Kentucky: HIV/AIDS

2 contact hours--$18.00
Course Expires: March 1, 2012
Authors: Lauren Robertson, BA, MPT
Susan Walters Schmid, PhD

ATrain Education is an approved provider of continuing nursing education by the Arizona State Nurses Association, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.

AzNA and ANCC Commission on Accreditation do not approve or endorse any commercial products displayed.

Instructions

1. Read the course material and then complete the following forms:
    A. Post Test
    B. Evaluation Learning Activity
    C. Registration Form
2. Mail the completed forms and your payment to:

    ATrain Education, Inc
    5171 Ridgewood Rd
    Willits, CA 95490

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 and mechanism of HIV infection.
- Outline the basic components of HIV antibody testing and confirmation.
- Discuss modes of transmission and infection control procedures to prevent transmission of HIV and STDs.
- Describe initial evaluation and clinical management of HIV patients.
- Summarize HIV prevention strategies, including behavioral change management and its successes throughout the world.
- Outline the important components of Kentucky HIV/AIDS legislation.

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 are notable downward revisions of 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 declined modestly (Global HIV Prevention Working Group, 2008).

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

In the United States, approximately 1.2 million people—74% of the men—are living with HIV. Minorities are disproportionately affected by HIV, with African Americans accounting for 48% and Hispanics 18% of newly diagnosed HIV or acquired immunodeficiency syndrome (AIDS) cases in 2005 (UNAIDS, 2008).

At the end of 2008, Kentucky had recorded 5,015 cumulative AIDS cases since the health department's surveillance program began in 1982. Males represent 84% of cases and females 16%. Children under age 13 accounted for 1% and those ages 13 to 24, 6%. Approximately 73% of the cumulative cases were acquired by male-to-male sexual contact (54%), injection drug use (13%), or a combination of the two (6%). Of the remainder, 15% were the result of heterosexual contact.

Kentucky's AIDS diagnosis rate has "remained fairly steady from 2000 to 2007, with slight fluctuations"; there were 242 new cases in 2007 and 216 in 2008. By far the highest number of cumulative cases and of those currently living with AIDS is in Jefferson County, which includes the city of Louisville (CHFS, 2008).

As in the United States generally, minorities in Kentucky are disproportionately affected by HIV/AIDS, with African Americans accounting for about 40% of the cumulative cases and Hispanics 19%. While African Americans make up less than 8% of Kentucky's population they constituted 38% of the new diagnoses in 2007; and, between 2005 and 2008, black females accounted for nearly half of the HIV cases among Kentucky women, with the largest percentage (42%) infected through high-risk heterosexual contact. AIDS is the fourth leading cause of death among Kentucky's young (25–44) African American men (CHFS, 2009).

Cause of HIV/AIDS

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

HIV Virus

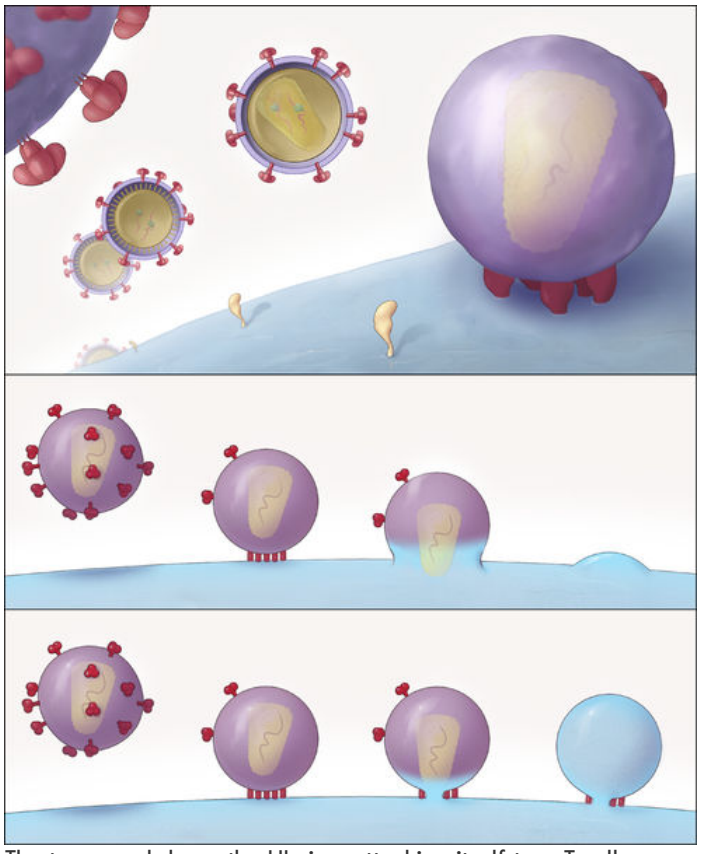
The physical structure of HIV is characterized by a protein shell that surrounds the genetic information and enzymes of the virus; a lipid membrane that circles the protein capsule; and glycoproteins that dot the surface of the virus, which aid in processes such as entry into macrophages and T-helper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

The term AIDS applies to the most advanced stages of infection. The diagnosis of AIDS requires a positive HIV antibody test or evidence of HIV infection and the appearance of specific conditions or diseases. Only a licensed medical provider can make an AIDS diagnosis. Infection with HIV always comes first, and not all people infected will go on to develop full-blown AIDS.

Mechanism

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

HIV Entry into a T Cell



The top panel shows the HI virus attaching itself to a T cell (pale blue surface). The second and third panels show HI viruses (dotted with red glycoproteins) attaching to the T cell and depositing the HIV particle into the T cell. Source: Sougrat et al., 2007.

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

- **Viral transmission** (infection)
- **Primary HIV infection**—first 1 to 2 weeks, when the virus is still undetectable
- **Seroconversion**—when detectable antibodies are produced by the immune system
- **Asymptomatic HIV infection**—the infected 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 HIV-infected person has a CD4 count of $<200/mm^3$ or an AIDS-defining illness.

The natural history of HIV infection (the stages listed) 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 Testing

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

Screening and Confirmation

In most cases the first test done on a specimen is a screening test called an **Enzyme Linked Immunosorbent Assay** (ELISA, or EIA). This type of test screens for the presence of antibodies to HIV in blood, urine, or oral fluids. Screening tests are inexpensive and highly accurate. The ELISA test can produce a result in as little as 3.5 hours but most HIV antibody screening tests are sent to a laboratory and tested in batches—a process that can take 1 to 2 weeks. The CDC recommends that laboratories retest all positive (reactive) ELISA tests.

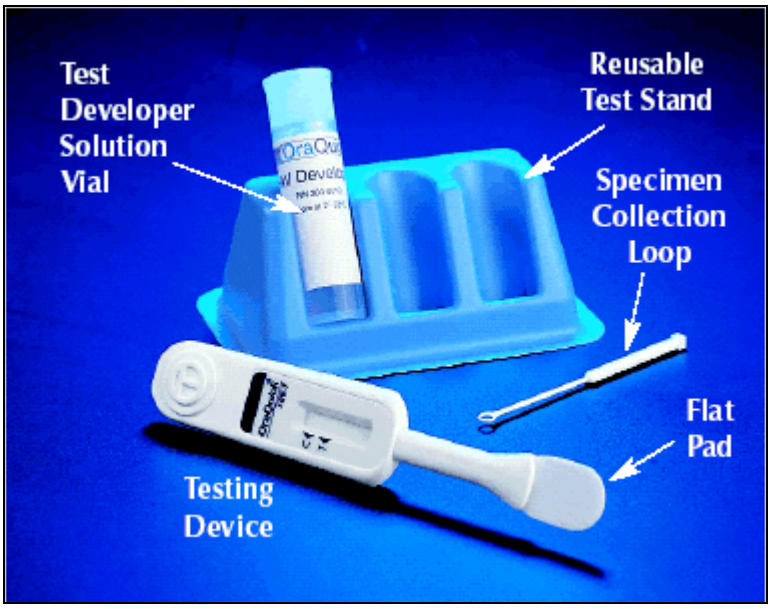
If a screening test is negative (no antibodies detected), the results can be given to the client immediately. If the screening test is reactive at the laboratory, a confirmatory test called the **Western Blot** is conducted on the same sample. The Western Blot is only used if the ELISA or rapid test is positive. A few labs use a faster confirmatory test called the indirect immunofluorescence assay (IFA), which also tests for the presence of antibodies in the blood.

Rapid tests are also used for screening. They have an accuracy rate exceeding 99%. Rapid screening tests are conducted onsite—often with the client present—and negative results are available in under an hour. Rapid tests are most commonly performed on a sample from the oral mucosa. A positive rapid test is considered to be preliminary until a confirmatory test verifies the result.

Kentucky law allows a patient to be informed of a rapid-test positive result while awaiting confirmatory tests as long as proper counseling is provided regarding the meaning of the test, the importance of confirmatory testing, and the importance of precautions to protect others. A patient may also be informed of a rapid-test positive result "in special cases where immediate actions may be necessary to protect a patient, such as potential perinatal transmission or incidents warranting post-exposure prophylaxis" (KRS 214.181; NCCC, 2009).

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

OraQuick Rapid Test Kit



Source: CDC.

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

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

A positive test result means you are HIV-positive and can infect others who come in contact with your blood, semen, or vaginal fluids. A negative result means there are no antibodies to HIV in your blood at the time of the test. A negative test does **not** mean you are HIV-negative—you may be infected but not yet have detectable antibodies in your blood.

Transmission

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

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

HIV can be transmitted through:

- Unprotected anal, vaginal, and oral intercourse
- A mother passing the virus to her baby either before or during birth
- An infected woman breastfeeding her infant
- Accidental needle stick 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
- Sharing needles or other injection equipment

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

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

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

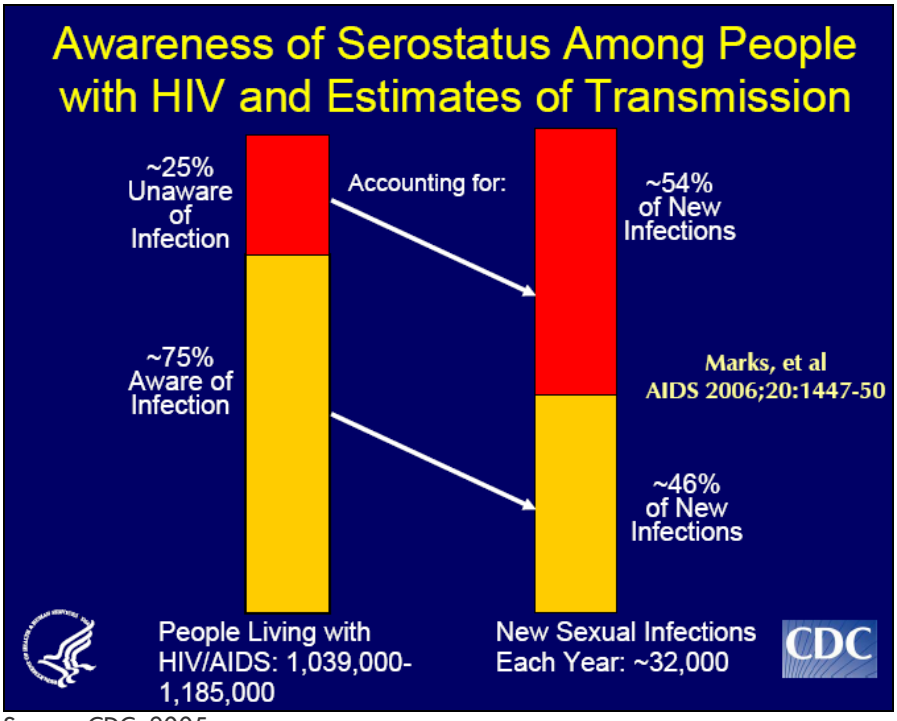
HIV and HCV Co-Infection

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

Transmission Among People Unaware of Their Positive Status

Approximately 25% of people in the United States who are infected with HIV do not know they are infected. For this reason, routine screening has become an increasingly important tool for reducing the spread of HIV. People who are infected with HIV but not aware of their positive status are not able to take advantage of the therapies that can keep them healthy and extend their lives, nor do they have the knowledge to protect their sex or drug-use partners from becoming infected (CDC, 2008).

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



Source: CDC, 2005.

Transmission During Pregnancy

An HIV-infected woman can transmit HIV to her baby during pregnancy, during the birth process, or following pregnancy by breastfeeding. The mother's viral load is one of the predictors of how infectious she will be to her baby. 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 (zidovudine) by HIV-infected pregnant women. When a woman's healthcare is monitored closely and she receives 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 a case-by-case basis by a medical provider with experience in treating HIV-positive pregnant women. Most states require pregnant women to be counseled regarding risks around HIV and offered voluntary HIV testing.

Infection Control

Universal Precautions is a system designed to prevent transmission of bloodborne pathogens in healthcare and other settings. Under Universal Precautions, blood and other potentially infectious materials (OPIM) of all patients should always be considered for HIV and other pathogens. Standard Precautions is a newer system that considers all body fluids, except sweat, should be seen as potentially infectious.

Universal and Standard Precautions involve the use of protective barriers to reduce the risk of exposure through skin or mucous membranes to blood and OPIM. Healthcare workers should also take precautions to prevent injuries caused by needles, scalpels, and other sharp instruments or devices.

Personal Protective Equipment

Personal protective equipment (PPE) must be provided and worn by employees in all instances where they will, or may, come into contact with blood or OPIM. The Occupational Safety and Health Administration (OSHA) defines 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 PPE.

Traditionally, latex gloves are recommended when dealing with blood or OPIM. However, there have been documented cases of people with allergies 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 personal clothing. When contamination is reasonably likely, protective gowns should be worn. If lab coats or scrubs are worn as PPE they must be removed as soon as practical and laundered by the employer.

Hand Hygiene

Hand hygiene is the single most important procedure for preventing the spread of infections. Hand hygiene (soap and water washing or use of a waterless alcohol-based hand rub) must be performed:

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

It is also recommended that hand hygiene be performed before and after patient contact and after using restroom facilities. Soap-and-water hand washing must be performed whenever hands are visibly contaminated or there is a reasonable likelihood of contamination. It is advisable to keep fingernails short, and to wear minimal jewelry.

Sharps Disposal

Do not recap, purposely bend or break, remove, or otherwise manipulate needles by hand. After they are used, disposable syringes and needles, scalpel blades, and other sharp items are to be immediately placed in puncture-resistant, labeled containers for disposal.

Phlebotomy needles must not be removed from holders unless required by a medical procedure. The intact phlebotomy needle/holder must be placed directly into an appropriate sharps container.

Sharps Container

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

Tags and Labels

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

- Tags must contain a signal word or symbol and a major message. The signal word shall be BIOHAZARD, or the biologic hazard symbol. The major message must indicate the specific hazardous condition or the instruction to be communicated to the employee.
- The signal word must be readable at a minimum of five feet or such greater distance as warranted by the hazard.
- The tag's major message must be presented in either pictographs, written text, or both.
- The signal word and the major message must be understandable to all employees who may be exposed to the identified hazard.
- All employees will be informed as to the meaning of the various tags used throughout the workplace and what special precautions are necessary.

Biohazard Symbol

Personal Activities

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

Management of Occupational Exposure

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

The CDC states that the risk of infection varies case by case. Factors influencing the risk of infection include:

- Whether the exposure was from a hollow-bore needle or other sharp instrument
- Was to non-intact skin or mucus membranes (eg, eyes, nose, and/or mouth)
- The amount of blood that was involved
- 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 needle stick is less than 1%. Approximately 1 in 300 exposures through a needle or sharp instrument result in infection. The risks of HIV infection though 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 reported 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 Be 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 a substantial risk 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.

Note: 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, Feces, or Sputum

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 up 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 who is responsible for managing exposure.

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

Your employer is required to provide an appropriate post exposure management referral at no cost to you. In addition, your employer must provide the following information to the evaluating healthcare professional:

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

Evaluation and Clinical Management

Before 1996, there were three medications that were available to treat HIV. These drugs were used singly and were of limited benefit. In 1996 researchers discovered that taking combinations of these medications with new medications—either protease inhibitors or non-nucleoside reverse transcriptase inhibitors—dramatically reduced the amount of HIV, or viral load, in the bloodstream of a person infected with HIV.

When used in combination, each drug targets a separate part of the HIV virus and its replication. The reduction of deaths from AIDS in the United States has been primarily attributed to this combination therapy, called **highly active antiretroviral therapy (HAART).**

Each HIV-infected patient entering into care should have a complete medical history, physical examination, laboratory evaluation, and counseling regarding the implications of HIV infection. The purpose is to confirm the presence of HIV infection, obtain appropriate baseline historical and laboratory data, assure patient understanding about HIV infection, and initiate care as recommended by the HIV primary care guidelines and by the opportunistic treatment and prevention guidelines. Baseline information then is used to define management goals and plans (DHHS, 2009).

The following laboratory tests should be performed for a new patient during initial patient visits:

- HIV antibody testing (if prior documentation is not available or if HIV RNA is undetectable)
- CD4 T-cell count
- Plasma HIV RNA (viral load)
- Complete blood count, chemistry profile, transaminase levels, BUN and creatinine, urinalysis, screening test for syphilis (e.g., RPR, VDRL, or treponema EIA), tuberculin skin test (TST) or interferon-γ release assay (IGRA) (unless there is a history of prior tuberculosis or positive TST or IGRA), anti-*Toxoplasma gondii,* IgG, hepatitis A, B, and C serologies, and Pap smear in women
- Fasting blood glucose and serum lipids if the patient is considered at risk for cardiovascular disease and for baseline evaluation prior to initiation of combination antiretroviral therapy
- For patients who have pretreatment HIV RNA >1,000 copies/mL, genotypic resistance testing when the patient enters into care, regardless of whether therapy will be initiated immediately. For patients who have HIV RNA levels of 500 to 1,000 copies/mL, resistance testing may also be considered, even though amplification may not always be successful. If therapy is deferred, repeat testing at the time of antiretroviral initiation should be considered (DHHS, 2009).

In addition:

- Testing for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* is encouraged to identify both recent high-risk sexual behavior and the need for sexually transmitted disease (STD) therapy; and
- Chest x-ray in the presence of pulmonary symptoms or with a positive TST or IGRA test (DHHS, 2009).

Patients living with HIV infection must often cope with multiple social, psychiatric, and medical issues that are best addressed through a multidisciplinary approach to the disease. The evaluation also must include assessment of substance abuse, economic factors (eg, unstable housing), social support, mental illness, comorbidities, high-risk behaviors, and other factors that are known to impair the ability to adhere to treatment and to promote HIV transmission. Once evaluated, these factors should be managed accordingly. Finally, education about HIV risk behaviors and effective strategies to prevent HIV transmission to others should be provided at each patient clinic visit (DHHS, 2009).

The CD4+ T-cell count (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 chemoprophylaxis for opportunistic infections, and it is the strongest predictor of subsequent disease progression and survival according to clinical trials and cohort studies (DHHS, 2009).

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, 2009).

Prevention

The aim of the CDC Advancing HIV Prevention (AHP) program is 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 (MMWR, 2003).

Behavioral Change for HIV Prevention

In 2008 the Global HIV Prevention Working Group (PWG) prepared a comprehensive report that reviewed hundreds of studies and documentation to find out what is known about behavioral change strategies, what is still needed, and what individuals and groups can do to advance prevention efforts in the future. This section highlights material from that report.

To be more effective in the twenty-first century, the PWG report identifies three challenges of perception that HIV prevention efforts must confront:

- Misplaced pessimism about the effectiveness of behavioral HIV prevention strategies
- Unfortunate confusion between the difficulty in changing human behavior and the inability to do so
- Misperception that because it is inherently difficult to measure prevention success, prevention efforts have no impact

In instances where national epidemics have been reversed a number of evidence-based studies have shown that broad-based behavioral changes were central to success. A comprehensive review of the evidence documents both the efficacy (the impact seen in a clinical trial setting) and the effectiveness (the impact seen in real-world settings) of behavioral HIV prevention efforts. Hundreds of randomized controlled trials (RCTs) have demonstrated that individual, small-group, and community-level interventions can generate safer behaviors (Global 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 evidence-based approaches to prevent HIV infection:

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

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

- Treatment of sexually transmitted infections (STIs)
- Medical male circumcision
- Substitution therapy for chemical dependence
- Programs that provide access to clean injecting equipment (Global Working Group, 2008)

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

- In **Brazil**, public health campaigns have encouraged open discussion of HIV, frank public-awareness campaigns, condom promotion, focused behavioral interventions, syringe and needle exchange, school-based HIV education, prevention services in prisons, and voluntary HIV counseling and testing. Especially noteworthy is Brazil's success in reversing

a serious epidemic among injection drug users. Condom use increased by almost 50% among sexually active adults between 1998 and 2005, and focused behavioral change prevention programs also maintained HIV prevalence at low levels among sex workers. Although the World Bank had predicted in 1990 that 1.2 million Brazilians would be infected by 2000, fewer than 600,000 were living with HIV in 2002.

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

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

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

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

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

Together, these examples suggest that countries in a wide variety of settings have contributed to changes in HIV risk behaviors and, in doing so, have saved countless lives by averting HIV transmission. Based on the totality of epidemiologic evidence, it appears that national implementation of evidence-informed combination HIV prevention efforts in the 1990s was associated with a 50% to 90% decline in HIV incidence and prevalence in key populations (Global Working Group, 2008).

Behavioral HIV Prevention Programs

Behavioral HIV prevention programs can target individuals, families, communities, entire societies, or (ideally) a combination of all these. Well-designed programs seek to achieve results on multiple levels. They promote accurate individual knowledge and perception of risk and increase individual motivation to avoid risky behavior. Prevention programs also build individual skills needed to use prevention commodities properly and, to the extent feasible, to avoid or effectively negotiate risky situations.

Within households, HIV prevention programs aim to decrease the stigma associated with both HIV and sexuality, to promote open discussion about sexuality and drug use, and to influence gender roles and norms. At a community level, effective programs seek to increase the value associated with safer behaviors, to support community members to reduce their risk, to build social solidarity and reciprocity, and to reinforce new norms.

Behavioral HIV prevention programs may also seek to achieve results at a broader social or structural level. Such approaches might include direct interventions that introduce prevention tools into particular environments (eg, mandating condom use in brothels), influence the physical environment (improving street lighting to reduce the likelihood of rape), expand clinical services (ensuring access to drug substitution therapy for chemical dependence), or create more supportive legal and policy norms (legalizing same-sex relations). Social or structural interventions might also be indirect, by supporting broader efforts to improve the overall protection and promotion of human rights, to reduce income inequality, and to address gender inequities.

Individuals and groups might change behaviors in any number of ways—including some that may be detrimental to the cause of HIV prevention. When this course refers to behavioral change, it intends to encompass only the range of behavioral changes that reduce the risk of HIV transmission or otherwise promote the development of social, physical, and legal environments that are conducive to risk reduction.

Like treatment, HIV prevention works best when it addresses individual needs and circumstances. In the case of treatment, different patients have different therapeutic needs and respond differently to therapy. Children and adults living with HIV require different doses of antiretroviral medications, and patients' responses to a particular regimen will depend in part on whether they have been exposed to any of the prescribed medications and whether clinicians take care to avoid certain regimens for patients who have specific comorbidities. Likewise, effective HIV prevention acknowledges the complexities and needs of specific individuals and communities, eschewing cookie-cutter approaches that ignore the diversity of needs in the real world.

Comparable to treatment, HIV prevention will have an effect only if it reaches those who need it. Just as concerted global efforts have led to dramatic increases in access to antiretrovirals, similar efforts are required to bring evidence-informed HIV prevention approaches to scale. And as robust research efforts point the way toward newer classes of antiretrovirals, substantially stronger research is needed to address the gaps and limitations in existing prevention strategies (Global Working Group, 2008).

Behavioral Interventions Mother to Child

Implementation of a package of prevention services—including routine voluntary HIV testing and counseling, timely antiretroviral prophylaxis, and breastfeeding alternatives—has sharply lowered the rate of mother-to-child HIV transmission in high-income countries. In 2006 only 13 children were diagnosed with HIV in New York City (NYC Dept Health and Mental Hygiene, 2007), while in the same year only 191 children contracted HIV infection in all of Western Europe (EuroHIV, 2007).

Although prevention of mother-to-child transmission relies in large part on a biomedical intervention (antiretroviral prophylaxis), human behavior is essential to prevention success. Prevention efforts depend on healthcare workers routinely offering testing to their patients in prenatal settings and on pregnant women accepting HIV testing, adhering to prophylactic regimens (both for themselves and for their newborn), adopting recommended procedures for infant feeding (typically exclusive breastfeeding for a short period), and returning their infants for followup testing and monitoring (Global Working Group, 2008).

Attributes of Successful Behavioral Prevention Programs

The record on effective HIV prevention, as derived primarily from national experience but also supported by RCTs on discrete interventions, reveals that successful programs share certain basic characteristics.

Combination Prevention. Effective HIV prevention involves the simultaneous use of diverse prevention strategies—programs that help individuals prevent transmission, broader-based initiatives that alter the norms and behaviors of social groups, and increased access to tools that reduce the biologic likelihood of transmission (for example, STI treatment and medical male circumcision).

Ensuring Proper Scale. To achieve optimal public health impact, the appropriate combination of evidence-based HIV prevention strategies must achieve sufficient coverage, intensity, and duration to have optimal public health impact.

Affecting Knowledge, Attitudes, Practices, and Behaviors. Accurate knowledge about HIV, although critical, often does not lead on its own to sustained behavioral change. Effective HIV prevention helps individuals perceive whether they might be at risk for HIV, increases the motivations and intentions to reduce risk, and builds the skills required to enable individuals to protect against transmission.

Changing Social Norms. Effective HIV prevention addresses the social dynamics that influence individual behavior. In places where changes in community norms have occurred to promote HIV prevention, diverse strategies appear to have played a role in the favorable results. These include:

- Social marketing
- Mass-media campaigns, use of celebrities, faith-based groups, and opinion leaders to promote new norms
- Interventions designed to operate at a community level

Ensuring Access to HIV Prevention Technologies and Commodities. Globally, prevention efforts have prioritized ready access to condoms, while focused prevention efforts for drug users have facilitated the provision of sterile injection equipment. In the case of condoms, extensive marketing efforts have promoted them and addressed potential impediments to use, such as the perception that sex is no longer enjoyable when condoms are used.

Specificity to Context. Efforts to change behavior will be successful only if they resonate with the intended audience and address the specific needs and values of the focus population. While it is possible to distill certain principles from diverse experience globally, and is sometimes feasible to adapt model programs in diverse settings, experience teaches that prevention efforts need to be specific to the geographic and social context in which risk behavior occurs (UNAIDS, 2005).

In addition to these program characteristics of successful HIV prevention efforts, national experience has underscored the importance of certain environmental factors that contribute to the effectiveness of prevention programs:

- Community leadership
- Political leadership
- Encouraging open discussion of HIV
- Respecting human rights and alleviating HIV stigma (Global Working Group, 2008)

Recommendations for HIV Service Providers

Significantly increasing the long-term effectiveness of HIV behavioral change will require all stakeholders to work together to expand the evidence base for HIV prevention—to address the limitations and gaps that still exist, while also putting available evidence to use in the most strategic manner possible. Sponsors of HIV prevention programs should adopt the following strategies:

Tailor Prevention Programs to Local Context. Development and implementation of prevention programs should be informed by ethnographic research that assesses key behaviors and contextual factors that influence individual behavior, characterizes relevant social networks, identifies relevant communal values, maps local resources, and identifies optimal delivery strategies. Prevention program implementers should forge a strong, meaningful, and ongoing partnership with the community served by prevention efforts.

Adapt Prevention Strategies. Making use of relevant epidemiologic, operational, and social science research, prevention providers should continually re-assess the relevance and effectiveness of programs. Where indicated, prevention programs should be adapted to address changes in the social and physical environment of the target population.

Integrate Services. HIV services should be closely integrated with key service systems, with particular attention to sexual- and reproductive-health settings, prenatal settings, and tuberculosis clinical settings. Health systems and providers should incorporate detection of active syphilis and the routine offer of HIV testing in prenatal care.

HIV Prevention in Treatment Settings. All HIV treatment programs should provide patients with routine risk-reduction counseling, access to condoms and other prevention tools, and other HIV prevention services in their clinical settings. Treatment programs should build partnerships with community-based HIV prevention providers to support clinic-based prevention efforts and facilitate patient referral to community-based prevention resources (Global Working Group, 2008).

HIV and AIDS in Kentucky

In 1990 Kentucky enacted legislation to address the AIDS epidemic, and it has been regularly amended and updated since then. The Kentucky Omnibus AIDS Act stipulated that all licensed healthcare providers, as well as athletic trainers, lab personnel, social workers, and all employees of health facilities who are not otherwise covered by professional licensure, were required to take a course on the transmission, control, treatment, and prevention of HIV/AIDS every 2 to 3 years. In 2000 the frequency requirement was changed to every 10 years.

Education about HIV/AIDS is an important element of the Kentucky program, and state legislation also mandates education for anyone treated for HIV/AIDs at any licensed hospital or health facility, in secondary and post-secondary schools; for all inmates of the Department of Corrections; and for law enforcement and correctional officers.

The original 1990 legislation and subsequent revisions also address rules for testing, informed consent, confidentiality, reporting requirements, state programs, and discrimination. A basic summary of statutes pertaining to HIV/AIDS can be found at http://chfs.ky.gov/dph/epi/hivaids/ and all Kentucky statutes may be searched here: http://www.lrc.ky.gov/statrev/frontpg.htm.

Testing, Informed Consent, Confirmation, and Confidentiality

Kentucky law finds that "informed, voluntary, and confidential" testing for HIV infection is in the interests of public health and such consent is required before a test to identify HIV, or its antigen or antibody, is performed by anyone in the state.

A patient who has signed a general consent form for medical treatment is "not required to also sign or be presented with a specific consent form" relating to HIV during the period covered by the general consent form; however, the general form must specifically state that HIV-related testing is covered. In an emergency, where prior informed consent cannot reasonably be obtained before providing services, a healthcare provider is not required to obtain such consent. Other situations where Kentucky law may allow testing without consent include:

- Following conviction of a sexual offense (adults and juveniles)
- Following conviction of prostitution or procuring another to commit prostitution
- For juveniles charged with certain sexual offenses
- For inmates known to have been exposed to HIV/AIDS, to have engaged in high-risk behaviors, and/or to have endangered the well-being of correctional employees
- Testing of blood, organ, and human tissue donations
- For healthcare facility residents after exposure (NCCC, 2009)

A positive test result must be confirmed by corroborating tests before informing the patient of the result, and the physician ordering the test (or the attending physician) must inform the patient of the result and provide information and counseling or referral to such counseling as specified by law. As noted above, Kentucky law specifically allows a physician to inform a patient of a positive result from a rapid test in situations with proper counseling and/or where such knowledge addresses an urgent need for treatment.

While confidential testing following CDC guidelines is recommended, Kentucky law stipulates that anonymous testing must also be available (and, by default, oral consent). Minors do not need parental consent for STD testing and physicians are not required to inform the parents of a minor's HIV test or results.

In general, breach of confidentiality by deliberate release of the name of a person receiving an HIV test is a Class A misdemeanor (KRS 214.995). However, there are circumstances under which test results and related information may be released to certain persons or entities. For example, physicians are not prevented from giving information to a minor's parent or legal guardian, and they are protected from liability under certain conditions specified by law when informing a cohabiting partner of the other partner's positive test result. Healthcare providers should become familiar with all regulations that pertain to their field and follow all guidelines promulgated by their employer with regard to confidentiality requirements.

Reporting

In Kentucky, physicians and heads of household are obligated to report certain diseases and public health concerns to their local health departments. Related administrative regulations are in place that require physicians and medical laboratories to report positive test results for HIV and diagnoses of AIDS (that meet the CDC-established definition) within 5 business days to the appropriate office of the HIV/AIDS Surveillance Program of the Kentucky Department of Health. The law stipulates forms to be used and information to be provided (902 KAR 2:020).

Kentucky State HIV/AIDS Programs

Kentucky legislation also established the responsibilities of the Cabinet for Health and Family Services for HIV/AIDS surveillance, prevention, and services. Surveillance activities are conducted in accordance with Kentucky Communicable Disease Reporting Regulations (902 KAR 2:020, Section 7). The program provides forms and guidelines for interviewing clients and filing reports. Semi-annual statistical reports are prepared and made available on the CHFS HIV/AIDS website.

Prevention responsibilities include coordinating the planning, implementing, and evaluating of programs targeted at all at-risk groups. This includes counseling, testing, referral, and partner notification programs conducted by contract with community-based organizations and certain health departments. Testing sites are required to be located in every county across the state.

The services program encompasses the Kentucky HIV/AIDS Care Coordinator Program (KHCCP), which is expected to facilitate "quality care and services to HIV-infected individuals and their families" and is the umbrella organization for Kentucky's health insurance continuation, outpatient healthcare support services, and financial and drug assistance programs, all of which are dependent on state and federal funding.

In 2000 the cabinet was given the authority to create an HIV/AIDS advisory council. The council is intended to be broadly representative of both those affected by HIV/AIDS and those providing services for them and is charged with advising and assisting the cabinet by monitoring its activities, exploring options for centers for excellence, assessing current resources and services, and making annual reports to the state legislature.

Discrimination

In addition to being subject to the provisions of the federal Americans with Disabilities Act (ADA), Kentucky legislation specifically states that the results of any serologic test performed under the auspices of the Cabinet for Health and Family Services may not be used to determine eligibility for disability, health, or life insurance, or used to make decisions regarding employment suitability or discharge (KRS 214.181).

Conclusion

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

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

Resources

Kentucky Cabinet for Health and Family Services
Department for Public Health, HIV/AIDS Branch
275 E. Main St., HS2E-C, Frankfort, KY 40621
Phone: (502) 564-6539 or (800) 420-7431
Fax: (502) 564-9865

Case reporting only: (866) 510-0008
http://chfs.ky.gov/dph/epi/hivaids/

This important website provides detailed information on reporting and statistics, professional education requirements and options, state prevention and services programs, KHPAC, and links to resources. This includes legal references, program overviews and responsibilities, forms and annual reports, full contact information for various departments and agencies, and information for both healthcare providers and the general public.

References

Centers for Disease Control and Prevention (CDC). (2008). HIV Testing. Retrieved November 26, 2008 from http://www.cdc.gov/hiv/topics/testing/index.htm.

Centers for Disease Control and Prevention (CDC). (2007a). General and Laboratory Considerations: Rapid HIV Tests Currently Available in the United States. Retrieved November 28, 2008 from http://www.cdc.gov/hiv/topics/testing/resources/factsheets/rt-lab.htm.

Centers for Disease Control and Prevention (CDC). (2007b). Advancing HIV Prevention: New Strategies for a Changing Epidemic. Retrieved November 18, 2008 from http://www.cdc.gov/hiv/topics/prev_prog/AHP/default.htm.

Department of Health and Human Services (DHHS). (2009). Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Retrieved January 10, 2010 from http://www.aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf.

EuroHIV. (2007). HIV/AIDS Surveillance in Europe, End-Year Report, 2006, No. 76. Institut de Veille Sanitaire Saint-Maurice. Retrieved from www.eurohiv.org.

Global HIV Prevention Working Group. (2008). Behavioral Change and HIV Prevention: (Re)Considerations for the 21st Century. Retrieved November 18, 2008 from http://www.globalhivprevention.org/pdfs/PWG_behavior%20report_FINAL.pdf.

Glynn M, Rhodes P. (2005). HIV Prevention Conference. Slide 5: Revised Recommendations for HIV Testing in Healthcare Settings in the U.S. Retrieved from http://www.cdc.gov/hiv/topics/testing/resources/slidesets/pdf/testing_healthcare.pdf.

Kaiser, The Henry J., Family Foundation. (2009). Kentucky: At-A-Glance. Retrieved December 28, 2009 from http://www.statehealthfacts.org/profileglance.jsp?rgn=19.

Kentucky Cabinet for Health and Family Services, Department for Public Health, HIV/AIDS Branch (CHFS). (2009). HIV/AIDS Among Blacks in Kentucky. Retrieved December 12 2009 from http://chfs.ky.gov/NR/rdonlyres/F0ED5B8A-0DFB-44AC-8A99-56BD0D4961DB/0/FACT_SHEETBlacks_in_Kentucky_2009.pdf.

Kentucky Cabinet for Health and Family Services, Department for Public Health, HIV/AIDS Branch (CHFS). (2008). HIV/AIDS Semi-Annual Report, December 2008. Retrieved December 12 2009 from http://chfs.ky.gov/NR/rdonlyres/C0B91089-5601-49CA-A2D8-DAD31D37B609/0/FinalDecember2008SemiannualReport.pdf.

Kentucky Revised Statutes. Retrieved from Kentucky Legislature, Kentucky Law sub page at http://www.lrc.ky.gov/Law.htm.

Morbidity and Mortality Weekly Report (MMWR). (2008, December 5). Revised Surveillance Case Definitions for HIV Infection Among Adults, Adolescents, and Children Aged <18 Months and for HIV Infection and AIDS Among Children Aged 18 Months to <13 Years—United States, 2008; 57(RR10);1–8. Retrieved December 6, 2008 from http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5710a1.htm.

MMWR. (2007, November 9). Syringe Exchange Programs—United States, 2005; 56(44);1164–67. Retrieved December 2, 2008 from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5644a4.htm.

MMWR. (2003). Incorporating HIV Prevention into the Medical Care of Persons Living with HIV. Retrieved November 19, 2008 from http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5212a1.htm.

National HIV/AIDS Clinicians' Consultation Center, San Francisco General Hospital (NCCC). (2009). Compendium of State HIV Testing Laws: Kentucky. Retrieved January 6, 2010 from http://www.nccc.ucsf.edu/StateLaws/State%20Laws/Kentucky.pdf.

New York City Department of Health and Mental Hygiene. (2007). HIV Epidemiology and Field Services Semi-Annual Report 2:2.

Sougrat R, Bartesaghi A, Lifson JD, et al. (May 2007). Electron tomography of the contact between T cells and SIV/HIV-1: Implications for viral entry. Image courtesy of PLoS Creative Commons Attribution 2.5 license.

UNAIDS. (2008). North America, Western and Central Europe AIDS epidemic update: Regional summary. Retrieved November 28, 2008 from http://data.unaids.org/pub/Report/2008/jc1532_epibriefs_namerica_europe_en.pdf.

UNAIDS. (2005). Intensifying HIV prevention: Policy position paper.

Washington State Department of Health. (2007). Outline of HIV/AIDS Curriculum Topics, 2007 Revised Edition. Retrieved December 7, 2008 from http://www.doh.wa.gov/CFH/HIV_AIDS/Prev_Edu/training_curriculum/KNOW_2007.pdf.

(continued on next page)

Post Test

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

1. According to the best available data, it now appears that the global HIV epidemic:
   a. Has increased markedly since the 1990s.
   b. Is no longer a threat to life because of new AIDS drugs.
   c. Stabilized in the late 1990s.
   d. Has been nearly eradicated in the United States.
2. The majority of HIV cases in the United States:
   a. Are in African-American women.
   b. Occur in men, accounting for about 74% of cases.
   c. Occur in women of European ancestry.
   d. Are seen in teenage boys.
3. There were 242 new AIDS cases in Kentucky in 2007 and 216 in 2008. This reflects an AIDS diagnosis rate that since 2000 has:
   a. Fluctuated widely.
   b. Risen only among minorities.
   c. Remained steady with slight fluctuations.
   d. Decreased steadily but by only a tiny percentage.
4. AIDS is caused by a:
   a. Retrovirus that attacks the heart and eventually causes heart failure.
   b. Variant of the hepatitis virus that attacks the liver and brain.
   c. Retrovirus that attacks the immune system destroying the body's ability to fight infection and disease.
   d. Genetic abnormality passed from father to son.
5. The term AIDS can be used interchangeably with the term HIV.
   a. True
   b. False
6. The "natural history" of HIV infection:
   a. Begins with viral transmission of the disease and ends with AIDS.
   b. Refers to the history of the spread of AIDS from Africa to the rest of the world, and how the disease has affected humans.
   c. Tells how the HIV virus has changed since it first infected humans.
   d. Begins with symptomatic HIV infection and ends with AIDS.
7. There are several tests available to test for HIV infection. A positive test means you:
   a. Do not have HIV.
   b. Are infected with HIV, but cannot infect another person for at least 6 months.
   c. Are infected with HIV and can infect others who come into contact with your blood, semen or vaginal fluids.
   d. Do not have HIV, but may be in the "window period" with no detectable antibodies for up to 6 months.

8. Transmission of HIV can occur through:
   a. Sitting in the same room with an infected person.
   b. An infected woman breastfeeding her infant.
   c. Shaking the hand of an infected person.
   d. Sharing food with an infected person.
9. Approximately 25% of people in the United States who are infected with HIV do not know they are infected. All of the following is true about HIV testing except:
   a. Routine HIV testing can lead to early medical treatment that lowers HIV viral load and reduces risk of transmission to others.
   b. Infected people who are aware of their HIV status often decrease behaviors that can spread HIV.
   c. People who learn they have HIV are more likely to engage in high-risk behaviors that can spread the virus.
   d. Rapid HIV tests are more than 99% accurate.
10. During pregnancy:
   a. An HIV infected woman rarely passes the infection to the baby.
   b. C-sections actually increase the risk of infecting the baby with HIV.
   c. The HIV transmission rate to the baby drops with the use of AZT.
   d. HIV counseling is voluntary in most states.
11. Universal and Standard Precautions:
   a. Are not implemented unless a patient has been diagnosed with AIDS or hepatitis C.
   b. Must include the use of latex gloves.
   c. Include PPEs such as masks, gloves, protective eyewear and face shields.
   d. Consider all body fluids, including sweat, to be potentially infectious.
12. 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 PPEs and upon leaving the work area.
13. Biohazard labels:
   a. Must be written in the three major languages of the workers employed in that area.
   b. Can only be presented in pictographs.
   c. Are used to protect employees from hazardous biological exposure.
   d. Need not be understood by housekeeping staff.
14. An example of an occupational exposure is:
   a. Carrying a red-bagged urine specimen to the lab.
   b. Taking the temperature of an HIV infected patient using Universal Precautions.
   c. A needle stick from a patient who does not have HIV.
   d. Assisting an HIV infected patient to walk in the hallway using Universal Precautions.

15. HIV transmission to healthcare workers:
    a. Is most likely through a blood splash to the eyes, nose or mouth.
    b. Is approximately 22 to 31% from a needle stick from an infected patient.
    c. Has never been caused by blood contact with intact skin.
    d. Does not depend on the amount of blood or virus present in the exposure.
16. Treatment after a potential exposure includes all of the following except:
    a. Washing the affected area with soap and water.
    b. Flushing exposed eyes, nose or mouth with water, saline or sterile irrigants.
    c. Removal of potentially contaminated clothing.
    d. Application of antiseptics in place of washing.
17. Sharps injuries:
    a. Should be "milked" or squeezed.
    b. Must not be treated with antiseptics.
    c. Should be washed with soap and water.
    d. Are not considered an occupational exposure.
18. When an occupational exposure occurs:
    a. You only need to obtain a medical evaluation if the source is known to have HIV.
    b. Your employer is required to provide an appropriate post exposure management referral at no cost to you.
    c. Bites should be cleaned with hydrogen peroxide.
    d. You are responsible for the cost of any treatment deemed necessary by your employer.
19. The combination drug therapy currently used to treat HIV is called:
    a. *Toxoplasma gondii*.
    b. IGRA.
    c. HAART.
    d. CD4 count.
20. Behavioral interventions to decrease the transmission of HIV from mother to baby:
    a. Have encouraged abortion of HIV-infected fetuses.
    b. Have been largely unsuccessful in the United States.
    c. Include early testing and counseling, antiretroviral prophylaxis, and breastfeeding alternatives.
    d. Have been unsuccessful in low-income countries.
21. Programs aimed at interventions to change behavior:
    a. Are rarely successful.
    b. Have changed sexual and drug-use behavior in resource-limited settings.
    c. Have shown that providing access to clean injecting equipment actually encourages drug addiction.
    d. Have shown that use of condoms is not effective in preventing spread of HIV.
22. According to Kentucky legislation, the state must provide both confidential and anonymous testing.
    a. True
    b. False

23. In general, Kentucky law makes a breach of confidentiality of HIV/AIDS testing information:
    a. A class A misdemeanor.
    b. Cause for dismissal.
    c. Punishable by a $10,000 fine.
    d. A third-degree felony.

(Answer Sheet on next page)

Answer Sheet

Kentucky HIV/AIDS

Name (Please print your name): _____
Date: _____

Passing score is 80%

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____

Course Evaluation

Please answer each of the following questions. Questions with asterisks (*) are required.

* 1. This course met the goals and learning objectives.

❑ Yes ❑ No

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

❑ Yes ❑ No

* 3. This course was free from commercial bias.

❑ Yes ❑ No

* 4. The learning activity met my continuing education needs.

❑ Yes ❑ No

* 5. The learning activity took me 60 minutes per contact hour. (If you answer "No", please enter the total time it took to finish the course, test, and evaluation.)

❑ Yes

❑ No**

** If your answer was "No", how long did it take to finish the course, test, and evaluation?

_____

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

Nursing

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

❑ BSN ❑ MSN ❑ Nurse Practitioner / Advanced Practice Nurse

❑ PhD / DNSc

Therapy

❑ OT Aide ❑ COTA ❑ OT ❑ MOT ❑ OTD

❑ PT Aide ❑ PTA ❑ PT ❑ MPT ❑ MSPT ❑ DPT ❑ PhD

Other (please specify): _____

7. I heard about ATrain Education from:

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

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

❑ Yes ❑ No____

9. Comments or suggestions (optional): _____

_____

_____

_____

_____

(continued 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 e-mail my certificate: ❑ Yes ❑ No

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

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

Payment Options

You may pay by credit card or by check. Fill out this section only if you are **paying by credit card**.
2.0 contact hours - $18

Credit card information:

Name _____

Address (if different from above): _____

City: _____State:____ Zip: _____

Card type: ❑ Visa ❑ MC ❑ American Express ❑ Discover

Card number _____

Expiration date _____CVS# _____

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 $18 made out to ATrain Education, Inc.
3. Mail the completed forms and your payment to:

   ATrain Education, Inc
   5171 Ridgewood Rd
   Willits, CA 95490

Once 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!