Recognize how HIV affects the human immune system.

Describe the history, virology, epidemiology, transmission and prevention of the HIV disease and AIDS.

Discuss testing, diagnosis, the disease process, and current medical treatment.

Describe some of the psychological and physical effects of HIV/AIDS, and the psychosocial impact of the disease on patients, families, and significant others, and caregivers.

Discuss the implications, appropriate attitudes, rewards, and benefits for health care and the helping professionals who provide care for persons with AIDS or HIV disease.

List services available for the person with HIV/AIDS.

AIDS was initially reported in the United States in 1981, since then it has become a worldwide epidemic. As of 2008, more than 1,106,391 cases of AIDS have been reported in the US since 1981.

Approximately one-fourth (24% – 27%) of HIV-infected persons are believed to be unaware of their infection.

The epidemic is growing most rapidly among minority populations. African Americans and gay and bisexual men of all races continue to be most severely affected. Males accounted for 76% of the population living with HIV.

AIDS has personal and social implications that have changed healthcare. It has been thirty years since the first report case in the US, and we still have no cure for AIDS.
Where did HIV come From?

Scientists identified a type of chimpanzee in West Africa as the source of HIV infection in humans. They believe that the chimpanzee version of the immunodeficiency virus (called simian immunodeficiency virus or SIV) most likely was transmitted to humans and mutated into HIV when humans hunted these chimpanzees for meat and came into contact with their infected blood. Over decades, the virus slowly spread across Africa and later into other parts of the world.

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Awareness of HIV Status among Persons with HIV, United States

<table>
<thead>
<tr>
<th></th>
<th>Number HIV infected</th>
<th>Number unaware of their HIV infection</th>
<th>Estimated new infections annually</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,039,000 – 1,185,000</td>
<td>252,000 - 312,000 (24%-27%)</td>
<td>56,300</td>
</tr>
</tbody>
</table>

---

There is no vaccine. The virus mutates within the body and science has not identified which parts of the process that can induce protective immunity (in order to develop a vaccine).

Promising is those who exhibit no symptoms for greater than 10 years. The AIDS epidemic is global and shows little signs of slowing, even though it has stabilized.

WHO estimates that 5 million people will become newly infected each year, or nearly 14,000 new HIV infections each day.*

Death among those already infected will continue to increase for years, even if prevention programs could cut the number of new infections to zero.
Epidemiology
What is HIV/AIDS?

People infected with Human Immunodeficiency Virus (HIV) are divided into three categories of diagnoses.

- A diagnosis of HIV infection (not AIDS)
- A diagnosis of HIV infection with a later diagnosis of AIDS
- A diagnosis of HIV infection with concurrent diagnosis of AIDS*

HIV causes a gradual deterioration of the immune system. The virus kills or disables CD4+ T cells (T-helper cells).

AIDS is the end stage of HIV. HIV disrupts the network of signalling responses that regulate the immune system. *

Early infection:

Slow viruses have a long interval between the initial infection and the onset of symptoms.  

At first HIV infects large numbers of T-cells and replicates rapidly. The blood carries the virus throughout the body, seeding immune system organs (lymph nodes, spleen, tonsils & adenoids) and then organs such as, the brain, heart, kidneys.  

2-4 weeks after exposure the person will experience flu-like symptoms (fever, h/a, fatigue, enlarged nodes). Symptoms disappear in 1-4 weeks - often misdiagnosed as another viral infection. DURING THIS PERIOD THE PERSON IS VERY INFECTIOUS. Large amounts of HIV will be present in genital fluids.

HIV-1 Structure

Reverse Transcriptase

gp120

Glycoprotein

Docking

gp41

Glycoprotein

Transmembrane

RNA

Capsid

Matrix

Lipid

Membrane

RNA
**Course of Infection:**

About 10% of HIV infected individuals will progress to AIDS in two-three years, while 5% of HIV infected individuals will have no symptoms after 12 or more years.¹

As the immune system declines, a variety of complications start to take over. The first symptoms are usually enlarged lymph nodes “swollen glands” that may be enlarged for 3 months. Other symptoms often experienced months to years before the onset of AIDS include:²

- Lack of energy
- Weight loss
- Frequent fevers and sweats
- Persistent or frequent yeast infections (oral or vaginal)
- Persistent skin rashes or flaky skin
- Pelvic inflammatory disease not responding to treatment
- Short term memory loss

**Factors that affect disease progression are:**¹

- Age
- Genetic makeup
- Virulence of organism
- Co-infections

A small number of people first infected with HIV 10 or more years ago have not developed AIDS. Scientist are trying to determine what factors may account for their slower disease progression, such as:

1. Whether their immune systems have particular characteristics
2. Whether they were infected with a less aggressive strain of the virus²
3. If their genes protect them from the effects of HIV

**Development of AIDS:**

The official definition of AIDS according to the CDC:

1. Fewer than 200 T-cells per cubic mm/blood³ or CD4⁺ cells account for fewer than 14% of all lymphocytes.

2. Dx of a clinical condition affecting people with advanced HIV.

26 clinical conditions exist that are considered opportunistic that do not generally affect those with an intact immune system.
Opportunistic Infections Associated with AIDS

Respiratory Manifestations
- Pneumocystis jiroveci (carinii) pneumonia (PCP)
- Mycobacterium avium complex (MAC)
- Mycobacterium tuberculosis
- Coccioidoidomycosis
- Histoplasmosis
- Recurrent pneumonia

Gastrointestinal Manifestations
- Diarrhea affects 50%-90% of all persons with AIDS = weight loss, F&E
- Isosporiasis, Cryptosporidium, Salmonella, CMV, Clostridium difficile
- Oral candidiasis
- Wasting syndrome - weight loss of 10% or more of the normal body weight
- Oral lesions associated with HIV: symptoms identified by white patches in the mouth, can progress to the esophagus, and stomach

Oral Manifestations
- Oral lesions are common in people with HIV infection. By some estimates, more than 90% of AIDS patients will have at least one HIV-related oral manifestation in the course of their disease.
- For some patients, the presence of these oral lesions may be the first sign of HIV infection, leading to testing and diagnosis.
- For others, oral lesions may signify a decline in immune function. For example, untreated HIV-infected patients with oral candidiasis have been shown to progress to an AIDS diagnosis within a two-year period.
- Comprehensive primary care includes primary oral healthcare.
- Every patient should receive a comprehensive initial evaluation.

Oncologic Manifestations
- Kaposis’s Sarcoma (KS)
- B-Cell Lymphomas

Neurologic Manifestations
- HIV Encephalopathy occurs in two thirds of AIDS cases, also called AIDS dementia complex (ADC)
- Progressive Multifocal Leukoencephalopathy (PML)

Integumentary Manifestations
- Kaposis’s Sarcoma
- Molluscum Contagiosum
- Seborrheic Dermatitis & Folliculitis
- Herpes complex >1 month

Endocrine Manifestations
- Most people with HIV do not show clinical evidence of endocrine infection.
- Symptoms identified by white patches in the mouth, can progress to the esophagus, and stomach

Herpes complex >1 month
- Seborrheic
- Molluscum
- Kaposi’s Sarcoma

Integumentary
- Toxoplasma
- Progressive Multifocal Leukoencephalopathy (PML)
- Cryptococcus neoformans

Viral
- Epstein Barr – Oral hairy leukoplakia
- Herpes Simplex
- Cytomegalovirus
- Human Papilloma
- Human Retrovirus
Persistent, recurrent vaginal candidiasis may be the first symptom of HIV in women.
Past or present genital ulcer disease is a risk factor for the transmission of HIV.
Chancroid, syphilis, and herpes are more severe in HIV-infected women.
Women with HIV are ten times more likely to develop cervical intraepithelial neoplasia (invasive cervical cancer) than non-infected women.
Women with HIV are at an increased risk for pelvic inflammatory disease. The inflammation caused by PID can increase the risk of transmission of HIV.
Women with HIV have more menstrual abnormalities than women without HIV.

Transmission can occur as:
- Blood (donor tissue/organs inside window period)...
- Semen (including pre-seminal fluid) ...
- Vaginal fluid ...
- Or breast milk ...

... of an HIV infected person enters the body of a uninfected person through:
- Injecting drug use or any contaminated needle stick
- The anus/rectum
- The vagina
- The penis
- The mouth
- Other mucous membranes (e.g., respiratory, intestinal).
HIV Virus Attacking T-cell

Attachment.

The new HIV copies mature and begin replication. The DNA is transcribed into RNA and enters the nucleus of the cell. The cell becomes programmed to make HIV.

HIV replication begins.

The cell is destroyed as new HIV virions bud from it.

The RNA from HIV is pulled into the cell’s nucleus along with protease, integrase, and reverse transcriptase enzymes.

HIV Prevention Measures When Having Sex

Defining safer sex - only through the use of barriers.¹

The term safer sex is a very vague term, because sex can mean different things to different people. The less exposure you have to blood, semen, or vaginal fluid, the safer the sex.

Some types of sexual behavior are riskier than others.

Riskiest to least risky sex:²

- Anal sex
- Vaginal sex
- Oral sex
- Shared sex toys
- Mutual masturbation
- French kissing

Sexually transmitted diseases and HIV:

1. Having another STD places a person at higher risk of becoming infected with HIV.
2. Risk of HIV infection increases with STDs that cause open sores (syphilis, herpes, chancroid) as well as those that do not cause open sores (chlamydia, and gonorrhea).
3. The initial STD stimulates a response in the genital area that makes HIV transmission more likely.
4. An HIV infected person who also has another STD is 3-5 times more likely to transmit HIV through sexual contact.
5. An HIV infected person still needs to use protection if having sex with another HIV infected person (OIs, different strains, drug resist).
### STDs in the U.S. Estimated Incidence

<table>
<thead>
<tr>
<th>Condition</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human papillomavirus</td>
<td>6,500,000</td>
</tr>
<tr>
<td>Trichomonas vaginalis</td>
<td>5,000,000</td>
</tr>
<tr>
<td>Chlamydia trachomatis</td>
<td>3,000,000</td>
</tr>
<tr>
<td>Herpes simplex virus</td>
<td>1,600,000</td>
</tr>
<tr>
<td>Neisseria gonorrhoeae</td>
<td>650,000</td>
</tr>
<tr>
<td>Hepatitis B virus</td>
<td>77,000</td>
</tr>
<tr>
<td>Treponema pallidum (syphilis)</td>
<td>70,000</td>
</tr>
<tr>
<td>Human immunodeficiency virus</td>
<td>56,000</td>
</tr>
</tbody>
</table>

**Total:** 16,953,000

### The Male Condom

- **Polyurethane male condom**
  - For patients allergic to latex condom

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8
The Female Condom

The female condom, like the male condom, is a barrier contraceptive made of latex or polyurethane. The condom has a ring on each end. The ring that is placed inside the vagina fits over the cervix, while the other ring, which is open, rests outside of the vagina and covers the vulva. The female condom is sold over-the-counter.

Dental Dams

Dental dams are small squares of latex that were made originally for use in dental procedures. They are now commonly used as barriers when performing oral sex on women, to keep in vaginal fluids or menstrual blood that could transmit HIV or other STDs.

Gloves and Finger Cots

When putting fingers inside an anus or vagina, you can use latex gloves or finger cots (sleeves for individual fingers). They reduce the risk of getting a germ or virus through tiny cuts on your hand.
Reported Number of Kentucky AIDS Cases, All Ages, Cumulative through June 30 2011

Cumulative AIDS Diagnoses by ADD

- Female: 20%
- Male: 80%

Percentage of Cumulative AIDS Cases by Race/Ethnicity as of June 30, 2011

- White, Not Hispanic: 62%
- Black, Not Hispanic: 33%
- Hispanic: 4%
- Other/Unknown: 1%

AIDS Cases in Kentucky

Total = 8,121 cases
7 cases missing ADD of residence

Percentage of Cumulative AIDS Cases by Sex as of June 30, 2011

Total = 8,121

Percentage of Cumulative AIDS Cases by Race/Ethnicity as of June 30, 2011

N = 8,121
AIDS Cases in Kentucky

- MSM: 55%
- IDU: 11%
- MSM/IDU: 5%
- Heterosexual: 14%
- Transfusion: <1%
- Undetermined: 15%
- Hemophilia: 1%

Percentage of Cumulative AIDS Cases by Transmission Category as of June 30, 2012

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Estimated # of AIDS Diagnoses, 2009</th>
<th>Cumulative Estimated # of AIDS Diagnoses, through 2009*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 13</td>
<td>13</td>
<td>9,448</td>
</tr>
<tr>
<td>Ages 13-14</td>
<td>58</td>
<td>1,321</td>
</tr>
<tr>
<td>Ages 15-19</td>
<td>484</td>
<td>7,214</td>
</tr>
<tr>
<td>Ages 20-24</td>
<td>2,065</td>
<td>42,920</td>
</tr>
<tr>
<td>Ages 25-29</td>
<td>3,476</td>
<td>129,639</td>
</tr>
<tr>
<td>Ages 30-34</td>
<td>4,043</td>
<td>214,149</td>
</tr>
<tr>
<td>Ages 35-39</td>
<td>4,893</td>
<td>234,575</td>
</tr>
<tr>
<td>Ages 40-44</td>
<td>5,689</td>
<td>193,237</td>
</tr>
<tr>
<td>Ages 45-49</td>
<td>5,446</td>
<td>126,380</td>
</tr>
<tr>
<td>Ages 50-54</td>
<td>3,983</td>
<td>72,327</td>
</tr>
<tr>
<td>Ages 55-59</td>
<td>2,191</td>
<td>39,025</td>
</tr>
<tr>
<td>Ages 60-64</td>
<td>1,010</td>
<td>20,633</td>
</tr>
<tr>
<td>Ages 65 or older</td>
<td>846</td>
<td>17,743</td>
</tr>
</tbody>
</table>

* From the beginning of the epidemic through 2009.

State/Dependent Area | # of Cumulative AIDS Diagnoses Through 2009
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adults or Adolescents</td>
</tr>
<tr>
<td>New York</td>
<td>199,433</td>
</tr>
<tr>
<td>California</td>
<td>160,998</td>
</tr>
<tr>
<td>Florida</td>
<td>120,701</td>
</tr>
<tr>
<td>Texas</td>
<td>79,568</td>
</tr>
<tr>
<td>New Jersey</td>
<td>54,483</td>
</tr>
<tr>
<td>Georgia</td>
<td>39,207</td>
</tr>
<tr>
<td>Ohio</td>
<td>38,886</td>
</tr>
<tr>
<td>Illinois</td>
<td>38,282</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>35,081</td>
</tr>
<tr>
<td>Maryland</td>
<td>32,867</td>
</tr>
</tbody>
</table>

From the beginning of the epidemic through 2009.
State/Dependent Area | # of AIDS Diagnoses, 2009
---|---
New York | 4,799
Florida | 4,392
California | 3,760
Texas | 2,652
New Jersey | 1,475
Georgia | 1,391
Illinois | 1,202
Maryland | 1,134
North Carolina | 1,088
Pennsylvania | 917

**HIV Prevention for NON-Sexual Risk Factors**

**Injectable Drug use**

**Cleaning Syringes (bleach)**

**Tattoos and Body Piercing**

**Other Considerations:** blood products, mother-to-child, Healthcare Workers, Misc.

**Injecting Drug Users:** Should be advised that stopping all drug use, including drug injecting, is the most effective way to reduce their risk for contracting HIV/AIDS and other blood-borne diseases, including hepatitis B and C. However, not every drug user is ready to stop using drugs, and many of those who stop may relapse. For those, new syringes should be used each time.

**Disinfection Recommendations:**

Flush out blood, drugs and other organic matter from the syringe. These can contain viruses and interfere with the disinfection process.

Place pure bleach in the syringe for 30 seconds.

Rinse out the bleach. Repeat both steps (bleach & rinse).

**CDC knows of no incidences of HIV transmission through tattooing or body piercing.**

**Although Hepatitis B virus has been transmitted during some of these practices.**

**Medical complications for body piercing appears to be greater than for tattoos. Healing of piercing may take weeks to months because of the abraded and torn skin. Therefore, the possibility of HIV transmission does exist if the abraded skin comes in contact with the blood of an HIV infected person, or if instruments used for these practices are not decontaminated properly.**
Reducing Exposure to Opportunistic Infections

- Environmental and occupational exposures
  - decrease with good hand washing.
- Bird and animal related exposures.
- Food and water related exposures.
- Travel related exposures.

This electron microscope photo shows newly formed HIV particles budding from a human cell.

**TESTING**

Testing is the #1 most important step in preventing the spread of HIV.

Over 16-22 million HIV test are performed in the U.S. each year. 38%-44% of all adults have been tested for HIV. However, at the end of 2003, approximately 252,000-320,000 persons were unaware of their HIV infection.

**Who Should Be Screened?**

Patients in all health care settings.
Persons at risk for HIV infections should be screened annually.
Pregnant women as part of prenatal screening.

HIV screening is recommended for patients in all health-care settings, after the patient is notified that testing will be performed unless the patient declines (opt-out screening).

Separate written consent for HIV testing should not be required. Consent for medical care should be considered sufficient and imply consent for HIV testing.
Late HIV Testing is Common

- Among 1,740 persons with HIV in Kentucky from 2005-2009, 23% were diagnosed with AIDS within the first month of their HIV diagnosis (“late testers”) (Kentucky HIV/AIDS Semi-Annual Report, December 31, 2009)
- Late testers, compared to those tested early (>5 yrs before AIDS diagnosis) were more likely to be:
  - Younger (18-29 yrs)
  - Heterosexual
  - Less educated
  - African American or Hispanic

Recommended Testing

1. **ELISA & Western Blot Test**
   - Detects HIV antibodies
   - Can be performed on blood, saliva, or urine
   - ELISA usually first test done
   - Results in about one week
   - Negative results = individual is not infected if “window” period has passed
   - Positive results = repeat test ...positive repeat test = Western Blot Test (WBT)
   - WBT takes longer to result & more costly
   - If ELISA (+) and WBT (-) – retest in 3-6 months

2. **P24 Antigen Testing**
   - Can detect HIV infection before the HIV antibody test
   - Used to primarily screen the blood supply

3. **The Viral Load Test**
   - Done when the person already knows their infected
   - Detects how much virus is in the blood - this is significant in showing the degree that CD4 cells are being destroyed by the virus
   - Low levels = strong immune system
   - Detects how much virus is in the blood
   - Low levels = strong immune system

Newborn Testing

Newborns maintain maternal antibodies for as long as 18 months so testing has historically been inconclusive until the infant reached 18 months old. But, in recent years, investigators have demonstrated highly accurate blood test in diagnosing HIV infection in infants 6 months of age and as young as 2 months. One test called polymerase chain reaction (PCR) can detect minute quantities of the virus in an infant’s blood.

**Ora-Sure**

The Ora-Sure test determines if HIV antibodies are present in oral mucosal transudate (OMT) that has been collected from the lower cheek and gum. A nylon pad is placed between the lower gum and cheek for two to five minutes. The pad is salt laden which sets up a concentration gradient causing fluids to be absorbed from cells in the linings of the cheeks and gums. Results are usually ready in three to five days.

**Rapid testing**

OraQuick - rapid test for HIV antibodies. Results in 5-30 minutes. First to the ELISA in sensitivity. OraQuick was the first rapid test to be approved by the FDA (March 2004). In approximately 20 minutes the test detects HIV-1 antibodies are present.
Who should be tested?

- Anyone who engaged in risky behavior or had sex with anyone who engaged in risky behavior since 1978.
- Have you shared needles or syringes to inject steroids or drugs?
- If you are male, have you had unprotected sex with another male?
- Have you had a sexually transmitted disease?
- Have you had a blood transfusion or a clotting factor between 1978 and 1985?
- Have you had sex with anyone who would answer yes to any of the above?
- If you have had sex with someone and you did not know their risk behavior, or you have had several sex partners than you have increased the chances that you might be HIV infected.

Kentucky Reporting Law

Physicians and Medical Laboratories shall report within FIVE (5) days of diagnosis (NOTE – this is a shorter timeframe than other reportable diseases):

(a) 1. Any Positive test result for HIV infection;
    2. CD4+ assay including absolute CD4+ cell counts and CD4+%;
    3. HIV detectable Viral Load Assay; and
    4. A positive serologic test result for HIV infection; or

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

Where to Report Kentucky's AIDS & HIV Cases

Report either by phone or mail. When mailing, please place case forms inside of two (2) sealed envelopes, both marked CONFIDENTIAL.

Reporting by Phone:
- Fay Davis at 502-574-6570
- Medina Tipton, Surveillance Coordinator
- Julie Nakayima, Surveillance Technician
- Gloria Dennis, Data Entry Specialist
  - (866) 510-0008

Reporting by Mail:
- Louisville Metro Health Dept.
  - Attn: Fay Davis
  - 400 East Gray St., Room 317
  - Louisville, KY 40202
- Kentucky Department for Public Health
  - Attn: Medina Tipton
  - 275 E. Main Street HS2E-C
  - Frankfort, KY 40621

Confidential HIV/AIDS Case Report Forms and other HIV/AIDS Branch Information:

http://chfs.ky.gov/dph/epi/HIVAIDS
Self-Awareness of Prejudice

Across the world, SEX and DRUG USE play critical roles in the HIV pandemic ...

... as do attitudes and beliefs about sexuality and comprehensive education vs. abstinence-only programs (sex and drugs).

Just because of who they are, those affected are often subject to criticism, discrimination, fear and hatred.

People who come into our care desire and deserve to be offered services with dignity, respect and compassion.

Self-Awareness of Prejudice

All people, including healthcare providers, are at risk of allowing their own values to interfere with patient encounters:

- Stereotyping / Labeling / Assuming
- Discriminating
- Judging / Pushing your own values

These reactions are due to:

- Fear
- Denial
- Anger
- Prejudice against groups (homophobia, racism)
- Lack of knowledge

Self-Awareness of Prejudice

With fewer than 1% of AIDS cases in the US under age 13, why must children with AIDS be used to pull at the heartstrings of America?

Do adults with AIDS matter less?

If you call children the “blameless victims,” what do you call the adults?

Do men deserve AIDS more than women?

Do injecting drug users deserve AIDS more than transfusion recipients?

Do African Americans deserve AIDS more than other Americans?

Do men who have sex with men deserve AIDS more than drug users?
Self-Awareness of Prejudice

With fewer than 1% of AIDS cases in the US under age 13, why must children with AIDS be used to pull at the heartstrings of America?

Do adults with AIDS matter less?

If you call children the "blameless victims," what do you call the adults?

Do injecting drug users deserve AIDS more than transfusion recipients?

Do men who have sex with men deserve AIDS more than drug users?

Do men deserve AIDS more than women?

Do African Americans deserve AIDS more than other Americans?

No one deserves AIDS.

Be aware of your own feelings toward drug users and people who have different sexual orientations, cultural norms, beliefs, family structures, lifestyles or values.

Provide quality healthcare … Nothing more. Nothing less.

Follow the GOLDEN RULE:

Treat others the way you want to be treated.

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

People who have HIV are protected by the ADA. An individual is considered to have a “disability” if they have a physical or mental impairment that substantially limits one or more major life activities, has a record of such an impairment, or is regarded as having such an impairment. Persons with HIV are protected as long as their illness is symptomatic and asymptomatic and their status is not determined by medical test or laboratory result.
The Americans with Disabilities Act and HIV/AIDS

Persons who are discriminated against because they are regarded as being HIV-positive are also protected. For example, a person who was fired on the basis of a rumor that they had AIDS, even if they did not, would be protected by the law.

Moreover, the ADA protects persons who are discriminated against because they have a known association or relationship with an individual who is HIV-positive. For example, the ADA would protect an HIV-negative man who was denied a job because his partner had AIDS.

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

KRS 214.625 Consent and Confidentiality

The Kentucky General Assembly finds that public health will be served by providing informed, voluntary, and confidential use of tests designed to detect HIV.

A general consent form is to advise patients that they may be tested for HIV, hepatitis, or any other blood-borne infectious disease as part of a medical procedure if ordered by a doctor for diagnostic purposes.

In an emergency where informed consent cannot be obtained, there is no requirement to obtain a previous informed consent.

No public health department or person in this state shall conduct a testing program for AIDS or HIV without first registering with the Cabinet for Health and Family Services and meeting all necessary requirements.

No person who has obtained or has knowledge of a test result shall disclose or be compelled to disclose the identity of any person upon whom a test is performed, or results of the test that permit the identification of the subject of the test, except to the following persons:

1. The subject of the test, or legal representative;
2. Those designated in a legally effective release of the test by the patient;
3. Physician, Nurse, or other provider with a legitimate need to know;
4. Health care providers consulting between themselves regarding diagnosis and treatment;
5. The Cabinet, in accordance with rules for reporting and controlling the spread of disease as required by state law;
KRS 214.625
Consent and Confidentiality
(continued)

No person who has obtained or has knowledge of a test result shall disclose or be compelled to disclose the identity of any person upon whom a test is performed, or results of the test that permit the identification of the subject of the test, except to the following persons:

6. Health care provider which processes or uses a human body part from an infected person; or semen provided prior to July 13, 1990 for use in artificial insemination;
7. Health facility staff committees, for purposes of evaluation;
8. Authorized medical or epidemiological researchers;
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.

No person who has obtained or has knowledge of a test result shall disclose or be compelled to disclose the identity of any person upon whom a test is performed, or results of the test that permit the identification of the subject of the test, except to the following persons:

6. Health care provider which processes or uses a human body part from an infected person; or semen provided prior to July 13, 1990 for use in artificial insemination;
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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.

Treatment

The overall goal of HIV therapy is to slow or stop the ability of HIV to produce—halting the progression of the disease and destruction of the immune system. Drug groups for HIV:

Nucleoside Reverse Transcriptase Inhibitors (NRTIs). AZT one of the first
Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)
Protease Inhibitors. Most side effects
Fusion Inhibitors, Co-receptor antagonists (Entry Inhibitors), and Integrase Inhibitors – the newest.

Because HIV can become resistant to HIV drugs, health care providers must use a combination treatment to effectively suppress the virus. When multiple drugs (three or more) are used in combination, it is referred to as highly active antiretroviral therapy, or HAART

HAART Examples:
Sustiva + Combivir (Retrovir and Epivir)
Sustiva + Truvada (Emtriva and Viread)
Atripla (Sustiva, Viread and Emtriva)*

Kaletra + Combivir (Retrovir and Epivir)
Kaletra + Truvada (Emtriva and Viread)
Side Effects

Despite the beneficial effects of HAART, there are side effects associated with the use of antiviral drugs that can be severe.

Nucleoside RT inhibitors may cause: decrease of red or white blood cells, inflammation of the pancreas and painful nerve damage, other severe reactions, including death.

Protease inhibitors: nausea, diarrhea, and other gastrointestinal symptoms. Protease inhibitors can interact with other drugs resulting in serious side effects.

Fuzeon may also cause severe allergic reactions such as pneumonia, trouble breathing, chills and fever, skin rash, blood in urine, vomiting, and low blood pressure. Local skin reactions are also possible since it is given as an injection underneath the skin.

Four factors should be considered when starting HIV drug treatment

Symptoms of advanced HIV disease

CD4+ Count (T Cell)

Viral Load

Drug-resistance testing
**HIV and Pregnancy**

No one knows for sure if a HIV + mother’s baby will be born HIV infected.

The three part AZT regimen has been shown to reduce the risk of passing HIV to the baby by almost 70%. It is imperative the mother gets regular prenatal care and adheres to the HIV treatment.

**The three part AZT regimen consists of:**

HIV infected pregnant women take AZT starting at 14 to 34 weeks of pregnancy.

During labor and delivery AZT should be given IV to the mother.

The baby should take AZT in liquid form every six hours for six weeks after birth.

**Goals for Therapy**

Maximal and durable suppression of viral load

Restoration and preservation of the immune system

Improvement of quality of life

Reduction of HIV-related morbidity and mortality
Before therapy is initiated

- Complete History & Physical
- CBC, Chem Profile (including serum transaminases & lipid profile)
- CD4+ T lymphocyte count
- Plasma HIV RNA Measurement
- Genotypic resistance testing to determine which drugs to prescribe
- Routine test relevant to preventing opportunistic infections:
  - VDRL
  - PPD
  - Toxoplasma immunoglobulin G serology
  - Hepatitis B & C
  - Gynecological exam with PAP smear
  - Chest X-ray if indicated

Benefits of Delayed Therapy

Avoid negative effects on quality of life*
Avoid drug-related adverse events
Preserve future treatment options*
Delay in development of drug resistance

Risks of Delayed Therapy

- Possible risk of irreversible immune system compromise
- Possible greater difficulty in viral suppression
- Possible increased risk of HIV transmission
Advanced Stage Disease

Severe symptoms of AIDS, with any CD4+ or viral load level

All people with severe symptoms of AIDS should be treated with anti-HIV therapy. In this case, anti-HIV therapy is shown to prolong life and is associated with improvements of symptoms.*

No symptoms of HIV disease, CD4+ cell counts below 200 and any viral load
Treatments should be offered.

No symptoms of HIV disease, with CD4+ cell counts between 200-350 and any viral load. Treatment is offered, though controversy exists.

Some experts believe it is safe to wait until the CD4+ count falls to 200. Others believe this leaves little room to accommodate individual differences and feel it is safe to initiate therapy at 350 CD4+ cells.

No symptoms of HIV disease, CD4+ cell counts above 350 and viral load above 30,000 copies by DNA

Two possible approaches. No available data to suggest which approach results in longer survival.

Very early, aggressive treatment might lead to longer life. Or it might lead to using up the limited supply of therapies too early in the course of disease. It also risks early exposure to possible long-term side effects associated with therapies.

1. As a result, many experts would delay starting therapy and continue to monitor CD4+ cell counts and viral load.

2. On the other hand, the risk of disease progression over the next three years is somewhat high (over 30%) in people falling within this definition, and other experts prefer to initiate therapy without further delay.
No symptoms of HIV disease, with CD4+ cell counts above 350 and viral load below 30,000

- Many experts would defer therapy and continue to monitor CD4+ cell counts and viral load; the risk of disease progression over the next three years in this group is low (less than 15%).

Preventing Occupational HIV Transmission To Healthcare Personnel

- Universal precautions observed at all times when anticipating contact with blood or other infectious material (wearing Personal Protective Equipment PPE).
- Washing hands and other skin surfaces immediately after contact with blood or body fluids. Using antiseptic hand cleaners / soap and running water.
- Careful handling & disposing of sharp instruments and needles during and after use. Contaminated needles and other contaminated sharps shall not be bent, recapped, or removed (with exceptions - dental procedures).
- Such bending, recapping or needle removal must be accomplished through the use of a mechanic device or a one-handed technique.

Transmission increases with:

- A larger quantity of blood from the source person (visibly contaminated)
- Direct puncture into a vein or artery or other deep puncture injury
- Exposure to a terminal HIV infected person (high viral load in the blood with late stages of AIDS)
- Some studies suggest that the strength of the host’s immune response is a factor. There is also evidence that early post-exposure prophylaxis may inhibit HIV replication.*
Healthcare personnel with documented and possible occupationally acquired HIV Infection (2002)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Documented</th>
<th>Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse</td>
<td>24</td>
<td>27</td>
</tr>
<tr>
<td>Laboratory worker, clinical</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>Physician, non-surgical</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Laboratory technician, non-clinical</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Housekeeper/maintenance worker</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Technician, surgical</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Embalmer/morgue technician</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Health aide/attendant</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Respiratory therapist</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Technician, dialysis</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Dental worker, including dentist</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>EMT / Paramedic</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Physician, surgical</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Other technician/therapist</td>
<td>-</td>
<td>9</td>
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<tr>
<td>Other healthcare occupation</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>139</td>
</tr>
</tbody>
</table>

Rationale & Recommendations for Consideration of PEP:

Status of source person is known to be HIV (+) Start PEP as soon as possible.

Status of the source person is unknown, inform the person of the incident and ask for consent to test for serologic evidence of bloodborne virus infection. Use an FDA approved rapid HIV antibody test kit for initial testing. Confidentiality must be maintained at all times.

Source person is unknown, an epidemiological assessment for the likelihood of transmission of HBV, HCV, or HIV should be conducted. The prevalence of bloodborne illnesses in the population is a consideration. In this case, the person with the exposure must decide whether or not to start PEP.

PEP Regimen

Evidence indicates that there is a brief window after exposure to HIV which post-exposure prophylaxis (PEP) may modify or prevent viral replication. The drugs have demonstrated effectiveness in preventing the virus (79% or better) in those who received treatment within the initial 24 hours of exposure.

The effectiveness falls to 52% of the time in those who are treated within 72 hours.

Those not treated within the first 72 hours should seek expert advice as soon as possible (call the PEP line at 1-888-448-4911).

Failure of PEP has been documented in 21 cases.

HIV antibody testing should be performed at 6 weeks, 12 weeks, and 6 months post-exposure (6wk, 12wk, 6months).
**Documentation of Occupational Exposure**

Date and time of the exposure
Details of the procedure being performed including where and how the exposure occurred; if related to a sharp device (type & brand) how and when in the course of handling the device did the exposure occur

Details of the exposure - type and amount of fluid - depth of injury and if fluid injection occurred.
Skin or mucus membrane - note the condition of the tissue (chapped, abraded, intact)
Details about the exposure source (HBV, HCV, or if +HIV what stage of the disease and if antiretroviral therapy used, viral load, antiretroviral resistance if known)
Details about the exposed person (HBV and vaccine response status)

**Federal and State HIV/AIDS Services in Kentucky**

The Kentucky HIV Care Coordinator Program arranges for quality care and services to HIV infected people & their families in a timely and consistent manner across a continuum of care.

- Case Management
- Entitlement benefits
- Medical care
- Prevention counseling
- Housing
- Counseling
- Transportation
- Legal services
- Nutrition services

Kentuckians with HIV are served by six Care Coordinator regions:
Federal and State HIV/AIDS Services in Kentucky

Care Coordinators help to access the following assistance programs:

- Kentucky AIDS Drug Assistance Program (KADAP) – assists low-income, eligible Kentuckians with the purchase of AIDS-related medications prescribed for FDA-approved indications. 1-866-510-0005
- Kentucky Health Insurance Continuation Program (KHICP) – provides payments for continuing health insurance benefits for eligible individuals who are at risk of losing their employment-related or private-pay health insurance because of HIV disease.
- Kentucky Outpatient Health Care and Support Services Programs – provide assistance with a wide range of community-based medical and non-medical support services (physical and mental health care, housing, nutrition, and transportation services).
- Housing Opportunities for People With AIDS (HOPWA) – HUD assistance through contracted agencies of the Kentucky Housing Corporation.

Ryan White
1971-1990

Community Based Organizations
This course meets the licensure requirements of KRS 214.610, 214.615, and 214.620 for all professions and is registered as CHFS #1212-1570-M.