HIV / AIDS

ESSENTIALS of EMS

Prepared by: Palm Beach Community College EMT Program
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Florida: HIV / AIDS

This course meets the HIV/AIDS continuing education requirement for healthcare providers in the state of Florida.

LEARNING OBJECTIVES

Upon completion of this course, you will be able to:

- Discuss the incidence of HIV/AIDS in Florida.
- Describe modes of transmission and current tests for HIV/AIDS.
- Review clinical management of HIV/AIDS.
- Explain the 2006 CDC strategies for prevention of HIV/AIDS.
- Summarize the basic components of the Florida AIDS Act.

The annual incidence rate of HIV/AIDS in Florida is more than twice the national average. In 2004 Florida reported 5,816 cases of AIDS (Florida Department of Health, 2004). AIDS is increasing among Florida's minority heterosexual populations, particularly in underserved immigrant and rural communities, where poverty, cultural differences, and language barriers combine to hinder prevention efforts.

Blacks account for more than half of Florida's HIV-positive population and nearly half of AIDS cases, even though they comprise only 14 percent of the state's population. AIDS is the leading cause of death for black men and women between the ages of 25 and 44. In 2004 blacks accounted for 78 percent of HIV/AIDS deaths in Florida (Florida Department of Health, 2006).

The incidence of pediatric AIDS in Florida has decreased steadily since 1994, when zidovudine (ZDV) treatment of HIV-infected pregnant women began. However, the percentage of new AIDS cases in children ages 6 to 12 and older has increased since 1990, which may be the result of antiretroviral therapies that delay the onset of Seniors age 50 and older comprise one of the fastest growing segments of the HIV/AIDS population in Florida, accounting for 15 percent of full-blown AIDS cases and 14 percent of HIV cases. Almost two-thirds of all Florida senior AIDS cases reported in 2004 came from just three counties: Miami-Dade, Broward, and Palm Beach.

WHAT CAUSES HIV INFECTION?

AIDS is caused by the human immunodeficiency virus (HIV). By attacking the immune system, HIV makes the body vulnerable to a number of opportunistic infections caused
by viruses, bacteria, and yeasts that would pose no threat to a person with a normal immune system. With a weakened immune system, however, these infections are life-threatening.

Varying levels and concentrations of HIV have been found in most bodily fluids of infected persons, including blood, semen, saliva, tears, breast milk, and vaginal and cervical secretions. However, only blood, semen, breast milk, and vaginal and cervical secretions have been proven to transmit HIV infection.

**Mechanisms of HIV Infection**

Although the mechanisms of HIV and the way it affects the immune system are not fully understood, the primary event is the entrance of HIV into the body's CD4+ cells, a type of white blood cell that initiates immune responses to various infections. Once inside the CD4+ cell, the virus replicates and spreads to other CD4+ cells, which, in turn, begin to replicate. As the virus spreads to other white blood cells, it steadily deactivates the immune system, leading to dysfunction of various organ systems, including the endocrine, gastrointestinal, and nervous systems.

**Variants of the HIV Virus**

Scientists now know that there are at least two types of HIV virus: HIV-1, the cause of AIDS, and a related group of viruses found in West African patients, called HIV-2. Most of the West Africans infected with HIV-2 exhibit none of the symptoms of classical AIDS.

A few cases of HIV-2 infections have been found in people in the United States. It is unclear at this time whether HIV-2 is a less serious infection or whether it has a longer latency preceding the onset of AIDS.

**HIV TESTS**

Until 2002, testing for HIV antibodies relied on an enzyme-linked immunosorbent assay (ELISA) of blood. Now, however, four rapid HIV tests have been approved by the FDA, all of which are interpreted visually. Two of the tests are approved for use at in care settings outside a clinical laboratory.

2. **Uni-Gold Recombigen HIV Test**, which detects HIV-1 antibodies in whole blood, serum and plasma, and results take from 10 to 12 minutes.
3. **Reveal G2 Rapid HIV-1 Antibody Test**, which detects HIV antibodies in serum or plasma. Although the test takes only 3 minutes to run, it is categorized as a moderately complex test and is usually done in a clinical laboratory.
4. **Multispot HIV-1/HIV2 Rapid Test**, uses fresh or frozen serum and plasma to detect HIV-1 and HIV-2, and distinguish one from the other. Results are available in 20 minutes. Also a moderately complex test, it is usually done in a clinical laboratory. (Greenwald et al., 2006)

Until these rapid tests became available, many people being tested in public clinics did not return to get their test results. Making results available during the testing appointment means that people can take precautions immediately to prevent transmission to their sexual partners. In addition, the oral fluid test offers another option for those people who may fear a blood test. All positive rapid HIV tests require repeat testing for confirmation.

To ensure accuracy of test results, laboratory testing is regulated under the federal Clinical Laboratory Improvement Amendments of 1988 (CLIA), which classifies tests according to their complexity. Tests that use direct, unprocessed specimens such as whole blood or oral fluid are easy to perform, have a negligible chance of error, and may receive a CLIA waiver. The FDA and the Centers for Medicare and Medicaid Services have issued guidelines for a rapid HIV test quality-assurance program (Greenwald et al., 2006).

Miami-Dade County has the highest number of HIV/AIDS cases in Florida. In an effort to slow the spread of this disease, in April 2006 South Florida's Jackson Memorial Hospital began offering routine voluntary rapid HIV testing to emergency room patients. This special program aims to identify people with the virus so they can be treated and so they can take steps to protect their spouse or partner. The program is staffed by full-time HIV counselors.

**MODES OF TRANSMISSION**

Transmission of HIV occurs primarily through **sexual contact** with an infected person. This includes anal, oral, and vaginal contact. The risk of transmission depends on sexual practices and whether latex condoms are used. Receptive anal contact without a latex condom carries the greatest risk.

Transmission also occurs through **injection drug use** with contaminated needles or syringes, and through transfusions of infected blood or blood clotting factors. Transmission through transfusion is much less common today in the United States and other countries where blood is screened for HIV antibodies.

Healthcare workers may be infected with HIV through **needlesticks or direct contact with HIV-infected blood**—for example, through a break in the skin or through the eyes or the mucosal lining of the nose. Of all adults reported with AIDS in the United States through December 2002, only 5.1% were healthcare workers, according to CDC.

Myths and misinformation abound about HIV/AIDS transmission. According to CDC, however, HIV is not transmitted by casual contact. This includes hugging, other
nonsexual touching, and the shared handling of objects. Insects do not carry HIV, nor is the virus transmitted through air or water. Once outside the human body, HIV has a very short lifespan, which makes most medical procedures and caregiving activities safe if standard infection control procedures are followed.

INFECTION CONTROL PROCEDURES

Healthcare workers can prevent transmission of HIV/AIDS by meticulous adherence to the Standard Precautions recommended by CDC for the care of all patients and mandated by the Occupational Safety and Health Administration (OSHA). Both Standard Precautions and Universal Precautions are widely available to healthcare workers through their agencies and through the Internet.

CLINICAL MANAGEMENT

Optimal care of people with HIV/AIDS includes not only antiviral therapies, health maintenance, and referral to support services but an emphasis on prevention of transmission to uninfected partners.

The CDC recommends that everyone with HIV/AIDS use prevention strategies even if their partner is also HIV-infected. The partner may have a different strain of the virus that could behave differently in each individual or that could be resistant to different anti-HIV medications.

Implementing preventive strategies begins at the initial visit and continues through subsequent visits, or periodically, at least once a year. Care providers should use a straightforward, nonjudgmental approach and open-ended questions to screen and assess patient behaviors associated with HIV transmission.

Initial and periodic screening for STDs should also be done. At the initial visit, both men and women need laboratory tests for syphilis. Women should also be screened for trichomoniasis, and women age 25 and younger for cervical chlamydia, the most common STD among women. Screening for STDs—particularly chlamydia—should be repeated periodically if the patient is sexually active. Women younger than 19 are often reinfected with chlamydia, probably by male partners who are not being diagnosed and treated because the disease is asymptomatic.

HIV-positive women of childbearing age should be screened for pregnancy at initial and subsequent visits and asked about interest in future pregnancy and their use of contraceptives. Counseling about reproductive health care or prenatal care, as appropriate, is then offered.
Intravenous drug users (IDUs) are referred for substance abuse treatment. Those who refuse treatment should be counseled to use once-only sterile syringes and not to share needles with others.

**Antiretroviral treatment**

Antiretroviral treatment of people with HIV/AIDS continues to prove complex, controversial, dynamic, and expensive. Since 1996 a number of drugs have helped improve survival and quality of life for people with HIV/AIDS. There are four major classes of drugs:

- Nucleoside and nucleotide analogs
- Protease inhibitors
- Nonnucleoside reverse transcriptase inhibitors (NNRTIs)
- Fusion inhibitors (FIs)

These antiretroviral drugs are administered in cocktails of three or more, a treatment referred to as **highly active antiretroviral therapy (HAART)**. Clearly, HAART has made a positive difference in people's lives, but long-term use of some of these drugs appears to increase the risk of liver problems, high cholesterol, stroke, heart disease, osteoporosis, diabetes, skin rash, pancreatitis, and neuropathy. As patients live longer with HIV/AIDS, many develop drug-resistant strains of the virus, which further complicates treatment.

**Initiating HAART**

Highly active antiretroviral therapy (HAART), is still the gold standard for a person newly diagnosed with HIV-infection. In 1996 tests to measure an individual's viral load became available, providing objective criteria on which to base treatment decisions. The following bulleted items are taken directly from current treatment recommendations by the National Institutes of Health (2006):

- Antiretroviral therapy is recommended for all patients with history of an AIDS-defining illness or severe symptoms of HIV-infection regardless of CD4+ T cell count.
- Antiretroviral therapy is also recommended for asymptomatic patients with <200 CD4+ T cells/mm³.
- Asymptomatic patients with CD4+ T cell counts of 201–350 cells/mm³ should be offered treatment.
- For asymptomatic patients with CD4+ T cell counts of >350 cells/mm³ and plasma HIV RNA >100,000 copies/ml, most experienced clinicians defer therapy but some clinicians may consider initiating treatment.
- Therapy should be deferred for patients with CD4+ T cell counts of >350 cells mm³ and plasma HIV RNA <100,000 copies/mL.
Discontinuing or interrupting HAART may become necessary due to a number of factors, such as serious drug toxicity, intervening illness, surgery, or unavailability of medications. Although unplanned short-term interruption of therapy may be unavoidable, planned interruption is no longer recommended except in a clinical trial setting.

At one time, planned interruption of treatment was suggested, for economic or toxicity reasons, as a strategy for patients whose viral load was minimized. However, two recent trials showed a higher incidence of HIV disease progression and death in patients who discontinued therapy when CD4 cell counts rose above 350 cells/mm$^3$ and who restarted therapy when CD4 cells fell below 250 cells/mm$^3$ (El-Sadr & Neaton, 2006; Danel et al., 2006).

Smoking cessation is important for women smokers receiving HAART because it interferes with the therapy's effectiveness. A recent study of more than 900 women over an eight-year period showed that those who smoked were more likely than nonsmokers to die during the study period. Smokers also had higher viral loads and lower CD4 counts. In addition, they were more likely to be diagnosed with an AIDS-related illness such as wasting syndrome or non-Hodgkin's lymphoma (Feldman et al., 2006).

In addition to HAART, people with HIV/AIDS may also receive medications to treat or prevent opportunistic infections, boost the immune system, and prevent anemia. Successful treatment not only requires the patient to have significant financial resources (some of the drugs cost $1000 or more per month) but also the ability to understand and comply with a complex regimen (Chen et al., 2006; Hornberger et al., 2006).

Unfortunately, many of the patients with the greatest need for treatment lack the necessary financial resources to make treatment a reality. However, patient demographics, such as race/ethnicity, sex, age, and socioeconomic status do not predict who will adhere to a treatment regimen.

**PREVENTION**

Prevention of HIV/AIDS saves money as well as lives. The CDC estimates that the average cost of lifetime treatment for one person with HIV infection is $210,000. In early 2006, CDC announced new prevention initiatives with the overarching goal to "reduce the number of new HIV infections in the United States from an estimated 40,000 to 20,000 per year, focusing particularly on eliminating racial and ethnic disparities in new HIV infections."

Strategies to reach that goal include:

1. Make voluntary testing a routine part of medical care for all U.S. residents between the ages of 13 and 64.
2. Implement new models for diagnosing HIV infection, e.g., rapid testing in high-HIV–prevalence areas such as correctional facilities.
3. Prevent new infections by working with persons diagnosed with HIV, screening for risk behaviors, communicating prevention messages, discussing sexual and drug-use behaviors, and offering positive reinforcement for changes to safer behaviors.
4. Further decrease perinatal HIV transmission by promoting voluntary prenatal testing, providing rapid testing during labor and delivery and postpartum for women with unknown HIV status, and ensuring appropriate antiretroviral treatment and follow-up for HIV-positive women and their infants.

Prevention of HIV/AIDS should be part of a general program of sexually transmitted disease (STD) prevention because other preventable STDs, most of which are curable, have also reached epidemic proportions, particularly among sexually active young people.

Oral sex and anal sex appear to be increasing among teens, perhaps due to a perception that oral sex is safer than intercourse for avoiding transmission. However, both oral and anal sex can result in the transmission of gonorrhea and chlamydia (Johnson, Ghanem & Erbhelding, 2006). Gonorrhea, syphilis, chlamydia, genital herpes (HSV-2), and human papillomavirus (HPV-16) increase susceptibility to HIV infection and actually make HIV more infectious by increasing viral shedding.

A rare and virulent strain of chlamydia appears to be spreading in the United States, primarily among men having sex with men (MSM). More common to Africa and Southeast Asia, the strain is called lymphogranuloma venereum chlamydia (LGV) and it can cause genital ulcers, swollen lymph glands in the groin, flu-like symptoms, and gastrointestinal distress. Rectal symptoms among MSM, including bleeding of the rectum and colon, likely result from unprotected anal intercourse. These lesions increase the risk of transmitting or contracting HIV or other bloodborne diseases.

Screening and treatment for STDs helps reduce HIV transmission by decreasing viral shedding and reducing the concentration of the virus. Ultimately, STD treatment reduces the spread of HIV within communities. The CDC's Division of Sexually Transmitted Diseases (http://www.cdc.gov/std) presents a variety of initiatives for prevention.

**FLORIDA OMNIBUS AIDS ACT**

Florida's Omnibus AIDS Act of 1988 and its 1998 update are essential for doctors, nurses, and other healthcare providers to understand. This legislation corresponds closely with federal guidelines and accepted medical practice. Violations are heavily penalized and good-faith efforts at compliance do not ensure anyone against legal difficulties.
Overview

The principal methods for dealing with the HIV/AIDS epidemic as stipulated in the Florida Omnibus Aids Act are education and testing that is informed, voluntary, and confidential.

Florida legislation stipulates four reasons for deviations from traditional educational and testing methods:

- It is assumed that involuntary and nonconfidential testing may drive HIV-infected individuals underground.
- The government cannot constitutionally investigate or regulate much of the private behavior that permits the transmission of HIV.
- Because there is no effective cure for AIDS, there is less incentive to enforce mandatory testing and notification of individuals who have been exposed.
- "The excessively anxious and sometimes intensely hostile public reaction" to people with this illness requires the protection afforded by anonymity.

HIV/AIDS infection not only carries the stigma of a sexually transmitted disease but also the association with homosexuality and injection drug use. Workplace, housing, and insurance discrimination have been (and, in some areas, continue to be) barriers to disclosure of HIV status and seeking treatment. Children with AIDS have sometimes been barred from attending classes and, in at least one instance, a Florida family's home was burned after a family member developed AIDS.

Testing and Informed Consent

Before anyone can be tested for HIV in Florida, they must explicitly consent to be tested. Testing without informed consent can result in disciplinary action by a healthcare provider's licensing board, fines, suspension or revocation of license, and civil liability for negligence and invasion of privacy.

Anonymous and confidential HIV tests are available at county health departments and other registered testing sites. County health departments must obtain written informed consent from the test subject. The legal requirements for counseling and testing are different for public- and private-sector facilities. County health departments and registered testing sites are required to provide private pre-test and post-test counseling for all persons tested.

Confidential HIV tests are increasingly available in private-sector doctors' offices and hospitals. Registered testing sites and private-sector facilities are not required to obtain written consent, provided that the medical record includes documentation that the test was explained and consent was obtained. Written consent is preferable, nonetheless, because it ensures the testing agency or facility and the healthcare worker against litigation.
A general consent to draw a patient's blood and run unspecified tests does not meet the criteria of informed consent for HIV testing. The healthcare provider must explain the HIV test in a manner appropriate to the age, mental capacity, and language skill of the subject. The explanation should include basic information about the test, including data about the disease, its modes of transmission, the meaning of negative or positive test results, HIV infection reporting, and availability of anonymous testing sites.

HIV-positive results are reported to local health departments, who inform the CDC. All test results, positive or negative, are superconfidential, which means that the information is only made available to healthcare personnel on a need-to-know basis. Providers, in turn, must sign a legal document not to divulge this information except on a need-to-know basis.

A separate statute, designed to eliminate "unnecessary diagnostic testing" may make an HIV test illegal even when informed consent is granted. The law forbids diagnostic tests "which are not reasonably calculated to assist the healthcare provider in arriving at a diagnosis and treatment of a patient's condition." It is also forbidden to test for evidence of HIV infection "solely for the purpose of protecting healthcare workers."

MINORS

Children under 18 are considered adults for the purpose of consenting to, or refusing, an HIV test. Parental permission is not required for a child judged by the healthcare provider to be sufficiently mature to consent or refuse an HIV test.

PREGNANCY

A 1998 amendment to the Florida Omnibus AIDS Act requires the physician or midwife attending a woman for a condition related to pregnancy to offer HIV testing in conjunction with her required blood tests. Any pregnant woman who has positive test results should be referred to medical and support services related to HIV/AIDS as well as the Healthy Start Care Coordination System (see Family Health Line in Resources).

Testing Without Informed Consent

HIV testing without informed consent may occur in the following circumstances:

- Bona fide medical emergencies in which treatment is indicated by HIV status
- When there has been significant exposure by medical personnel to a person's blood and the source will not voluntarily submit to HIV testing and a blood sample is not available (court order required)
- In the event of a significant exposure to medical or nonmedical personnel providing help in an emergency and the victim has expired during treatment for the emergency
- When a person is charged with sexual offenses (court order required)
- When donating blood, sperm, or tissue to specialty banks
- For infants whose parents cannot be located after reasonable attempts (court order required, and attempts to locate the parents must be documented)
- Florida law permits HIV testing of prostitutes without informed consent
- When performing HIV testing to monitor the clinical progress of a patient previously diagnosed as HIV-positive or repeated HIV testing conducted to monitor possible conversion from a significant exposure
- Certain medical examiner cases, including court-ordered autopsies
- When a child is deemed too young to make an informed decision (however, parental consent is required; the law does not specify what age is too young to make an informed decision

Confidentiality

Medical records are, by law, confidential. The Omnibus AIDS Act designates information about HIV testing as superconfidential if the tests can be traced to an identifiable individual. However, the law uses a narrow definition of "HIV test result."

The superconfidentiality standard applies only to the part of a person's medical record that documents an HIV test and the results, negative or positive, of that test. If the documented HIV status was based on a health department anonymous test or a home testing kit, that does not constitute "HIV test results" and is not covered by the superconfidentiality standard.

Providers' clinical assessments of any medical conditions associated with AIDS are also exempt from the superconfidentiality standard because they do not constitute "HIV test results" unless they include laboratory reports or medical-record notes of an HIV test. For example, a patient's chart documenting symptoms of AIDS and including the word AIDS throughout the chart, but without an HIV test result or report, is not considered superconfidential.

Disclosure of HIV test results is limited to the following:

- The test subject and his or her representative
- Healthcare providers consulting among themselves regarding diagnosis and treatment of AIDS
- The department of health
- Healthcare providers exposed to the subject's body fluids
- Authorized medical or epidemiologic researchers; repeated tests may be given to monitor clinical progress without seeking renewed consent
- Hospital staff, administrators, and healthcare workers who provide aid and care to the subject, on a need-to-know basis; this is especially important in cases of significant exposure to body fluids by healthcare workers

An exposed healthcare worker has the right to subpoena the medical records of the patient and demand that HIV status be determined.
Breaches of Confidentiality

The 1998 amendment to Florida's Omnibus AIDS Act increased the penalty for breaches of confidentiality. Anyone who maliciously, or for monetary gain, breaches the confidentiality of sexually transmitted disease information commits a third-degree felony.

Notification Responsibilities

The healthcare provider ordering an HIV test must make all reasonable efforts to notify the person tested of the results. If the HIV-negative person fails to obtain the results, either by missing a scheduled visit or not calling in, the provider has met the "all reasonable efforts" standard.

However, if the test results show the person to be HIV-positive, the provider must exhaust all available means to contact the patient. If all efforts fail, the responsibility for notification can be transferred to the county health department through HIV infection-reporting requirements.

RESOURCES

AIDS Clinical Trials Information Service (ACTIS)
1–800 874–2572 (1–800 TRIALS-A)
http://www.actis.org

AIDS Education Global Information System (AEGIS)
http://www.aegis.org

AIDS Information Service Live Help (for patients, friends, families)
800 448–0440
888 480–3739 (TTY/TDD)
c-mail: ContactUs@aidsinfo.nih.gov

American Sexual Health Association (STD website for teens)
http://www.iwannaknow.org

Balm in Gilead
http://www.balmingilead.org
888-225-6243
212-730-7381

The Body HIV/AIDS Information
http://www.thebody.com
Center for Multicultural Wellness and Prevention (African American, Hispanic and Caribbean HIV Prevention Education)
http://www.cmwp.org
Orlando FL
407-648-9440

Centers for Disease Control and Prevention (CDC)
http://www.cdc.gov/hiv/

CDC National AIDS Hotline
1-800 CDC INFO (1-800-232-4626) English/Spanish
TTY:1-888-232-6348

CDC National Prevention Information Network
1-800-458-5231
http://www.cdcnpin.org

Clinical Trials
http://www.clinicaltrials.gov

Florida HIV/AIDS Hotlines
800-FLA-AIDS (800 352–2437) English language
800 545-SIDA (800 545–7432) Spanish language
800-AUDS, 101 (800 243–7101) Creole language
888 503–7118 IDD/TTY

Florida’s Model Protocols for Counseling and Testing

HIV InSite
University of California San Francisco (HIV/AIDS treatment, prevention, policy)
http://hivinsite.ucsf.edu/InSite

Jacksonville Area Sexual Minority Youth Network (JASMYN)
Lesbian, Gay, Bisexual and Transgender Organization
HIV prevention and testing site
http://www.jasmyn.org/index.html
904-389-3857 (Office)
904-389-0080 (Information line)

Mother’s Voices (Family communication about sexual health and HIV prevention)
150 West Flagler Street, #1820
Miami, FL 33013
305-347-5467
National Clinicians' Post-Exposure Prophylaxis Hotline (PEPLINE)  
1-888-448-4911

National Minority AIDS Council  
202 483–6622  
http://www.nmaac.org

National STD Hotline  
800 232–4626

Project Inform (Patient resource for information, advocacy)  
http://www.projectinform.org

Sembrando Flores HIV/AIDS Latino Ministry  
Homestead, FL  
305-247-2428

Senior HIV Intervention Project (SHIP)  
http://www.browardchd.org/services/AIDS/ship.htm  
954-467-4779 (Broward County)  
305-324-2409 (Miami-Dade County)  
561-540-1300 (Palm Beach County)

Summary of Florida statutes re HIV/AIDS  
http://www.doh.state.fl.us/disease_ctrl/aids/legal/hivindex.html

WORLD Information and Support Network by, for, and about Women with HIV/AIDS  
http://www.womenhiv.org  
510-986-0340

REFERENCES


El-Sadr W, Neaton J. (2006). Episodic CD4-guided use of ART is inferior to continuous therapy: Results of the SMART study, 13th Conference on Retroviruses and Opportunistic Infections: February 5–8, Denver, CO; Abstract 106LB.


