Kentucky HIV Infection and AIDS: An Overview

This course has been awarded three (3.0) contact hours.
This course expires on September 16, 2018.

Kentucky CHFS Approval #0315-1607-M

First Published: May 29, 2007
Updated: May 29, 2009
April 1, 2011
March 31, 2013
May 31, 2015
September 16, 2015

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The planners of the educational activity have no conflicts of interest to disclose.

There is no commercial support being used for this course.

Acknowledgements

RN.com acknowledges the valuable contributions of…

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Nadine Salmon, MSN, BSN, IBCLC
Karen Siroky, RN, MSN
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…The National Institute of Allergy and Infectious Disease (NIAID), part of the National Institutes of Health (NIH).

Purpose and Objectives

The purpose of this course is to provide an overview of HIV and AIDS, the current state of the epidemic, and how specific state reporting requirements may be implemented.

After successful completion of this course, you will be able to:

1. Identify the difference between HIV and AIDS
2. Describe how HIV is transmitted and symptoms of HIV
3. Define how HIV is diagnosed
4. Define HAART
5. Identify the key side effects associated with HAART medications
6. Describe Kentucky requirements for HIV education for professionals
7. Identify Kentucky resources for HIV information and support, and requirements for physicians, health facilities or licensed laboratories to report a positive HIV test or AIDS diagnosis

Introduction

Acquired immunodeficiency syndrome (AIDS) was first reported in the United States in 1981 and has since become a major worldwide epidemic (Centers for Disease Control and Prevention [CDC], 2001a).

AIDS is caused by human immunodeficiency virus (HIV). HIV increasingly kills or damages cells in the immune system, decreasing the ability to fight infections and certain cancers. This can lead to life-threatening diseases called opportunistic infections, which are caused by viruses or bacteria that usually do not infect people with an intact immune system (CDC, 2001a).

HIV Statistics in the US

More than one million cases of HIV/AIDS have been reported in the United States, with 25% of individuals unaware of their infection (Centers for Disease Control [CDC], 2011). The epidemic is growing most rapidly among minority populations and is a leading killer of African-American males ages 25-44.

The CDC has developed an innovative system to estimate the number of new HIV infections (or incidence) for the United States in a given year. Using this long-term, confidential name-based HIV reporting, showing that more than 56,000 new HIV infections occur in the United States per year (National AIDS Policy, 2010).

According to the CDC report in 2009, almost 75% of HIV/AIDS diagnoses among adolescents and adults are for males. In 2009, the largest estimated proportion of HIV/AIDS diagnoses among adults and adolescents were for men who have sex with men (MSM), followed by persons infected through high-risk heterosexual contact.

In 2009, persons aged 20-24 accounted for the largest proportions of newly diagnosed HIV/AIDS cases, with age groups 25-49 also highly affected. African Americans accounted for almost half of the estimated number of HIV/AIDS diagnoses made during 2009 (CDC, 2011).

More info:
AIDS surveillance:
Through a uniform system, the CDC receives reports of AIDS cases from all U.S. states. Effective April 2008, all 50 states, the District of Columbia, and 6 dependent areas—American Samoa, Guam, the Northern Mariana Islands, Palau, Puerto Rico, and the U.S. Virgin Islands report data via these standards. This data is used to monitor trends in HIV/AIDS because they are representative of all areas (CDC, 2011).

Pediatric HIV/AIDS Statistics in the U.S.

Young people in the United States are at continual risk for HIV infection, particularly for youth of minority races and ethnicities. HIV disproportionately affects children in minority groups, especially African Americans.

Persistent HIV prevention outreach and education efforts, including programs on abstinence and on delaying the initiation of sex, are required as new generations replace the generations who benefited from earlier prevention strategies.

According to UNAIDS (The Joint United Nations Programme on HIV/AIDS) as HIV infection rates rise in the general population, new infections are increasingly concentrating in younger age groups (UNAIDS, 2011).

The United States has a relatively small percentage of the world's children living with HIV. The vast majority of HIV-infected children acquire the virus from their mothers before or during birth or in the early postnatal period.

The term “Youth” refers to persons aged between 13-24 years of age. “Children” are those less than 13 years of age.

HIV/AIDS Statistics Around the World

Worldwide, the HIV/AIDS epidemic is at a critical stage. Almost 35 million people are infected. In 2010, 2.7 million people were newly infected, and over 2 million people died from AIDS in 2010 (UNAIDS, 2011).

HIV/AIDS is the leading cause of death in Africa and the 4th leading cause of death worldwide. In Africa alone, the prevalence of HIV infection is at least 35%, decreasing life expectancy in that part of the world by more than 20 years.

Globally, there were an estimated 34 million people living with HIV in 2010. It is estimated that there are 7,000 new cases of HIV each day worldwide (WHO, 2011). Lack of education, stigma, and lack of healthcare resources all contribute to the HIV/AIDS epidemic around the world (UNAIDS, 2011).

HIV vs. AIDS

The term AIDS applies to the most advanced stages of HIV infection. CDC developed official criteria for the definition of AIDS and is responsible for tracking the spread of AIDS in the United States.

CDC's definition of AIDS includes all HIV-infected people who have fewer than 200 CD4+ T cells per cubic millimeter of blood or CD4+ cells account for fewer than 14% of all lymphocytes. (Healthy adults usually have CD4+ T-cell counts of 500-1500). In addition, the definition includes 26 clinical conditions that affect people with advanced HIV disease. Most of these conditions are opportunistic infections that generally do not affect healthy people. In people with AIDS, these infections are often severe and sometimes fatal because the immune system is so ravaged by HIV that the body cannot fight the infection.

Children with AIDS may get the same opportunistic infections as do adults with the disease. In addition, they also have severe forms of the typically common childhood bacterial infections, such as conjunctivitis (pink eye), ear infections, and tonsillitis.

People with AIDS are also particularly prone to developing various cancers, especially Kaposi's sarcoma, cervical cancer, and lymphomas. These cancers are usually more aggressive and difficult to treat in people with AIDS (CDC, 2012).

Transmission: Risky Behaviors and Blood Transfusions

HIV can infect anyone who practices risky behaviors such as:

- Sharing drug needles or syringes
- Having sexual contact, including oral, with an infected person without using a condom
- Having sexual contact with someone whose HIV status is unknown

HIV is spread most commonly by having unprotected sex with an infected partner. The virus can enter the body through the lining of the vagina, vulva, penis, rectum, or mouth during sex. Persons with a sexually transmitted infection (STI) such as syphilis, genital herpes, chlamydial infection, gonorrhea, or bacterial vaginosis may be more susceptible to getting HIV infection during sex with infected partners.

HIV also is spread through contact with infected blood. Before donated blood was screened for evidence of HIV infection and before heat-treating techniques to destroy HIV in blood products were introduced, HIV was transmitted through transfusions of contaminated blood or blood components. Today, because of blood screening and heat treatment, the risk of getting HIV from such transfusions is extremely small.

Test Yourself:

True or False?
In the United States, blood products are screened for evidence of HIV infection and can be heat-treated to destroy HIV.

The correct answer is: True.

Transmission: Contaminated Needles

HIV is frequently spread among IV drug users. They become infected by sharing of needles or syringes contaminated with very small quantities of blood from someone infected with the virus.

There has been some concern that body tattooing and piercing increase the risk of acquiring HIV. However, to date, the CDC knows of no instances of HIV transmission through tattooing or body piercing, although hepatitis B virus has been transmitted during some of these practices.

One case of HIV transmission from acupuncture has been documented in the U.S. Body piercing (other than ear piercing) is relatively new in the United States, and the medical complications for body piercing appear to be greater than for tattoos.

It is rare for a patient to give HIV to a healthcare worker or vice-versa by accidental sticks with contaminated needles or other medical instruments.

Test Yourself:
True or False?
HIV is spread most commonly by sharing needles.

The correct answer is: False. HIV is spread most commonly by having unprotected sex with an infected partner.

Transmission: Mother to Child (MTCT)

The transmission of HIV from an HIV-positive mother to her child during pregnancy, labor, delivery or breastfeeding is called mother-to-child transmission (MTCT). Without any interventions, transmission rates range from 15-45% (WHO, 2011). Most MTCT, an estimated 50-70%, probably occur late in pregnancy or during birth.

Although the exact ways the virus is transmitted are unknown, scientists think it may happen when the mother's blood enters fetal circulation or by mucosal exposure to the virus during labor and delivery.

One study also found that HIV-infected women who gave birth more than four hours after rupture of the fetal membranes were nearly twice as likely to transmit HIV to their babies, as compared to women who delivered within four hours of membrane rupture. In the same study, HIV-infected women who used heroin or crack/cocaine during pregnancy were also twice as likely to transmit HIV to their babies as compared to HIV-infected women who did not use drugs (Mark, Murphy, Read, Bitnun, & Yudin, 2012).

Approximately one-quarter to one-third of all untreated pregnant women infected with HIV will pass the infection to their babies. HIV also can be spread to babies through the breast milk of mothers infected with the virus. If the mother takes certain drugs during pregnancy, she can significantly reduce the chances that her baby will get infected with HIV. If healthcare providers treat HIV-infected pregnant women and deliver their babies by cesarean section, the chances of the baby being infected can be reduced to a rate of 1%. HIV infection of newborns has been almost eradicated in the United States due to appropriate treatment. Maternal-fetus transmission will be discussed in greater detail later in this course.

The first regimen to prevent MTCT was identified in a landmark study conducted in 1994. A specific regimen of AZT (azidothymidine) given to an HIV-infected woman during pregnancy and to her baby after birth was shown to reduce mother-to-child HIV transmission by two-thirds.

True or False?
Most mother to child transmission of HIV occurs late in pregnancy or during birth.

The correct answer is: True.

Risk of Perinatal Transmission

Research into and improvements in treatment protocols have led to a dramatic decrease in the number of HIV infected babies born to HIV+ mothers.

In the United States, approximately 25% of pregnant HIV-infected women who do not receive AZT or a combination of antiretroviral therapies pass the virus to their babies. If women do receive a combination of antiretroviral therapies during pregnancy the risk of HIV transmission to the newborn drops to 1-2% (Havens, Mofenson & the Committee on Pediatric AIDS, 2011).

The risk of MTCT is significantly increased if the mother has advanced HIV disease, high amounts of HIV in her bloodstream, or fewer-than-normal amounts of the CD4+ T cells.

Other factors that may increase the risk include:

- Drug use, such as heroin or crack/cocaine
- Severe inflammation of fetal membranes
- A prolonged period between membrane rupture and delivery

Breastfeeding and HIV Transmission

HIV may also be transmitted from a nursing mother to her child. A series of studies have determined breastfeeding increases the risk of HIV transmission by about 14%.

Currently, the Joint United Nations Programme on HIV/AIDS (UNAIDS) recommends HIV-positive women be educated and counseled so they can make an informed decision about how to breastfeed their children (2009).

There are a number of other studies being conducted in both the United States and around the world to determine the best strategies for both the breastfeeding mother and the child.

The World Health Organization recognizes the need for breastfeeding as a means for infant feeding in many countries. WHO recommends breastfeeding continue until the infant is 12 months of age, provided the HIV-positive mother or baby is taking active antiretroviral therapy during that period. This will reduce the risk of HIV transmission and improve the infant's chance of survival (WHO, 2009).

In the United States, however, breastfeeding is NOT recommended for HIV infected women, including those with active antiretroviral therapy (The Panel on Treatment of HIV-Infected Pregnant Woman and Prevention of Perinatal Transmission, 2012).

Transmission: The Environment and Casual Contact

Scientists and medical authorities agree HIV does not survive well in the environment, making the possibility of environmental transmission remote. Additionally, HIV is unable to reproduce outside its living host. Although HIV has been transmitted between family members in a household setting, this type of transmission is very rare. These transmissions are believed to have resulted from contact between mucous membranes and infected blood; therefore, it does not spread or maintain infectiousness outside its host.

Some people fear HIV might be transmitted in other ways; however, no scientific evidence to support any of these fears has been found. If HIV were being transmitted through other routes (such as through air, water, or insects), the pattern of reported AIDS cases would be much different from what has been observed.

Studies of families of HIV-infected people have shown clearly HIV is not spread through casual contact such as the sharing of food utensils, towels and bedding, swimming pools, telephones, or toilet seats.

There is also no evidence the virus is spread by contact with saliva. Laboratory studies reveal saliva has natural properties that limit the power of HIV to infect, and the amount of virus in saliva appears to be very low. Research studies of people infected with HIV have found no evidence the virus is spread to others through saliva by kissing. The lining of the mouth, however, can be infected by HIV, and instances of HIV transmission through oral intercourse have been reported.

Scientists have found no evidence HIV is spread through sweat, tears, urine, or feces (CDC, 2012).

Test Yourself:
HIV virus can be spread to others via contact with:

A. Sweat

B. Saliva

C. Urine

D. The lining of the mouth

The correct answer is: D. HIV is spread via contact with the lining of the mouth such as through oral intercourse.

Symptoms

Most people do not have any symptoms when they first become infected with HIV. They may, however, have a flu-like illness within a month or two after exposure to the virus. Acute illness lasts from 1-2 weeks and occurs in approximately 50% to 90% of cases. This illness may include:

- Fever
- Headache
- Fatigue
- Enlarged lymph nodes

These symptoms usually disappear within a week to a month and are often mistaken for those of

another viral infection. During this period, people are very infectious, with large numbers of the HIV virus in blood and other body fluids (Mayo Clinic, 2011).

More persistent or severe symptoms may not appear for up to 10 years or more after HIV first enters the body in adults, or within 2 years in children born with HIV infection. This period of "asymptomatic" infection varies greatly in each individual. Some people may begin to have symptoms within a few months, while others may be symptom-free for more than 10 years.

More info:
In 1985, CDC issued routine precautions that all personal-service workers (such as hairdressers, barbers, cosmetologists, and massage therapists) should follow, even though there is no evidence of transmission from a personal-service worker to a client or vice versa. Instruments that are intended to penetrate the skin (such as tattooing and acupuncture needles, ear piercing devices) should be used once and disposed of or thoroughly cleaned and sterilized. Instruments not intended to penetrate the skin but which may become contaminated with blood (for example, razors) should be used for only one client and disposed of or thoroughly cleaned and disinfected after each use. Personal-service workers can use the same cleaning procedures that are recommended for healthcare institutions.

Even during the asymptomatic period, the virus is actively multiplying, infecting, and killing cells of the immune system. The virus can also hide within infected cells and lay dormant. The most obvious effect of HIV infection is a decline in the number of CD4 positive T (CD4+) cells found in the blood. The T cells are the immune system's key infection fighters. The virus slowly disables or destroys these cells without causing symptoms. By monitoring a patient’s CD4+ cells, you can monitor progression of the virus, even when the patient is essentially asymptomatic.

A normal CD4 lymphocyte count is 500-1500 cells/mm3. As the HIV virus attacks the immune system, the CD4 lymphocytes are depleted. When the count reaches 200 cells/mm3, the patient disease has transitioned from HIV to AIDS.

As the immune system’s function declines, a variety of complications start to occur. For many people, the first signs of infection are enlarged lymph nodes. Other symptoms often experienced months to years before the onset of AIDS include:

- Fatigue
- Weight loss
- Frequent fevers and sweats
- Persistent or frequent yeast infections (oral or vaginal)
- Persistent skin rashes or flaky skin
- Pelvic inflammatory disease in women that does not respond to treatment
- Short-term memory loss
- Frequent herpes infections
- Delayed growth in children

(Mayo Clinic, 2011)

Oral Manifestations of HIV Infection

Oral manifestations are common in people with HIV infection and may be the first AIDS defining condition. By some estimates, more than 90% of AIDS patients will have at least one HIV-related oral manifestation in the course of their disease. Thus the incidence of oral manifestations may indicate disease progression.

For some patients, the presence of these oral lesions may be the first sign of HIV infection, and further testing and diagnosis is required. For others, oral lesions may signify a decline in immune function. For example, untreated HIV-infected patients with oral candidiasis have been shown to progress to an AIDS diagnosis within a two-year period.

Comprehensive primary care includes primary oral healthcare. Every patient should receive a comprehensive initial evaluation. Laboratory testing may include tests for viral, fungal and bacterial lesions. Biopsy of lesions may be indicated and can require aggressive treatment. Response to treatment can be slow and relapses/recurrence is common. There are also concerns about resistance.

As CD4+ levels decline and immune function deteriorates, the incidence of oral infections increases. The clinical appearance of oral manifestations of HIV infection varies and may be non-specific and atypical in appearance (Mayo Clinic, 2011).

Diagnosis

Because early HIV infection often causes no symptoms, healthcare providers usually diagnose it by testing for the presence of antibodies to HIV. HIV antibodies generally do not reach noticeable levels in the blood for one to three months following infection. It may take the antibodies as long as six months to be produced in quantities large enough to show up in standard blood tests. Therefore, patients who may have been recently infected may need to be screened for the presence of HIV genetic material. Direct screening of HIV is extremely critical in order to prevent transmission of HIV from recently infected individuals.

The most common tests to determine the presence of HIV are the ELISA/Western Blot tests. (ELISA is an acronym for enzyme–linked immunoassay). This is a set of blood tests used in the diagnosis of chronic infection with HIV. The HIV ELISA is a screening test for the diagnosis of HIV infection. There are a number of conditions that can cause a false positive ELISA, including lupus, Lyme disease, and syphilis. If the ELISA test is positive, it must be confirmed with a second test called the Western Blot, which is more specific and will confirm if someone is truly HIV positive (NYU Center for AIDS Research, 2009).

HIV Testing and Informed Consent

People being tested for HIV need information and emotional support. Many people worry about their confidentiality, and will want to know who will have access to their test results and whether the information will be available to insurance carriers.

Ensure that patients have the correct information about who will be able to access their records. Know the reporting requirements for your healthcare agency, city, and state.

Tests for HIV must be informed, voluntary, and confidential. However, a person who has signed a general consent form for the performance of medical tests is not required to sign a specific consent form relating specifically to HIV testing. The general consent form shall instruct the patient that, as part of the medical tests, the patient may be tested for HIV infection, hepatitis, or any other blood-borne infectious disease if a doctor orders the test for diagnostic purposes.

In any emergency situation where informed consent of the patient cannot reasonably be obtained before providing healthcare services, there is no requirement that a healthcare provider obtain a previous informed consent (National HIV/AIDS Clinicians' Consultation Center at San Francisco General Hospital, 2011).

For pregnant women, HIV screening should be included in the routine panel of prenatal screening tests, unless the patient declines (opt-out screening). Repeat screening in the third trimester is recommended in certain jurisdictions with elevated rates of HIV infection among pregnant women.

HIV Testing and Opt-Out Provision

Opt-out screening is the performance of HIV screening (testing) after the patient has been notified that:

- The test will be performed
- The patient may elect to decline or defer testing

Universal opt-out screening for HIV screening for pregnant women and infants is offered in the U.S., where screening for HIV occurs only after a woman is notified that HIV screening is recommended for all pregnant patients and that she will receive an HIV test as part of the routine panel of prenatal tests unless she declines (opt-out screening).

HIV testing must be voluntary and free from coercion. No woman should be tested without her knowledge. Pregnant women should receive oral or written information that includes an explanation of HIV infection, a description of interventions that can reduce HIV transmission from mother to infant, and the meanings of positive and negative test results and should be offered an opportunity to ask questions and to decline testing.

No additional process or written documentation of informed consent (beyond what is required for other routine prenatal tests) should be required for HIV testing.

If a patient declines an HIV test, this decision should be documented in the medical record, together with the reason for declining testing (National HIV/AIDS Clinicians' Consultation Center at San Francisco General Hospital, 2011).

Note that assent for HIV testing is inferred unless the patient specifically declines testing.

HIV Testing

After the first exposure, there is a 2-4 week period of intense viral replication before the onset of an immune response and clinical illness. HIV antibody tests can't detect infection soon after exposure because the immune system needs time to produce antibodies. It generally takes from 2-12 weeks for the antibodies to be detected. During this time a test may show a "false negative."

Clinical manifestations begin to resolve as antibodies to the virus become detectable in patient serum. Patients then enter a stage of asymptomatic infection lasting months to years.

Instead of being tested for HIV antibodies, patients who want results about very recent exposures need to be tested using technology that detects and amplifies HIV viral particles directly (PCR) NYU Center for AIDS Research (2009).

Test Yourself:

A false negative HIV test result may occur because it generally takes from 2-12 weeks after an exposure for the _____ to be detected.

A. White blood cells

B. Red blood cells

C. Bacteria

D. Antibodies

The correct answer is: D. Antibodies

Addressing Reasons for Declining Testing

Providers should discuss and address reasons for declining an HIV test. These reasons may be varied and based on misconceptions or knowledge deficits, such as the lack of perceived risk, fear of the disease, and concerns regarding partner violence or potential stigma or discrimination (CDC, 2011).

Women who decline an HIV test because they have had a previous negative test result should be informed of the importance of re-testing during each pregnancy (CDC, 2011).

Logistical reasons for not testing (such as scheduling) should be resolved.
Certain women who initially decline an HIV test might accept at a later date, especially if their concerns are discussed. Certain women will continue to decline testing and their decisions should be respected and documented in the medical record.

Partner Counseling and Referral Services (PCRS)

Partner Counseling and Referral Services (PCRS) assists HIV-infected persons with notifying their partners of their exposure to HIV (CDC, 2011). Notified partners, who may not have suspected their risk, can then choose whether to be tested for HIV, enabling those who test HIV positive to receive early medical evaluation, treatment, and prevention services, including risk-reduction counseling.

A key element of PCRS is informing current and past partners that a person who is HIV-infected has identified them as a sex or drug sharing partner and advising them to have HIV counseling and testing. PCRS should include all casual contacts.

Informing partners of their exposure to HIV is confidential and voluntary in that the infected person decides which names to reveal to the interviewer.

HIV PCRS involves identifying, locating, and interviewing HIV-infected persons (index patients) to offer PCRS and elicit names of partners; and providing HIV counseling, testing, and referral services to the partners. PCRS is usually done by health departments.

There are 3 main strategies for reaching exposed partners:

- **Provider referral:** The healthcare provider, with permission from the HIV-infected client, informs the partner and refers him or her to counseling and testing.
- **Patient referral:** The HIV-infected person accepts full responsibility for informing his or her partners

of their possible exposure to HIV and for referring them to HIV counseling and testing services.

- **Contract referral:** The infected person agrees to notify his or her partners by a certain date. If the partners do not come for counseling and testing after the agreed date, they are contacted by the health department.

Many states and some cities or localities have laws and regulations about informing partners of their exposure to HIV. Some health departments require even if a patient refuses to report a partner, the clinician must report to the health department any partner of whom he or she is aware.

Some states also have laws regarding disclosure by clinicians to third parties known to be at significant risk for future HIV transmission from patients known to be infected. This is called duty to warn.

The Ryan White CARE Reauthorization Act requires health departments receiving Ryan White funds show "good faith" efforts to notify marriage partners of HIV-infected patients (CDC, 2011).

PCRS can be an effective tool for reaching persons at very high risk for HIV infection, and is cost effective (CDC, 2011).

Recommendations for HIV Testing

These recommendations for HIV testing are intended for use on all patients in all healthcare settings:

- HIV screening is recommended for patients in all healthcare settings after the patient is notified testing will be performed, unless the patient declines (opt-out screening)
- Persons at high risk for HIV infection should be screened for HIV at least annually
- Separate written consent for HIV testing should not be required; general consent for medical care should be considered sufficient to encompass consent for HIV testing
- Prevention counseling should not be required with HIV diagnostic testing or as part of HIV screening programs in healthcare settings
- Post-test counseling is required with HIV positive results

(National HIV/AIDS Clinicians' Consultation Center at San Francisco General Hospital, 2011)

Treatment – HAART

Because HIV can become resistant to any of these drugs, healthcare providers must use a combination treatment to effectively suppress the virus. When multiple drugs (three or more) are used in combination, it is referred to as **highly active antiretroviral therapy, or HAART**, and can be used by people who are newly infected with HIV, as well as people with AIDS.

For many people, quality of life dramatically improved with HAART medications. Previously disabled individuals returned to work or school and are fully enjoying their family and friends. For them, HIV has become a manageable chronic condition.

Goals of therapy include the following:

- Improve quality of life
- Reduce HIV-related morbidity and mortality
- Restore and/or preservation of immunologic function

- Maximal and durable suppression of viral load

Initiation of antiretroviral therapy should be based on viral load, CD4-lymphocytes, and clinical parameters (HIV Management.org, 2009).

HAART suppresses HIV, but cannot eradicate it.

Test Yourself:

When multiple drugs (three or more) are used in combination, it is referred to as:

A. HIV acquired therapy

B. HIV antibiotic and antiviral therapy

C. Highly active antiretroviral therapy

D. None of the above

The correct answer is: C. Highly active antiretroviral therapy

HAART Therapy: NRTIs and NNRTIs

There are several classes of anti-retroviral medications used in combination to create "HAART" therapy.

The first group of drugs used to treat HIV infection, called **nucleoside reverse transcriptase inhibitors (NRTIs)**, interrupts an early stage of the virus making copies of itself. These drugs may slow the spread of HIV in the body and delay the start of opportunistic infections. NRTIs include:

- AZT (azidothymidne)
- ddC (zalcitabine)
- ddI (didanosine)
- d4T (stavudine)
- 3TC (lamivudine)
- Abacavir (ziagen)
- Tenofovir (viread)
- Emtriva (emtricitabine)

Healthcare providers can also prescribe **non-nucleoside reverse transcriptase inhibitors (NNRTIs)**, such as:

- Delavridine (Rescriptor)
- Nevirapine (Viramune)
- Efravirenz (Sustiva) (in combination with other antiretroviral drugs)

(DHHS et al, 2012)

HAART Therapy: PIs and Fusion Inhibitors

A second class of drugs used for treating HIV infection is **protease inhibitors (PIs)**. Protease inhibitors interrupt the virus from making copies of itself at a later step in its life cycle. They include:

- Ritonavir (Norvir)
- Saquinivir (Invirase)
- Nelfinavir (Viracept)
- Lopinavir (Kaletra)

- Indinavir (Crixivan)
- Amprenivir (Agenerase)
- Atazanavir (Reyataz)
- Fosamprenavir (Lexiva)

(DHHS et al, 2012)

Fusion Inhibitors

A third new class of drugs, known as fusion inhibitors, is also used to treat HIV infection.

Fuzeon (enfuvirtide or T-20), the first approved fusion inhibitor, works by interfering with HIV-1's ability to enter into cells by blocking the merging of the virus with the cell membranes. This inhibition blocks HIV's ability to enter and infect the human immune cells.

Fuzeon is designed for use in combination with other anti-HIV treatment. It reduces the level of HIV infection in the blood and may be active against HIV that has become resistant to current antiviral treatment schedules (DHHS et al, 2012).

Go to the following website for a comparative chart of HIV approved medications (Aidsmeds.com, 2009):
http://www.aidsmeds.com/articles/DrugChart_10632.shtml

Side Effects of HAART Medications

Despite the beneficial effects of HAART, potentially severe side effects are associated with the use of antiviral drugs. Some of the NRTIs may cause anemia or granulocytopenia, especially when taken in the later stages of the disease. Some may also cause inflammation of the pancreas and painful nerve damage. There have been reports of complications and other severe reactions, including death, to some of the antiretroviral nucleoside analogs when used alone or in combination. Therefore, healthcare experts recommend that patients on antiretroviral therapy are closely followed by their healthcare providers.

The most common side effects associated with protease inhibitors include nausea, diarrhea, and other gastrointestinal symptoms. However, the most serious side effects include increased blood sugar, liver dysfunction, and lipodystrophy. This is an increase in cholesterol and triglyceride levels and a redistribution of fat that causes increased fat in the abdomen and breasts, and wasting in the face and extremities. The elevation of cholesterol and triglycerides may lead to additional health problems.

Fuzeon (Fusion Inhibitor) may also cause severe allergic reactions such as pneumonia, trouble breathing, chills and fever, skin rash, blood in urine, vomiting, and low blood pressure. Local skin reactions are also possible since it is given as an injection underneath the skin (Lacy, Armstrong, Goldman, & Lance, 2011).

Test Yourself:

Common side effects associated with protease inhibitors include:

A. **Hypoglycemia**

B. **Constipation**

C. **Lipodystrophy**

D. Increased fat distribution in the face and extremities

The correct answer is: C. Lipodystrophy

Adherence

The issue of adherence to HAART regimen cannot be over-emphasized. HIV-infected patients must take all of their HAART medications precisely as prescribed to fully obtain their benefits. Because HAART medications suppress HIV replication but do not eradicate the virus, even one missed dose a week may allow HIV to rebound. Eventually drug-resistant HIV may gain a foothold and dramatically shorten the time the medication remains effective. Rebounds in the amount of HIV in patients' blood are seldom caused by new mutant strains of HIV, but are related to failure to take all medications. Patients who skip doses, take late medications, or ignore dietary instructions can have higher levels of HIV.

Patients are most likely to adhere to their treatment when it "fits" their lifestyle and they believe the drug's effectiveness depends on taking every dose. Patients who frequently drink alcohol or use recreational drugs are the least likely to continue to take all their medications as prescribed. Patients experiencing unacceptable side effects may benefit from switching to another combination of medications. HAART therapy is a lifelong commitment and adherence is vital (Abaasa, Todd, Ekoru, Kalyango… & Karamagi, 2008).

Strategies to Improve Adherence

The Panel on Clinical Practices for Treatment of HIV Infection (2004) recommends the following strategies to help improve adherence with medications:

- Use all the members of the healthcare team
- Establish trust
- Negotiate a treatment plan the patient understands and is committed to
- Recruit family and other significant supporters to reinforce the plan
- Establish readiness to follow the plan before beginning
- Provide concrete directions for incorporating regimen into meal times and daily routine
- Simplify food requirements
- If possible, reduce dose frequency and number of pills
- Avoid adverse drug interactions
- Monitor for side effects, and treat appropriately
- Provide suitable mechanisms to remind the patient to take medications
- Develop support groups around adherence issues
- Provide ongoing access to healthcare team
- Provide many opportunities for the patient to ask questions or raise concerns
- Monitor adherence
- Consider referrals for mental health or chemical dependency services
- Consider the impact of changes in the patient's condition, living circumstances, or mood and adjust treatment accordingly

Complications of HIV

As the immune system's function declines, a variety of complications start to occur. For many people, the first signs of infection are enlarged lymph nodes.

Other symptoms often experienced months to years before the onset of AIDS include:

- Fatigue
- Weight loss
- Frequent fevers and sweats
- Persistent or frequent yeast infections (oral or vaginal)
- Persistent skin rashes or flaky skin
- Pelvic inflammatory disease in women that does not respond to treatment
- Short-term memory loss
- Frequent herpes infections
- Delayed growth in children

HIV positive patients are at a greater risk for opportunistic infections (OI). You may see your HIV+ patient on antibiotic or other therapies you are not familiar with. Remember that OIs can be deadly to your HIV+ patient.

One of the key nursing responsibilities is to protect your HIV patients from infections. Part of the guidelines for caring for HIV patients is assuring they have followed the most current immunization protocol. The protocol outlines which immunizations are recommended for all or some HIV patients and which are not recommended for HIV patients (CDC, 2012).

AIDS Associated Opportunistic Infections

The AIDS associated opportunistic infections (OIs) and cancers include:

- Pneumocystis Carinii Pneumonia (PCP)
- Kaposi's Sarcoma (KS)
- HIV wasting syndrome
- Non-Hodgkin's lymphoma
- Cryptococcosis, extrapulmonary
- HIV encephalopathy (AIDS Dementia)
- Mycobacterium Avium Intracellulare (MAC or MAI)
- Candidiasis of the esophagus, trachea, bronchi, or lungs
- Cryptosporidiosis, chronic intestinal
- Cytomegalovirus disease (CMV)
- Tuberculosis (outside of the lungs)
- Herpes simplex virus infection
- Progressive Multifocal Leukoencephalopathy (PML)
- Primary lymphoma of the brain
- Toxoplasmosis of the brain
- Histoplasmosis

- Isoporiasis, chronic intestinal
- Coccidioidomycosis
- Salmonella septicemia
- Bacterial infections, recurrent, <13 years
- Lymphoid interstitial pneumonia/pulmonary lymphoid hyperplasia, <13 years
- Pulmonary tuberculosis
- Recurrent bacterial pneumonia (two or more episodes in one year)
- Invasive cervical cancer

People who are positive for HIV and have one of these conditions meet the criteria for AIDS. However, not every person who has one of the above conditions has AIDS.

Test Yourself:

One of the key nursing responsibilities is to protect your HIV patients from _____.

The correct answer is: infections.

Cancers

In addition to OIs, the compromised immune system puts HIV-positive patients at risk for cancer.

Kaposi's Sarcoma and lymphoma are two of the most common "AIDS-related" cancers.

Healthcare providers use radiation, chemotherapy, or injections of alpha interferon (a genetically engineered protein that occurs naturally in the human body) to treat AIDS-related cancers.

Screening and Diagnosis of Maternal HIV

It is recommended for HIV testing early in pregnancy as standard of care for all pregnant women in the United States. In the third trimester, repeat HIV testing is recommended for women who have negative HIV antibody tests earlier in pregnancy but have high risk of HIV infection.

Women presenting in labor with unknown HIV status should have rapid HIV antibody testing, and women with a positive antibody test should initiate intrapartum antiretroviral (ARV) prophylaxis. A virologic test such as a plasma HIV RNA assay should be performed if acute HIV infection is suspected in a pregnant woman because serologic testing may be negative at this early stage of infection. Women without HIV testing before or during labor should undergo rapid HIV antibody testing during the immediate postpartum period or their newborns should undergo rapid HIV antibody testing (The Panel on Treatment of HIV-Infected Pregnant Woman and Prevention of Perinatal Transmission, 2012).

Management of Maternal HIV

HIV drug-resistance studies should be performed before starting or modifying antiretroviral (ARV) regimens. These studies are especially important for all pregnant women:

- Who have HIV RNA levels above the threshold for resistance testing (>500–1,000 copies/mL) before initiation of ARVs

- Entering pregnancy with detectable HIV RNA levels while receiving antiretroviral therapy
- Who have suboptimal viral suppression after starting ARVs during pregnancy

In women who present late in pregnancy, an ARV regimen should be initiated immediately without waiting for the results of resistance testing, with adjustment as needed after test results are available. The optimal prophylactic regimen for newborns of women with ARV resistance is unknown; thus, prophylaxis should be initiated, preferably before delivery. HIV-infected pregnant women should be given combination ARV drug regimens to maximally suppress viral replication, which is the most effective strategy for preventing resistance and reducing risk of perinatal transmission. All pregnant and postpartum women should be counseled about the importance of adherence to prescribed ARV medications to reduce the potential for development of resistance (The Panel on Treatment of HIV-Infected Pregnant Woman and Prevention of Perinatal Transmission, 2012).

Screening and Diagnosis of Neonatal HIV

HIV antibody testing cannot establish HIV infection in infants less than 18 months, as maternal HIV antibodies may persist and interfere with the interpretation of a positive HIV antibody test. Virologic assays that directly detect HIV must be used to diagnose HIV infection in this age group, and it is recommended to test infants with known perinatal HIV exposure at ages 14–21 days, 1–2 months, and 4–6 months. Virologic diagnostic testing at birth should be considered for infants at high risk of HIV infection.

HIV DNA polymerase chain reaction (PCR) and HIV RNA assays are recommended as preferred virologic assays. Confirmation of HIV infection should be based on two positive virologic tests obtained from separate blood samples. Conclusive exclusion of HIV infection (in the absence of breastfeeding) should be based on at least two negative virologic tests at greater than 1 month of age, and one at greater than 4 months of age. Some experts confirm the absence of HIV infection at 12–18 months of age in infants with prior negative virologic tests by performing an antibody test to document loss of maternal HIV antibodies. In children ≥18 months of age, HIV antibody assays alone can be used for diagnosis (The Panel on Antiretroviral Therapy and Medical Management of HIV-Infected Children, 2011).

Management of Neonatal HIV

If the mother or infant is HIV antibody positive, infant ARV prophylaxis should be initiated as soon as possible and the mother advised not to breastfeed pending results of confirmatory HIV antibody testing. Infants born of HIV-1–infected mothers should be considered for prophylaxis starting at 4-6 weeks of age. Infants with indeterminate HIV-1 infection status should receive prophylaxis until they are determined not to be infected with HIV-1. All infants exposed to ARV agents in utero or as infants should be monitored for short-term and long-term drug toxicity (Haven et al., 2011).

Combination therapy, including an NNRTI or PI plus an NRTI is recommended for initial treatment of HIV-infected children (AI). The goal of therapy in treatment-naive children is to reduce plasma HIV RNA levels to below the limits of quantitation of ultrasensitive assays and to preserve or normalize immune status. ARV drug-resistance testing is recommended before initiation of therapy in all treatment-naive children (The Panel on Antiretroviral Therapy and Medical Management of HIV-Infected Children, 2011).

Screening and Diagnosis of Pediatric HIV

HIV is transmitted to children as an infant through MTCT, blood transfusions (rare), and behaviors of

risk. Screening and diagnosis of infants is described above. Adolescents who become sexually active can be in a high risk group. Risk assessment and counseling is recommended with pediatricians for all adolescents over the age of 13.

Pediatricians should assess sexual and substance use behaviors, an essential component of routine adolescent care, irrespective of perceived risk. In populations with an HIV prevalence of more than 0.1%, routine HIV screening should be offered to all adolescents at least once by 16 to 18 years of age. With lower community HIV prevalence, routine HIV testing is encouraged for all sexually active adolescents and those with other risk factors for HIV. In addition, high-risk youth should be tested annually for HIV. HIV testing should be done with testing for other STDs (Committee on Pediatric AIDS, 2011).

Management of Pediatric HIV

Antiretroviral therapy (ART) should be initiated in children with AIDS or significant symptoms age ≥1 year, regardless of CD4 percentage/count or plasma HIV RNA level. Initiation of ART is also recommended for children age ≥1 year regardless of symptoms or plasma HIV RNA level if:

A) age 1 to <5 years and CD4 percentage <25%;

B) age ≥5 years and CD4 count ≤500 cells/mm3 (for CD4 percentage <25% or CD4 count <350 cells/mm3 and BII* for CD4 count 350–500 cells/mm3).

Initiation of ART is also recommended for children age ≥1 year who are asymptomatic or have mild symptoms with a plasma RNA ≥100,000 copies/mL regardless of CD4 percentage/count.

Initiation of ART may be considered for children age ≥1 year who are asymptomatic or have mild symptoms with a plasma RNA <100,000 copies/mL and CD4 percentage >25% if age 1 to 5 years or CD4 count >500 cells/mm3 if age ≥5 years (The Panel on Antiretroviral Therapy and Medical Management of HIV-Infected Children, 2011).

Prevention

Because no vaccine for HIV is available, the only way to prevent infection by the virus is to avoid behaviors that put an individual at risk of infection, such as sharing needles and having unprotected sex.

Many people infected with HIV have no symptoms. Therefore, there is no way of knowing with certainty whether a sexual partner is infected unless he or she has repeatedly tested negative for the virus and has not engaged in any risky behavior.

Prevention: Safer Sex Options

Safer sex recommendations simply give options to avoid the exchange of HIV that can be in blood, semen or vaginal secretions. The following activities are listed in order of risk for HIV transmission:

- Abstinence (cuddling, talking)
- Kissing
- Mutual masturbation
- Body to body rubbing without penetration
- Oral sex with a barrier
- Oral sex without a barrier

- Vaginal intercourse with a condom
- Anal intercourse with a condom
- Vaginal intercourse without a condom
- Anal intercourse without a condom

Test Yourself:

True or False?
The purpose of providing safer sex recommendations is to give options to avoid the exchange of HIV that can be found in blood, semen or vaginal secretions.

The correct answer is: True.

Prevention: Oral Sex Is Not Safe Sex

Oral sex is not considered safe sex. Like all sexual activity, oral sex carries some risk, particularly when one partner or the other is known to be infected with HIV, when either partner's HIV status is not known, and/or when one or the other partner is not monogamous or injects drugs.

Numerous studies have demonstrated oral sex can result in the transmission of HIV and other sexually transmitted diseases (STDs).

Abstaining from oral, anal, and vaginal sex all together or having sex only with a mutually monogamous, uninfected partner are the only ways individuals can be completely protected from the sexual transmission of HIV.

Prevention: Condoms

Latex condoms, when used consistently and correctly, are highly effective in preventing the sexual transmission of HIV. In addition, consistent and correct use of latex condoms reduces the risk of other sexually transmitted diseases (STDs), including diseases transmitted by genital secretions, and to a lesser degree, genital ulcer diseases. Condom use may reduce the risk for genital human papillomavirus (HPV) infection and HPV-associated diseases, e.g., genital warts and cervical cancer.

Studies show condoms are 80% to 97% effective in preventing HIV transmission if they are used correctly; and less than 2% of condoms break when used correctly. They also reduce the risk of spreading other sexually transmitted diseases.

Condoms can be made of natural skin (including lambskin) or of rubber. Most condoms today are latex or polyurethane. Lambskin condoms can prevent pregnancy, but have tiny pores large enough for HIV to get through, and thus do not prevent the spread of HIV. Latex is the most common material for condoms, as viruses cannot get through it. Latex is inexpensive and available in many styles. It has two drawbacks: oils make it fall apart, and some people are allergic to it.

Polyurethane is an option for people who are allergic to latex. One brand of female condom and one brand of male condom are made of polyurethane.

Condoms must be stored, used and disposed of correctly.

For more information on condoms, see the FDA's condom brochure at: www.fda.gov.

Prevention: Harm Reduction for Injecting Drug Users (IDU)

The best way to avoid HIV and other bloodborne infections is to NOT inject drugs.

- Get into substance abuse treatment
- Get vaccinated against hepatitis A and hepatitis B
- If someone is not going to stop injecting, they should:
    - Use a new, sterile needle and syringe every time
    - Never reuse or share needles, syringes, cookers, water, or cotton
    - Prepare drugs only with sterile water, or at least clean water from a reliable source
    - Keep everything as clean as possible when injecting
    - Disinfecting with bleach is not as safe as using new, sterile syringes
- Ensure coordination and collaboration among all providers of services to IDUs, their sex partners, and their children
- Ensure coverage, access to, and quality of interventions
- Recognize and overcome stigma associated with IDU and tailor services to meet the needs of the diverse populations

For injection drug users who cannot or will not stop injecting drugs, using sterile needles and syringes only once remains the safest, most effective approach for limiting HIV transmission.

Infection Control

Healthcare personnel are at risk for occupational exposure to bloodborne pathogens, including hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV).

Exposures occur through needlesticks or cuts from other sharp instruments contaminated with an infected patient's blood or through contact of the eye, nose, mouth, or skin with a patient's blood.

Important factors that influence the overall risk for occupational exposures to bloodborne pathogens include the number of infected individuals in the patient population and the type and number of blood contacts.

Transmission of HIV to patients while in healthcare settings is rare; however, proper sterilization and disinfection procedures are required.

Most exposures do not result in infection (CDC, 2009).

Healthcare Workers - Protect Yourselves!

To protect yourself from HIV and other blood-borne pathogens, follow your hospital's policies and procedures for universal precautions or body substance isolation, including using gloves, goggles, gowns, and other protective equipment. Universal or standard precautions pertain to the following body fluids (CDC, 1988):

Blood	Cerebrospinal Fluid
Semen	Synovial Fluid

Vaginal Secretions

Universal precautions do not apply to the following body fluids unless they contain visible blood (CDC, 1988):

- Feces
- Nasal Secretions
- Sputum
- Sweat
- Pleural Fluid
- Peritoneal Fluid
- Pericardial Fluid
- Amniotic Fluid
- Body Tissues
- Tears
- Urine
- Vomitus
- Saliva

Healthcare Workers - Put up the Barrier!

Always use barriers to prevent skin and mucous membrane exposure to blood and body fluids. Gloves are the most important barrier and should be worn when caring for every patient. Change gloves between patients and wash your hands immediately after removing your gloves. Always wear gloves during the following situations (CDC, 2009):

- Handling blood, body fluids, mucous membranes, or non-intact skin
- Handling items or surfaces soiled with blood or body fluids
- Performing phlebotomy when healthcare workers have cuts, scratches, or skin breaks
- Performing phlebotomy when contamination with blood is likely, such as with uncooperative patients
- Performing finger or heel sticks for infants and children

In addition to gloves, other equipment (protective eyewear, face shields, and masks) may be needed to prevent exposure of mucous membranes of the mouth, nose, and eyes. Mucous membranes are especially vulnerable during procedures that generate splashes or droplets. Also wear gowns or aprons if you expect splashes of blood or body fluids (CDC, 2009).

Many hospitals use body substance isolation, which considers all body fluids infectious. But special isolation procedures are still needed to control certain infections. For example, nurses may need to follow droplet precautions for influenza, respiratory isolation for pulmonary tuberculosis, or contact isolation for methicillin-resistant Staphylococcus aureus. Review the infection-control practices in your hospital (CDC, 2009).

Test Yourself:

The most important barrier healthcare professionals can use to prevent exposure to HIV is considered to be:

A. Mask

B. Gown

C. Goggles

D. Gloves

The correct answer is D. gloves. In addition to gloves, other equipment (protective eyewear, face shields, and masks) may be needed to prevent exposure of mucous membranes of the mouth, nose, and eyes.

Needlestick Injuries

Each year more than 600,000 healthcare workers, usually nurses, are injured with contaminated needles or other sharps and risk becoming infected with HIV or other blood-borne infections, such as HBV or HCV (The Joint Commission [TJC], 2001).

According to the 2006 Study of Needlestick Injuries and Safety Devices, three out of ten U.S. directors of infection control believe clinicians do not always engage the safety mechanism of a syringe.

Creating a needlestick prevention program within an organization can help to educate clinicians and other staff about the importance of the proper use of all safety syringes and other infection control devices (TJC, 2009).

Infection is possible under the following conditions (National Institute for Occupational Safety and Health [NIOSH], 2000):

- The sharp is visibly contaminated with blood
- The needle was directly in the patient's vein or artery
- The injury was deep
- The injury is caused by a hollow-bore needle
- A relatively large amount of blood or infected body fluid is involved
- The patient is terminally ill

Needlestick Injuries and Legislation

Many states have laws governing needlestick injuries. Because the content of these laws differs widely from state to state, investigate the regulations for reporting incidents in your state.

The federal Needlestick Safety and Prevention Act (2000) also requires employers to meet the following requirements (NIOSH, 2009):

- Review exposure-control plans yearly to incorporate changes in technology that could help reduce exposure to bloodborne infections
- Involve nonmanagerial workers to evaluate and select safety devices
- Maintain a log of sharps injuries that ensures employees' privacy (must contain at least the type and brand of device involved in the injury, the location of the injury, and a description of the incident)

Prevention of Needlestick Injuries

The National Institute for Occupational Safety and Health recommends the following strategies to help prevent needlestick injuries (NIOSH, 2009):

- Eliminate needles when safe and effective alternatives are available
- Use devices with safety features and evaluate their effectiveness
- Analyze injuries from needles and other sharps to identify hazards
- Train healthcare workers to safely use and dispose of sharps

- Modify work practices that put healthcare workers at risk
- Encourage timely reporting and follow up of all sharps-related injuries
- Evaluate the effectiveness of prevention practices and provide feedback on performance
- Stay up to date about risk factors and ways to prevent injuries
- Encourage all employees to report hazards for sharps-related injuries
- Encourage vaccination with HBV vaccine

The most common causes of needle stick injuries:

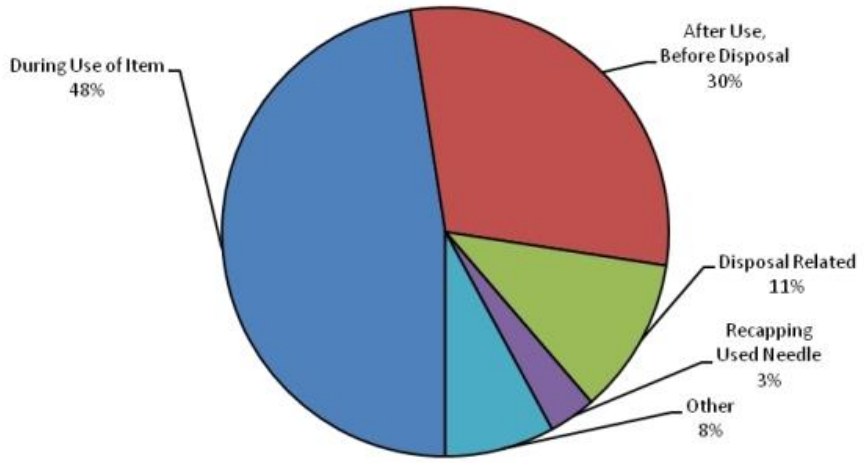

Figure 1: Activities associated with percutaneous injuries in EPINet hospitals, by % total percutaneous injuries (n= 951), 2007 (Source: EPINet 2009).

Testing and Treatment after a Work-Related Exposure

If you think you were exposed to HIV or other bloodborne infections, notify your supervisor immediately and follow your hospital's policy for postexposure testing and treatment. Waiting until the end of a work shift may decrease the effectiveness of treatment.

Needlesticks and other sharps-related exposures are the most common route of HIV transmission in healthcare settings. The risk of becoming infected after a single stick depends on the amount of blood or fluid injected, but is estimated to be 0.3% for each exposure. That's about three times greater than the risk following a single mucous membrane exposure of 0.09% (NIOSH, 2000).

Antiretroviral medication may reduce the risk of infection, but to be effective, postexposure prophylaxis must begin as soon as possible after the exposure. The choice of medications and the duration of treatment depends on the kind of injury and the person who was injured. Many patients whose blood accidentally infected a healthcare worker may harbor drug-resistant HIV. The choice of medications used to treat needle-stick injuries may depend in part on the history of medications used to treat the original patient, as well as results from genotypic resistance tests (Beltrami, Cheingsong, Heneine, Respess, Orelien, Mendelson, ... & Cardo, 2003).

Additional treatment may be needed for exposures to HBV, HCV, or other bloodborne diseases.

Regardless of your decision to receive postexposure prophylaxis following an exposure, you need a medical evaluation, counseling, and HIV testing. For current CDC recommendations for testing and treatment following an occupational exposure, see the "Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis" at www.aidsinfo.nih.gov (CDC, 2001b).

Appropriate Attitudes and Behaviors Toward Persons Infected with HIV

Kentucky requires HIV education for professionals to include information on appropriate attitudes and behaviors toward persons infected with HIV. It is important to recognize that people with HIV and their families/friends face a multitude of difficult realities. Healthcare providers should not add to these difficulties. Assess your own values and remember to use the "golden rule" approach toward the HIV infected person. How a person became infected is not the issue for the caregiver. Healthcare professionals must provide culturally sensitive care toward the HIV infected person. Agencies must provide linguistically appropriate information to their clients.

Legal Protection Against HIV Discrimination

The Americans with Disabilities Act (ADA) gives federal civil rights protections to individuals with disabilities (including AIDS) and it guarantees equal opportunity for these individuals in public accommodations, employment, transportation, government services and telecommunications.

Since persons with HIV disease, both symptomatic and asymptomatic, have physical impairments that substantially limit one or more major life activities, they are therefore protected by the law.

Persons who are discriminated against because they are regarded as being HIV-positive are also protected. Moreover, the ADA protects persons who are discriminated against because they have a known association or relationship with an individual who is HIV-positive.

Take Care of Yourself Too

Nurses who accept the physical and emotional challenges of caring for HIV-infected patients know the demands of monitoring complicated HAART drug regimens, evaluating symptoms from every organ system, and developing complex care plans. Over time, you may forge close relationships with your patients and their families. Because of the pervasive stigma associated with HIV infection, your patients may have few friends and family members they can depend on or trust. The boundaries that usually separate professional and personal relations can easily blur, increasing the emotional toil of providing care that is already physically and intellectually demanding.

You must remember and make it a priority to attend to your own needs and manage your stress. First, interject healthy habits into your daily lifestyle:

- Exercise regularly
- Get enough rest
- Eat well (Do not skip meals or eat at your desk)
- Drink less alcohol and do not use recreational drugs
- Smoke fewer cigarettes and consider stopping

Next, remember to take a break:

- Leave your work area for lunch

- Don’t talk about work at lunch
- Avoid working overtime
- Consider reducing your scheduled work hours
- Use your vacation for fun only
- Call in sick when necessary
- Limit your attendance at HIV-related professional meetings or conferences
- Temporarily practice in another clinical area

Nurture your life away from work:

- Spend more time with your family
- Develop friendships with people who have no involvement with HIV disease
- Explore a new hobby
- Get a pet
- Read a good book that has nothing to do with healthcare
- Avoid volunteering for HIV-service organizations or fundraising events
- Increase the amount of time you spend with people who know you for the full range of your interests, not just as an “AIDS nurse”
- Let other people take care of you when you need it

State Specific Testing and Reporting Requirements

Each state has specific guidelines relative to HIV patients. The state-specific standards may be quite similar to the national guidelines, but differences do exist.

The following guidelines are specific to the state of Kentucky. The state you work and live in may have similar or different guidelines. Use these as a review of topics you may want to investigate in your state so you are completely familiar with the standards necessary to care for patients with this challenging disease.

The overall intent of the services program in Kentucky is to provide clients with a continuum of care, utilizing existing community based services to the greatest extent possible.

Consent to HIV Testing in Kentucky

The state of Kentucky has certain stipulations regarding the consent to test for HIV (KRS 214.625) that state:

- No person in this state shall perform a test designed to identify the HIV without first obtaining the informed consent of the person upon whom the test is being performed
- A person who has signed a general consent form for the performance of medical procedures and tests is not required to also sign or be presented with a specific consent form relating to medical procedures or tests to determine HIV infection that will be performed on the person during the time in which the general consent form is in effect
- A general consent form shall instruct the patient that, as part of the medical procedures or tests, the patient may be tested for HIV infection, hepatitis, or any other blood-borne infectious disease if a doctor orders the test for diagnostic purposes
- The results of a test or procedure to determine HIV infection performed under the authorization of a general consent form shall be used only for diagnostic or other purposes directly related to medical treatment

HIV Testing in Kentucky: Discrimination and Confidentiality

As an integral member of the healthcare team, health providers have the legal and ethical obligation to offer and provide care, treatment, referrals, counseling and information to the patient without discrimination. Employers may not use the diagnosis of HIV infection or AIDS to discriminate against these persons from employment, who are otherwise qualified for the position.

The Civil Rights Act of 1964, Rehabilitation Act of 1973, the Kentucky AIDS Omnibus Act, and the Americans with Disabilities Act (both of 1990) all protect people with AIDS or related conditions from discrimination. For example, if a phlebotomist refuses to draw blood from an HIV-infected person, they could be held liable under the Americans with Disabilities Act (ADA). The ADA also provides protection for potential or present employees infected with HIV.

Healthcare providers must use professional discretion to maintain confidentiality for HIV-infected patients (KRS 214.625). No person who has obtained or has knowledge of a test result in Kentucky shall disclose or be compelled to disclose the identity of any person upon whom a test is performed, or the results of the test in a manner which permits identification of the subject of the test, except in specific cases provided by law.

Kentucky HIV/AIDS Reporting Requirements
902 KAR 2:020 (7)

Physicians and Medical Laboratories shall report the following information:

A. 1. A Positive test result for HIV infection including a result from:

    a. Elisa;

    b. Western Blot;

    c. PCR;

    d. HIV antigen; or

    e. HIV culture;

    2. CD4+ assay including absolute CD4+ cell counts and CD4+%;

    3. HIV detectable Viral Load Assay; and

    4. A positive serologic test result for HIV infection; or

B. A diagnosis of AIDS that meets the definitions of AIDS established within the Centers for Disease Control and Prevention (CDC) guidelines and reported in the Adult or Pediatric HIV/AIDS Confidential Case Report Form.

C. An HIV or AIDS diagnosis shall be reported within five business days.

Reporting of HIV or AIDS Status in Kentucky

Physicians, health facilities or laboratories licensed in Kentucky must report any positive HIV test or

AIDS diagnosis to the Department for Public Health within five business days of the diagnosis.

Whenever possible, the adult or pediatric "HIV/AIDS Confidential Case Report Form" should be used, and submitted according to the following guidelines:

- A report for a resident of Jefferson, Henry, Oldham, Bullitt, Shelby, Spencer and Trimble counties shall be submitted to the HIV/AIDS Surveillance Program of the Louisville-Metro Health Department
- A report for a resident of the remaining Kentucky counties shall be submitted to the HIV/AIDS Surveillance Program of the Kentucky Department for Public Health, or as directed by the HIV/AIDS project coordinator

Components of Report

A report for a person with HIV infection without a diagnosis of AIDS shall include the following information:

- The patient's full name, date of birth (MMDDYY), gender, and race
- The patient's risk factors, as identified by the CDC
- The county of residence and the name of the facility submitting the report
- The date and type of HIV test performed and the results of CD4+ cell counts and CD4+%, as well as results of viral load testing
- PCR, HIV culture, HIV antigen (if performed) and results of TB testing (if available)
- HIV status of the person's partner, spouse and children

Reports of AIDS cases shall include all of the above information as well as the patient's complete address, opportunistic infections diagnosed and the date of onset of illness. Note that these reports of AIDS should be made whether or not the patient has been previously reported as having HIV infection.

If the patient has not been previously reported as having HIV infection, the AIDS report shall also serve as the report of HIV infection.

Mission and Structure of the Kentucky HIV Direct Services

The mission of the Kentucky HIV Direct Services is to enhance access to and retention in primary healthcare and support services for qualifying Kentuckians living with HIV disease.

The **Kentucky HIV Care Coordinator Program (KHCCP)** is a network of regional sites by which clients may access quality primary healthcare and other support services in or near the communities in which they live. In order to access direct services in Kentucky, a client must enroll in the KHCCP.

The **Kentucky AIDS Drug Assistance Program (KADAP)** is a program in Kentucky that provides clients in need with HIV/AIDS related medications.

The **Kentucky Health Insurance Continuation Program (KHICP)** is a program that assists clients in Kentucky with maintaining pre-existing private health insurance coverage.

Goals and Funding of Kentucky HIV Direct Services

The goals of the Kentucky HIV Direct Services are to:

1. Promote client self-sufficiency (to the extent possible) through good care, plan monitoring and holistic support
2. Prevent duplication of health and support services among providers
3. Provide education about HIV disease transmission and health choices
4. Provide ongoing HIV disease education to the general and healthcare communities
5. Ensure the efficient and effective use of resources

Kentucky receives federal funding through the Ryan HIV/AIDS Treatment and Modernization Act of 2006 and also from non-federal funds through the state of Kentucky.

Basic eligibility criteria for financial assistance programs:

- Household income must be 300% or less of the current federal poverty level
- Total cash assets must be less than $10,000
- Client Residency - must be a resident of Kentucky
- Must be HIV positive and cannot be eligible for similar assistance from another payer source
- Lack of Other Third Party Payer - must be ineligible for assistance from other third party payers for the assistance being requested

These criteria ensure program funding is appropriately used to meet the documented needs of HIV+ persons throughout the State in a manner that coordinates funding streams and makes use of existing community resources and services (Kentucky HIV Direct Services, 2012).

Kentucky Regions and Contact Information

Barren River Region:

452 Old Corydon Road
Henderson, KY 42420
Care Coordinator Contact Number: (270) 826-0200 or (877) 428-1231
Fax: (270) 826-0212

Counties Covered:

Allen	Daviess	Hardin	Logan	Metcalfe	Simpson	Webster
Barren	Edmonson	Hart	McLean	Monroe	Union	
Breckinridge	Grayson	Henderson	Marion	Nelson	Warren	
Butler	Hancock	Larue	Meade	Ohio	Washington	

Cumberland Valley District H D:

PO Box 158
Manchester Square Shopping Ctr
Manchester, KY 40962
(606) 599-0112
(888) 425-7282 (for client use only)
Fax: (606) 596-0266
Some Cumberland Valley clients are covered by Lexington Region.

Counties Covered:

Adair	Clinton	Jackson	Lee	McCreary	Rockcastle	Wolfe
Bell	Cumberland	Johnson	Leslie	Owsley	Russell	
Breathitt	Floyd	Knott	Letcher	Perry	Taylor	
Casey	Green	Knox	Magoffin	Pike	Wayne	
Clay	Harlan	Laurel	Martin	Pulaski	Whitley	

Lexington Region:
740 S. Limestone, 5D Room L528
UK Medical Center
Lexington, KY 40536
(859) 323-5544
Fax: (859) 323-1694

Counties covered include:

Anderson	Bracken	Fayette	Harrison	Madison	Morgan	Scott
Bath	Carter	Fleming	Jessamine	Mason	Nicholas	Woodford
Bourbon	Clark	Franklin	Lawrence	Menifee	Powell	
Boyd	Elliott	Garrard	Lewis	Mercer	Robertson	
Boyle	Estill	Greenup	Lincoln	Montgomery	Rowan	

Louisville Region:
1436 South Shelby Street
Louisville, KY 40217
Care Coordinator Contact Number: (502) 635-4511
Fax: (502) 636-0597

Counties Covered: Bullitt, Henry, Jefferson, Oldham, Shelby, Spencer, and Trimble

Northern Kentucky Region:
Northern KY District Health Dept., 2388 Grandview Dr. Fort Mitchell, KY 41017
Care Coordinators Contact Number: (859) 341-4264 Fax: (859) 578-3689

Counties Covered: Boone, Campbell, Carroll, Gallatin, Grant, Kenton, Owen and Pendleton

Purchase Region:
Heartland Cares, Inc. 619 North 30th street, Paducah, KY 42001
Care Coordinator Contact Number: (270) 444-8183 or (877) 444-8183
Fax: (270) 444-8147

Counties Covered:

Ballard	Carlisle	Fulton	Hopkins	McCracken	Todd
Caldwell	Christian	Graves	Livingston	Marshall	Trigg
Calloway	Crittenden	Hickman	Lyon	Muhlenberg	

For more information, contact the nearest Care Coordinator, or Vicki Johnson, Care Coordinator Program Administrator, (502) 564-6539 or (800) 420-7431 (voice/TTY).

Community Based Organizations in Kentucky Providing HIV Preventative Services

Agencies funded in part with CDC Cooperative Agreement funds are indicated with the KHPAC logo  :

American Red Cross (ARC) is located in nearly every county in Kentucky. The number of ARC employees range from one or two in the smaller communities to more than 300 in the Louisville Chapter. Budgets are also diverse, with smaller chapters having budgets of a few thousand dollars to in excess of a hundred thousand dollars in Lexington and Louisville. There is disparity in the provision of HIV/AIDS services among counties, with smaller, more rural counties believing there is "no problem" in their community (thus no reason for services) to the larger, more urban chapters offering quite a range of services. HIV/AIDS services include the distribution of brochures, peer training for adolescents, prison personnel training, and other healthcare programs. More information is available at: www.redcross.org.

AIDS Services Center Coalition (ASCC) is a coalition of agencies whose primary goal is to direct the public to appropriate AIDS service agencies, literature distribution, and provide a HIV/AIDS resource directory. The agency has an extensive volunteer network (502) 219-ASCC (2722). Website: http://www.asccinc.org.

House of Ruth provides social, emotional and financial support to people living with HIV/AIDS in the Louisville/Jefferson County area (502) 587-5080. Website: http://www.houseofruth.net.

WINGS Clinic located in Louisville is a Ryan White CARE Act Title III grantee. WINGS provides both clinical and support services for HIV/AIDS patients and their affected families. This clinic project provides primary and infectious disease care, adult and pediatric nutrition services, adult support groups, social services, legal services, family and mental health counseling, as well as liaisons to community services (502) 561-8844.

 **Sisters and Brothers Surviving AIDS (SABSA)** is a support group in Louisville for HIV positive people and friends and family. SABSA provides education and emotional support for those living with HIV and specifically to the African-American community. However, everyone is welcome regardless of gender, race, sexual orientation, creed, religion or ethnic background (502) 231-3871.

AIDS Interfaith Ministries (AIM) (Louisville). Provides support services to individuals living with HIV/AIDS and their families (502) 574-6086. Website: www.aimkyonline.org.

Matthew 25 AIDS Services, Inc. (Henderson) Is a Ryan White CARE Act Title II, Title III and CDC Prevention PA04064 Grantee. They are a provider of primary healthcare to PWHIV and LWA, in Daviess, Henderson, Union and Webster counties. Services include medical case management and referral, a buddy program, literature, spiritual support and referral, financial assistance and referral, a speakers' bureau, support groups, transportation and prevention education for the community and medical professionals. They also distribute HOPWA funds and do counseling and testing for HIV (blood and oral testing) (270) 826-0200. Website: www.matthew25clinic.org.

 **AIDS Volunteers, Inc. (AVOL)** located in Lexington, KY is a community based organization that provides HIV and AIDS education, prevention initiatives, service programs and financial assistance to

persons infected and affected by HIV disease in all of Central and Eastern Kentucky. Some of the services provided by AVOL include: a speakers' bureau, support groups, financial assistance, case management, transitional housing for those who are homeless and HIV+, a community residence for those in the end stages of AIDS, community outreach, condom distribution, educational programs and materials, and prevention activities. The agency employs 10 full-time staff members including an Executive Director, Volunteer/Community Outreach Coordinator, two Housing Program staff members, four HIV Prevention Specialists and a Director of Client Services who coordinates the Direct Client Services Program and the Chemical Dependency Assessment and Referral Program. Funding for AVOL comes from community donations, fund raisers and grants from private foundations, as well as local, state, and federal sources including HUD (HOPWA) and the United Way. Approximately 75-100 volunteers are consistently involved throughout the year for day to day operations, programs and services, volunteer caregivers and fundraising events. Program referrals and linkages are through the health departments, other volunteer organizations and HIV Care Coordinators (859) 225-3000; Fax (859) 225-3000. Website: www.avolky.org.

AIDS Volunteers of Northern Kentucky (AVNK), located in Florence, KY was founded in 1990. AVNK seeks to understand and address the emotional, educational, social, spiritual and physical needs of the people in Northern Kentucky and surrounding communities who are living with HIV/AIDS, and the needs of their families, partners, friends and caregivers. AVNK strives to inform the general community about HIV/AIDS related issues for purposes of education, mobilization, prevention and advocacy. Services include three support groups, a monthly dinner/social, healing weekends, respite care, emergency financial assistance, memorial services, outreach to minority communities, World AIDS Day services and Healing Weekends (513) 483-5757.

AIDS Volunteers of Cincinnati (AVOC) located in Cincinnati, OH is a community-based organization that provides a wide variety of services to individuals diagnosed with HIV/AIDS and to the broader community, especially high-risk populations. Although AVOC primarily serves Cincinnati and southwest Ohio, they offer many of their services to individuals and groups in Northern Kentucky. Services include community outreach, prevention and education presentations, street outreach to women in underserved communities, testing and counseling services, an informational and referral hotline and a speaker's bureau (513) 421-AIDS (2437). Website: http://www.avoc.org.

The I.N.D.Y (I'm Not Dead Yet) Project founded in 1994 serves Northern Kentucky. INDY is an organization dedicated to the enhancement of life for individuals affected by HIV and AIDS by providing social outlet in a variety of environments and frameworks with one basic goal in mind: having fun! Members and sponsors attend and host picnics, movie nights, dinners, camping trips, art events and parties. The group is dedicated to the proposition that through the joy of celebrating life there is hope and healing, and celebration is best engaged through groups of like-minded individuals (513) 343-9999.

University of Cincinnati Medical Center, Holmes Clinic located in Cincinnati, Ohio is the Infectious Disease Center for the University of Cincinnati Medical Center. Holmes Clinic provides medical services to individuals diagnosed with HIV/AIDS and is funded primarily through Ryan White Title III funds. Holmes Clinic provides these services to individuals from several states, and a significant percentage of individuals diagnosed with HIV/AIDS and living in Northern Kentucky use Holmes Clinic for their infectious disease care. In addition, Holmes Clinic conducts partner testing for patients of the clinic (513) 584-4457. Website: http://www.uc.edu/uhs/clinics.html.

The University of Cincinnati Emergency Room also has a grant to conduct HIV testing and counseling services with patients who are seen through the Emergency Room. This program targets

high-risk individuals who receive their primary medical care through the Emergency Room. If an individual is diagnosed, a referral is made to Holmes Clinic (513) 584-5700. Website: http://universityhospital.uchealth.com/services/emergency-services/.

Bluegrass Care Clinic (BCC), located in Lexington is a Ryan White CARE Act Title III grantee. The BCC provides both clinical and support services for HIV/AIDS patients and their affected families in 63 counties through Central and Eastern Kentucky. The BCC staff is trained to provide harm reduction information and counseling regarding drug use, sexual activity and other high risk activities for HIV transmission and infection. In addition, the BCC also provides pre/post-test counseling and testing (859) 257-9286. Website: www.mc.uky.edu/bluegrasscareclinic.

Moveable Feast (MFL) is a nutritional support program, serving people living with HIV disease and their dependent children living in the Lexington/Fayette County area. Clients receive social support and a hot, freshly cooked dinner five days a week. MFL can also serve as a referral source to other ASOs in the region. All services are completely free of charge (859) 252-2867. Website: www.feastlex.org.

Episcopal Diocese AIDS Ministry, located in Lexington, provides care and support through bi-annual social dinners. All meals and additional limited supportive services are provided free of charge. The Episcopal Diocese AIDS Ministry can also serve as a referral source/linkage for other ASOs in the region. Website: http://neac.episcopalky.org/digital_faith/dfcfiles/200001.

The Salvation Army of Central Kentucky, located in Lexington, operates a free medical clinic. The medical clinic, operated by the University Kentucky's College of Medicine, provides exams and physical therapy, and HIV pre/post test counseling and testing (859) 252-7706. Website: http://www.use.salvationarmy.org/use/www_use_LexKentucky.nsf.

Owensboro Area HIV/AIDS Task Force, Inc. is a non-profit CBO funded by donations. This agency serves its clients with emergency financial assistance, transitional housing and acts as an advocate with property owners, utility companies, Social Security, HOPWA and other community service agencies. Volunteers provide community outreach services with HIV prevention and risk reduction programs to targeted populations and various communities, medical professionals and local organizations. The Task Force dispenses printed risk reduction materials, condoms (male and female), dental dams, needle cleaning kits and crack pipe cleaning kits. They also go into public sex environments (PSE) offering similar services and HIV testing. Members of the Task Force are state certified pre and post-test counselors and are certified to administer OraSure for HIV testing, and are also certified to inspect potential housing for HOPWA funding. The Task Force is a certified partner of the Balm in Gilead. A support group for PWHIV is in place and act as a referral source to all available assistance programs for clients. The Task Force has some HIV positive members who have made presentations at high schools, describing the emotional, physical and financial stresses of being HIV positive (270) 993-TASK (8278). Website: www.owensboroaids.org.

Heartland CARES, Inc., located in Paducah is a non-profit organization, serving people with HIV and AIDS in the Western Kentucky and Southern Illinois regions. The mission is to provide various components of care needed for persons living with HIV and AIDS regardless of ethnicity, gender, religious, beliefs, sexual orientation, or ability to pay, and to provide education and prevention to the general public to help stop the spread of HIV and STDs. Medical services are primarily supported through Ryan White Title III funding. The clinic also has numerous supporting services, which include Ryan White Title II Care Coordinator Program, HOPWA Grant Emergency Assistance, Supportive Housing Grant Assistance, SAMHSA-CSAT Grant, HOPWA SPNS and HOME Grant. Heartland

CARES houses the Western Kentucky Prevention Team that is responsible for HIV/AIDS prevention in 42 counties (270) 444-8183. Website: www.hcares.org/.

Volunteers of America, Inc. (VOA) in Louisville provides HIV prevention education, focus groups, and risk reduction workshops to drug users, men, women, and youth at risk. The prevention services offered include pre-test and post-test counseling, factual information about reducing HIV risk factors associated with drug use and sexual behavior, alcoholism and drug abuse assessments, and referrals to HIV related and non-related resources as needed or by request. VOA also provides an AIDS Housing Integration Project, which offers technical assistance to shelters, housing providers, and housing developers to help establish and implement new housing programs for homeless and low-income persons with HIV/AIDS. VOA also holds the HIV Services' contract, and provides case management services for PWHIV. This includes intake and assessment, goal setting, conflict resolution, crisis intervention, referral to community services, emergency financial assistance, linkage to rental and utility assistance, entry into support groups, mental health and substance abuse counseling (502) 636-0771. Website: http://www.voaky.org/.

The AIDS Project, located in Louisville, provides HIV prevention, education and testing services. Programs include staff led volunteer outreach teams that go to local bars, community fairs and special events. Services include condom distribution, counseling and testing, and referrals while practicing harm reduction techniques (502) 608-0586. Website: http://www.neighborhoodlink.com/The_AIDS_Project_Inc.

North Central AHEC/HETC: The mission of the North Central AHEC is to promote healthy communities through innovative partnerships. This is accomplished by providing educational support services to health professions students and healthcare providers, community health education and programs to encourage health professions as a career choice.

In order to address HIV prevention in Kentucky's growing Hispanic community, the Kentucky DPH has identified agencies providing other services to our Hispanic population and provided capacity building assistance to help these agencies provide HIV prevention activities including HIV antibody testing.

North Central AHEC/HETC collaborates with Area Health Education Centers across the state who recruit individuals from Hispanic communities, provide training, and utilize them to conduct HIV prevention activities in their communities. AHECs in Lexington (covering 5 counties) and Covington (covering 4 counties) currently conduct outreach in Hispanic communities, provide HIV testing, and conduct two community level intervention (Juntos and Promotores de Salud). A third AHEC in Louisville conducts similar activities with African-American communities. North Central AHEC/HETC also collaborates with the Bluegrass Farmworker Health Center to provide additional outreach to migrant farm workers as well as testing.

The Lexington and Covington AHECs as well as the Bluegrass Farmworker Health Center have been extremely helpful in providing interpreters and assisting Hispanic clients receive services from other service providers who lack Spanish speaking employees (859) 442-1191. Website: http://nckyahec.org/.

Bluegrass Farmworker Health Center (BFHC): Located in Lexington and Richmond, KY, the BFHC serves a primarily migrant/ seasonal farmworker population among eight counties in Central Kentucky. The migrant health center's service area includes: Fayette, Scott, Bourbon, Clark, Madison, Garrard, Jessamine and Woodford counties. Spanish is the primary language of approximately 96% of the

BFHC clients. The BFHC strives to optimize clients' health outcomes by providing affordable, culturally appropriate primary and preventive healthcare in settings that embrace the Hispanic culture and language. BFHC values: Client-centered care, client advocacy, excellent healthcare for clients, extensive client-centered referral and tracking system, optimal client outcomes, lifelong learning, fiscal responsibility, high degree of respect among staff members. The clinical and outreach staff is fluent in Spanish and English. Through a partnership with the DPH HIV/AIDS Branch, BFHC counselors and educators work with farm workers on the work site and in residences as well as utilize referrals to the actual clinic for medical needs including HIV/AIDS (859) 259-2635.

Hazard Perry County Community Ministries is located in Hazard. Their purpose is to meet community needs through supportive services (outreach and case management), crisis aid, homeless shelter, transitional housing and childcare (606) 436-5043. Website: www.hpccm.org/.

Westlake Primary Care, located in Columbia, provides information and educational AIDS material, prevention kits with condoms, confidential testing and pre and post-test counseling (270) 384-4764.

Conclusion

HIV is a complicated and devastating disease. Over the past several decades, many advances in screening, education, and treatment of HIV have been a focus worldwide. There is continuing research in HIV and AIDS, with recommendations that are consistently being updated. As a healthcare professional, it is vital to stay current to give appropriate education and support to your patients and families affected.

Disclaimer

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