

## The Dental Learning Network



# HIV/AIDS: Etiology and Oral Manifestations

*12 Homestudy Credit Hours*

Silvia Y. Beaupre, MS, RN, NPP, APRN, BC

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# HIV/AIDS: Etiology and Oral Manifestations

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**(12 Credit Hours - \$95.00)**

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## Instructions

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## Course Objectives

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

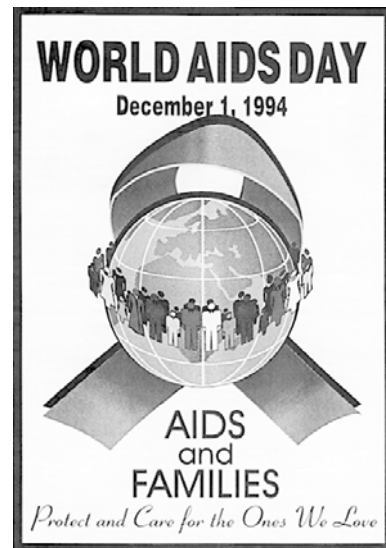
- Define HIV and AIDS.
- Discuss how HIV impacts the body.
- Describe behaviors that increase the risk of HIV infection.
- State how HIV is transmitted.
- Discuss Infection Control precautions, including Universal/Standard precautions.
- Describe the procedure for on-the-job exposure to HIV, HBV or HCV.
- Discuss pre and post test counseling requirements.
- Define partner notification.
- Review recommendations for testing related to sexual assault.
- Describe the natural history of HIV infection.
- Identify AIDS indicator conditions.
- Discuss recent HIV medication therapies.
- Outline management of HIV and common co-occurring illnesses.
- Discuss discrimination related to HIV/AIDS.
- Describe interventions related to the management of behaviors endangering the public.
- Discuss the human impact of HIV/AIDS on the patient and the caregiver.
- Describe typical stages of grief.
- Discuss select populations and their relationship to HIV/AIDS.



The looped red ribbon became the universal symbol of AIDS awareness. Courtesy of the National Institutes of Health.

## Course Introduction

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 infections it causes continue to be greatly feared. Significant efforts have been made by researchers and clinicians to increase our knowledge of HIV, its infections 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. The general public and healthcare workers have benefited from this collectively gained knowledge.



**Public Health Service literature has helped to disseminate information on HIV/AIDS.** US Public Health Service, 1987 (Courtesy of National Library of Medicine)

Selection of topics may be made to meet specific licensing boards' requirements.

Please note that these curriculum requirements may not fulfill the needs of your particular certification or licensure.

### **Part 1. Etiology and Epidemiology of HIV and AIDS**

- Definition of HIV, AIDS
- How HIV works in the body
- Reported HIV cases, reported AIDS cases in US

### **Part 2. Transmission and Infection Control**

- Transmission of HIV
- Behaviors that increase risk of HIV transmission
- Infection control precautions
- Factors affecting risk of transmission
- Risk for transmission to healthcare workers
- Other factors affecting transmission
  - Risk reduction
  - Bloodborne pathogens requirements
- Universal/Standard Precautions and Infection Control
- Reporting of on-the-job exposure
- Post-exposure prophylaxis
- Infection control in other settings

### **Part 3. Testing and Counseling**

- Types of HIV testing
  - HIV test information
  - "Window period"
- Pre-test counseling
- Post-test counseling
- Recommendations for testing related to sexual assault
- Partner notification

#### **Part 4. Clinical Manifestations and Treatment**

- Oral signs of HIV infection
- Natural history of HIV infection
- AIDS case definition
- AIDS indicator conditions
- How HIV works in the body
- New drug therapies
- Case management/resources
  - Tuberculosis and HIV
  - Other sexually transmitted diseases and HIV
- Hepatitis B and HIV
- Hepatitis C and HIV
- Comparison Chart of HIV, HBV and HCV

#### **Part 5. Ethical and Legal Issues**

- Reporting requirements
- Confidentiality requirements
- Disability and discrimination
- Behaviors endangering the public

#### **Part 6. Psychosocial Issues**

- Personal impact
- The human response to death and dying
- Caregiver issues
- Select populations

**Silvia Y. Beaupre, MS, RN, NPP, APRN, BC**



Silvia Y. Beaupre, MS, RN, NPP, APRN, BC has many years of experience as an educator and clinician. Providing online continuing education to multiple healthcare professionals has been her mission for many years. Ms. Beaupre's teaching experience has been in staff development in multiple healthcare organizations, as well the education of nursing students at the associates, bachelors and graduate degree level. Ms. Beaupre provides workshops and didactic instruction in face to face educational programs to multiple professionals, as well as provides education consultation to select professional organizations.

Ms. Beaupre is a board certified psychiatric nurse practitioner in private practice in the Capital Region of New York State. Her baccalaureate degree in Nursing is from DePaul University in Chicago, Illinois and her Masters degree is in Psychiatric/Community Mental Health Nursing from the University of Illinois at Chicago. Her post-masters psychiatric nurse practitioner certificate was completed at the Sage Colleges in Troy, NY.

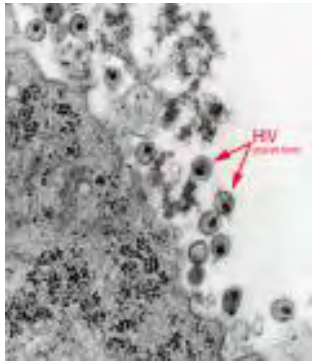
# Part 1. Etiology and Epidemiology of HIV and AIDS

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## **Definition of HIV and AIDS**

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.

**The Human Immunodeficiency Virus (HIV)** is a virus that attacks the immune system, the body's natural ability to protect itself against infections and diseases, damaging the body's ability to fight diseases and infections. Without a healthy, functioning immune system, a person is at risk of infections by bacteria, other viruses and disease-causing organisms. Some of these infections can cause life-threatening illnesses.



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.

**Acquired ImmunoDeficiency (sometimes Immune Deficiency) Syndrome (AIDS)** is a complex of symptoms and infections caused by the HIV virus as it impacts the immune system. It is an acquired infection; it is not hereditary. A person must come in contact with the virus; it enters the body through blood and body fluids. As HIV damages the immune system, infected persons become vulnerable to infections or diseases known as opportunistic diseases. These opportunistic infections generally do not pose a threat to persons with healthy functioning immune systems. Medical treatments, particularly the antiretroviral medications, have delayed the onset of AIDS in persons who are infected with HIV.

The diagnosis of AIDS requires a positive HIV antibody test or evidence of HIV infection and the appearance of some very specific conditions/diseases. Only a licensed medical provider can make an AIDS diagnosis.

## **HIV Strains and Subtypes**

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. As of 2001, blood testing in the United States can detect both strains and all known subtypes of HIV.

### **How HIV Impacts the Human Body**

When HIV enters the bloodstream, the virus starts seeking a particular form of white blood cell (lymphocyte) essential to the functioning of the immune system. This cell is called a **T-Helper lymphocyte**. One of its functions is to "orchestrate" the immune system in the event of attack from harmful foreign invaders, pathogens such as bacteria, viruses, and other disease-causing organisms. It is also referred to as the T4 or the CD4 cell.

When the HIV makes contact with the T-cell, the T-cell sends signals to other cells, which produce **antibodies**. Antibodies are produced by the immune system to help get rid of specific foreign invaders that can cause infection.

Producing antibodies is an essential function of our immune systems. The body makes a specific antibody for each infection. For example, if we are exposed to measles virus, the immune system will develop antibodies specifically designed to attack the measles virus. Polio antibodies fight polio virus. When our immune system is working correctly, it protects against these harmful pathogens.

What is unusual and 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. This results in the eventual decline of the immune system.

### **Time Frames Related to HIV Infection**

The **window period** is the period of time after the virus enters the body and attacks the T4 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.

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.

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 T4 cells and the immune system.

At any time after infection, people can infect others through unprotected anal, vaginal or oral sexual intercourse and sharing of injection equipment. The virus can also be passed from an infected woman to her baby during pregnancy, the birth, or through breast-feeding.

### **Epidemiology of HIV and AIDS**

**Epidemiology** is the study of how disease is distributed in populations and of the factors that influence or determine this distribution. Epidemiologists try to discover why a disease develops in some people and not in others.

Since HIV was first identified in 1983, researchers have worked to pinpoint the origin of the virus. The most commonly accepted theory is that HIV came from a simian (monkey) virus that spread to humans in Africa during the 1930's and 1940's.

The transmission of HIV has been driven by multiple changes in migration, housing, travel, sexual practices, drug use, war, and economics that have affected both Africa and the entire world since 1940.

AIDS was first recognized in the United States in 1981. Since then, the number of AIDS cases has continued to increase both in the U.S. and in other countries. In 1983, the virus that we now know to be HIV was identified as the cause of AIDS.

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.

### Reported AIDS Cases Worldwide

The number of HIV-infected people worldwide has grown dramatically. In 2005 there were 40 million people worldwide living with HIV; of those 40 million, 5 million were newly diagnosed in 2005 (OWH, 2006).

### Reported AIDS Cases in the US

At the end of 2003, an estimated 1,039,000 to 1,185,000 persons in the United States were living with HIV/AIDS. In 2003, 32,048 cases of HIV/AIDS were reported from the 33 areas (32 states and the US Virgin Islands) with long-term, confidential name-based HIV reporting. When all 50 states are considered, CDC estimates that approximately 40,000 persons become infected with HIV each year (CDC, 2005a).



**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.**

As therapies have improved, fewer people have died of AIDS each year. However, the treatments have not reduced the number of new infections. The Centers for Disease Control

and Prevention (CDC) estimates that in the US, there are 40,000 new cases of HIV infections per year. This number has been steady for more than 5 years.

The discovery of antiviral "combination" medication therapies, the antiretrovirals (ART) in 1996 resulted in a dramatic decrease in the number of deaths due to AIDS among persons taking the drug therapies. The unfortunate truth is that many people who have access to the drug therapies may not benefit from them, or may not be able to tolerate the side effects. The medications are expensive and require strict dosing schedules. In developing countries, due to lack of access to healthcare systems and cost, many people with HIV have no access to the newer drug therapies.

#### HIV and AIDS Cases are Reportable

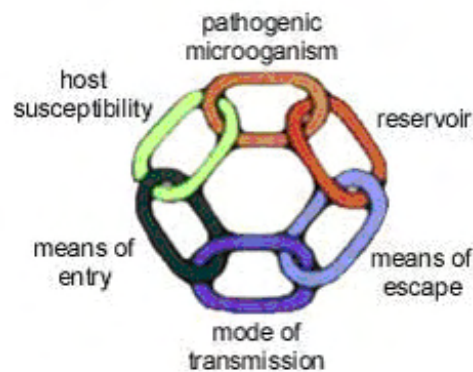
Reporting of HIV/AIDS will be covered in more detail in the Legal section which appears later in this course. HIV cases reporting requirements vary from state to state.

## Part 2. HIV Transmission and Infection Control

### HIV and the Chain of Infection

HIV is a relatively fragile virus. It is not spread by casual contact. It is not easy to “catch”; it must be acquired. 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.). HBV and HCV will be discussed later in this course.

The **Chain of Infection** provides a model for understanding how any infection is spread. All of the components below must be present for an infection to occur.



The **pathogenic microorganism** is the micro-organism that causes infection such as bacteria, viruses, fungi and parasites.

The **reservoir** is the place where micro-organisms live, such as in humans and animals, in soils, food, plants, air or water. The reservoir must meet the needs of the pathogen in order for the pathogen to survive and multiply.

The **means of escape** are how the micro-organism leaves the reservoir.

The **method of transmission** is how the micro-organism moves from place to place.

The **means of entry** is how the micro-organism enters the host. There must be an adequate number of organisms to cause infection.

The **host susceptibility** is the person who may become infected.

All of these components together are considered to be the “chain of infection”. In the dental care setting, all of these factors come into play in the spread or the control of infection. There are effective strategies of infection control that will prevent infection transmission by interrupting one or more links in the chain of infection (CDC, 2003).

As this chain of infection relates to HIV/AIDS:

- The pathogenic microorganism is the human immune deficiency virus, or HIV.
- The reservoir is blood or body fluids of the "source" patient; anyone with the virus can be an HIV source.
- The means of escape are how the blood or body fluids of the source patient exit the source patient. This includes infected blood, semen, vaginal secretions or breast milk.
- Mode of transmission is through direct contact with infected blood or body fluids noted above.
- The means of entry is through the non-intact skin that can occur through unprotected sex, injecting drug use, and rarely splashing onto mucous membranes.
- Host susceptibility is the person who may now become infected with HIV.

Anyone who is infected with HIV can be the HIV source. As above, 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 we consider the most common fluids -- blood, semen, vaginal secretions and breast milk -- as infectious in the "real world." Again, outside of the laboratory or medical and dental operation situations, **ONLY** blood, semen, vaginal fluids and breast milk are considered to be infectious for HIV.

### **Risk Behaviors for Transmission**

Coming in contact with another person's blood puts one at risk for these infectious fluids coming in contact with one's own blood. There are some behaviors that put one at greater risk than other behaviors.

The most common of the risk behaviors are:

- **unprotected sexual intercourse (anal, vaginal, oral) with an infected person, and**
- **the use of contaminated injection equipment for use in injecting drugs.**

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 is transmitted through direct contact with infected blood or body fluids. HIV is not transmitted through the air. Sneezing, breathing and coughing do not transmit HIV. Touching, hugging and shaking hands do not transmit HIV. HIV transmission is not possible from food in a restaurant that is prepared or served by an HIV-infected employee.

### 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 they way they look. The test results were negative, and the provider stressed the importance of retesting if he engaged in more high risk behaviors.

No cases of HIV transmission have been linked to sharing computers, food, telephones, paper, water fountains, swimming pools, bathrooms, desks, office furniture, toilet seats, showers, tools, equipment, coffee pots or eating facilities. However, personal items, which may be contaminated with blood, including but not limited to razors, toothbrushes and sex toys, should not be shared.

There have been no cases of HIV transmission by children playing, eating, sleeping, kissing and hugging.

To date, there have been less than a dozen known cases of HIV transmission that have occurred in household settings in the U.S. and other countries. Reports of these cases have been thoroughly investigated by the CDC. The researchers determined that the transmissions were caused by sharing a razor contaminated with infected blood, the exposure of infected blood to cuts and broken skin, and possibly deep kissing involving a couple who both had bleeding gums and poor dental hygiene. It is important to remember that these cases were

***extremely unusual.*** Sensible precautions with bleeding wounds and cuts and not sharing personal hygiene items would have prevented these cases of infection.

There are also isolated cases of transmission from dental care workers to patients.

To date, there were three instances where transmission of HIV could **only** be tracked to the HIV-infected doctor, dentist or nurse 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 infection from healthcare worker to patient. That case involved a dentist.

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.

### **HIV Transmission**

People may become infected with HIV if they engage in specific behaviors that put them at risk, or if they are exposed through needlestick injuries (usually in a dental care setting). Other blood contact with mucous membranes or non-intact skin provides a possible, but not probable, chance of transmission.

HIV is transmitted through:

- Unprotected anal, vaginal or 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 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.

The transmission of HIV depends upon:

- The availability of the infectious agent in sufficient quantity;
- The viability of the infectious agent (how strong it is);
- The virulence of the infectious agent (how infectious it is);
- The ability of the infectious agent to reach the blood stream, mucous membranes; or broken skin of a potential host (i.e., getting into another person's body).

## 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 his or her 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.

One of the predictors of how infectious an HIV-positive person may be, is their viral load, which 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, HIV was transmitted by:

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

Testing for HIV began in 1985 has almost completely eliminated these risks for transmission in developed countries.

### **Probability of HIV Transmission**

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-.09%

A 1% risk means 1 chance in 100 for infection to occur. A 0.10% risk means 1 chance in 1,000. There are no published estimates of the risk for transmission from receptive oral sex or insertive anal sex.

### **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, which makes it very easy for the virus to enter the bloodstream. 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 (pre-cum), menstrual blood or vaginal fluids is also a risk for HIV transmission.

Studies have shown that 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 definitively 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, etc. 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 drug injectors 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", cotton, and/or rinse water. Sharing these items (sometimes called "works") may transmit HIV or other bacteria and viruses.

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.

### **HIV and Pregnancy**

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.

In 1994, researchers discovered that a course of the antiretroviral drug AZT (zidovudine) significantly reduced the transmission of HIV from woman to baby. Medications such as AZT and others are used during pregnancy and delivery to prevent transmission of HIV.

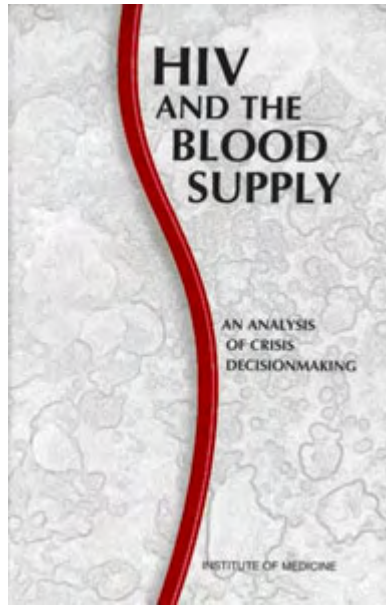
Currently, HIV is transmitted from an HIV-infected woman to her baby in about 25% of pregnancies if intervention with antiretroviral medications does not occur. Because of the widespread use of AZT by HIV-infected pregnant women in the U.S., the perinatal transmission rate has dropped dramatically, and is now less than 10% in the U.S., especially if the woman's healthcare 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 whether or not to breastfeed their child(ren). More research is needed on ways to reduce the risk of maternal transmission through 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.



**Upon recognizing that HIV could contaminate the blood supply, government scientists sought ways to keep it safe. Courtesy of National Institutes of Health.**

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.

At this time, HIV infection is lifelong, meaning that once a person becomes infected with HIV, their blood, semen, vaginal secretions and/or breast milk will always be potentially infectious.

### **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 in Part. 4 of 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., 12<sup>th</sup> 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 healthcare 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.

### **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 not have penetrative sexual 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.

**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.

The female/insertive condom is also made of latex; it 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.

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 intercourse on a female. 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 is 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.



Courtesy of National Institutes of Health

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.

If a drug user cannot avoid sharing syringes and needles, then **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, and then squirt out the used bleach.
- Repeating Step 2 may provide additional benefit.
- Rinse out the syringe with clean water. Shake the syringe, and 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!**

### **Bloodborne Pathogen Standard**

The following standards are mandated by the Occupational Safety and Health Administration (OSHA).

The enforcement procedures are used to inspect any employer where employees' jobs involve potential exposure to blood and other potentially infectious materials (OPIM).

Occupational groups that have been widely recognized as having potential exposure to **bloodborne pathogens** such as HIV/HBV/HCV include, but are not limited to:

- dental care workers,
- law enforcement personnel,
- fire fighting personnel,
- ambulance personnel, and
- other emergency response and public service employees.

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, HCV infection 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. HCV will be covered in more detail later in this course.

## Exposure Control Plan

Each employer must develop an Exposure Control Plan. 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 Exposure Control Plan shall contain at least the following elements:

- Those job classifications and tasks in which employees have the potential for or documented 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 schedule and method of implementation in a manner appropriate to the circumstances of the particular workplace.

## Universal Precautions/Standard Precautions

### **Case Study #5**

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 footwear, gloves, and eyeglasses. 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 was not 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 dental care 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 PPE alternatives to employees with latex and other sensitivities.

### Engineering and Work Practice Controls

Engineering and work practice controls must be used in preference to personal protective equipment to minimize or eliminate employee exposure. There are now many safer needle devices available. Since these laws became effective, employers have been required to use needle-less syringes, or syringes that have protective devices built into their use. Employers must include employees in ongoing evaluation of engineering controls and implement appropriate engineering controls whenever feasible. Evaluation and implementation of these controls must be documented in the Exposure Control Plan.

## Hand Hygiene

The most common way that infection is spread throughout the dental care system is through hand contact. Indeed, handwashing and hand hygiene are the single most effective means of limiting the spread of infection. Employers must provide handwashing facilities, which are accessible to employees.

According to the Bloodborne Pathogens Standard, handwashing must be performed:

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

It is also recommended that handwashing be performed before and after patient contact and after using restroom facilities.

Proper handwashing technique involves the following:

- Using soap, warm (almost hot) water, and good friction, make sure to scrub the top, back, and all sides of the fingers.
- Lather well and rinse for at least 10 seconds. When rinsing, begin at the fingertips, so that the dirty water runs down and off the hands from the wrists. It is preferable to use a pump-type of liquid soap instead of bar hand soap.
- Dry hands on paper towels. Use the dry paper towels to turn off the faucets (don't touch with clean hands).

In 2002, the CDC developed new hand hygiene guidelines.

These guidelines include the following indications for **handwashing and hand antisepsis** (CDC, 2002):

- When hands are visibly dirty or contaminated with proteinaceous material or are visibly soiled with blood or other body fluids, wash hands with either a non-antimicrobial soap and water or an antimicrobial soap and water.
- If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands in clinical situations. Alternatively, wash hands with an antimicrobial soap and water in clinical situations.
- Decontaminate hands before having direct contact with patients.
- Decontaminate hands after contact with a patient's intact skin.
- Decontaminate hands after contact with body fluids or excretions, mucous membranes, nonintact skin, and wound dressings if hands are not visibly soiled.
- Decontaminate hands if moving from a contaminated-body site to a clean-body site during patient care.
- Decontaminate hands after contact with inanimate objects (including medical equipment) in the immediate vicinity of the patient.
- Decontaminate hands after removing gloves.
- Before eating and after using a restroom, wash hands with a non-antimicrobial soap and water or with an antimicrobial soap and water.
- Antimicrobial-impregnated wipes (i.e., towelettes) may be considered as an alternative to washing hands with non-antimicrobial soap and water. Because they are not as effective as alcohol-based hand rubs or washing hands with an antimicrobial soap and water for reducing bacterial counts on the hands of healthcare workers, they are not a substitute for using an alcohol-based hand rub or antimicrobial soap.
- Wash hands with non-antimicrobial soap and water or with antimicrobial soap and water if exposure to *Bacillus anthracis* is suspected or proven. The physical action of washing and rinsing hands under such circumstances is recommended because alcohols, chlorhexidine, iodophors, and other antiseptic agents have poor activity against spores.
- No recommendations were made regarding the routine use of nonalcohol-based hand rubs for hand hygiene in dental care settings; this remains an unresolved issue.

**Hand-hygiene technique** recommendations of the guidelines include (CDC, 2002):

- When decontaminating hands with an alcohol-based hand rub, apply product to palm of one hand and rub hands together, covering all surfaces of hands and fingers, until hands are dry. Follow the manufacturer's recommendations regarding the volume of product to use.
- When washing hands with soap and water, wet hands first with water, apply an amount of product recommended by the manufacturer to hands, and rub hands together vigorously for at least 15 seconds, covering all surfaces of the hands and fingers. Rinse hands with water and dry thoroughly with a disposable towel. Use towel to turn off the faucet. Avoid using hot water, because repeated exposure to hot water may increase the risk of dermatitis.
- Liquid, bar, leaflet or powdered forms of plain soap are acceptable when washing hands with a non-antimicrobial soap and water. When bar soap is used, soap racks that facilitate drainage and small bars of soap should be used.
- Multiple-use cloth towels of the hanging or roll type are not recommended for use in healthcare settings.

Recommendations for **other aspects of hand hygiene** in the Guidelines include (CDC, 2002):

- Do not wear artificial fingernails or extenders when having direct contact with patients at high risk (e.g., those in intensive-care units or operating rooms).
- Keep natural nails tips less than 1/4-inch long.
- Wear gloves when contact with blood or other potentially infectious materials, mucous membranes, and nonintact skin could occur.
- Remove gloves after caring for a patient. Do not wear the same pair of gloves for the care of more than one patient, and do not wash gloves between uses with different patients.
- Change gloves during patient care if moving from a contaminated body site to a clean body site.
- No recommendations were made regarding wearing rings in dental care settings; this remains an unresolved issue.

**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 or office, 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) 447-6349 or <http://www.metrokc.gov/health/locations/index.htm>.

**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 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.

All required tags must have the following:

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

**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 dental workers or dental workers 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 dental workers 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.

#### Bloodborne Pathogen Transmission in Water or Sewage

HIV, HBV and HCV are not transmitted by water. Any bloodborne pathogen introduced into a water source would be greatly diluted, making it noninfectious. One study found that HIV did survive in wastewater for up to 12 hours. However, the transmissibility of HIV in this situation is profoundly unlikely. There has never been a documented case of HIV transmission due to wastewater exposure.

### Occupational Exposure In Dental Care Settings

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 healthcare workers a year are reported to be infected with HBV following occupational exposure. There are no exact estimates on how many healthcare workers contract HCV from an occupational exposure. 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 Exposure

It is important to follow the protocol of your employer. The CDC recommends that as soon as safely possible, wash the affected area(s).

Wash the wound and surrounding skin with soap and water. Flush mucous membranes with water. Antiseptics are not contraindicated, but do not apply caustic agents (e.g., bleach) or inject antiseptics or disinfectants into the wound.

Application of antiseptics should not be a substitute for washing. It is recommended that any potentially contaminated clothing be removed as soon as possible. It is also recommended that you familiarize yourself with existing protocols and the location of emergency eyewash or showers and other stations within your facility.

### *Mucous Membrane Exposure*

If the 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%.

### *Needlestick Injuries*

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%.

### *Bite or Scratch Wounds*

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, Vomit, or Feces*

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.

A written report must include:

- The date and time of exposure.
- Details of the procedure being performed when the exposure took place. Include where it occurred, what was taking place at the time, what sharp devices were involved, and how the sharp device was being used at the time of the incident.
- Details of the exposure. Include the type of fluid, amount of blood in the fluid, severity of exposure (depth of penetration, estimated volume of material, duration of contact); and the condition of skin or mucosa at the time of contact (e.g., intact, chapped, abraded)
- Details of exposure source. Include HIV status if known, stage of disease, history of antiretroviral therapy, and viral load.
- Details of counseling, postexposure management, and follow-up.

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 dental care workers with substantial exposures since 1996.

As of December 1996, CDC had received reports of 52 documented cases and 111 possible cases of occupationally acquired HIV infection among Health Care Workers in the United States. 90% of these cases were due to direct contact with infected blood.

### **Health-Care Workers with Documented Occupationally Acquired HIV Infection**

Type of occupational exposure	Number
Needlestick or cuts	45
Eye, nose, or mouth, and/or skin	5
Both injury & mucous membrane	1
Unknown	1
<b>TOTAL</b>	<b>52</b>

A national toll-free hotline at (888) 448-4911 is available to help with counseling and treatment recommendations for health care workers with occupational exposure to bloodborne pathogens. The National Clinicians' Post-Exposure Prophylaxis Hot Line (PEpline) is staffed 24 hours a day by trained physicians. The hotline merges the National HIV Telephone Consultation Service and the University of California/San Francisco General Hospital Epidemiology and Prevention Interventions Center Needlestick Hotline.

The CDC released postexposure recommendations in the May 1998 issue of Morbidity and Mortality Weekly Report.

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.

Because of the frequent advances in treatment, doses and medications are not extensively listed here.

There is a brief “window of opportunity” in which an antiretroviral agent may prevent or inhibit viral replication in the target cells or lymph nodes. Human studies and several animal studies have used zidovudine (ZDV) effectively to reduce the risk of HIV infection by up to 81% with proper use. ZDV is not 100% effective.

Some factors believed to contribute to its failure include:

- ZDV resistant strains of HIV,
- High viral titer of HIV or large volume of inoculum,
- Delayed initiation or inadequate duration of postexposure treatment, and
- Host or viral characteristics.

### Antiretroviral Agents for PEP

Several antiretroviral agents are available for HIV disease treatment. ZDV is the only agent currently shown to prevent HIV transmission in humans, so it is the first drug of choice. It is often supplemented with a drug called lamivudine (3TC). This one-two punch is very effective against ZDV resistant strains. Another drug, indinavir, can also be given with the other two in cases where large amounts of blood were transferred. This drug can only be taken safely for a short period of time.

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. Employers must design a system of written protocols for reporting, evaluation, counseling, treatment, and follow-up after any occupational injury that may have exposed the worker to a bloodborne infection. Access to postexposure care must be available to the workers during all working hours to facilitate a timely administration of PEP. Workers must know the system and how to implement it in advance, so they can act as soon as possible after the exposure.

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 *Updated US Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV* (2001) available at <http://www.cdc.gov/mmwr/PDF/rr/rr5011.pdf>.

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.

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

If a healthcare professional determines that you have sustained an exposure, which puts you at risk, you will be offered antibody testing for HIV, HBV and HCV, and HBV vaccine if needed. The HIV test does not show presence of HIV, rather it looks for antibodies (your body's reaction to HIV). It usually takes your body between two weeks and three months to produce antibodies to HIV. The initial test serves as a **baseline**; it will show whether you were infected with HIV before the exposure. You will need to retest in order to make sure you have not been infected. 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. You should also discuss the need for a Hepatitis B titer test (if you have been vaccinated for HBV), tests for elevated liver enzymes and other available testing for other bloodborne pathogens.

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

If you experience an occupational substantial exposure to another person's blood or OPIM, you can request HIV testing of the source individual through your employer or local health officer. Before the health officer will issue a health order for HIV testing of the source individual, s/he will first make the determination of whether a substantial exposure occurred, and if the exposure occurred on the job. Depending on the type of exposure and risks involved, the health officer may make the determination that source testing is unnecessary.

In the case of occupationally exposed healthcare workers, if the employer is unable to obtain permission of the source individual, the employer may request assistance from the local health officer provided the request is made within 7 days of the occurrence.

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 in certain circumstances, with discontinuation of treatment based upon the source's test results.

#### Non-occupational Exposure to HIV

PEP for occupational exposure is standard, and its effectiveness has been documented. PEP for sexual exposure (assault or consenting) or for needle-sharing is not standard medical practice in many communities.

Good places to start PEP include your local emergency room.

If your healthcare provider has questions, s/he can call PEPLine, the University of California at San Francisco's hotline for clinicians - 1-888-HIV-4911. This is NOT a hotline for answering basic questions about HIV.

PEP should never be used for primary prevention of HIV. Unlike emergency contraception to prevent pregnancy, there are no good studies to show that PEP works for post-sexual exposure. It is a complicated combination of medicines that sometimes have serious side effects. Advice for counseling and PEP related to sexual assault is found in the Counseling and Testing section of this course.

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## Part 3. Testing and Counseling

### HIV Testing

HIV antibody testing has been available since 1985. 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 not realize that they are infected with HIV until they present with symptoms of infection. Also, it is important for people to realize that a negative HIV test is not a safeguard if they engage in behaviors that put them at risk for HIV.

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. Currently, they include blood, urine, rapid, oral mucosal transudate and home HIV antibody tests. At this time, these all utilize the ELISA test method.

### The ELISA (EIA) Test

The first screening test done on a blood sample is called the **enzyme linked immunosorbent assay** (ELISA, also called EIA). This test screens for the presence of antibodies to HIV. There is a small chance that the ELISA **may** also detect proteins related to other autoimmune diseases. The CDC recommends against telling a person s/he is HIV-positive based **only** on ELISA test results.

### HIV Western Blot Assay

If a person has two reactive (positive) ELISA tests on the same blood sample, a confirmatory test, such as the Western Blot test is done to confirm 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.

### Urine HIV Test

A urine-based test for HIV antibodies is available for use only in the out-patient offices of healthcare providers or medical clinics at this time. 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.

A positive urine HIV screening test must be confirmed with a Western Blot test, which can be done on the same specimen.

### Oral Fluid HIV Test

This test detects HIV antibodies in the mucous membrane of the mouth, called oral mucosal transudate. It is important to note that, even though antibodies to HIV can be found in saliva and oral fluids, these are **not** considered a risk for transmitting the virus. The test kit uses a special collection device that looks like a toothbrush. No needles are necessary.

Recently, a new (2005) oral fluid HIV test has been developed and is gaining popularity due to its ease of use, accuracy and quick results. The findings can often be determined in less than 20 minutes. Only one such test is currently FDA approved (OraQuick Advance by OraSure Technologies).

This new development begs the question as to whether it is appropriate for these tests to be administered in a dental office setting. This question was discussed in the September, 2005 issue of JADA. Administering an oral fluid HIV test would be a good service for patients. However, there are many things to consider when providing such a service. Specialized training would be required in order to understand the full spectrum of the undertaking. Oftentimes, counseling is necessary following an HIV test regardless of what the outcome is. Someone in the dental office should be available to sit down with the patient and explain what his or her test results mean. This can often prove a complicated task for an under trained dental employee. However, if a dental care provider would take the time to acquire the necessary skills, the oral HIV test would be a great service to patients in the dental office.

Any person testing positive with this test must have a Western blot test to confirm the results. The confirmatory test can be done on the same specimen.

#### Rapid HIV Test

Guidelines for rapid HIV testing were changed in October, 2005 (see [http://www.doh.wa.gov/cfh/HIV\\_AIDS/Prev\\_Edu/rap\\_test\\_05.htm](http://www.doh.wa.gov/cfh/HIV_AIDS/Prev_Edu/rap_test_05.htm)) for specific details. The HIV rapid testing can be done using oral fluid specimens or through fingerstick using whole blood. Any positive rapid test must be confirmed with a conventional Western Blot test.

The rapid test has been recommended for use on source patients in healthcare worker occupational exposures, so that the healthcare worker can make an informed decision regarding post-exposure treatment. The test is expensive and at this time is not generally available at public testing sites.

#### Home HIV Test Kits

Currently, the only licensed and FDA-approved test kit for home HIV antibody testing is manufactured by Home Access®. The test kit is sold in pharmacies, or may be ordered through a toll free number from Home Access®. The test requires a few drops of blood, which is mailed to the company in a safe mailer.

A confirmatory Western Blot test can be done on the same sample. The person 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 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 **HIV RNA or proviral DNA** test are blood tests may be run for 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.

### **How and Where to Get Tested for HIV**

Anyone who has put themselves at risk through anal, vaginal or oral sex, shared needles, or who has had an occupational exposure may benefit from HIV testing. Many people may have partners who have risk factors, and these people (along with their partners) should consider testing.

Occupational exposure, testing and treatment have been covered in an earlier section of this course.

People may test for HIV at home, at public health departments, through their medical provider, family planning or sexually transmitted disease clinics, and in some cases at community clinics.

### Confidential HIV Testing

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.

Positive HIV tests are reportable to local public health officials. The Legal section of this course further addresses HIV reporting.

### Anonymous HIV Testing

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. Anonymous tests may also be available through Planned Parenthood or other healthcare clinics.

### Informed Consent Required

HIV testing can only be done with the person's specific consent. There are some rare exceptions, including source testing relating to occupation exposures and legally-mandated situations in some states. See the Legal section of this course for more information on mandatory testing.

### 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. Newer, more sensitive HIV tests have reduced the window period to 2-12 weeks. The CDC still advises individuals that the window period could last as long as six months. Standard advice for those considering HIV testing is to test three to six months after the last potential HIV exposure.

If you test before antibodies develop, you may need to be retested. Individuals who are testing because of occupational exposure may be told to test 12 months post-exposure.

People who are newly infected with HIV may have a large amount of virus in their blood. They are considered highly infectious for HIV. This means that an infected person may initially test negative for HIV antibodies but be more likely to be able to infect another person.

### Negative Test 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 to six months from the date of last possible exposure, and practice safer behaviors until s/he gets the result of the next test, as well as

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

### Positive Test Results

If the test result is reactive (positive), it shows the presence of HIV antibodies.

A positive test result means that:

- A person is infected with HIV;
- This person 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.

Indeterminate test results can also be caused by several factors, including but not limited to pregnancy, autoimmune diseases, blood transfusions, recent influenza vaccinations, or organ transplants.

Persons who receive indeterminate HIV test results should retest in one, three and six months, depending on their particular risk. Retesting is recommended even if HIV infection is extremely unlikely.

Studies have shown that only around 20% of people with indeterminate tests go on to become "truly" positive. There are people who may remain indeterminate throughout their lives - these cases are **extremely** rare.

### Advantages of Early Testing for HIV Infection

The new drug therapies for HIV infection can sustain an infected person's health. Even if the HIV-positive person chooses not to start antiretroviral therapy, early detection of HIV will allow a person 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.

### **Counseling and Testing**

HIV counseling means counseling that is directed toward:

- Increasing the individual's understanding of HIV and AIDS;
- Assessing the individual's risk of acquiring and transmitting HIV;
- Motivating and negotiating with the individual about behavior changes to reduce their risk of acquiring and/or transmitting HIV infection;
- Skills building (refusal and negotiation skills, how to use a condom, how to clean syringes, etc.); and
- Explaining the nature of the HIV test, including the possible need to retest.

## Pre-test Counseling

During a pre-test counseling session, the following is usually required to be provided during pretest counseling:

- That anonymous testing is available and where to find it.
- The nature, purpose, value and reason for the HIV test.
- The possible effects of HIV testing and a positive HIV result related to employment, insurance, housing and other potential legal, social and personal consequences.
- For persons at high risk for HIV infection:
  - Personalized risk reduction education including abstinence from sex or drugs, mutual monogamy, use of condoms consistently and correctly, cleaning works or using a syringe exchange.
  - The need to notify sex and/or needle sharing partners (including spouses), if the test is positive.
  - Not to donate blood or blood products.
  - The possible need to re-test.

Persons providing counseling are also to provide a non-judgmental environment; develop and maintain a system for referrals; obtain informed consent for testing; and maintain disclosure confidentiality.





Pretest counseling can be a time when patients learn about their personal risk of HIV and obtain skills-building (partner negotiation skills, correct condom or cleaning of injection drugs) to assist in their behavior change.




## Post-test Counseling

It is additional counseling following testing which will increase the individual's understanding of HIV infection, change the individual's behavior and, if necessary, encourage the individual to notify people with whom there has been contact capable of spreading HIV.

People providing post-test counseling must provide **at least one** individual counseling session at the time HIV results are disclosed for individuals testing positive for HIV or report behaviors that are at high risk for HIV transmission.

Each of the videos shown in the following tables can be found by linking to <http://phil.cdc.gov/phil/quicksearch.asp>, typing **HIV** in the *Selected Keywords* box, choosing **VIDEOS ONLY** from the dropdown list, and clicking the **[SEARCH]** button. Click a thumbnail image to view more information and watch the video.

<u>Video</u>	<u>Description</u>
	<p><b>Partner Counseling and Referral Services for HIV Prevention (video)</b></p> <p>This live broadcast and web cast will provide information regarding the goals, purpose and context of HIV Partner Counseling and Referral Services (PCRS) as well as the process, techniques and skills for delivering PCRS. The forum includes interviews at public health organizations. A panel of experts will answer viewers' questions, which can be sent via fax during the broadcast or by e-mail after the broadcast.</p> <p>This broadcast is designed for health departments, community-based organizations, AIDS services organizations, public and private providers who care for persons living with HIV/AIDS (PLWHA), HIV prevention counseling and testing providers, HIV case managers, and healthcare organizations that provide services for PLWHA.</p>
	<p><b>Rapid Testing: Advances for HIV Prevention (video)</b></p> <p>This live broadcast and web cast will provide information regarding the availability and administration of rapid tests for HIV; implementation considerations such as providing counseling, testing women in labor, obtaining CLIA certification, establishing a quality assurance program and training health care providers. The forum highlights several public and private organizations, including clinical settings. A panel of experts will address questions faxed in from viewers before, during and after the broadcast. This broadcast is designed for community organizations, including AIDS services organizations; public and private laboratories that administer rapid testing for HIV; public health settings; hospital departments such as emergency rooms and labor and delivery units; and health care centers.</p>
	<p><b>Prevention with Positives: HIV Risk Reduction Strategies for Health Care Providers (video)</b></p> <p>Viewers of this webcast will be exposed to discussion of evidence-based behavioral interventions and ongoing research in community-based organizations and clinical settings for HIV prevention with persons living with HIV.</p>
	<p><b>Incorporating HIV Prevention into the Medical Care of Persons Living with HIV (video)</b></p> <p>This webcast describes the role of physicians, and other health care providers in caring for HIV-positive patients. The topics covered include seniors, community intervention centers, prevention resources, and CDC activities.</p>

<u>Video</u>	<u>Description</u>
	<p><b><i>Update on Rapid Testing for HIV (video)</i></b></p> <p>This live broadcast and webcast will describe rapid tests for HIV including benefits and limitations, implementation considerations for counseling and testing, confirmatory testing for positive test results, quality assurance, training, and resources for updates on rapid testing. The broadcast will feature interviews from experts from around the country in health departments and community-based organizations. And a panel of experts will address questions faxed in from viewers. Viewers can fax questions and comments before, during and after the broadcast.</p>
	<p><b><i>Revised Recommendations for HIV Screening of Pregnant Women (video)</i></b></p> <p>By the conclusion of the broadcast, you should expect to be able to <b>1</b>, describe key points in "Revised Recommendations for HIV Screening of Pregnant Women", <b>2</b>, identify major revisions from CDC's previous recommendations on preventing perinatal transmission of HIV, <b>3</b>, identify special populations at high risk for perinatal transmission of HIV, and who may be less likely to receive antenatal testing (for example, adolescents, women who have been incarcerated, and rural populations), <b>4</b>, discuss strategies to bridge gaps and barriers in prevention services for pregnant women including in obstetrical practices, <b>5</b>, discuss consumer or client recommendations for implementing the recommendations, and <b>6</b>, identify resources for preventing perinatal transmission of HIV.</p>
	<p><b><i>Public-Private Partnerships: A New Model for Community Mobilization against AIDS (video)</i></b></p> <p>This broadcast will include the following topics: legal issues associated in the management of public-private partnerships, the North Carolina Regional Consortium, the Minnesota AIDS Project, the National AIDS fund, the AIDS Act Now project, Fox HIV/AIDS Programs, the Coalition of Labor Union Women, the CDC Business &amp; Labor Resource Service, and the Society for Human Resource Management (SHRM).</p>

Positive HIV test results must be reported confidentially to the state or local health officer, unless the individual has tested anonymously. People testing positive should be reminded about this reporting requirement.

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.

## Case Study #6

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 had not 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.

### Confidentiality of HIV Testing

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. More information on confidentiality requirements can be found in the Legal section of this course.

### Advice for Victims of Sexual Assault

There are likely to be between 172,400 - 683,000 females raped each year in the U.S. Men can also be victims of sexual assault, but data and reporting are limited. Based on existing crime report data, an estimated 40% of female rape victims are under age 18; most sexual assault victims know their assailant. Apart from the emotional and physical trauma that accompanies sexual assault, there are other considerations. Many victims do not report their attack to the police.

According to CDC, the odds of HIV infection from a sexual assault in the U.S. are 2 in 1,000. 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.

The victim needs to consider whether to start post-exposure prophylaxis (PEP) independently of the source's test result, because the time between the attack and the conviction will likely be longer than the 24-48 hours recommended to start PEP.

#### Partner Notification

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.

It is a federal and state law that a good faith attempt be made to notify the spouse of an HIV infected individual. Spouse is defined as the person(s) in a marriage relationship with the infected person up to 10 years prior to the test.

## Part 4. Clinical Manifestations and Treatment

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### Oral Signs of HIV Infection

Oral lesions are significant features of HIV and AIDS infections and, in fact, are often the first physical manifestation of the disease. As clinicians, it is our responsibility to be able to recognize and identify those lesions associated with HIV infection. The presence or absence of certain lesions can often act as predictors to the overall progression of the disease in a diagnosed patient. However, it is important to note that the presence of oral lesions alone should not be used to diagnose HIV but should prompt the clinician to encourage further testing.

### Fungal Infections

The most common oral lesion associated with HIV infection is candidiasis, predominately attributed to *Candida albicans*. *Candida* is a normal oral flora found in almost 50% of the mouths in healthy adults. However, in an immunocompromised patient, it is able to thrive and becomes readily apparent upon examination. Oral candidiasis can be found in over a quarter of patients with HIV disease and over 90% of patients with AIDS. Clinically, it can have one of four different appearances: erythematous or atrophic candidiasis, pseudomembranous candidiasis, hyperplastic or chronic candidiasis, and angular cheilitis. In the case of pseudomembranous candidiasis, the infection is superficial and can be removed by scraping with a wooden tongue blade. Treatment with oral nystatin suspension, clotrimazole troches, or a 0.12% chlorhexidine gluconate mouth rinse is generally effective. Treatment will differ depending on how the candida presents itself in the mouth. Some forms are more invasive and require systemic treatment. Table 1 gives the complete treatment protocol. Recurrences are common and ultimately may require treatment with ketoconazole and fluconazole.



**Pseudomembranous candidiasis**



**Pseudomembranous candidiasis**



**Hyperplastic candidiasis**

<b>Drug</b>	<b>Route</b>	<b>Indication</b>	<b>Dose</b>
nystatin suspension	topical	erythematous and pseudomembranous	500,000 U/5 cc, 1 tsp rinse and swallow 4x/day
clotrimazole troche	topical	erythematous and pseudomembranous	10 mg troche, 1 troche 5x/day
chlorhexidine 0.12%	topical	erythematous and pseudomembranous	1 tsp rinse and spit 3x/day
ketoconazole and fluconazole	systemic, oral	all types	100 - 200 mg tab, 2 stat, 1 tab/day
ketoconazole 2% cream	topical	angular cheilitis	apply 4xday

Treatment protocol for fungal infections in HIV patients

*Viral Infections*

Many of the viral infections found in the oral cavity of HIV infected individuals develop early in the illness and, if left untreated, can persist for the duration of the illness. Herpesvirus causes most of the viral infections in these patients with the main culprits being herpes simplex (HSV) and Epstein-Barr (EBV) viral infections. Less common viral infections in the oral cavity include cytomegalovirus(CMV), human papilloma virus(HPV) and varicella-zoster virus (VZV).

Herpes simplex virus appears intraorally as multiple, small ulcerations that form in a cluster. These lesions may be painful in the early stages but should resolve within 10 days in an otherwise healthy patient. In HIV infected patients, these lesions may take upwards of 1 month to resolve. Likewise, in HIV infected individuals, the lesions are often found in poorly keratinized areas of the oral cavity such as buccal and labial mucosa. These sites are rarely infected in healthy individuals. Most cases are treated with 2g/day systemic acyclovir.



**Herpes labialis (early stage inf.)**



**Herpes labialis (late stage inf.)**

Epstein-Barr viral infections produce a lesion known as Oral Hairy Leukoplakia. This lesion was once thought to be pathognomonic for HIV infection but that belief has recently been reassessed after OHL lesions were found in patients with other immunosuppressive diseases. These lesions appear as a white, corrugated, non-wipable patch that typically appears on the lateral border of the tongue. Candida infections may be superimposed over the OHL making it painful for the patient and difficult to diagnose. Otherwise, the lesion is asymptomatic and requires no treatment other than for the sake of cosmetics.



Human papilloma virus, also known as an oral wart, forms a hyperplastic connective tissue lesion. More than 50 strains of HPV exist. The treatment of choice is surgical excision.



**Papilloma**

Cytomegalovirus, or CMV, causes a singular, deep ulceration most often involving the buccal mucosa. This lesion is clinically indistinguishable from other ulcer-like lesions. However, it is important to recognize the possibility that a lesion of this type is caused by CMV due to the serious nature of its sequelae. These include retinitis and meningitis, which are seen in a vast majority of postmortem AIDS patients. CMV has increased pathogenicity in immunosuppressed people and, similar to other herpes viruses, has immunosuppressive characteristics. In order to make a definitive diagnosis, a biopsy and histological exam are required.

#### *Bacterial Infections*

Necrotizing ulcerative periodontitis (NUP) is a very aggressive form of gum disease characterized by rapid destruction of the bone, generalized bone pain, spontaneous bleeding and overall significant attachment loss. This condition has been linked to microorganisms frequently associated with periodontal disease such as the *Treponema* and *Selenomonas* species, *Fusobacterium nucleatum*, *Prevotella intermedia*, and *Porphyromonas gingivalis*. The aggressive nature of this disease is attributed to the immunosuppressed state of the patient, which is why it is commonly seen in individuals with AIDS. In fact, 95% of patients with NUP have a CD4 lymphocyte count of less than 200/mm<sup>3</sup>. Typical treatment consists of perio debridement with adjunctive antibiotic therapy and twice daily chlorhexidine gluconate 0.12% rinses.



**Neoplasms**

Kaposi sarcoma is the most common neoplasm in AIDS infected individuals. It is characterized by a flat, plaque phase that progresses into a multicolored, raised tumor. The most common intraoral site is the palate (both soft and hard) but the lesion has also been seen on the facial

gingiva. Lesions may also occur outside of the mouth, generally on the skin of the lower extremities. KS is far more common in homosexual and bisexual AIDS patients due to the presence of a certain type of human herpes virus (HHV8). This virus is thought to be an important cofactor in the incidence of KS. Diagnosis of KS requires a histologic examination and currently there is no cure.



**KS (early stage lesion)**



**KS (late stage lesion)**

### **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 as sometimes called the "natural history" of infection 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 infection progresses as described below.

A **cofactor** is a separate condition that can change or "speed up" the course of infection. 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 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

This 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.

### Primary HIV Infection

During 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 (also common with many other types of 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.

### Seroconversion

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. As discussed previously in the Testing and Counseling section of this course, 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

During this 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.

### Symptomatic HIV Infection

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

Anyone who has symptoms like these and has engaged in behaviors that transmit HIV should seek medical advice. The only way to know for sure if you are infected with HIV is to take an HIV antibody test.

### AIDS

An AIDS diagnosis can only be made by a licensed healthcare provider. The diagnosis is based on the result of HIV-specific blood tests, and the person's physical condition. A diagnosis of AIDS is made because the person has an illness, one of the "AIDS-defining illnesses, and has white blood cell counts and other conditions that are specifically linked to making an AIDS diagnosis. Once a person is diagnosed with AIDS, even if they later feel better, they do not "go backwards" in the classification system for HIV infection. This means that they are always considered to have AIDS.

People who have an AIDS diagnosis may often appear to a casual observer to be quite healthy, but continue to be infectious and can pass the virus to others.

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.

#### *The 1993 Revised 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. In 1993, the CDC revised the definition of AIDS to include

more conditions and a variety of CD4-cell counts. 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.

### *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
- 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
- Nocardiosis
- Pneumocystis carinii pneumonia
- Pneumonia, recurrent-bacterial (2 episodes in 12 months)
- Progressive multifocal leukoencephalopathy
- Salmonella septicemia (non-typhoid), recurrent
- Strongyloidiasis, extraintestinal
- Toxoplasmosis of internal organs

### *The Difference Between Clinical Manifestations and Opportunistic Infections*

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. For example: the opportunistic infection cytomegalovirus often causes the clinical manifestation of blindness in people with AIDS.

### **How HIV Works in the Body**

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 invasive cervical cancer, obviously a condition found only in women. Since 1993, researchers have reported further differences in the way that HIV affects men, women and children.

HIV infection seems to affect many body systems. It is well known that HIV infection causes a gradual, pronounced decline in the immune system's functioning. People with HIV are at risk for a wide variety of illnesses both common and exotic.

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

### **HIV in Children**

Children show significant differences in their HIV infection progression and their virologic and immunologic responses, compared to adults. Without drug treatment, children may have developmental delay, pneumocystis carinii pneumonia, failure to thrive, recurrent bacterial infections and other conditions related to HIV.



**Photograph by Lloyd Wolf for the U.S. Census Bureau, Public Information Office**

The antiretroviral treatments that are available for HIV infection may not be available in pediatric formulations. The medications may have different side effects in children than they do in adults.



**Courtesy of the National Institutes of Health.**

It is vital that women know their HIV status before or during pregnancy. Antiretroviral treatment significantly reduces the chance that their child will become infected with HIV. Prior to the development of antiretroviral therapies, most HIV-infected children were very sick by seven years of age. In 1994, scientists discovered that a short treatment course of the medication AZT for pregnant women dramatically reduced the number, and rate, of children who became infected perinatally. C-sections for delivery in certain cases may be warranted to reduce HIV transmission. As a result, perinatal HIV infections have substantially declined in the developed world.

Early diagnosis of HIV infection in newborns is now possible. Antiretroviral therapy for infants is now the standard of care, and should be started as soon as the child is determined by testing to be HIV-infected. Current recommendations are to treat apparently uninfected children who are born to mothers who are HIV-positive with antiretroviral medicines for six weeks, to reduce any possibility of HIV transmission.

### **HIV in Women**

Certain strains of HIV may infect women more easily. The strain of HIV present in Thailand seems to transmit more easily to women through sexual intercourse.

Researchers believe that women and receptive partners are more easily infected with HIV, compared to the insertive partner. Receptive partners are at greater risk for transmission of any sexually transmitted disease, including HIV.



Courtesy of the National Institutes of Health.

Women infected with HIV are at increased risk for a number of gynecological problems, including pelvic inflammatory disease, abscesses of the fallopian tubes and ovaries, and recurrent yeast infections. Some studies have found that HIV-infected women have a higher prevalence of infection with the human papilloma virus (HPV). Cervical dysplasia is a precancerous condition of the cervix caused by certain strains of HPV. Cervical dysplasia in HIV-infected women often becomes more aggressive as the woman's immune system declines. This may lead to invasive cervical carcinoma, which is an AIDS-indicator condition. It is important for women with HIV to have more frequent Pap tests.

Several studies have shown that women with HIV in the U.S. receive less healthcare services and HIV medications, compared to men. This may be because women are not diagnosed or tested as frequently as men.

### **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 researchers 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.

## Case Study #7

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.

### The Impact of New Drug Therapies on HIV Clinical Progression

Before 1996, there were three medications that were available to treat HIV. These drugs were used singly and were of limited benefit. Researchers in 1996 discovered that taking combinations of these medications with new medications called protease inhibitors dramatically reduced the amount of HIV, or "viral load," in the bloodstream of a person infected with HIV. Two or three different medications are used in combination. Each one targets a separate part of the virus and its replication.

The reduction of deaths from AIDS in the United States has been primarily attributed to this combination therapy, called **highly active antiretroviral therapy (HAART)**.

The categories of HAART include:

- Protease Inhibitors
- Nucleoside/Nucleotide Reverse Transcriptase Inhibitors
- Non-nucleoside Reverse Transcriptase Inhibitors
- Entry Inhibitors/Fusion Inhibitors

Because medications for HIV treatment are updated regularly, please consult those organizations that list current medications used in the treatments for HIV/AIDS. One such website is: <http://www.aidsmeds.com/lessons/DrugChart.htm>. Access to HAART, adherence to the medical regimen, and response to HAART 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 some states. 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.

### Case Management

People living with HIV often seek the assistance of a case manager who can help explain the different types of services available.

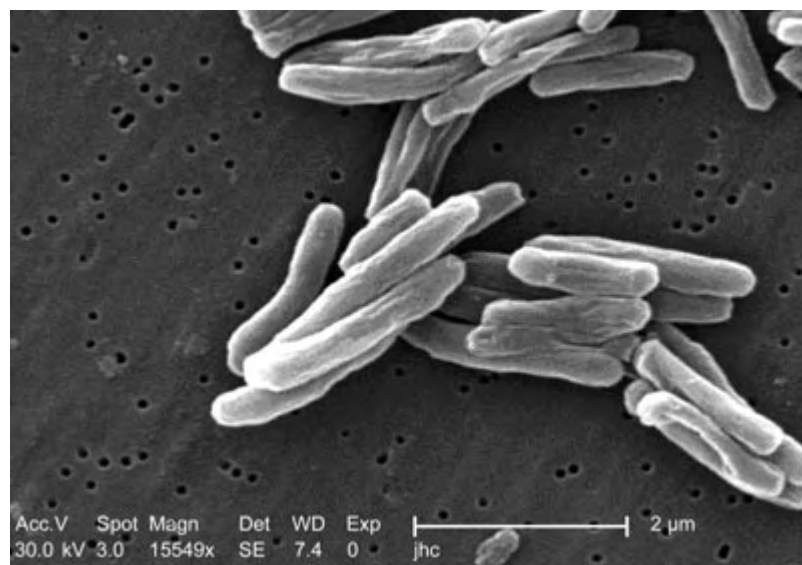
Children with HIV may also benefit from the "Children with Special Health Care Needs" program. Care coordinators for this program are located at every county health department/district.

### **Tuberculosis, Other Sexually Transmitted Diseases and Hepatitis B and C**

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.

#### 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 cause 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 goes 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 healthcare 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.

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.

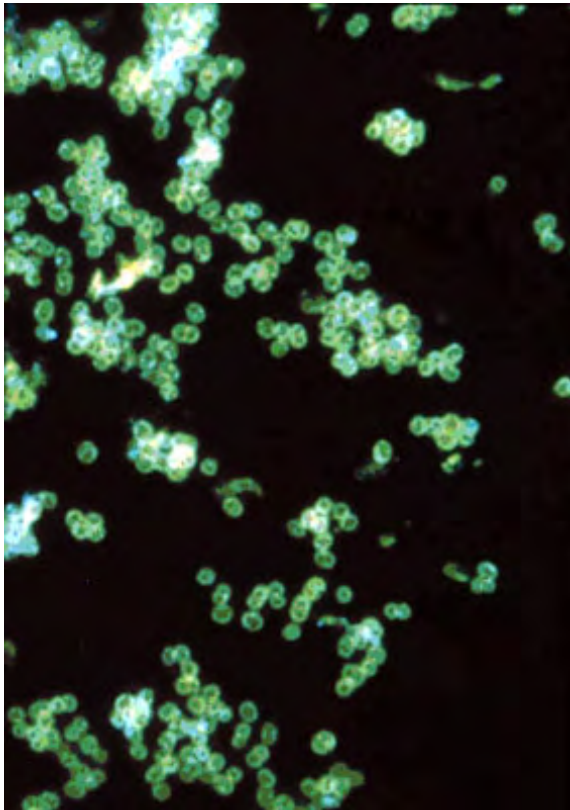
Pulmonary TB and extrapulmonary TB are among the conditions included in the 1993 AIDS surveillance case definition. Any HIV-infected person with a diagnosis of TB disease should be reported as having TB and AIDS.

For more information on TB, contact:

- The communicable disease staff in each county health department/district
- The Centers for Disease Control and Prevention, Division of TB Elimination website at <http://www.cdc.gov/nchstp/tb>.

### 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 healthcare 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.

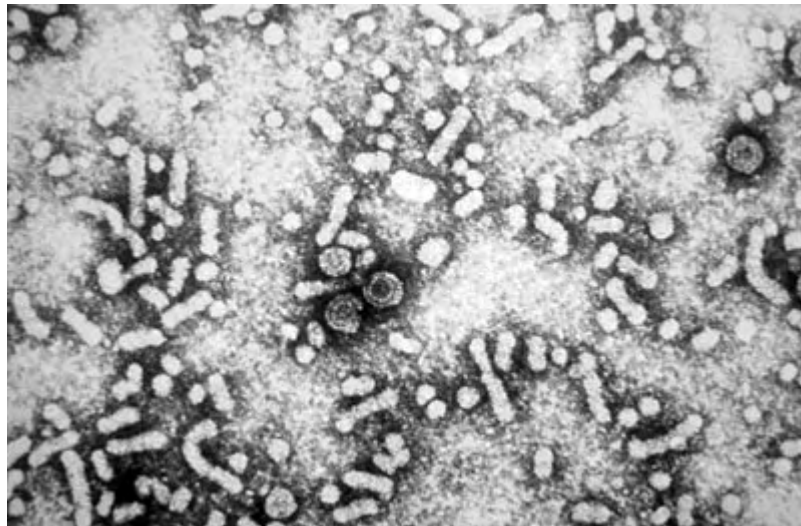
STD treatment is based on lab work and clinical diagnosis. Treatments vary with each disease or syndrome. Because of developing resistance to medications for some STDs, check the latest CDC treatment guidelines.

### 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 healthcare 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 starting on page 15)
- 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 is 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.

Sexual transmission of HCV accounts for 10 - 20% of new infections, but is unusual. 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.

In 1999, the Food & Drug Administration approved the first home test for HCV. The test kit, called "Hepatitis C Check" is available from the Home Access Health Company. The test is accurate if it has been at least six months since the possible exposure to HCV.

#### 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.

**Table 1. A Comparison Chart of HIV, HBV, and HCV:**

<b>Transmission by:</b>	<b>HIV</b>	<b>HBV</b>	<b>HCV</b>
Blood	Yes	Yes	Yes
Semen	Yes	Yes	Rarely (more likely if blood present)
Vaginal fluid	Yes	Yes	Rarely (more likely if blood present)
Breast milk	Yes	No (but may be transmitted if blood is present)	No (but may be transmitted if blood is present)
Saliva	No	Maybe	No
Target in the body	Immune System	Liver	Liver
Risk of infection after needlestick exposure to infected blood	0.5%	5 - 30%	2 - 3%
Vaccine available?	No	Yes	No

**For more information on Hepatitis B or C:** Go to the CDC hepatitis website, at <http://www.cdc.gov/hepatitis/>  
 Or call the Hepatitis Hotline, at 1-888-4HEPCDC (1-888-443-7232).  
 The American Liver Foundation's website is: <http://www.liverfoundation.org/>  
 Immunization Action Coalition: <http://www.immunize.org>

## Part 5. Ethical and Legal Issues

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### **Introduction**

An ADA document concerning legal and ethical considerations regarding HIV is included as an appendix (p. 104) to this course.

### **Reporting HIV/AIDS**

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.

In the case of AIDS or symptomatic HIV infection, providers who diagnose a person with AIDS must submit a confidential case report to the local health jurisdiction within 3 days. In the case of HIV, providers receiving a confirmed HIV positive diagnosis must report the positive test to the local health jurisdiction, by name, within 3 days. In some local health jurisdictions, the state Department of Health fills this function for local authorities. The local health jurisdiction then has 90 days after the case report is completed to assign a computer-generated code (a combination of letters and numbers) and remove any reference to the individual's name. Partner notification, case management and other services will be offered to the individual.

Positive HIV results obtained through anonymous testing are not reportable. However, once a patient with positive results seeks medical care for conditions related to HIV or AIDS, the provider is required to report the case to the local health departments.

### **Spousal 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 healthcare 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.

### **Confidentiality**

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. Usually, this means that the individual signs a release of information form, but there are exceptions.

The most common circumstances are:

- If there is a separate, signed release of information form
- To another healthcare provider for related on-going medical care
- In a life or death emergency
- To a third party payor (insurance provider)
- In the case of reporting notifiable conditions to the local health jurisdiction or the DOH

Violation of the above-mentioned laws is a misdemeanor and may result in civil liability actions for reckless or intentional disclosure up to \$10,000 or actual damages, whichever is greater. It is the responsibility of the county's health officer to investigate potential breaches of confidentiality of HIV identifying information and report those to the DOH.

Some areas of the medical record have additional confidentiality requirements because disclosure of the information to the wrong person or agency could mean additional harm to the patient. It has been determined that there exists a level of prejudice, fear and discrimination directed at people with these medical conditions. Therefore, there is a balance between civil protection and information access.

### **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 infection may file a complaint with the Office for Civil Rights (OCR) of the U.S. Department of Health and Human Services, **or** the State Human Rights Commission. 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:

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

### **Behaviors Endangering the Public Health**

The local health officer is the physician hired to direct the operations of the local county's health department or health district.

Included in the broad responsibilities of the health officer is the authority to:

- Interview persons infected with an STD;
- Notify sexual or needle-sharing partners of exposure to infection;
- Order persons suspected of being infected to receive examination, testing, counseling or treatment;
- Issue orders to cease and desist from specific conduct that endangers the public health of others.

Court enforcement of these orders can be sought. State law delineates the standards that must be met before action by the health officer may be taken.

For some states, healthcare providers who have knowledge that a specific patient is failing to comply with infection control measures (e.g., acquisition of a new STD, sex without disclosure of HIV status prior to sexual partners, failure to disclose HIV status to needle-sharing partners, or donating or selling HIV-infected blood, etc.) should contact the local public health officer to discuss the circumstances of the case and to determine if the name of the person should be reported for investigation and follow-up.

The health officer or other authorized representative will investigate the case if credible evidence exists that an HIV-infected person is engaging in conduct endangering the public health.

There are also other laws and regulations concerning behaviors endangering and occupational exposures. These may be specific to professions and to the jurisdictions of public health officers. For more specific information, talk with public health officials in your area.

### **Introduction**

Case managers in the HIV/AIDS Programs, which can usually be found by contacting the local health department or health district, are the primary contact people for services. HIV infected, or affected persons can be linked with medical care, insurance programs, volunteer groups, hospice, and other types of care that may be needed during the course of a person, or family's, time of living with HIV.

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.

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 infection, 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 infection. 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 does not 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.

### **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 infection.

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.

There are other issues for people who share a home with, or provide home care for persons with HIV or AIDS. Please refer back to the section on Transmission and Infection Control for more information.

## 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 eyesight 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.

### **Select Populations**

Although HIV infection affects people from all ethnic groups, genders, ages, and income levels, some groups have been significantly affected by the AIDS epidemic. These groups have included men who have sex with men, injecting drug users, people with hemophilia, women and people of Color. The difference with the grief process associated with HIV and AIDS can be the social and emotional issues associated with contracting the infection. The following information details how these different populations may be uniquely affected by the AIDS epidemic.

#### **Men Who Have Sex With Men**

American society still has issues with homosexuality. Grief may not be validated when relationships are considered "unacceptable." An example of this may be the reaction of

churches to those who are living with, or have families living with AIDS. Many congregants report that they do not get the support they need from their church families because of the stigma attached to HIV, AIDS and homosexuality.

Self-esteem issues and psychological issues (including depression, anxiety, diagnosed mental illness and risk-taking behaviors) may also complicate the lives of these men.

Additionally, there are the issues with HIV-negative men who have sex with men. Most of the attention, resources and services are focused on HIV-positive gay men. As with any behavior, change people can become "tired" with safer sex messages, and may make choices that place them at risk. Some may feel that HIV infection is inevitable (although it is not) and purposely engage in unprotected sex.

Men who have sex with both men and women (who do not exclusively self-identify as "gay") face additional challenges. Most of the HIV-prevention activities are more successful at reaching those who identify themselves as "gay." Bisexual men face many of the same challenges as "gay" men but may not have the social and community resources they need.

### Injecting Drug Users

American society also has issues with illegal drug use and the way we view marginalized individuals such as those in poverty and the homeless. Drug users are also stigmatized. People who continue to use injecting drugs, despite warnings and information about risks, may be viewed by some as "deserving" their infection. However, it is important to remember that addiction is an illness and rarely does "just say no" work to stop the addiction; indeed it trivializes the seriousness of addiction.

Harm reduction measures like syringe exchange programs, have been proven to reduce the transmission of blood-borne pathogens like HIV, HBV, and HCV. These programs are controversial because some people believe that providing clean needles and a place to exchange used needles constitutes "approval" of injection drug use.

In addition to poverty, self-esteem issues and psychological issues, including depression, anxiety, diagnosed mental illness and risk-taking behaviors, may also complicate the lives of injection drug users. The desire to stop using illegal drugs and the ability to do so may be very far apart. The reality about inpatient treatment facilities is there are very few spaces available for the demand. Many substance abusers are placed on "waiting lists" when they want treatment, and by the time there is a place for them, the individual may be lost to follow-up.

### People with Hemophilia

Hemophiliacs lack the ability to produce certain blood clotting factors. Before the advent of antihemophilic factor concentrates (products like "factor VIII" and "factor IX," which are clotting material pooled out of donated blood plasma), hemophiliacs could bleed to death. These concentrates allowed hemophiliacs to receive injections of the clotting factors that they lacked, which in turn allowed them to lead relatively normal lives. Unfortunately, because the raw materials for these concentrates came from donated blood, many hemophiliacs were infected with HIV prior to the advent of blood testing.

During the 1980's, prior to routine testing of the blood supply, 90% of severe hemophiliacs contracted HIV and/or HCV through use of these products. There is anger within this community

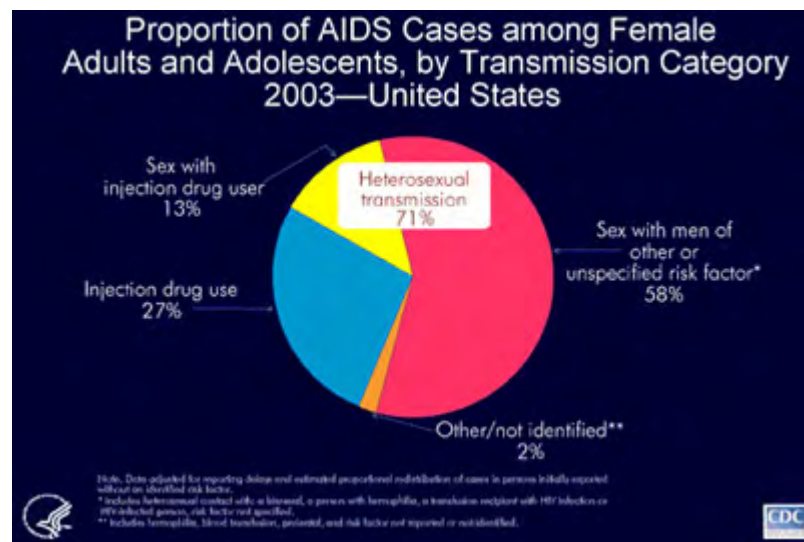
because there is evidence to show that the companies manufacturing the concentrates knew their products might be contaminated, but continued to distribute them anyway.

While some people considered hemophiliacs to be "innocent victims" of HIV, there had been significant discrimination against them. The Ryan White Care Act, funding HIV services, and the Ricky Ray Act, which provides compensation to hemophiliacs infected with HIV, were both named after HIV-positive hemophiliacs who suffered significant discrimination (arson, refusal of admittance to grade school, etc.) in their hometowns.

### Women With HIV

The number of women with HIV (human immunodeficiency virus) infection and AIDS has been increasing steadily worldwide. By the end of 2003, according to the World Health Organization (WHO), 19.2 million women were living with HIV/AIDS worldwide, accounting for approximately 50 percent of the 40 million adults living with HIV/AIDS (NIAID, 2004).

**Table 2. Proportion of AIDS Cases among Female Adults and Adolescents, by Transmission Category 2003—United States (CDC, 2005e)**



CDC estimates that 71% of the 11,498 AIDS cases diagnosed among female adults and adolescents in 2003 can be attributed to heterosexual transmission: 13% of these cases are from heterosexual contact with an injection drug user and 58% from sexual contact with high-risk partners such as bisexual men or HIV-infected men with unidentified risk factors (CDC, 2005e).

Of the cases in female adults and adolescents, 27% were attributed to injection drug use and 2% to other or unidentified risk factors (CDC, 2005e).

Worldwide, more than 90 percent of all adolescent and adult HIV infections have resulted from heterosexual intercourse. Women are particularly vulnerable to heterosexual transmission of HIV due to substantial mucosal exposure to seminal fluids. This biological fact amplifies the risk of HIV transmission when coupled with the high prevalence of non-consensual sex, sex without condom use due to some women's inability to negotiate safer sex practices with their partners, and the unknown and/or high-risk behaviors of their partners (NIAID, 2004).

Younger women are also increasingly being diagnosed with HIV infection, particularly among African-Americans and Hispanics. Through December 2002, women aged 25 and younger accounted for 9.8 percent of the female AIDS cases reported to CDC (NIAID, 2004).

HIV disproportionately affects African-American and Hispanic women. Together they represent less than 25 percent of all U.S. women, yet they account for more than 82 percent of AIDS cases in women (NIAID, 2004).

Women suffer from the same complications of AIDS that afflict men but also suffer gender-specific manifestations of HIV infection, such as recurrent vaginal yeast infections and severe pelvic inflammatory disease, which increase their risk of cervical cancer. Women also exhibit different characteristics from men for many of the same complications of antiretroviral therapy, such as metabolic abnormalities (NIAID, 2004).

Frequently, women with HIV infection have great difficulty accessing healthcare; they may postpone taking medication, or going to their own medical appointments because of the heavy burden of caring for children and other family members who may also be HIV-infected. They often lack social support and face other challenges that may interfere with their ability to adhere to treatment regimens (NIAID, 2004).

Women (and also men) may fear disclosing their HIV status to others, out of fear of losing their jobs, housing, or other forms of discrimination. Single parents with HIV may feel particularly fearful because of their lack of support.

Many women have problems with lack of transportation, lack of health insurance, limited education and low income. They may have child-care problems that prevent them from going to medical appointments.

Many women who have HIV infection do not consider this to be their "worst problem". Their symptoms may be mild and manageable for many years. Meanwhile, they may have more pressing concerns, such as their income, housing, access to medical care, possible abusive relationships, and concerns about their children.

### People of Color

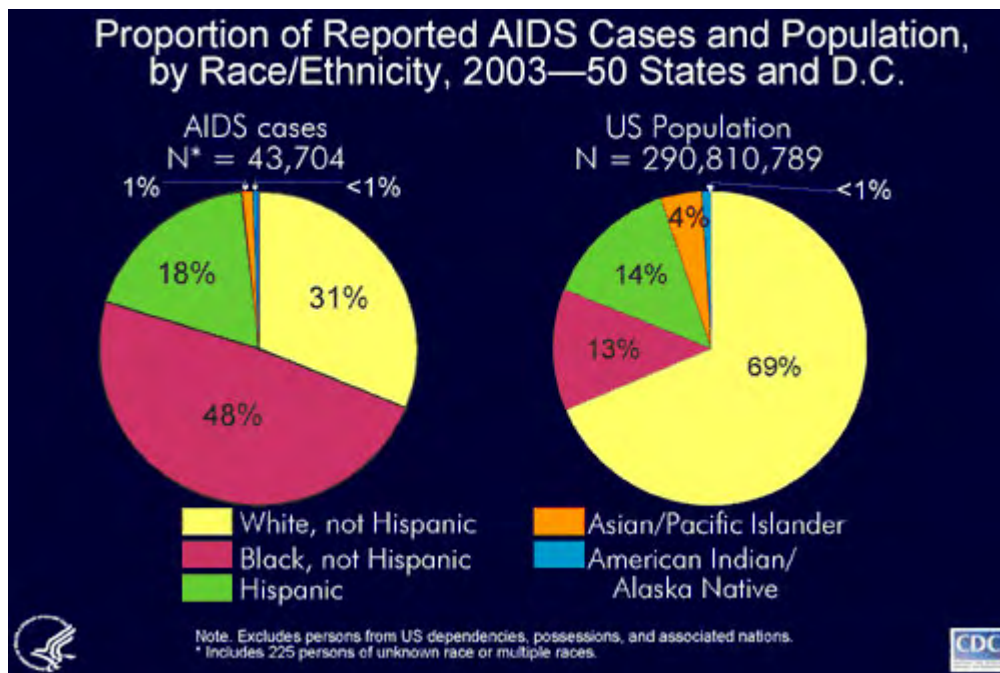
African Americans and Hispanics specifically have disproportionately higher rates of AIDS cases in the U.S., despite the fact that there are no biological reasons for the disparities.

Figure 2. below illustrates the distribution of AIDS cases reported in 2003 among racial/ethnic groups. The pie chart on the right shows the distribution of the US population (excluding US dependencies, possessions and associated nations) in 2003.

Non-Hispanic blacks and Hispanics are disproportionately affected by the AIDS epidemic in comparison with their proportional distribution in the general population. In 2003, non-Hispanic blacks made up 13% of the population but accounted for 48% of reported AIDS cases. Hispanics made up 14% of the population but accounted for 18% of reported AIDS cases.

Non-Hispanic whites made up 69% of the US population but accounted for 31% of reported AIDS cases.

**Table 3. Proportion of Reported AIDS Cases and Population, by Race/Ethnicity, 2003—50 States and D.C. (CDC, 2005b)**



There is not one single reason that stands out as to why the disparities exist. Multiple factors contribute to racial/ethnic health disparities, including socioeconomic factors (e.g., education, employment, and income), lifestyle behaviors (e.g., physical activity and alcohol intake), social environment (e.g., educational and economic opportunities, racial/ethnic discrimination, and neighborhood and work conditions), and access to preventive health-care services (e.g., cancer screening and vaccination) (CDC, 2005c). 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.



Recent immigrants also can be at increased risk for chronic disease and injury, particularly those who lack fluency in English and familiarity with the U.S. healthcare system or who have different cultural attitudes about the use of traditional versus conventional medicine. Approximately 6% of persons who identified themselves as Black or African American in the 2000 census were foreign-born (CDC, 2005c).

**Photograph by Lloyd Wolf for the U.S. Census Bureau, Public Information Office**



For blacks in the United States, health disparities can mean earlier deaths, decreased quality of life, loss of economic opportunities, and perceptions of injustice. For society, these disparities translate into less than optimal productivity, higher health-care costs, and social inequity. By 2050, an estimated 61 million black persons will reside in the United States, amounting to approximately 15% of the total U.S. population (CDC, 2005c).

**Photo by the U.S. Census Bureau, Public Information Office**

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 has been difficult.

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 need to be tailored in ways that are culturally appropriate and relevant. 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 need to work within these diverse communities to let the communities lead the way in prevention the transmission of HIV.

#### HIV and Adolescents/Young Adults

The effects of HIV and AIDS among adolescents and young adults (ages 13 to 24) in the United States continues to be an increasing concern. The CDC reported 38,490 cumulative cases of AIDS among people ages 13 to 24 through 2003. Since the epidemic began, an estimated 10,041 adolescents and young adults with AIDS have died and the proportion diagnosed with AIDS is increasing. Also, the proportion with an AIDS diagnosis among adolescents and young adults has increased from 3.9 percent in 1999 to 4.7 percent in 2003 (NIAID, 2005).

Moreover, African-American and Hispanic adolescents have been disproportionately affected by the HIV/AIDS epidemic. Between the ages of 13 and 19, African-Americans and Hispanics accounted for 66 percent and 21 percent, respectively, of the reported AIDS cases in 2003 (NIAID, 2005).

Because the average duration from HIV infection to the development of AIDS is 10 years, most adults with AIDS were likely infected as adolescents or young adults. In 2003, an estimated 3,897 were diagnosed with HIV/AIDS, while an estimated 13,752 were living with HIV/AIDS. Health experts estimate the number of adolescents and adults living with HIV infection, however, to be much higher (NIAID, 2005).


Most HIV-infected adolescents and young adults are exposed to the virus through sexual intercourse. Recent HIV surveillance data suggest that the majority of HIV-infected adolescent and young adult males are infected through sex with men. Only a small percentage of males appear to be exposed by injection drug use and/or heterosexual contact. The same data also suggest that adolescent and young adult females infected with HIV were exposed through

heterosexual contact, with a very small percentage through injection drug use. In addition, there are an increasing number of children who were infected as infants that are now surviving to adolescence (NIAID, 2005).

**Table 4. AIDS Cases among Male Adolescents and Young Adults by Transmission Category, Cumulative through 2003—United States (CDC, 2005d)**

Transmission category	13-19 years		20-24 years	
	N	%	N	%
Male-to-male sexual contact	1,354	43	14,959	65
Injection drug use (IDU)	278	9	3,023	13
Male-to-male sexual contact and IDU	180	6	2,439	11
Hemophilia	773	25	701	3
Heterosexual contact	253	8	1,721	7
Transfusion recipient	111	3	133	<1
Other/not identified*	187	6	103	<1
<b>Total</b>	<b>3,136</b>	<b>100</b>	<b>23,079</b>	<b>100</b>

Note. Data adjusted for reporting delays and estimated proportional redistribution of cases in persons initially reported without an identified risk factor.  
\* Includes blood transfusion, perinatal, and risk factor not reported or not identified.



Nationally, since the beginning of the epidemic, more than 3,100 adolescent males aged 13 to 19 years and approximately 23,000 young adult males aged 20 to 24 years have been reported with AIDS (CDC, 2005d).

The majority (65%) of males aged 20 to 24 with AIDS had a risk factor of male-to-male sexual contact and an additional 11% were among males who reported risk factors of male-to-male sexual contact and injection drug use (CDC, 2005d).


Approximately 25% of AIDS cases among adolescent males aged 13-19 were among those who had hemophilia and acquired their infection before blood products were heat treated to prevent HIV transmission. In contrast, 3% of AIDS cases among males aged 20-24 were attributed to receipt of blood products for hemophilia (CDC, 2005d).

Injection drug use is more common among the 20 to 24 year old males reported with AIDS than among adolescents with AIDS, but less common than among males over 24 years. Eight percent of AIDS cases among males aged 13 to 19 and 7% of cases among males aged 20-24 years were reported with heterosexual contact as their transmission category (CDC, 2005d).

**Table 5. AIDS Cases among Female Adolescents and Young Adults, by Transmission Category Cumulative through 2003—United States (CDC, 2005d)**

Transmission Category	13-19 years		20-24 years	
	N	%	N	%
Injection drug use	422	18	2,732	28
Heterosexual contact	1,576	66	6,904	70
Other/not Identified*	381	16	260	2
<b>Total</b>	<b>2,379</b>	<b>100</b>	<b>9,896</b>	<b>100</b>

Note. Data adjusted for reporting delays and estimated proportional redistribution of cases in persons initially reported without an identified risk factor.  
\* Includes blood transfusion, perinatal, and risk factor not reported or not identified.



Approximately two-thirds of AIDS cases among adolescent and young adult females were attributed to heterosexual contact as the mode of exposure to HIV. Cases among adolescent females were less likely to be attributed to injection drug use than were cases among young adults (18% vs. 28% of cases) (CDC, 2005d).



**Photo by Lloyd Wolf for the U.S. Census Bureau, Public Information Office**



**Photograph by Heather Schmaedeke for U.S. Census Bureau, Public Information Office**

Approximately 25 percent of cases of sexually transmitted infections (STIs) reported in the United States each year are among teenagers. This is particularly significant because the risk of HIV transmission increases substantially if either partner is infected with an STI. Discharge of pus and mucus as a result of STIs such as gonorrhea or chlamydia infection also increase the risk of HIV transmission three- to five-fold. Likewise, STI-induced ulcers from syphilis or genital herpes increase the risk of HIV transmission nine-fold (NIAID, 2005).

Adolescents and young adults tend to think they are invincible and, therefore, deny any risks. This belief may cause them to engage in risky behavior, delay HIV testing, and if they test positive, delay or refuse treatment. The inability to link them to medical care can lead to increased transmission of HIV. Healthcare providers report that many young people, when they learn they are HIV-positive, take several months to accept their diagnosis and return for treatment (NIAID, 2005).

Healthcare providers may be able to help young people understand their situation during visits by (NIAID, 2005):

- Ensuring confidentiality
- Explaining the information clearly
- Eliciting questions
- Emphasizing the success of newly available treatments

The U.S. Department of Health and Human Services (DHHS) has developed documents that address the standard of care for the treatment of HIV, including information about how to treat HIV in adolescents. The documents *Guidelines for the Use of Antiretroviral Agents in HIV-Infected Adults and Adolescents* and *Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection* are available from [AIDSinfo \(http://aidsinfo.nih.gov/guidelines/\)](http://aidsinfo.nih.gov/guidelines/).

According to the *Guidelines for the Use of Antiretroviral Agents in HIV-Infected Adults and Adolescents*, adolescents exposed to HIV sexually or via injection drug use appear to follow a clinical course that is more similar to HIV infection in adults than in children. Most adolescents with sexually acquired HIV are in a relatively early stage of infection and are ideal candidates for early intervention that includes education and counseling, identifying high-risk behaviors, and recommended therapies and behavioral changes (NIAID, 2005).

Adolescents who were infected at birth or via blood products as young children, however, follow a unique clinical course that may differ from that of other adolescents and adults. Healthcare providers should refer to the treatment guidelines for detailed information about treating HIV-infected adolescents (NIAID, 2005).

#### HIV and Persons Aged 50 and Older

A growing number of older people now have HIV/AIDS. About 19 percent of all people with HIV/AIDS in this country are age 50 and older. Numbers of cases are expected to increase, as people of all ages survive longer due to triple-combination drug therapy and other treatment advances (NIA, 2005; NAHOF, nd).



**Photos Courtesy of Administration on Aging**

But there may even be many more cases than we know about. Why? One reason may be that healthcare providers do not always test older people for HIV/AIDS and so may miss some cases during routine check-ups. Another may be that older people often mistake signs of HIV/AIDS for the aches and pains of normal aging, so they are less likely than younger people to be tested for

the disease. In addition, they may be ashamed or afraid of being tested. People age 50 and older may have the virus for years before being tested. By the time they are diagnosed with HIV/AIDS, the virus may be in the late stages (NIA, 2005).

Older people with HIV/AIDS face a double stigma: ageism and infection with a sexually-or-IV-drug transmitted disease (NAHOF, nd).

The number of HIV/AIDS cases among older people is growing every year because (NIA, 2005):

- Older Americans know less about HIV/AIDS than younger people.
- They do not always know how it spreads or the importance of using condoms, not sharing needles, getting tested for HIV, and talking about it with their doctor or other healthcare provider.
- Healthcare workers and educators often do not talk with middle-age and older people about HIV/AIDS prevention.
- Older people are less likely than younger people to talk about their sex lives or drug use with their doctors or other healthcare providers.
- Doctors and other healthcare providers may not ask older patients about their sex lives or drug use, or talk to them about risky behaviors.

The number of cases of HIV/AIDS for older women has particularly been growing over the past few years. The rise in the number of cases in women of color age 50 and older has been especially steep. Most got the virus from sex with infected partners. Many others got HIV through shared needles (NIA, 2005).

Because women may live longer than men, and because of the high divorce rate, many widowed, divorced, and separated women are dating these days. Like older men, many older women may be at risk because they do not know how HIV/AIDS is spread. Women who no longer worry about getting pregnant may be less likely to use a condom and to practice safe sex. Also, vaginal dryness and thinning often occurs as women age; when that happens, sexual activity can lead to small cuts and tears that raise the risk for HIV/AIDS (NIA, 2005).

## Conclusion

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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, 40,000 people in the US per year continue to be 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.

**Acute (disease)**

Of short duration, usually with an abrupt onset, and sometimes severe, as opposed to long-term (chronic) disease.

**AIDS (Acquired Immunodeficiency Syndrome)**

The most severe manifestation of infection with the human immunodeficiency virus (HIV). AIDS is a medical diagnosis referring to infection with HIV **plus** one or more defining illnesses or conditions and/or laboratory abnormalities.

**AIDS Indicator Conditions**

One or more of a list of illnesses which, in combination with a positive HIV test, indicates progression to AIDS.

**Amniotic Fluid**

The watery fluid that surrounds the unborn child in the uterus.

**Anonymous Testing**

The person who performs the HIV antibody test does not maintain a record of the name of the person they are testing. Positive results of anonymous tests are not reportable to local public health officials.

**Antibody**

Substances that a person's immune system develops to help fight infection, or indicate that the body has been exposed to an antigen.

**Antibody Positive**

The result of a test or series of tests to detect antibodies in blood. An antigen causes the immune system to form antibodies to fight the antigen.

**Antigen**

Substance such as HIV that is foreign to a person's body. An antigen causes the immune system to form antibodies to fight an antigen like HIV.

**Antiviral Drug**

A drug that can interfere with the life cycle of a virus. Also called antiretroviral drugs.

**Asymptomatic**

Having a disease but showing no outward sign of disease. The condition of testing positive for HIV antibodies without showing any HIV Seropositive symptoms of disease. Many people with HIV do not look or feel "sick." A person who is HIV positive, even without symptoms, is capable of transmitting the virus to others.

**AZT (Zidovudine)**

The first FDA-approved drug used to treat AIDS and HIV infection. Also called ZDV.

**Bloodborne**

Any pathogen (like a virus or bacteria) present in blood or other potentially infectious material.

**Bloodborne Pathogens**

Bloodborne pathogen (BBP) standards are enforced by the Department of Labor and Industries. BBP training may be an annual requirement of certain jobs.

**Bodily Fluids**

Fluids produced by the body. In the context of HIV prevention, blood, semen, vaginal secretions and breast milk are considered infectious bodily fluids.

**Carrier**

A person who is apparently healthy, but who is infected with some disease-causing organism (such as HIV or HBV) that can be transmitted to another person.

**CDC**

The Centers for Disease Control and Prevention, a federal health agency which is a branch of the U.S. Department of Health and Human Services. The CDC provides national health and safety guidelines and statistical data on AIDS, sexually transmitted diseases (STDs), hepatitis and other diseases.

**Chronic (disease)**

Lasting a long time, or recurring often.

**Confidential Testing**

The patient gives their real name and the results of the HIV antibody test are known only to that individual and the healthcare provider performing the test. Positive results from confidential tests are now reportable to local public health officials.

**Diagnosis**

Identifying a disease by its signs, symptoms, course, and laboratory findings.

**ELISA/EIA Test**

A screening blood test for the presence of antibodies to HIV. A positive result from an ELISA/EIA test always needs to be confirmed by a second ELISA/EIA test and an FDA-approved confirmatory test, such as the Western Blot.

**Epidemiology**

The study of the incidence, distribution and control of a disease in a population.

**Etiology**

The causes or origins of a disease.

**Exposure**

The act or condition of coming in contact with, but not necessarily being infected by, a disease-causing agent.

**False Negative**

A negative antibody test result in a person who is, in fact, infected with HIV. Generally, this occurs when the infected individual has not yet produced enough antibodies to be detected by the test. See "window period."

**HAART**

Highly active antiretroviral therapy. The use of combinations of medicines to prevent the development of or treat AIDS in someone who is HIV-positive.

**Helper/Suppressor T-Cells**

White blood cells (lymphocytes) that are part of the immune system.

**Hepatitis B (HBV)**

One of several different viral infections affecting the liver. The effects of the disease on the liver can range from mild and even inapparent to severe or fatal. HBV is transmitted in the same way that HIV is transmitted. HBV is vaccine-preventable.

**Hepatitis C (HCV)**

Another of the hepatitis viruses that affect the liver. As with HBV, the effects of the disease vary by person. HCV is usually transmitted through infected blood. At this time, there is no vaccine for HCV.

**High-Risk Behavior**

A term that describes certain activities, which increase the risk of transmitting HIV or HBV. These include anal, vaginal or oral intercourse without a condom and sharing injection equipment.

**HIV Screening Test**

Antibody A blood test that reveals the presence of antibodies to HIV.

**HIV**

Human Immunodeficiency Virus, the cause of AIDS.

**HIV Antibody Negative**

A test result indicating that antibodies to HIV have not been found. The test may be a “false negative” if the individual has been recently infected. Also referred to as HIV-negative.

**HIV Antibody Positive**

A test result indicating that antibodies to HIV are found. The person is infected with HIV and infectious to others for life. Also referred to as HIV-positive.

**HIV Infection**

The term that describes the spectrum of HIV infection. Time-wise, it is described as a progression from asymptomatic seropositive to AIDS.

**HIV RNA/DNA Tests**

Blood tests which may be done for people with documented exposure to HIV through unprotected sexual intercourse or needle sharing. The tests can be run during primary infection. These tests are expensive, not meant for general screening, and not used for the general public at this time.

**Immune Status**

The state of the body's immune system. Factors affecting immune status include heredity, age, diet, and physical and mental health.

**Immune System**

A body system that helps resist disease-causing germs, viruses or other infections.

**Immunosuppressed**

A condition or state of the body in which the immune system does not work normally.

**Infection**

A condition or state of the body in which a disease-causing agent has entered it.

**Injection Drugs**

Drugs injected by needle directly into a vein, skin or muscle.

**Non-intact Skin**

Skin that is chapped, abraded, weeping, has rashes or eruptions.

**OPIM**

Other potentially infectious material. As defined in the Bloodborne Pathogens standard, fluids other than blood that may transmit disease, including HIV.

**Opportunistic Infections**

Infections that are usually warded off by a healthy immune system. If the immune system is not strong and effective, these infections "take the opportunity" to harm the body.

**OSHA**

Occupational Safety and Health Administration.

**p24 Antigen Test**

Blood test measuring a core protein of HIV, which presents during the first few weeks of infection, but may disappear as soon as antibodies to the virus are produced.

**Pathogen**

A disease-causing substance or organism.

**Percutaneously**

Entering the body through the skin; for example, by needlestick or on broken skin.

**Pericardial Fluid**

A clear fluid contained in the thin, membranous sac that surrounds the heart.

**Perinatal**

Happening just before, during or immediately after birth.

**Peritoneal Fluid**

Fluid contained in the membrane lining of the abdominal cavity.

**Personal Hygiene Items**

Any personal item, including but not limited to razors, toothbrushes, towels or other personal care items that may be contaminated with blood or other bodily fluids capable of transmitting HIV. Personal hygiene items should not be shared.

**Personal Protective Equipment**

Equipment including, but not limited to, gloves, masks, eyewear and face shields, which will be provided by an employer and worn by employees as appropriate when the employee will or may come into contact with bloodborne pathogens.

**Pleural Fluid**

Fluid contained in the membrane that covers the lung and lines the chest cavity.

**Post-Exposure Prophylaxis (PEP)**

The provision of anti-HIV medications (antiviral medications) to someone who has had a substantial exposure, usually to the blood of another person. PEP should be started optimally within 2 hours of the exposure, preferably within 24 hours of exposure. PEP can only be provided by a medical practitioner and after evaluation of the possible exposure.

**Primary HIV Infection**

The first 4-6 weeks of HIV infection, when an individual may have some transient symptoms, including swollen lymph nodes, fever, and sore throat. These symptoms may be mistaken for other illnesses and usually pass quickly. It is usually possible to detect HIV at this stage; however, many people who are newly infected do not get tested and are unaware of their infection.

**Prophylaxis**

Any substance or steps taken to prevent something from happening (for example, condoms, vaccines and possibly antiretroviral therapy).

**Protease Inhibitors**

A group of medications used to treat HIV infection and AIDS. These medications target HIV at various points in its life cycle.

**Reportable Diseases**

Under State Board of Health rules, healthcare providers are required to confidentially notify public health officials of the diagnosis of certain diseases or conditions. AIDS cases and symptomatic infection are reported and maintained by patient name. Asymptomatic HIV infection is reported by name but maintained only by coded identifier.

**"Safer Sex"**

Sexual practices that reduce or eliminate the opportunity for the exchange of blood, semen or vaginal secretions.

**Seroconversion**

The process in which a person previously known to be HIV antibody negative converts to testing positive for HIV antibodies.

**Serologic Test**

Any number of tests performed on blood. In this context, referring to a test that measures antibodies to HIV.

**Seropositive**

A condition in which antibodies to a disease-causing agent are found in the blood; a positive reaction to a blood test. The presence of antibodies indicates that a person has been exposed to the agent. See HIV antibody positive.

**Sexual Intercourse**

As defined in RCW 9A.44.010 - "Sexual intercourse has its ordinary meaning and occurs upon any penetration, however slight; and also means any penetration of the vagina or anus, however slight, by an object, when committed on one person by another, whether such persons are the same or opposite sex, except when such penetration is accomplished for medically recognized treatment or diagnostic purposes; and also act of sexual contact between persons involving the sex organs of one person and the mouth or anus of another whether such persons are of the same or opposite sex." Referred to in this document as anal, vaginal and/or oral sex.

**Sexually Transmitted Diseases**

Refers to the more than 25 infectious organisms (bacteria, viruses, mites, protozoa and fungi) that can be spread through sexual activity.

**Standard Precautions**

Term used in hospitals and some other healthcare settings. These recommendations are designed to prevent the transmission of bloodborne pathogens in these settings. Standard Precautions include all recommendations for universal precautions (blood or other potentially infectious materials of **all patients** should always be considered potentially infectious) **plus** the component of body substance isolation. See "universal precautions."

**Sterilization**

Destruction of microbial life by means of steam, gas or liquid agents.

**Subcutaneous**

Beneath or introduced beneath the skin (for example, subcutaneous injections).

**Syndrome**

A collection of signs and symptoms that occur together.

**Tuberculosis (TB)**

A bacterial infection caused by *Mycobacterium tuberculosis*. TB is usually transmitted when airborne droplets from someone with active infection are coughed or sneezed into the air and breathed in by someone who is susceptible to infection.

**Universal Precautions**

Term relating to procedures designed to prevent transmission of bloodborne pathogens in healthcare and other settings. Under universal precautions, blood or other potentially infectious materials of **all patients** should **always** be considered potentially infectious for HIV and other pathogens. Employees should take appropriate precautions using personal protective equipment like gloves to prevent contact with blood.

**Vaccine**

A substance that produces or increases immunity and protection against disease.

**Viral Load Test**

A test measuring the amount of HIV or hepatitis in an infected person's blood. Often used to measure the effectiveness of antiviral medications in treating infection.

**Viral Resistance**

When HIV becomes resistant to one or more of the classes of medication used to treat the infection. This may happen if the medications are not taken correctly.

**Virus**

An organism that can cause disease.

**HIV Western Blot Assay**

A test used to detect proteins specific to HIV. The test can be used to confirm ELISA/EIA test results (see ELISA/EIA test).

**Window Period**

The time it takes for an HIV-infected person to develop antibodies to HIV. With current testing methodologies, the window period may be 2-12 weeks after infection. The CDC still advises that a small number of people may take up to six months to show antibodies.

**Works**

The collective term for the syringe, needle, "cooker," cotton, and rinse water - elements of the injection drug user's paraphernalia.

## Appendix – HIV (Dental Management of the HIV-Infected Patient)

From the ADA:

### **Human Immunodeficiency Virus (HIV)**

#### Dental Management of the HIV-Infected Patient

##### *Disclaimer/Publication Information*

This publication is informational in nature and is not intended to set any standards of care. Dentists should always exercise their own professional judgment in any given situation, with any given patient. The section addressing legal issues should not be construed as legal advice. Dentists must consult with their own lawyers for such advice.

"Legal Considerations" and "Ethical Considerations" are excerpted from the publication, *Dental Management of the HIV-Infected Patient*, copyright © 1995 American Dental Association, published by the ADA and the American Academy of Oral Medicine. This information is current as of mid-December 1995. Since then, new developments have occurred and have been reported in the ADA News. Future developments also will be reported in the ADA News.

##### *Legal Considerations*

This section addresses the primary legal issues concerning dental treatment of patients with HIV. The body of case law that is being established in this area is driven by science, particularly with respect to the efficacy of universal precautions. However, it is important to note that this case law is early in its development, not altogether uniform, and it will be some time before precise legal guidance can be provided on all the pertinent issues. Further, cases are likely to turn on their specific facts; e.g., whether activity constitutes a lawful referral or an unlawful refusal to treat will depend on exactly what happened in the case in question.

The discussion that follows on legal issues is offered on an informational basis only, not as legal advice. In that respect, this section is qualitatively different from other portions of this text, in that it does not offer recommendations. Because the law is evolving and varies in some respects from state to state, dentists are advised to consult with their own personal attorneys for legal advice. That said, the easiest way to avoid legal problems - and to lessen the need for legal advice - is for dentists to treat HIV-infected patients just like they treat their other patients.

##### **Duty to Treat**

As a general rule, dentists have a legal obligation to treat HIV-infected individuals, including patients of record and other persons who seek treatment when the office is accepting new patients. Under the Americans with Disabilities Act (AwDA) and many similar federal, state and local laws, a person with HIV is considered as having a "disability," as are persons who are perceived to have HIV, which may include patients who have had blood transfusions and openly homosexual patients. It should be noted that HIV is only one of many infectious diseases that are considered as disabilities under the AwDA and similar laws; e.g., hepatitis B and tuberculosis are also treated as disabilities). In a case decided shortly before the publication of this text, the first federal court ruling on a charge of HIV discrimination against a dentist upheld the constitutionality of the AwDA. [1]

Title III of the AwDA, which went into effect in January 1992, makes it illegal to discriminate against persons with disabilities, and those with whom they associate, in the provision of services in "places of public accommodation." The office of a health care provider is a place of public accommodation under the AwDA. The general rule prohibiting discrimination against persons with disabilities by places of public accommodation states:

*"No individual shall be discriminated against on the basis of disability in the full and equal enjoyment of the goods, services, facilities, privileges, advantages, or accommodations of any place of public accommodation by any person who owns, leases (or leases to), or operates a place of public accommodation."*[2]

Thus, it is unlawful discrimination to refuse to provide care to an individual because s/he is, or is perceived to be, HIV-infected. [3] To date, no court or administrative agency has ruled that it is acceptable to refuse care solely because of the patient's HIV status. [4] The AwDA also prohibits behavior that constitutes discrimination such as a denial of participation, participation in unequal benefit, and provision of separate benefit.

Cases have been prosecuted under both federal and state laws against dentists for refusal to provide care to HIV-infected patients. Some have resulted in significant fines against dentists. Others have settled for monetary payments, along with other injunctive relief. The settlements of the first two cases brought by the federal government (on the same day) against dentists for refusal to treat HIV-infected individuals are instructive. In the first of the two settlements, the dentist agreed to pay \$100,000, and to treat HIV-infected individuals in the future, post signs in the waiting area of the office indicating that the dentist provides care to HIV-infected patients, and undertake (and compel staff to undertake) professional training to avoid future discrimination. The second settlement, reached after the issuance of the first federal court ruling against a dentist on a charge of HIV discrimination under the AwDA, settled for \$120,000 and similar relief. [5,6] A particularly striking aspect of that settlement is the nondiscrimination notice that the dentist agreed to prominently display in his waiting room, or in his operatory if the office is owned by another dentist:

*This office does not discriminate against any person on the basis of disability, including HIV-positivity or AIDS. (Dentist's name) and his staff provide dental treatment and services to persons with HIV or AIDS on the same terms and conditions that such services are provided to patients who are not HIV-positive.*

*The Americans With Disabilities Act of 1990 is a federal law that protects persons with disabilities, including individuals with HIV and/or AIDS, from discrimination on the basis of their HIV and/or AIDS status, including discrimination in the provision of dental care. If you feel you have been discriminated against in the provision of dental care because of your HIV and/or AIDS status, you should call the Department of Justice in Washington, D.C. at 1-800-514-0301.*

#### *Liability for Staff Actions, Including Refusals*

A dentist who owns or operates a dental office is likely to be liable for discriminatory actions by his/her staff, including discriminatory refusals to treat; e.g., if a patient is turned away by a receptionist or refused a prophylaxis by a hygienist. The safest approach legally is to make sure that staff refrain from discrimination. If a staff member has concerns about treating a patient with HIV/AIDS, education about the efficacy of universal precautions, and the practice's legal obligations, may be indicated.

That said, the provision of equal services might negate a charge of discrimination, although the courts have not addressed this question and the enforcement agencies may disagree. For example, an office might avoid liability if at least one of its hygienists is available to provide treatment to HIV-infected patients. Another option might be for the dentist to offer to provide treatment (e.g., to conduct a prophylaxis) when a staff member refuses to treat. However, if the dentist charges more for providing the same treatment, or does not regularly perform such treatment and happens not to provide services of the same quality, this conduct may be considered discriminatory.

The prospect of being liable for staff refusals to treat HIV-infected individuals raises interesting employment law questions, as well. Absent any state law or pre-existing employment agreement to the contrary, a dentist who requires the dental team to treat HIV-infected patients can probably terminate these individuals for refusing to do so.

### *Personal Liability*

It is unlikely that a dentist can escape personal liability under the AwDA by virtue of having incorporated his/her practice. The one court case in this regard has plainly held that both the dentist and the corporation will be liable. [7]

### **Scope of Duty**

Neither the AwDA nor similar state laws require dentists to treat beyond their areas of expertise. Indeed, providing treatment beyond his/her area of competence could expose a dentist to malpractice liability. Accordingly, under the AwDA a dentist may refer a patient when the treatment sought is outside the referring provider's area of specialization, or if the dentist would make a similar referral for a person without a disability seeking the same treatment or services. [7] In the case of HIV, a general dentist can refer an HIV-infected patient to a specialist if the dentist would make the same referral of a non-infected patient for sound dental reasons; e.g., if the referral is made because of the patient's dental needs for the same reasons and under the same circumstances as any referral of other patients with similar conditions. However, the current law is that a dentist may not refer a patient with HIV/AIDS based on that person's HIV status alone.

To avoid litigation, the safest course for a general dentist making a referral for specialty care (e.g., to a periodontist or oral surgeon) is to make clear that a referral to a specialist is for the patient's benefit. The referring dentist may wish to explain that the needed treatment is outside the scope of his/her area of expertise, and that once the specialist has treated the particular condition for which the referral was made, s/he would be glad to provide any further necessary treatment within her or his area of expertise.

### *Referrals for "Specialty" HIV/AIDS Care*

While dentists need not provide treatment beyond their areas of expertise, referrals for "specialty" HIV/AIDS care may be problematic. Such referrals (e.g., to a local AIDS clinic, dental school, or hospital) may be appropriate in certain limited circumstances; e.g. if the patient's immune system is so compromised that the patient's physician recommends a specific procedure be carried out in a hospital setting. However, if the referrals amount to refusals to treat they would probably not be permissible absent a sound dental basis or if the referral is a mere pretext for discrimination. A blanket referral of all HIV-positive patients because it is "in their best interests" is legally problematic.

A key issue regarding such referrals is whether dentists who regularly treat HIV-infected patients have a "specialty" that warrants referral. Shortly prior to publication of this text, the first judicial determination of liability under the AwDA against a dentist sued for HIV/AIDS discrimination was rendered. This case noted that there is no recognized dental "specialty" for providing care to HIV-infected patients. [8] The court held that since there is no specialty education needed to treat such patients (specifically, "there is no such thing as a 'specialist' for cleaning teeth"), the dentist's referral of two individuals to another dentist who treated patients with HIV/AIDS was a pretext for unlawful discrimination.

While the law in this area is evolving, a key issue appears to be whether and when a referral to a "specialist" constitutes an unlawful refusal to treat. Although it is probably risky for a dentist to strongly suggest referral to a clinic specializing in the treatment of HIV-infected patients, it may well be permissible for the dentist to offer referral as a non-mandatory treatment option. For example, a dentist may want the patient to know that a clinic that provides treatment for HIV-infected patients has a reputation for providing good, all-inclusive care - or that the clinic can provide the care at no cost to the patient, if that is the case. If the dentist suggests this option and the patient has a choice of whether to be treated at the clinic or in the dentist's office, this would probably not be considered as an unlawful referral. However, this is not a well-defined area of law, so any speculation about the outcome would be just that speculation. If a dentist chooses to offer this option, it is safest for the dentist to make sure that the patient understands that s/he is not encouraging the patient to go elsewhere for care in order to avoid treating the patient.

#### *The "Direct Threat" Defense*

Concerns about patient-to-doctor transmission of HIV are not likely to justify a refusal to treat. Under the AwDA, health care providers may treat people with disabilities differently than other patients if they do so in order to minimize the "direct threat" of transmission of a communicable disease. Dentists may thus refuse treatment if the risk of transmission cannot be eliminated or reduced to an acceptable level through reasonable modifications of policies, practices or procedures. In dentistry, the overwhelming view of the scientific community is that universal precautions work and, therefore, the risk of transmission from patient to doctor is infinitesimal, making it safe to treat HIV-infected patients in the private dental office.

The court rendering the first judicial determination of an HIV-discrimination case against a dentist under the AwDA held that the "direct threat" defense did not justify a referral. [9] After hearing expert scientific testimony about the efficacy of universal precautions, the court held that universal precautions "reasonably" eliminate the risk of patient-to-doctor transmission of HIV. With respect to the direct threat defense in particular, the court supported the need for an "individual assessment" of direct threat, and noted that "universal precautions as prescribed by the CDC are universally accepted as 'reasonable modifications' of practices that will significantly mitigate the risk," and determined that [the dentist's] purposeful ignorance was not a legal defense. [10] Dentists wishing to rely on the direct threat defense may have the burden of establishing the defense, which may be costly, time consuming, and require securing expert testimony to question the efficacy of universal precautions. [11] At this writing, the safest approach is to not rely on the "direct threat" defense as a supportable basis to refuse treatment.

For the same reasons that the "direct threat" defense probably does not provide a basis to refuse treatment, fears of third parties (e.g., the dentist's patients or spouse) can generally not supply a legal basis to refuse treatment. In each case, the premise is that universal precautions work, so it is safe to treat HIV-infected patients in the private dental office. To rely on the fears

of third parties as a basis to refuse treatment a dentist would probably have to argue that universal precautions do not work. Regulations implementing the AwDA prohibit treatment decisions based on the unfounded fears and prejudices of others.

## **Obtaining and Using Information About Patients' HIV Status**

### *Inquiring About Patients' HIV Status*

Federal law is generally interpreted as allowing dentists to inquire about their patients' HIV status, including on a health history form, provided that the inquiry is made consistently of all patients, the information is not used to discriminate, and confidentiality is maintained as required by state law. The reason is that a sound approach to the treatment of any patient, including one with HIV, requires an assessment of the patient's medical condition based on reasonable and informed medical judgments, given the state of medical knowledge at the time.

### *Mandatory Testing*

As a matter of good practice, dentists should point out legitimate treatment concerns and suggest appropriate referrals for all their patients; not doing so could subject a dentist to a charge of malpractice if s/he sincerely believed a medical test were indicated and failed to suggest that the patient seek testing. Thus, the law probably does not restrict a dentist from suggesting that the patient consider an HIV test if the dentist in his/her professional judgment believes such a test would be in the patient's best interests. However, a dentist could be held responsible for refusing to treat a patient who declines to be tested, or for using a patient's test results to discriminate. Of course, the law would probably not support a dentist who recommends an HIV test on a routine basis just because the dentist wants to know which patients have HIV.

While there are no reported cases on mandatory patient testing under the AwDA, the federal law would probably treat HIV testing as the imposition of unlawful eligibility criteria not necessary for the provision of services. A dentist defending such a suit might then face the task of trying to establish the scientific need for testing.

### *Confidentiality*

As a general rule, dentists may discuss a patient's HIV status or related information with a third party only when authorized by the patient, mandated by law and/or allowed by law to do so. The confidentiality of doctor-patient communications is governed primarily by state laws, many of which specify whether and on what basis information on a patient's health status may be shared with staff. The particularly sensitive nature of the confidentiality of HIV information is reflected in the fact that some states even require such information to be segregated from the patient's general health records.

Some states may mandate the reporting of an infected patient's HIV status to third parties, e.g., on a confidential basis to public health authorities. Some states allow a dentist to discuss a patient's HIV status with the patient's physician in certain circumstances, e.g., in order to develop an appropriate treatment plan. Some states permit sharing HIV information with third party carriers, such as insurance companies. In states that do not mandate or freely allow dentists to share information about their patients' HIV status, dentists must seek their patients' authorization to release information on their HIV status.

### *Patients Who Falsify Records*

If a patient lies about his/her HIV status, the dentist might be justified in terminating the doctor/patient relationship. The dentist would need to be able to state in good faith that the lie so eroded his/her trust in the patient that s/he could no longer treat the patient. The dentist would probably need to show that s/he is concerned about any patient who provides false health information, since the dentist may unknowingly compromise the patient's health in the absence of accurate information. The dentist's position would be fortified if s/he could show that s/he had terminated other patients for providing false health information (e.g., for purposefully failing to disclose a known heart murmur or a problem with high blood pressure), and/or that the dentist had other HIV-infected patients in the practice who had not been turned away. As noted above, the law does not permit pretexts for discrimination; e.g., dentists would arguably violate the law if they use a patient's untruthful or evasive answer simply as a convenient mechanism for turning away a patient with HIV. Indeed, that appears why a court recently determined that a dentist's refusal to treat an HIV-infected patient purportedly "because of the plaintiff's dishonest and intentional misrepresentation of his medical history," rather than his disability, did not constitute a complete defense to the charge of discrimination. [12]

### **Other Practice Issues**

In a number of areas involving dental practice issues, questions may arise regarding whether and to what extent the applicable laws can restrict a dentist's exercise of professional judgment in treating HIV- infected individuals. Dentists are generally free to exercise their professional discretion in rendering treatment, provided that they do so reasonably, within the limits of the law, and not as a pretext for discrimination. Whether any particular exercise of professional discretion poses legal concerns will turn on the facts of a given case, including the effect (if any) it has on the patient and, in addition, the dentist's motivation.

Some preliminary issues concerning the potential restriction of a dentist's professional discretion under the federal laws are considered below. It should be noted that this area of the law, particularly when differential treatment is based on a dentist's exercise of professional judgment, may be hotly contested and take some time to evolve.

#### *Extra Precautions*

The AwDA and similar laws do not directly address the legality of using "extra precautions", such as double gloving or extra protective plastic, when treating patients known to have HIV. Based upon the preponderance of scientific evidence that universal precautions work, the enforcement agencies would probably view the use of any additional precautions when treating a patient known to have HIV as discriminatory differential treatment. On the other hand, dentists' ability to exercise professional judgment in rendering treatment arguably includes determining what precautions are appropriate. While there have been no cases addressing this issue under the AwDA, at least one case based on a similar state law has held that a dentist discriminated by taking "extra precautions."

A key legal question in future "extra precautions" cases may be whether taking extra precautions is allowable as a way to mitigate the "direct threat" of HIV transmission. Given the premise of universal precautions that all patients should be treated as if they are HIV-infected, a suit against a dentist might allege that if "extra precautions" are needed to minimize the threat of transmission, they should be used in treating all patients.

While the law is not settled, the "extra precautions" issue may ultimately suggest a continuing spectrum. For example, precautions intended to stigmatize patients (e.g., a Day-Glo hazard warning or wearing a spacesuit) are probably discriminatory. In contrast, precautions reasonably

based on a dentist's exercise of professional discretion (e.g., double-gloving) might be permitted - or go unchallenged - even if they are technically discriminatory. Of course, if the use of "extra precautions" is a mere pretext for discrimination, such use would be unlawful.

### *Missed Appointments*

Missing multiple appointments may be grounds for terminating any patient, including an HIV-infected patient. Again, the AwDA and similar state laws require dentists to treat patients with disabilities on the same basis as they treat other patients. Accordingly, if a dentist has a policy and practice of terminating all patients who routinely miss appointments, a very legitimate argument can be made that terminating an HIV-infected patient for doing so is not discriminatory. The law also requires dentists to make reasonable modifications of policies, practices and procedures for disabled patients. Thus, dismissing a disabled patient because of a single missed appointment, especially if the patient missed the appointment for a reason related to his or her disability, could be problematic.

### *Scheduling*

There is no case law regarding whether dentists can schedule HIV-infected patients for special times of the day. If allowed, this is likely to be permissible only in certain circumstances. While dentists are generally allowed to make practice management decisions, decisions to treat certain patient groups only at certain times would probably be characterized as illegal if they are mere pretexts for discrimination and/or not rooted in generally accepted science.

Scheduling patients with oral manifestations of AIDS at special times may be defensible if the dentist routinely holds open regular appointment slots for all difficult and/or unpredictable cases; e.g., before lunch or at the end of the day, so that they do not throw off the schedule for treating other patients, or so the dentist can provide the best possible care. Such an exercise of professional discretion should not be discriminatory if it is based on the need to have flexibility in treatment; e.g., if, at the time of scheduling, the dentist suspects that the condition of the patient's mouth has the potential to require extra time and attention, thus making a pre-lunch or end-of-the-day appointment important. In contrast it would be harder to defend special scheduling of completely asymptomatic HIV-infected patients with no special oral conditions. Further, if any HIV/AIDS patient is scheduled at the end of the day to ensure that other patients of the practice do not see the patient in the waiting room, the scheduling decision would be difficult to defend as a valid exercise of professional judgment and would probably violate the law.

Future cases are likely to address whether restricting schedule options for HIV-infected patients is permissible at all, or only in certain circumstances. Such cases may more fully explore the legality of allegedly discriminatory practice decisions based on professional judgment.

### Ethical Considerations

The ethical standards of conduct for the dental profession are set forth in the American Dental Association's [Principles of Ethics and Code of Professional Conduct](http://www.ada.org/prof/prac/law/code/index.asp) (<http://www.ada.org/prof/prac/law/code/index.asp>) ("Code") and in the advisory opinions to the Code adopted by the ADA Council on Ethics, Bylaws and Judicial Affairs ("Council"). [Section 4.A.1. HIV Positive Patients](http://www.ada.org/prof/prac/law/code/principles_04.asp) ([http://www.ada.org/prof/prac/law/code/principles\\_04.asp](http://www.ada.org/prof/prac/law/code/principles_04.asp)), states:

*"A dentist has the general obligation to provide care to those in need. A decision not to provide treatment to an individual because the individual has AIDS or is*

*HIV seropositive, based solely on that fact is unethical. Decisions with regard to the type of dental treatment provided or referrals made or suggested, in such instances, should be made on the same basis as they are made with other patients, that is, whether the individual dentist believes he or she has need of another's skills, knowledge, equipment or experience and whether the dentist believes, after consultation with the patient's physician if appropriate, the patient's health status would be significantly compromised by the provision of dental treatment."*

As certain manifestations of AIDS occur in the mouth, oral health care for a seropositive individual constitutes a vital health service. Because the seropositive individual can be treated with safety in the dental office, the profession and the individual dentist would not be fulfilling their obligations to society as health care practitioners if seropositive individuals were denied dental care.

Dentists may exercise reasonable discretion in selecting patients for their practices, but to deny treatment solely on the basis of a patient's HIV status is unreasonable. Such treatment can be safely provided and, in many instances, is being provided without either the dentist or the patient being aware of this fact.

Decisions with regard to the type of dental treatment provided or referrals made or suggested in the case of a seropositive individual should be made on the same basis as they are with other patients: that is, whether the individual dentist believes he or she has need of another's skills, knowledge, equipment or experience and whether the dentist believes, after consultation with the patient's physician if appropriate, the patient's health status would be significantly compromised by the provision of dental treatment.

Members of the American Dental Association voluntarily agree to abide by the Code and advisory opinions issued thereunder. Alleged violations are handled through the Association's disciplinary process and, if proven, may result in censure, suspension or expulsion from membership in the Association. Disciplinary action taken by the Association does not affect the dentist's license or right to practice under state law. However, many states have incorporated the *Code's* concepts of unprofessional conduct into their state laws. Violations of these laws may result in disciplinary action by the state's licensing agency.

### Endnotes

1. U.S. v. Morvant 1995 U.S. Dist. LEXIS 3739 (E.D. La. 1995). That decision rejected the dentist's argument that if referrals of HIV-infected patients were prohibited by the AwDA, the statute was an unconstitutional intrusion on the exercise of his professional judgment.
2. 42 U.S.C. § 12182(a). Similar prohibitions also exist in the Rehabilitation Act of 1973, which prohibits discrimination by persons receiving federal funds for the provision of health care services. 28 U.S.C. § 701-796. In many ways a predecessor to the AwDA, the Rehab Act uses similar definitions as the AwDA and imposes similar obligations on providers. An important difference between the two laws is that a violation of the Rehab Act risks loss of participation in federally funded programs, such as Medicare and Medicaid.
3. *Id.*, at § 12182(b). in addition, the AwDA grants persons with disabilities the right to enjoy public accommodations in an integrated setting. *Id.*, § 12182(b)(1). Further, the AwDA

- prohibits the use of administrative methods that have the effect of discriminating against persons with disabilities. *Id.* It also prohibits discrimination against individuals known to associate with the disabled. *Id.*, § 12182(b)(E).
4. Indeed, numerous courts have held that it is a violation of federal or state statutes to refuse care to a person who is HIV-positive.
  5. In the decision leading to that settlement, the relief ordered by the court included requirements that the dentist and his professional corporation be: - enjoined from refusing to treat persons with HIV or AIDS, on the basis of their HIV status, - enjoined from having a blanket policy of "referring" out all such persons to other general dentists, - required to adopt and post a policy of non-discrimination on the basis of disability, including HIV and AIDS, and - required to undergo (and have their staff undergo) training concerning HIV and the practice of dentistry. *U.S. v. Morvant*, *supra*, note 1.
  6. In a case decided just days before the publication of this text, another federal district court held a dentist liable for HIV-discrimination. *D.B. v. Bloom*. 1995 W.L.490481 (D. N.J. Aug. 15, 1995). In addition to ordering similar injunctive relief, the court in that case ordered the defendant dentist and dental center to pay \$25,000 in compensatory damages, \$25,000 in punitive damages, and \$31,967.61 in plaintiff's reasonable attorneys fees and costs. The case was decided on plaintiff's motion for entry of a default judgment (following the defendant's failure to comply with discovery requests), and it is not known whether the defendant will contest the judgment or appeal.
  7. *U.S. v. Morvant*, 843 F. Supp. 1092 (E.D. La. 1994).
  8. *U.S. v. Morvant*, *supra* note 1. See, also, *D.B. v. Bloom*, *supra* note 6.
  9. *Id.*
  10. At least one dentist has raised the "direct threat" defense in a pending case of alleged HIV discrimination under the AwDA and related laws. *Abbott v. Bragdon*, Civil Action No. 64-0273-B (D. Maine 1994). That case may revisit the relationship between "direct threat" and the efficacy of universal precautions.
  11. There is very limited case law interpreting the "direct threat" defense. While the construction of the defense is not yet clear, courts have held that it is necessary to make an individualized assessment of the nature of the risk, the probability of the injury, and the possible reasonable modification of policies. Outside the health care context, courts applying such analysis have consistently found that HIV does not constitute a direct threat. Some courts have found that certain HIV-infected health care providers who undertake invasive procedures pose a direct threat of transmission that cannot be reduced to an acceptable level through the use of universal precautions. See, e.g., *Scoles v. Mercy Health Corp.*, 1994 W.L. 686623 (E.D. Pa. 1994) (universal precautions failed to satisfactorily reduce the threat of transmission posed by an HIV-infected surgeon, due to the fatal nature of HIV infection), which settled before appeal, and *Mauro v. Borgess Medical Center*, 886 F. Supp. 1349. (W.D. Mich. 1995) (HIV-infected surgical technician posed a direct threat because of the "real possibility of transmission, however small, and because the consequence of transmission is invariably death"). (But see *Dow v. Attorney General*, No. 93-15253, Slip op. (9th Cir. 1995). (HIV positive physician who currently uses universal precautions is "otherwise qualified" to perform the duties of a health care provider within the meaning of the Rehab Act).) To date, however, no court has reached this result when assessing the duty to treat HIV-infected patients.
  12. *D.B. v. Bloom*, 1995 W.L. 490481, f.n. 6 (D. NJ. Aug. 15, 1995). As noted above (*supra* note 6), that case was decided on plaintiff's motion for entry of a default judgment and it is not known whether the defendant will contest the judgment or appeal.

### **National Resources**

National AIDS Hotline (English) 1-800-342-2437  
National AIDS Hotline (Hearing Impaired) 1-800-243-7889  
National AIDS Hotline (Spanish) 1-800-344-7432  
National AIDS Information Clearinghouse 1-800-458-5231  
National STD Hotline 1-800-227-8922  
National Association on HIV Over 50 (NAHOF) [www.hivoverfifty.org](http://www.hivoverfifty.org)

### **Curriculum Source**

Centers for Disease Control and Prevention 1-404-639-3311, [www.cdc.gov](http://www.cdc.gov)

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Centers for Disease Control and Prevention (CDC), Division of AIDS Prevention. (2005e). HIV/AIDS Surveillance in Women. Retrieved March, 2006 at <http://www.cdc.gov/hiv/graphics/images/l264/l264-3.htm>.

Office of the White House (OWH). (2006). Action Today, a Foundation for Tomorrow: The president's emergency plan for AIDS relief. 2<sup>nd</sup> Annual Report to Congress. Retrieved March, 2006 at <http://www.cdc.gov/nchstp/od/gap/>.

National Association of HIV Over 50 (NAHOF). (No date). Educational Tip Sheet: HIV/AIDS and Older Adults. Retrieved March, 2006 at <http://hivoverfifty.org/tip.html>.

National Institute of Aging (NIA). (2005). AgePage: HIV, AIDS and Older People. Retrieved March, 2006 at <http://www.niapublications.org/agepages/aids.asp>.

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National Institute of Allergy and Infectious Diseases (NIAID). (2004). HIV Infection In Women. Retrieved March, 2006 at <http://www.niaid.nih.gov/factsheets/womenhiv.htm>.

Please mark only one **best** answer to the following questions on the one page answer sheet. Return the answer sheet (not the test questions) in one of the convenient methods described on page 3 of this workbook.

This test contains 45 questions. Please mark your answers in spaces numbered 1 through 45 on your answer sheet.

1. HIV is a:
  - a. Bacterium that is dispersed through the air on droplet nuclei.
  - b. Fungus that is transmitted through direct contact.
  - c. Virus that is transmitted through blood.
  - d. None of the above.
  
2. All people who have HIV infection have AIDS.
  - a. True.
  - b. False.
  
3. Acquired Immune Deficiency Syndrome (AIDS) is diagnosed when the Western Blot confirmatory test is positive.
  - a. True.
  - b. False.
  
4. The cells that the HIV virus attacks in the blood are the:
  - a. Tau in the tangles and paques
  - b. Islets of Langerhans.
  - c. The T-helper lymphocytes or CD4 cells.
  - d. HIV does not attack cells in the blood.
  
5. The **window period** is the period of time:
  - a. After the virus enters the body and attacks the T4 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.
  
6. The **incubation period** is the period of time:
  - a. After the virus enters the body and attacks the T4 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.

7. The **latency period** is the time frame:
- After the virus enters the body and attacks the T4 cells until the body produces antibodies to the virus.
  - Between HIV infection and the appearance of the first symptoms.
  - From HIV infection until the start of persistent symptoms of AIDS.
  - None of the above.
8. High risk behaviors for HIV transmission include:
- Unprotected heterosexual contact where there may be an exchange of blood, semen or vaginal secretions.
  - Unprotected homosexual contact where there may be an exchange of blood, semen or vaginal secretions.
  - Sharing injecting drug equipment such as syringes and needles.
  - All of the above.
9. HIV can be transmitted from someone who is HIV positive through the blood and body fluids to another person through the 2<sup>nd</sup> person's skin abrasions and mucus membranes, such as might occur during sex.
- True.
  - False.
10. Seroconversion is:
- Occurs after infection; it is when antibodies are produced that would show positive on an HIV test.
  - The time frame may vary from person to person, with most people having HIV antibodies detectable within the first 3-6 months of infection.
  - Detectable for life in most cases.
  - All of the above.
11. All the following are true about opportunistic infections **EXCEPT**:
- They have a high potency ratio, making even one exposure a very high risk.
  - These infections are more destructive because of HIV's assaults on the immune system.
  - These infections are not generally seen in persons with healthy immune systems.
  - They are sometimes called AIDS defining illnesses.
12. Universal/Standard precautions requires that one always assumes that the blood or body fluids of another person could be positive for HIV (or other bloodborne pathogens), thereby always taking barrier precautions to avoid any infection through bloodborne transmission.
- True.
  - False.

13. After occupational exposure to HIV in the workplace, the employee should:
- Follow facility protocols and policies.
  - Obtain evaluation as soon as is possible; prophylactic treatment should begin within 2-24 hours
  - Obtain permission to test the source for HIV infection, if possible.
  - All of the above.
14. \_\_\_\_\_ is (are) involved in the transmission of HIV:
- Blood
  - Semen
  - Breast milk
  - A, B, and C
  - B and C only
15. Partner notification consists of:
- Confidentially notifying partners of persons who have been tested for HIV, so that they are aware that their partner has had the HIV test.
  - Confidentially notifying the sexual and drug equipment sharing partners of those who have tested positive for HIV infection, and that they should also be tested.
  - Informing spouses of persons who are taking antiretroviral medications about the complex medical regimen, in order for the spouse to promote the taking of these medications.
  - Anonymously contacting the partners of persons who have side effects to the highly active antiretroviral medications.
16. It is recommended that victims of sexual assault:
- Go directly to the nearest hospital emergency room, without changing their clothing, bathing or showering first.
  - Testing directly after a sexual assault can provide baseline information on the victim's status regarding HIV and other STDs, useful for clinical treatment and in legal and criminal action.
  - In some states, victims of convicted sexual offenders may learn the attacker's HIV status; however, the victim needs to consider whether to start post-exposure prophylaxis (PEP) independently of the source's test result because of the time between the attack and the time of conviction will likely be longer than the 24-48 hours recommended to start PEP.
  - All of the above.

17. 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.
- a. True.  
b. False.
18. Viral transmission is the same as the initial infection with HIV. When a person becomes infected with HIV, they:
- a. Will probably have virus circulating in their bloodstream, and may become infectious to others within five days.
  - b. The person may be infectious before the onset of any symptoms.
  - c. They will remain infectious for the rest of their lives.
  - d. All of the above.
19. In order for a licensed healthcare provider to make a diagnosis of AIDS, the following must be present:
- a. A positive HIV test.
  - b. A positive HIV test; and an AIDS indicator condition or a CD4 count of less than 200 cells/mm.
  - c. A positive HIV test and any condition that indicates that a person has a weakened immune system.
  - d. None of the above.
20. Among the AIDS indicator conditions are:
- a. Candidiasis, tuberculosis, cryptosporidiosis and SARS.
  - b. Avian flu, histoplasmosis and nocardiosis.
  - c. Candidiasis, tuberculosis, cryptosporidiosis and histoplasmosis.
  - d. Histoplasmosis, candidiasis, lymphoma and SARS.
21. Since 1996, highly active antiretroviral therapy (HAART) has largely been responsible for the reduction in AIDS deaths.
- a. True.  
b. False.
22. 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.

23. Some common side effects to HAART include all the following **EXCEPT**:
- Nausea, diarrhea and osteoporosis
  - Numbness in feet and hands (peripheral neuropathy) and changes in body fat distribution (lipodystrophy).
  - Vomiting, weight gain and restlessness.
  - Diabetes or other metabolic changes.
24. In an HIV-infected person, TB disease can develop in the following 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.
  - 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.
  - Both A and B.
  - Neither A or B.
25. The presence of infection with other sexually transmitted diseases (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.
- True.
  - False.
26. Sexually transmitted diseases (STDs) can be prevented through:
- Abstaining from sex, being in a mutually monogamous relationship with an uninfected partner, or changing the ways you have sex so that there is no risk of infection.
  - Learning that of the birth control methods, other than abstaining, only condoms are effective in limiting the spread of STDs and HIV, and that they must be used correctly and consistently every time you have sex.
  - Both A and B.
  - Neither A or B.

27. 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.
- True.
  - False.
28. Which of the following statements regarding HIV and HCV co-infections are true :
- 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.
  - Treating HIV in someone with HCV may be complicated, because many of the medicines that are used to treat HIV may damage the liver.
  - All of the above.
29. When a licensed healthcare provider makes a diagnosis of AIDS, or receives a confirmed HIV positive test, a confidential case report must be submitted to the local health jurisdiction within 3 days.
- True.
  - False.
30. Positive HIV results obtained through anonymous testing are
- Submitted to the local health jurisdiction within 3 days.
  - Required to initiate partner notification immediately.
  - Not reportable. However, once a patient with positive results seeks medical care for conditions related to HIV or AIDS, the provider is required to report the case to the local health departments.
  - None of the above.
31. Confidentiality of medical information means that information that can be related to the specific patient may not be disclosed to ANYONE except when the individual signs a release of information form. There are exceptions; the most common include all the following **EXCEPT**:
- To another healthcare provider for related on-going medical care or to a third party payor (insurance provider).
  - Anonymous HIV testing results that are positive.
  - In a life or death emergency.
  - In the case of reporting notifiable conditions to the local health jurisdiction or the DOH.

32. Variables that may contribute to transmissibility of HIV are:

- a. susceptibility of the host.
- b. the virulence of the particular strain of HIV.
- c. the stage of infection of the source.
- d. none of the above.
- e. all of the above.

33. HIV infection and AIDS are medical conditions that are considered disabilities under the federal Americans with Disability Act (ADA). This 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:

- a. Employment; and rental, purchase or sale of apartment, house or real estate.
- b. Places of public accommodation (restaurants, theaters, etc.); and applying for a loan or credit card, or other credit transactions.
- c. Healthcare, legal services, home repairs, and other personal services available to the general public; and certain insurance transactions.
- d. All of the above.

34. 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 the CDC.
  - 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.
- a. True.
  - b. False.

35. HIV primarily infects:

- a. all components of the blood stream of the host.
- b. the epidermis of the host.
- c. T-4 lymphocytes.
- d. b or c

36. 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.
37. Grief 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
- a. True.
  - b. False.
38. The Centers for Disease Control and Prevention estimates that among women who have been infected with HIV:
- a. The majority have become HIV positive through the use of injecting drug equipment.
  - b. More than 70% have become HIV positive through heterosexual sexual contact.
  - c. Women are more vulnerable to heterosexual transmission of HIV due to substantial mucosal exposure to seminal fluids.
  - d. Both B and C.
39. African Americans and Hispanics specifically have disproportionately lower rates of AIDS cases in the U.S., despite the fact that there are no biological reasons for the disparities.
- a. True.
  - b. False.
40. Approximately two-thirds of AIDS cases among adolescent and young adult females were attributed to heterosexual contact as the mode of exposure to HIV.
- a. True.
  - b. False.

41. Given enough time, HIV disease progresses to :

- a. Kaposi's Sarcoma.
- b. AIDS.
- c. cancer.
- d. pneumonia.
- e. none of the above.

42. HIV has been isolated from:

- a. blood
- b. semen
- c. breast milk
- d. cerebrospinal fluid
- e. all of the above

43. HIV is easily transmitted by saliva.

- a. True.
- b. False.

44. The risk of HIV disease transmission from dental worker to dental patient during a routine, non-invasive, dental procedure is extremely low.

- a. True.
- b. False.

45. The most common oral manifestation of HIV is?

- a. hairy leukoplakia
- b. candidiasis
- c. necrotizing ulcerative periodontitis (NUP)
- d. linea alba

(end of test)