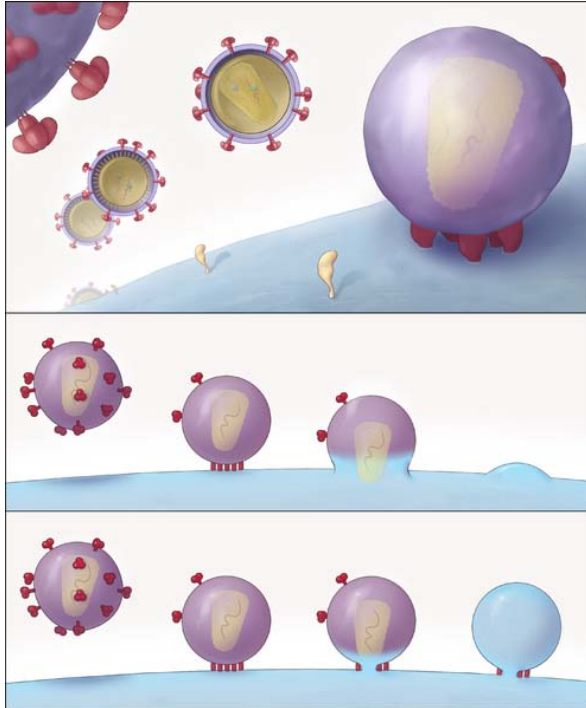
The physical structure of HIV is characterized by a protein shell that surrounds the genetic information and enzymes of the virus; a lipid membrane that circles the protein capsule; and glycoproteins that dot the surface of the virus, which aid in processes such as entry into macrophages and T-helper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

The term **AIDS** is an acronym for “acquired immunodeficiency syndrome,” and it refers to the most advanced stage of HIV infection. Medical treatment can delay the onset of AIDS, but HIV infection eventually results in a **syndrome** (combination) of symptoms, diseases, and infections. The diagnosis of AIDS requires evidence of HIV infection and the appearance of some specific conditions or diseases. Only a licensed medical provider can make an AIDS diagnosis.

HIV Infection in the Body

HIV enters the bloodstream and seeks out **T-helper lymphocytes**, white blood cells essential to the functioning of the immune system. One of the functions of these T-cells is to regulate immune response in the event of attack from disease-causing organisms such as bacteria or viruses. When the virus infects the T-helper lymphocyte, the cell sends signals to other cells, which produce antibodies. This T-helper lymphocyte cell may also be called the **T4** or the **CD4 cell**.

HIV Entry into T Cell



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 it. Source: Image courtesy of Sougrat et al., 2007; *PLoS Creative Commons Attribution 2.5 license*.

A person with untreated HIV infection experiences several stages of infection:

- **Viral transmission**
- **Primary HIV infection** lasts 1 to 2 weeks as the virus establishes itself in the body.
- **Seroconversion** occurs when antibodies to the HIV virus become detectable by current tests.
- **Asymptomatic HIV infection.** At this stage, a person is infectious but looks and feels healthy; however 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) define AIDS as an HIV-positive person who has a CD4 count of less than 200/mm³ or a history of an "AIDS-defining illness."

These stages are sometimes referred to as 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, the disease progresses as described above (WSDOH, 2007).

HIV Antibody Tests

The first HIV antibody test became available in 1985. Since then, new HIV antibody tests have been developed and approved by the Food and Drug Administration (FDA). Currently, these antibody tests involve a two-step process comprising a **screening test** and, when the screening test is reactive (positive), a **confirmatory test**.

Step 1: Screening Test

The first test done on a 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. Screening tests are inexpensive and highly accurate.

Most HIV antibody screening tests are conventional, in that the specimen is collected from the client and sent to a laboratory for testing. If a screening test is negative (no antibodies detected), the results can be released to the client. If the screening test is **reactive** (positive) at the laboratory, a confirmatory Western Blot test is conducted on the same sample.

Rapid tests are also screening tests, but they are conducted at the test site, often with the client present, and negative results are available in under an hour. Reactive (antibodies detected) results from a rapid test **must** be confirmed. This is because there is a small chance that an HIV screening test may detect proteins related to other autoimmune diseases and react to those proteins with a positive result.

Step 2: Confirmatory Testing

If a rapid test is reactive, an additional specimen must be drawn from the client and sent to the lab for confirmatory Western Blot testing. The HIV Western Blot detects antibodies to the individual proteins that make up HIV. This test is much more specific, and more costly, than the EIA screening test.

Rapid HIV Test

The rapid HIV test is a screening test that can provide results in less than an hour. Rapid testing can be conducted on blood and/or oral mucosal fluid, depending on the type of test. As with all screening tests, any reactive rapid test result must be confirmed with a conventional Western Blot test.

HIV Rapid Test Kit



Contents of the CAPILLUS HIV-1/HIV-2 Rapid Test Kit that tests whole blood, serum, or plasma. Source: CDC.

Home HIV Test Kits

Currently, the only licensed and FDA-approved test kit for home HIV antibody testing is the "Home Access HIV-1 Test System" manufactured by Home Access Health Corporation. If you are unsure if an HIV test is FDA approved, you can check the FDA list, which is available online (see Resources section at the end of the course).

The test requires a few drops of blood, which is mailed to the company in a safe mailer. If the screening test is reactive, a confirmatory Western Blot test is done by the same laboratory so that final results are available to clients. The client calls the company to learn the results over the phone.

Internet Test Kits

Although other "home" test kits may be ordered over the Internet, they may not be approved by the FDA and are not guaranteed to be accurate. The CDC does not recommend using any test that has not been approved by the FDA.

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 their blood.

Transmission

HIV is a relatively fragile virus that is not spread by casual contact. HIV is not easy to "catch"—it must be **acquired**. In order for HIV to be transmitted, three conditions must occur:

- There must be an **HIV source**.
- There must be a sufficient dose of virus.
- There must be access to the bloodstream of another person.

One of the predictors of the infectious level of an HIV-positive person is **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 is transmitted through:

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

In extremely rare cases, HIV can be transmitted by sharing razors or toothbrushes, if infected blood from one person was deposited on the toothbrush or razor and the blood entered the bloodstream of another person.

In settings such as hospital operating rooms, other fluids—cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, amniotic fluid—*may* be considered infectious if the source is HIV-positive. These fluids are generally not found outside the hospital setting. Therefore, **the most common body fluids considered potentially infectious for HIV are blood, semen, vaginal secretions, and breast milk.**

HIV transmission may occur during practices such as tattooing, blood-sharing activities such as "blood brother" rituals or any other type of ritualistic ceremonies where blood is exchanged, or when unsterilized equipment contaminated with blood is shared. HIV transmission may also occur in occupational settings.

HIV/HCV Co-Infection

Many people who become infected with HIV from injecting drug use are already infected with hepatitis C (HCV). Some estimate that 40% of HIV-infected people in the United States are also infected with HCV. People who are co-infected with both viruses and have immune system impairment may progress faster to serious, chronic, or fatal liver damage. Most new HCV infections in the United States are among injection drug users. The majority of hemophiliacs who received blood products contaminated with HIV also are infected with HCV.

Treating HIV in someone with HCV may be complicated because many of the medicines that are used to treat HIV may damage the liver; however, treatment for co-infection is possible in some cases with close physician supervision.

Transmission Among People Unaware of Their Positive Status

People who are infected with HIV come from all races, countries, sexual orientations, genders, and income levels. Globally, most of the people who are infected with HIV have not been tested and are unaware that they are living with the virus. The CDC estimates that, in 2006, 21% of those in the United States who had HIV were unaware that they were living with the virus. This is a decline from the 25% measured in 2003 and is a positive sign because research shows that most individuals who know they are infected with HIV will reduce behaviors that could transmit the virus (CDC, 2010).

It is important to note that **the great majority of persons with HIV infection do not transmit HIV to others.** The CDC estimates that in 2006 there were 5 transmissions per 100 persons living with HIV infection. This means that at least 95% of those living with HIV infection did not transmit the virus to others that year. This represents an 89% decline in the estimated rate of transmission since the peak level of new infections in the mid-1980s. It is believed that the decline is due to effective prevention efforts and the availability of improved testing and treatments for HIV (CDC, 2010).

Transmission During Pregnancy

An HIV-infected woman may transmit the virus to her baby during pregnancy, during the birth process, or following pregnancy by breastfeeding. One of the predictors of how infectious the woman will be to her baby is her viral load (how much HIV is present in her bloodstream). Women with new or recent infections or people in the 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% 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 by HIV-infected pregnant women. When a woman's health is monitored closely and she receives a combination of antiretroviral therapies during pregnancy, the risk of HIV transmission to the newborn drops below 2%.

In some pregnancies, cesarean 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 an individual basis by a medical provider with experience in treating HIV-positive pregnant women. Most states, including Florida, require pregnant women to be counseled regarding risks of HIV and be offered voluntary HIV testing.

Infection Control

Universal Precautions was a system designed to prevent transmission of bloodborne pathogens in healthcare and other settings. Under Universal Precautions, blood/OPIM of all patients should always be considered potentially infectious for HIV and other pathogens. **Standard Precautions** is the preferred, newer system because it considers all body fluids except sweat to be potentially infectious.

Standard Precautions (and Universal Precautions) involve the use of protective barriers—defined in the following section—to reduce the risk of exposure of the employee's skin or mucous membranes to **OPIM** (other potentially infectious material). It is also recommended that all healthcare workers take precautions to prevent injuries caused by needles, scalpels, and other sharp instruments or devices. Both Standard and Universal Precautions apply to blood and OPIM.

Personal Protective Equipment

Gloves, masks, protective eyewear, and chin-length plastic face shields are examples of personal protective equipment (PPE). PPE shall be provided and worn by employees in all instances where they will or may come into contact with blood or OPIM. This includes but is not limited to dentistry, phlebotomy, or processing of any bodily fluid specimen, and postmortem (after death) procedures.

Traditionally, latex gloves have been advised for use when dealing with blood or OPIM. However, some people are allergic to latex. In most circumstances, 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. Reusable PPE must be cleaned and decontaminated, or laundered, by the employer.

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 employer.

Hand Hygiene

Hand hygiene (soap-and-water washing or use of a waterless alcohol-based hand rub) must be performed:

- After removal of gloves or other protective equipment.
- Immediately after hand contact with blood or other infectious materials.
- Upon leaving the work area.

It is also strongly recommended that hand hygiene be performed before and after patient contact and after using restroom facilities. Soap-and-water hand washing must be performed whenever hands are visibly contaminated or there is a reasonable likelihood of contamination. Proper soap-and-water hand washing technique involves the following:

- Using soap, warm (almost hot) water, and good friction, scrub the top, back, and all sides of the fingers.
- Lather well and rinse for at least 10 seconds. When rinsing, begin at the fingertips, so that the dirty water runs down and off the hands from the wrists. It is preferable to use a pump-type of liquid soap instead of bar soap.
- Dry hands on paper towels. Use the dry paper towels to turn off the faucets (don't touch them with clean hands).

It is advisable to keep fingernails short, and to wear a minimum of jewelry. Additional information on hand hygiene can be found in the *CDC Guideline for Hand Hygiene in Healthcare Settings*, 2002.

Sharps Disposal

Needles are **NOT** to be recapped, purposely bent or broken, removed, or otherwise manipulated 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.

Sharps Container



Source: Image courtesy of Joe Mabel, photographer, via Wikimedia Commons. Published under the terms of GNU Free Documentation License (GFDL). "Copyleft" granted by the photographer.

Tags or Labels

Tags or labels must be used to protect employees from exposure to potentially hazardous biological agents. All required tags must have the following:

- Tags must contain a signal word or symbol and a major message. The signal word shall be BIOHAZARD, or the biological hazard symbol. 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.

Biohazard Symbol



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 OPIM are stored, or in other areas.

Managing Occupational Exposure

An **occupational exposure** to a bloodborne pathogen is defined as a percutaneous injury (eg, a needlestick or cut with a sharp object) or contact of mucous membrane or non-intact skin (eg, exposed skin that is chapped, abraded, or afflicted with dermatitis) with blood, tissue, or OPIM.

The CDC states that the risk of infection varies case by case. Factors influencing the risk of infection include: whether the exposure was from a hollow-bore needle or other sharp instrument; was to non-intact skin or mucus membranes (eg, eyes, nose, and/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%. Approximately 1 in 300 exposures through a needle or sharp instrument result in infection. The risks 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 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% 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% risk of getting HBV unless the person exposed has been vaccinated.

The risk of getting HCV from a needlestick is 1.8%. The risk of getting HBV or HCV from a blood splash to the eyes, nose, or mouth is believed to be very small. As of 1999, about 800 healthcare workers a year are reported to be infected with HBV following occupational exposure. 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

Follow the protocol of your employer. As soon as possible, wash the affected area(s) with soap and water. Application of antiseptics should not be 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.

Mucous Membrane Exposure

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%.

Sharps Injuries

Wash the exposed area with soap and water. Do not "milk" or squeeze the wound. There is no evidence that shows using antiseptics (eg, 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%.

Bite or Scratch Wounds

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.

Did you know. . .

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, Vomitus, or Feces

Exposure to urine, feces, vomitus, or sputum is **not** considered a potential bloodborne pathogens exposure unless the fluid is visibly contaminated with blood. Follow your employer's procedures for these fluids.

Reporting the Exposure

Follow the protocol of your employer. After cleansing the exposed area as recommended above, report the exposure to the department or the individual at your workplace who is responsible for managing exposure.

Obtain medical evaluation as soon as possible. Discuss with a healthcare professional the extent of the exposure, treatment, follow-up care, personal prevention measures, and the need for a tetanus shot or 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

Remember that HIV and hepatitis infection may be **notifiable conditions** under your local or state statutes.

Evaluation and Clinical Management

Before 1996 there were three medications available to treat HIV. These drugs were used singly and were of limited benefit. Researchers in 1996 discovered that taking combinations of these and newer medications dramatically reduced the amount of HIV (viral load) in the bloodstream of a person infected with HIV. Two or three different medications are used in combination. Each one targets a separate part of the 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)**.

Each HIV-infected patient entering into care should initially 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, ensure patient understanding about HIV infection and its transmission, and initiate care as recommended by the HIV primary care guidelines and by the opportunistic treatment and prevention guidelines. Baseline information then is used to define management goals and plans (DHHS, 2011).

The following laboratory tests performed for a new patient during the initial patient visits can be used for staging HIV disease and as an aid in choosing antiretroviral (ARV) drug regimens:

- HIV antibody testing (if prior documentation not available) or if HIV RNA is undetectable
- CD4 T cell count
- Plasma HIV RNA (viral load)
- Complete blood count, chemistry profile, transaminase levels, BUN and creatinine, urinalysis, and serologies for hepatitis A, B, and C viruses
- Fasting blood glucose and serum lipids
- Genotypic resistance testing at entry into care, regardless of whether ART will be initiated immediately. For patients who have HIV RNA levels of <500–1,000 copies/mL, amplification of virus for resistance testing may not always be successful (DHHS, 2011)

In addition, other tests, including screening tests for sexually transmitted infections and tests for determining risk for opportunistic infections and need for prophylaxis, should be performed as recommended by HIV primary care and opportunistic infections guidelines (DHHS, 2011).

The CD4+ T cell count (or CD4 count) serves as the major laboratory indicator of immunodeficiency in patients who have HIV infection. It is one of the key factors in deciding whether to initiate antiretroviral therapy (ART) and opportunistic infection prophylaxis, and it is the strongest predictor of subsequent disease progression and survival according to clinical trials and cohort studies (DHHS, 2011).

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, 2011).

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 four-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, 2007)

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).

Behavior Change for 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. A comprehensive review of the evidence documents both the efficacy (the impact seen in a clinical trial setting) and the effectiveness (the impact seen in real-world settings) of behavioral HIV prevention efforts. Hundreds of randomized controlled trials have demonstrated that individual, small group, and community-level interventions can generate safer behaviors (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 and prevent HIV transmission. The prevention programs have used the following evidence-based approaches to prevent HIV infection:

- Programs target 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 (STIs)
- Medical male circumcision
- Substitution therapy for chemical dependence
- Programs that provide access to clean injecting equipment (Working Group, 2008)

Using these and other interventions aimed at behavioral change, several countries have had dramatic successes in curbing the spread of HIV within their borders:

- In **Brazil**, public health campaigns have encouraged open discussion of HIV, 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. Especially noteworthy is Brazil's success in reversing a serious epidemic among injection drug users. Condom use increased by almost 50% among sexually active adults between 1998 and 2005, and focused behavioral change prevention programs also maintained 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.

- In **Australia**, broad 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.
- In what is perhaps the world's best-documented national prevention success, **Uganda** moved in the mid-1980s to address the rapid spread of HIV, implementing 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.

- 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% 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.
- 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. (Working Group, 2008)

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 epidemiologic evidence, it appears that national implementation of evidence-informed combination HIV prevention efforts in the 1990s was associated with a 50% to 90% decline in HIV incidence and prevalence in key populations (Working Group, 2008).

HIV and AIDS in Florida

In 1988 Florida became one of the first states with high rates of HIV infection to enact comprehensive 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 licensed healthcare facilities must educate their entire workforce on HIV infection. It also sets standards for testing, confidentiality, informed consent, reporting requirements, and discrimination (FDOH, 2009). For more information see: http://www.doh.state.fl.us/disease_ctrl/aids/legal/Omnibus_2010.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, 2010).

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:

- When testing for sexually transmissible diseases is required by state or federal law, or by rule including the following situations:
 - 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
 - Pregnant women (see Pregnancy below)
- Exceptions provided for blood, plasma, organs, skin, semen, or other human tissue
- During bona fide medical emergencies when needed to provide appropriate care
- When obtaining informed consent would be detrimental to the patient
- When performed as part of an autopsy for which consent was obtained
- When done at a victim’s request in a prosecution for any type of sexual battery where a blood sample is taken from the defendant voluntarily
- When mandated by a court order
- For epidemiological research

- When human tissue is collected lawfully without the consent of the donor for corneal removal or enucleation of the eyes
- When a healthcare worker has had significant exposure to a patient's blood, and a blood sample is already available that was given voluntarily for other purposes
- When a hospitalized infant is determined to be abandoned
- When done on a person already determined to be HIV positive and for repeat testing (Florida Senate, 2010)

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 2009 there were 395,299 HIV tests performed in Florida by county public health departments, with 1.3% of the tests being positive (FDOH, 2009b).

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. In 2005 the law was amended to mandate opt-out testing for pregnant women. Pregnant women are advised that they will be tested for HIV but they have the right to refuse. Any refusal must be obtained in writing and placed in the woman's medical record (FDOH, 2009).

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, results, or treatment, even indirectly (FDOH, 2009).

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. In 1996 Florida began requiring physicians and laboratories to report HIV-positive test results to local health authorities with patient identifiers. Failure to do so can result in a \$500 fine and disciplinary action by their licensing board. Under Department of Health (DOH) rules, practitioners must report HIV-positive diagnoses of all people to their local county health department within two weeks, and infants born to HIV-positive women must be reported the next day. In 2006 the DOH expanded its reporting requirements to include CD4 and viral load data (FDOH, 2009).

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 were 34,188 new HIV infections reported in 2008 and worldwide there are about 2.5 million new infections annually.

HIV/AIDS affects people of all ages and ethnic backgrounds in Florida and is the third leading cause of death among women between the ages of 25 and 44; it is the sixth leading cause of death in men in that age group. Among black men 25 to 44 it has dropped to the third leading cause of death, while it remains the leading cause of death for black women in the same age group.

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 role in accomplishing this goal.

(continued on next page)

Resources

Florida State Resources

Department of Health
Bureau of HIV/AIDS and Hepatitis

Physical Address:

2585 Merchants Row Boulevard
Tallahassee, FL

Mailing Address:

4052 Bald Cypress Way, Bin A09
Tallahassee, FL 32399-1714
Phone: 850 245 4300
Fax: 850 245 4297
DiseaseControl@doh.state.fl.us
http://www.doh.state.fl.us/Disease_ctrl/aids/index.html

National Resources

Centers for Disease Control and Prevention
www.cdc.gov
404 639 3311

National HIV/AIDS and STD Information
cdcinfo@cdc.gov
(English and Spanish, 24 hours)
800 CDC-INFO (800 232 4636)
TTY: 888 232 6348

National AIDS Information Clearinghouse
800 458 5231

FDA approved test kit list:

<http://www.fda.gov/BiologicsBloodVaccines/BloodBloodProducts/ApprovedProducts/LicensedPrductsBLAs/BloodDonorScreening/InfectiousDisease/UCM080466>

KNOW Curriculum Sources

Washington State Department of Health
HIV Prevention and Education Services
<http://www.doh.wa.gov/cfh/hiv/prevention/default.htm>
800 272 2437

Global Resources

Joint United Nations Programme on HIV/AIDS (UNAIDS)
<http://www.unaids.org/en/>

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(continued on next page)

Post Test

Use the Answer Sheet following the test to record your answers.

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. Has been nearly eradicated in the United States.
 - d. Stabilized in the late 1990s.
2. The majority of HIV cases in the United States:
 - a. Occur in women of Hispanic ancestry.
 - b. Occur in men, accounting for about 73% of cases.
 - c. Are in African-American women.
 - d. Are seen in teenage boys.
3. In 2007 HIV-related deaths in Florida:
 - a. Increased for the first time in ten years.
 - b. Decreased by less than 1%.
 - c. Decreased for the first time in ten years.
 - d. Increased by only five percent.
4. HIV:
 - a. Immediately destroys the body's ability to fight infection and disease.
 - b. Progressively destroys the body's ability to fight infection and disease.
 - c. Causes the body's immune system to attack body organs.
 - d. Is the same as AIDS.
5. The term AIDS:
 - a. Refers to a combination of symptoms, diseases, and infections.
 - b. Can be used interchangeably with the term HIV.
 - b. Refers to the period immediately after HIV infection.
 - d. Refers to the period when the patient is least vulnerable to other infections.
6. The "natural history" of HIV infection:
 - a. Refers to the history of the spread of AIDS from Africa to the rest of the world, and how the disease has affected humans.
 - b. Begins with viral transmission of the disease and ends with AIDS.
 - c. Tells how the HIV virus has changed since it first infected humans.
 - d. Begins with symptomatic HIV infection and ends with AIDS.
7. 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.

8. Transmission of HIV can occur through:
 - a. Sharing of needles and infusion of currently used blood products.
 - b. Sharing of needles and use of antiviral drugs.
 - c. Tattooing and donating blood in the United States.
 - d. Anal sex and accidental needlestick injuries.
9. Approximately 21% of people in the United States who are infected with HIV do not know they are infected.
 - a. True
 - b. False
10. An HIV-infected woman may transmit the virus to her baby during:
 - a. Pregnancy, during the birth process, or following pregnancy by breastfeeding.
 - b. Pregnancy only.
 - c. Birth by C-section only.
 - d. Birth or after the birth by breastfeeding, but not during pregnancy.
11. Standard Precautions:
 - a. Are not implemented unless a patient has been diagnosed with AIDS or hepatitis C.
 - b. Do not include the use of latex gloves.
 - c. Mandate only the use of protective eyewear and face shields.
 - d. Consider all body fluids, including sweat, to be potentially infectious.
12. Hand hygiene:
 - a. Is required only after contact with blood or other infectious materials.
 - b. Is required after removal of gloves or other PPEs and upon leaving the work area.
 - b. Is not required after removing gloves.
 - d. Includes the use of lotion to prevent dry skin.
13. Biohazard labels:
 - a. Must include a signal word/symbol or a message, but not both.
 - b. Must be readable from a minimum of two feet.
 - c. Are used to protect employees from hazardous biological exposure.
 - d. Need not be understood by housekeeping staff.
14. An example of an occupational exposure to a bloodborne pathogen is:
 - a. A needlestick from any patient.
 - b. Carrying a red-bagged urine specimen to the lab.
 - c. Taking the temperature of an HIV-infected patient.
 - d. Assisting an HIV-infected patient to walk in the hallway.
15. HIV transmission risk to healthcare workers is:
 - a. Highest with a blood splash to the eyes, nose, or mouth.
 - B. Less than 1% from a needlestick.
 - c. Exactly the same as that of HCV.
 - d. Not affected by the amount of virus present in the exposure.

16. Treatment after a potential exposure includes all of the following except:
- Washing the affected area with soap and water.
 - Flushing exposed eyes, nose or mouth with water, saline, or sterile irrigants.
 - Removal of potentially contaminated clothing.
 - Application of antiseptics in place of washing.
17. Sharps injuries:
- Should be "milked" or squeezed.
 - Must not be treated with antiseptics.
 - Should be washed with soap and water.
 - Are not considered an occupational exposure.
18. Following HIV exposure, employees must:
- Call their personal physician to set up an appointment.
 - Report the incident to the person responsible for managing exposure immediately after cleansing exposed area.
 - Be assigned to another department until the incident is fully investigated.
 - "Milk" the wound if it is a needlestick.
19. The combination drug therapy currently used to treat HIV is called:
- Toxoplasma gondii.
 - IGRA.
 - HAART.
 - CD4 count.
20. Programs aimed at interventions to change behavior:
- Are rarely successful.
 - Have changed sexual and drug-use behavior in resource-limited settings.
 - Have shown that use of condoms is not effective in preventing spread of HIV.
 - Have shown that providing access to clean injecting equipment actually encourages drug addiction.
21. According to the Florida Omnibus AIDS Act, HIV testing must be "informed, voluntary, and confidential."
- True
 - False
22. 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.

(Answer Sheet on next page)

Answer Sheet

Florida: HIV, 1 unit

Name (Please print your name): _____

Date: _____

Passing score is 80%

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
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19. _____
20. _____
21. _____
22. _____

Course Evaluation

Please use this scale for your course evaluation. Items with asterisks (*) are required.

5 = Strongly agree

4 = Agree

3 = Neutral

2 = Disagree

1 = Strongly disagree

- *1. Upon completion of the course, I was able to:
- a. Explain the cause and mechanism of HIV infection.
 5 4 3 2 1
 - b. Outline the basic components of HIV antibody testing and confirmation.
 5 4 3 2 1
 - c. Discuss modes of transmission and infection control procedures to prevent transmission of HIV and STDs.
 5 4 3 2 1
 - d. Describe initial evaluation and clinical management of HIV patients.
 5 4 3 2 1
 - e. Summarize HIV prevention strategies, including behavioral change management and its successes throughout the world.
 5 4 3 2 1
 - f. Spell out the main components of the Florida Omnibus AIDS Act.
 5 4 3 2 1
- *2. The course was written in a way that facilitated my learning.
 5 4 3 2 1
- *3. This course was free from commercial bias.
 5 4 3 2 1
- *4. The course met my continuing education needs.
 5 4 3 2 1
- *5. The material presented was supported by evidence.
 5 4 3 2 1
- *6. The author avoided the use of anecdotal information as the main source of material.
 5 4 3 2 1

*7. The course was free of product promotion.

- Yes No**

** If you answered no, please answer #8.

8. Was product promotion the sole purpose of the presentation?

- Yes No**

* 9. It took me 60 minutes per contact hour to complete the course, test, and evaluation.

- Yes No**

** If your answer was no, how long did it take?

10. 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

Other (please specify): _____

11. I heard about ATrain Education from:

- Search engine Advertisement
 Government or Board website Returning customer
 Friend Publication (Magazine, etc.)
 Other _____

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

- Yes No

13. Comments or suggestions (optional): _____

(Registration on next page)

Registration Information

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

* Name: _____

* Address: _____

* City: _____ State: _____ Zip: _____

* Phone: _____

* Professional Designation: _____

* License Number and State: _____

Please email my certificate: Yes No

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

(If you request an email certificate we will **not** send a copy of the certificate by US Mail.)

Payment Options

You may pay by credit card or by check.

Fill out this section only if you are **paying by credit card**.

3 contact hours: \$14

Credit card information:

Name _____

Address (if different from above): _____

City: _____ State: _____ Zip: _____

Card type: Visa MC American Express Discover

Card number _____ CVS # _____

Expiration date _____

Test Completion and Mailing Instructions

1. Complete all forms:

- Answer Sheet
- Evaluation Learning Activity
- Registration Form (this page)

2. If you are **paying by check**, prepare a check for \$14 made out to ATrain Education, Inc.

3. Mail the completed forms and your payment to:

ATrain Education, Inc
5171 Ridgewood Rd
Willits, CA 95490

When we receive your forms and payment, we will mail (or email, if you request it) your certificate of completion. If you have any questions or concerns, please call or contact us at Sharon@ATrainCEU.com. And thanks for taking the ATrain!