

HIV/AIDS: Mandatory Information for KY Health Professionals

NYSNA Continuing Education

NYSNA has been granted provider status by the Kentucky State Board of Nursing as a provider of mandatory HIV/AIDS continuing education for health professionals (CHFS# 0513-1567-M).

This course meets the 2-hour HIV/AIDS requirement for **all** the professional groups impacted by KRS 214.610/615/620. In Kentucky, all nurses are required to earn two contact hours of approved HIV/AIDS CE within the appropriate ten-year period. For LPNs, that period is 11/01/2001 through 10/31/2011. For RNs, that period is 11/01/2002 through 10/31/2012.

This course has been awarded 4 contact hours. In order to receive contact hours, participants are required to read the content, pass an exam with a score of at least 80%, and submit an evaluation. Contact hours will be awarded for this online course until **May 1, 2013**.

The New York State Nurses Association is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.

All ANCC accredited organizations' contact hours are recognized by all other ANCC accredited organizations. Most states with mandatory continuing education requirements recognize the ANCC accreditation/approval system. Questions about the acceptance of ANCC contact hours to meet mandatory regulations should be directed to the Professional licensing board within that state.

How to Take This Course

Please take a look at the steps below; these will help you to progress through the course material, complete the course examination and receive your certificate of completion.

1. REVIEW THE OBJECTIVES

The objectives provide an overview of the entire course and identify what information will be focused on. Objectives are stated in terms of what you, the learner, will know or be able to do upon successful completion of the course. They let you know what you should expect to learn by taking a particular course and can help focus your study.

2. STUDY EACH SECTION IN ORDER

Keep your learning "programmed" by reviewing the materials in order. This will help you understand the sections that follow.

3. COMPLETE THE COURSE EXAM

After studying the course, click on the "Course Exam" option located on the course navigation toolbar. Answer each question by clicking on the button corresponding to the correct answer. All questions must be answered before the test can be graded; there is only one correct answer per question. You may refer back to the course material by minimizing the course exam window.

4. GRADE THE TEST

Next, click on "Submit Test." You will know immediately whether you passed or failed. If you do not successfully complete the exam on the first attempt, you may take the exam again. If you do not pass the exam on your second attempt, you will need to purchase the course again.

5. FILL OUT THE EVALUATION FORM

Upon passing the course exam you will be prompted to complete a course evaluation. You will have access to the certificate of completion **after you complete the evaluation**. At this point, you should print the certificate and keep it for your records.

Introduction

HIV/AIDS is a health problem that cannot be ignored. At one time, HIV/AIDS was considered by many people to be a disease that only affected “them.” Today it would be difficult to find a person who has not been directly or indirectly affected by the magnitude of the pandemic. In sub-Saharan Africa, one out of every four people has HIV/AIDS. In 2009, approximately 1.8 million people died of AIDS-related illnesses. Approximately 72 percent of these deaths occurred in sub-Saharan Africa. The effects of antiretroviral therapy are especially evident in sub-Saharan Africa, where an estimated 20% fewer people died of AIDS-related causes in 2009 than in 2004, when antiretroviral therapy began to be dramatically expanded (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2010).

Today, the global nations have assisted in funding antiretroviral therapy (ART) which has helped to bring treatment to more than 5.2 million patients in areas like sub-Saharan Africa (Stephenson, 2010). The goal of the World Health Organization (WHO) is to bring antiretroviral therapy (ART) to all who need treatment, and this goal may fall short with the declines in the global economy, but efforts will continue and new research is continuing to find treatments that will protect against HIV infections.

“But,” you say, “That is Africa. I live in a quiet, middle-class, suburban town. Why should I be concerned?” In the U.S. unprotected sex among men who have sex with men (MSM), remains the category with the greatest incidence of HIV/AIDS. However, the number of new cases that result from unprotected heterosexual relations, especially among young women of color, continues to increase, as does the incidence among people age 50 and older. HIV/AIDS has crossed all racial and socioeconomic borders. In some way it has touched each of our families, friends, churches, schools, and communities. It threatens our children, absorbs our limited health resources, and, at this time, still has no cure.

Illegal drug use is now part of the culture of even the most rural areas in the U.S. Unfortunately, with drugs comes HIV/AIDS. Infection can occur from sharing needles or equipment when injecting drugs. Drug and alcohol abuse is often associated with increased high-risk behaviors.

Healthcare professionals are in advantageous positions to change the outcome of HIV/AIDS because of their opportunity to interact with patients. They can provide HIV prevention education, assess for high-risk behaviors and suggest testing when appropriate, provide patient education on medications and safe behaviors for patients already infected, provide hospital or community nursing care for ill patients, act as patient advocates, and provide support for infected patients and their families. Patients with HIV/AIDS require healthcare professionals that are knowledgeable about HIV because of the complexity of their medical and/or mental health diagnoses, symptom management, and psychosocial needs.

This course will provide you some of the latest and most essential information needed by healthcare professionals to provide effective and compassionate care for patients with HIV/AIDS. It will also meet the mandatory continuing education requirements for healthcare professionals by the state of Kentucky. Integrated into the course are:

1. Basic medical and epidemiological information about HIV and the diseases and conditions it can cause.
2. Methods of transmission and prevention of HIV, as well as current medical treatment.
3. Management of HIV in the healthcare workplace.
4. Overview of professional, ethical and legal standards applicable to caregivers.
5. Appropriate attitudes and behaviors of caregivers toward persons infected with HIV.
6. Comprehensive human services available to those with HIV infection.

Objectives

Upon completion of this course, the learner will be able to:

- Discuss the scope of HIV/AIDS globally and in the U.S.
- Discuss the scope of HIV/AIDS in Kentucky.
- Identify the HIV/AIDS resources in Kentucky for healthcare professionals.
- Identify how the infection is spread.
- Discuss the prevention of HIV/AIDS.
- Discuss the process of testing for HIV.
- Describe current treatment options for HIV/AIDS.
- Discuss implications for healthcare professionals in the treatment of HIV/AIDS.
- Discuss HIV/AIDS in selected populations.

About the Author

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Dr. Shaw has been working in the field of HIV/AIDS for more than ten years. In 1999 she completed the Nicholas A. Rango HIV Clinical Scholar program, which was funded by the NYS AIDS Institute to develop practitioners with expertise in the field of HIV/AIDS. Dr. Shaw has national HIV/AIDS certification through the American Academy of HIV Medicine and The HIV/AIDS National Certification Board. She has presented programs on HIV/AIDS topics locally and nationally and conducts research on medication adherence and nurses' knowledge of HIV/AIDS. She has had numerous publications and is co-author of the book *HIV/AIDS Nursing Secrets (2003)*. She is founding president of the NYS Chapter of the Association of Nurse in AIDS Care and current secretary.

This course was updated by Dr. Shaw in December 2007. The 2010 updates were added by Ann Purchase, MS, RN, Associate Director for the Education, Practice & Research Program of the New York State Nurses Association.

The Global Picture

The year 2010 has been significant in the response to AIDS. In November 2010, the Joint United Nations Programme on HIV/AIDS (UNAIDS) reported that “the AIDS epidemic had been halted and that the world is beginning to reverse the spread of HIV”. They also reported that in the last 10 years, a 20 percent reduction in new HIV infections has occurred, and AIDS-related deaths in the last five years have been reduced by almost 20 percent (UNAIDS, 2010). The effect of HIV/AIDS is not to be taken lightly however. In 2010, there were an estimated 33.3 million people globally living with HIV/AIDS (World Health Organization [WHO], 2010). Almost 95% of the five million newly infected cases are in developing countries where there is a scarcity of resources. Of these newly infected people, as many as 95% may not yet know their HIV status. The World Health Organization (WHO) estimates that more than 5,700 people worldwide die from HIV/AIDS every day or about one person every fifteen seconds (UNAIDS & WHO, 2007; UNAIDS, 2010).

HIV prevention is a global priority and there has been some good news of late. According to UNAIDS (2010), HIV rates are declining, a reflection on the many global efforts in HIV prevention and educational efforts. Multiple programs are in place in developing countries to provide HIV education and healthcare. Two prevention efforts, include condom distribution that has increased by 10 million between 2008 and 2009, and a new tenofovir-based gel is being studied with proven results that may be an additional effective female-initiated prevention option (UNAIDS, 2010). Increasing the use of condoms has been one of the most highly effective prevention efforts to date. The CDC supports both the U.S. Global Health Initiative (GHI), started by President Obama in 2009, and the President’s Emergency Plan for AIDS Relief (PEPFAR) to launch the global attack on HIV/AIDS as one of their global health initiatives (Centers for Disease Control and Prevention [CDC], 2009).

One key factor identified in the spread of infection is the lack of medications to treat HIV/AIDS and high HIV viral burden of people responsible for infecting others. When antiretroviral medications are available and taken properly the viral load is substantially decreased, often to the level of undetectable, thus greatly decreasing the probability of infection. At the end of 2009, more than 5.2 million adults and children living with HIV in low and middle income countries were receiving antiretroviral therapy (ART), which is only 36 percent of the 14.6 million people in need of ART (WHO, 2011). Global estimated deaths by region (see Figure 1) clearly illustrate the burden in sub-Saharan Africa as compared to other regions.

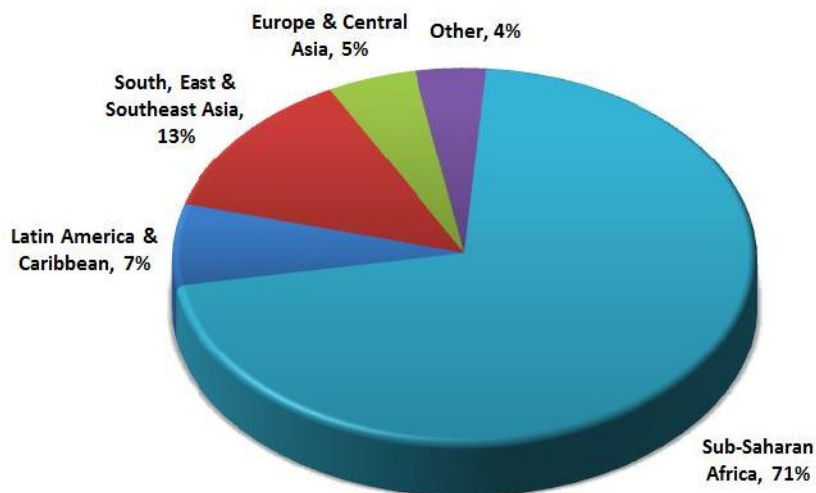


Figure 1. *Estimated Deaths Due to AIDS by Region, 2008*. Adapted from: UNAIDS, 2009.

HIV/AIDS in the U.S.

While there are fewer cases of HIV/AIDS in the U.S., the disease constitutes a major public health problem for this country as well. In 2010, the CDC estimated that more than a million persons in the United States were living with HIV/AIDS, with 21 percent or 1 in 5 undiagnosed and unaware of their HIV infection (CDC, 2010a). More than 18,000 die in the United States each year as a result of AIDS. The majority of U.S. AIDS cases in were among African Americans followed by Whites and Latinos (see Figure 2).

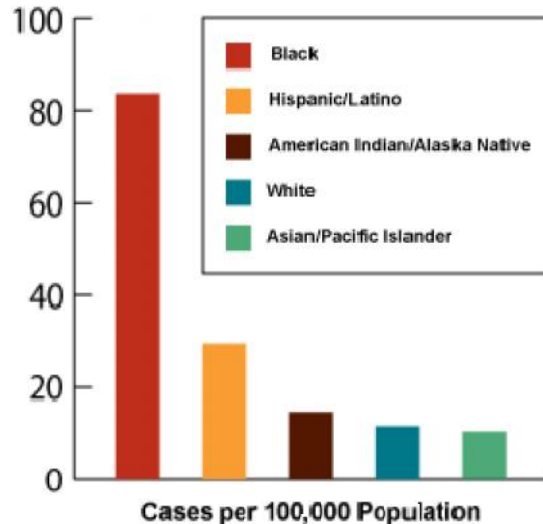


Figure 2. *Estimated Rates of New HIV Infections, By Race/Ethnicity, 2006.* Adapted from: Hall et al., 2008.

Male to male sexual contact (MSM) remains the exposure category with the greatest estimated number of AIDS cases, followed by injection drug use (IDU), heterosexual sex, and other. New York ranks highest in estimated number of AIDS cases in 2009 (See Table 1).

State	# of AIDS Diagnoses
New York	4,799
Florida	4,392
California	3,760
Texas	2,652
New Jersey	1,475
Georgia	1,391
Illinois	1,202
Maryland	1,134
North Carolina	1,088
Pennsylvania	917

Source: CDC, Division of HIV/AIDS Prevention, 2008.

Clearly, Kentucky is not among the top ten states with AIDS cases; however, as it relates to HIV/AIDS, Kentucky has not been spared. Kentucky ranked 26th among the states reporting AIDS cases (CDC, 2010b).

HIV/AIDS in Kentucky

In the state of Kentucky, both HIV and AIDS cases are now reported. However, only data for AIDS cases is being released until the state has had several years of collecting HIV data. As of December 2009, there

have been a total of 5,227 AIDS cases reported in Kentucky (Kentucky Cabinet for Health and Family Services, 2009). Please consult Appendix A to view Kentucky's 2010 profile, the data which is reported to the CDC.

The cumulative number of pediatric AIDS cases since the beginning of the epidemic is 37 in Kentucky by 2008, compared to 9,776 in the U.S. by 2008.

In Kentucky, 84% of all cumulative AIDS cases have been among adult/adolescent males; there have been 5,334 males diagnosed with AIDS through 2008. Women made up almost 16% of adult/adolescent AIDS cases cumulatively; 851 females have been diagnosed with AIDS in Kentucky since the beginning of the epidemic.

HIV Risk Behaviors

Some people remain unfamiliar with what behaviors should be considered high-risk for HIV because they do not understand how the virus is transmitted from person to person. This is somewhat surprising in this day and age since we have spent billions of dollars on HIV prevention programs. Many people just tune out prevention messages. Other people (and sadly, this also can include healthcare professionals) realize that HIV is a problem but think that it only affects people they do not come in contact with or that you can tell someone has HIV by the way they look. People also take risks because they are not empowered to say no to sexual advances, demand a condom/dental dam be used, don't want their partner to feel like they are questioning their integrity or morals, don't value themselves enough to care, want to look cool, don't ask partners to have an HIV test, or are not selective of sexual partners, don't realize that having a sexually transmitted disease (STD) puts them at greater risk of infection, or do not prefer a monogamous relationship.

The results of several studies have provided additional insight into the phenomenon of HIV transmission. In one qualitative study of adolescents newly infected with HIV, researchers found that some of the adolescents had intentionally put themselves at risk because they wanted to be eligible for the same benefits other family members/friends received because of their HIV status. In the same study other participants responded that, to them, the threat of HIV was no different than the violence, drugs, and crime they faced every day. They saw it as being inevitable, and preferred to just "get it over with" rather than have to worry constantly about being infected. In another study of men who have sex with men, researchers found that participants were "burned out" on HIV prevention messages. Like anything that you are exposed to every day, over time HIV became more common-place and seemed less of a threat. In addition, some participants remarked that they no longer considered HIV infection to be a big deal because of the effectiveness of highly active antiretroviral therapy (HAART).

Source of Virus	High-Risk Behaviors	HIV Prevention
Blood	<ul style="list-style-type: none"> • IDU/sharing needles • Tattoos/piercing with used equipment • Transfusion prior to routine screening for HIV • Accidental exposure to infected blood 	<ul style="list-style-type: none"> • Avoid sharing needles, syringes, water, or drug preparation equipment; • Use a new sterile syringe from a reliable source (such as pharmacies or needle exchange programs) each time drugs are injected; • Use sterile water to prepare drugs if possible; otherwise use clean tap water; • Use a new or disinfected (through boiling or use of bleach) container ("cooker") and a new filter ("cotton") to prepare drugs; • Clean injection site with alcohol swab prior to injecting; • Safely dispose of needles and syringes; • Participate in needle exchange program; • Avoid tattoos/piercing if equipment is not sterile; • Avoid transfusions in countries where blood is not routinely screened for HIV; • Use Universal precautions for all exposure to blood (healthcare workers, EMTs, family members, others).

Vaginal fluids	<ul style="list-style-type: none"> • Unprotected vaginal sex • Unprotected oral sex • Sharing sex toys/vibrators 	<ul style="list-style-type: none"> • Use condoms* for all sexual acts • Use dental dams during oral sex • Properly clean (bleach) all items following exposure to vaginal secretions
Semen	<ul style="list-style-type: none"> • Unprotected anal or vaginal sex • Unprotected oral sex • Accidental exposure to seminal fluids 	<ul style="list-style-type: none"> • Use condoms* for all sexual acts • Use condoms during oral sex • Be sure condoms* are safe (not damaged, correct size) and applied correctly • Avoid situations that could result in nonconsensual sex (date rape, rape by unknown person) • Use Universal precautions when handling seminal fluid • Avoid sexual activity that can result in trauma to the exposed areas
Maternal-fetal/infant	<ul style="list-style-type: none"> • Mother not on HAART during pregnancy • Mother breastfeeds infant 	<ul style="list-style-type: none"> • Routine testing for pregnant women • Consider C-section for women not on HAART or with high viral load • Breast feeding not recommended
<p>* Latex or polyurethane condoms should be used. When used reliability they can prevent pregnancy up to 98% of the time. Breakage rate of latex condoms is about 2%. They have been shown to provide a high degree of protection against STDs, including HIV.</p>		
<p>Adapted from CDC, Prevention of HIV/AIDs Factsheets: http://www.cdc.gov/hiv/resources/factsheets/index.htm#surveillance</p>		

Instructions for Using a Male Condom

- Check the expiration date on the package of the condom. The condom package should look like a small inflated pillow. Look at the corners of the package and notice how they are filled with air. A condom with a broken seal will not do this. Open the package at the end so that you don't damage the condom. Many condom packages have a notch in the edge of the packaging as a place to begin tearing.
- Condoms may stick to skin and hairs, so it is recommended that they be used only with a water-based lubricant—do not use **condoms with spermicide**, also known as nonoxynol-9. In people with an allergic reaction to the spermicide, nonoxynol-9 can result in little sores that make the transmission of HIV and sexually transmitted diseases (STDs) more likely. Be sure to check the label of any lubricant before using it.
- Put on the condom as soon as the penis is hard. Be sure the roll-up ring is on the outside facing away from the penis. Hold the tip while you unroll the condom along the length of the penis to the hair. Because a condom rolls down the penis, it can only go on one way. If you ever try to put a condom on with the wrong side onto the penis, throw it away and start with a new, unopened condom. Never unroll the condom before putting it on the penis.
- While unrolling the condom, be sure to leave some space at the tip to hold the semen—about one-half to one inch at the tip of the condom. Some condoms have reservoir tips. (If there is not enough room at the tip, the semen could break the condom.) Squeeze the tip gently so that no air is trapped inside.
- When putting the condom on, avoid tearing it with fingernails, jewelry, or anything else sharp or metallic.
- A condom fits rather snugly on a penis, so rolling it down can be difficult. Be gentle, so as not to injure the penis or cause discomfort. It is important that the penis stay erect in order to apply the condom.

- Right after ejaculation the penis should be pulled out slowly while it is still hard. Hold the condom in place on the penis to avoid spilling semen. While holding the tip, roll the condom up only a portion of the way and then gently pull it off of the penis.
- You need to use a new condom every time that you have sexual intercourse. Never use the same condom twice.
- Dispose of used condoms properly. If possible, wrap them in something like a paper towel or tissue and dispose of them in a trash container. Do not flush condoms as they can easily clog plumbing. Do not throw them away on the ground where they can present a hazard to children and a litter problem.

Instructions for Using a Female Condom

- Check the expiration date. Do not use if the package is broken, the female condom is brittle or dried out, the color is uneven or has changed, or it is unusually sticky.
- Use a new female condom each time you have sex. Use each female condom only once.
- Open the package carefully. Avoid tearing the condom with fingernails or using the condom with jewelry or anything else sharp or metallic.
- Use only water-based lubricants with female condoms.
- Make sure the inner ring is at the bottom closed end of the sheath, and hold the sheath with the open end hanging down.
- Find a comfortable position to insert the ring. Most women will do it lying on their back, squatting, or standing with one foot on a chair.
- With your free hand, separate the outer vaginal lips. Squeeze the inner ring with thumb and middle finger (so it becomes long and narrow), and then insert the inner ring and sheath into the vaginal opening. Gently insert the inner ring into the vagina and feel it go up. Place the index finger inside of the condom and push the inner ring as far as it will go. Do not worry, it can't go too far. Make sure the condom is inserted straight, and is not twisted inside the vagina.
- The ring at the open end of the female condom should stay outside the vagina and rest against the labia (the outer lip of the vagina).
- Once you begin to engage in intercourse, you may have to guide the penis into the female condom. If you do not, be aware that the penis could enter the vagina outside of the condom's sheath. If this happens, you will not be protected.
- If the condom slips during intercourse, or if it enters the vagina, then you should stop immediately and take the female condom out. Then insert a new one and add extra lubricant to the opening of the sheath or on the penis.
- To remove the condom, twist the outer ring gently and then pull the condom out, keeping the sperm inside. Dispose of used condoms properly. Wrap the condom in the package or in tissue and throw it away. Do not put it into the toilet, since it can clog the plumbing. Do not throw used condoms away on the ground where they can present a hazard to children and become a litter problem.

What Should We Tell IDUs?

Education and outreach workers should stress the following messages when they talk to IDUs:

- The best way for you to prevent HIV, HBV, and HCV transmission is to NOT inject drugs.
- Entering substance abuse treatment can help you reduce or stop injecting. This will lower your chances of infection.
- Get vaccinated against hepatitis A and hepatitis B. You can prevent these kinds of viral hepatitis if you get vaccinated.

If you cannot or will not stop injecting, you should:

1. Use a new, sterile syringe obtained from a reliable source to prepare and divide drugs for each injection.
2. Never reuse or share syringes, water, cookers, or cottons.
3. Use sterile water to prepare drugs each time, or at least clean water from a reliable source.
4. Keep everything as clean as possible when injecting.

If you can't use a new, sterile syringe and clean equipment each time, then disinfecting with bleach may be better than doing nothing at all:

1. Fill the syringe with clean water and shake or tap. Squirt out the water and throw it away. Repeat until you don't see any blood in the syringe.
2. Completely fill the syringe with fresh, full-strength household bleach. Keep it in the syringe for 30 seconds or more. Squirt it out and throw the bleach away.
3. Fill the syringe with clean water and shake or tap. Squirt out the water and throw it away.

If you don't have any bleach, use clean water to vigorously flush out the syringe:

1. Fill the syringe with water and shake or tap it. Squirt out the water and throw it away.
2. Do this several times.

Source: CDC (2004), available at <http://www.cdc.gov/idu/facts/disinfection.pdf>

HIV **cannot** be transmitted by casual contact, sharing eating utensils or bathrooms, casual kissing, hugging, or mosquitoes. There can be a small amount of virus in saliva and tears in patients with HIV. However, according to CDC, contact with saliva, tears or sweat from someone infected with HIV has not been shown to result in HIV transmission.

In Kentucky in the year 2009, the most common route of transmission was MSM, at 54%; injection drug use accounted for 13% of AIDS cases; MSM and IDU accounted for 6% of AIDS cases; heterosexual contact accounted for 15% of AIDS cases; and in 9% of AIDS cases, the risk behavior was hemophilia, blood transfusion, or not identified or reported (Kentucky Cabinet for Health and Family Services, 2009).

Table 3. Estimated # of Diagnoses of HIV Infection, 2009

Transmission Category	Adult & Adolescent Males	Adult & Adolescent Females	Total
Male-to-male sexual contact	23,846	-	23,846
Injection drug use	2,449	1,483	3,932
Male-to-male sexual contact and injection drug use	1,131	-	1,131
Heterosexual contact*	4,399	8,461	12,860
Other**	47	29	76

* Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

** Includes hemophilia, blood transfusion, perinatal exposure, and risk not reported or not identified.

The distribution of the **estimated number** of diagnoses of HIV infection among children* in the 40 states with confidential name-based HIV infection reporting, by transmission category, follows.

**The term "children" refers to persons under age 13 years at the time of diagnosis.*

Table 4. Estimated # of Diagnoses of HIV Infection in Children, 2009	
Transmission Category	Estimated # of Diagnoses
Perinatal	131
Other**	35
**Includes hemophilia, blood transfusion, and risk not reported or not identified. Source: Schneider et al. 2008.	

Implications for Health Professionals

Because of their interactions with patients, healthcare professionals are in a valuable position to assess for high-risk behaviors and to refer patients for HIV testing. Patients diagnosed at an early stage of the disease are likely to have more positive outcomes. Early diagnosis may also reduce the probability of infecting others. If HIV test results are negative it may prevent future infection by introducing the impetus for behavior change.

Table 5. Interventions for HIV Prevention	
Assess for high risk-behaviors	<ul style="list-style-type: none"> • Discuss sexual history • Assess for recreational drug/alcohol use • Determine other risk factors: tattoos, piercing, etc.
Refer for HIV testing and Counseling	<ul style="list-style-type: none"> • Explain anonymous vs confidential testing • Provide names of facilities where testing can be done
Provide HIV education to promote behavioral change	<ul style="list-style-type: none"> • Discuss risk factors including unprotected vaginal, anal, oral sex • Encourage use of barriers • Identify high-risk behaviors associated with recreational drug and alcohol use • Encourage HAART adherence to maintain viral suppression and decrease the probability of transmission
Act as patient advocate	<ul style="list-style-type: none"> • Be available for follow-up questions
Identify available resources	<ul style="list-style-type: none"> • Identify community resources as needed (food pantries, etc) • Refer to the Partner Notification Program if needed

Clinical Manifestations of HIV/AIDS

Patients who are acutely ill with HIV during the seroconversion process usually present with typical signs of a viral illness including: fever, nausea, vomiting, diarrhea, headache, chills, sore throat, and/or anorexia. In some cases diffuse lymphadenopathy may be present. Other patients may have very few, if any, symptoms. After several weeks patients usually recover, and if risk factors for HIV are not identified, can go on for years with few symptoms until their immune system becomes so compromised they are unable to resist infection. Many people, especially the elderly, are never tested for HIV until they seek medical care for an opportunistic infection. In this case, their initial diagnosis will be AIDS.

HIV Testing

Unfortunately, it is not uncommon to see a newly diagnosed patient present for their first clinic visit with AIDS. The CDC estimates that 21 percent or 1 in 5 persons in the U.S. are undiagnosed and unaware of their HIV infection (CDC, 2010). This may simply be because many people who are “at risk” do not follow routine health maintenance recommendations. They may not have medical insurance, so are treated only as needed in emergency departments. However, even if patients have a regular provider, clinics are often overbooked and time is focused on acute problems rather than a thorough health history. Younger providers and other healthcare professionals may also feel uncomfortable conducting a detailed sexual history with someone who is older or who has a sexual orientation different from their own. When caring for an established patient, healthcare professionals may not realize that a change has occurred in their patient’s lifestyle.

Case Study #1

Mrs. White is well known to the clinic and has been a patient for more than 15 years. Her husband died four years ago just after their 42nd anniversary. At first she had difficulty sleeping and was seen in the clinic more often than usual because of multiple vague complaints. After about one year she adjusted to her loss and was doing very well both physically and emotionally.

Recently, Mrs. White has been feeling very tired and complained of flu-like symptoms that lingered on for almost a month. She had an intermittent low-grade fever and diffuse lymphadenopathy. She did not make an appointment right away because many people that she knew had the flu or another viral illness that was going around. She feels better today, and the nurse and provider assured her that as you get older recovery from acute illnesses may take longer. She left the clinic reassured that she would be fine.

No one asked Mrs. White if there had been any changes in her life. If they had, they would have found out that she had “become involved with a nice older man” she met at the Senior Citizen Center. He is a retired teacher and spends every winter in Florida. She unconsciously realizes that he has probably had other sexual partners, but never considered that he could be HIV positive. Because of her age and familiarity with the clinic staff, she will probably not be identified as having high-risk behaviors for HIV. In fact, like many other older adults, it is likely that she will only be tested after developing an opportunistic infection.

People who request an HIV test must sign an informed consent and be provided with pre and post counseling. If the patient does not want to have the results of the test in his medical records he should be directed to a site that provides anonymous testing. While the need for strict patient confidentiality is always stressed to personnel in the healthcare field, patients may be worried that someone they know will find out if they are tested. People may also be afraid their medical insurance could be cancelled if they are tested for HIV. It is important to let patients know that all results will be kept confidential.

Consent to Test and Kentucky Law

When patients are identified as being at risk for HIV infection they should be strongly encouraged to be tested. The General Assembly of the state of Kentucky identified that although testing for HIV and treatment for HIV is in the public good, many persons avoid testing for HIV because they fear that results will be disclosed without their consent. Public health, according to the Kentucky General Assembly, is best served through informed, voluntary and the confidential use of testing for HIV infections. In Kentucky, any testing designed to identify HIV, its antigen or antibody, can only be performed legally after obtaining the informed consent of the person who is being tested. There is no special HIV test consent form, and the same general consent form for the performance of medical procedures is used in the consent of HIV testing; the exception is in an emergency situation where informed consent of the patient cannot reasonably be obtained prior to providing the healthcare services. The general consent form is required to

instruct the patient that they may be tested for HIV, or any other blood-borne infection as part of a medical procedure or test.

Except in cases of extreme circumstances, it is unethical to test someone for HIV unless the patient agrees to have the test done (for example, a healthcare provider experiences a needle stick while caring for an unconscious patient in the ED and the healthcare proxy gives permission for HIV testing).

It is the responsibility of the physician or advanced practice registered nurse who orders the HIV test to inform the patient of the results. If the results are positive, the physician or advanced practice registered nurse is responsible to:

- Provide information and counseling to the patient concerning the infection or diagnosis and the known medical implications; or
- Refer the patient to another appropriate professional or healthcare facility for the information and counseling.

Confirmatory tests must be performed on all positive test results. The 2010 revisions to the Kentucky statute may be viewed in their entirety at <http://www.lrc.ky.gov/krs/214-00/181.PDF>.

In Kentucky, access to direct service sites where quality primary health care and support services are offered is coordinated through the Kentucky Care Coordination Program (KHCCP). A network of regional sites that are near the patient or client home can be accessed by enrolling in the KHCCP. Each site must offer an explanation of the test, including its purpose, potential uses and limitations and the meaning of its results. Pretest counseling must be provided, including medical indications for the test; the possibility of false positive or false negative results; the potential need for confirmatory testing; the potential social, medical and economic consequences of a positive result; and the need to eliminate high-risk behavior.

Each testing site must obtain informed consent prior to testing. Supplemental corroborative testing on all positive test results must be obtained prior to positive test results being given to the patient.

In-person post-test counseling must be provided. This includes counseling regarding the meaning of positive test results; the possible need for additional testing; the social, medical and economic consequences of a positive test result; and the need to eliminate behavior which might spread the disease to others. Persons who provide post-test counseling must receive specialized training regarding the special needs of persons with positive results, including recognition of possible suicidal behavior. Referral to further health and social services must be made.

HIV Tests – Rapid tests

Four rapid tests have been approved by the U.S. Food and Drug Administration (FDA) include the following names:

- OraQuick® and OraQuick®Advance, Rapid HIV-1/2 Antibody Test
- Reveal™ and Reveal™G2 (the newest version), Rapid HIV-1 Antibody Test
- Uni-gold REcombigen® HIV Test
- Multispot HIV-1/HIV-2 Rapid Test

All rapid HIV tests require a confirmation that they are reactive (Greenwald, Burstein, Pincus, & Branson, 2006).

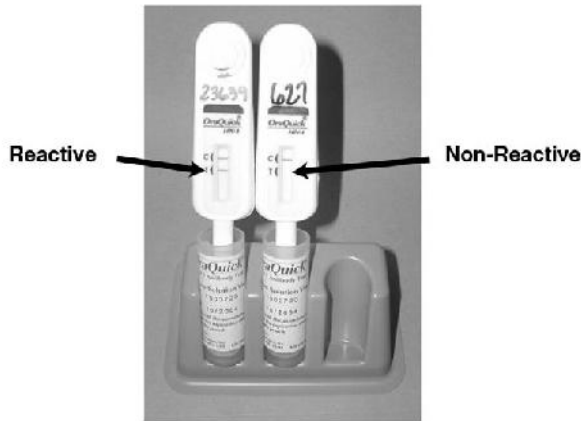


Figure 3. OraQuick@Advance

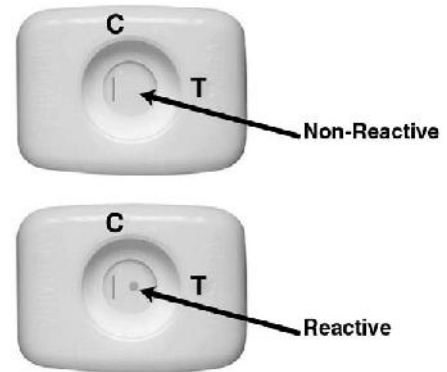


Figure 4. Reveal™ G2 HIV-1 Antibody Test

Images from: http://www.cdc.gov/hiv/topics/testing/resources/journal_article/pdf/rapid_review.pdf

HIV Standard Tests

Standard testing for HIV consists of an HIV-EIA and a confirmatory Western Blot (WB). Using both tests increases the likelihood of accurate results since they are sensitive and specific for HIV-1. Results from the HIV-EIA and WB are usually available in about two weeks.

Of the people tested, many never return for their results and this may be a major contributing factor to the continued incidence of new cases of HIV/AIDS. The OraQuick Advance Rapid HIV-1/2 test was developed partially in response to this problem. Preliminary positive or negative result can be given to patients in less than 30 minutes. This test has been shown to be 99.3% sensitive in identifying positive results and 99.8% specific in identifying negative results. Confirmatory testing (WB) is still required on all preliminary positive results (Bartlett & Gallant, 2004). State-sponsored OraQuick Advance Rapid HIV-1/2 test sites are found in Louisville, Lexington, Frankfort, Park Hills/Fort Mitchell, Henderson, and Paducah.

There are three possible HIV test results:

1. Positive: patient is infected with HIV.
2. Negative: no antibodies to HIV-1 detected.
3. Indeterminate: a reaction occurs, but results do not meet criteria to determine HIV-1 infection.

Patients who are at risk for HIV infection must be reminded that a negative test result only indicates a current lack of HIV-1 antibodies. These antibodies can take up to six months to reach a level of detection after infection. Anyone who has engaged in high-risk behaviors should be retested again in six months, and continue to be tested every year if their behaviors do not change

Indeterminate results can be caused by numerous reasons including: HIV antibodies below the level of detection, non-HIV antibodies that cause the test to react (such as autoimmune disease, liver disease, and multiple sclerosis), infection with HIV-2, or lab error. Following indeterminate results, HIV tests should be repeated at one, two, and six months. Assessment for high-risk behaviors is essential in determining the need for continued testing after six months (Bartlett et al., 2004).

Implications for Health Professionals

CDC Testing Recommendations & Requirements

The CDC released revised recommendations for HIV testing in healthcare settings in 2006. The recommendations include:

- Recommend routine HIV screening for all adults, aged 13–64, and
- Repeat screening at least annually for those at high risk.
- Screening should be voluntary, but **opt-out**—that is, the patient will be notified that the test will be performed and consent is inferred unless the patient declines (as is the case for most laboratory tests in healthcare settings) vs. **opt-in**, where the test is offered to the patient, who must then explicitly consent to an HIV test, often in writing (Kaiser Family Foundation, 2006).

Patients facing a crisis situation are often willing to listen to information or consider changes that could improve their situation. Healthcare professionals caring for patients referred for HIV testing may be in a position to discuss behavioral changes and provide HIV education that will impact future decision making (see Table 6). A non-judgmental approach to the patient’s lifestyle and sexual orientation will allow for open communication, clarification of risks, and lead to identification of positive changes.

Table 6. Interventions for Patients Following HIV Testing	
Positive result	<ul style="list-style-type: none">• Assess for harmful thoughts toward self or others• Stress the need to use barriers during sexual relations (condoms, dental dam)• Refer to Partner Notification Program if applicable• Discuss routes of transmission: avoid sharing razors, toothbrushes, needles; clean blood spills with bleach• Assure patients regarding behaviors that are not routes of transmission: casual kissing, hugging; sharing utensils, dishes, and bathrooms• Identify available resources
Negative result	<ul style="list-style-type: none">• Discuss test limitations (related to antibody development) and the need for future tests depending on length of time since last possible exposure• Identify and discuss ways to change high-risk behaviors• Stress the need to use barriers for vaginal, anal, and oral sex
Indeterminate result	<ul style="list-style-type: none">• Instruct patient that results are not conclusive• Assess possible risk behaviors• Stress need for additional testing to verify results• Discuss HIV prevention behaviors including use of barriers

The Kentucky AIDS Education Training Center (KY AETC) has developed a pocket reference guide that combines the CDC’s 2006 testing guidelines with Kentucky State Law. This reference guide provides guidance to healthcare professionals in public health working with individuals who were tested for HIV.

Definitions for opt-in and opt-out testing are provided and important because Kentucky used the *opt-in voluntary* testing requiring that the healthcare provider *ask* the patient if they would like to be tested for HIV. Though there is no separate consent for HIV, as has been previously discussed, the *opt-in* approach provides for a discussion with the patient about why an HIV test might be recommended by the provider. For a copy of the guide, please go to <http://www.mc.uky.edu/kyaetc/resources/Routine%20Testing.pdf>. The CDC recommends HIV screening for all persons from ages 13-64 and this provides for the *opt-out* testing which allows the healthcare provider to test you for HIV *unless* you refuse the test.

Confidentiality

Test results, which identify the subject of the test, cannot be disclosed to anyone other than the person being tested. Exceptions include:

- The legally authorized representative of the person tested.
- A physician, nurse, or other healthcare personnel who has a legitimate need to know the test result in order to provide for her/his protection and to provide for the patient's health and welfare.
- Healthcare providers consulting between themselves or with healthcare facilities to determine diagnosis and treatment.
- Reporting rules to control the spread of disease as issued by the Cabinet for Health and Family Services.
- Healthcare providers or healthcare facilities that procure, process or distribute human body parts or semen.
- Health facility staff committees for the purpose of conducting program monitoring, program evaluation, or service reviews.
- Authorized researchers of medical or epidemiological focus.
- A parent, foster parent, or legal guardian of a minor.
- A crime victim.
- By court order.

Additionally, all of the exceptions above are prohibited from further disclosing the results of an HIV test. Results that are disclosed utilizing the above exceptions must include a statement such as "This information has been disclosed to you from records whose confidentiality is protected by state law. State law prohibits you from making any further disclosure of such information without the specific written consent of the person to whom such information pertains, or as otherwise permitted by state law. A general authorization for the release of medical or other information is NOT sufficient for this purpose."

Kentucky HIV/AIDS Reporting Requirements

Licensed healthcare providers (under KRS Chapter 311-314), licensed health facilities (under KRS Chapter 216B), and licensed laboratories (under KRS Chapter 333) are required to report positive test results for HIV infection. For information about the law, please go to <http://iddha.org/Handouts.pdf>. This includes the following testing methods:

- Elisa
- Western Blot
- PCR
- HIV antigen
- HIV culture
- CD4+ assay including absolute CD4+ cell counts and CD4+%
- HIV detectable Viral Load Assay
- Positive serologic test results for HIV infection

A diagnosis of AIDS, either adult or pediatric must also be reported.

Reports of HIV infection or AIDS diagnosis must be made within five business days, generally utilizing the following forms. These forms and other Kentucky HIV/AIDS Branch information can be accessed at <http://chfs.ky.gov/dph/epi/HIVAIDS.htm>:

- Adult HIV/AIDS Confidential Case Report Form
- Pediatric HIV/AIDS Confidential Case Report Form

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

- Patient's full name
- Date of birth, using the format MMDDYY
- Gender
- Race
- Risk factor, as identified by CDC
- County of residence
- Name of facility submitting report
- Date and type of HIV test performed
- Results of CD4+ cell counts and CD4+%
- Results of viral load testing
- PCR, HIV culture, HIV antigen, if performed
- Results of TB testing, if available
- HIV status of the person's partner, spouse or children

Reports of AIDS cases must include all of the above information as well as:

- Patient's complete address
- Opportunistic infections diagnosed
- Date of onset of illness

Reports of AIDS cases must 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.

As mentioned previously, HIV testing in Kentucky can be accomplished on a confidential or anonymous basis. If the test was performed on an anonymous basis, only the statistical information relating to a positive HIV test is reported. If the testing was done on a confidential basis, included in the report will be: the OI, CD4 count, viral load, and may include other information that the CDC may recommend.

Reports for HIV infection and reports for AIDS diagnosis must be made within five business days and, if possible, utilizing the "Adult" or "Pediatric" Confidential Case Report Forms that can be accessed at <http://chfs.ky.gov/dph/epi/HIVAIDS/surveillance.htm>. According to the Kentucky Cabinet for Health Services HIV and AIDS cases may be reported by phone or mail. **Cases are not to be reported to either surveillance office by fax or e-mail. Also, case information should not be left on an answering machine. Case information is not to be given to anyone but one of the two surveillance staff listed below.**

If cases are mailed, patient-identifying information must be mailed separately from HIV/AIDS-related case data. The information must be mailed using double envelope packages, with both envelopes stamped "**Confidential, To be Opened by Addressee Only.**" All incoming confidential surveillance mail is opened by HIV/AIDS surveillance staff only.

Reports are submitted based on the county of residence of the subject of the report. HIV and AIDS cases are reported to only two sites throughout Kentucky:

- HIV/AIDS cases who reside in **Jefferson, Henry, Oldham, Bullitt, Shelby, Spencer, and Trimble Counties** should be submitted to the HIV/AIDS Surveillance Program of the Louisville-Metro Health Department.
- Cases from all other Kentucky counties of residence are reported to the HIV/AIDS Surveillance Program of the Kentucky department for Public Health, or as directed by the HIV/AIDS project coordinator.

The result of HIV testing conducted under the auspices of the Cabinet for Health and Family Services, Commonwealth of Kentucky cannot be used to determine if a person may be insured for disability, health, or life insurance or to screen or determine suitability for, or to discharge a person from, employment. Violations of this law are a Class A misdemeanor.

The HIV Lifecycle

Understanding the lifecycle of HIV makes it easier to conceptualize how the disease progresses and how highly active antiretroviral therapy (HAART) works in the body. Each class of medication acts at a specific point during reproduction to interfere with the replication process. Thus, combination therapy is aimed at increasing the probability of success by increasing the number of opportunities to disrupt the cycle.

- **Infection**

Clinical Presentation	Asymptomatic	Symptomatic	AIDS Defining Illness
CD4 > 500 mm ³	A1	B1	C1
CD4 200 - 499 mm ³	A2	B2	C2
CD4 < 200 mm ³	A3	B3	C3

Adapted from: Bartlett et al., 2004.

The most common routes of HIV infection are unprotected sex with an infected partner and injection of infected blood. HIV is found in blood and other body fluids such as vaginal fluids and semen. In order for infection to occur, the virus must find a way to cross the body's natural barrier, the skin. When infected blood or body fluids are allowed to enter the body through an open area in the skin or mucosa, infection can occur. Cases have also been reported in persons who had organ transplants and blood transfusions prior to routine screening for HIV. Once in the body, HIV primarily targets the CD4 helper cells, a type of lymphocyte. Lymphocytes are important because they protect the body from invasion by organisms that can cause infection. HIV results in a decreased number of CD4 cells, making it difficult for the immune system to fight off organisms threatening the body.

- **Fusion**

Once HIV has successfully entered the body, it attaches to the CD4 cell by fusing to receptors on the outer cell surface. Using a type of "lock and key" mechanism, proteins on the cell of the virus (CCR5/CXCR4) bind to proteins on the cell of the CD4 cell (gp 120, gp 41) in a process known as viral attachment. People who do not have these receptors are less likely to become infected with HIV or, if infected, are less likely to progress to AIDS as quickly. They are often referred to as "non-progressors."

- **Uncoating/Reverse Transcription**

After attachment is complete, the virus uncoats and sends single strand genetic material into the cytoplasm of the CD4 cell. This material is called RNA. RNA is converted to DNA in a process called reverse transcription. During this process, single stranded RNA is transcribed into double stranded DNA utilizing an enzyme known as reverse transcriptase. This genetic material is a blueprint that describes how the cell should function. Prior to integration viral DNA is transported to the cell nucleus.

- **Integration**

HIV uses an enzyme called integrase to insert the double stranded HIV DNA into the cell's existing DNA. Once completed, the cell produces virions instead of CD4 cells when it reproduces.

- **Cleavage, Viral Assembly, and Budding**

Once subunits of the virus have been produced and transported out of the nucleus they are separated for assembly into new virions. This process, which uses the enzyme protease to accomplish the task, is known as cleavage. New virions leave the cell and circulate in the bloodstream.

Monitoring the Progress of HIV

Two main tests are used to monitor HIV progress.

1. *CD4 count*: estimates the number of CD4 lymphocytes and is an indicator of the immune status of the individual. The higher the CD4 count, the greater the number of cells available to defend the body against invasion by organisms that can cause disease.
2. *Viral Load*: estimates the number of copies of virus (HIV) in the bloodstream. The lower the number of copies, the slower the progress of disease. When someone is successfully treated with antiretroviral medication the results should be an undetectable viral load.

As HIV progresses patients may develop AIDS. The term AIDS denotes an advanced stage of HIV disease. The CDC criteria for AIDS are based on the CD4 count and/or the presence of AIDS defining illnesses.

Conditions classified as *AIDS Defining Illnesses* by CDC include:

- Candidiasis
- Cervical cancer
- Coccidioidomycosis
- Cryptosporidiosis
- Cytomegalovirus (CMV)
- Herpes simplex (HSV)
- Histoplasmosis
- HIV-related Dementia
- HIV-related Wasting Syndrome
- Isosporiasis
- Kaposi's Sarcoma (KS)
- Lymphoma
- Mycobacterium avium complex (MAC)
- Mycobacterium tuberculosis (TB)
- Pneumocystis (carinii) jiroveci Pneumonia (PCP)
- Pneumonia, recurrent
- Progressive multifocal leukoencephalopathy (PML)
- Salmonella
- Toxoplasmosis

The likelihood of infection following exposure to an organism is much greater for someone with AIDS because their immune system cannot mount an effective defense against it. Opportunistic infections (OIs) occur for that reason. Organisms that are natural flora in the body or ubiquitous in the environment can cause severe illness if the immune system is compromised (Shaw & Mahoney, 2003). Regular monitoring of the CD4 count and viral load provide a means to predict the status of the patient's immune system. Prophylaxis against certain OIs are recommended based on CD4 count: PCP < 200 mm³, MAC < 50 mm³, and Toxoplasma gondii < 100 mm³ (Shaw et al., 2003).

Table 8. Interventions for Patients based on CD4 Count and Viral Load	
CD4 > 200	<ul style="list-style-type: none"> • Stress need for barrier use during sexual relations • Encourage healthy lifestyle including balanced diet, exercise, relaxation • Discuss need for adherence with clinic visits, labs, immunizations, medication • Provide HIV education and support for patient and family/SO • Identify community resources

CD4 < 200	<ul style="list-style-type: none"> • Monitor for signs/symptoms of infection • Encourage frequent followup • Encourage adherence • Monitor weight • Assess for depression/insomnia/anorexia
VL > 50 (or detectable based on lab limits)	<ul style="list-style-type: none"> • Encourage medication adherence • Review dietary and dosing restrictions for HAART • Assess financial/social limitations

Oral Manifestations of HIV

Oral manifestations are common in people with HIV infection. By some estimates, more than 90% of AIDS patients will have at least one HIV-related oral manifestation in the course of their disease. **For some patients, the presence of these oral lesions may be the first sign of HIV infection, leading to testing and diagnosis.** 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 and every patient should receive a comprehensive initial evaluation.

Oral lesions associated with HIV:

- Fungal
 - Candidiasis
 - Blastomycosis
 - Histoplasmosis
 - Phycomycosis

- Viral
 - Epstein Barr – Oral Hairy Leukoplakia
 - Herpes Simplex
 - Cytomegalovirus
 - Human Papilloma
 - Herpes Zoster

- Immune Hypersensitivity
 - Aphthous Stomatitis
 - Benign Lymphoepithelial

- Bacterial
 - Acute Necrotizing Ulcerative Gingivitis - rapidly progressive periodontitis
 - Tuberculosis
 - Gram- & Gram+ ulcers

- Neoplastic
 - Kaposi Sarcoma
 - Non-Hodgkin's
 - Squamous cell carcinoma antigen

- Medication side effects
 - Melanosis
 - xerostomia
 - ulcers and others

For animated graphics of "Immune Suppression and Oral Lesions" see <http://chfs.ky.gov/NR/rdonlyres/DBCDC039-F7AB-4E01-82A2-F76B0D014E60/0/OralManifestations.gif>.

Antiretroviral Therapy

Prior to the advent of antiretroviral therapy, diagnosis with HIV was a certain death sentence. Now with more recent pharmaceutical developments, many view HIV as a chronic illness. Patients who have been infected with HIV for many years are doing very well. Many have had significant CD4 rebounds and been able to maintain an undetectable viral load. For these individuals, successful use of combination therapy is responsible for this dramatic change in their health status.

Each class of HAART is intended to interrupt the viral replication cycle at a specific point. Currently five classes of antiretroviral medications are available:

- **Entry and Fusion inhibitors:**
Circulating HIV attach to CD4 cells by fusing to receptors on the cell surface. Fusion inhibitors compete for available binding sites, decreasing the likelihood of viral attachment.
- **Nucleoside Reverse Transcriptase Inhibitors/Non-nucleoside Reverse Transcriptase Inhibitors/Nucleotide Reverse Transcriptase Inhibitors:**
After attachment, the virus uncoats, sending single stranded RNA into the cytoplasm of the CD4 cell. RNA is transcribed into DNA via reverse transcription. These classes of inhibitors are designed to interfere with the process of reverse transcription.
- **Integrase Inhibitors:**
After the "reverse transcription" of RNA into DNA is complete, HIV's DNA must then be incorporated into the CD4 cell's DNA. This is known as integration. As their name implies, integrase inhibitors work by blocking this process.
- **Protease inhibitors:**
Subunits of virus are transported out of the nucleus and prepared for assembly. Cleavage and assembly take place prior to budding of new virions. Protease inhibitors interfere with the process of viral assembly.

Early in the HIV/AIDS pandemic, monotherapy proved not to be a successful treatment option. Combination therapy has proven to be much more successful because it attempts to target several different sites during the HIV replication cycle, thus increasing the probability of success. There are five classes of antiretroviral medications approved by the FDA. However, new and novel medications are being tested in laboratories and clinical trials in response to the increasing threat of HIV/AIDS.

HIV/AIDS pharmacology is a complex topic, and too extensive to be included in depth in this course. The names and classification of antiretroviral medications commercially available are listed in Table 9. Treatment guidelines can be found at <http://www.aidsinfo.nih.gov/>. These guidelines change based on the results of current research.

Class	Medication	Year of FDA Approval
Nucleoside Reverse Transcriptase Inhibitors (NRTIs)	Retrovir	1987
	Videx	1991
	Hivid	1992
	Zerit	1994
	Epivir	1995
	Combivir	1997
	Ziagen	1998
	Trizivir	2000
	Videx EC	2000
	Viread	2001
	Emtriva	2003

	Truvada	2004
	Epzicom	2004
Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)	Viramune	1996
	Sustiva	1998
	Rescriptor	1997
	Intelence	2008
	Viramune XR	2011
	Edurant	2011
Protease Inhibitors (PIs)	Invirase	1995
	Norvir	1996
	Crixivan	1996
	Viracept	1997
	Fortovase	1997
	Agenerase	1999
	Kaletra	2000
	Reyataz	2003
	Lexiva	2003
	Aptivus	2005
	Prezista	2006
Fusion Inhibitors	Fuzeon	2003
Entry Inhibitors – CCR5 co-receptor antagonist	Selzentry	2007
Multi-class Combinations	Atripla	2006
HIV Integrase Strand Transfer Inhibitors	Isentress	2007
Source: Food and Drug Administration, 2011.		

HAART has many potential side effects and interactions with other medications. The need to follow dietary guidelines for proper absorption should be stressed. Some medications need to have dose adjustments for renal or liver disease. For that reason, healthcare providers and nurses with expertise in the field of HIV/AIDS are preferred to manage HAART. Additional information that is easy to read, accurate, and up-to-date on antiretroviral medications for patients and providers can be found at <http://www.aidsmeds.com>.

HIV/AIDS and Adherence

Over the past few years, medication adherence has become its own science. Many larger clinics have Adherence Programs that focus on teaching, problem solving, and providing social and financial support to patients who have difficulty taking their medications and keeping medical appointments. In addition to healthcare professionals and social workers, peer educators are trained to work one-on-one to provide support for patients who need additional help. There is often a question of why so much effort should be used to help people take their medication. After all, don't they have the choice to decide if they want to do it or not?

HIV/AIDS continues to affect the poor and minorities in greatest numbers. Overall, these patients have fewer resources and options. Basic needs such as food and shelter may not be available to them. They may lack the necessary skills to find steady employment and, if they do work, are more likely to be paid a minimum wage. Single mothers may be forced to choose between using their scarce resources to pay for their own medical expenses or to provide basic needs for their children. The struggle against drugs, violence, crime, and poverty may supersede the importance of obtaining medical care. Even if they do manage to find a clinic, adherence can become just another part of their struggle.

Case Study #2

JR is twenty years old and has three children. She was infected with HIV by a boyfriend when she was 16. She thought he might have been using drugs, but he was good looking, had lots of money, and said he loved her. They went together for about one year; she became pregnant and had a baby. He was arrested and went to prison. She dropped out of school and had two more children with two other boyfriends. She took HIV medication each time she was pregnant because the nurse told her it would decrease the risk of her baby being infected with HIV. After each baby she stopped the medication because it made her feel sick to her stomach and caused diarrhea. It was just too much to try to take care of three kids and feel sick all the time. Someone told her if she took the medication with food it would be better. Unfortunately, she usually ran out of food stamps before the end of the month and it wasn't always easy to get around to the local food pantries with three kids. It seemed like one of them was always sick, and some days she just didn't feel like going out to do anything.

She split up with the father of her youngest child six months ago, and moved back home with her mother and two brothers. Just after she arrived she developed a cough and intermittent fever that had persisted for several weeks. Her mother was worried about her health, and willing to care for the children so that she could go to the clinic. Her brother, three cousins, and uncle had also been infected with HIV. Her mother told her that without medication she could get sick and die.

During the initial assessment the nurse asked if she would be willing to join the adherence program and support group for single mothers at the clinic. She explained that understanding HIV would help her make good decisions about her medical care and medications. In addition, attending the support group would provide social support from other women who faced a similar situation. She was informed that she would be provided with bus tokens for transportation and childcare at the clinic during the support group. She agreed to join both groups.

After only six months JR is doing much better. At her last adherence visit she had missed only one dose of medication that month. She was prescribed a once-daily HAART by her provider, and referred to several community organizations for financial assistance. She has not had any adverse side effects from her new medication. She is encouraged by some of the other women in the group who have enrolled in a vocational training program and can see that when her children go to school she will have the opportunity to improve her situation as well. She has chosen to take birth control pills, and also faithfully uses the female condoms provided by the clinic staff to avoid other STDs. Her CD4 count is > 400 and VL is undetectable.

As illustrated in the case study, some patients face numerous hurdles to adherence. Regardless how efficacious her original HAART may have been, because it produced side effects that were intolerable she was not able to continue taking it. Using a holistic approach, the nurse was able to identify several other factors that were affecting her ability to be adherent. First, she did not have adequate social support. Moving home with her mother, who was willing to help her with the children and encourage her to get medical care, was the first step towards getting the help she needed. Next, enrolling in the adherence program assured her that she would have transportation and other incentives to keep her appointments. The support group provided a safe place for her to discuss her situation with peers who were able to listen to her concerns and support her decisions. The women were role models who encouraged her to look beyond her present situation and make plans for her future.

Consequences of Non-Adherence

Overall, estimates are that only about 50% of patients with chronic illness take medications as prescribed (McDonald, Garg, & Haynes, 2003).

Many studies have been conducted in an attempt to identify factors that influence patients' desires and ability to take medications in a way to ensure the best possible efficacy. Different studies have tried to determine a relationship between non-adherence and age, race, gender, and psychosocial factors. However, results are inconclusive.

One question that has been the center of controversy is related to what degree of adherence is needed to optimize viral suppression. Paterson et al. (2000) reported that less than 95% adherence to protease inhibitors was an independent predictor of virologic failure among patients in their study. Other studies have also shown significant differences in viral concentrations between patients who took medications 95-100% compared to 90-95% (Low-Beer, Yip, O'Shaughnessy, & Montaner, 2000).

With other chronic illnesses, non-adherence predominately affects the health of the patient with the illness. In contrast, the effect of non-adherence with HAART has several negative effects:

- *Disease progression and poor prognosis:* Except in very rare cases, (for example, non-progressors) untreated HIV results in depletion of the body's immune defenses and naturally progresses to AIDS and death. Along the continuum of the disease, patients can become sick from opportunistic illnesses, infections, dementia, neurological complications, etc, resulting in hospital admissions, disabilities, financial hardship, and a diminished quality of life. However, like other chronic diseases, these effects are limited to the patient and his/her family/friends.
- *Increased risk of infection:* Every patient with HIV/AIDS is potentially infectious even if their viral load is undetectable. Persons exposed to blood or body fluids of patients with HIV/AIDS (sexual contact, needles, healthcare staff, etc.) have a greater risk of infection if the patient is not prescribed or is non-adherent with HAART because the higher the viral load the more probable infection will occur. Patients who are non-adherent with HAART not only put themselves at risk, they also increase the likelihood that they will infect others.
- *Development of multiple drug resistant strains of HIV:* As with other organisms (MRSA, MSSA, MDR TB), HIV could develop into a strain of highly drug resistant virus (Ickovics et al., 2002). Non-adherence encourages the development of mutations that can lead to resistance to certain drugs, or to all drugs in certain classes. Infection with a resistant strain of HIV can limit or eliminate treatment options. People newly diagnosed with HIV who were infected by patients with resistant virus may have few, if any, effective options for treatment.

Considerations for Choosing HAART

Before prescribing HAART or changing HAART, current guidelines recommend an HIV genotype and/or phenotype to evaluate the presence of viral mutations and drug efficacy.

- HIV-1 Genotype (GT):

The GT is a specialized test that reads the genetic code of HIV to detect mutations. Results are used as a tool to help identify viral resistance and select medications. Decisions for HAART are based on GT and PT results along with clinical expertise.

- Phenotype (PT):

Similar to a “culture and sensitivity,” the PT measures the amount of drug needed to suppress the growth of HIV in the lab. Results are presented as “levels of resistance.”

The GT and PT are tools to help identify viral variations. Clinical correlation and an assessment of the following factors should be considered before a final decision is made:

- CD4 count
- HIV-1 Viral Load
- GT results
- PT results
- Co-Morbidities
- Lifestyle
- Adherence (see Table 10)
- Treatment Guidelines

Table 10. Interventions for Patients Who have difficulty with Adherence	
Medications	<ul style="list-style-type: none"> • Assess for adverse side effects • Instruct proper dietary and dosing restrictions • Recommend simplified HAART regimens that allow for daily dosing if possible • Identify reasons for missing medication doses and develop strategies to ensure adherence • Encourage the use of pill boxes and alarm devices • Check for possible drug-drug or food-drug interactions
Financial	<ul style="list-style-type: none"> • Assess for stable, safe housing • Evaluate need for assistance with food, utilities, transportation
Social	<ul style="list-style-type: none"> • Assess adequacy of support systems • Discuss domestic violence • Investigate the use of recreational drugs or alcohol • Assess for depression • Discuss future plans

Side Effects of HAART

While successful HAART has helped in many cases, patients with HIV/AIDS often complain of various symptoms that are difficult to live with. Identifying interventions that can eliminate, or at least improve, symptoms is important to assure an improved quality of life. Patients who have adverse side effects from HAART may consider stopping medications or reducing their dosage in an effort to decrease symptom intensity and frequency. While this may seem like a good solution to the patient at first, we have already discussed how non-adherence to HAART can lead to viral resistance and treatment failure. Patients should be asked about adverse side effects to medications, new problems, and personal concerns at each visit.

Table 11. Medical Interventions for Frequent HIV/AIDS Symptoms		
Symptom	Common causes	Interventions
Diarrhea	<ul style="list-style-type: none"> • Medications • Diet • Infections 	<ul style="list-style-type: none"> • Follow dietary recommendations when taking HAART • Increase dietary fiber • Avoid unsafe water supplies • Wash hands frequently • If diarrhea continues, test for infection and parasites • Use antidiarrheal agents if needed • Consider change in HAART if medication is suspect
Fatigue	<ul style="list-style-type: none"> • Insomnia • Viral infection (HCV) 	<ul style="list-style-type: none"> • Teach relaxation techniques • Encourage exercise • Limit caffeine intake
Lipodystrophy/atrophy	<ul style="list-style-type: none"> • Medications • HIV 	<ul style="list-style-type: none"> • Avoid HAART known to be associated with fat redistribution • Discuss treatment with growth hormone • Consider surgical interventions
Erectile Dysfunction	<ul style="list-style-type: none"> • Medication • Fear of infecting others • Depression • Vascular disease 	<ul style="list-style-type: none"> • Review medications • HIV prevention education • Counseling • Medication
Upper and Lower extremity pain/tingling/weakness	<ul style="list-style-type: none"> • Peripheral neuropathy • Side effect of HAART 	<ul style="list-style-type: none"> • Nerve conduction study to establish diagnosis • Consider change in HAART if appropriate
Insomnia	<ul style="list-style-type: none"> • Stage of HIV/AIDS • Disturbed sleep patterns • Side effects of HAART • Depression 	<ul style="list-style-type: none"> • Check for medication side effects • Teach relaxation techniques • Assess daily exercise • Refer to mental health if needed for depression, anxiety, grief counseling, etc.
Anorexia/Weight loss	<ul style="list-style-type: none"> • Medications • Depression • Financial need 	<ul style="list-style-type: none"> • Review dietary recommendations for HAART use • Review dietary log • Refer for community resources • Assess for diarrhea/side- effects from HAART
Depression	<ul style="list-style-type: none"> • Grief 	<ul style="list-style-type: none"> • Evaluate adequacy of social support

	<ul style="list-style-type: none"> • Multiple losses • Fear 	<ul style="list-style-type: none"> • Refer for Counseling/ • Antidepressants • Assess spiritual needs
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Effective nursing interventions can greatly improve the quality of life for patients with HIV/AIDS and promote a positive health outcome. Working as part of a team with patients, providers, and other disciplines ensures a comprehensive and holistic approach to healthcare and planning. Ensuring that patients have the knowledge to make good decisions and having them as part of the planning team increases the likelihood of adherence and effective communication.

Case Study #3

Mr K. is a gay male who has been infected with HIV for about 15 years. He is very concerned about his health and, in the past, has taken his medications without missing doses. He is very up to date on new developments in HIV/AIDS, and gets most of his information from reading magazines, searching on the internet, and talking with friends who are also HIV positive. He exercises regularly, eats a nutritious diet, and avoids tobacco, alcohol, and recreational drugs. He also takes vitamin supplements.

Several months ago he began to notice some wasting in his facial tissue. He also thought he was gaining weight around his waist, and possibly losing some muscle in his arms and legs. Otherwise he has been doing well.

Results from a recent clinic visit are somewhat alarming. Mr. K. now has a VL that is >50,000, and his CD4 has gone down as well. The nurse calls to let him know the results, and asks again about adherence. He admits that he stopped taking HAART about four months ago because he was worried about the facial wasting and weight gain. He told her, "I still date, and I am worried that someone will take one look at me and say 'that guy has the virus.' The gay community here is very close, and if the news gets out that someone has the virus it spreads quickly. I'm also worried about losing my job."

The nurse suggested that some HAART appears more likely to contribute to lipodystrophy, or fat redistribution and wasting. She encouraged Mr. K. to talk with his provider and ask about other medications that might not have the likelihood of causing problems. She reminded him how important it is to have the highest CD4 count possible and an undetectable viral load. He agreed to a clinic visit the following week to discuss other treatment options.

Because the nurse had been able to establish an open and trusting relationship with the patient on previous visits, he felt safe disclosing his concerns about continuing therapy, and also accepted her offer to discuss other options. Early identification of a problem allowed for discussion, education, and an intervention that should benefit the patient physiologically and psychologically.

Services to Persons with HIV/AIDS in Kentucky

Kentucky offers a variety of services to persons with HIV/AIDS through funding from the Ryan White HIV/AIDS Treatment Modernization Act of 2006 and various other state-funds.

Kentucky HIV Care Coordinator Program (KHCCP)

The intent of the KHCCP is to facilitate the provision of quality care and services to HIV infected individuals and their families in a timely and consistent manner across a continuum of care. The program provides Care Coordinators in six regional sites through arrangements with three (3) local health departments in the Barren River, Cumberland Valley, and Northern Kentucky regions, at the University of Kentucky for Lexington and Northeastern Kentucky, and two (2) non-profit agencies in the Louisville and Purchase regions, in order to aid the client in identifying and accessing needed services. These regional sites allow for statewide coverage, and better local access to these services. KHCCP also acts as an umbrella program for other client assistance programs such as the Kentucky Health Insurance Continuation Program, Outpatient Health Care and Support Services, and the State Support Services Programs. Continuation of all programs is contingent upon continued state and federal funding (KY CHFS, 2005).

Information about the Care Coordinator regions can be found in Appendix A. Community based organizations can be found in Appendix B.

Financial Assistance Programs include:

Kentucky AIDS Drug Assistance Program (KADAP) - This program assists low-income, eligible Kentuckians with the purchase of AIDS-related medications prescribed for FDA-approved indications. Once approved, eligible applicants receive formulary medications through a mail-order pharmacy service provided by the UK Pharmacy. **Call 1-866-510-0005 (toll free) for additional information.**

Kentucky Health Insurance Continuation Program (KHICP) - provides payments for the continuation of health insurance benefits for eligible individuals who are at risk of losing their employment-related or private-pay health insurance because of HIV disease.

Kentucky Outpatient Health Care and Support Services Programs - provide assistance for eligible individuals with a wide range of community-based medical and non-medical support services, such as, but not limited to, physical and mental healthcare, housing, nutrition, and transportation services. From the list of eligible services, **priority services** are identified during each funding period, based on such factors as client and Care Coordinator input, needs assessment survey results, resource inventories, client satisfaction surveys, and funding limitations.

Special Populations

HIV & Pregnancy

Vertical transmission (transmission from mother to child during the birth process) of HIV remains a serious problem in many undeveloped countries where antiretroviral medications are not readily available. CDC estimates that globally, as many as 1,600 babies are infected daily and over half a million yearly (CDC, 2006). In February 2004, the National Institutes of Health (NIH) sponsored Pediatric AIDS Clinical Trial Group study (PACTG 076) provided evidence that the use of AZT by mother and newborn could significantly reduce the risk of vertical infection to 2%. Despite these findings, a sizable number of U.S. women, especially minority women with few resources, who are at risk for HIV/AIDS are not tested prior to becoming pregnant and may present for obstetrical care late in their pregnancy or at the time of delivery.

Because of the increased risk of HIV infection, CDC recommends that HIV testing be included for all women along with other routine prenatal tests. The recommendations are for an approach in which HIV is presented as a routine part of prenatal testing and will be performed unless the women chooses to “opt-out” of the test. Even with this approach, women must sign a general informed consent and receive pre and post-test counseling. A separate written consent for HIV testing should not be required. Rapid testing (also with the opt-out approach) is recommended for women who present for labor and delivery and have not had a current HIV test. Repeat screening in the third trimester is recommended in areas where HIV infection rates among pregnant women are higher (CDC, 2006).

If results of the HIV test are positive, combination HAART should be offered to the mother following current guidelines and continued throughout her pregnancy and following delivery. All antiretroviral medications are assigned to a class depending on possible toxicity to the fetus. Information on specific medications can be found on packet inserts provided by the pharmaceutical company, on the FDA website (www.fda.gov), or in current HIV treatment guidelines. Woman diagnosed with HIV during labor can be started on antiretroviral medications as soon as possible (in the labor and delivery suite) and the newborn will be started on medications following delivery. Several factors increase the risk of vertical transmission, including maternal:

- Elevated plasma viral load
- Low CD4 count
- Co-infections
- Duration of ruptured of membranes
- Mode of delivery
- Breastfeeding

New York State requires HIV counseling and testing, if the mother agrees, for every woman who presents for delivery without documentation of her HIV status. If the woman refuses HIV testing, infants are tested immediately after birth. There is no consent required for newborn testing. Testing criteria and guidelines may vary according to state.

Additional Guidelines for Pregnancy and HIV/AIDS can be found on the CDC website at <http://www.cdc.gov/hiv/topics/perinatal/resources/factsheets/opt-out.htm>. Updated recommendations for use of antiretroviral drugs in pregnant HIV-infected women can be accessed at <http://aidsinfo.nih.gov/ContentFiles/PerinatalGL.pdf>.

Adolescents and HIV

HIV can impact adolescents in several ways. Because adolescence is a time for experimenting, it can also be a time of high-risk behaviors for HIV/AIDS. Drugs, alcohol, and sexual experimentation place adolescents in dangerous situations. Wanting to “look cool” or “be one of the group” can lead to behaviors that are risky. While searching to find one’s identity is a natural process, adolescents need the support of

family and safe friends to grow and develop. Keeping a non-judgmental approach helps to facilitate open communication.

Another group of adolescents facing a difficult transition are the children who are HIV infected and now are living into young adulthood. Like other adolescents with chronic disease, they must learn how to find their own identity in the face of uncertainty. Disclosure of their HIV/AIDS status to friends can be a difficult choice and can have an effect on the way they are accepted among peers and allowed to form relationships. Managing medications, medical appointments, tests, episodic illness, and the usual life of an adolescent can result in conflict.

Some adolescents may have other family members who are also infected, or may be living with only one parent or in another situation if their parents have already died. They have had to face multiple losses and instability when other friends may be concerned only with dating or music. Without support these adolescents may become isolated, depressed or angry compounding an already difficult life. The CDC has developed a slide set for HIV surveillance in adolescents and young adults which can be downloaded or viewed at <http://www.cdc.gov/hiv/topics/surveillance/resources/slides/adolescents/index.htm>.

HIV and the Correctional Setting

Inmates are a population vulnerable for infection with HIV/AIDS. Behaviors leading to incarceration often place them at high-risk for HIV/AIDS. IDU, snorting cocaine, using other recreational drugs and alcohol, sexual assaults, multiple sexual partners, STDs, and homelessness create an environment that promotes HIV transmission. Once in prison, sex is traded for money, protection or favors, fights result in blood exposure, drugs are used with makeshift works often sharing needles, and homemade tattoos and piercing is done with unsanitary tools. Prisons have their own culture and unofficial inmate government that often involves wars raging between gangs and violence as a way to protect territories. Condoms are often not provided for inmates. HIV/AIDS education for patients, healthcare professionals, and correction officers, providing condoms, and establishing support groups have been found to be effective in some instances in preventing the spread of HIV/AIDS in the correctional setting.

HIV and the Elderly

When we think about populations at risk we do not always think about someone the age of our parents. For years providers were aware that there were a few scattered cases of HIV among the 50+ age group, but often they were seen as exceptions to the rule. It wasn't until 1997 when the CDC announced the first decline in new AIDS cases in the U.S. overall, that the focus was shifted to a rise in AIDS among older patients. In fact, the percentage of people age 50+ with AIDS in the U.S. increased from 10% to more than 20% of the total AIDS population. Studies indicated that many patients age 50+ are diagnosed during a hospitalization and are less likely to know how they were infected. The need for a complete sexual history yearly to identify high-risk behaviors could facilitate early identification and treatment.

HIV and IDU

In many instances patients with HIV/AIDS are blamed for their disease. This is not unique to HIV/AIDS, but is common with any disease that results from actions chosen by the patient. Prejudice and stigma can ultimately affect the care patients receive.

Ding et al. (2005) evaluated physician's attitudes toward patients with HIV/AIDS who are IDUs and the quality of care they received. They selected this population because as of December 2002, 34% of all AIDS patients, and 43% of women with HIV/AIDS were injection drug users according to CDC. Subjects for their study (N= 2864) were also participating in the HIV Cost and Services Utilization Study (HCSUS). Subjects were asked to identify their primary care provider, who were also contacted and asked to complete a survey designed to collect demographic data, including sexual preference, age, ethnicity, race, years of practice, HIV knowledge, stress, and attitudes towards HIV-infected IDUs. Results indicated that 23.9% of patients in this study had a history of IDU. About 14% of physicians agreed or strongly agreed that treating HIV-infected IDUs seems futile, and if they had a choice 8.6% would prefer

not to treat that population. Finally, IDUs who had physicians with negative attitudes were significantly less likely to be exposed to HAART. Predicted percentages of patients exposed to HAART by physicians with negative attitudes were 13.5% for IDUs versus 36.1% for non-IDUs. Among patients treated by physicians with positive attitudes 32.3% of IDUs versus 34.4% of non-IDUs were exposed to HAART. However, overall, physician attitudes toward HIV-infected IDUs were not significantly related to the patient's quality of care, although IDUs reported more unmet needs. Only about 17.4% of the physicians' surveyed had negative attitudes.

Healthcare Workers and HIV: Occupational Prevention of HIV and Infection Control Procedures

No specific recommendations are made for caring for patients with HIV in the healthcare setting. Strict adherence to Universal Precautions is recommended to protect staff from transmission of HIV (CDC, 1996). As with other blood borne and communicable diseases, safe behaviors designed to avoid contact with, and spread of, infective organisms should be used at all times by all staff, visitors, and other patients. Use of gloves, masks, protective eyewear, and gowns are not indicated for routine care. They are recommended if there is the likelihood of contact with blood or body fluids containing blood, semen, and vaginal secretions. They also pertain to tissue and cerebrospinal, synovial, pleural, peritoneal, pericardial, and amniotic fluids. Universal precautions do not include feces, nasal secretions, sputum, sweat, tears, urine, or vomitus unless they containing visible blood (CDC, 2008).

Staff with areas of broken skin that is exposed should always wear protective clothing. Wearing gloves for digital exams, digital examination of the mucous membranes, endotracheal suctioning, and providing mouthpieces available for mouth-to-mouth resuscitation will assure workers' safety. As with all patients, hand washing is essential.

Healthcare personnel must always assume that the blood and other body fluids from all patients are potentially infectious. They should therefore follow infection control precautions at all times.

These precautions include:

- The routine use of barriers (such as gloves and/or goggles) when anticipating contact with blood or body fluids.
- Washing hands and other skin surfaces immediately after contact with blood or body fluids.
- The careful handling and disposing of sharp instruments during and after use.

The most common HIV/AIDS exposure risks for healthcare workers (HCW) are needlestick injuries or exposure to infected blood through breaks (cuts, lacerations) in the healthcare worker's skin, eye, or mucosa. Even after exposure the risk of infection is generally low, but should be reported immediately.

Safety devices have been developed to help prevent needle-stick injuries. If used properly, these types of devices may reduce the risk of exposure to HIV. Many percutaneous injuries are related to sharps disposal. Strategies for safer disposal, including safer design of disposal containers and placement of containers, are being developed.

In 1991, the Occupational Safety and Health Administration (OSHA) issued the bloodborne pathogen standard, which mandates the use of personal protective equipment (PPE) as a barrier to prevent HIV infection (as well as infection with other bloodborne pathogens):

1. Gloves are an important barrier. They must be worn whenever there is a potential for direct skin contact with blood such as during venipuncture, when coming into contact with mucous membranes, non-intact skin, or items and surfaces that contain blood or body fluid. Gloves must be worn whenever the practitioner is handling blood or body fluids. This includes:

- Blood
 - Blood products
 - Semen
 - Vaginal secretions
 - Cerebrospinal fluid
 - Synovial fluid
 - Pericardial fluid
 - Peritoneal fluid
 - Amniotic fluid
 - Pleural fluid
 - Saliva in dental procedure
2. Masks, protective eyewear and face shields are to be used whenever blood or body fluids may splatter, splash, spray or become aerosolized.
 3. Gowns, lab coats, or aprons are to be used during procedures in which clothing may be soiled with blood or body fluids.
 4. Fluid resistant clothing is to be used whenever blood or body fluids may splash or splatter.
 5. Fluid proof clothing is to be used whenever the likelihood of soaking with blood or body fluids may occur.
 6. Surgical caps or hoods are to be used when blood or body fluid may splash or spatter onto the head.
 7. Fluid proof shoe covers are to be used if shoes may become contaminated or soaked with blood or body fluids.

Additional practices that reduce the risk of infection include:

- Frequent, thorough hand hygiene, including after removal of gloves.
- Changing gloves between patients.
- Removal of personal protective equipment immediately after contamination whenever possible, or when leaving the work area.
- Utilizing designated areas and containers for the storage, disposal, washing or decontamination of personal protective equipment.
- Utilization of safer medical equipment such as self-sheathing syringes.
- Avoid bending, breaking or recapping of needles and other sharps.
- Disposal of sharps in puncture resistant, disposable sharps containers.
- Removal of sharps containers in a timely manner before they are over-filled.
- Do not eat, drink or apply cosmetics or contact lenses in areas where potential occupational exposure may exist.
- Do not store food and drink in refrigerators or cabinets, which may contain blood or other body fluids.

The **Needlestick Safety and Prevention Act** passed by congress in 2000; in 2001 OSHA revised the Bloodborne Pathogens Standard 1910.1030. The revised standard clarifies the need for employers to select safer needle devices and to involve employees in identifying and choosing these devices. The updated standard also requires employers to maintain a log of injuries from contaminated sharps. This has been a useful intervention in limiting the frequency of HIV exposure due to needlestick injuries among healthcare workers.

Occupational Transmission

Occupational exposure to HIV has resulted in 57 documented cases of HIV seroconversion among healthcare workers in the U.S. (CDC, 2007). The risk of occupational transmission is low; 0.3%, according to the CDC (2003). Exposure occurs when someone else's blood or body fluid comes in contact with your

mucous membranes or non-intact skin through needlesticks, cuts, cracks, chafing, etc.

Exposures are categorized by severity and degree of risk:

- **Massive** - transfusion/injection of greater than 1cc of blood.
- **Definite Parenteral** - Intramuscular injury or laceration produced by a used needle or instrument; wound, skin lesion or mucous membrane exposed to non-bloody body fluid.
- **Possible Parenteral** - Sub-cutaneous injury to wound produced by a used needle or instrument; wound, skin lesion or mucous membrane exposed to non-bloody body fluid.
- **Doubtful Parenteral** - Sub-cutaneous injury or wound produced by a needle or instrument exposed to non-bloody body fluids; prior wound, skin lesion, mucous membrane exposed to non-bloody body fluid.
- **Non-Parenteral** - Intact skin exposed to blood or body fluids.

Risk is greatest with massive exposure. Blood to blood contact is the most efficient method for transmission of HIV.

In 2005, the Centers for Disease Control recommended a 28-day HAART regimen (Post-Exposure Prophylaxis or PEP) for those who have been exposed to HIV. The drugs have demonstrated effectiveness in preventing the virus (79% or better) in those who received treatment within the initial 24 hours of exposure. The effectiveness falls to 52% of the time in those who are treated within 72 hours; those not treated within the first 72 hours are not recommended candidates for the regimen.

Table 12. HIV Post-Exposure Prophylaxis Regimens			
	Preferred	Alternatives**	Agents Not Recommended
Basic Regimen: (2-drug)	<ul style="list-style-type: none"> • Zidovudine (AZT) 300 mg twice daily + lamivudine (3TC) 150 mg twice daily or emtricitabine (FTC) 200 mg once daily* • Tenofovir (TDF) 300 mg once daily + lamivudine (3TC) 300 mg once daily or emtricitabine (FTC) 200 mg once daily[#] 	<ul style="list-style-type: none"> • Stavudine (d4T)+ lamivudine (3TC) or emtricitabine (FTC) • Didanosine (ddI) + lamivudine (3TC) or emtricitabine (FTC) 	<ul style="list-style-type: none"> • nevirapine (NVP) • delavirdine (DLV) • abacavir (ABC) • zalcitabine (ddC) • didanosine (ddI) + stavudine (d4T)
Expanded Regimens*** (3-drug)	<ul style="list-style-type: none"> • Basic regimen + lopinavir-ritonavir (LPV/r) 400/100 mg twice daily 	<ul style="list-style-type: none"> • Basic + atazanavir-ritonavir (ATV/RTV) • Basic + fosamprenavir-ritonavir (FPV/RTV) • Basic + indinavir-ritonavir (IDV/RTV) • Basic + saquinavir-ritonavir (SQV/RTV) • Basic + nelfinavir (NFV/RTV) • Basic + efavirenz (EFV)[¶] 	
<p>* Less well tolerated than tenofovir-containing regimen, available as Combivir (ZDV + 3TC) one tablet twice daily. [#] Well tolerated, available as Truvada (TDF + FTC) once daily. **For dosing of alternative regimens, see DHHS PEP guidelines at http://aidsinfo.nih.gov. [¶] Efavirenz is Pregnancy Category D. *** Enfuvirtide (T-20) should only be used with expert consultation.</p>			

Table 13. Risk of Infection Following Exposure by Blood Infected with HIV	
Needlestick	0.3% (1/300)
Exposure to eye, nose, mouth	0.1% (1/1,000)
Non-intact skin	0.01% (1/10,000)
Adapted from: CDC, 2003.	

Additional information about occupational exposure to blood borne pathogens can be obtained from <http://www.cdc.gov/ncidod/dhqp/index.html>.

Case Study #4

Vicki works in material management in a large urban teaching hospital. One of her duties is to deliver and store supplies in the room used for autopsies. She is generally very happy at work and always smiling. Late one afternoon she went to the office of the Infectious Disease Nurse Practitioner to ask questions about HIV. She was obviously upset, and began to cry as soon as the door was shut. Once the conversation started she recounted that several days ago she found out that a patient with HIV/AIDS had an autopsy performed in a room where she delivers supplies. She had no physical contact with any blood or body fluids, since her job was to fill the equipment cabinets, but she was afraid that she could have been exposed to HIV if someone involved with the autopsy touched the cabinet doors with contaminated hands, or if she stepped in blood or other body debris on the floor while working, got something on her boots, and transferred organisms to her hands when she took her boots off at home. She does not remember anything on the floor or cabinets, she does not go into the room before it has been cleaned following procedures, but she was afraid there might have been something she did not see. She was angry because she felt that she should have been informed if anyone with an infectious disease had been in the room so that she could take proper precautions. The event had happened 4 days prior to this time, and she had cried every day since.

The Nurse Practitioner explained how HIV is transmitted, and how Universal Precautions are recommended to protect HCWs from infection. She went through a checklist of possible exposures and when Vicki answered them all negatively, she assured her that she was not at risk of infection. She provided emotional support and told Vicki that she could come back anytime if she had additional questions.

The Nurse Practitioner asked for permission to include information on HIV in the new employee orientation sessions to educate HCWs how they can protect themselves and the importance of not stigmatizing patients with HIV/AIDS.

Standards for HIV/AIDS Care

Healthcare professionals involved in HIV/AIDS care are obligated to follow the same standards put forth for all patients. These standards have been developed to assure that patients are treated with dignity and respect regardless of illness or stage of life. The American Nurses Association (2008) *Guide to the Code of Ethics for Nurses* provides nurses with direction for an ethical practice. Highlights from this document include:

- Respect for human dignity
- Right for patient self-determination
- Respect of the worth, dignity, and rights of all human beings despite health problems
- Provision of care that transcends individual differences
- Respect for human values and needs without prejudice
- Consideration of lifestyle, value system, and religious beliefs when planning care
- Advocate for delivery of humane and dignified care
- Preservation of the primacy of patients' interests
- Assurance of privacy and confidentiality
- Monitoring for safe participation in research
- Advocate for social reform

Stigma is a Greek term that means to be “marked, or set aside.” For centuries, people have been stigmatized because of defects, illness, political views or other characteristics that make them different from the main group in a given society. Unfortunately, many people are still stigmatized today based solely on race, culture, religion, or behavioral characteristics. Because the majority of patients with HIV/AIDS are from minority races or participate in behaviors that are not socially acceptable (IDU, homosexual, multiple sexual partners, party drugs) they are already more likely to be stigmatized. A diagnosis of HIV/AIDS (an incurable disease) may compound the stigma they face and lead to fear and isolation. Even healthcare professionals must be aware of their own prejudices toward risk behaviors and be careful not to let their personal values interfere with patient care. How a person became infected with HIV should not be an issue for the caregiver. Providers should treat people with HIV the way they would want and expect to be treated themselves, and be sensitive to cultural variations (such as “non-traditional” family structures).

The Americans with Disabilities Act and HIV/AIDS

According to the U.S. Department of Justice (n.d.), The Americans with Disabilities Act (ADA) gives federal civil rights protections to individuals with disabilities similar to those provided to individuals on the basis of race, color, sex, national origin, age, and religion. It guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, State and local government services, and telecommunications.

People who are HIV positive or those who have AIDS are protected by the ADA. An individual is considered to have a "disability" if he or she has a physical or mental impairment that substantially limits one or more major life activities, has a record of such impairment, or is regarded as having such impairment. Persons with HIV disease, both symptomatic and asymptomatic, have physical impairments that substantially limit one or more major life activities and are, therefore, protected by the law.

Persons who are discriminated against because they are regarded as being HIV-positive are also protected. For example, a person who was fired on the basis of a rumor that he had AIDS, even if he did not, would be protected by the law. Moreover, the ADA protects persons who are discriminated against because they have a known association or relationship with an individual who is HIV-positive. For example, the ADA would protect an HIV-negative woman who was denied a job because her roommate had AIDS.

The ADA prohibits employment discrimination against qualified individuals with disabilities. A "qualified individual with a disability" is a person who meets legitimate skill, experience, education, or other requirements of an employment position he or she holds or seeks, and who can perform the essential functions of the position with or without reasonable accommodation.

Employers must provide "reasonable accommodation." This is any modification or adjustment to a job, the job application process, or the work environment that will enable a qualified applicant or employee with a disability to perform the essential functions of the job, participate in the application process, or enjoy the benefits and privileges of employment. Examples of "reasonable accommodations" include: making existing facilities readily accessible to and usable by employees with disabilities; restructuring a job; modifying work schedules; acquiring or modifying equipment; and reassigning a current employee to a vacant position for which the individual is qualified. Examples of "reasonable accommodation" include:

- An HIV-positive accountant required two hours off, bimonthly, for visits to his doctor. He was permitted to take longer lunch breaks and to make up the time by working later on those days.
- A supermarket check-out clerk with AIDS had difficulty standing for long periods of time. Her employer provided her with a stool so that she could sit down at the cash register when necessary.
- A secretary with AIDS needed to take frequent rest breaks during her work day. Her boss allowed her to take as many breaks as she needed throughout the day, so long as she completed her work before going home each evening.
- A machine operator required time off from work during his hospitalization with pneumocystis carinii pneumonia. He had already used up all his sick leave. His employer allowed him to either take leave without pay, or to use his accrued vacation leave.
- An HIV-positive computer programmer suffered bouts of nausea caused by his medication. His employer allowed him to work at home on those days that he found it too difficult to come into the office. His employer provided him with the equipment (computer, modem, fax machine, etc.) necessary for him to work at home.

For more information about the ADA, contact the ADA Information Line for documents and questions at 800-514-0301 (Voice), 800-514-0383 (TDD).

Conclusion

The number of individual living with HIV has remained stable, but prevention efforts have resulted in significantly lower transmissions rates. Since the peak of the epidemic in the mid-1980s, the vast majority of those infected do not transmit HIV. More individuals are being diagnosed with HIV and knowing their HIV status has resulted in behavior changes that have decreased transmission of the virus. A disproportionate number of individuals are affected in certain populations, and education and prevention efforts in these populations remain an important goal in the reduction of the number of HIV infections.

Caring for patients with HIV requires expertise and good nursing skills. Patients often present with complex problems and needs. While medical expertise is very important, many of the needs of patients infected with HIV are psychological, social, or spiritual. As illustrated by the case studies, treatment may fail due to factors that are not directly related to medications. Unless patients have the basic needs of food and shelter, successful treatment is unlikely.

The number of new cases of HIV globally is estimated to rise by about 14,000 cases daily. Early identification of HIV, HIV prevention education, and HAART adherence have been identified as factors that could eventually change the course of the pandemic. These areas all fall within the scope of nursing practice, and can be implemented autonomously in many different arenas of practice.

Increasing HIV awareness and knowledge among members of the nursing profession is an important step in changing attitudes and practice in the field of HIV/AIDS.

Appendix A

Kentucky HIV Care Coordinator Program (KHCCP)

Purpose:

The intent of the KHCCP is to facilitate the provision of quality care and services to HIV infected individuals and their families in a timely and consistent manner across a continuum of care. The program provides Care Coordinators in six regional sites throughout Kentucky. Arrangements are made with local health departments in the Barren River, Cumberland Valley and Northern Kentucky regions, with the University of Kentucky for Lexington and Northeastern Kentucky, and two (2) non-profit agencies in the Louisville and Purchase regions, in order to aid the client in identifying and accessing needed services. These regional sites allow for statewide coverage, and better local access to these services. KHCCP also acts as an umbrella program for other client assistance programs such as the Kentucky Health Insurance Continuation Program, Outpatient Health Care and Support Services, and the State Support Services Programs. ***(Continuation of all programs is contingent upon continued state and federal funding.)***

Goals of KHCCP:

- To optimize the client's self-care capabilities by empowering him/her to direct his/her own life decisions.
- To identify the extent of the client's informal support systems.
- To assist the client in locating and accessing existing services in areas including entitlement benefits (Medicaid and/or Social Security Disability Services), medical care, housing, counseling, transportation, legal and nutrition services.
- To identify and establish a referral system with area health care and social service providers and community-based HIV organizations, and HIV counseling and testing sites.
- To ensure that duplication of services by formal and informal support systems does not occur.
- To provide the client with educational information regarding disease transmission and maintenance of a healthy lifestyle, and encourage and reinforce good health habits and secondary prevention methods over the course of case management.
- To identify and document patterns of service needs and advocate for effective policies and resource development.
- To facilitate the initial and on-going education of health care and social service providers to the issues surrounding HIV disease.
- To ensure that 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.

Basic Eligibility Criteria for Financial Assistance Programs:

- Household Income - 300% of federal poverty level, or less.
- Household Resources - cash assets of less than \$10,000.
- Client Residency - must be a resident of Kentucky.
- Medical Documentation - HIV+ status must be confirmed with appropriate documentation. (For KADAP participation, medical documentation must also include CD4+ T cell count and viral load.)
- Lack of Other Third Party Payer - must be ineligible for assistance from other third party payers for the assistance being requested.

FINANCIAL ASSISTANCE PROGRAMS:

Kentucky AIDS Drug Assistance Program (KADAP) - This program assists low-income, eligible Kentuckians with the purchase of AIDS-related medications prescribed for FDA-approved indications. Once approved, eligible applicants receive formulary medications through a mail-order pharmacy service provided by the UK Pharmacy. **NOTE: When necessary, a waiting list is established for this program. 1-866-510-0005 (toll free)**




Kentucky Health Insurance Continuation Program (KHICP) - provides payments for the continuation of health insurance benefits for eligible individuals who are at risk of losing their employment-related or private-pay health insurance because of HIV disease.




Kentucky Outpatient Health Care and Support Services Programs - provide assistance for eligible individuals with a wide range of community-based medical and non-medical support services, such as, but not limited to, physical and mental health care, housing, nutrition, and transportation services. From the list of eligible services, **priority services** are identified during each funding period, based on such factors as client and Care Coordinator input, needs assessment survey results, resource inventories, client satisfaction surveys, and funding limitations.

The overall intent of the services programs is to provide clients with a continuum of care utilizing existing community-based services to the greatest extent possible.



HIV Care Coordinator Regions

<p>Barren River Region</p>  <p>Matthew 25 452 Old Corydon Rd Henderson, KY 42420 (270) 826-0200 (877) 428-1231 Fax: (270) 826-0212</p>	<p>Counties Covered:</p> <table border="0"> <tr> <td>Allen</td> <td>Hardin</td> <td>Monroe</td> </tr> <tr> <td>Barren</td> <td>Hart</td> <td>Nelson</td> </tr> <tr> <td>Breckinridge</td> <td>Henderson</td> <td>Ohio</td> </tr> <tr> <td>Butler</td> <td>Larue</td> <td>Simpson</td> </tr> <tr> <td>Daviess</td> <td>Logan</td> <td>Union</td> </tr> <tr> <td>Edmonson</td> <td>McLean</td> <td>Warren</td> </tr> <tr> <td>Grayson</td> <td>Marion</td> <td>Washington</td> </tr> <tr> <td>Hancock</td> <td>Meade</td> <td>Webster</td> </tr> <tr> <td></td> <td>Metcalfe</td> <td></td> </tr> </table>	Allen	Hardin	Monroe	Barren	Hart	Nelson	Breckinridge	Henderson	Ohio	Butler	Larue	Simpson	Daviess	Logan	Union	Edmonson	McLean	Warren	Grayson	Marion	Washington	Hancock	Meade	Webster		Metcalfe							
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<p>Cumberland Valley Region</p>  <p>Cumberland Valley District Health Department 103 Chera Lynn Lane London, KY 40741 (606) 864-3776 (888) 425-7282* Fax: (606) 864-3732 * for client use only</p>	<p>Counties Covered:</p> <table border="0"> <tr> <td>Adair</td> <td>Jackson</td> <td>Owsley</td> </tr> <tr> <td>Bell</td> <td>Johnson</td> <td>Perry</td> </tr> <tr> <td>Breathitt</td> <td>Knott</td> <td>Pike</td> </tr> <tr> <td>Casey</td> <td>Knox</td> <td>Pulaski</td> </tr> <tr> <td>Clay</td> <td>Laurel</td> <td>Rockcastle</td> </tr> <tr> <td>Clinton</td> <td>Lee</td> <td>Russell</td> </tr> <tr> <td>Cumberland</td> <td>Leslie</td> <td>Taylor</td> </tr> <tr> <td>Floyd</td> <td>Letcher</td> <td>Wayne</td> </tr> <tr> <td>Green</td> <td>Magoffin</td> <td>Whitley</td> </tr> <tr> <td>Harlan</td> <td>Martin</td> <td>Wolfe</td> </tr> <tr> <td></td> <td>McCreary</td> <td></td> </tr> </table>	Adair	Jackson	Owsley	Bell	Johnson	Perry	Breathitt	Knott	Pike	Casey	Knox	Pulaski	Clay	Laurel	Rockcastle	Clinton	Lee	Russell	Cumberland	Leslie	Taylor	Floyd	Letcher	Wayne	Green	Magoffin	Whitley	Harlan	Martin	Wolfe		McCreary	
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<p>Lexington Region</p>  <p>Bluegrass Care Clinic, University of Kentucky (UK) 740 S. Limestone 5D Room L528 UK Medical Center Lexington, KY 40536 (859) 323-5544</p>	<p>Counties Covered:</p> <table border="0"> <tr> <td>Anderson</td> <td>Fleming</td> <td>Mason</td> </tr> <tr> <td>Bath</td> <td>Franklin</td> <td>Menifee</td> </tr> <tr> <td>Bourbon</td> <td>Garrard</td> <td>Mercer</td> </tr> <tr> <td>Boyd</td> <td>Greenup</td> <td>Montgomery</td> </tr> <tr> <td>Boyle</td> <td>Harrison</td> <td>Morgan</td> </tr> <tr> <td>Bracken</td> <td>Jessamine</td> <td>Nicholas</td> </tr> <tr> <td>Carter</td> <td>Lawrence</td> <td>Powell</td> </tr> <tr> <td>Clark</td> <td>Lewis</td> <td>Robertson</td> </tr> <tr> <td>Elliott</td> <td>Lincoln</td> <td>Rowan</td> </tr> <tr> <td>Estill</td> <td>Madison</td> <td>Scott</td> </tr> <tr> <td>Fayette</td> <td></td> <td>Woodford</td> </tr> </table>	Anderson	Fleming	Mason	Bath	Franklin	Menifee	Bourbon	Garrard	Mercer	Boyd	Greenup	Montgomery	Boyle	Harrison	Morgan	Bracken	Jessamine	Nicholas	Carter	Lawrence	Powell	Clark	Lewis	Robertson	Elliott	Lincoln	Rowan	Estill	Madison	Scott	Fayette		Woodford
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<p>Louisville Region</p>  <p>Volunteers of America 850 Barret Ave. Suite 302 Louisville, KY 40204 (502) 574-0161</p>	<p>Counties Covered:</p> <table border="0"> <tr> <td>Bullitt</td> <td>Jefferson</td> <td>Spencer</td> </tr> <tr> <td>Henry</td> <td>Oldham</td> <td>Trimble</td> </tr> <tr> <td></td> <td>Shelby</td> <td></td> </tr> </table>	Bullitt	Jefferson	Spencer	Henry	Oldham	Trimble		Shelby										
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<p>Northern Kentucky Region</p>  <p>Northern Kentucky District Health Department 610 Medical Village Dr Edgewood, KY 41017 (859) 341-4264 Fax: (859) 578-3689</p>	<p>Counties Covered:</p> <table border="0"> <tr> <td>Boone</td> <td>Gallatin</td> <td>Kenton</td> </tr> <tr> <td>Campbell</td> <td>Grant</td> <td>Owen</td> </tr> <tr> <td>Carroll</td> <td></td> <td>Pendleton</td> </tr> </table>	Boone	Gallatin	Kenton	Campbell	Grant	Owen	Carroll		Pendleton									
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<p>Purchase Region</p>  <p>Heartland Cares, Inc. 619 N. 30th Street Paducah, KY 42001 (270) 444-8183 (877) 444-8183 Fax: (270) 444-8147</p>	<p>Counties Covered:</p> <table border="0"> <tr> <td>Ballard</td> <td>Fulton</td> <td>Lyon</td> </tr> <tr> <td>Caldwell</td> <td>Graves</td> <td>McCracken</td> </tr> <tr> <td>Calloway</td> <td>Hickman</td> <td>Marshall</td> </tr> <tr> <td>Carlisle</td> <td>Hopkins</td> <td>Muhlenberg</td> </tr> <tr> <td>Christian</td> <td>Livingston</td> <td>Todd</td> </tr> <tr> <td>Crittenden</td> <td></td> <td>Trigg</td> </tr> </table>	Ballard	Fulton	Lyon	Caldwell	Graves	McCracken	Calloway	Hickman	Marshall	Carlisle	Hopkins	Muhlenberg	Christian	Livingston	Todd	Crittenden		Trigg
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For more information contact the nearest Care Coordinator, or the Care Coordinator Program Administrator, (502) 564-6539 or (800) 420-7431.

Appendix B

Available from: <http://chfs.ky.gov/NR/rdonlyres/229DA8CE-0350-4C61-847E-241E1DBB5E17/0/CBOattachment.pdf>

Kentucky Community Based Organizations Providing HIV Prevention Services

Community-based organizations provide a variety of resources for both those infected and affected by HIV disease. The following is Kentucky's current list of CBOs:

AIDS Interfaith Ministries of Kentuckiana (AIM) provides support services to individuals living with HIV/AIDS and their families in the Louisville area. (502) 574-6085 <http://www.aimkyonline.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) 574-5490 www.ascconc.org

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 where HIV exposure is more likely. Although AVOC primarily serves Cincinnati and southwest Ohio, they offer many of their services to individuals and groups in Northern Kentucky. These 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) www.avoc.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. AVNK provides a number of services including 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. (859) 512-7925 email mconnley@insightbb.com

AIDS Volunteers, Inc. (AVOL) located in Lexington 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. 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) 225-9244

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 that 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, AIDS 101 training, peer training for adolescents, African American AIDS 101 training, Hispanic AIDS 101 training, rural and church leader

AIDS 101 training, prison personnel training, and a program specifically entitled "AIDS in the Workplace" which is designated for businesses and industries. (502) 589-4450

Bluegrass Farm worker Health Center (BFHC): Located in Lexington and Richmond, the BFHC serves a primarily migrant/ seasonal farm worker population in 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 health care in settings that embrace the Hispanic culture and language. Clinical and outreach staff are fluent in Spanish and English. 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.

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. Contact: Lisa – lisainky@adelphia.net

Harlan Countians for a Health Community located in Baxter, is a coalition of healthcare providers, consumers, and other interested agencies whose purpose is to improve healthcare in Harlan County. (606) 573-6115

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) 436-0051 <http://www.hpccm.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 Part C 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 <http://hcares-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 <http://www.houseofruth.net/>

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. (859) 512-7925 e-mail mconnley@insightbb.com

Matthew 25 AIDS Services, Inc. located in Henderson is a Ryan White CARE Act Parts B and C and CDC Prevention PA04064 Grantee. They are a provider of primary health care 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 (positive, family and friends), transportation and prevention education for the community and medical professionals. Matthew 25 also distributes HOPWA funds and does counseling and testing for HIV (blood and oral testing). (270) 826-0200 www.matthew25clinic.org

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; www.feastlex.org

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 health care 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. <http://www.nckyahec.org/>

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 also provide community outreach services with HIV prevention and risk reduction programs to targeted populations and various communities, medical professionals and local organizations. Members of the Task Force are state certified pre and post-test counselors as well as certified to administer OraSure for HIV testing. Members are also certified to inspect potential housing for clients wishing to obtain HOPWA funding. The Task Force is a certified partner of the Balm in Gilead. A support group for PWHIV is in place. They act as a referral source to all the available assistance programs for clients. The Task Force has some HIV positive members who have made presentations at several high schools, a program describing the emotional, physical and financial stresses of being HIV positive. (270) 683-6018 www.owensboro-aids.org

Sisters and Brothers Surviving AIDS (SABSA) is a support group located in Louisville for all HIV positive people and their friends and family. SABSA provides education and emotional support specific to the needs of those living with HIV and more specifically to the needs of the African-American community. However, everyone is welcome regardless of gender, race, sexual orientation, creed, religion or ethnic background. (502) 231-3871 <http://www.sabsaonline.com/home.htm>

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 <http://www.salvationarmylex.org/>

University of Cincinnati Hospital, Holmes Clinic located in Cincinnati, Ohio is the Infectious Disease Center for the University of Cincinnati Hospital. Holmes Clinic provides medical services to individuals diagnosed with HIV/AIDS and is funded primarily through Ryan White Part C 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) 584-6977. 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

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 pretest 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 provides case management services to people living with HIV. 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) 635-1361 <http://www.voa.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

WINGS Clinic located in Louisville is a Ryan White CARE Act Part C 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 & mental health counseling, as well as liaisons to community services. (502) 852-5203 <http://www.thewingsclinic.com/>

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HIV/AIDS: Mandatory Information for KY Health Professionals Course Exam

After studying the downloaded course and completing the course exam, you need to enter your answers online. **Answers cannot be graded from this downloadable version of the course.** To enter your answers online, go to e-learnRN's Web site, www.elearnonline.net and click on the Login/My Account button. As a returning student, login using the username and password you created, click on the "Go to Course" link, and proceed to the course exam.

Note: Contact hours will be awarded for this online course until May 1, 2013.

1. Of the individuals who died of AIDS-related illnesses, approximately 72 percent of these deaths occurred in sub-Saharan Africa.
 - A. True.
 - B. False.
2. In the United States the exposure categories in rank order of the greatest number of AIDS cases in 2009 were:
 - A. Heterosexual sex, male to male sexual contact (MSM), injecting drug use (IDU), and other.
 - B. Injecting drug use, male to male sexual contact, heterosexual sex and other.
 - C. Male to male sexual contact, injecting drug use, heterosexual sex and other.
 - D. Heterosexual sex, injecting drug use, male to male sexual contact and other.
3. HIV can be transmitted by casual contact, sharing eating utensils or bathrooms, casual kissing, hugging, and mosquitoes.
 - A. True.
 - B. False.
4. A major intervention in the prevention of HIV transmission is taking a thorough sexual history. Many healthcare professionals struggle with this because:
 - A. Time constraints that make a focus on health history prohibitive; clinicians focus on the presenting problem.
 - B. They may be embarrassed or uncomfortable with the subject particularly with older patients or those who have a sexual orientation other than the nurse's own orientation.
 - C. Not recognizing that there may have been a change in a patient's lifestyle, even among established patients.
 - D. All of the above.
5. In contrast to standard HIV testing, which takes approximately 2 weeks to obtain results the OraQuick Rapid HIV testing can be accomplished in 30 minutes.
 - A. True.
 - B. False.

6. There are five stages in the HIV lifecycle. The five stages are:
- A. Infection, integration, fusion, cleavage/viral assembly/budding, uncoating/reverse transcription.
 - B. Fusion, infection, uncoating/reverse transcription, cleavage/viral assembly/budding, integration.
 - C. Infection, fusion, uncoating/reverse transcription, integration, cleavage/viral assembly/budding.
 - D. None of the above.
7. Antiretroviral medications used to treat HIV are divided into classifications that target the virus at differing stages in its lifecycle. Protease inhibitors are a classification of antiretroviral medication that interferes with the process of viral assembly.
- A. True.
 - B. False.
8. The main tests used to monitor the progress of HIV disease are:
- A. CD4 count which is an indicator of immune status; the higher the number, the more CD4 lymphocytes available to defend the body against HIV.
 - B. Viral load which indicates the number of copies of virus in the blood; the lower the number, the slower the progression of disease.
 - C. Both A and B.
 - D. Neither A or B.
9. Among the consequences of non-adherence to HAART are all the following **EXCEPT**:
- A. An increased risk of infection to others.
 - B. Faster disease progression and poorer prognosis.
 - C. The development of multiple drug resistant strains of HIV, which makes for poor treatment options for the patient and others who they may infect.
 - D. An abnormally high CD4 count.
10. The most common HIV/AIDS exposure risk for healthcare workers are needlestick injuries or exposure to infected blood through breaks (cuts, lacerations) in the healthcare worker's skin, eye, or mucosa.
- A. True.
 - B. False.
11. Kentucky receives funding through the Ryan White HIV/AIDS Treatment and Modernization Act of 2006 and from the state of Kentucky. Eligibility for funding HIV-related illness includes all of the following **EXCEPT**:
- A. You must be a resident of Kentucky.
 - B. You must have documented AIDS.
 - C. You may not have another payer source.
 - D. You must have assets less than \$10,000.
12. Which Kentucky program provides patients with HIV/AIDS related medications?
- A. Kentucky Care Coordination Program (KHCCP)
 - B. Kentucky Health Insurance Continuation Program (KHICP)
 - C. Kentucky AIDS Drug Assistance Program (KADAP)
 - D. Kentucky HIV Care Coordinator Regions