



# **Comprehensive Overview of HIV/AIDS State of Kentucky Mandatory Training**

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## Answer Sheet: Kentucky HIV/AIDS

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## Table of Contents

Instructions	6
Objectives	8
Introduction	8
HIV/AIDS Basic Medical and Epidemiological Information	9
Prevalence of HIV and AIDS	18
Transmission of HIV	25
Testing for HIV/AIDS	30
HIV Prevention	36
Treatment of HIV/AIDS	40
Management of HIV in the Healthcare Workplace	44
Legal Aspects of HIV/AIDS & Testing, Counseling, & Confidentiality	51
HIV and Co-Infection	58
Psychosocial Issues/Stigma	67
Conclusion	71
Appendix A: Overview of Services Available Through Kentucky's Ryan White and State-Funded Services Programs, September, 2012	72
Appendix B: Kentucky Community-Based Organizations (CBOs) Providing HIV Prevention Services	74
Appendix C: HIV Testing	78
References	82
Test	83

## Objectives

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

- Define HIV and AIDS.
- Describe the natural history of HIV infection.
- Describe behaviors that increase the risk of HIV infection.
- Discuss Infection Control precautions, including Universal/Standard precautions.
- Describe the procedure for on-the-job exposure to HIV, HBV or HCV.
- Identify the various acceptable forms of HIV testing in Kentucky.
- Discuss the 2006 CDC testing recommendations.
- Discuss recent HIV medication therapies.
- Outline management of HIV and common co-occurring illnesses.
- State the HIV/AIDS reporting requirements in Kentucky.
- Define confidentiality and discrimination as it relates to HIV in Kentucky.
- Discuss the human impact of HIV/AIDS on the patient and the caregiver.
- Discuss select populations in relation to HIV/AIDS.



**The looped red ribbon is the universal symbol of AIDS awareness.**

Courtesy of the National Institutes of Health.

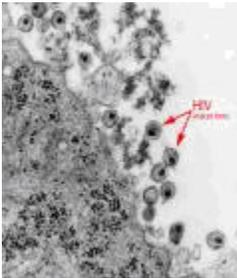
## Introduction

As of June 30, 2012, a total of 8,513 cumulative HIV infections had been reported among Kentuckians to the Department for Public Health's HIV/AIDS Surveillance Program since AIDS reporting started in 1982 (KCHFS, 2013). Because the diagnosis of HIV infection or AIDS was a death sentence for many years until the highly active antiretroviral medications were discovered, the HIV virus and the diseases it causes continue to be greatly feared. Significant efforts have been made by researchers, clinicians and public health workers to increase our knowledge of HIV, its diseases and effective prevention and treatment, since they were first identified in the 1980s. The massive public health effort to increase knowledge about HIV transmission and effective protective interventions certainly have helped to reduce the fear that initially gripped the US. With the introduction of the highly active antiretroviral medications, HIV has become a chronic illness rather than a death sentence for many people. The general public and healthcare workers have benefited from this collectively gained knowledge.



People who are infected with HIV come from all races, all countries, sexual orientations, genders, and income levels. Globally, most of the people who are infected with HIV have not been tested, and are unaware that they are living with the virus.

**The Human Immunodeficiency Virus (HIV)** is the virus that attacks the immune system, damaging the body's ability to fight the organisms that cause infections and diseases. It is the virus that leads to a diagnosis of AIDS. But HIV and AIDS are not the same. Everyone who has AIDS has been infected with HIV; but everyone with HIV infection does not have AIDS.



This highly magnified transmission electron micrographic (TEM) image revealed the presence of mature forms of the human immunodeficiency virus (HIV) in a tissue sample under investigation.

Courtesy of US Public Health Image Library.

HIV has divided into two primary strains: HIV-1 and HIV-2. HIV-1 is found throughout the world. HIV-2 is found primarily in West Africa, where the virus may have been in circulation since the 1960s - 1970s. Both HIV-1 and HIV-2 have several subtypes. It is virtually certain that more undiscovered subtypes are in existence now. It is also probable that more HIV subtypes will evolve in the future.

**Acquired ImmunoDeficiency (sometimes Immune Deficiency) Syndrome (AIDS)** is a complex of symptoms and diseases caused by the HIV virus as it impacts the immune system. It is an acquired disease. As HIV damages the immune system, infected persons become vulnerable to opportunistic organisms. These opportunistic infections generally do not pose a threat to persons with healthy functioning immune systems. The diagnosis of AIDS requires a positive HIV antibody test or evidence of HIV infection and the appearance of some very specific conditions/diseases.

#### **AIDS Indicator Conditions (Adults)**

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

- Candidiasis, of esophagus, trachea, bronchi or lungs.
- Cervical cancer, invasive.
- Coccidioidomycosis, extrapulmonary.
- Cryptococcosis, extrapulmonary.
- Cryptosporidiosis with diarrhea greater than one month.
- Cytomegalovirus of any organ other than liver, spleen, or lymph nodes.
- Herpes simplex with mucocutaneous ulcer lasting longer than one month or bronchitis, pneumonitis, esophagitis.
- Histoplasmosis, extrapulmonary.
- HIV-associated dementia: disabling cognitive and/or motor dysfunction interfering with activities of daily living.
- HIV-associated wasting: involuntary weight loss >10% of baseline plus chronic diarrhea (2 loose stools/day for 30 days) or chronic weakness and documented enigmatic fever 30 days.
- Kaposi's sarcoma.
- Isosporiasis, chronic intestinal (greater than 1 month's duration).
- Lymphoma of brain.
- Lymphoma, non-Hodgkin's of B-cell or unknown immunologic phenotype and histology showing small, noncleaved lymphoma or immunoblastic sarcoma.

- Mycobacterium avium complex or M. kansasii, disseminated.
- Tuberculosis.
- Pneumocystis jiroveci (formerly carinii) pneumonia.
- Pneumonia, recurrent-bacterial (2 episodes in 12 months).
- Progressive multifocal leukoencephalopathy.
- Salmonella septicemia (non-typhoid), recurrent.
- Toxoplasmosis of internal organs.

When HIV enters the bloodstream, the virus seeks a particular lymphocyte, the **CD4** cell (also called the T4 cell or T-Helper lymphocyte), which functions to "orchestrate" the immune system in the event of attack from pathogens. Upon contact with HIV the T-cell signals the production of **antibodies**. Particularly frustrating about HIV is that the antibodies produced to fight the virus are not able to do so, since HIV captures the cells that signal antibodies to be produced. The result is an eventual decline of the immune system.

### **AIDS Surveillance Case Definition**

In 1987, the CDC defined AIDS using a positive HIV antibody test plus a list of conditions that indicated a deficient immune system. The original case definition of HIV infection was based on the clinical symptoms seen in men. In 1993, the CDC revised the classification system for HIV infection and expanded the case definition for AIDS to include more conditions and a variety of CD4-cell counts; it included invasive cervical cancer, obviously a condition found only in women. The revised definition meant that more people were considered to have AIDS. That year there was a "jump" in the number of people with AIDS which reflected the change in classification system.

An AIDS diagnosis is only made by a licensed healthcare provider, based on a confirmed HIV test result, the presence of certain defining physical conditions, and the person's CD4-cell count. HIV has a wide spectrum of clinical presentations in children. The CDC developed a revised pediatric HIV classification system in 1994, to clarify HIV-infected pediatric patients into categories based on their immune system, CD4 cells, and clinical category. Pediatric classification of AIDS is different than the classification for adults.

The 1993 *AIDS Surveillance Case Definition for Adolescents and Adults*, which is the most current definition, is comprised of a 3 x 3 staging system. In this definition, any person who is HIV-infected and has either an AIDS indicator condition or a CD4+, the T-cell count, less than 200 cells/mm<sup>3</sup>, or less than 14%, is considered to have AIDS.

The **2008 revised HIV case definition** classifies HIV infection among adults and adolescents and among children. The revised definition incorporates an HIV infection classification staging system that includes AIDS (HIV infection, stage 3). The stages of HIV infection are defined as follows (CDC, 2012):

- **HIV infection, stage 1:** No AIDS-defining condition and either CD4 count of  $\geq 500$  cells/ $\mu$ L or CD4 percentage of total lymphocytes of  $\geq 29$ .
- **HIV infection, stage 2:** No AIDS-defining condition and either CD4 count of 200–499 cells/ $\mu$ L or CD4 percentage of total lymphocytes of 14–28.
- **HIV infection, stage 3 (AIDS):** Documentation of an AIDS-defining condition or either a CD4 count of  $< 200$  cells/ $\mu$ L or a CD4 percentage of total lymphocytes of  $< 14$ . Documentation of an AIDS-defining condition supersedes a CD4 count or percentage that would not, by itself, be the basis for a stage 3 (AIDS) classification.
- **HIV infection, stage unknown:** No reported information on AIDS-defining conditions and no information available on CD4 count or percentage.

## The Natural History of HIV Infection

A person with **untreated** HIV infection will experience several stages in infection. These include:

- Viral transmission,
- Primary HIV infection,
- Seroconversion,
- Asymptomatic HIV infection,
- Symptomatic HIV infection, and
- AIDS.

These stages are sometimes called the "natural history" of disease progression and are described below. The natural history of HIV infection has been altered dramatically in developed countries because of new medications. In countries where there is no access to these expensive medications, or in cases where people do not become aware of their HIV infection until very late, the disease progresses as described below.

A **cofactor** is a separate condition that can change or "speed up" the course of disease. There are several cofactors that can increase the rate of progression to AIDS. They include a person's age, certain genetic factors and possibly drug use, smoking, nutrition and hepatitis C (HCV).

Currently, if the infection is untreated, the average time from HIV infection to death is 10-12 years. Early detection and medical treatment may mean that the person will live longer.

**Viral transmission** is the initial infection with HIV. When a person is infected with HIV, they will probably have virus circulating in their bloodstream, and may become infectious to others within five days. **The person may be infectious before the onset of any symptoms.** They will remain infectious for the rest of their lives.

During **primary HIV infection**, the first few weeks of HIV infection, an infected person has a very high amount of virus in their bloodstream. The high **viral load** means the individual may more easily pass the virus to others. Unfortunately, during primary infection, many people are unaware that they are infected.

The most common symptoms noticed by persons newly infected with HIV are fever, swollen glands in the neck, armpits and/or groin, rash, fatigue and a sore throat. These symptoms are common to many other infections. These initial symptoms go away in a few weeks, but the individual continues to be infectious to others. This is sometimes called "seroconversion syndrome" or "seroconversion sickness." It resembles mononucleosis infection, with similar symptoms and length of illness.

It is extremely important that healthcare providers consider special testing for HIV itself (not antibodies) if an individual has behaviors which put him or her at risk for HIV and is presenting with the above symptoms. If individuals experience these symptoms after having unprotected sex or sharing needles, they should seek medical care and tell their provider why they are concerned about HIV infection.

Some healthcare providers believe that a newly HIV-infected person should begin to take drug therapies immediately. Others believe that people should wait. However, people should also assume that they could be taking HIV-related medications the remainder of their lives.

The **window period** is the period of time after the virus enters the body and attacks the CD4 cells until the body produces antibodies to the virus. It may take between two weeks to six months for antibodies to develop. During this time, the person is infectious; s/he can pass the virus to someone else, and will remain infectious throughout life. However, the person may not have produced sufficient antibodies to be

detectable on an HIV antibody test. A newly infected person can infect a partner **before** antibodies develop, when high amounts of virus in the blood are present.

**Seroconversion** is the time period that it takes from infection to the production of antibodies, which would show positive on an HIV test. This may vary from person to person. HIV antibodies are detectable sometime within the first three to six months of infection, and in most cases will be detectable for life

**Asymptomatic HIV infection** is the time period an HIV-infected person has no noticeable signs or symptoms. The person may look and feel healthy, but can still pass the virus to others. It is not unusual for an HIV-infected person to live 10 years or longer without any outward physical signs of progression to AIDS. Meanwhile, the person's blood and other systems are affected by HIV. This would be reflected in laboratory tests. Unless a person in this stage has been tested for HIV, they will probably not be aware they are infected.

The **incubation period** is the interval between HIV infection and the appearance of the first symptoms. It may be several months to many years before persistent symptoms occur.

During the **symptomatic stage** of HIV infection, a person begins to have noticeable physical symptoms that are related to HIV infection. Although there are **no** symptoms that are specific **ONLY** to HIV infection, some common symptoms are:

- A persistent low grade fever.
- Pronounced weight loss that is not due to dieting.
- Persistent headaches.
- Diarrhea that lasts more than one month.
- Difficulty recovering from colds and the flu.
- A person may become sicker than they normally would.
- Women may have recurrent vaginal yeast infections.
- Thrush (a yeast infection) coating the mouth or tongue.

The **latency period** is the time frame from HIV infection until the start of persistent symptoms of AIDS. Even without antiretroviral therapy, there is an average of ten years in the latency period. During this time, an HIV-infected person looks and feels fine, but the virus is replicating and slowly destroying CD4 cells and the immune system.

Over time, people with AIDS frequently have a reduced white blood cell count and develop poorer health. They may also have a significant amount of virus present in their blood, which is measured as viral load. When a person's immune system is suppressed, they have weaker defenses against the wide variety of bacteria, viruses, fungi and other pathogens that are present almost everywhere. A **clinical manifestation** is the physical result of some type of illness or infection.

The **opportunistic** diseases and infections associated with HIV infection are any of the infections that are part of an AIDS-defining classification (covered above). For example: the opportunistic infection cytomegalovirus often causes the clinical manifestation of blindness in people with AIDS.

HIV affects:

- The kind and number of blood cells.
- The amount of fat and muscle distribution in the body.
- The structure and functioning of the brain.
- The normal functioning of the immune system.
- The body's basic metabolism.

HIV infection can cause many painful or uncomfortable conditions, including:

- Confusion or dementia.
- Diarrhea.
- Fatigue.
- Fever.
- Nausea or vomiting.
- Painful joints, muscles, or nerve pain.
- Difficulty with breathing.
- Urinary or fecal incontinence.
- Vision or hearing loss.
- Thrush (yeast infections in the mouth).
- Chronic pneumonias, sinusitis, or bronchitis.
- Loss of muscle tissue and body weight.

### **Oral Manifestations of HIV Infection**

Oral manifestations of HIV disease are common and include oral lesions and novel presentations of known opportunistic diseases. According to the World Health Organization (2013), 40 to 50 % of HIV positive persons have fungal, bacterial or viral infections often occurring early in the course of the illness. They also identify that the following oral lesions are strongly associated with HIV infections:

- Pseudo-membranous oral candidiasis
- Oral hairy leukoplakia
- HIV gingivitis and periodontitis
- Kaposi sarcoma
- Non-Hodgkin lymphoma, and
- Dry mouth due to decreased salivary flow.

The presence of these lesions may be an early diagnostic indicator of immunodeficiency and HIV infection, which can lead to testing and diagnosis. In other cases, the presence of oral manifestations may change the classification of the stage of HIV infection and may be a predictor of the progression of HIV disease. For example, untreated HIV-infected patients with oral candidiasis have been shown to progress to an AIDS diagnosis within a two-year period. The presence of oral manifestations of HIV infection require definitive clinical management.

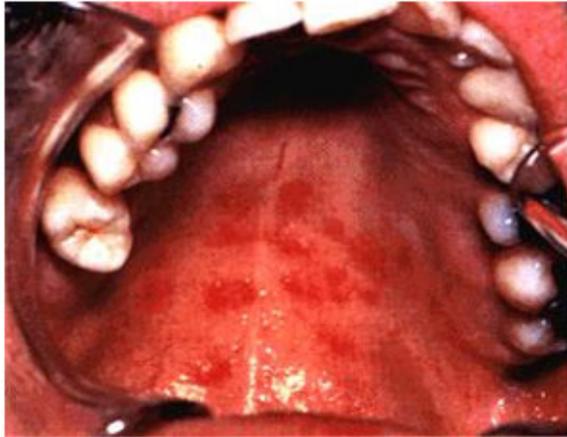
Every patient should receive a comprehensive initial evaluation; comprehensive primary care includes primary oral healthcare. Oral manifestations of HIV infection may be the first AIDS defining condition for that specific person

Another way to study oral lesions in HIV infected patients relates to the approximate level of CD4+ cells versus the type of lesion. This is not an absolute rule, as many patients can experience these lesions at different levels of immune suppression. This time line of lesions is graphed versus the deterioration of the immune system.

### Oral Lesions Associated with HIV

Clinical appearance and symptoms are often non-specific and can be atypical in presentation. Careful diagnostics are required, including laboratory testing and biopsy, as indicated. Oral lesions can be fungal, viral, bacterial, neoplastic and of other origin (USDVA, 2008):

### *Fungal*



Erythematous candidiasis appearing as red plaques on the palate. Deborah Greenspan, DSC, BDS, University of California San Francisco, photo courtesy of USDVA, AIDS/HIV

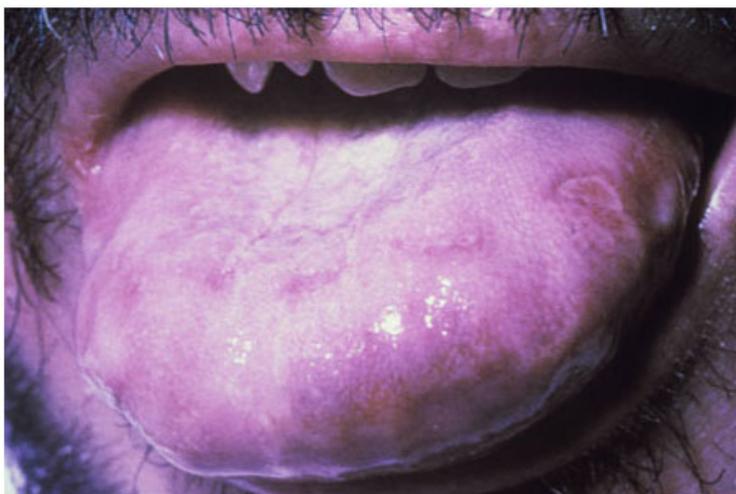
**Candidiasis** can vary in clinical appearance. The most common presentations include **pseudomembranous** and **erythematous**, which are equally predictive of the development of AIDS, and **angular cheilitis**. These lesions may be associated with a variety of symptoms, including a burning mouth, problems eating spicy food, and changes in taste. All three of these common forms may appear in one individual.

**Histoplasmosis** may initially present in the oral cavity. These lesions appear as ulcerations that can affect any mucosal surface. Diagnosis requires biopsy

**Cryptococcosis** infection may cause a pneumonia-like illness, with shortness of breath, coughing and fever. Skin lesions may also occur.

### *Viral*

**Herpes simplex** causes primary and secondary or recurrent disease in the oral cavity. The patient may report a history of itching or pain, followed by the appearance of small vesicles. These rupture and form crusts. Recurrent intraoral herpes appears as clusters of painful small vesicles that rupture and ulcerate and usually heal within 1 week to 10 days. The lesions usually occur on the keratinized mucosa, such as the hard palate and gingiva, although lesions may arise on the dorsal surface of the tongue.



Herpes Simplex oral manifestation. Paul A. Volberding, MD, University of California San Francisco, photo courtesy of USDVA, AIDS/HIV

**Herpes zoster** generally causes skin lesions. Following a prodrome of pain, multiple vesicles appear on the facial skin, lips, and oral mucosa. Skin and oral lesions are frequently unilateral and follow the distribution of the maxillary and/or mandibular branches of the trigeminal nerve. The skin lesions form crusts and the oral lesions coalesce to form large ulcers. The ulcers frequently affect the gingiva, so tooth pain may be an early complaint.

**Human papillomavirus** commonly cause lesions on the skin and mucous membranes of persons with HIV disease. HPV lesions in the oral cavity may appear as solitary or multiple nodules. They may be sessile or pedunculated and appear as multiple, smooth-surfaced raised masses resembling focal epithelial hyperplasia or as multiple, small papilliferous or cauliflower-like projections.

**Cytomegalovirus (CMV)** ulcers can appear on any mucosal surface and usually have an erythematous margin; CMV ulcers appear necrotic with a white halo. Diagnosis of CMV ulcers is made from a biopsy. Immunohistochemistry may be helpful. CMV ulcers in the oral cavity usually occur in individuals with disseminated CMV disease. Therefore, diagnosis of CMV-infected oral ulcers should be followed by examination for the systemic disease. CMV ulcers resolve when ganciclovir is used to treat CMV disease.

**Hairy leukoplakia (HL)**, which presents as a nonmovable, corrugated or "hairy" white lesion on the lateral margins of the tongue, occurs in all risk groups for HIV infections, although less commonly in children than in adults. HL occurs in about 20% of persons with asymptomatic HIV infection and becomes more common as the CD4 T-cell count falls.

#### *Bacterial*

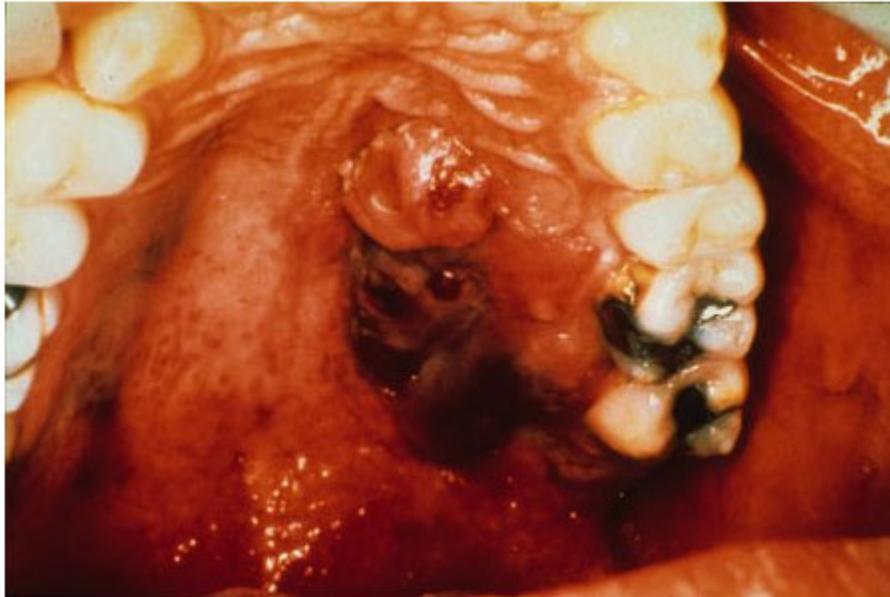
**Periodontal disease** is a fairly common problem in both asymptomatic and symptomatic HIV-infected patients. It can take two forms: the rapid and severe condition called **necrotizing ulcerative periodontitis** (NUP) and its associated and possibly precursor condition called **linear gingival erythema** (LGE). The presenting clinical features of these diseases often differ from those in non-HIV-infected persons.

**LGE and NUP** often occur in clean mouths where there is very little plaque or calculus to account for the gingivitis. The onset is often sudden, with rapid loss of bone and soft tissue. In LGE, the gingiva may be reddened and edematous. Patients sometimes complain of spontaneous bleeding. In acute-onset ulcerative gingivitis, ulcers occur at the tips of the interdental papilla and along the gingival margins, and often elicit complaints of severe pain. The ulcers heal, leaving the gingival papillae with a characteristic cratered appearance.

NUP may present as rapid loss of supporting bone and soft tissue. Typically, these losses occur simultaneously with no formation of gingival pockets, sometimes involving only isolated areas of the mouth. Teeth may loosen and eventually fall out, but uninvolved sites can appear healthy. Necrotizing stomatitis may develop, and areas of necrotic bone may appear along the gingival margin. The bone may eventually sequester. Patients with NUP and necrotizing stomatitis frequently complain of extreme pain and spontaneous bleeding.

### *Neoplastic*

**Kaposi's sarcoma (KS)** may occur intraorally, either alone or in association with skin and disseminated lesions. Intraoral lesions have been reported at other sites and may be the first manifestation of late-stage HIV disease (AIDS). KS occurs most commonly in men but also has been observed in women.



Kaposi sarcoma: oropharynx, Paul A. Volberding, MD, University of California San Francisco, photo courtesy of USDVA, HIV/AIDS

KS can appear as a red, blue, or purplish lesion. It may be flat or raised, solitary or multiple. The most common oral site is the hard palate, but lesions may occur on any part of the oral mucosa, including the gingiva, soft palate, and buccal mucosa, and in the oropharynx. Occasionally, yellowish mucosa surrounds the KS lesion. Oral KS lesions may enlarge, ulcerate, and become infected. Good oral hygiene is essential to minimize these complications

**Non-Hodgkin's lymphoma (NHL)** can appear diffuse, undifferentiated and is a frequent HIV-associated malignancy. Lymphoma can occur anywhere in the oral cavity, and there may be soft tissue involvement with or without involvement of underlying bone. The lesion may present as firm, painless swelling that may be ulcerated. Some oral lesions may appear as shallow ulcerations. Oral NHL may appear as solitary lesions with no evidence of disseminated disease.

### *Other*

**Recurrent aphthous ulcers (RAUs)** in HIV-infected persons are reported with increasing frequency. The cause of these ulcers is unknown. Proposed causes include stress and unidentified infectious agents. In HIV-infected patients, the ulcers are well circumscribed with erythematous margins. The ulcers of the minor RAU type may appear as solitary lesions of about 0.5 to 1.0 cm. The herpetiform type appear as clusters of small ulcers (1 to 2 mm), usually on the soft palate and oropharynx. The major RAU type appears as extremely large (2 to 4 cm) necrotic ulcers. The major RAUs are very painful and may persist for several weeks.

**Idiopathic thrombocytopenic purpura's (ITP)** oral lesions may be the first manifestation of this condition.

Petechiae, ecchymoses, and hematoma can occur anywhere on the oral mucosa. Spontaneous bleeding from the gingiva can occur, and patients may report finding blood in their mouths on waking.

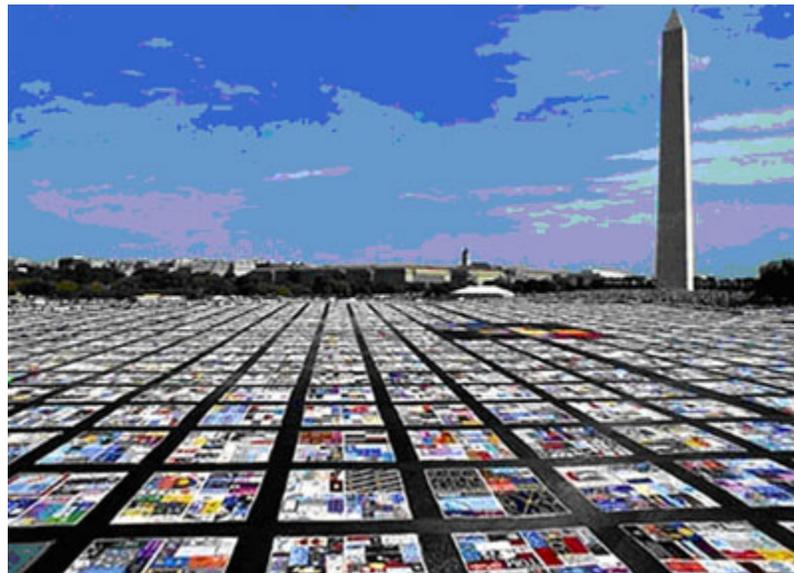
**Salivary gland disease** is associated with HIV infection (HIV-SGD) and can present as xerostomia (dry mouth) with or without salivary gland enlargement. Reports describe salivary gland enlargement in children and adults with HIV infection usually involving the parotid gland. The enlarged salivary glands are soft but not fluctuant. In some cases, enlarged salivary glands may be due to lymphoepithelial cysts.

#### Treatment of Oral Manifestations

Oral manifestations of HIV/AIDS require aggressive treatments, from anti-bacterial, anti-fungal or anti-viral agents to surgical intervention. They can be slow to respond to treatment and relapse and recurrence is common. As with any HIV treatment, there is concern about resistance.

For animated graphics for the “Immune Suppression and Oral Lesions”, see <http://chfs.ky.gov/NR/ronlyres/DBCDC039-F7AB-4E01-82A2-F76B0D014E60/0/OralManifestations.gif>.

#### **Prevalence of HIV and AIDS**



The NAMES Project AIDS quilt, representing people who have died of AIDS, in front of the Washington Monument. Courtesy of the National Institutes of Health.

#### **Global Update**

Since the beginning of the epidemic, almost 70 million people have been infected with the HIV virus and about 35 million people have died of AIDS (WHO, 2013a). Globally, 34.0 million [31.4–35.9 million] people were living with HIV at the end of 2011. An estimated 0.8% of adults aged 15–49 years worldwide are living with HIV, although the burden of the epidemic continues to vary considerably between countries and regions. Sub-Saharan Africa remains most severely affected, with nearly 1 in every 20 adults (4.9%) living with HIV and accounting for 69% of the people living with HIV worldwide.

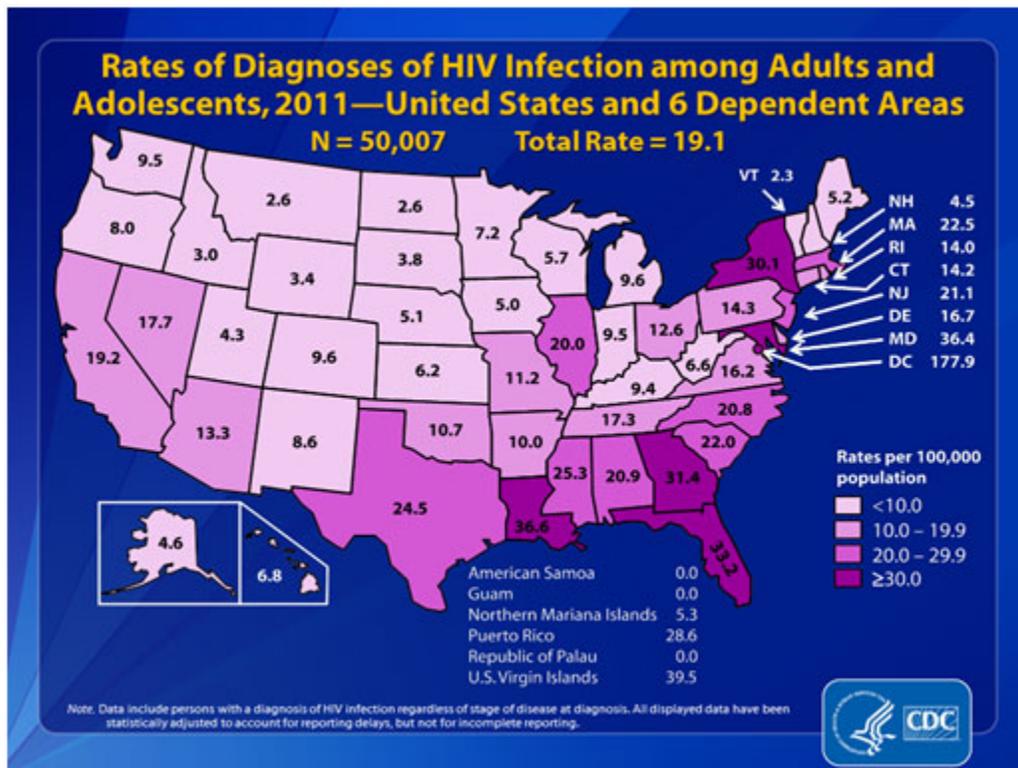
In 2011, more than 8 million people living with HIV were receiving antiretroviral therapy (ART) in low- and middle-income countries. Another 7 million people need to be enrolled in treatment to meet the target of providing ART to 15 million people by 2015 (WHO, 2013a).

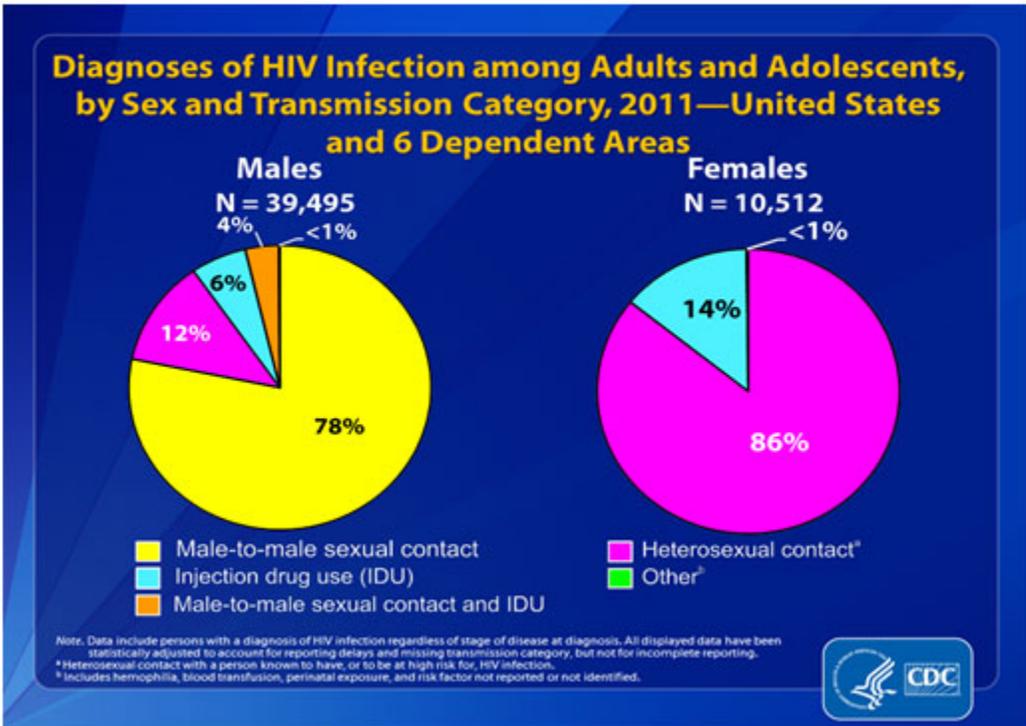
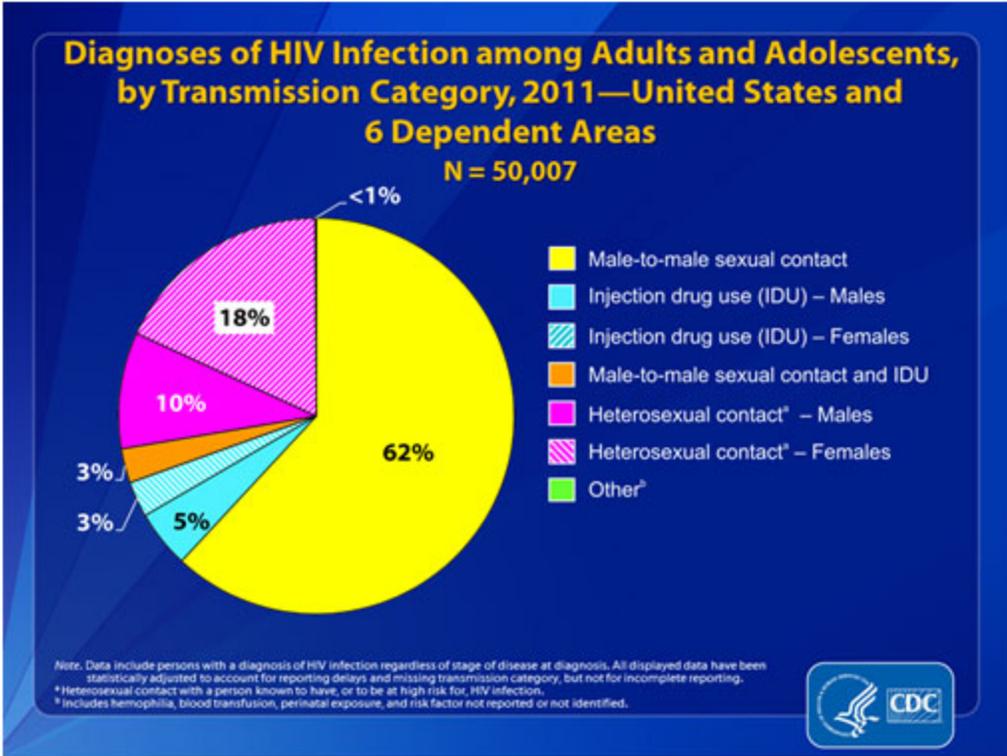


Courtesy CDC, <http://www.cdc.gov/globalaids/wad/default.html>

### Reported HIV/AIDS Cases in the US

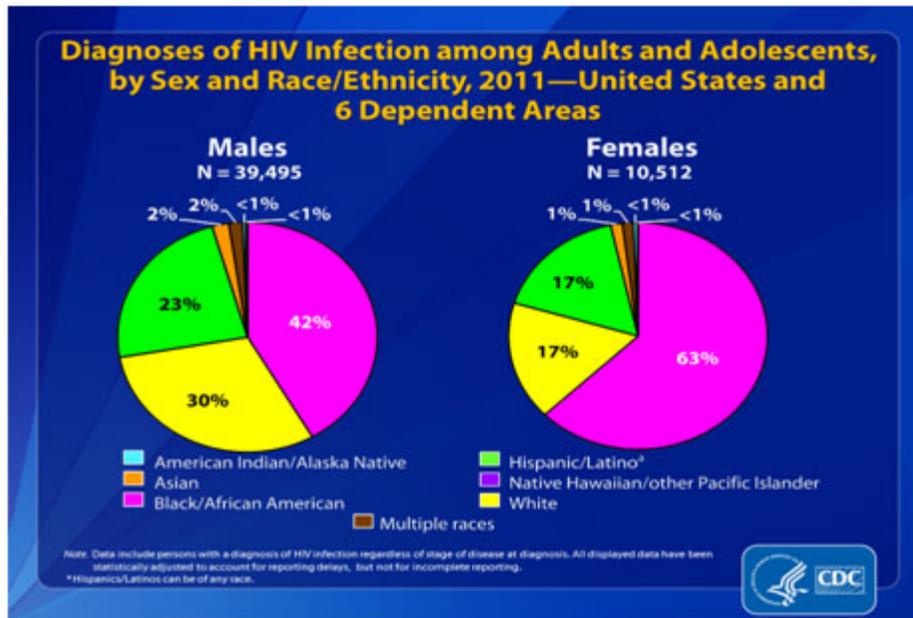
From 2008 through 2011, the annual estimated number and rate of diagnoses of HIV infection remained stable in the United States, at approximately 50,000 new cases per year (CDC, 2013). In 2011, an estimated 49,273 people were diagnosed with HIV infection in the United States. In that same year, an estimated 32,052 people were diagnosed with AIDS. Since the epidemic began, an estimated 1,155,792 people in the United States have been diagnosed with AIDS (CDC, 2013). In 2011, the estimated rate of HIV infection was 15.8 (per 100,000 population). The areas with the highest rates were in the South, a few states in the Northeast (i.e., Massachusetts, New Jersey, and New York), Illinois, Puerto Rico, and the U.S. Virgin Islands (CDC, 2012).



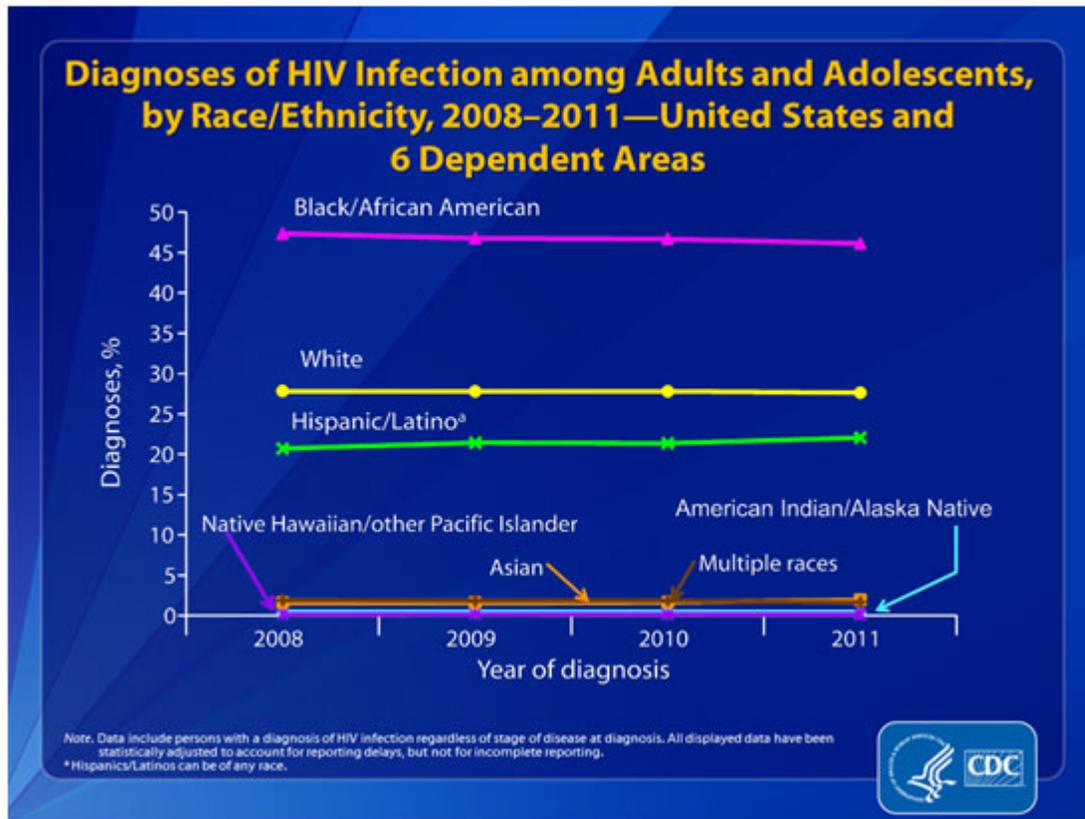


From 2008 through 2011, among adult and adolescent males, the annual number of diagnosed HIV infections attributed to male-to-male sexual contact increased. The numbers of infections attributed to injection drug use, to male-to-male sexual contact *and* injection drug use, and to heterosexual contact decreased. Among adult and adolescent females, the numbers of infections attributed to injection drug

use and to heterosexual contact decreased. In 2011, diagnosed infections attributed to male-to-male sexual contact (65%, including male-to-male sexual contact *and* injection drug use) and those attributed to heterosexual contact (27%) accounted for approximately 92% of diagnosed HIV infections in the United States (CDC, 2012).



From 2008 through 2011, the rate for females decreased; the rate for males remained stable. In 2011, males accounted for 79% of all diagnoses of HIV infection among adults and adolescents. The rate for adult and adolescent males was 30.8, and the rate for females was 7.7 (CDC, 2012).



From 2008 through 2011, the rate for Asians increased. The rates for blacks/African Americans, Hispanics/Latinos, Native Hawaiians/other Pacific Islanders, and persons of multiple races decreased. The rates for American Indians/Alaska Natives and whites remained stable. In 2011, the rates were 60.4 for blacks/African Americans, 19.5 for Hispanics/Latinos, 15.3 for Native Hawaiians/other Pacific Islanders, 14.2 for persons of multiple races, 9.3 for American Indians/Alaska Natives, 7.0 for whites, and 6.5 for Asians. Data for Native Hawaiians/other Pacific Islanders should be interpreted with caution because numbers are small (CDC, 2012).

There is not one single reason that stands out as to why the disparities exist. One factor is health disparities, which are linked to socioeconomic conditions. Another factor is distrust of the healthcare system. Both legacies of the past and current issues of race mean that many people of color do not trust "the system" for a variety of reasons. Thus, even when income is not a barrier, access to early intervention and treatment may be limited. And HIV may be only one of a list of problems, which also include adequate housing, food, employment, etc.

Another factor may be the diversities within these populations. Diversity is evident in immigrant status, religion, languages, geographic locations and, again, socioeconomic conditions. Getting information out in appropriate ways to these diverse populations is challenging.

There is a significant amount of denial about HIV risk, which continues to exist in these communities. As with other groups, there may also be fear and stigmatization of those who have HIV. Prevention messages must be tailored and presented in a culturally and linguistically appropriate manner. The messages must be carried through channels that are appropriate for the individual community. These

channels may include religious institutions or through respected elders in the community. Ironically, it may be these institutions or elders who, in the past, have contributed to the misinformation and stigma associated with HIV. Many HIV prevention programs are recognizing the importance of working with diverse communities. Input from these communities must be included in planning, delivering, and evaluating HIV prevention activities.

### **HIV Incidence By Age**

More infections occurred among young people under 30 than any other age group. From 2008 through 2011, the rates for persons aged 20–24 and 25–29 increased. In 2011, the highest rate was for persons aged 20–24 years (36.4), followed by persons aged 25–29 years (35.2).

The rates for persons aged 30–34, 35–39, 40–44, 45–49, 55–59, and 60–64 decreased. The rates remained stable for children (aged less than 13 years) and persons aged 13–14, 15–19, 50–54, and 65 and older.

### **HIV/AIDS Cases in Kentucky**

As of June 30, 2012, a total of 8,513 cumulative HIV infections had been reported among Kentuckians to the Department for Public Health's HIV/AIDS Surveillance Program since AIDS reporting started in 1982. The number of new HIV infections over the most recent 10.5 years for which data are available is presented in Table 6. HIV name-based reporting was introduced in mid-2004 and reporting has increased and stabilized since then. Of the 3,423 HIV infections diagnosed since 2002, 1,576 (46%) had progressed to AIDS as of June 30, 2012.

The annual HIV diagnosis rates among Kentuckians are presented in Figure 8. The annual HIV diagnosis rate has remained fairly steady from 2001 to 2010, with slight fluctuations between 6.8 to 9 cases per 100,000 population.

## Section I: Cumulative and Living HIV Infections Diagnosed among Kentuckians, through June 30, 2012

**Table 1. Cumulative<sup>(1)</sup> HIV Disease Cases By Age at Diagnosis\*, Race/Ethnicity, and Sex through June 30, 2012, Kentucky**

	Age Group	White, Not Hispanic		Black, Not Hispanic		Hispanic		Other/ Unknown		TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	% <sup>(2)</sup>
<b>MALE</b>	<13	21	<1%	24	1%	0	0%	0	0%	45	1%
	13-19	107	2%	121	6%	3	1%	5	7%	236	3%
	20-29	1269	28%	676	31%	98	39%	17	25%	2060	29%
	30-39	1719	38%	695	32%	99	39%	29	43%	2542	36%
	40-49	1037	23%	461	21%	34	13%	13	19%	1545	22%
	50+	400	9%	180	8%	19	8%	4	6%	603	9%
	<b>TOTAL<sup>(2)</sup></b>	<b>4553</b>	<b>100%</b>	<b>2157</b>	<b>100%</b>	<b>253</b>	<b>100%</b>	<b>68</b>	<b>100%</b>	<b>7031</b>	<b>100%</b>
<b>FEMALE</b>	<13	13	2%	14	2%	1	2%	1	3%	29	2%
	13-19	39	6%	44	6%	4	6%	2	7%	89	6%
	20-29	203	31%	215	30%	27	41%	8	28%	453	31%
	30-39	217	33%	248	34%	16	24%	10	34%	491	33%
	40-49	123	19%	143	20%	12	18%	5	17%	283	19%
	50+	65	10%	63	9%	6	9%	3	10%	137	9%
	<b>TOTAL<sup>(2)</sup></b>	<b>660</b>	<b>100%</b>	<b>727</b>	<b>100%</b>	<b>66</b>	<b>100%</b>	<b>29</b>	<b>100%</b>	<b>1482</b>	<b>100%</b>

(1) Includes HIV disease cases diagnosed from the beginning of the epidemic through June 30, 2012

(2) Percentages may not total 100 due to rounding

\*Age at initial HIV diagnosis

Since the beginning of the epidemic in the early 80's, the majority of HIV infections diagnosed in Kentucky have been reported among males (7,031, 83%). More male HIV infections were diagnosed in their 30s (2,542, 36%) than any other decade. Among white males and black males, the highest percentages of cumulative cases were aged 30-39 years at the time of diagnosis: whites 38%; blacks, 32%. Hispanic males had a similar percentage of cases aged 20-29 years and 30-39 years at time of diagnosis, 39% (KCHFS, 2013).

The percentage of Hispanic males in their 20s at time of diagnosis (39%) was higher compared to blacks (31%) and whites (28%). Conversely, Hispanic males had the lowest percentage of cases aged 40-49 years at time of diagnosis (13%), compared with black males and white males (21% and 23% respectively). Six percent of black males were teenagers at time of diagnosis compared to 2% of white males and 1% of Hispanic males (KCHFS, 2013).

Similar trends exist among females with HIV. More females were diagnosed with HIV infection in their 30s (491, 33%) than any other decade. Similar percentages of black females and white females were diagnosed in that same decade of life. The highest percentage of Hispanic females was diagnosed with HIV in their 20s (41%). Hispanic females tend to be younger at the time of diagnosis than their racial and ethnic counterparts (KCHFS, 2013).

The majority (65%) of cumulative male HIV infections were reported with MSM as the primary route of exposure, while among women, the majority (51%) were exposed through heterosexual contact with a person with HIV or at high risk for HIV contraction, e.g., a person who injects drugs. Minority males (15% of black males and 11% of Hispanic males) reported higher percentages of IDU as the route of transmission, in comparison to non-minorities (6% of whites). Conversely, a higher percentage of white males (73%) reported MSM as the primary route of transmission in comparison to 51% of all black males and 49% of all Hispanic males. The majority of female cases within each racial/ethnic group were infected through heterosexual contact (KCHFS, 2013).

After factoring in the female heterosexual contact as a risk category, a higher percentage of infections with undetermined routes of transmission exists among males (12%) than females (9%). Hispanic males (25%) and black males (17%) have higher percentages of cases without an identified risk factor than white males (9%). The existence of large percentages of infections without known routes of transmission poses a barrier to provision of effective responses to the epidemic within the groups in question, because risk factor information forms the basis for program planning and service provision and guides resource allocation (KCHFS, 2013).

In 2010, Kentucky ranked 25th among the 46 states having confidential name-based reporting, with an estimated HIV diagnosis rate of 9.0 per 100,000 population. Florida had the highest HIV diagnosis rate in 2010 at 31.2 per 100,000 population, and North Dakota had the lowest rate at 2.0 per 100,000 population (KCHFS, 2013).

## Transmission of HIV

HIV is considered to be a fragile virus when exposed to air and room temperatures. Hepatitis B (HBV) and hepatitis C (HCV) are both considered "stronger" viruses that can remain infectious for a longer period of time. When these viruses are outside the human body, much depends on environmental factors such as heat, cold, exposure to oxygen, etc.).

HIV transmission occurs through infected blood and body fluids. Transmission occurs primarily through **infected blood, semen, vaginal secretions or breast milk**. Sweat, tears, saliva, urine and feces are not capable of transmitting HIV unless visibly contaminated with blood. In settings such as hospital operating rooms, other fluids, like cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid and amniotic fluid **may** be considered infectious if the source is HIV positive. These fluids are generally not found outside the hospital setting, so the most common fluids -- blood, semen, vaginal secretions and breast milk - are considered infectious in the "real world."

### Case Study #1

Mr. R. is a middle-aged married male computer salesman who was transported to the ED after being found unresponsive in his apartment by a neighbor. Following a thorough exam the provider suspected a possible drug overdose, which was confirmed when a urine drug screen was positive for cocaine. Once stabilized, the staff offered him an HIV test. Mr. R. adamantly refused the test saying that he did not have any risk factors. The provider suspected this was not true and proceeded to perform a social history. Eventually, the provider was able to solicit answers that indicate Mr. R. is at risk for HIV: he has been sexually active since high school and has not always used condoms; while he is primarily heterosexual and has been married for almost 15 years, he has occasionally located men on the internet that he met for dates; he has never used intravenous drugs, but does share straws when using cocaine; he was incarcerated for assault when he was younger, and while in jail had used a common needle to give himself a tattoo.

Mr. R. thought that since he had only used drugs with people he knew and had sex with healthy looking men he did not have risk factors for HIV. He also thought that someone would have found out he was HIV positive during a recent hospital admission when he had labs drawn daily prior to and after major surgery.

The provider convinced Mr. R. that he should have an HIV test based on the results of his assessment. He provided him with education focusing on routes of transmission and appropriate barrier use. He explained the risk of having unprotected sexual relations and the fact that you cannot tell someone has HIV/AIDS by the way they look. The test results were negative, and the provider stressed the importance of retesting if he engaged in more high risk behaviors.

HIV is transmitted through very specific ways:

- Unprotected **anal, vaginal and oral intercourse**;
- **Sharing needles** or other injection equipment;
- A **mother passing the virus to her baby** either before or during birth;
- An infected woman **breastfeeding** her infant;
- **Transfusion** of HIV-infected blood or blood products (prior to 1986);
- Accidental **needlestick injuries**, or other sharps injuries, or infected body fluid coming into contact with the broken skin or mucous membranes of another person (as with healthcare workers);
- Sharing razors or toothbrushes, if infected blood from one person is deposited on the toothbrush or razor, and the blood enters the bloodstream of another person.

HIV transmission may occur during practices such as tattooing, blood-sharing activities such as "blood brothers" rituals, or any other type of ritualistic ceremonies where blood is exchanged or unsterilized equipment contaminated with blood is shared. HIV can also be transmitted from mother to infant during the birth process.

HIV transmission may also occur in occupational settings. Workplace exposures occur through an unintentional needlestick injury or potentially through a splash with potentially infectious blood or blood-contaminated material. This will be discussed later in this course.

There are also isolated cases of transmission from healthcare workers to patients. To date, there were three instances where transmission of HIV may be related to the HIV-infected healthcare provider treating the patient. At least one of these cases occurred prior to the implementation of strict equipment disinfection. However, the CDC reports that there has been one case of confirmed HIV infection from healthcare worker to patient; that case involved a dentist. Occupational exposure will be covered in detail in Part 3 of this course.

Biting poses very little risk of HIV transmission. The possibility only exists if the person who is biting and the person who is bitten have an exchange of blood (such as through bleeding gums or open sores in the mouth.) Bites may transmit other infections, and should be treated immediately by thoroughly washing the bitten skin with soap and warm water, and disinfecting with antibiotic skin ointment.

### Case Study #2

Ms. H. is a 20 year old African American female. She has been sexually active since she was 15, and has been treated several times in the past for sexually transmitted diseases (STDs). She recently presented to the STD clinic with c/o painful open sores on her vaginal area. She had several partners in the past two months, but she did not see any similar sores on any of them. The provider told Ms. H that it is important to use barriers when having sex to prevent STDs and also HIV. She explained that it increases the possibility of infection when someone has a break in their skin or mucous membranes, allowing the virus to pass more easily from one person to another. She also explained that, while most STDs can be treated, HIV has no cure. Ms. H. agreed to be tested for HIV as well as STDs. Unfortunately, her test results showed that she had genital herpes, but was negative for HIV. Her provider reminded her that she could have future outbreaks of herpes that would leave her vulnerable to infection with HIV because of the open areas on her skin. She was provided with both male and female condoms before leaving the clinic, and encouraged to tell her partners about the herpes before having sex.

The viral load is one of the predictors of how infectious is an HIV-positive person; viral load indicates how much HIV is present in the bloodstream. Studies show a clear connection between higher viral load in the blood and increased transmissibility of HIV.

Prior to the availability of a test for HIV antibodies in 1985, HIV was transmitted by:

- Artificial insemination;
- Blood or blood products transfusions;
- Organ transplants.

Testing has almost completely eliminated these risks for transmission in developed countries.

The CDC has estimated the following probabilities of infection following one exposure to HIV:

- Contaminated blood transfusion (prior to 1986) 95%

HIV infection rate:

- One intravenous syringe or needle exposure 0.67%
- One percutaneous exposure (e.g. a needlestick) 0.4%
- One episode of receptive anal sexual intercourse 0.1%-3%
- One episode of receptive vaginal intercourse 0.1%-0.2%
- One episode of insertive vaginal intercourse 0.03%-0.09%

### **Sexual Transmission of HIV**

HIV can enter the bloodstream through mucous membranes, breaks, sores and cuts in the mouth, anus, vagina or penis. Anal, vaginal and oral intercourse (both receptive and penetrative) can transmit HIV from person to person.

Unprotected **anal intercourse** is considered to be the greatest sexual risk for transmitting HIV. Anal intercourse frequently results in tears of mucous membranes, providing a means of entry for the virus. The receptive partner ("bottom") is considered to be at more risk of getting HIV, if the virus is present. Risks may vary for the insertive ("top") partner.

Unprotected **vaginal intercourse** with the exchange of semen, pre-ejaculate fluid, menstrual blood or vaginal fluids is also a risk for HIV transmission. Women are more likely to become infected with HIV through vaginal sex than a man. The larger amount of mucous membrane surface area of the vagina is a probable reason for women's greater rate of HIV infection from their male partners.

**Oral sex** (mouth to penis, mouth to vagina, mouth to rectum) is considered a risky behavior for HIV transmission because of the exchange of semen, menstrual blood, and/or vaginal fluids that may occur. Studies reported in February 2000 show that oral sex can definitely pass HIV from infected partner to uninfected partner. The person who places their mouth on the partner's genitals is at higher risk for HIV infection than is the "receiving" partner. The actual risk for HIV transmission to persons who are the receptive partner in unprotected oral sex is unclear.

### **Injecting Drug Use and HIV Transmission**

Sharing injection needles, syringes, and other injection equipment with an HIV-infected person can put HIV directly into the user's bloodstream and is the behavior which most efficiently transmits HIV, as well as HBV and HCV.

**Indirect sharing** occurs when those who are injecting drugs share injection paraphernalia and/or divide a shared or jointly purchased drug while preparing and injecting it. The paraphernalia that carries the potential for transmission are the syringe, needle, "cooker" (often a spoon), cotton (or other filter), and/or

rinse water. Sharing these items (sometimes called "works") may transmit HIV as well as other viruses or bacteria.

Examples of indirect sharing:

- Squirting the drug back (from a dirty syringe) into the drug cooker and/or someone else's syringe; and
- Sharing a common filter and/or rinse water.

### **Perinatal Transmission of HIV**

An HIV-infected woman may transmit the virus to her baby during pregnancy, during the birth process, and/or following pregnancy by breastfeeding. Again, one of the predictors of how infectious the woman will be to her baby is her viral load (how much HIV is present in her bloodstream). Women with new or recent infections, or people in later stages of AIDS tend to have higher viral loads and may be more infectious.

Prior to the discovery, in 1994, that AZT (zidovudine) significantly reduced the transmission of HIV from Mother to baby. Currently, HIV is transmitted from an HIV-infected woman to her baby in about 25% of pregnancies if intervention with antiretroviral medications does not occur. Because of the widespread use of AZT by HIV-infected pregnant women in the U.S., the perinatal transmission rate has dropped dramatically, and is now less than 2% in the U.S., especially if the woman's health care is monitored closely and antiretroviral medications are used during pregnancy and/or delivery. In some pregnancies, caesarian section (C-section) may be recommended to reduce the risk of transmission from woman to baby. Advice about medications and C-section should be given on a case-by-case basis by a healthcare provider with experience in treating HIV positive pregnant women.

Breastfeeding is an established risk for HIV transmission. One study in Africa showed that the rate of transmission of HIV from infected mother to her child was 21% from breastfeeding. Data from New York Department of Health studies show that in the U.S., breastfeeding can add an additional 14% rate of transmission of HIV from an infected woman to her child.

In the U.S., doctors recommend that a woman who knows she is HIV-positive should not breastfeed her infant. Because of the lack of clean water and the cost of infant formula in developing countries, HIV-infected mothers in those areas may not have a choice regarding breastfeeding.

### **Transfusions of Blood or Blood Products**

Transmission by contaminated blood or blood products occurred in the United States before March, 1985. In 1999, about 1% of national AIDS cases were caused by transfusions or use of contaminated blood products. The majority of those cases were in people who received blood or blood products **before** 1985.

Donor screening, blood testing and other processing measures have reduced the risk of transfusion-caused HIV transmission to between 1 in 450,000 to 1 case in 600,000 transfusions in the U.S. In the U.S., **donating** blood is always safe, because sterile needles and equipment are used.

### **Transmission of Multi- Drug Resistant Forms of HIV**

There is evidence of transmission of multi-drug resistant forms of HIV. People who have been infected with HIV and have used a number of the available antiretroviral medicines may transmit forms of HIV that are resistant to some of these available drug therapies. This reduces the treatments available for the newly-HIV-infected person. It is believed that inconsistent use of antiretroviral medications can contribute to this multi-drug resistant HIV. A discussion of treatments for HIV will occur later in this course.

### Case Study #3

Ms. P. decided to have an HIV test after finding out that an old boyfriend had HIV. She was shocked to hear the news at first and went to the testing clinic knowing there was a chance of infection, but she was confident that she was in good health overall, and had not been sick or had any unusual symptoms. She had dated this boyfriend for about 3 months at least six years ago but they just didn't "click." Eventually, they went their own ways and began dating other people. Several years ago she moved to a nearby city and changed jobs. She only found out about his illness by chance when she happened to meet a mutual friend at an art festival.

When the test results came back positive she could not believe it at first. Then, all at once, she began to think about men she had been involved with since. How many had she infected?

Ms. P. was given an appointment at an HIV treatment center to discuss the need for antiretroviral therapy. Before beginning therapy, the provider ordered a genotype test to identify any possible viral resistance she might have. When the results were back, she was informed that she had been infected with a strain of virus that was multi-drug resistant (MDR). In other words, many of the commonly used medications for HIV would not provide effective treatment. The provider also explained that infection with HIV that is MDR is more common than many people realize. In one recent study in NY City, 10% of people newly diagnosed with HIV had MDR, and more than 25% had at least some resistance (Shet et al., 12th CROI, 2005). Medications would need to be carefully selected to provide the best treatment possible. Even so, infection with a strain of MDR HIV makes progression to AIDS and death more likely.

### Factors Affecting HIV Transmission

There are a number of factors which affect HIV transmission. These are:

- Presence of other STDs;
- Acute infection and/or high viral load;
- Multiple partners;
- Use of non-injecting drugs;
- Gender and equality issues.

The presence of other **sexually transmitted diseases** (STDs) increases the risk for HIV transmission, because the infected person may have a much larger number of white blood cells, infected with HIV, present at the sore or infected area(s).

The infected person's immune system may also be less able to suppress or combat the HIV infection. Additionally, the sores or lesions from STDs break down the protective surface of the skin or mucous membrane, which makes the infected person more vulnerable to other infections. More information on STDs can be found later in this course.

**Acute HIV infection** (the first few weeks after infection with HIV) is a time when a person may not know that s/he is infected. However, the amount of virus (or **viral load**) in her or his bloodstream can be extremely high. This may make their blood, semen, vaginal fluids and/or breast milk more infectious for HIV transmission. Antiretroviral therapy can reduce a person's viral load, if the correct combination is used and the person adheres to the dosing schedule.

Having **multiple partners for drug injection and/or sexual intercourse increases** the chances of being exposed to a person infected with HIV. Persons who have unprotected sex with multiple partners

are considered to be at high risk for HIV infection. In some studies, the CDC defines multiple partners as six or more partners in a year. However, someone who has one partner may still be at risk if the person is HIV-positive, or if that one partner has sex with multiple other partners.

#### Case Study #4

Ms. M. was married to her husband for 32 years before he died from complications of coronary artery disease several years ago. It was difficult for her to stop grieving, and for the first year after his death seldom did anything socially with anyone except family members. Eventually she began attending functions at the senior citizen center and met Paul. He was very kind, interesting, funny, and they began dating. A year later, Paul became sick and died.

The senior center hosted a program on life insurance for seniors, and Ms. M. decided to apply for additional coverage for her funeral expenses. Part of the criteria was to have an HIV test, and she agreed to do so. She did not think anything else about the insurance until about one month later when she received a letter from the company denying the coverage and suggesting that she see her health care provider for a full examination. She was frightened by the news, and called immediately to make an appointment for the following week. She was convinced she had cancer. Her provider was unable to find anything abnormal on exam or lab tests. With her permission he contacted the insurance company and was faxed the positive results of her HIV test. She had no idea how she was infected. Had her husband been infected with HIV? Did Paul have HIV? Did either of them even know they were infected? Did they know but did not tell her?

Ms. M's provider made an appointment for counseling to help her work through her grief and loss. He also made an appointment with an HIV specialist for further tests and care. He thoroughly evaluated the possibility of self-harm before allowing her to leave his office. Finally, he called a trusted friend with her permission to drive her home.

**Use of other substances**, including alcohol and non-injected "street drugs," can also put a person at risk for getting HIV. Impaired judgment may increase the likelihood that a person will take risks (having unprotected sex, sharing needles) or may place the person in unsafe situations. Additionally, some substances have physiological and biological effects on the body, including masking of pain and the creation of sores on the mouth and genitals, which can create additional "openings" for HIV and other sexually transmitted diseases.

**Lack of power in a relationship** can affect a person's ability to insist on sexual protection, such as the use of condoms. Women are often socially and economically dependent upon men in many cultures. This can make them unable to "negotiate" condom use or leave a relationship that puts them at risk. In some cultures, females are not encouraged to learn about their bodies, sex, birth control, or other sexuality topics. Some cultures promote the value of the male having multiple sexual partners, while discouraging the same behavior in females.

#### Testing for HIV/AIDS

It is believed that many people who are HIV infected in the United States have not been tested, and are unaware of their HIV-positive status. Many of these people may unknowingly pass HIV infection on to others. Many who are HIV positive do not realize that they are infected with HIV until they present with symptoms of infection. Since most people don't have symptoms for years, they do not find out their HIV status until later in the disease progression. By the time they find out they are infected, they have missed opportunities to take care of their health and avoid passing the infection on to others.

It is important for anyone at risk of HIV infection to get tested. Those who are uninfected can learn to take steps to avoid infection and those who are infected can take steps to take care of their own health as well as to avoid passing the infection on to others.

HIV antibody testing has been available since 1985. There are several approved tests that are available to detect HIV antibodies. These tests determine HIV infection by detecting the presence of HIV antibodies produced by the immune system.

The Food and Drug Administration (FDA) has approved several HIV antibody tests. These tests have a 2-step process of a screening test and when the screening test is reactive, a confirmatory test.

**Step 1. Screening Test.** The first test done on a specimen is a screening test called an **Enzyme Linked Immunosorbent Assay** (ELISA, also called EIA). This test screens for the presence of antibodies to HIV in blood, urine, or oral fluid. Screening tests are inexpensive tests that are highly accurate.

Most HIV antibody screening tests are conventional screening tests in that the specimen is collected from the client and sent to a laboratory for testing. If a screening test is negative (no antibodies were detected), the results can be given to the client. If the screening test is reactive at the laboratory, the additional confirmatory Western Blot is conducted on the same sample.

Rapid tests are also screening tests. However, rapid screening tests are conducted at the test site, often with the client present and negative results are available in under an hour.

Reactive results, wherein antibodies were detected, must be confirmed by an additional test. This is because there is a small chance that an HIV screening test may detect proteins related to other autoimmune diseases and react to these proteins with a positive result.

**Step 2. Confirmatory Testing** If a rapid test is reactive, an additional specimen must be drawn from the client and sent to the lab for confirmatory Western Blot testing.

It is possible for someone who is NOT infected with HIV to test reactive on a screening test because the test detected something other than HIV. For this reason, it is critical that reactive screening tests are verified with a confirmatory test and that clients are NOT told they are infected with HIV Unless confirmatory test verifies that HIV antibodies are present.

When a person has a reactive (positive) screening test, a confirmatory test, called the Western Blot test is done to verify the presence of HIV antibodies. The HIV Western Blot detects antibodies to individual proteins that make up HIV. This test is much more specific and more costly than the ELISA screening test.

### **Different Antibody Testing Specimen Options**

HIV antibody tests are designed to detect HIV antibodies in blood, urine, or oral fluid (oral mucosa transudate) samples.

#### *Blood*

The most frequently used HIV antibody test is the blood-based test. This test detects HIV antibodies in the blood. Depending on the test type, blood from a venipuncture or fingerstick will be used. This is the test that is used most often in public health clinics and doctors' offices. Most rapid screening tests use fingerstick blood.

As with all screening tests, reactive blood fluid screening tests must be confirmed with a Western Blot test. For most HIV testing, this confirmatory testing is done on the same sample in the laboratory. For reactive rapid tests, an additional sample needs to be drawn and sent to the lab for the confirmatory Western Blot.

### *Oral Fluid*

This test detects HIV antibodies in the mucous membrane of the mouth, called oral mucosal transudate. The oral test kit uses a special collection device that looks like a toothbrush. No needles are necessary. There are some rapid tests that use oral fluids. Many public health clinics also offer oral fluid testing. Some provide rapid oral fluid testing. As with all screening tests, positive oral fluid screening tests must be confirmed with a Western Blot test.

It is important to note that, even though antibodies to HIV can be found in saliva and oral fluids, these fluids do not contain sufficient amount of the virus to be infectious and therefore, are not considered a risk for transmitting the virus.

The HIV virus is the disease. The virus causes infection. Antibodies are the immune system's response to the disease. Antibodies do not cause disease, they fight the infection.

### *Urine*

A urine-based test for HIV antibodies is available for use only in physicians' offices or medical clinics. It tests for HIV antibodies in the urine. It is important to note that, even though antibodies to HIV can be found in urine; urine is not considered a risk for transmitting the virus. As with all screening tests, a positive urine HIV screening test must be confirmed with a Western Blot test, which can be done on the same specimen.

### **Rapid HIV Test**

The rapid HIV test is a screening test that can provide results in less than an hour. Rapid testing can be conducted on either blood and/or oral mucosal transudate, depending on the type of rapid test. As with all screening tests, any reactive positive rapid test must be confirmed with a conventional Western Blot test.

### **Home HIV Test Kits**

Currently, the only licensed and FDA-approved test kit for home HIV antibody testing is the "Home Access HIV-1 Test System" manufactured by Home Access Health Corporation. If you are unsure if an HIV test is FDA approved, you can check on the FDA website for approved HIV tests: <http://www.fda.gov/cber/products/testkits.htm>.

The test requires a few drops of blood, which is then mailed to the company in a safe mailer. If the screening test is reactive, a confirmatory western Blot test is done by the same laboratory so that final results are available to clients. The client calls the company to learn their results over the phone.

### **Internet Test Kits**

Although other "home test" kits may be ordered over the internet, they may not be approved by the FDA. They are **not guaranteed** to be accurate. It is not recommended to use any test which has not been approved by the FDA.

## Other Tests for HIV

The **p24 antigen test** is a blood test that measures a core protein of HIV. This protein occurs during primary infection (the first few weeks of infection) but may disappear as soon as antibodies to the virus are present. Because of this, and because of the expense of the test, p24 antigen tests are currently only available in specific circumstances.

The **plasma HIV RNA or proviral DNA test** are blood tests that may be run in people with suspected new HIV infection. They are expensive and not used as screening tests for the general public. However, anyone who has had a potential exposure to HIV through unprotected sex or sharing needles, and who presents with symptoms of primary infection (usually seen within the first two weeks of infection with HIV) should ask their medical practitioner if this test is advisable. Primary infection is discussed later in this course.

**HIV viral load test** measures the amount of HIV in an infected person's bloodstream. It is rarely used to diagnose HIV infection. It is most often used in individuals who are HIV-positive to measure the effectiveness of antiretroviral medications used to treat HIV infection.

## Confidential HIV Testing

A confidential HIV test means the patient gives their real name, and the information about their testing is maintained in medical records. Their results are confidential. Results and testing information are not released to others except when medically necessary or under special circumstances including when they sign a release for the results to be given to another person or agency.

HIV is a reportable condition. Confidential HIV results are reported to local public health officials. The Legal section of this course further addresses HIV reporting.

## Test Results

A person who tests for HIV will receive either a negative, positive, or indeterminate result. It is important to remember that a person could test negative for HIV antibodies, but could be recently infected.

The **window period** is the time it takes for an HIV-infected person to develop antibodies to HIV to be detected by the antibody test. Until the infected person's immune system makes enough antibodies to be detected, the test will be negative even though the person is infected with HIV.

Some infected people are able to produce antibodies as early as 2 weeks after infection. Almost everyone will develop enough antibodies to be detected by 12 weeks after infection. Unfortunately, there is no way to know how long each infected person will take to develop antibodies. However, virtually everyone who is infected will produce antibodies for detection by 12 weeks. Therefore, to be sure, people should test 3 months after the last potential HIV exposure.

Because those who are newly infected have so few antibodies to fight HIV, the virus can grow and multiply unchecked. During this time, they can have a large amount of virus in their blood making them highly infectious for HIV. So, during the window period, it is possible for an infected person to test negative, but still be able to infect another person.

### *Negative Results*

If the test result is negative, it means one of two things:

- Either the person is not infected with the virus, or

- The person became infected recently and is in the window period.

Most people take between 2-12 weeks after becoming infected to produce enough antibodies to show up on the test. In rare cases, it may take as long as 6 months.

If a person got infected last night and goes for testing today, the test will not be able to detect antibodies for this particular exposure. If a person gets a negative test result and is concerned about a possible recent infection, s/he should test again three months from the date of last possible exposure, and practice safer behaviors until s/he gets the result of the next test.

A negative test result does **NOT** mean a person is immune to HIV. If risky behavior continues, infection may occur.

#### *Positive Test Results*

A positive confirmatory test indicates the presence of HIV antibodies. A positive test result means that:

- A person is infected with HIV;
- They can spread the virus to others through unsafe sexual practices, sharing contaminated injection equipment and/or breastfeeding; and
- The person is infected for life.

#### *Indeterminate Test Results*

Occasionally, a Western Blot test result will come back with an "indeterminate" or "inconclusive" test result. If a person has recently engaged in behaviors that put them at risk for getting HIV, it could mean that they are newly- infected with HIV and are developing antibodies. This is called sero-converting.

If sero-conversion is suspected, RNA testing can determine if the HIV virus is present. If RNA testing is not available, a second specimen should be gathered and tested with an antibody test. If sero-converting, this second test could show additional bands or give a positive result.

Indeterminate test results are not always indicative of sero-conversion. These results can also be caused by cross reaction with other proteins from several sources including pregnancy, other autoimmune diseases, and recent influenza vaccination.

For low risk people when sero-conversion is not suspected, retesting should be conducted at one month and at three months from the last possible exposure to verify that they are not infected. Non-infection is indicated if the subsequent tests continue to be indeterminate (without additional HIV antibody protein bands) or are negative.

Indeterminate results for low risk clients are rare. It is possible for some uninfected people to always test indeterminate (due to the cross reaction from protein bands from something other than HIV). Other uninfected people who first test indeterminate may clear their bodies of those other proteins that are causing the cross-reaction and in subsequent tests, will test negative. Still others go back and forth between indeterminate and negative.

Counseling messages should explain that only HIV positive tests indicate infection with HIV and that some people test indeterminate because of other (non-HIV) proteins in their bodies that register on the test. No further testing for other diseases is indicated.

## Advantages of Early Testing for HIV Infection

The new drug therapies for HIV infection can sustain an infected person's health for long periods of time. Early detection allows people with HIV the option to receive medical treatment sooner, take better care of their immune system, and stay healthier longer. Additionally, early detection of HIV allows people to take precautions not to infect others.

### Case Study #5

Mr. J. went to his primary care provider (PCP) with complaints of a flu-like syndrome. He was assured that this "bug" was making its rounds in the community, and he would probably feel much better in several days. He was encouraged to go home, rest, take extra fluids, and take Tylenol as needed for fevers. Five days later he was still not feeling better. In fact, he noticed that his lymph nodes were enlarged and his whole body felt achy. Because it was a weekend he went to the local ED, hoping to get something that would make him feel better before returning to work on Monday. In the ED the provider asked a lot more questions than his usual PCP had asked. In fact, he was irritated when he was asked about his sexual history and remarked, "What does that have to do with my sore throat and swollen glands?" The provider explained that people who are in the stage of seroconversion with HIV often come in for medical care with symptoms similar to the ones he was complaining of. He thought about a woman he had had sex with on his vacation several months earlier. They had not planned to be intimate, but things happened and he hadn't prepared by bringing a condom. Thinking back, he remembered her as being very attractive and healthy. Still, he agreed to have the HIV test. Results of the test were positive. Mr. J. was early in the infection and his body was responding to invasion of the virus. An appointment was made for him the following week with an HIV specialist. The provider also offered to help him connect with the Department of Health Partner Notification Program, but he declined saying that he had not been sexually active since his vacation. The provider stressed the need to use condoms in the future whenever he planned on sexual activities.

## HIV Testing and Sexual Assault

Sexual assault is prevalent in the US. More than 300,000 women and almost 93,000 men are raped annually according to the National Violence Against Women Survey (NVAWS). Sexual assault is commonly seen as a highly underreported crime. Based on existing crime report data, an estimated 40% of female rape victims are under 18 and most sexual assault victims know their assailant. Men are also victims of sexual assault, however, they are even more less likely to report being assaulted. Apart from the emotional and physical trauma that accompanies sexual assault, many victims are concerned about HIV.

According to CDC, the odds of HIV infection from a sexual assault in the U.S. are 2 in 1,000. Even though the risk is low, the fear of HIV adds an additional emotional burden to many people who have been a victim of sexual assault. HIV testing can be part of the healing process for the victim. Most will have negative results and will be relieved, however, those who test positive also need that information for health reasons and for criminal court cases.

Testing shortly after the sexual assault will only show the baseline status of the victim. If the victim is negative, this first early test will provide proof that the victim was negative at the time of the assault. This can be helpful in the rare cases that a victim is infected with HIV because of the assault and it can be used as evidence in criminal cases.

In order to verify that the victim was not infected by the assault it will be necessary to test again after the window period. If this test is negative, it will indicate that the individual was uninfected at the time of the assault. If positive, this test will indicate that the victim was infected by the assault (if not other behaviors the victim engaged in could have infected the victim).

In addition to the fear of HIV, there are additional risks for contracting other STDs, and females can become pregnant. Emergency contraception is part of the medical treatment for female rape victims. The emergency contraception hotline number, 1-888-668-2528, should be provided by telephone rape counselors or other counselors.

Most experts recommend that a sexual assault victim go directly to the nearest hospital emergency room, without changing their clothing, bathing or showering first. Trained staff in the emergency room will counsel the victim, and may also offer testing or referral for HIV, STDs and pregnancy. It is common practice for the emergency room physician to take DNA samples of blood or semen from the vagina, rectum, etc. which can be used as evidence against the attacker. Some emergency departments may refer sexual assault survivors to the local health jurisdiction for HIV testing.

Many people feel that the emergency room setting is a profoundly unpleasant time to question a sexual assault victim regarding her/his sexual risks, etc. However, testing shortly after a sexual assault will provide baseline information on her/his status for the various infections. This information can be useful for the victim and healthcare provider, especially for follow-up care and treatment. Additionally, baseline information can be used for legal and criminal action against the assailant. All testing to be used for baseline information and legal action should be done confidentially.

## **HIV Prevention**

### **HIV Vaccine**

The development of an effective HIV vaccine has eluded scientists since the beginning of the pandemic. Traditionally vaccines have been developed from live or attenuated organisms that stimulate the development of antibodies to the organism when injected into a healthy person. In this way, the immune system develops a "memory" of the invading organism and is able to mount a rapid response to prevent the organism from causing serious illness. HIV vaccine development has been complicated by the number of different viral strains and mutations. HIV mutation is encouraged by non-adherence to medication, and also by natural processes that occur during viral replication. A person may start with a virus with several mutations and within years develop a virus that is "wild type," meaning that it has changed characteristics from the original virus. None of the vaccines currently under development use live HIV or any organisms that could cause HIV/AIDS in humans.

Several vaccines are being tested in the U.S. and developing countries but further testing will be needed before any product will be available for use.

### **Risk Reduction Methods**

Methods for reducing the risk of sexual and drug-related transmission of HIV include:

- Abstinence from sex;
- Monogamous relationships or limiting the number of partners;
- Safer sex practices;
- Avoidance of injecting drug use;
- Needle exchange programs;
- Cleaning drug works.
- Standard/Universal precautions and barrier protection.

Sexual abstinence means not engaging in anal, vaginal or oral intercourse or other sexual activities where blood, semen or vaginal fluid can enter the body. It is a completely safe and 100% effective method for preventing the sexual transmission of HIV.

Some people may choose to have non-penetrative sexual contact instead of penetrative intercourse (oral, anal or vaginal). This practice will not transmit HIV, provided that there is no exchange of blood, semen, vaginal fluids or breast milk in the sexual contact. However, non-penetrative sexual intercourse may still be a risk factor for the transmission of other sexually transmitted diseases.

<b>Sexual Risk Scale for HIV Transmission</b>	
<b>SAFEST:</b>	<ul style="list-style-type: none"> <li>• Abstinence,</li> <li>• Fantasy (phone/cyber sex)</li> <li>• Mutual long-term monogamy between two uninfected non-IDU</li> <li>• Hugging, massaging</li> <li>• Kissing</li> <li>• Body-to-body rubbing without penetration</li> <li>• Mutual masturbation without sharing fluids</li> </ul>
<b>SAFER:</b>	<ul style="list-style-type: none"> <li>• Oral sex with a barrier (condom or dental dam)</li> <li>• Vaginal intercourse with a correctly used condom</li> <li>• Anal intercourse with a correctly used condom</li> </ul>
<b>UNSAFE:</b>	<ul style="list-style-type: none"> <li>• Oral sex without a barrier (especially risky for other STD)</li> </ul>
<b>VERY UNSAFE:</b>	<ul style="list-style-type: none"> <li>• Vaginal intercourse without a condom</li> <li>• Anal intercourse without a condom.</li> </ul>

**Monogamous long-term relationships**, that is having sex with only one person who only has sex with you, is another choice to prevent/reduce the risk of HIV infection. If neither partner is infected with HIV or other STDs, and neither has other sexual or injection equipment-sharing contacts, then neither partner is at risk of exposure to HIV or other STDs. It is crucial that both partners be tested for HIV and STDs and remain monogamous.

The decision to **limit the number of sexual or drug-injecting partners** may reduce the risk of HIV transmission, but is not a guarantee of safety. The fewer the partners, the greater the reduction of risk.

**Safer sexual practices** include the use of latex barriers such as male and female condoms or dental dams. When used correctly and consistently during sexual activity (anal, vaginal and oral), they are highly effective in preventing the transmission of HIV.

#### **Instructions for Using a Male Condom**

- Check the expiration date of the condom, which is on the package. 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 hair so it is recommended to use them with only 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.

The female/insertive condom fits inside the vagina or anus. It is made of polyurethane, which blocks sperm and viruses (like HIV). These condoms may be inserted several hours before intercourse.

### **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, spread open 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.

Only water-based lubricants, not oil-based lubricants like petroleum jelly or cooking oils, should be used to prevent tearing of latex condoms. The use of polyurethane condoms also provides safer sex. These polyurethane male condoms are made of a soft plastic. They look like latex condoms but are thinner. Lab tests show that sperm and viruses (like HIV) cannot pass through polyurethane.

**Dental dams**, large pieces of new, unused, clear, non-microwaveable plastic wrap, and latex condoms may be used to provide a barrier to reduce the risk of HIV transmission during oral sexual activity with the vagina or rectum. The latex condom should have the tip cut off, then cut down one side, before use. This results in a latex square. Water-based lubricant may be used with the dental dams, plastic wrap or cut-open condoms to enhance sensitivity and reduce friction.

**Natural membrane condoms** ("skins") are useful for preventing pregnancies and some STDs, such as syphilis. **They do not provide protection from HIV, HBV and some other STDs.**

Many people believe it's safe for two people who are both infected with HIV to have unprotected sex with each other. Using latex condoms even when both partners are HIV-positive is still advised. Each additional exposure to the virus may further weaken an immune system already damaged by HIV. There is also the possibility of passing other STDs through unprotected sex.

The **avoidance of injecting drugs** is another way to avoid the risk of transmission of HIV. If entering drug treatment or abstaining from using injecting drugs is not possible, then using a clean needle each time and not sharing injection equipment is better than sharing needles. This includes people who use needles to inject insulin, vitamins, steroids or prescription or non-prescription drugs.

Public support for **needle or syringe exchange**, has grown in recent years. People who trade in their used syringes/needles for clean syringes/needles significantly reduce their risk for sharing needles and becoming infected with HIV or hepatitis. Syringe exchanges are also referral sources for drug treatment. Many people who began trading syringes were able to access drug treatment through the intervention of the syringe exchange staff and are now no longer using drugs. The state of Kentucky has not legislated a needle exchange program.

If a drug user cannot avoid sharing syringes and needles, than **thorough cleaning of works** with full strength bleach and clean water has been recommended to kill HIV in syringes/needles. ***This method is not likely to prevent the transmission of HBV or HCV.*** These viruses are much stronger and are unlikely to be killed by a brief exposure to bleach.

Because the prevalence of HBV and HCV infection is high among injecting drug users, ***it is safest to always use new, sterile needles and syringes.*** They should also avoid sharing the cotton, cooker, water, spoons and other "works," which may also be contaminated with blood.

If there is no possible way to obtain new needles and syringes, the directions for **using bleach to clean needles and syringes follows:**

- Fill the syringe completely with water. Shake and tap it vigorously to loosen any blood clots. Shoot out the bloody water. Continue this rinsing procedure until there is no "pinkness" or visible blood inside the syringe.
- Completely fill the syringe with fresh bleach. Make certain that the bleach touches all the inside surface of the syringe. Keep the bleach inside the syringe for **a minimum of 30 seconds**. Shake the syringe, then squirt out the used bleach.
- Repeating Step 2 may provide additional benefit.
- Rinse out the syringe with clean water. Shake the syringe, then squirt out the water.

It is important to follow these steps exactly, because inadequate cleaning can result in the possibility of HIV infection. **Always do the final rinse with water!**

## Treatment of HIV/AIDS

### Antiretroviral Medications

Prior to the advent of antiretroviral therapy (ART), also called highly active antiretroviral therapy (HAART), HIV/AIDS was considered a terminal disease. ART is an evolving field of study with the focus on decreasing pill burden while maintaining efficacy, development of new drug classes aimed at interfering with viral replication at certain stages of the process, and development of new drugs that are efficacious in the presence of common mutations. Drug sequencing, the study of stepwise medication use designed to decrease the likelihood of resistance development to classes of drugs, has contributed to recommendations for treatment and enhanced the overall understanding of resistance development.

To date there are five classes of ART approved for use by the FDA. These include:

- Non-nucleoside reverse transcriptase inhibitors (NNRTI);
- Nucleoside reverse transcriptase inhibitors (NRTI);
- Protease inhibitors (PI);
- Fusion inhibitors (FI) and Entry inhibitors; and
- Integrase inhibitors.

Each class was designed to interrupt the viral replication cycle at a specific stage. In addition there are combination pills that contain more than one medication: Combivir (ritonavir and epivir), Truvada (tenofovir and emtriva), Epzicom (epivir and abacavir), and Trizivir (ritonavir, epivir, and abacavir). There are also multi-class combination medications, such as Atripla (efavirenz, tenofovir, emtricitabine). The development of drug combinations is aimed at improving adherence by decreasing pill burden. Numerous other drugs are currently in clinical trials.

The 2 newest classes of ART are:

#### *Integrase Inhibitors*

During the viral replication process, following reverse transcription, the HIV DNA migrates into the nucleus of the cell. The integrase enzyme facilitates incorporating viral genetic material into the DNA of the cell. If this process is successful the CD4 cell produces HIV virus instead of other CD4 cells. The class of integrase inhibitors is designed to interrupt this step of the viral replication cycle.

#### *Entry inhibitors*

These drugs act by attaching themselves to proteins on the surface of T-cells or proteins on the surface of HIV to prevent the cells from binding together. The entry inhibitor can target the gp120 or gp41 proteins on the HIV cell surface, or the CCR5 or CXCR4 receptors on the surface of the CD4 cell. If the medication

is effective in preventing HIV from entering the CD4 cell, the viral replication cycle is interrupted at this stage.

Many other new and unique drugs are being developed and tested. Several are expected to receive FDA approval later this year. New classes of medications are especially helpful since they are designed to work in the presence of existing viral mutations. These medications, when available, will help to increase treatment options, especially for persons who are highly treatment experienced.

Because medications for HIV treatment are updated regularly, please consult those organizations who list current medications used in the treatments for HIV/AIDS. One such website is:

<http://www.aidsmeds.com/list.shtml>.

Treatments listed without pictures are experimental

**Multi-Class Combination Drugs**

-  **Atripla** (efavirenz + tenofovir + emtricitabine)
-  **Complera** (Eviplera, rilpivirine + tenofovir + emtricitabine)
-  **Stribild** (formerly Quad) (elvitegravir + cobicistat + tenofovir + emtricitabine)

**Nucleoside/Nucleotide Reverse Transcriptase Inhibitors (NRTIs)**  
(what are they?)

-  **Combivir** (zidovudine + lamivudine, AZT + 3TC)
-  **Emtriva** (emtricitabine, FTC)
-  **Epivir** (lamivudine, 3TC)
-  **Epzicom** (Kivexa, abacavir + lamivudine, ABC + 3TC)
-  **Retrovir** (zidovudine, AZT, ZDV)
-  **Trizivir** (abacavir + zidovudine + lamivudine, ABC + AZT + 3TC)
-  **Truvada** (tenofovir DF + emtricitabine, TDF + FTC)
-  **Videx & Videx EC** (didanosine, ddi)
-  **Viread** (tenofovir disoproxil fumarate, TDF)
-  **Zerit** (stavudine, d4T)
-  **Ziagen** (abacavir, ABC)
- Amdoxovir** (AMDX, DAPD)
- Tenofovir alafenamide fumarate (TAF)**

**Immune-Based Therapies**  
(what are they?)

- Aralen** (Chloroquine phosphate)
- DermaVir** (therapeutic vaccine)
- Interleukin-7** (IL-7)
- Lexgenleucel-T** (VRX-496; gene therapy)
- Plaquenil** (hydroxychloroquine)
- Proleukin** (aldesleukin, Interleukin-2, or IL-2)
- SB-728-T** (gene therapy)
- Vacc-4x** (therapeutic vaccine)

**Pharmacokinetic Enhancers**

-  **Norvir** (ritonavir, RTV)
- Cobicistat** (GS-9350)
- SPI-452**

**Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)**  
(what are they?)

-  **Edurant** (rilpivirine, RPV, TMC-278)
-  **Intelence** (etravirine, ETR, TMC-125)
-  **Rescriptor** (delavirdine, DLV)
-  **Sustiva** (Stocrin, efavirenz, EFV)
-  **Viramune and Viramune XR** (nevirapine, NVP)
- Lersivirine** (UK-453061)

**Protease Inhibitors (PIs)**  
(what are they?)

-  **Aptivus** (tipranavir, TPV)
-  **Crixivan** (indinavir, IDV)
-  **Invirase** (saquinavir, SQV)
-  **Kaletra** (Aluvia, lopinavir/ritonavir, LPV/r)
-  **Lexiva** (Telzir, fosamprenavir, FPV)
-  **Norvir** (ritonavir, RTV)
-  **Prezista** (darunavir, DRV)
-  **Reyataz** (atazanavir, ATV)
-  **Viracept** (nelfinavir, NFV)

**Entry Inhibitors (including Fusion Inhibitors)**  
(what are they?)

-  **Fuzeon** (enfuvirtide, ENF, T-20)
-  **Selzentry** (Celsentri, maraviroc, UK-427,857)
- Cenicriviroc** (TBR-652, TAK-652)
- Ibalizumab** (TNX-355)
- PRO 140**

**Integrase Inhibitors**  
(what are they?)

-  **Isentress** (raltegravir, MK-0518)
- Dolutegravir** (GSK-572)
- Elvitegravir** (GS-9137)

Access to ART, adherence to the medical regimen, and response to ART affect whether or when HIV progresses to AIDS.

However, not everyone with HIV infection benefits from the new drug therapies. Many people cannot tolerate the unpleasant or serious side effects from the medications. An estimated 40-50% of people with HIV who have access to the improved medications are either unable to tolerate them or cannot adhere to

the complex treatment schedule. If a person cannot keep this complicated schedule, the drugs do not work effectively and viral resistance may develop.

Insurance programs and government programs for individuals with low income pay for much of the cost of the HIV medicines in the US. These medicines may cost several thousands of dollars per person each month. People who live in other countries where the medication is unaffordable have almost no access to the newer therapies.

Although the new drug therapies work for many people to keep the amount of virus in their bodies to very low levels, they are not a cure for HIV. Once therapy is discontinued, viral load may increase. Even during treatment, viral replication may occur and **the person remains infectious to others**.

Many people find that after time, the virus becomes resistant to the medication, and they must change medications. This is especially true when the medications are not taken correctly, and it limits the number of possible drug therapies that the person might be able to use.

### **Side Effects of HIV Prescription Medications**

Patients often have unpleasant side effects when they use prescription medications to treat their HIV infection. The list of side effects includes:

- nausea
- diarrhea
- peripheral neuropathy (numbness in feet and hands)
- changes in body fat distribution called lipodystrophy, with large fat deposits on the back of the neck, on the stomach area and in breast size in women. This is usually accompanied by a simultaneous, pronounced thinning of the arms and legs.
- Interference with the metabolism of oral contraceptives
- osteoporosis
- diabetes or other changes in glucose metabolism
- damage to the nervous system, liver and/or other body organs

People have used and relied on alternative, sometimes called complimentary, therapies to treat HIV infection for as long as HIV has been known. Many people use these treatments along with therapies from their medical provider. Other people choose to only use alternative therapies.

These therapies include a wide range of treatments, from vitamins, massage, herbs, naturopathic remedies, and many more. It is important for people who are taking alternative therapies to tell their medical provider. There may be drug reactions or other harmful side effects from the interactions of the "natural" medicine and antiretrovirals.

Other drugs, including over the counter medications, prescription medications and "street drugs," may have serious interactions with antiretroviral medications. It is extremely important that people on HIV medications tell their healthcare provider, pharmacist or social worker about all other drugs they take.

### **Adherence**

Taking antiretroviral (ART) medications at the right dose and time has been shown to promote viral suppression and reduce AIDS related mortality. Predictors of poor adherence have not changed significantly over the past several years. Because adherence often involves behavioral change, it is difficult to implement and continue. Adherence is important for two reasons: it affects the individual but also has a significant effect on public health. People who are able to maintain an undetectable viral load

are less likely to progress to AIDS. An undetectable viral load also decreases the probability of viral transmission following an exposure.

In 2005 the media reported a case of multi-drug resistant HIV in a person living in New York City. According to media reports, the person was recently diagnosed with HIV but had so few treatment options that progression to AIDS was rapid. Shet, et al. (2006) reported on the prevalence of ART resistant mutations transmitted on a New York City cohort of recently infected persons. Of the 112 people in the study, viral resistance was identified among 25 % prior to beginning ART, while almost 10% had MDR strains of HIV. The increase of resistance was statistically significant different between 1995-1998 and 2003-2004 ( $p=0.04$ ).

### **The Importance of Access to Medical Care**

As the medications that are available to treat HIV infection have become more numerous and complex, HIV care has become a medical specialty. If possible, people who have HIV infection should seek out a physician who is skilled in the treatment of HIV and AIDS.

Despite the efforts of researcher who have worked for years to develop a vaccine to prevent, or alleviate the severity of HIV infection, there is currently no vaccine for HIV. No one knows when a vaccine will be ready for distribution. Many promising developments have been made and it is possible that a vaccine will be available within this decade. Currently, prevention is still the only way to avoid HIV infection.

Management of social issues plays a significant role in HIV care. For this reason, an integrated team of professionals is needed to meet the complex needs of patients with HIV. Issues such as substance abuse, mental health, financial needs, relationship issues, and housing can interfere with the patient's ability to remain adherent to his medical care plan. Patients present to the clinic and report that they were unable to take certain doses of medication because they had been instructed to take it with food, but they had no food. Others report missing appointments or tests because no transportation was available. Specialists in the field now recognize the importance of postponing initiation of ART if possible for persons with chaotic life situations until changes can be made to optimize the likelihood of treatment success. Referrals to community based organizations, food pantries, and organizations managing subsidized housing can greatly improve the possibility of successful treatment.

#### **Case Study #6**

Mr. S. came to the HIV clinic as a walk-in. He claimed to be homeless, actively using drugs, and had no income. He was diagnosed with HIV about eight years ago and had been seen in different clinics on an intermittent basis. He moved to this area about one year ago to attend a rehab program, but relapsed and was living on the street or in shelters when there was room. He took antiretroviral therapy while he was in rehab, but had been out of all HIV medications for at least three months. He noticed thrush in his mouth and he has had a sore throat. He wanted an urgent appointment to get a supply of medications.

The nurse explained to Mr. S. that he could be seen by a provider as an urgent visit, and he would also be seen by a social worker who would determine what other urgent needs he had. After being assessed by both staff members, the decision was made that the patient appeared to be medically stable and would not need emergency intervention. The plan was to obtain labs and past medical records, and attempt to help the patient find stable housing prior to restarting HIV medications. The social worker contacted someone at the Department of Social Services who agreed to provide an emergency housing voucher for a nearby supported living program. Staff at the program provided transportation to apply for social services including food stamps and disability. They took him to the food pantry and back to the HIV clinic for his next appointment. Finally stabilized, Mr. S. was able to keep his clinic appointments and take his medications appropriately. He reconnected with the rehab program and made arrangements to attend on an out-patient basis. He has been clean and

sober for about four months. He is very appreciative of the support he feels from his provider, social worker, and staff at the clinic.

## Management of HIV in the Healthcare Workplace

The following standards are mandated by the Occupational Safety and Health Administration (OSHA). While HBV and HIV are specifically identified in the standard, "Bloodborne Pathogens" include any pathogen present in human blood or other potentially infectious materials (OPIM) that can infect and cause disease in people exposed to the pathogen. Bloodborne pathogens may also include HCV, Hepatitis D, malaria, syphilis, babesiosis, brucellosis, leptospirosis, arboviral infections, relapsing fever, Creutzfeldt-Jakob disease, adult T-cell leukemia/lymphoma (caused by HTLV-I), HTLV-I associated myelopathy, diseases associated with HTLV-II, and viral hemorrhagic fever.

According to the CDC, Hepatitis C infection (HCV) is the most common chronic bloodborne infection in the United States. HCV is a viral infection of the liver transmitted primarily by exposure to blood.

### Exposure Control Plan

Each employer must develop an **Exposure Control Plan (ECP)**. The plan requires the employer to identify those tasks and procedures in which occupational exposure may occur. It also requires the employer to identify the individuals who will receive the training, protective equipment, vaccination, and other benefits of the standard.

This ECP shall contain at least the following elements:

- A written **exposure determination** that includes those job classifications and positions in which employees have the potential for occupational exposures. The exposure determination shall have been made without taking into consideration the use of personal protective clothing or equipment. It is important to include those employees who are required or expected to administer first aid.
- The procedure for evaluating the circumstances surrounding exposure incidents, including maintenance of a "Sharps Injury Log".
- The infection control system used in that workplace.
- Documentation of consideration and implementation of appropriate, commercially available safer medical devices designed to eliminate or minimize occupational exposure.
- The ECP must be updated on at least an annual basis and whenever changes occur that effect occupational exposure.

### Universal Precautions/Standard Precautions

#### Case Study #7

The HIV coordinator was used to having staff and patients walk into her office with questions. However, the day Julie showed up crying at her door she was slightly surprised. She did not know Julie well, but did not expect that she would be the type to cry unless something was very wrong. She escorted her into the office, closed the door, and asked what had happened. Julie explained that she delivers supplies to different locations within the hospital including the autopsy room. She always wears protective foot gear, gloves, and eye glasses. The day after she restocked supplies in the autopsy suite, someone told her that the procedure that day was on a patient with HIV. She became very upset, and demanded to know why she wasn't warned before entering the room. She was afraid that she may have contracted HIV from the air or from walking in any blood or tissue left on the floor (although she did not remember anything visible to her at the time). Her worst worry was taking something home to infect her husband and children. By the time the whole story

unfolded she was sobbing.

The coordinator explained the routes of HIV infection, and the probability of infection even with a needle stick. She reassured her that HIV could not be spread by aerosolized particles or from stepping on blood or tissue when wearing shoes. She discussed the limited viability of HIV outside the body. She complimented her on using universal precautions while she worked, and assured her that doing so would provide adequate protection. Julie felt much more reassured about her own health when she left, and confident that she had not exposed her family to the virus.

**Universal precautions**, as defined by CDC, are designed to prevent transmission of bloodborne pathogens in healthcare and other settings. Under universal precautions, blood/OPIM of **all patients should always** be considered potentially infectious for HIV and other pathogens.

**Standard Precautions** is a newer definition that hospitals and other healthcare settings are moving toward. Standard Precautions include all recommendations made for Universal Precautions **plus** body substance isolation (BSI) when OPIM is present.

**Bodily fluids** that have been recognized as OPIM and linked to the transmission of HIV, HBV and HCV, and to which Standard Precautions and Universal Precautions apply are: blood, semen, blood products, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, amniotic fluid, and specimens with concentrated HIV, HBV and HCV viruses.

Although the terms are not interchangeable, most people are more familiar with the term **Universal Precautions**. For this course, the term Standard Precautions will be used, although there may be some settings (like daycare) where body substance isolation may not be needed.

### **Personal Protective Equipment**

Universal and Standard Precautions involve the use of protective barriers to reduce the risk of exposure of the employee's skin or mucous membranes to blood and OPIM. It is also recommended that all healthcare workers take precautions to prevent injuries caused by needles, scalpels, and other sharp instruments or devices. Both Universal and Standard Precautions apply to blood and OPIM listed above.

Gloves, masks, protective eyewear and chin-length plastic face shields are examples of **personal protective equipment** (PPE). PPE shall be provided and worn by employees in all instances where they will or may come into contact with blood or OPIM. This includes, but is not limited to dentistry, phlebotomy or processing of any bodily fluid specimen, and postmortem (after death) procedures.

Traditionally, latex gloves have been used when dealing with blood or OPIM. However, there have been documented cases of people with allergies to latex. In most circumstances, nitrile and vinyl gloves meet the definition of "appropriate" gloves and **may** be used in place of latex gloves. Employers are required to provide non-latex alternatives to employees with latex and other sensitivities.

Reusable PPE must be cleaned and decontaminated, or laundered by the employer. Lab coats and scrubs are generally considered to be worn as uniforms or personal clothing. When contamination is reasonably likely, protective gowns must be worn. If lab coats or scrubs are worn as PPE, they must be removed as soon as practical and laundered by the employer.

### **Engineering Controls**

Engineering controls eliminate or reduce exposure to a threat such as a pathogen or physical hazard through the use or substitution of engineered machinery or equipment. Examples include needleless

syringes, sharps disposal containers, self-sheathing needles, safer medical devices such as sharps with engineered injury protections and needleless systems, specialized requirements for heating, cooling and ventilation in areas that house infectious diseases, operating rooms, intensive care units (CDC, 2007), high-efficiency particulate air (HEPA) filtration, ultraviolet lights, scavenging devices, sound-dampening materials to reduce noise levels, safety interlocks, splatter shields on medical equipment associated with risk prone procedures (e.g., locking centrifuge lids), and radiation shielding. Well-designed engineering controls eliminate human error thus giving the healthcare worker greater protection from the hazard.

Whenever possible, safer devices must be utilized in order to prevent sharps injuries. This includes the need to evaluate and select safer devices. Those healthcare providers who will be utilizing the safer device need to be involved in the process of decision making. It is preferable to utilize devices wherein the safety feature is automatically engaged and integrated into the device, rather than one in which the safety equipment is an accessory device or one in which the healthcare provider must change practice habits (passive vs. active safety features). Safer devices that are specific to a particular clinical area or setting are ideal; devices that provide immediate and continuous protection are preferable. All staff who may utilize the new equipment or device must be educated as to the proper use of the device. Whenever possible, eliminate the traditional, or non-safety, alternative, so that staff must utilize the safer device.

### **Work Practice Controls**

Work practice controls relate to how work is done. They consist of multiple interventions which, when utilized properly, insure worker safety when engineering controls are not possible or available. Work practice controls alter the manner in which a task is performed, thereby reducing exposure to bloodborne pathogens (e.g., prohibiting recapping of needles by a two-handed technique).

### **Hand Hygiene**

The most common way that infection is spread throughout the healthcare system is through hand contact. Indeed, handwashing and hand hygiene are the single most effects means of limiting the spread of infection. Despite the sophistication of healthcare and the science behind that care, the simple and low-tech intervention of hand hygiene is a significant factor in reducing the spread of infection.

Handwashing should occur (CDC, 2002):

- Whenever hands are visibly dirty or contaminated.
- Before:
  - having contact with patients
  - putting on gloves
  - inserting any invasive device
  - manipulating an invasive device
- After:
  - having contact with a patient's skin
  - having contact with bodily fluids or excretions, non-intact skin, wound dressings, contaminated items
  - having contact with inanimate objects near a patient
  - removing gloves

Alcohol-bashed hand rubs, either foam or gel, kill more effectively and more quickly than handwashing with soap and water. They are also less damaging to the skin, resulting in less dryness and irritation, leading to fewer breaks in the skin. Hand rubs require less time than handwashing with soap and water and bottles/dispensers can be conveniently placed at the point of care, to be more accessible (CDC, 2002).

## ALCOHOL-BASED HAND RUBS ARE MORE EFFECTIVE IN KILLING BACTERIA THAN SOAP AND WATER



An alcohol-based hand rub is the preferred method for hand hygiene in all situations, except for when your hands are visibly dirty or contaminated.

### HAND RUB (foam and gel)

- Apply to palm of one hand (the amount used depends on specific hand rub product).
- Rub hands together, covering all surfaces, focusing in particular on the fingertips and fingernails, until dry. Use enough rub to require at least 15 seconds to dry.

### HANDWASHING

- Wet hands with water.
- Apply soap.
- Rub hands together for at least 15 seconds, covering all surfaces, focusing on fingertips and fingernails.
- Rinse under running water and dry with disposable towel.
- Use the towel to turn off the faucet.

**Sharp instruments and disposable items** must be properly handled and disposed. Needles are **NOT** to be recapped, purposely bent or broken, removed from disposable syringes or otherwise manipulated by hand. After they are used, disposable syringes and needles, scalpel blades and other sharp items are to be placed in puncture-resistant, labeled containers for sharps disposal. It is important that these containers be conveniently located, as close as possible to where they will be used. Additionally, it is important to not overfill the sharps containers as placing items into these containers poses risk when the container is overflowing with needles, syringes and other sharp objects.

**Housekeeping** is important to maintain the work area in a clean and sanitary condition. The employer is required to determine and implement a written schedule for cleaning and disinfection based on the location within the facility, type of surface to be cleaned, type of soil present and tasks or procedures being performed. All equipment, environmental and working surfaces must be properly cleaned and disinfected after contact with blood or OPIM.

**Potentially** contaminated broken glassware must be removed using mechanical means, like a brush and dustpan or vacuum cleaner. Specimens of blood or OPIM must be placed in a closeable, labeled or color-coded leakproof container prior to being stored or transported.

Chemical germicides and disinfectants used at recommended dilutions must be used to decontaminate spills of blood and other body fluids. Consult the Environmental Protection Agency (EPA) lists of registered sterilants, tuberculocidal disinfectants, and antimicrobials with HIV efficacy claims for verification that the disinfectant used is appropriate. The lists are available from the National Antimicrobial Information Network at (800) 858-7378 or <http://npic.orst.edu/ptype/amicrob/pathogens.html>.

**Laundry** that is or may be soiled with blood or OPIM, and/or may contain contaminated sharps, must be treated as though contaminated. Contaminated laundry must be bagged at the location where it was used, and shall not be sorted or rinsed in patient-care areas. It must be placed and transported in bags that are labeled or color-coded (red-bagged).

Laundry workers must wear protective gloves and other appropriate personal protective clothing when handling potentially contaminated laundry. All contaminated laundry must be cleaned or laundered so that any infectious agents are destroyed.

**Waste disposal** procedures must be carefully followed. All infectious waste must be placed in closeable, leakproof containers or bags that are color-coded (red-bagged) or labeled as required to prevent leakage during handling, storage and transport. Disposal of waste shall be in accordance with federal, state and local regulations.

**Tags or labels** must be used as a means to prevent accidental injury or illness to employees who are exposed to hazardous or potentially hazardous conditions, equipment or operations which are out of the ordinary, unexpected or not readily apparent. Tags must be used until the identified hazard is eliminated or the hazardous operation is completed.

**Personal activities** such as eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in laboratories and other work areas where blood or OPIM are present.

**Food and drink** must not be stored in refrigerators, freezers or cabinets where blood or OPIM are stored, or in other areas of possible contamination.

### **Bloodborne Pathogen Training**

All new employees or employees being transferred into jobs involving tasks or activities with potential exposure to blood/OPIM shall receive training in the Bloodborne Pathogen Standard at the time of initial assignment to the tasks where occupational exposure may occur. This training will include information on the hazards associated with blood/OPIM, the protective measures to be taken to minimize the risk of occupational exposure, and information on the appropriate actions to take if an exposure occurs.

Retraining is required annually, or when changes in procedures or tasks affecting occupational exposure occur. As previously mentioned, the limited information in this section does not qualify for the full training.

All employees whose jobs involve participation in tasks or activities with exposure to blood/OPIM shall be offered the start of the **Hepatitis B vaccination** series within 10 working days of employment and/or new assignment. The vaccine will be provided free of charge. Serologic testing after vaccination (to ensure that the shots were effective) is recommended for all persons with occupational exposures.

### **Risk of Occupational exposures**

The CDC states that the risk of infection for HIV, HBV or HCV in the healthcare setting varies from case by case. Factors influencing the risk of infection from occupational exposure are:

- Whether the exposure was from a hollow-bore needle or other sharp instrument;
- To intact skin or mucus membranes (such as the eyes, nose, mouth);
- The amount of blood that was involved and
- The amount of virus present in the source's blood

The risk of HIV infection to a healthcare worker through a needlestick is less than 1%. Approximately 1 in 300 exposures through a needle or sharp instrument result in infection.

The risks of HIV infection through splashes of blood to the eyes, nose or mouth is even smaller - approximately 1 in 1,000. There have been no reports of HIV transmission from blood contact with intact skin. There is a theoretical risk of blood contact to an area of skin that is damaged, or from a large area of skin covered in blood for a long period of time. In 2001, the CDC reported 56 documented cases and 138 possible cases of occupational exposure to HIV since reporting started in 1985. The risk of getting HBV from a needlestick or cut is between 6-30%, unless the person exposed has been vaccinated to hepatitis B. There are only a few studies regarding the risk of getting HCV from occupational exposure. The risk of getting HCV from a needlestick or cut is between 2-3%. The risk of getting HBV or HCV from a blood splash to the eyes, nose or mouth is possible but believed to be very small. As of 1999, about 800 health care workers a year are reported to be infected with HBV following occupational exposure. There are no exact estimates on how many healthcare workers contract HCV from an occupational exposure. To put this in perspective, the risk of a healthcare worker contracting HCV from an accidental needlestick is 20-40% greater than their risk of contracting HIV.

### **Treatment After a Potential Occupational Exposure**

It is important to follow the protocol of your employer. The CDC recommends that post-exposure prophylaxis should be started ideally within 2 hours of occupational exposure (CDC,2005). The CDC recommends that as soon as safely possible, wash the affected area(s). Application of antiseptics should not be a substitute for washing. It is recommended that any potentially contaminated clothing be removed as soon as possible. It is also recommended that you familiarize yourself with existing protocols and the location of emergency eyewash or showers and other stations within your facility.

If the HIV exposure is to the eyes, nose or mouth, flush them continuously with water, saline or sterile irrigants for at least five minutes. The risk of contracting HIV through this type of exposure is estimated to be 0.09%.

In the event of a needlestick injury, wash the exposed area with soap and clean water. Do not "milk" or squeeze the wound. There is no evidence that shows using antiseptics (like hydrogen peroxide) will reduce the risk of transmission for any bloodborne pathogens. In the event that the wound needs suturing, emergency treatment should be obtained. The risk of contracting HIV from this type of exposure is estimated to be 0.3%.

Exposure to saliva is **not** considered substantial unless there is visible contamination with blood. Wash the area with soap and water, and cover with a sterile dressing as appropriate. All bites should be evaluated by a healthcare professional.

Exposure to urine, feces, vomit or sputum is **not** considered substantial unless the fluid is visibly contaminated with blood. Follow normal procedures for cleaning these fluids.

### **Reporting the Exposure**

Follow the protocol of your employer. The following general guidelines taken from the CDC are not meant to replace an existing protocol. After cleaning the exposed area as recommended above, report the exposure to the department or individual at your workplace that is responsible for managing exposure.

Obtain medical evaluation as soon as possible. Discuss with a healthcare professional the extent of the exposure, prophylaxis/prevention of other bloodborne pathogens, the need for a tetanus shot and other care.

## Post-exposure Prophylaxis

Post-exposure prophylaxis (PEP) provides anti-HIV medications to someone who has had a substantial exposure, usually to blood. PEP has been the standard of care for occupationally-exposed healthcare workers with substantial exposures since 1996. Animal models suggest that cellular HIV infection happens within 2 days of exposure to HIV. Virus in blood is detectable within 5 days. Therefore, PEP should be started as soon as possible, **optimally within 2 hours, preferably within 24 hours of the exposure** or as soon as possible and continued for 28 days. However, PEP for HIV does not provide prevention of other bloodborne diseases, like HBV or HCV.

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

There have been several changes in CDC (2005) recommendations for post-exposure prophylaxis (PEP). These changes are based on new scientific evidence that resulted from research focused on viral transmission following occupational and non-occupational exposures. The most current recommendations can be found at the CDC website and are available in downloadable format for use in emergency departments and medical offices.

The CDC (2005) currently recommends PEP for occupational exposures:

PEP should be initiated as soon as possible, preferably within hours rather than days of exposure. If a question exists concerning which antiretroviral drugs to use, or whether to use a basic or expanded regimen, the basic regimen should be started immediately rather than delay PEP administration. The optimal duration of PEP is unknown. Because 4 weeks of zidovudine appeared protective in occupational and animal studies, PEP should be administered for 4 weeks, if tolerated. Combinations that can be considered for PEP include ZDV and 3TC or emtricitabine (FTC); d4T and 3TC or FTC; and tenofovir (TDF) and 3TC or FTC. In the previous Public Health Service guidelines, a combination of d4T and ddI was considered one of the first-choice PEP regimens; however, this regimen is no longer recommended because of concerns about toxicity (especially neuropathy and pancreatitis) and the availability of more tolerable alternative regimens.

The PI preferred for use in expanded PEP regimens is lopinavir/ritonavir (LPV/RTV). Other PIs acceptable for use in expanded PEP regimens include atazanavir, fosamprenavir, ritonavir-boosted indinavir, ritonavir-boosted saquinavir, or nelfinavir. Although side effects are common with Non-nucleoside Reverse Transcriptase inhibitors, efavirenz may be considered for expanded PEP regimens, especially when resistance to PIs in the source person's virus is known or suspected. Caution is advised when EFV is used in women of childbearing age because of the risk of teratogenicity (CDC, 2005).

For non-occupational exposures (nPEP), the recommendations are as follows:

For persons seeking care <72 hours after non-occupational exposure to blood, genital secretions, or other potentially infectious body fluids of a person known to be HIV infected, when that exposure represents a substantial risk for transmission, a 28-day course of highly active antiretroviral therapy (HAART) is recommended. Antiretroviral medications should be initiated as soon as possible after exposure. For persons seeking care <72 hours after non-occupational exposure to blood, genital secretions, or other potentially infectious body fluids of a person of unknown HIV status, when such exposure would represent a substantial risk for transmission if the source were HIV infected, no recommendations are made for the use of nPEP. Clinicians should evaluate risks and benefits of nPEP on a case-by-case basis. For persons with exposure histories that represent no substantial risk for HIV transmission or who seek care >72 hours after exposure, DHHS does not recommend the use of nPEP (CDC, 2005a).

Post-exposure prophylaxis can only be obtained from a licensed healthcare provider. Your facility may have recommendations and a chain of command in place for you to obtain PEP. After evaluation of the exposure route and other risk factors, certain anti-HIV medications may be prescribed.

The specific details about post-exposure management and treatment see the CDC (2005) Updated US Public Health Guidelines for the management of occupational exposures to HIV and recommendations for postexposure prophylaxis. MMWR, 54(RR09), 1-17, available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5409a1.htm>.

PEP is not as simple as swallowing one pill. The medications must be started within the first 2 hours if possible, and continued for 28 days. Many people experience significant medication side effects.

It is very important to report occupational exposure to the department at your workplace that is responsible for managing exposure. If post-exposure treatment is recommended, it should be started as soon as possible.

In rural areas, police, firefighters and other at-risk emergency providers should identify a 24-hour source for PEP. The national bloodborne pathogen hotline provides 24-hour consultation for clinicians who have been exposed on the job. Call 1-888-448-4911 for the latest information on prophylaxis for HIV, hepatitis, and other pathogens.

### **HIV/HBV/HCV Testing Post-exposure**

As a healthcare professional, if one sustains an occupational exposure to HIV, HBV and HCV, antibody testing for HIV, HBV and HCV, as well as vaccination for HBV will be offered. Since it usually takes the body between two weeks and three months to produce antibodies to HIV, the initial test serves as a baseline. It will show whether HIV infection occurred prior to this exposure. Additional testing will be needed. In 2001, the CDC recommended retesting at six weeks, 3 and 6 months after exposure. Testing for up to 12 months may be recommended for high risk exposures or when the source is documented to be infected with HIV. The need for a Hepatitis B titer test (if previously vaccinated for HBV), tests for elevated liver enzymes and other available testing for other bloodborne pathogens should be discussed with the healthcare provider.

There are situations where healthcare workers and others are not aware of the HIV status of the individual to whose blood they have been exposed. Usually, you can't force someone to test for HIV and reveal their results to you.

If an occupational exposure occurs, the exposed person can request HIV testing of the source individual. However, the source must consent to the testing. Source testing does not eliminate the need for baseline testing of the exposed individual for HIV, HBV, HCV and liver enzymes. Provision of PEP should also not be contingent upon the results of a source's test. Current wisdom indicates immediate provision of PEP, with discontinuation of treatment based upon the source's test results.

The risk of HIV infection to a healthcare worker from a needlestick containing HIV-positive blood is about 1 in 300, according to CDC data. Risks for infection with found syringes will depend on a variety of factors, including the amount of time the syringe was left out, presence of blood and the type of injury (scratch versus puncture).

### **Legal Aspects of HIV/AIDS: Testing, Counseling and Confidentiality**

HIV antibody testing has been available since 1985. An estimated one-fourth of the approximately 1 million persons in this country who are living with HIV do not know they are infected (CDC, 2006). That's approximately 250,000 persons who could be spreading HIV to their partners unknowingly. This unwitting

spread of HIV infection is part of the reason why the Center for Disease Control and Prevention (CDC) issued new guidelines in September, 2006 regarding HIV testing. The *Revised Recommendations for HIV Testing of Adults, Adolescents, and Pregnant Women in Healthcare Settings* (CDC, 2006) aim to make HIV testing a routine part of medical care in addition to expanding the gains made in diagnosing HIV infection among pregnant women. The goal is to make HIV testing may be a routine part of healthcare with yearly testing integrated into physicals similar to other tests used for screening such as cholesterol, Prosthetic Specific Antigen (PSA), and stools for occult blood. As HIV screening becomes a more routine aspect of medical care, more people will know they are infected with HIV and hopefully will utilize prevention measures.

Key differences in the revised *Recommendations* for patients in all healthcare settings are (CDC, 2006e; Branson, et al., 2006):

- HIV testing for patients, aged 13-64, in all healthcare settings after the patient is notified that testing will be performed unless the patient declines (opt-out screening).
- All patients initiating treatment for TB should be screened routinely for HIV infection.
- All patients seeking treatment for STDs, including all patients attending STD clinics, should be screened routinely for HIV during each visit for a new complaint, regardless of whether the patient is known or suspected to have specific behavior risks for HIV infection.
- HIV testing of people at high risk for HIV infection at least once a year.
- Screening should be incorporated into the general consent for medical care; separate written consent is not recommended.
- Prevention counseling should not be required with HIV diagnostic testing or as part of HIV screening programs in healthcare settings.

Additional key differences in the *Recommendations* for pregnant women in healthcare settings are (CDC, 2006):

- Including HIV screening in the routine panel of prenatal screening tests for all pregnant women, unless the patient declines (opt-out screening).
- Repeat screening in the third trimester in certain jurisdictions with elevated rates of HIV infection among pregnant women.

The *Recommendations* emphasize the importance of voluntary testing. Some may have concerns that eliminating the recommendation for separate informed consent for an HIV test could result in some patients being tested for HIV without their knowledge. Others have asserted that requiring separate, written informed consent is a barrier that makes HIV screening difficult to conduct in healthcare settings, and that removing this requirement would make widespread HIV screening feasible (CDC, 2006).

Concerns have also been expressed over the lack of HIV prevention counseling in conjunction with HIV testing. The new recommendation from the CDC continue to support prevention counseling as an intervention to help people reduce their risks for HIV, but recognize it can become a barrier to HIV testing in busy healthcare settings. CDC still recommends that patients receive information about HIV testing, HIV infection, and the meaning of test results (CDC, 2006).

The *Recommendations* are intended for healthcare providers in both the public and private sectors. These include healthcare workers in hospital emergency departments, inpatient services (including labor and delivery), correctional health care facilities, clinics including substance abuse treatment, public health, community, pediatric and adolescent, prenatal, and mental health, and other primary care settings (CDC, 2006).

These *Recommendations* address HIV testing in healthcare settings only. They do not change existing CDC recommendations on HIV counseling, testing, and referral for persons at high risk for HIV who receive testing in nonclinical settings such as at community-based organizations (CDC, 2006).

More detailed information about the revised Recommendations can be obtained at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5514a1.htm>.

### **Informed Consent for HIV Testing in the Commonwealth of Kentucky**

Testing for HIV infection can be a valuable tool in protecting the public health. However misunderstanding of the nature of the test or fear of test results or denial of one's own risk, keeps people from being tested.

In the Commonwealth of Kentucky, per KRS.214.625, a person who has signed a general consent form for the performance of medical procedures and tests is not required to also sign a specific consent form relating to medical procedures or tests to determine HIV infection or antibodies. The general consent form must instruct the patient that, as part of the medical procedures or tests, the patient may be tested for HIV, hepatitis, or any other blood-borne infectious disease.

The physician who orders the test or the attending physician, is responsible for informing the patient of the results of the test if the test results are positive for human immunodeficiency virus infection. If the tests are positive, the physician shall also be responsible for either:

(a) Providing information and counseling to the patient concerning his infection or diagnosis and the known medical implications of such status or condition; or

(b) Referring the patient to another appropriate professional or healthcare facility for the information and counseling.

In any emergency situation where informed consent of the patient cannot reasonably be obtained before providing healthcare services, there is no requirement that a healthcare provider obtain a previous informed consent.

No person in Kentucky can perform a test designed to identify HIV or its antigen or antibody, without first obtaining the informed consent of the person upon whom the test is being performed.

Kentucky law requires that each public health department provides a program of counseling and testing for HIV on either an anonymous or confidential basis.

The Cabinet for Health and Family Services established a network of voluntary HIV testing programs in public health departments in every county in the state. Each public health department has the ability to provide counseling and testing for HIV to each patient who receives services and to offer the testing on a voluntary basis to each patient who requests the test.

A **confidential HIV test** means the patient gives their real name, and the results of a test are known only to themselves and the healthcare provider or counselor who provides test results, medical care or prevention services to that person. In the event of a positive HIV test, those who have confidential testing must be reported by name and other specific information by law.

An **anonymous HIV** antibody test means that the person who orders or performs the test does not maintain a record of the name of the person they are testing. Only the statistical information relating to a positive test for HIV is reported to the cabinet.

See Appendix A for a listing of HIV services in the state of Kentucky, including locations for HIV testing.

## **HIV Counseling with HIV Testing**

HIV test counseling should be offered to all clients who are at risk for HIV or who request counseling. At the same time, the law states that persons who refuse counseling should not be denied an HIV test (clients can refuse counseling); and that the person conducting the HIV test does not have to provide the counseling themselves. They can refer the client to another person or agency for counseling.

### **Pre-test Counseling**

HIV pre-test counseling should be based on the CDC's Revised Guidelines for HIV Counseling, Testing and Referral Recommendations (accessed at <http://cdc.gov/hiv/topics/testing/guideline.htm>); and should:

- Assist the individual to set realistic behavior-change goals and establish strategies for reducing their risk of acquiring or transmitting HIV;
- Provide appropriate risk reduction skill-building opportunities to support their behavior change goals; and
- Provide or refer for other appropriate prevention, support or medical services.

### **Post-test Counseling**

Everyone who tests negative should be offered an individual counseling session at the time they receive their test results. This counseling can be provided by the person providing the results or can be a referral for the client to receive these services at another agency. This post-test counseling should accomplish the same goals as pre-test counseling: assist the client to set behavior change goals, establish strategies to achieve these goals, provide skills-building to support achieving these goals and provide appropriate referrals.

For those clients who test positive, counseling can't just be offered. It must be provided or referred and in addition to what is provided to those with negative results, must also include:

- If confidentially tested, the information that HIV is a reportable condition;
- Either the provision of partner notification support or referral to public health for these services;
- Appropriate referrals for alcohol and drug and mental health counseling, medical evaluation, TB screening, and HIV prevention and other support services.

### **Confidentiality of HIV Testing**

According to KRS 214.625, anyone who has knowledge of a test result, or the identity of the person upon whom the test was performed is prohibited from disclosing this information except to the following:

1. The subject of the test or the subject's legally authorized representative;
2. Any person designated in a legally effective release of the test results executed prior to or after the test by the subject of the test or the subject's legally authorized representative;
3. A physician, nurse, or other healthcare personnel who has a legitimate need to know the test result in order to provide for his protection and to provide for the patient's health and welfare;
4. Healthcare providers consulting between themselves or with healthcare facilities to determine diagnosis and treatment;
5. The Cabinet, in accordance with rules for reporting and controlling the spread of disease, as otherwise provided by state law;
6. A health facility or healthcare provider which procures, processes, distributes, or uses: a) human body part from a deceased person, with respect to medical information regarding that person; or b) Semen provided prior to July 13, 1990, for the purpose of artificial insemination;

7. Health facility staff committees, for the purposes of conducting program monitoring, program evaluation, or service reviews;
8. . Authorized medical or epidemiological researchers who shall not further disclose any identifying characteristics or information;
9. A parent, foster parent, or legal guardian of a minor; a crime victim; or a person specified in KRS 438.250;
10. A person allowed access by a court order.

Disclosure must be accompanied by a statement in writing which includes the following or substantially similar language: "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". People who perform HIV counseling and testing in public health departments or health districts must sign strict confidentiality agreements. These agreements regulate the personal information that may be revealed in counseling and testing sessions, and test results.

HIV test results are kept in locked files, with only a few appropriate staff members having access to them.

All medical records are confidential and must be maintained in a manner that protects that confidentiality. Confidentiality of medical information means that information that can be related to the specific patient may not be disclosed to ANYONE except under specific circumstances as above.

### **Reporting of Positive HIV Test Results**

Reporting of HIV and AIDS cases assists local and state officials in tracking the epidemic. It also allows for effective planning and intervention to be provided in the effort to reduce the transmission of HIV to other people. According to 902 KAR 2:020 which addresses disease surveillance, in Kentucky, physicians and medical laboratories must report positive test results for HIV infection from:

- ELISA;
- Western Blot;
- PCR;
- HIV antigen;
- HIV culture;
- CD4+ assay including absolute CD4+ cell counts and CD4+%;
- HIV detectable Viral load assay; and
- A positive serologic test result for HIV infection.

Physicians and medical laboratories must also report a diagnosis of AIDS that meets the definitions of AIDS established by the CDC, revised in 2008, discussed previously.

### **How, When and Where to Report**

Reports of an HIV infection or an AIDS diagnosis must be reported **within five business days**, whenever possible utilizing the *Adult HIV/AIDS Confidential Case Report* form or the *Pediatric HIV/AIDS Confidential Case Report* form.

Reports of an HIV infection or AIDS diagnosis must be submitted to the HIV/AIDS Surveillance Program of the Louisville-Metro Health Department for any resident of the following counties:

- Jefferson,
- Henry,
- Oldham,
- Bullitt, Shelby,

- Spencer, and
- Trimble.

Report for residents of the remaining Kentucky counties must be submitted to the HIV/AIDS Surveillance Program of the Kentucky Department for Public Health, or as directed by the HIV/AIDS project coordinator.

Reports for persons with HIV infection, but not a diagnosis of AIDS, must include the following information:

- The 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; and
- HIV status of the person's partner, spouse or children.

Reports of AIDS cases shall include the information above as well as:

- The patient's complete address;
- Opportunistic infections diagnosed; and
- Date of onset of illness.

Reports of AIDS 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 also serve as the report of HIV infection.

### **Spousal Notification/Partner Notification**

Federal Public Law 104-146 (1996) requires that states take action to require that a "good faith effort" be made to notify all spouses of HIV-infected persons. A "spouse" is defined as anyone who is or has been the **marriage partner** of an HIV-infected individual within 10 years prior to the HIV diagnosis.

**Notification** means that spousal information will be discussed with individuals prior to their HIV test. If the test result is positive, the individual will be given the choice to notify his/her spouse(s), to allow the health care provider to notify the spouse(s) or refer to the local health jurisdiction for assistance in notifying the spouse(s). More information on spousal notification can be found in the Testing and Counseling Section, covered earlier in this course. Partner notification is a voluntary, confidential service provided to HIV-positive people and their sex and/or injection equipment-sharing partners.

**Partner notification** is provided using a variety of strategies to make sure exposed partners, including spouses, are notified of their exposure to HIV and receive appropriate counseling in a way that respects the confidentiality of the source patient.

People who have newly tested HIV-positive should also receive help notifying partners, including spouses. Providers must confirm those partners have been notified and/or seek agreement to refer the name of the individual to the local health officer for assistance in notifying partners.

Partner notification is a critical tool to inform partners of their exposure so that they can test for HIV. If uninfected, they can take steps to ensure that they do not become infected. If infected, they can take steps to take care of their health and ensure that they do not pass the virus on to others.

## **Disability and Discrimination**

People with AIDS and HIV are also protected by federal law under the Americans with Disability Act (1990) and Section 504 of the Federal Rehabilitation Act of 1973, as amended.

Persons with HIV infection and/or AIDS who feel discriminated against on the basis of their disease may file a complaint with the Office for Civil Rights (OCR) of the U.S. Department of Health and Human Services. OCR will investigate anonymous reports. HIV infection and AIDS are medical conditions that are considered disabilities under the federal Americans with Disability Act (ADA).

The law means that it is illegal to discriminate against someone who has AIDS or is HIV infected. It is also illegal to discriminate against someone who is 'believed' to have AIDS or HIV infection, even though that person is not, in fact, infected. The areas covered in the law are:

- Employment;
- Rental, purchase or sale of apartment, house or real estate;
- Places of public accommodation (restaurants, theaters, etc.);
- Healthcare, legal services, home repairs, and other personal services available to the general public;
- Applying for a loan or credit card, or other credit transactions;
- Certain insurance transactions.

Employers may not discriminate against persons with HIV infections or AIDS in:

- Employment
- Recruitment
- Hiring
- Transfers
- Layoffs
- Terminations
- Rate of pay
- Job assignments
- Leaves of absence, sick leave, any other leave or fringe benefits available by virtue of employment

Employers are required to provide and maintain a working environment free of discrimination. They must assure that no harassment, intimidation or personnel distinction is made in terms and conditions of employment. If a worksite situation develops that poses the threat of discrimination, employees must be given education and supervision to end harassment, the use of slurs and/or intimidation.

Employers are responsible for providing reasonable worksite accommodations which will enable a qualified, disabled employee or job applicant to perform the essential tasks of a particular job. Reasonable accommodation means relatively inexpensive and minimal modifications, such as:

- Providing special equipment
- Altering the work environment
- Allowing flex-time
- Providing frequent rest breaks
- Allowing the person to work at home (telecommute)
- Restructuring the job

When a person goes for a job interview or is hired, the employer:

- Cannot ask questions directed at the perception or presence of HIV infection or AIDS, unless based on a "bona fide" occupational qualification, which at this time, according to CDC does not exist.
- Cannot require a blood test to determine HIV infection, unless HIV status limits the ability to perform the work, i.e. overseas assignment in country that requires HIV certification.
- Cannot require a physical exam directed to identify HIV infection, except for exams necessary to evaluate the need for, or nature of, reasonable accommodation or specific job-related conditions.
- Cannot ask questions about lifestyle, living arrangements, or sexual orientation.

Exceptions to this are applicants for the U.S. Military, the Peace Corps, the Job Corps, and persons applying for U.S. citizenship.

## HIV and Co-Infection

Because of the interrelationships between tuberculosis (TB) sexually transmitted diseases (STD), HBV, HCV and HIV, a brief discussion of each of these is included in this course, particularly because of the impact of HIV on the co-infections, as well as the impact of the co-infections on HIV.

## Tuberculosis and HIV

Globally, there are probably 2 billion people (1/3 of the world's population) infected with TB, and 8 million active cases of TB each year. Tuberculosis is one of the leading causes of death in the world.

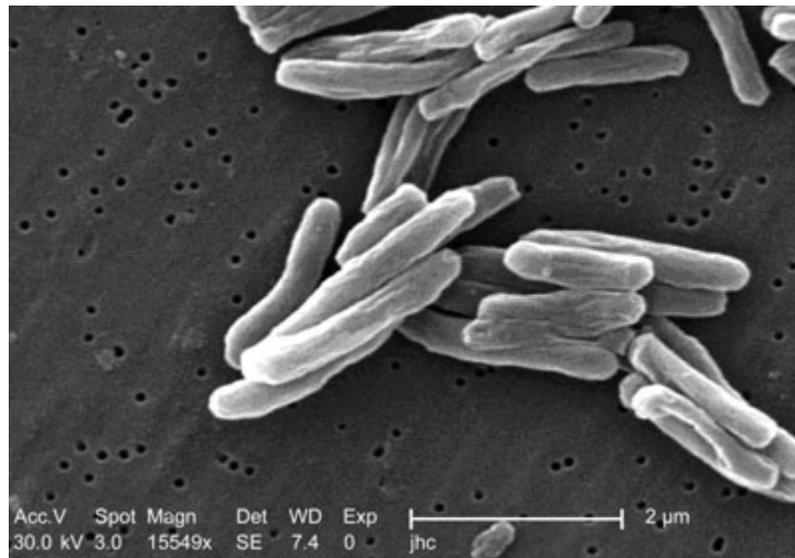


Photo Courtesy of the Public Health Image Library.

Mycobacterium tuberculosis (TB) is the bacteria that causes tuberculosis. It is transmitted by airborne droplets from people with active pulmonary or laryngeal TB during coughing, sneezing, or talking. Although the TB bacteria can live anywhere in the body, infectious pulmonary or laryngeal TB poses the greatest threat to public health.

Latent infection, which is asymptomatic and not infectious, can last for a lifetime. A presumptive diagnosis of active TB is made when there are positive test results or acid-fast bacilli (AFB) in sputum or other bodily fluids. The diagnosis is confirmed by identification of M. tuberculosis on culture, which should be followed by drug sensitivity testing of the bacteria.

The TB bacteria are carried through the bloodstream and lymph system, pumped through the heart, and then disseminated through the body.

The largest amount of bacteria go to the lungs. In most cases, this process, called **primary infection**, resolves by itself and something called "delayed-type hypersensitivity" is established. This is measured with the tuberculin skin test. The incubation period for this primary infection is two to 10 weeks. In most cases, a latent state of TB develops. 90% of people with latent TB never experience subsequent disease. Other than a positive tuberculin skin test, people with latent TB infection have no clinical, radiographic (x-ray), or laboratory evidence of TB and cannot transmit TB to others.

Among the other 10% of infected individuals, the TB infection undergoes "reactivation" at some time and they develop active TB. About 5% of newly infected persons do so within the first two years of primary infection and another 5% will do so at some point later in life.

The period from time of initial exposure to conversion of the tuberculin skin test is four to 12 weeks. During this period, the patient shows no symptoms. The progression to active disease and symptoms, such as cough, weight loss, and fever, usually occurs within the first two years after infection, but may occur at any time.

It is important to recognize the behavioral barriers to TB management, which include deficiencies in treatment regimens, poor client adherence to TB medications, and lack of public awareness. Primary health care providers need adequate training in screening, diagnosis, treatment, counseling, and contact tracing for TB through continuing education programs and expert consultation. Promoting patient adherence to the sometimes complicated medication schedule, also requires consideration of the patient's cultural and ethnic perceptions of his/her health condition. Providing strategies and services that address the multiple health problems associated with TB (such as alcohol and drug abuse, homelessness, and mental illness) also builds trust and promotes adherence to treatment plans.

Clinical trials have shown that daily preventive therapy for 12 months reduces the risk for TB disease by more than 90% in patients with latent TB infection who complete a full course of therapy. There is evidence that six months of preventive therapy with Isoniazid may also prevent disease in approximately 69% of patients who complete the regimen. Every effort should be made to ensure that patients adhere to this therapy for at least six months. Children should receive at least nine months of preventive therapy.

In order to prevent drug resistance and cure TB, the CDC recommends that TB be treated with a multidrug regimen, which may last six to 12 months. Current recommendations can be found in the Kentucky Department of Health's Guidelines for the Prevention, Treatment and Control of TB. A copy may be obtained by calling the Kentucky Department of Health TB Program at (502) 564-4276. Treatment of multidrug-resistant TB (MDR-TB) is much more difficult and must be individualized. The patient with MDR-TB requires treatment for two years or more.

## **TB/HIV Co-infection**

HIV/TB co-infected persons are at considerably greater risk of developing TB disease than those who only have TB. Studies suggest that the risk of developing TB disease is 7% to 10% each year for persons who are infected with both *M. tuberculosis* and HIV, whereas it is 10% over a lifetime for a person infected only with *M. tuberculosis*.

In an HIV-infected person, TB disease can develop in either of two ways. A person who already has latent TB infection can become infected with HIV, and then TB disease can develop as the immune system is weakened. Or, a person who has HIV infection can become infected with *M. tuberculosis*, and TB disease can then rapidly develop because their immune system is not functioning.

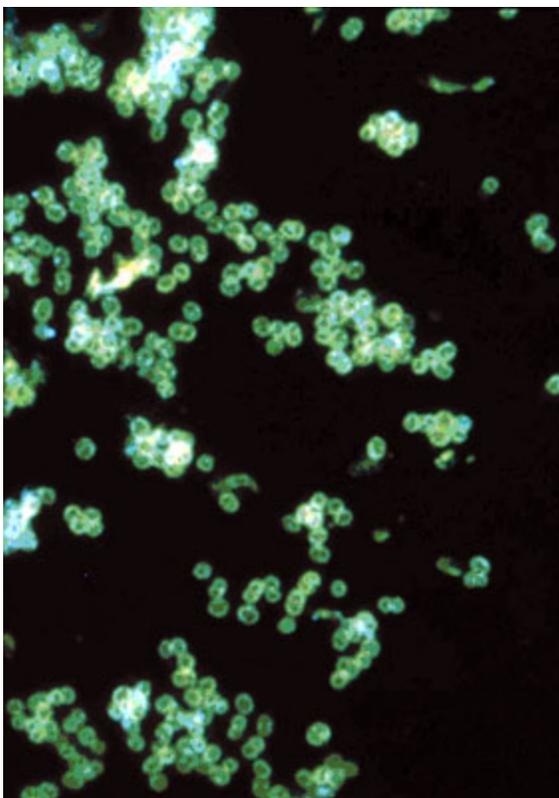
Pulmonary TB and extrapulmonary TB are among the conditions included in the 1993 AIDS surveillance case definition. Any HIV-infected person with a diagnosis of TB disease should be reported as having TB and AIDS.

For more information on TB, contact:

- The communicable disease staff in each county health department/district
- The Kentucky Department of Health TB program, (502) 564-4276
- The Centers for Disease Control and Prevention, Division of TB Elimination website at <http://www.cdc.gov/tb/default.htm>.

## **Other Sexually Transmitted Diseases and HIV**

The term sexually transmitted disease (STD) is not specific for any one disease, but refers to the more than 25 infectious organisms that are transmitted through sexual activity and the dozens of clinical syndromes that they cause. STDs affect both men and women and can also be transmitted from mothers to babies during pregnancy and childbirth. These may also be called sexually transmitted infections (STIs).



Fluorescent antibody-stained micrograph depicts a positive result testing for the presence of gonorrhea. Courtesy of Public Health Image Library.

Different bacteria cause STDs such as chlamydia, gonorrhea and syphilis. Herpes, genital warts, hepatitis B and HIV have different viral causes. Scabies are caused by mites, and pubic lice cause "crabs." Trichomoniasis is caused by tiny organisms called protozoa; "yeast" infections are caused by fungi. STDs such as pelvic inflammatory disease can have more than one cause - a woman may have both gonorrhea and chlamydia causing this condition. A man may have more than one cause for epididymitis.

In 1999, the World Health Organization estimated that there were 340 million new cases of the four common curable STDs (gonorrhea, chlamydia, syphilis and trichomoniasis) worldwide among people age 15-49. Since the beginning of the AIDS epidemic, researchers have noted the strong association between HIV and other STDs.

Nationally, five of the top 10 most frequently reported communicable diseases are STDs. In the US in 1999, 659,441 new cases of chlamydia were reported to the CDC. Reported cases of gonorrhea rose to 360,076 in that year.

Primary and secondary cases of syphilis declined to 6,657 cases. The Kaiser Family Foundation's website ([www.kff.org](http://www.kff.org)) lists estimates for incidence (new cases) and prevalence (total number of cases) of both bacterial and viral STDs in the US, noting that by age 24, at least one in three sexually active people are estimated to have contracted an STD.

Primary STD infections may cause pregnancy-related complications, congenital infections, infertility, ectopic pregnancy, chronic pelvic pain and cancers. STDs can also accelerate other infections like HIV.

#### *HIV and STDs*

The presence of infection with other STDs increases the risk of HIV transmission because:

- STDs like syphilis and symptomatic herpes can cause breaks in the skin, which provide direct entry for HIV;
- Inflammation from STDs, such as chlamydia, makes it easier for HIV to enter and infect the body;
- HIV is often detected in the pus or other discharge from genital ulcers from HIV-infected men and women;
- Sores can bleed easily and come into contact with vaginal, cervical, oral, urethral and rectal tissues during sex;
- Inflammation appears to increase HIV viral shedding and the viral load in genital secretions.

STDs are transmitted in the same way that HIV is transmitted: by anal, vaginal and oral sex. In addition, skin-to-skin contact is important for the transmission of herpes, genital warts, syphilis, scabies and pubic lice.

In the past there was a great emphasis on symptoms as indicators of STD infection. Research has changed this. We now know that 80% of those with chlamydia, 70% of those with herpes and a great percentage of those with other STDs have **no symptoms**, but can still spread the infections.

Along with prompt testing and treatment for those who do have symptoms, the emphasis in the U.S. is screening for infection based on behavioral risk. Patients cannot assume that their health care providers do STD testing. In other words, women who are getting a pap test or yearly exam should not just assume that they are also being tested for chlamydia or any other STD.

The following steps will help prevent STD infection:

- Abstain or be in a mutually monogamous relationship with an uninfected partner.
- Know that many STDs have no symptoms.
- Know that birth control pills and shots do not prevent infections - you must use condoms along with other birth control methods.
- Go with your sex partner(s) for tests.
- Avoid douching.
- Learn the right way to use condoms and then use them correctly and consistently every time you have sex.
- Be sure all sex partners are examined and treated if an STD occurs.
- Change the ways you have sex so that there is no risk of infection.
- Learn how to talk about correct use of condoms with all sex partners.
- Practice the prevention you have learned for HIV and hepatitis.

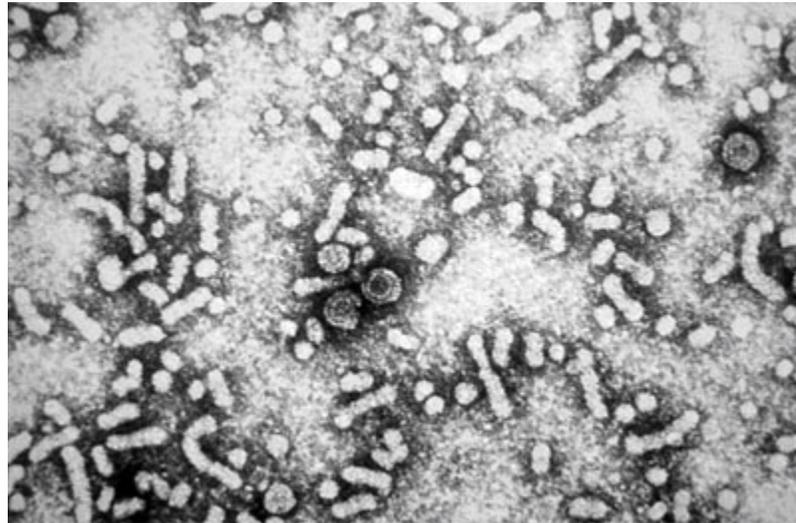
At some sites, new urine LCR tests for some STDs are available. Western Blot blood tests for herpes and hybrid capture tests for genital warts may also be available. In most places, however, cultures, wet preps and blood draws for syphilis remain the standard testing method. It is vital that women get pap tests, and that both men and women disclose a history of STD during medical workups.

STD treatment is based on lab work and clinical diagnosis. Treatments vary with each disease or syndrome. Because of developing resistance to medications for some STDs, check the latest CDC treatment guidelines.

## **Hepatitis B and HIV**

Hepatitis is the inflammation of the liver that may be caused by many things, including viruses. Current viruses include Hepatitis A (not usually sexually transmitted or transmitted by blood), B, C, D and others.

Hepatitis B (HBV) is a virus that is transmitted by the blood and body fluids of an infected person. A vaccine to prevent HBV is available. It is taken in a series of three injections over 6 months. More than 90% of people who take the 3 injections become immune to HBV.



Hepatitis B virus under electron microscope. Courtesy of Public Health Image Library.

HBV vaccine is relatively inexpensive for infants and children. The adult doses are more expensive (costing about \$150 per person.) This cost is the likely reason that most adults are not vaccinated against HBV.

Each year in the U.S. an estimated 200,000-300,000 people become infected with HBV. Of these, about 10% of adults will become chronically infectious carriers of the virus. There are 1,250,000 carriers of HBV in the U.S.

Each year, over 11,000 people will be hospitalized and about 4,000-5,000 people will die in the U.S. from chronic liver disease or liver cancer caused by HBV. HBV is transmitted the same way as HIV, through sexual intercourse and sharing needles. HBV is much more concentrated in blood, and it is more infectious than HIV.

HBV is not transmitted by:

- Breastfeeding
- Sneezing
- Hugging
- Coughing
- Sharing eating utensils or drinking glasses
- Food or water
- Casual contact

Unvaccinated people are at higher risk for getting HBV if they:

- Share injection needles/syringes and equipment;
- Have sexual intercourse with an infected person;
- Work where they come in contact with blood or body fluids, such as in a health care setting, prison, or home for the developmentally disabled;
- Use the personal care items (razors, toothbrushes) of an infected person;
- Are on kidney dialysis;

- Were born in a part of the world with a high rate of Hepatitis B (China, Southeast Asia, Africa, the Pacific Islands, the Middle East, South America and Alaska).

The average incubation period for HBV is 120 days. People are infectious when they are "Hepatitis B surface antigen positive" (HbsAg) either because they are newly infected, or because they are chronic carriers.

Most people recover from their HBV infection and do not become carriers. Carriers (about 10% of adults who become infected) have the virus in their body for months, years, or for life. They can infect others with HBV through their blood or other body fluid contact.

HBV causes damage to the liver and other body systems, which can range in severity from mild, to severe, to fatal. Other symptoms include:

- jaundice (yellowing of the eyes and skin)
- joint pain
- malaise
- dark urine
- nausea or vomiting
- skin rashes

Others who are infected with HBV experience more severe symptoms, and may be incapacitated for weeks or months. Long-term complications may also occur, and include:

- chronic hepatitis
- recurring liver disease
- liver failure
- cirrhosis (chronic liver damage)

A vaccine for HBV has been available since prior to 1990. This vaccine is suitable for people of all ages, even infants. People who may be at risk for infection should get vaccinated. To further reduce the risk of or prevent HBV infection, a person can:

- Abstain from sexual intercourse and/or injecting drug use
- Maintain a monogamous relationship with a partner who is uninfected or vaccinated against HBV
- Use safer sex practices (as defined in the Transmission section)
- Never share needles/syringes or other injection equipment
- Never share toothbrushes, razors, nose clippers or other personal care items that may come in contact with blood
- Use Universal or Standard Precautions with all blood and body fluids

Infants born to mothers who are HBV carriers have a greater than 90% reduction in their chance of becoming infected with HBV, if they receive a shot of hepatitis B immune globulin and hepatitis B vaccine shortly after birth plus two additional vaccine doses by age six months.

It is vital that the women and their medical providers are aware that the woman is a HBV carrier. People with HBV should not donate blood, semen or body organs.

There is no cure for HBV. There are two approved drug treatments for HBV, but these treatments do not cure, the virus. The vaccine is not used to treat HBV infection once a person is infected.

## Hepatitis C and HIV

Hepatitis C is a liver disease caused by the hepatitis C virus (HCV), which is found in the blood of persons who have this disease. Hepatitis C is the leading cause of chronic liver disease in the United States. Hepatitis C was discovered in the late 1980s, although it was likely spread for at least 40-50 years prior to that.

Globally, 200 million people are infected with HCV. As of 1999, almost 4 million Americans, or 1.8% of the U.S. population, have antibodies to HCV. This means that they have a current or previous infection with the virus. About 3 million are chronically infected, and the majority of them have some liver damage.

The CDC estimates that as many as 1 million Americans were infected with HCV from blood transfusions, and that 3.75 million Americans do not know they are HCV-positive. Of these, 2.75 million people are chronically infected, and are infectious for HCV. In the U.S., 8,000-10,000 deaths per year are attributed to HCV-associated liver disease. The number of deaths from HCV are expected to triple in the next 10-20 years.

HCV is transmitted primarily by blood and blood products. Blood transfusions and the use of shared or unsterilized needles and syringes have been the main causes of the spread of HCV in the US. The primary way that HCV is transmitted now is through injection drug use. Since 1992, all blood for donation in the U.S. is tested for HCV.

The US Public Health Service estimates that the risk of sexual transmission of HCV is approximately 5%, well below the risk of sexual transmission of hepatitis B or HIV. If a pregnant woman is infected with HCV, she may pass the virus to her baby. However, this occurs in only about 5% of those pregnancies.

Household transmission is possible if people share personal care items such as razors, nail clippers, toothbrushes, etc.

HCV is not transmitted by:

- Breastfeeding.
- Sneezing.
- Hugging.
- Coughing.
- Sharing eating utensils or drinking glasses.
- Food or water.
- Casual contact.

The severity of HCV differs from HIV. The CDC states that, for every 100 people who are infected with HCV:

- about 15% will fully recover and have no liver damage.
- 85% may develop long-term infection, and be infectious for HCV.
- 70% may develop chronic liver disease.
- 20% may develop cirrhosis over a period of 20-30 years.
- 25% may die from the consequences of long term infection (liver cancer or cirrhosis).

Persons with HCV may have few or no symptoms for decades. When present, the symptoms of HCV are:

- Nausea and vomiting;
- Weakness;

- Fever;
- Muscle and joint pain;
- Jaundice (yellowing of the eyes and skin);
- Dark-colored urine;
- Tenderness in the upper abdomen.

There is no vaccine to prevent HCV infection. The following steps can protect against HCV infection:

- Follow Universal and Standard Precautions to avoid contact with blood or accidental needlesticks.
- Refrain from acquiring tattoos or skin piercings outside of a legitimate business that practices Universal Precautions.
- Refrain from any type of injection drug use or drug equipment-sharing.
- Never share toothbrushes, razors, nail clippers or other personal care items.
- Cover cuts or sores on the skin.
- Persons who are HCV-infected may use latex condoms and practice safer sex to lower the small risk of passing HCV to their sex partner.
- Women who are HCV-infected and wish to have children should discuss their choices beforehand with a medical specialist.

People with HCV should not donate blood, semen or body organs.

Currently there are two approved antiretroviral treatments for HCV. The cost of the treatments can be high, and the side effects can be significant (fatigue, flu-like symptoms, nausea, depression and anemia). People infected with HCV should abstain from alcohol use, as this can further damage the liver.

Many people who are infected with HCV are unaware of their status. People who should consider testing are:

- Current or former injection drug users.
- Persons who received blood transfusions or an organ transplant prior to May 1992.
- Hemophiliacs who received clotting factor concentrates produced before 1987.
- Persons who have received chronic hemodialysis.
- Infants born to infected mothers.
- Healthcare workers who have been occupationally exposed to blood or who have had accidental needlesticks.
- Persons who are sex partners of people with HCV.

Testing for HCV is available through physicians and some health departments.

### **HIV/HCV Coinfection**

Many people who become infected with HIV from injection drug use are already infected with HCV. Some estimate that 40% of HIV-infected people in the U.S. are also infected with HCV. People who are co-infected with both viruses and have immune system impairment, may progress faster to serious, chronic or fatal liver damage.

Most new HCV infections in the U.S. are among injecting drug users. The majority of hemophiliacs who received blood products contaminated with HIV also are infected with HCV. Treating HIV in someone with HCV may be complicated, because many of the medicines that are used to treat HIV may damage the liver.

## Psychosocial Issues/Stigma

Persons with HIV and their families and friends face a multitude of difficult realities:

- Even with the advent of antiretroviral drugs, persons with AIDS still die prematurely.
- Persons who are HIV-infected can live 10-12 years or more without developing symptoms.
- Men who have sex with men, and injection drug users, who may already be stigmatized and subjected to social and job-related discrimination, may encounter even more societal pressure and stress with a diagnosis of AIDS.
- 90% of all adults with AIDS are in the prime of life and may not be prepared to deal with death and dying.
- The infections and malignancies that accompany AIDS along with some of the medications, can diminish and disfigure the body.
- People who are living with HIV face the need to practice "safer sex" and take medications for the remainder of their lives.

The emotional response to learning that one is HIV positive can range from relief to devastation; from acceptance of a chronic illness, to fear of a death sentence.

Although since the advent of the highly-active retroviral treatments have significantly impacted the survival rate of those with HIV and AIDS, there are still many people who do not respond well to the medications. One thing that characterizes the grief around AIDS is the repetition of deaths that one person may experience. Many people working with or living with AIDS for years have gone to countless funerals and have seen a succession of their friends pass away. This is sometimes termed "chronic grief." Chronic grief intensifies when one realizes that, before the grieving process for one death is complete, many more people may have died.

HIV often produces many losses:

- Loss of physical strength and abilities.
- Loss of mental abilities/confusion.
- Loss of income and savings.
- Loss of health insurance.
- Loss of job/work.
- Loss of housing, personal possessions, including pets.
- Loss of emotional support from family, friends, co-workers, religious and social institutions.
- Loss of self-sufficiency and privacy.
- Loss of social contacts/roles.
- Loss of self esteem.

People who are experiencing multiple losses may not have enough time to work through the grief process for each person.

People experiencing multiple losses may feel:

- Guilt.
- Grief.
- Helplessness.
- Rage.
- Numbness.

The physical weakness and pain can diminish the person's ability to cope with psychological and social stresses.

Infection with HIV can cause distress for those who have HIV, for those who are their caregivers, family, lovers and friends. Grief can manifest itself in physical symptoms, including clinical depression, hypochondria, anxiety, insomnia, and the inability to get pleasure from normal daily activities. Dealing with these issues may lead to self-destructive behaviors, such as alcohol or drug abuse.

The idea of "cumulative" multiple loss or grief saturation is not new. The emotions felt by long-term survivors of HIV and the HIV-negative friends and families are similar to the emotions of the survivors of the Holocaust, survivors of natural disasters (earthquakes, tornadoes, etc.), and to battle fatigue described by soldiers.

Disbelief, numbness, and inability to face facts occur for some. The "fear of the unknown," the onset of infections, swollen lymph nodes, or loss of weight (or unusual weight gain) can be accompanied by fear of developing AIDS, or of getting sicker.

Rejection by family, friends, and co-workers is often experienced. In some cases, guilt develops about the disease, about past behaviors, or about the possibility of having unwittingly infected someone else.

People living with HIV may feel as though their "normal" lives have completely ended, as they must plan detailed medication schedules and medical appointments. The cost of the medications for HIV may result in financial hardship, even if the person has medical coverage.

Sadness, hopelessness, helplessness, withdrawal, and isolation are often present. Anger is common: at the virus, at the effects of the medications, or the failure of some of the medications, at the prospect of illness or death, and at the discrimination that can often be encountered.

Some people with HIV consider suicide, some attempt suicide, and some may kill themselves.

Often feelings experienced by the caregiver will mirror those of the patient, such as a sense of vulnerability and helplessness. Caregivers may experience the same isolation as the person with HIV infection. Finding a support system, including a qualified counselor, can be just as important for the caregiver as for the person who has HIV disease. Support from co-workers can be especially important.

Grief has been described in a variety of forms. It may be best understood as a process that doesn't involve a straight line. People do not move predictably step-by-step through the various stages of their grieving, but progress at their own speed. There seem to be discreet phases of grief, including:

- Shock and numbing.
- Yearning and searching.
- Disorganization and despair.
- Some degree of reorganization.

The length of time it takes to move between these stages is determined by the individual, his or her values and cultural norms. In "uncomplicated grief," an individual is able to move through these stages and come out of the grieving process.

"Complicated grief" is described as an exaggeration or distortion of the normal process of grieving. People experiencing multiple losses are more at risk for complications. If an individual has been impacted by multiple deaths, it may be difficult for them to reorganize or "move on" with the process.

## Stigma

Stigma continues to be a deterrent for HIV testing and care. The CDC hopes that their new recommendations for routine HIV testing in the healthcare setting will normalize testing for HIV, just as one is tested for cholesterol and blood sugar levels. The more people that are tested, the earlier will the infection be detected.



Downloaded from <http://psychology.ucdavis.edu/rainbow/html/aids.html>

The existence of HIV/AIDS-related stigma has been widely documented (HRSA, 2006). Stigma related to HIV/AIDS appears to be more severe than that associated with other life-threatening conditions. It also extends beyond the disease itself to providers and even volunteers involved with the care of people living with HIV disease. Often, HIV/AIDS-related stigma is expressed in conjunction with one or more other stigmas, particularly those associated with homosexuality, bisexuality, and injection drug use. People with certain religious beliefs and less educated people may be more likely to harbor HIV/AIDS-related stigma (HRSA, 2006).

HIV/AIDS-related stigma compromises the well-being of people living with the disease. Stigmatized individuals may suffer discrimination that can lead to loss of employment and housing, estrangement from family and society, and even increased risk of violence. HIV/AIDS-related stigma also fuels new HIV infections because it can deter people from getting tested for the disease, make them less likely to acknowledge their risk of infection, and discourage those who are HIV-positive from discussing their HIV status with their sexual and needle-sharing partners (HRSA, 2006).

Efforts to address HIV/AIDS-related stigma have focused on three arenas: programmatic, legal, and policy. HIV-related stigma refers to all unfavorable attitudes, beliefs, and policies directed toward people perceived to have HIV/AIDS as well as toward their significant others and loved ones, close associates, social groups, and communities. Patterns of prejudice, which include devaluing, discounting, discrediting, and discriminating against these groups of people, play into and strengthen existing social inequalities—especially those of gender, sexuality, and race—that are at the root of HIV-related stigma (HRSA, 2006).

The discrimination and devaluation of identity associated with HIV-related stigma do not occur naturally. Rather, they are created by individuals and communities who, for the most part, generate the stigma as a response to their own fears. HIV-related stigma manifests itself in various ways. HIV-positive individuals, their loved ones, and even their caregivers are often subjected to rejection by their social circles and communities when they need support the most. They may be forced out of their homes, lose their jobs, or be subjected to violent assault. For these reasons, HIV-related stigma must be recognized and addressed as a life-altering phenomenon (HRSA, 2006).

Stigma continues to be a deterrent for HIV testing and care. The CDC hopes that with their new recommendations for routine HIV testing in the healthcare setting will normalize testing for HIV, just as one is tested for cholesterol and blood sugar levels. The more people that are tested, the earlier will the infection be detected.

The reasons for HIV related stigma have not changed in the past twenty years, although several reports have claimed that there is less stigma toward people with HIV/AIDS in the U.S. now than at the beginning of the pandemic. The barrier to eliminating stigma toward this population results from cumulative prejudice among many groups of people who are infected: homosexuals, intravenous drug users, minorities, and women. For that reason, change in attitudes will be difficult and HIV related stigma will probably persist as a problem for years to come.

## **Social Support**

Social support has been related to improved health outcomes in studies of various illnesses, yet it is often overlooked during a patient assessment. Patients may be reluctant to participate in group activities or frequent organizations that support people with HIV/AIDS because of the real or perceived stigma attached. Fear of disclosure is still a very real concern for many patients. As one patient said, "Once you tell someone they know. You can never take back your words." Strong social support provides a network of safety and encouragement that allows the patient to share their concerns and feelings while not feeling stigmatized for who they are or what they will become.

## **Caregiver Issues**

Caregiving can be a multifaceted positive experience for the caregiver. However, caregiving requires a great deal of energy and effort in the face of significant challenges. Caregivers often benefit from acknowledging their own experiences and feelings when dealing with all aspects of this disease. Good self-care for the caregiver is important.

**DO** meet with a support person, group, or counselor on a regular basis to discuss your experiences and feelings.

**DO** set limits in care-giving time and responsibility, and stick to those limits.

**DO** allow yourself to have questions. Let "not knowing" be okay.

**DO** get the information and support you deserve and need.

**DO** discuss with your employer strategies of performing your job in ways that reduce stress and burnout.

**DO** remember that UNIVERSAL and STANDARD PRECAUTIONS are for the patient's health and welfare, as well as your own.

**DON'T** isolate yourself.

**DON'T** try to be all things to all people.

**DON'T** expect to have all the answers.

**DON'T** deny your own fears about AIDS or dying.

**DON'T** continue to work in an area where you "can't cope."

**DON'T** dismiss UNIVERSAL AND STANDARD PRECAUTIONS because you "know" the patient.

### **Case Study #8**

Mary had a friend who died from AIDS when she was in college, and decided then that she wanted to work in that field when she graduated as a nurse. Her first position was on the HIV ward, an area that had a large turn over of staff. After several years she decided to try a new position as a visiting nurse on the HIV team. She liked the flexibility of her position, but soon realized that seeing patients several times a week in their home was much different than caring for them in the hospital. She met spouses/partners and families. She thought nothing of stopping to pick up something she knew George, who was very wasted, would like at the grocery store, lending a new movie to John who had recently fallen and fractured his hip so wasn't able to get around, or making a copy of relaxing music for Fred, the perpetual insomniac. When possible, she would take a couple of extra minutes at the end of her day to read to Josh, a young man who lost his eye sight to CMV. Everything

about the new position led to a sense of intimacy with her patients.

When each died she attended the funeral.

After several years in the field Mary noticed that she often felt tired. She did not seem to see many of her old friends as often, and in the evening went straight home, had a late supper and spent an hour flicking through channels on the television without really watching anything special. She noticed that she started to dread going to the home of patients who were getting close to death. Co-workers noticed the change in her work habits and were concerned that she was burned out. Her supervisor suggested she attend a support group for HIV staff, and take some time off for a vacation. After several months in the group she realized that she was suffering from "cumulative loss." She was eventually able to make changes in her practice that allowed her to still provide good care for her patients while keeping a safe space between her job and her personal life. She planned outings with old friends, and decided to take art classes at a local community college in the evening. By learning to take care of herself and set limits for her job, she was able to remain active in a field that she loved.

## Conclusion

Most everyone has been impacted by HIV and AIDS since it made its debut in the US in the early 1980s. From the early days when little was known about the disease except that most people who were infected, died. With the tremendous gains in research and treatment, as well as the massive public health educational effort, HIV is not the automatic death sentence it once was.

Despite these gains, in 2006, 56,300 people in the US were infected with the HIV; worldwide, there seems to be no end to its reach. This significant chronic illness remains lethal for many people. Even those who are responding well to antiretroviral medications, there are significant challenges in dealing with this chronic illness.

More than 25 years after the first case of HIV/AIDS was reported we are still struggling with the disease. There is still no cure, and new cases are being reported daily. It would appear that the gravity of the situation will be causing changes in the way we have viewed the disease. No longer an affliction of gay men and addicts, HIV has touched each of us in some way. World leaders are beginning to respond, and the realization is apparent that without change generations of people will be lost.

Advancements in ART include combination pills to decrease pill burden while maintaining efficacy, the development of new drugs and new classes of drugs, and continued efforts toward vaccine development. Programs are in development to promote earlier identification of HIV/AIDS by destigmatizing the testing process and making HIV testing a routine part of healthcare. Research continues to help broaden our understanding of HIV and the way it impacts the human body.

Each of us can play a role in the fight against HIV/AIDS:

- Take the time to do a complete sexual history to identify risk factors
- Treat people with HIV/AIDS with respect
- Increase HIV/AIDS awareness at work and in the community
- Volunteer at a local HIV community based organization
- Participate in HIV fund raising activities
- Keep up to date on HIV knowledge
- Advocate for programs to benefit people living with HIV/AIDS

It will make a difference.

## **Appendix A: Overview of Services Available Through Kentucky's Ryan White and State-Funded Services Programs, September, 2012**

### **Mission:**

To enhance access to and retention in primary healthcare and support services for qualifying Kentuckians (clients) living with HIV disease.

### *Goals:*

1. Client self-sufficiency, to the extent possible, through good care plan monitoring and holistic support.
2. Prevent duplication of health and support services among providers.
3. Education about HIV disease transmission and health choices.
4. Ongoing HIV disease education to the general and health care communities.
5. Efficient and effective use of resources.

### **Structure of Kentucky HIV Direct Services:**

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

**Kentucky AIDS Drug Assistance Program (KADAP)** provides clients with HIV/AIDS related medications.

**Kentucky Health Insurance Continuation Program (KHICP)** assists clients with maintain pre-existing private health insurance.

### **Funding:**

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

### *Eligibility Criteria:*

- Proof is required.
- Household income must be 300% or less of the current federal poverty level.
- Total cash assets must be less than \$10,000.
- Must be a resident of Kentucky.
- Must be HIV positive.
- You cannot be eligible for similar assistance from another payer source.

*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

 HIV Care Coordinator Regions

<p><b>Barren Region</b></p> 	<p><b>Matthew 25</b>                  452 Old Corydon Road                  Henderson, KY 42420  <b>(270) 826-0200</b>  <b>(877) 428-1231</b>  <b>fax: (270) 826-0212</b></p>	<p style="text-align: center;"><b>Counties Covered:</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>Allen</td> <td>Grayson</td> <td>Logan</td> <td>Nelson</td> </tr> <tr> <td>Barren</td> <td>Hancock</td> <td>McLean</td> <td>Ohio</td> </tr> <tr> <td>Breckinridge</td> <td>Hardin</td> <td>Marion</td> <td>Simpson</td> </tr> <tr> <td>Butler</td> <td>Hart</td> <td>Meade</td> <td>Union</td> </tr> <tr> <td>Daviess</td> <td>Henderson</td> <td>Metcalfe</td> <td>Warren</td> </tr> <tr> <td>Edmonson</td> <td>Larue</td> <td>Monroe</td> <td>Washington</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Webster</td> </tr> </table>	Allen	Grayson	Logan	Nelson	Barren	Hancock	McLean	Ohio	Breckinridge	Hardin	Marion	Simpson	Butler	Hart	Meade	Union	Daviess	Henderson	Metcalfe	Warren	Edmonson	Larue	Monroe	Washington				Webster
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			Webster																											

<p><b>Cumberland Valley Region</b></p> 	<p><b>Cumberland Valley Dist. HD</b>                  PO Box 158                  Manchester Square Shopping Ctr                  Manchester, KY 40962  <b>(606) 599-0112</b>  <b>(888) 425-7282</b> (for client use only)  <b>fax: (606) 596-0266</b>  <small>Some Cumberland Valley clients are covered by Lexington Region</small></p>	<p style="text-align: center;"><b>Counties Covered:</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>Adair</td> <td>Green</td> <td>Leslie</td> <td>Pulaski</td> </tr> <tr> <td>Bell</td> <td>Harlan</td> <td>Letcher</td> <td>Rockcastle</td> </tr> <tr> <td>Breathitt</td> <td>Jackson</td> <td>Magoffin</td> <td>Russell</td> </tr> <tr> <td>Casey</td> <td>Johnson</td> <td>Martin</td> <td>Taylor</td> </tr> <tr> <td>Clay</td> <td>Knott</td> <td>McCreary</td> <td>Wayne</td> </tr> <tr> <td>Clinton</td> <td>Knox</td> <td>Owsley</td> <td>Whitley</td> </tr> <tr> <td>Cumberland</td> <td>Laurel</td> <td>Perry</td> <td>Wolfe</td> </tr> <tr> <td>Floyd</td> <td>Lee</td> <td>Pike</td> <td></td> </tr> </table>	Adair	Green	Leslie	Pulaski	Bell	Harlan	Letcher	Rockcastle	Breathitt	Jackson	Magoffin	Russell	Casey	Johnson	Martin	Taylor	Clay	Knott	McCreary	Wayne	Clinton	Knox	Owsley	Whitley	Cumberland	Laurel	Perry	Wolfe	Floyd	Lee	Pike	
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<p><b>Lexington Region</b></p> 	<p><b>Bluegrass Care Clinic, UK</b>                  740 S. Limestone, 5D Room L528                  UK Medical Center                  Lexington, KY 40536  <b>(859) 323-5544</b>  <b>fax: (859) 323-1694</b></p>	<p style="text-align: center;"><b>Counties Covered:</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>Anderson</td> <td>Elliott</td> <td>Jessamine</td> <td>Montgomery</td> </tr> <tr> <td>Bath</td> <td>Estill</td> <td>Lawrence</td> <td>Morgan</td> </tr> <tr> <td>Bourbon</td> <td>Fayette</td> <td>Lewis</td> <td>Nicholas</td> </tr> <tr> <td>Boyd</td> <td>Fleming</td> <td>Lincoln</td> <td>Powell</td> </tr> <tr> <td>Boyle</td> <td>Franklin</td> <td>Madison</td> <td>Robertson</td> </tr> <tr> <td>Bracken</td> <td>Garrard</td> <td>Mason</td> <td>Rowan</td> </tr> <tr> <td>Carter</td> <td>Greenup</td> <td>Menifee</td> <td>Scott</td> </tr> <tr> <td>Clark</td> <td>Harrison</td> <td>Mercer</td> <td>Woodford</td> </tr> </table>	Anderson	Elliott	Jessamine	Montgomery	Bath	Estill	Lawrence	Morgan	Bourbon	Fayette	Lewis	Nicholas	Boyd	Fleming	Lincoln	Powell	Boyle	Franklin	Madison	Robertson	Bracken	Garrard	Mason	Rowan	Carter	Greenup	Menifee	Scott	Clark	Harrison	Mercer	Woodford
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<p><b>Louisville Region</b></p> 	<p><b>Volunteers of America</b>                  1436 South Shelby Street                  Louisville, KY 40217  <b>(502) 635-4511</b>  <b>fax: (502) 636-0597</b></p>	<p style="text-align: center;"><b>Counties Covered:</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>Bullitt</td> <td>Jefferson</td> <td>Shelby</td> <td>Trimble</td> </tr> <tr> <td>Henry</td> <td>Oldham</td> <td>Spencer</td> <td></td> </tr> </table>	Bullitt	Jefferson	Shelby	Trimble	Henry	Oldham	Spencer	
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<p><b>Northern Kentucky Region</b></p> 	<p><b>No. Ky Dist Health Dept</b>                  2388 Grandview Drive                  Ft. Mitchell, KY 41017  <b>(859) 341-4264</b>  <b>fax: (859) 578-3689</b></p>	<p style="text-align: center;"><b>Counties Covered:</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>Boone</td> <td>Carroll</td> <td>Grant</td> <td>Owen</td> </tr> <tr> <td>Campbell</td> <td>Gallatin</td> <td>Kenton</td> <td>Pendleton</td> </tr> </table>	Boone	Carroll	Grant	Owen	Campbell	Gallatin	Kenton	Pendleton
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Campbell	Gallatin	Kenton	Pendleton							

<p><b>Purchase Region</b></p> 	<p><b>Heartland Cares, Inc.</b>                  619 N. 30th Street                  Paducah, KY 42001  <b>(270) 444-8183</b>  <b>(877) 444-8183</b>  <b>fax: (270) 444-8147</b></p>	<p style="text-align: center;"><b>Counties Covered:</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>Ballard</td> <td>Christian</td> <td>Hickman</td> <td>McCracken</td> </tr> <tr> <td>Caldwell</td> <td>Crittenden</td> <td>Hopkins</td> <td>Marshall</td> </tr> <tr> <td>Calloway</td> <td>Fulton</td> <td>Livingston</td> <td>Muhlenberg</td> </tr> <tr> <td>Carlisle</td> <td>Graves</td> <td>Lyon</td> <td>Todd</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Trigg</td> </tr> </table>	Ballard	Christian	Hickman	McCracken	Caldwell	Crittenden	Hopkins	Marshall	Calloway	Fulton	Livingston	Muhlenberg	Carlisle	Graves	Lyon	Todd				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  
 Updated 08/2012

## Appendix B: Kentucky Community-Based Organizations (CBOs) Providing HIV Prevention Services

Agencies funded in part with CDC Cooperative Agreement funds are indicated with the Kentucky AIDS logo: \*

**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.asccinc.org](http://www.asccinc.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](http://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 e-mail [mconnley@insightbb.com](mailto: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; <http://sites.google.com/site/avolky/>

**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 <http://www.louisville-redcross.org>

**Bluegrass Care Clinic (BCC)**, located in Lexington is a Ryan White CARE Act Part C grantee. The BCC provides both clinical and support services for HIV/AIDS patients and their affected families in 63 counties through Central and Eastern Kentucky. The BCC staff are trained to provide harm reduction information and counseling regarding drug use, sexual activity and other high risk activities for HIV transmission and infection. In addition, the BCC also provides pre/post test counseling and testing. (859) 323-5544; Fax: (859) 257-2040; [www.mc.uky.edu/bluegrasscareclinic](http://www.mc.uky.edu/bluegrasscareclinic)

**Bluegrass Community Health Center (BCHC)** (formerly Bluegrass Farmworker Health Center) is a non-profit Federally Qualified Health Center with two Lexington clinic sites. The health center provides patient-centered preventive and primary healthcare, including HIV testing, for pediatric, adult, and geriatric patients. BCHC provides services to the uninsured and accepts Medicaid, Medicare and many private insurances. Most of BCHC patients are charged on a sliding fee scale based on the family size and income (federal poverty guidelines). BCHC was originally established in 2001 with a federal 330 health center grant to serve local farm workers. In 2007, additional grant funding awards allowed an expansion to serve the greater community, including uninsured patients and people experiencing homelessness. BCHC's dedication to serving a diverse population encouraged the employment of many bilingual employees to supplement telephone interpreting services. Office: (859) 259-2635; Fax: (859) 254-7874. BCHC sites: 1306 Versailles Rd. Lexington KY 40504, 151 N. Eagle Creek Lexington KY 40509. <http://www.bfhc.eku.edu/>

**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](mailto: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 likeminded individuals. (859) 512-7925 e-mail [mconnley@insightbb.com](mailto: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](http://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](http://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](http://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://sabsa.home.insightbb.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 pre-test and post-test counseling, factual information about reducing HIV risk factors associated with drug use and sexual behavior, alcoholism and drug abuse assessments, and referrals to HIV related and non-related resources as needed or by request. VOA also provides an AIDS Housing Integration Project, which offers technical assistance to shelters, housing providers, and housing developers to help establish and implement new housing programs for homeless and low-income persons with HIV/AIDS. VOA also holds 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) 635-4511 <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>

Appendix C: HIV Testing

# HIV TESTING

**Louisville Metro Public Health and Wellness STD Specialty Clinic** ..... (502) 574-6699

*Website: louisvilleky.gov/health/clinics/specialtyclinic*

Temporary Location: 7201 Outer Loop, Suite 232 (in the Central Government Center) Provides confidential or anonymous HIV testing. Syphilis, Gonorrhea and Chlamydia testing and treatment. Other STD services available, some of which may require an additional fee. Usual STD Fee: \$20.00. Walk-ins are welcome but patients are seen on a first come, first serve basis. Please arrive early to be sure that you will be seen. Call clinic or visit clinic website for complete hours.

**Volunteers of America STOP Program** ..... (502) 574-5373

**Keeping It Real - The Neighborhood Institute** ..... (502) 690-6010

**Planned Parenthood of Kentucky** ..... (502) 584-2473

**Park Duvall Health Center** ..... (502) 774-4401

**Dixie Health Center** ..... (502) 937-7277

**Iroquois Health Center** ..... (502) 366-4747

**Middletown Health Center** ..... (502) 245-1074

**Newburg Health Center** ..... (502) 458-0778

**UofL Student Health Services** ..... (502) 852-6446  
(UofL students only)

**Clark County Health Department** .....(812) 288-2706

**Planned Parenthood New Albany** ..... (812) 945-4844

**CDC National HIV and STD Testing Resources**

*website: hivtest.org*

Enter your ZIP code and find a testing site near you. Additional information on if you tested positive, and frequently asked questions about HIV and STD transmission and testing resources.



The information in this directory was verified prior to publication in April 2012; however, those producing the directory are not responsible for subsequent changes. Publication in this directory is not a stated or implied endorsement. As we learn of changes, we will update the directory and/or listings and post the revisions on this page:  
[www.asccinc.org/directory](http://www.asccinc.org/directory)

A Service of  
AIDS Services Center  
Coalition, Inc.

**AIDS Interfaith Ministries of  
Kentuckiana, Inc. (AIM) ..... (502) 574-6086  
(502) 574-6085**

**Website: [aimkyonline.org](http://aimkyonline.org)**

AIDS Interfaith Ministries of Kentuckiana, Inc. (AIM) is committed to people living with HIV/AIDS by providing spiritual, nutritional and emotional support in a community building context which is non-judgmental and life affirming. AIM seeks to be a bridge between the HIV/AIDS and spiritual communities. One of AIM's major goals is to keep clients independent and self-sufficient in their homes. AIM serves people infected or affected by HIV/AIDS in the Greater Metro Louisville area regardless of gender, race, socioeconomic status, faith or sexual orientation/identity. AIM provides the following free services/programs for their clients and families: a food pantry, inclusive of personal care items and household cleaning supplies; kitchen starter kits; monthly fellowship dinners; life skills educational workshops; non-HIV medication assistance; counseling for individuals, couples, or families; support groups; an annual spirituality retreat; and grief, bereavement and pastoral care. AIM offers "Compassionate Conversations" as an HIV/AIDS educational tool bringing awareness to the community as well as an understanding of AIM's mission. These conversations also offer volunteer opportunities for people to become engaged in hands-on work with the HIV population.

**AIDS Services Center  
Coalition, Inc. .... (502) 574-5490**  
**Email: [contactus@ascinc.org](mailto:contactus@ascinc.org)**  
**Website: [ascinc.org](http://ascinc.org)**

The AIDS Services Center started in 1989, and in 1994 incorporated in the AIDS Service Center Coalition, Inc. The ASCC is an umbrella organization of HIV/AIDS service providers in Louisville and Southern Indiana. The ASCC has a board of directors consisting of representatives from various AIDS services organizations, and At-Large members from within the community. The ASCC can be vital resource for information on HIV/AIDS, and for information on service providers in the region. The organization works together to organize the Louisville AIDS Walk each September, working to raise much needed funds to apply to direct services to the HIV+ community and their families. Please visit our website for a list of board members, contact information, referrals to service providers, and information on the Louisville AIDS Walk and World AIDS Day events.

- AIDS Interfaith Ministries of Kentuckiana, Inc. (AIM)
- Centerstone
- HIV/AIDS Legal Project of The Legal Aid Society
- Hoosier Hills AIDS Coalition / Clark County Health Department
- House of Ruth
- Louisville Metro Public Health and Wellness
- Volunteers of America
- University of Louisville School of Dentistry Ryan White Community-Based Dental Partnership Program
- WINGS Clinic

**American Red Cross ..... (502) 589-4450  
1- 800-RED CROSS**

Educational programs are made available for the work place, brochures & films for the community. Monthly education programs, HIV/AIDS instructor class for African-Americans & AIDS education certification for health professionals.

**Camp Heart to Heart ..... (502) 969-0336  
(502) 445-7088**

**Website: [camphearttoheart.com](http://camphearttoheart.com)**

**Email: [camphearttoheart@yahoo.com](mailto:camphearttoheart@yahoo.com)**

Camp Heart to Heart is a free summer camp for children ages 5 to 12 who are infected/affected by HIV/AIDS. The camp is held in mid-summer at Lions Camp Crescendo in Lebanon Junction, KY, just 25 miles south of Louisville, KY. This yearly, week-long event provides a traditional lifetime camping experience for these special children and is handicap accessible. Activities include swimming, arts and crafts, sports, fishing, talent show, special events and much more. Facilities include air-conditioned dormitories, indoor restrooms and showers, three nutritious meals daily, and a nurse on duty for the duration of camp. Camp Heart to Heart is also searching for volunteers to serve as counselors and support staff members. Please visit our website or contact the Directors for additional information.

**Centers for Disease Control & Prevention  
Info. Line ..... (800) 232-4636  
TTY: (888) 232-6348**

**Monday through Friday: 8 am - 8 pm EST**

Information, referrals and brochures.

**Centerstone ..... (812) 258-0310**

**Website: [centerstone.org](http://centerstone.org)**

Centerstone is the nation's largest not-for-profit provider of community-based behavioral healthcare, offering a full range of mental health services, substance abuse treatment and related educational services in Indiana and Tennessee. Each year, we serve 69,000 individuals and families at our more than 120 facilities. Our programs address the wide-range of emotional, behavioral, psychological and addiction issues affecting those in our care. Through education and outreach, we provide young and old alike with a better understanding of behavioral healthcare. Centerstone exists to help individuals from all walks of life in need.

**Clark County Health Department /  
Hoosier Hills AIDS Coalition ..... (812) 288-2706  
(800) 828-5624**

**(All services are by appointment only.)**

The Clark County Health Department, in cooperation with the Hoosier Hills AIDS Coalition, administers the HIV/STD program. The program offers comprehensive services to the citizens of Clark, Floyd, and the 9 surrounding counties in Southern Indiana.

Testing for HIV, Hepatitis C and STDs, as well as treatment for some sexually transmitted diseases. \$10 Donation. Please note: picture identification is required for STD testing.

- Provides a variety of confidential HIV/AIDS/STD services including: counseling, prevention education programs, referrals and disease intervention services.

- Provides Care Coordination services to help HIV/AIDS clients access social services benefit programs which they may be eligible for such as: direct emergency financial assistance to help with rent/utilities, medications, food, transportation, etc, housing assistance, substance abuse case management, coverage for obtaining HIV/AIDS related prescriptions and other related medications, coverage for eligible clients without insurance, assistance programs to help pay insurance health insurance premiums, deductibles, and co-payments. Those without insurance, who are referred by their Care Coordinator, can also access an onsite outpatient clinic with medical care provided by UofL WINGS Clinic.

**Compassionate Friends of Louisville ..... (502) 589-4313**

Provides mutual support for parents with the death of a child of any age. Information through the Crisis & Information Center.

**Crisis and Information Center ..... (502) 589-4313  
(800) 221-0446 TTY 589-4259**

Emergency Crisis intervention, telephone counseling and referral 24 hours a day, 7 days a week.

**Friend to Friend  
Website: [friendtofriend.org](http://friendtofriend.org)**

**Email: [community@friendtofriend.org](mailto:community@friendtofriend.org)**

Friend to Friend provides sexual health information, referrals to area resources, answers, insight and support for Louisville's M4M community. We're concerned community members dedicated to educating our friends on HIV and how to prevent new cases. Members are trained on the HIV Virus and how to talk with their friends about prevention, an often difficult and awkward subject to discuss with peers.

**HIV Help Info Line at Project Inform ..... (800) 822-7422**

**Website: [projectinform.org](http://projectinform.org)**

**Monday-Friday 10:00am - 4:00pm PST**

National Advocacy group providing information and a newsletter on experimental and approved treatments. Project Inform also answers general questions for HIV and Hepatitis C Positive persons regarding blood work, HIV treatment and referrals to a nationwide network of AIDS Service Organizations.

**HIV/AIDS Legal Project of the Legal Aid Society ..... (502) 614-3166**

Provides free civil legal services in priority areas to individuals with HIV/AIDS who otherwise cannot afford an attorney. Also provides education on legal issues related to HIV/AIDS. Since 1992, the Legal Project has represented over 5,000 clients in legal matters involving access to health care and public benefits, safe and stable housing, life planning, economic stability, family relationships, discrimination and confidentiality.

**Hosparus ..... Louisville: (502) 456-6200  
Southern Indiana: (812) 945-4596**

**Website: [hosparus.org](http://hosparus.org)**

Offers hospice care, including nursing services, social work, pastoral care, certified nursing assistants, bereavement services and ancillary services for terminally ill patients. All patients are accepted regardless their ability to pay.

**House of Ruth ..... (502) 587-5080  
Website: [houseofruth.net](http://houseofruth.net)**

House of Ruth is a nonprofit community based organization caring for families and individuals with or affected by HIV and AIDS. We provide a holistic client-centered approach for housing and advocacy programs. This includes: life skills, children's programs, and other support services to help strengthen lives.

**Keeping It Real - The Neighborhood Institute, Inc. ....(502) 690-6010  
Website: [KeepingItRealNeighborhoodInstitute.org](http://KeepingItRealNeighborhoodInstitute.org)**

The Neighborhood Institute, Inc. - Keeping It Real, is a IRS 501 C 3 non-profit dedicated to the total operation against poverty in the areas of housing, health and education. We seek to serve low/moderate income families and individuals that are facing the harsh reality of poverty. Our mission in the areas of health has a specific focus on providing testing, outreach, prevention services, educational information to persons infected and affected with HIV/AIDS in the African American community. We are located in the west end, an area that is being greatly impacted by the pandemic.

**Kentucky Department for Public Health HIV/AIDS Branch ..... (800) 420-7431  
Website: <http://chfs.ky.gov/dph/epi/HIVAIDS>**

Coordinates HIV Prevention, HIV Testing, HIV Continuing Professional Educations, HIV Surveillance Activities Provides, oversees Ryan White Part B Care Coordination/Case management Services including the Kentucky AIDS Drug Assistance.

**Kitchen Conversations ..... (502) 574-5487**

Kitchen Conversations is a support group for women who are infected and affected by HIV/AIDS and their female family, caregivers or support members. The group generally meets on Wednesdays. For more information please call Paulette Jewell at the number listed above.

**Louisville AIDS Walk ..... (502) 938-WALK  
Website: [louisvilleaidswalk.org](http://louisvilleaidswalk.org)**

**Email: [contactus@louisvilleaidswalk.org](mailto:contactus@louisvilleaidswalk.org)**

Louisville AIDS Walk unites the community in heightening awareness of HIV/AIDS and in raising money to address the needs of those in our community with HIV/AIDS. One hundred percent of the Walk's net proceeds are distributed to local AIDS organizations providing essential services to people with HIV/AIDS. A donation to the Louisville AIDS Walk is an investment in caring. With the help of generous donors, such as you, the Louisville AIDS Walk has made a difference for the past beneficiaries and their clients

**Louisville Metro Public Health and Wellness**  
*Website: louisvilleky.gov/health/clinics/specialtyclinic*

- **STD Specialty Clinic**.....(502) 574-6699  
Temporary Location: 7201 Outer Loop, Suite 232 (in the Central Government Center) Provides confidential or anonymous HIV testing. Syphilis, Gonorrhea and Chlamydia testing and treatment. Other STD services available, some of which may require an additional fee. Usual STD Fee: \$20.00. Walk-ins are welcome but patients are seen on a first come, first serve basis. Please arrive early to be sure that you will be seen. Call clinic or visit clinic website for complete hours.
- **HIV Prevention Services** .....(502) 574-5600  
Provides HIV testing and counseling as well as prevention case management, linkage to care, conducting educational workshops, field outreach, and general information about reducing the risk of HIV transmission.

**Louisville Poz Buddies**  
*Email: Loupozbuddies@aol.com*

The Louisville Poz Buddies group is comprised of gay men who are HIV positive and wish to interact with similarly situated men in a relaxed and social environment.

**Metro United Way Information and Referrals** ..... Dial: 211  
*Website: metrounitedway.org*

**Planned Parenthood of Kentucky** .....(502) 584-2473  
**New Albany** ..... (812) 945-4844  
STD testing/diagnosis and treatment services, education and prevention. For more information on hours, services and fees, please call or visit the web site.

**Surviving AIDS In Louisville (SAIL)** ..... (502) 574-6085  
*Email: AIMofKentuckiana@aol.com*

Surviving AIDS In Louisville (SAIL) is a non-discriminative support group for people living with HIV/AIDS. As part of AIDS Interfaith Ministries of Kentuckiana, Inc. (AIM)'s support services, SAIL gives HIV patients a place to discuss the challenges of social and economic conditions that accompany the illness. The group facilitator provides guidance, information and makes referrals to available resources. SAIL meets on the second and fourth Tuesdays of each month from 1:00 PM to 2:30 PM at the Urban County Government Center, 810 Barret Ave., Room 115, Louisville, KY 40204. Please call for an introduction and a brief discussion of your needs and expectations.

**Tri-County Health Coalition of Southern Indiana, Inc.** ..... (812) 944-7265  
*Email: TCHCOSI@sbcglobal.net*

Tri-County Health Coalition of Southern Indiana, Inc. is a non-profit volunteer organization which acts as a clearinghouse for health information for the minority and disadvantaged population of a three county area in Southern Indiana. The Coalition provides health screening, referral services, resources and follow up as well as educational and prevention workshops.

**University of Louisville School of Dentistry Ryan White Community-Based Dental Partnership Program** ..... (502) 852-1267

The University of Louisville School of Dentistry provides oral healthcare and oral health education to HIV/AIDS patients through federally-funded Ryan White grants. Oral Healthcare is provided in Greater Louisville area at the School of Dentistry, the General Practice Residency in U of L Ambulatory Care Building, the Portland Family Health Center and the Phoenix Health Center, and in Elizabethtown, KY at the Richard L. Miller Oral Health Clinic. WINGS patients should contact their medical provider or their case manager at (502) 561-8844 for information about an initial dental screening. Patients of other medical providers should call (502) 852-1267.

**VA Medical Infectious Disease Clinic** ..... (502) 287-4000

For veterans with HIV who receive medical services at the VA Medical Center. Ask for Arna Davidson.

**Volunteers of America**  
*Website: voaky.org*

- **Care Coordinator Program** .....(502) 574-0161  
Volunteers of America manages the Care Coordinator Program offering case management for health related needs, such as medications, health insurance, nutrition, transportation to medical appointments, and housing stabilization, for people living with HIV/AIDS.
- **STOP Program** ..... (502) 574-5373  
The STOP (Stop The Spread Of HIV Through Testing, Outreach & Prevention) program of Volunteers of America is dedicated to preventing the spread of HIV through education, outreach, group interaction, in a caring nonjudgmental and direct manner.

**WINGS Medical Clinic** ..... (502) 561-8844  
WINGS, a U of L outpatient medical clinic for HIV+ individuals, is open Monday through Friday from 8:30 a.m. - 4:30 pm. The goal of WINGS is 100% access to comprehensive medical care for HIV+ persons and 0% disparity in the quality of care provided, regardless of one's income.

WINGS' mission is to provide quality, comprehensive medical care, as well as physical and emotional support, to all HIV+ individuals and persons living with AIDS in a 7-county service area surrounding and including Jefferson County. WINGS offers services that include primary care, infectious diseases specialty care, pharmacy, in-house referrals for help with substance abuse, support groups, mental health counseling and assessments and referrals, social support services and medical case management, as well as liaisons to community services for those with HIV/AIDS.

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## Course Test

**\*If you have downloaded the course off the Internet and wish to submit your test online you must return to our website ([www.accesscontinuingeducation.com](http://www.accesscontinuingeducation.com)) to do so.**

1. HIV is a:
  - A. Bacteria that is dispersed through the air on droplet nuclei.
  - B. Fungus that is transmitted through direct contact.
  - C. Virus that is transmitted through blood and other body fluids.
  - D. None of the above.
  
2. The window period is the period of time:
  - A. After the virus enters the body and attacks the CD4 cells, until the body produces antibodies to the virus.
  - B. Between HIV infection and the appearance of the first symptoms.
  - C. From HIV infection until the start of persistent symptoms of AIDS.
  - D. None of the above.
  
3. Acquired Immune Deficiency Syndrome (AIDS) is diagnosed when the ELISA screening test is positive.
  - A. True.
  - B. False.
  
4. All the following is true about Viral Transmission EXCEPT:
  - A. It is the initial infection with HIV.
  - B. The infected person may become infectious to others within five days.
  - C. It is also called the Seroconversion.
  - D. The infected person may be infectious before the onset of any symptoms.
  
5. High risk behaviors for HIV transmission includes:
  - A. Unprotected sexual contact where there may be an exchange of blood, semen or vaginal secretions.
  - B. Sharing injecting drug equipment such as syringes and needles.
  - C. Neglecting to utilize personal protective equipment when coming into contact with blood or other potentially infectious materials in the healthcare setting.
  - D. All of the above.

6. The 2008 case definition revision for HIV and AIDS was revised into a single case definition for HIV infection that includes AIDS and incorporates the HIV infection classification system. All the following are true EXCEPT:
  - A. Laboratory-confirmed evidence of HIV infection is now required to meet the surveillance case definition for HIV infection .
  - B. A positive HIV test OR an AIDS indicator condition OR a CD4 count of less than 200 cells/mm.
  - C. Diagnostic confirmation of an AIDS-defining condition alone, without laboratory-confirmed evidence of HIV infection, is no longer sufficient to classify an adult or adolescent as HIV infected for surveillance purposes.
  - D. This definition applies to adults and adolescents age 13 and older.
  
7. Since 1996, highly active antiretroviral therapy (HAART) has largely been responsible for the reduction in AIDS deaths.
  - A. True.
  - B. False.
  
8. Access to medical care and adherence to complex medication regimens is not generally a problem for persons with HIV infection, mainly because one can start and stop taking HAART at will with no concern for drug resistance.
  - A. True.
  - B. False.
  
9. Some common side effects to HAART include all the following EXCEPT:
  - A. Nausea, diarrhea and osteoporosis.
  - B. Numbness in feet and hands (peripheral neuropathy) and changes in body fat distribution (lipodystrophy).
  - C. Vomiting, weight gain and restlessness.
  - D. Diabetes or other metabolic changes.
  
10. In an HIV-infected person, TB disease can develop in the following ways:
  - A. A person who already has latent TB infection can become infected with HIV, and then TB disease can develop as the immune system is weakened.
  - B. A person who has HIV infection can become infected with M. tuberculosis, and TB disease can then rapidly develop because their immune system is not functioning.
  - C. Both A and B.
  - D. Neither A or B.
  
11. Hepatitis B (HBV) is transmitted the same way as HIV, through sexual intercourse and sharing needles. HBV is much more concentrated in blood, and it is more infectious than HIV.
  - A. True.
  - B. False.
  
12. Which of the following statements regarding HIV and HCV co-infections are true:
  - A. Many people who become infected with HIV from injection drug use are already infected with HCV. Some estimate that 40% of HIV-infected people in the U.S. are also infected with HCV.
  - B. People who are co-infected with both viruses and have immune system impairment, may progress faster to serious, chronic or fatal liver damage.

- C. Treating HIV in someone with HCV may be complicated, because many of the medicines that are used to treat HIV may damage the liver.
  - D. All of the above.
13. The 2006 Centers for Disease Control and Prevention recommendations for HIV testing are different from the previous recommendations in that they are now recommending routine HIV testing in the healthcare setting.
- A. The new recommendations are for routine HIV testing in the healthcare setting, without additional consent, pre-test counseling.
  - B. The new recommendations are for pre-test and post-test counseling, as well as informed HIV consent to continue in community settings.
  - C. Both A and B.
  - D. Neither A or B.
14. The optimal time to begin post exposure prophylaxis for occupational exposure to HIV is:
- a. At 24 hours post-exposure.
  - b. Within 2 hours of exposure.
  - c. There is no value in post exposure prophylaxis.
  - d. Within 7 days of exposure.
15. In the state of Kentucky, positive HIV test results must be reported to the HIV/AIDS Surveillance Program of either the Louisville-Metro Health Department or the Kentucky Department for Public Health depending on the residence of the infected person.
- a. True.
  - b. False.
16. Informed consent, as per KRS.214.625, requires all the following EXCEPT:
- A. That a person who has signed a general consent form for the performance of medical procedures and tests is not required to also sign a specific consent form for HIV testing.
  - B. Pre-test counseling as a component of the informed consent.
  - C. That the general consent form must instruct the patient that, as part of the medical procedure or tests, the patient may be tested for HIV, hepatitis or other bloodborne infectious disease.
  - D. The physician who orders the test is responsible for providing the results of the test, if the results are positive, as well as either providing information and counseling or referring the patient to another practitioner who can provide information and counseling.
17. According to KRS 214.625, anyone who has knowledge of a test result, or the identity of the person upon whom the test was performed is prohibited from disclosing this information except under very specific conditions, which are identified in the law.
- A. True.
  - B. False.

18. In the Commonwealth of Kentucky, physicians and medical laboratories must report positive HIV results within:
- A. 24 hours.
  - B. 5 days.
  - C. 10 business days.
  - D. None of the above.
19. Persons with HIV/AIDS and their families and friends face a multitude of difficult realities. Among them are:
- A. Although with the advent of antiretroviral drugs, persons who are HIV infected, can live 10-12 years or more without developing symptoms, persons with AIDS still die prematurely. 90% of all adults with AIDS are in the prime of life and may not be prepared to deal with death and dying.
  - B. People who are living with HIV face the need to practice "safer sex" and take medications for the remainder of their lives; and the infections and malignancies that accompany AIDS along with some of the medications, can diminish and disfigure the body.
  - C. Men who have sex with men, and injection drug users, who may already be stigmatized and subjected to social and job-related discrimination, may encounter even more societal pressure and stress with a diagnosis of AIDS.
  - D. All of the above.
20. African Americans and Hispanics specifically have disproportionately lower rates of AIDS cases in the U.S.
- A. True.
  - B. False.