

Florida: HIV, 3 units

3 contact hours: \$24

This course meets the HIV 3-unit continuing education requirement for healthcare providers in the state of Florida.

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Course Summary: Comprehensive discussion of HIV and AIDS in Florida, including the cause and mechanism of HIV infection, basic components of HIV antibody testing and confirmation, and initial evaluation and clinical management of HIV patients.

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Off-Label Use: No off-label uses were discussed or recommended in this course.

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.

Accreditation Information

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Occupational Therapy

ATrain Education, Inc. is an approved provider by the American Occupational Therapy Association. The following course information applies to occupational therapy professionals:

Target Audience: Occupational Therapists, OTAs

Instructional Level: Intermediate

Content Focus:

- Category 1 - Domain of OT, Client Factors
- Category 3 - Professional Issues

Other Professions and Accreditations

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
 - C. Registration Form
2. If you are not paying by credit card, prepare a check for the amount of the course made out to: *ATrain Education, Inc.*
3. Mail the completed forms and your payment to:
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Willits, CA 95490

When we receive your forms and payment, we will mail (or email, at your request) your completion certificate. If you have any questions, please call or email Info@ATrainCEU.com.

Course Objectives

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

- Identify 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 and other bloodborne pathogens.
- Explain the initial evaluation and clinical management of HIV patients, including antiretroviral therapy.
- Spell out HIV prevention strategies, including behavioral change management and needle exchange programs.
- Discuss the psychosocial issues associated with HIV and AIDS infection.
- Name the main components of the Florida Omnibus AIDS Act.

Introduction

In 2007 an estimated 33.2 million people worldwide were living with human immunodeficiency virus (HIV), approximately 2.5 million people became infected, and 2.1 million people died. These estimates represent notable downward revisions of estimated global HIV prevalence and incidence. Based on the best available evidence, it now 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 Zimbabwe. 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, there are approximately 1.2 million people living with HIV. The majority of cases are among men, accounting for about 73% of cases. Minorities are disproportionately affected by HIV, with African Americans accounting for 46% and Hispanics 18% of newly diagnosed HIV or acquired immunodeficiency syndrome (AIDS) cases in 2008 (UNAIDS, 2009).

Through the end of 2009 Florida ranked third in the nation in the number of cumulative AIDS cases with 118,283 cases. 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. The new HIV cases were 48% black, 30% white, and 21% Hispanic. Forty-one cases were among 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 ages 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.)

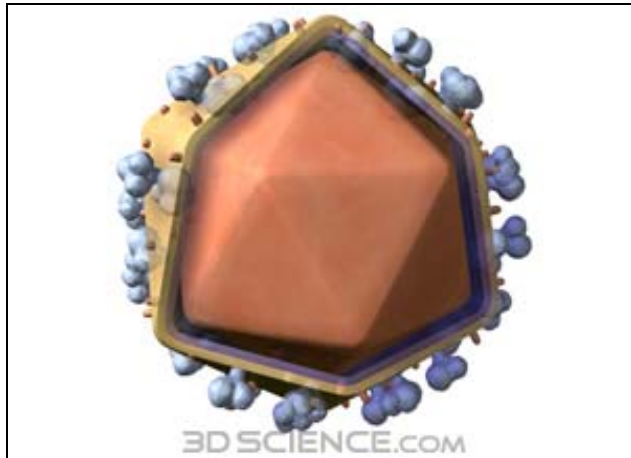
Cumulatively through December 2008, the five leading metropolitan statistical areas (MSAs) reporting the highest number of diagnosed AIDS cases were:

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

Cause of HIV/AIDS

The human immunodeficiency virus (HIV) 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 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. Source: Courtesy of Zygote Media Group, Inc.

The term **AIDS** stands 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.

AIDS Surveillance Case Definition, Revised 1993

In 1987 the 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 conditions and a variety of CD4 cell counts. The revised definition meant that more people were considered to have AIDS, and that year saw an abrupt increase in the number of people with AIDS that reflected the change in classification system.

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. HIV has a wide spectrum of clinical presentations in children. The CDC developed a revised pediatric HIV classification system in 1994, to classify 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**, comprises a 3 x 3 staging system. In this definition, any person who is HIV-infected and has either an AIDS indicator condition (see below), or a CD4+ (T-cell count) less than 200 cells/mm³ or less than 14%, is considered to have AIDS.

AIDS Indicator Conditions (adults)

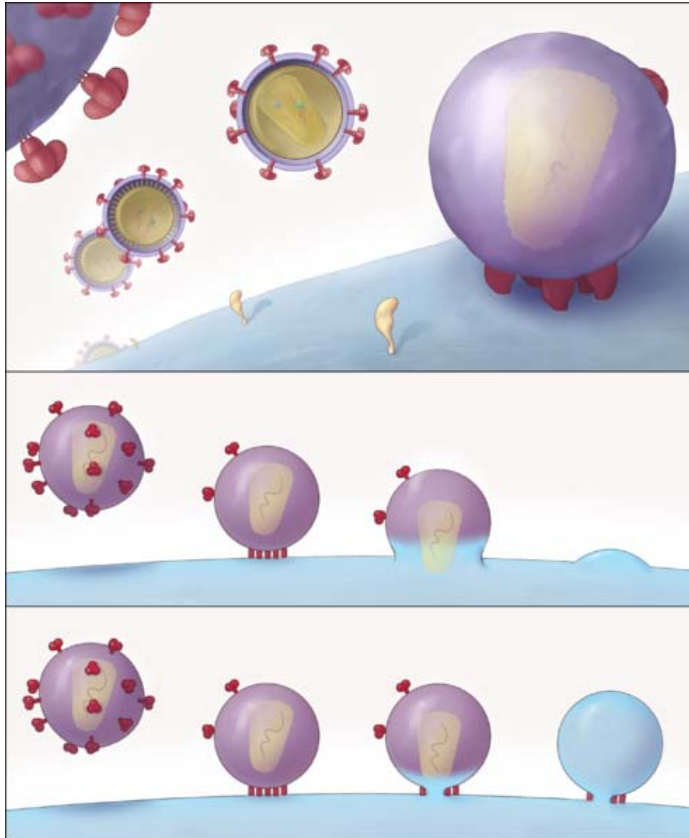
A positive HIV test, plus one or more of the following:

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

Mechanism of Infection and Transmission

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 cells is to regulate the 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 the T cell. Source: 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**—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**—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/mm³ 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, the disease progresses as described above (WSDOH, 2007).

HIV is a relatively fragile virus, which 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 body 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.

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 U.S. Centers for Disease Control and Prevention (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 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 around HIV and offered voluntary HIV testing.

HIV Testing

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 utilizing a **screening test** and, when the screening test is reactive (positive), 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, may benefit from HIV testing. People may have partners with risk factors, and these people (along with their partners) should consider testing. For occupational exposure, refer to your employer protocol or to the Infection Control section of this course.

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

It is important to remember that HIV antibody testing has a window period. The window period is 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 2 weeks after infection. 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. However, virtually everyone who is infected will produce enough antibodies for detection by 12 weeks (3 months). Therefore, to be sure, people should test 3 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. During the window period it is possible for an infected person to test negative (before they develop antibodies) 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.

Anonymous HIV antibody testing—where a client does not give their name and the person who orders or performs the test maintains no record of the name of the person being tested—is also available in Florida. As part of the informed consent process a test subject must also be given information on the availability and location of anonymous test sites. Each county health department maintains a list of available anonymous test sites to be disseminated to all persons and programs offering HIV testing within their service area (FDOH, 2010).

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 utilizing 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 done 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 transudate, 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. The FDA has approved six rapid HIV antibody screening tests and a comparison chart is available on the CDC website at <http://www.cdc.gov/hiv/topics/testing/rapid/rt-comparison.htm>.

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.

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 obtain the informed consent of the test subject, confirm positive preliminary results with a supplemental test before informing the test subject of the result, except as provided for by statute, and make a reasonable attempt to notify the test subject of his or her test result. Although Florida law no longer requires pre-test counseling—except in the case of a provider who attends a pregnant woman for conditions related to her pregnancy—the Department of Health recommends that HIV testing be preceded by a pre-test counseling session that includes test purpose and procedures, information about infection and transmission, ramifications of a positive test, reducing risky behavior, available support services, and information on how to obtain test results (FDOH, 2010).

Florida law also no longer requires face-to-face post-test counseling, however, it does require that when test results are provided, the following be included:

- For positives, information on preventing transmission of HIV, the availability of appropriate medical and support services and on the importance of notifying sex and/or needle-sharing partners who may have been exposed. Providers must make a good faith effort to ensure that spouses and former spouses (from the past ten years) of HIV-infected persons are notified that they may have been exposed to HIV infection.
- For negatives, information on preventing the transmission of HIV, if appropriate.

The Department of Health still recommends that face-to-face post-test counseling be provided and that it include: information about the meaning of the test results, potential consequences of a positive result, need for retesting and risk reevaluation, support services, elimination virus transmission, TB, and all appropriate referrals (FDOH, 2008c).

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 800 451-BABY or the Florida AIDS Hotline at 800 FLA-AIDS (FDOH, 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 Precautions was a system designed to prevent transmission of bloodborne pathogens in healthcare and other settings. Under Universal Precautions, blood/OPIIM 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 OPIIM. 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 OPIIM (listed above).

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 (CDC, 2002).

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.”

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.

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 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 virus (HBV), hepatitis C virus (HCV), and HIV, the prevention of sharps injuries is an essential goal of Standard (and Universal) 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. For additional information about these exposures, their prevention, and treatment consult the CDC's *Bloodborne Infectious Diseases* website at <http://www.cdc.gov/niosh/topics/bbp/>.

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.

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.

Biohazard Label



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.

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.

According to the CDC, 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; to non-intact skin or mucus membranes (such as the 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 possible but 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 safely 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 (like 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 cleaning these fluids.

Reporting the Exposure

Follow the protocol of your employer. After cleaning the exposed area as recommended above, report the exposure to the department or individual at your workplace that 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, 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 are **notifiable conditions**.

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. Animal models suggest that cellular HIV infection happens within 2 days of exposure to HIV and the virus in blood is detectable within 5 days. Therefore, PEP should be started as soon as possible, within hours not days, after exposure and continued for 28 days. However, PEP for HIV does not provide prevention of other bloodborne diseases like HBV or HCV.

Hepatitis B PEP for susceptible persons would include administration of hepatitis B immune globulin and HBV vaccine. This should occur as soon as possible and no later than 7 days post-exposure.

The benefit of the use of antiviral agents to prevent HCV infection is unknown and antivirals are not currently FDA-approved for prophylaxis. Because of the frequent advances in treatment, doses and medications are not listed here. Post-exposure prophylaxis can only be obtained from a licensed healthcare provider. Your facility may have recommendations and a chain of command in place for you to obtain PEP. After evaluation of the exposure route and other risk factors, certain anti-HIV medications may be prescribed. The national bloodborne pathogen hotline provides 24-hour consultation for clinicians who have been exposed on the job. Call 888 448-4911 for the latest information on prophylaxis for HIV, hepatitis, and other pathogens.

PEP is not as simple as swallowing one pill. The medications must be started as soon as possible, and continued for 28 days. Many people experience significant medication side effects. It is very important to report occupational exposure to the department at your workplace that is responsible for managing exposure. If post-exposure treatment is recommended, it should be started as soon as possible. In rural areas, police, firefighters, and other at-risk emergency providers should identify a 24-hour source for PEP.

Evaluation and Clinical Management

When their immune system is suppressed, people 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 and AIDS indicator conditions discussed earlier. 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 its transmission, and initiate care. Baseline information then is used to define management goals and plans (DHHS, 2011).

The CD4+ T-cell count (or CD4 count) serves as the major clinical indicator of immunodeficiency in patients who have HIV infection. It is one of the key factors 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, 2011).

Treatment

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)**.

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 HAART in December of 2006, a more than fivefold increase since 2001. However, this number is only about 26% 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 (ARVs) 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, 2011).

HIV and HCV Co-Infection

Many people who become infected with HIV from injecting drug use are already infected with 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 injecting drug users. The majority of hemophiliacs who received blood products contaminated with HIV also are infected with HCV.

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 co-infected 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 1980s, 90% of severe hemophiliacs contracted HIV or HCV through use of contaminated blood products. There is anger within this community because evidence shows 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 2007. Ninety-five percent of pediatric AIDS cases were acquired perinatally—the remaining 5% were acquired through blood transfusion, hemophilia, or another risk. 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 8 cases in 2008 (FDOH, 2009d).

Children show significant differences in their HIV disease progression and their virologic and immunologic responses when compared to adults. Without drug treatment, children may have developmental delay, *P. carinii* pneumonia, failure to thrive, recurrent bacterial infections, and other conditions related to HIV. The ARV 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 and 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 7 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. Cesarean sections for delivery may be warranted in certain cases to reduce HIV transmission. As a result, perinatal HIV infections have substantially declined in the developed world.

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. Apparently uninfected children born to HIV-positive mothers are currently treated with antiretroviral medicines for 6 weeks to reduce any possibility of HIV transmission.

Women with HIV

Women in the United States, and worldwide, are becoming infected with HIV at higher rates than any other group of people. This is particularly true of women of color. 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. Scientists believe that women and receptive partners are more easily infected with HIV than insertive partners. 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 gynecologic problems, including pelvic inflammatory disease (PID), abscesses of the fallopian tubes and ovaries, and recurrent yeast infections. Some studies have found that HIV-infected women have a higher prevalence of infection with the human papilloma virus (HPV). Cervical dysplasia is a precancerous condition of the cervix caused by certain strains of HPV. Cervical dysplasia 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. It is important for women with HIV to have more frequent Pap tests.

Women may become infected with HIV from a partner who either used injecting drugs or had other sexual partners. Many of these women assumed that the relationship was monogamous, or that they "knew" their partner's history. Many others are unable to discuss or implement safer sex practices because they lack the skills or because domestic violence is present in their relationship.

Women who are infected with HIV, or who have family members who have HIV, face some unique challenges. Women may postpone taking medication, or going to medical appointments, in order to care for their children or other family members. Many women have problems with lack of transportation, lack of health insurance, limited education, and low income. They may have childcare problems that prevent them from going to medical appointments. Several studies have shown that women in the United States who have HIV receive fewer healthcare services and HIV medications than men. This may be because women aren't diagnosed or tested as frequently.

Women (and also men) may fear disclosing their HIV status to others, fearing loss of their jobs, housing, or other forms of discrimination. Single parents with HIV may feel particularly fearful because of their lack of support.

Many women who are infected with HIV do not consider this to be their worst problem. Their symptoms may be mild and manageable for many years. Meanwhile, they may have more pressing concerns, such as their lack of income, housing, access to medical care, possible abusive relationships, and concerns about their children (WSDOH, 2007).

People of Color

African Americans and Hispanics have disproportionately higher rates of AIDS 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% of the total U.S. population, but account for 77% of all reported AIDS cases in women. African Americans make up about 12% of the population, but account for 37% of all AIDS cases in the United States. Hispanics make up about 13% of the population, but account for 20% of the AIDS cases in the United States. In some areas, disparities also exist in the number of AIDS cases in Native Americans.

There is no single reason that stands out as to why the disparities exist. One factor is health disparities, which are linked to socioeconomic conditions. Another factor is distrust of the healthcare system. Both legacies of the past and current issues of race mean that many people of color do not trust "the system" for a variety of reasons. Thus, even when income is not a barrier, access to early intervention and treatment may be limited. And HIV may be only one of a list of problems that also includes adequate housing, food, and employment.

Another factor may be the diversities within these populations. Diversity is evident in immigrant status, religion, languages, and geographic locations, as well as socioeconomic conditions. Providing targeted information to these diverse populations is challenging.

A significant amount of denial about HIV risk 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 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 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, 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 (CDC, 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 (CDC, 2007). Despite the documented success of needle exchange programs in curbing the spread of bloodborne diseases such as HIV and HCV, as well as a recent lifting of the ban on use of federal money for these programs, SEPs are still banned in the state of Florida (Adams, 2010; CDC, 2010a).

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 (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 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).

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 has been particularly successful 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 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 (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 (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 (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% 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 (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% when neighboring countries experienced significant increases in infections (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 (ARV) drugs, persons with AIDS still die prematurely.
- Men who have sex with men and injecting 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 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 an individual 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 their HIV-negative friends and families are similar to the emotions of the survivors of the Holocaust, survivors of natural disasters (earthquakes, tornados), and to battle fatigue described by soldiers.

Psychological Suffering

Infection with HIV causes distress for those who have HIV and for 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, loss of weight (or unusual weight gain) can be accompanied by fear of developing AIDS, or of getting sicker. People infected with HIV/AIDS are often rejected by family, friends, or co-workers. 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 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. Call the Washington State DOH at 877 376-9316 if you or someone you know needs help paying for HIV care and medications.

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 often encountered. Some people with HIV consider suicide or attempt suicide, and some may actually kill themselves. Call the crisis hotline listed in your phone book, or call the national suicide hotline at 800 784-2433 or 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 and involves addressing issues specific to caregiving.

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 health care providers must take a course on HIV/AIDS and licensed health care 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 (FDOH, 2010).

There are some exceptions in Florida law to the requirement to obtain informed consent prior to conducting a test for HIV (Florida Senate, 2010):

- 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 epidemiologic 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

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

Florida law requires that 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 2 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, although 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.

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/hiv/default.htm (HIV/AIDS)
www.cdc.gov/niosh/topics/bbp/ (Workplace Safety & Health)
404 639-3311
800 CDC-INFO (800 232-4636)
TTY: 888 232-6348

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/LicensedProductsBLAs/BloodDonorScreening/InfectiousDisease/UCM080466>

KNOW Curriculum Sources

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

Global Resources

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

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(Post test begins 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 10 years.
 - b. Decreased by less than 1%.
 - c. Decreased for the first time in 10 years.
 - d. Increased by only 5 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. 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.
8. Approximately 31% of people in the United States who are infected with HIV do not know they are infected.
 - a. True
 - b. False

9. 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.
10. 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.
11. Which of the following is true about HIV counseling in Florida?:
 - a. State law requires face-to-face pre- and post-test counseling.
 - b. Department of health recommends face-to-face pre- and post-test counseling.
 - c. State law requires no counseling of any type for anyone.
 - d. Department of health recommends pre- and post-test counseling by phone.
12. Standard Precautions:
 - a. Consider all body fluids, including sweat, to be potentially infectious.
 - b. Are not implemented unless a patient has been diagnosed with AIDS or hepatitis C.
 - c. Do not include the use of latex gloves.
 - d. Mandate only the use of protective eyewear and face shields.
13. 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.
14. 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 Standard Precautions.
 - c. A needlestick from a patient who does not have HIV.
 - d. Assisting an HIV infected patient to walk in the hallway using Standard Precautions.
15. 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 biologic exposure.
 - d. Need not be understood by housekeeping staff.

16. An example of an occupational exposure to a bloodborne pathogen is:
- A needlestick from any patient.
 - Carrying a red-bagged urine specimen to the lab.
 - Taking the temperature of an HIV-infected patient.
 - Assisting an HIV-infected patient to walk in the hallway.
17. HIV transmission risk to healthcare workers is:
- Highest with a blood splash to the eyes, nose, or mouth.
 - Less than 1% from a needlestick.
 - Exactly the same as that of HCV.
 - Not affected by the amount of virus present in the exposure.
18. 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.
19. 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.
20. 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.
21. The combination drug therapy currently used to treat HIV is called:
- Toxoplasma gondii.
 - IGRA.
 - HAART.
 - CD4 count.
22. Treatment for HIV infection in infants:
- Is the same as treatment as adults.
 - Should be started as soon as the child is determined by testing to be HIV-infected.
 - Should not be used in apparently uninfected children who are born to mothers who are HIV-positive.
 - Should not be started until two years of age or later.
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 use of condoms is not effective in preventing spread of HIV.
 - Have shown that providing access to clean injecting equipment actually encourages drug addiction.

24. Chronic grief is a characteristic associated with AIDS because of the repetition of deaths that one person may experience.
- T
 - F
25. The Florida Omnibus AIDS Act requires that HIV testing be:
- Informed, voluntary, and consensual.
 - Informed and voluntary only.
 - Informed, voluntary, and confidential.
 - Voluntary and confidential only.
26. To encourage voluntary testing, Florida law makes HIV test results superconfidential and breach of this confidentiality is:
- A third-degree felony.
 - A misdemeanor.
 - Cause for dismissal.
 - Punishable by a \$10,000 fine.
27. Florida law was amended in 2005 to mandate “opt-out” testing for pregnant women.
- True
 - False

(Answer Sheet on next page)

Answer Sheet

Florida: HIV, 3 units

Name (Please print your name): _____

Date: _____

Passing score is 80%

1. _____
2. _____
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25. _____
26. _____
27. _____

(Course evaluation begins on next page)

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. Identify the cause of HIV and its mechanism of infection.
 5 4 3 2 1
 - b. Outline the basic components of HIV antibody testing and confirmation.
 5 4 3 2 1
 - c. Describe infection control and prevention practices that have been shown to prevent transmission of HIV and other STDs.
 5 4 3 2 1
 - d. Summarize the occupational exposure management of HIV and other bloodborne pathogens.
 5 4 3 2 1
 - e. Explain initial evaluation and clinical management of HIV patients, including antiretroviral therapy.
 5 4 3 2 1
 - f. Spell out HIV prevention strategies, including behavioral change management and needle exchange programs.
 5 4 3 2 1
 - g. Discuss the psychosocial issues associated with HIV and AIDS infection.
 5 4 3 2 1
 - h. Name 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: \$24

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 \$24 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!