



**HIV/AIDS: State of Washington
Mandatory 7 Hour Training**

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Current Approvals

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The Washington State Department of Health recognizes the ANCC's approval; therefore, any professional who successfully completes this course will meet the Washington State mandated requirement.

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California Dentists 7.0 Hours

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Answer Sheet: HIV/AIDS: State of Washington Mandatory 7 Hour Training

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The content fulfills each of the course objectives.					
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The looped red ribbon has become the universal symbol of AIDS awareness.



Courtesy of the National Institutes of Health.

References to **non-Access Continuing Education, Inc.** sites on the internet are a convenience and service to our learners and does not constitute or imply endorsement of these organizations or their programs by **Access Continuing Education, Inc.** URL addresses listed in this course were current as of the date of publication.

Objectives

Upon completion of this course, the student should 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.
- Identify the various acceptable forms of HIV testing in Washington State.
- 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.
- State the HIV/AIDS reporting requirements in Washington State.
- Define confidentiality as it relates to HIV in Washington State.
- 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.

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 diseases it causes continue to be greatly feared. Significant efforts have been made by researchers and clinicians to increase our knowledge of HIV, its diseases and effective prevention and treatment, since they were first identified in the 1980s. The massive public health effort to increase knowledge about HIV transmission and effective protective interventions certainly have helped to reduce the fear that initially gripped the US. 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.

The State of Washington has a legal requirement that certain identified workers have training related to HIV and AIDS. Selection of topics may be made to meet specific licensing boards' requirements. Unless otherwise specified, all six topic areas must be covered for the 7-hour licensing requirements. Topic areas I, II, V, and VI must be covered for the 4-hour licensing requirements and for non-licensed healthcare facility employees (who have no specific hourly requirements). There is also a 2 hour requirement for some workers. If you intended to take the 2 or 4 hour course contact Barbara Noble at 518.209.9540 for assistance. Please consult the Department of Licensing at (360) 236-4700 with specific questions about hourly requirements.

Please note that these curriculum requirements may not fulfill the needs of your particular certification or licensure. Funeral directors and embalmers are under the jurisdiction of the Department of Licensing and may have additional requirements. Drug, Alcohol and Substance Abuse counselors are required to have additional, specialized training. Emergency Medical Services workers have additional annual training requirements. Please check with the entity that licenses or certifies you, or call the Department of Health's HIV/AIDS Hotline for referral at: 800-272-2437.

This course is based *KNOW: HIV Prevention Education, 2007 Revised Edition, An HIV and AIDS Curriculum Manual for Health Care Facility Employees*. Previous editions include:

- Edition 1 – May, 1989 compiled and edited by Jutta Riediger, HIV/AIDS consultant
- Edition 2 - January, 1991 revised and edited by Sara A. Peterson, RN, MA
- Edition 3 - October, 1995 revised and edited by Sara A. Peterson, RN, MA
- Edition 4 – September, 2000 revised by Jennifer Bush and edited by Laurie Barker James
- Edition 5- January, 2007 revised and edited by Laurie Barker James
- Edition 6- January, 2007 revised and edited by Barbara Schuler

This course meets the requirements of Washington State for HIV training. The 2002 KNOW Revision matches the outline of required topics for 4-hour and 7-hour licensing, HIV/AIDS education program.

The 7-hour HIV course contains all 6 parts of the required training. Parts 3 and 4 are not required for those who only need to take the 4-hour HIV course.

Part 1. Etiology and epidemiology of HIV and AIDS

- Etiology
- Reported HIV cases, reported AIDS cases in US and Washington State
- Risk populations/behaviors

Part 2. Transmission and Infection Control

- Transmission of HIV
- Infection control precautions
- Factors affecting risk of transmission
- Risk for transmission to healthcare workers

Part 3. Testing and Counseling

- HIV Test information
- Pre-test counseling
- Post-test counseling

Part 4. Clinical Manifestations and Treatment

- Clinical manifestations of HIV infection
- Case management
- Physical care
- Psychosocial care
- Home care
- Resources

Part 5. Legal and Ethical Issues

- Confidentiality as defined in the AIDS omnibus bill (RCW and WAC)
- Informed consent
- Legal reporting requirements
- Ethical Issues
- Civil rights

Part 6. Psychosocial Issues

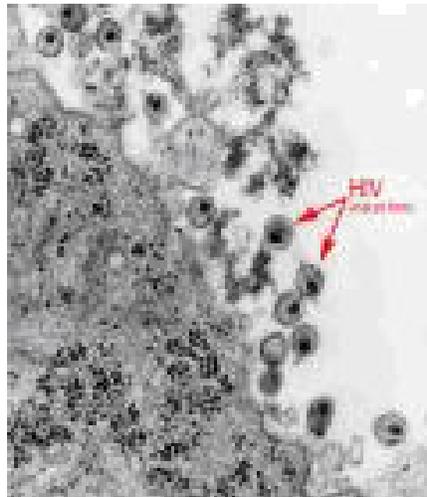
- Personal impact of HIV continuum
- The human response to death and dying
- Family issues
- Select populations

Part 1. Etiology and Epidemiology of HIV and AIDS

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. The term AIDS applies to the most advanced stages of an HIV infection. Medical treatments, particularly the antiretroviral medications, have delayed the onset of AIDS in persons who are infected with 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.

HIV infects and destroys the T-Helper lymphocytes and damages their ability to signal for antibody production. This results in the eventual decline of the immune system.

Progress of HIV Infection

Primary/acute HIV infection is the first stage of HIV disease, typically lasting only a week or two, when the virus first establishes itself in the body. Some researchers use the term acute HIV infection to describe the period of time between when a person is first infected with HIV and when antibodies (proteins made by the immune system in response to infection) against the virus are produced by the body (usually 6 to 12 weeks) and can be detected by an HIV test.

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 three months for antibodies to develop. Most people develop antibodies by 6-12 weeks. 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 **asymptomatic stage** occurs after the acute stage of HIV infection; people infected with HIV continue to look and feel completely well for long periods, usually for many years. During this time, the virus is replicating and slowly destroying T4 cells and the immune system. This means that although you look and feel healthy, you can infect other people through unprotected anal, vaginal or oral sex or through needle sharing--especially if you have not been tested and do not know that you are infected. The virus can also be passed from an infected woman to her baby during pregnancy, the birth, or through breast-feeding. Without antiretroviral therapy, there is an average of ten years between the time a person is infected with HIV and the start of persistent symptoms of AIDS.

HIV Strains and Subtypes

HIV has divided into two primary strains: HIV-1 and HIV-2. HIV-1 is found throughout the world; generally when HIV is referred to without specifying a type of virus, it is the HIV-1 that is referred to. HIV-2 is found primarily in West Africa, where the virus may have been in circulation since the 1960s - 1970s. It is rarely found elsewhere. HIV is highly variable virus and mutates very easily. This means that there are many different strains of HIV, even within the body of a single infected person. Based on genetic similarities, the numerous virus strains may be classified into types, groups and sub-types.

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.

The Origin of HIV

Since HIV was discovered in 1983, researchers have worked to pinpoint the origin of the virus. In 1999, an international team of researchers reported that they discovered the origins of HIV-1, the predominant strain of HIV in the developed world. A subspecies of chimpanzees native to west equatorial Africa was identified as the original source of the virus. The researchers believe that HIV-1 was introduced into the human population in the 1930s and 1940s when hunters became exposed to infected blood.

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.

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. In Washington State, the first reported case of

AIDS was in 1982. Since then, the number of AIDS cases has continued to increase both in the U.S. and 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. The US Centers for Disease Control and Prevention (CDC) estimates that a quarter of the people with HIV infection are unaware that they are living with the virus.

Reported HIV/AIDS Cases Worldwide

From 1999 to 2009 (WHO, 2010). The decline exceeded 25% in 33 countries, including 22 countries in sub-Saharan Africa (WHO, 2010). However, in some countries there are signs that new HIV infections are rising again (WHO, 2009).

Worldwide, at the end of 2009, approximately 33.3 million persons were living with HIV infection (WHO, 2010). HIV/AIDS continues to be a political as well as a medical disease. The number of AIDS related deaths worldwide have been declining, from a peak of 2.1 million persons in 2004 to an estimated 1.8 million in 2009 (WHO, 2010).

At the end of 2009, there were over 1.2 million people who were treated with AIDS medications for the first time, an increase of 30% in a single year of persons receiving treatment (WHO, 2010). Currently there are over 5 million people world-wide who are getting HIV/AIDS treatment, WHO identifies this as a major public-health victory. However, only 1/3 of those who need treatment worldwide are getting it (WHO, 2010).

The global percentage of adults living with HIV has leveled off since 2000. In virtually all regions outside sub-Saharan Africa, HIV disproportionately affects people who inject drugs, men who have sex with men and sex workers (UNAIDS, 2008). Sub-Saharan Africa has more than two thirds (68%) of all people living with HIV worldwide (WHO, 2010).

Because HIV/AIDS most often affects adults in their child bearing years, countries have lost a whole generation of teachers, political leaders, and scientists. In many cases, HIV/AIDS has destroyed the family unit leaving older children and grandparents to raise younger children.

In many ways it has evolved into two epidemics, divided by what one physician refers to as the "haves and have-nots" (Sepkowitz, 2006). In developing countries, even HIV testing may not be readily available, especially to the poor living in rural areas. This problem is compounded by the cost of HIV medications which remains well out of reach for many. Still, the outlook is not hopeless, but change will require political and financial cooperation among countries worldwide.



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

Reported HIV/AIDS Cases in the US

CDC estimates that more than one million people are living with HIV infection (prevalence) in the United States. One in five (21%) of those people living with HIV is unaware of their infection (CDC, 2010a).



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.

For many years the CDC reported that there were 40,000 new HIV infections in the US annually. However, with the release of the first estimates from the nation's new HIV incidence surveillance system reveal that the HIV epidemic in the US-and has been-worse than previously estimated. CDC estimates that 56,300 new HIV infections occurred in the United States in 2006 (CDC, 2008b).

Table 1. Estimated United States AIDS Cases Cumulative through 2008 (5) (KCHFS, 2010)		
Characteristics	Total Cases (6)	Percent of AIDS Cases (1)
Sex		
Male (adult & adolescent)	851,974	79%
Female (adult & adolescent)	211,804	20%
Child (under 13 yrs of age)	9,349	1%
TOTAL†	1,073,127	100%
Age at Diagnosis		
<13	9,349	1%
13-24	48,640	5%
25-44	751,841	70%
45-64	246,327	23%
65 +	16,972	2%
TOTAL†	1,073,127	100%
Race/Ethnicity		
White, Not Hispanic	419,905	39%
Black, Not Hispanic	452,916	42%
Hispanic	180,061	17%
Other	19,878	2%
TOTAL†	1,073,127	100%
Transmission Category		
MSM (2)	513,138	48%
IDU (3)	267,391	25%
MSM/IDU	74,155	7%
Heterosexual	188,585	18%
Perinatal	8,577	1%
Other/Undetermined	21,282	2%
TOTAL†	1,073,127	100%
(1) Percentages may not always total 100% due to rounding (2) MSM=Men Having Sex With Men (3) IDU=Injection Drug Use (4) Includes hemophilia, blood transfusion, and risk not reported or not identified. (5) U.S. cases from Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report: HIV Infection and AIDS in the United States, 2008: 20. (6) These numbers do not represent actual cases, rather they are point estimates which have been adjusted for reporting delay and for redistribution of cases originally reported with unknown risk. † Totals among subpopulations may be different because values were calculated independently.		

Reported AIDS Cases in Washington State

The first case of AIDS in Washington State was diagnosed in 1982. HIV cases only became reportable to the Department of Health in the fall of 1999. AIDS cases have been reportable since 1984. Earlier diagnosis and better treatments have led to steady increases in the number of people who are surviving with HIV disease. As of December 31, 2009, there were nearly 10,500 people reportedly living with HIV disease in Washington, 58 percent of whom had AIDS. Statewide, HIV prevalence increases about 4 percent each year (WSDOH, 2010).

Across Washington State, new HIV case counts have been steady in recent years. Between 2005 and 2009, there were about 560 new HIV cases diagnosed each year, on average. That's roughly nine new HIV cases per 100,000 people per year (WSDOH, 2010).

For nearly a decade, the numbers of male and female HIV cases diagnosed each year in Washington have remained about the same. About 80 percent of new male cases are men who have sex with men (MSM). Most new female cases are believed to be the result of unprotected sex with an HIV-positive male partner. Fewer than 10 percent of all new HIV cases are injection drug users (IDU), and the proportion appears to be decreasing over time. Since 2001, four confirmed perinatal HIV cases have been diagnosed in Washington (WSDOH, 2010).

Between 2005 and 2009, 60 percent of all new HIV cases in Washington were White, non-Hispanic (NH). However, several racial and ethnic minorities are being disproportionately affected by the HIV epidemic in our state, including Blacks (18 percent during 2005-2009) and Hispanics (14 percent) (WSDOH, 2010).

More than half (56 percent) of all new HIV cases diagnosed in Washington between 2005 and 2009 were adults ages thirty-five and older. However, the number of new cases below the age of twenty-five (15 percent during 2005-2009) has increased in recent years (WADOH, 2010).

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.

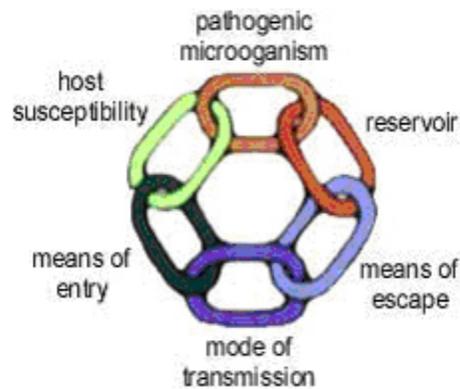
Following dramatic declines observed in the late 1990s, both new cases of AIDS and HIV/AIDS deaths have leveled off in recent years. By the end of 2009, nearly 13,000 people had been diagnosed with AIDS in Washington. HIV disease has contributed to the deaths of more than 5,100 people in Washington since the epidemic began (WADOH, 2010).

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 microorganism that causes infection such as bacteria, viruses, fungi and parasites. There must be a sufficient dose of the organism, that is enough concentration and amount of the organism to cause infection.

The **reservoir** is the place where microorganisms 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 microorganism leaves the reservoir.

The **method of transmission** is how the microorganism 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 healthcare 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, 2007).

As this chain of infection relates to HIV/AIDS:

- The pathogenic microorganism is the human immune deficiency virus, or HIV. A sufficient dose, or concentration and amount, of HIV must be present for infection to occur.
- 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 operation situations, **ONLY** blood, semen, vaginal fluids and breast milk are considered to be infectious for HIV.

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 transmission may also occur in occupational settings. HIV is not transmitted through casual contact in the workplace. Workplace exposures occur through an unintentional needlestick injury or potentially through a splash with potentially infectious blood or blood-contaminated material. Occupational exposure will be covered later in this course.

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

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

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

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 healthcare workers to patients.

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 healthcare 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 their skin or mucous membranes, allowing the virus to pass more easily from one person to another. She also explained that, while most STDs can be treated, HIV has no cure. Ms. H. agreed to be tested for HIV as well as STDs. Unfortunately, her test results showed that she had genital herpes, but was negative for HIV. Her provider reminded her that she could have future outbreaks of herpes that would leave her vulnerable to infection with HIV because of the open areas on her skin. She was provided with both male and female condoms before leaving the clinic, and encouraged to tell her partners about the herpes before having sex.

One of the predictors of the infectiousness of someone who is HIV-positive, is their viral load; it 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.

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 0.03-0.09%

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.

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.

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. Since 2002, medications such as AZT and others are used during pregnancy and delivery to prevent transmission of HIV.

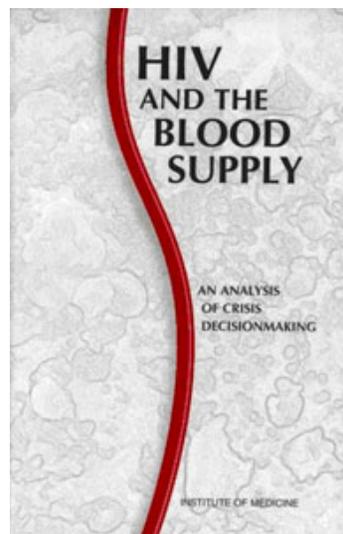
Currently, HIV is transmitted from an HIV-infected woman to her baby in about 25% of pregnancies if intervention with antiretroviral medications does not occur. Because of the widespread use of AZT by HIV-infected pregnant women in the U.S., the perinatal transmission rate has dropped dramatically.

When a woman's healthcare is monitored closely and she receives a combination of antiretroviral therapies during pregnancy the risk of HIV transmission to the newborn drops to below 2%. 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.

Washington state law requires pregnant women to be counseled regarding risks around HIV and offered voluntary HIV testing.

Transfusions of Blood or Blood Products

In 1999 only 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. Testing for HIV began in 1985 and has almost completely eliminated this risk for transmission in developed countries.



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.

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., 12th CROI, 2005). Medications would need to be carefully selected to provide the best treatment possible. Even so, infection with a strain of MDR HIV makes progression to AIDS and death more likely.

Factors Affecting HIV Transmission

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

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

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

The infected person's immune system may also be less able to suppress or combat the HIV infection. 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 those with HIV infection;
- Sores can bleed easily and come in 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.

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 and/or share needles with multiple other partners.

Case Study #4

Ms. M., a 62 year old Caucasian female, was married to her husband for 32 years before he died from complications of coronary artery disease several years ago. It was difficult for her to stop grieving, and for the first year after his death seldom did anything socially with anyone except family members. Eventually she began attending functions at the senior citizen center and met Paul. He was very kind, interesting, funny, and they began dating. A year later, Paul became sick and died.

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

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

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

Gender and equality issues 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;
- Limiting partners
- Avoidance of injecting drug use;
- Syringe/Needle exchange programs;
- Cleaning drug works.

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 non-penetrative sexual intercourse (oral, anal or vaginal). This practice, as well as the practice of NOT sharing penetrative sex toys, 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. 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.

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

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's safe for two people who are both infected with HIV to have unprotected sex with each other. Using latex condoms even when both partners are HIV-positive is still advised. Each

additional exposure to the virus may further weaken an immune system already damaged by HIV. There is also the possibility of passing other STDs through unprotected sex. Any additional viral or bacterial infection stresses the immune system and should be avoided.

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 and equipment. This includes people who use needles to inject insulin, vitamins, steroids or prescription or non-prescription drugs.



Syringe exchange, or needle exchange is a disease prevention program for people who use illegal drugs. Public support for **needle or syringe exchange**, has grown in recent years. It provides new sterile syringes/needles in exchange for used ones. Those who exchange used syringes/needles for clean syringes/needles significantly reduce their risk for sharing needles and becoming infected with HIV or hepatitis. Syringe/needle exchanges are also referral sources for drug treatment; participants may be able to access drug treatment through the intervention of the syringe/needle exchange staff.

Many local health departments in Washington State, some in conjunction with other organizations, operate syringe exchanges in their communities. For more information, contact your local health department/district's HIV/AIDS Program.

If someone 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. Tap it vigorously with the finger to loosen any traces of blood. Shake the syringe. Shoot out the bloody water. Continue this rinsing procedure until there is no "pinkness" or visible blood inside the syringe.
- Completely fill the syringe with fresh bleach. Make certain that the bleach touches all the inside surface of the syringe. Keep the bleach inside the syringe for **a minimum of 30 seconds**. Shake the syringe, then squirt out the used bleach.
- Rinse out the syringe with new, clean water. Shake the syringe, then squirt out the water.
- It is important to follow these steps exactly, because inadequate cleaning can result in the possibility of HIV infection. **Always do the final rinse with water!**

Occupational Exposure to Bloodborne Pathogens

The following requirements are mandated by the Washington Administrative Code (WAC) 296-823, Occupational Exposure to Bloodborne Pathogens. They are enforced by the Department of Labor and Industries Division of Occupational Safety and Health (DOSH). Please check with your agencies to make sure you are in compliance with the requirements of this rule. Failure to comply may result in citations or penalties. Occupational Safety and Health Administration (OSHA) and Washington Industrial Safety and Health Act (WISHA). They are enforced by the Department of Labor and Industries (L&I), following recommendations by the CDC.

This is a brief summary, and *is not meant to provide direction on compliance with WAC 296-823*. The federal Occupational Safety and Health Administration's (OSHA) compliance directive on occupational exposure to bloodborne pathogens, CPL 2-2.69, may be referenced for additional direction. For more information or assistance, contact an L & I consultant in your area.

Rule Scope

WAC 296-823, Occupational Exposure to Bloodborne Pathogens, provides requirements to protect employees from exposure to blood or other potentially infectious materials (OPIM) that may contain bloodborne pathogens. This applies to employers who have employees with occupational exposure to blood or OPIM, even if no actual exposure incidents have occurred.

Occupational exposure is the reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or OPIM that may result from the performance of an employee's duties.

Exposure incident is a specific eye, mouth, other mucous membrane, non-intact skin or parenteral contact with blood or OPIM that results from the performance of an employee's duties. Examples of non-intact skin include skin with dermatitis, hangnails, cuts, abrasions, chafing or acne.

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

- healthcare 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 OPIM. 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.

Bodily fluids that have been recognized as linked to the transmission of HIV, HBV and HCV, and to which Standard Precautions and Universal Precautions apply are:

- Blood
- Blood products
- Semen

- Vaginal secretions
- Cerebrospinal fluid
- Synovial (joint) fluid
- Pleural (lung) fluid
- Peritoneal (gut) fluid
- Pericardial (heart) fluid
- Amniotic (fluid surrounding the fetus) fluid
- Saliva in dental procedures and
- Specimens with concentrated HIV, HBV and HCV

Body fluids such as urine, feces, and vomitus are not considered OPIM unless visibly contaminated by blood.

Wastewater (sewage) has not been implicated in the transmission of HIV, HBV and HCV and is not considered to be either OPIM or regulated waste. However, plumbers working in health care facilities or who are exposed to sewage originating directly from healthcare facilities carry a theoretical risk of occupational exposure to bloodborne pathogens. Employers should consider this risk when preparing their written exposure determination (see below). Plumbers or wastewater workers working elsewhere are probably not at risk for exposure to bloodborne pathogens.

Wastewater contains many other health hazards and workers should use appropriate personal protective equipment and maintain personal hygiene standards when working.

Exposure Control Plan

Each employer covered under WAC 296.62.08001 must develop an **Exposure Control Plan (ECP)**. The plan requires the employer to identify those tasks and procedures in which occupational exposure may occur. It also requires the employer to identify the individuals who will receive the training, protective equipment, vaccination, and other benefits of the standard.

This ECP shall contain at least the following elements:

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

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 foot gear, gloves, and eye glasses. The day after she restocked supplies in the autopsy suite, someone told her that the procedure that day was on a patient with HIV. She became very upset, and demanded to know why she wasn't warned before entering the room. She was afraid that she may have contracted HIV from the air or from walking in any blood or tissue left on the floor (although she did not remember anything visible to her at the time). Her worst worry was taking something home to infect her husband and children. By the time the whole story unfolded she was sobbing.

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

All new employees or employees being transferred into jobs involving tasks or activities with potential exposure to blood/OPIM shall receive training in accordance with WAC 296-823-120 prior to assignment to tasks where occupational exposure may occur. **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. Employees must be provided access to a qualified trainer during the training session to ask and have answered questions that arise.

All employees with occupational exposure to blood or OPIM must be offered **hepatitis B vaccination** after receiving required training and within 10 days of initial assignment. The vaccine must be offered free of charge. Serologic testing after vaccination to ensure that the shots were effective, is recommended for all persons with ongoing exposure to sharp medical devices.

Infection Control Systems

Universal precautions, is a system 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 system that considers all body fluids, except sweat, to be potentially infectious.

Personal Protective Equipment

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

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

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

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

Safer Medical Devices

Safer medical devices and work practices shall be used in preference to personal protective equipment to minimize or eliminate employee exposure. There are now many safer medical devices available. Employers must include employees in ongoing evaluation of safer medical devices and implement these devices whenever feasible. Evaluation and implementation of these devices must be documented in the ECP. Safer medical device lists can be accessed through web sites maintained by the California Division of Occupational Safety and Health SHARP program, the National Association for the Primary Prevention of Sharps Injuries, and the International Health Care Worker Safety Center.

Hand Hygiene

The most common way that infection is spread throughout the healthcare system is through hand contact. Indeed, hand hygiene is the single most effects means of limiting the spread of infection. Hand hygiene (soap and water washing or use of a waterless alcohol based hand rub) must be performed:

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

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

Hand washing must be performed whenever hands are visibly contaminated or there is a reasonable likelihood of contamination. Proper soap and water hand washing technique involves the following:

- Using soap, warm (almost hot) water, and good friction, 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).
- It is advisable to keep fingernails short, and to wear a minimum of jewelry.

Additional information on hand hygiene can be found in the *CDC Guideline for Hand Hygiene in Healthcare Settings, 2002* (see the Reference section of this course).

Housekeeping is important to maintain the work area in a clean and sanitary condition. The employer is required to determine and implement a written schedule for cleaning and disinfection based on the

location within the facility, type of surface to be cleaned, type of soil present and tasks or procedures being performed. All equipment, environmental and working surfaces must be properly cleaned and disinfected after contact with blood or OPIM. Potentially contaminated broken glassware must be removed using mechanical means, like a brush and dustpan or vacuum cleaner.

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's (EPA) website (<http://www.epa.gov/oppad001/chemregindex.htm>) lists of registered sterilants, tuberculocidal disinfectants, and antimicrobials with HIV efficacy claims for verification that the disinfectant used is appropriate.

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.

Proper **specimen handling** requires that specimens of blood or OPIM must be placed in a closeable, labeled or color-coded leak proof container prior to being stored or transported.

All **regulated medical waste** must be placed in closeable, leak proof containers or bags that are color-coded (red-bagged) or labeled as required by WAC 296-823-14060 to prevent leakage during handling, storage and transport. Disposal of waste shall be in accordance with federal, state and local regulations. **Note:** RCW 70.95K addresses "biomedical waste management". Individual county or health jurisdiction waste management regulations may need to be consulted.

WAC 296-823 defines **regulated waste** as any of the following:

- Liquid or semi-liquid blood or OPIM.
- Contaminated items that would release blood or OPIM in a liquid or semi-liquid state, if compressed.
- Items that are caked with dried blood or OPIM that are capable of releasing these materials during handling.
- Contaminated sharps.
- Pathological and microbiological wastes containing blood or OPIM.

Sharp instruments 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.

Tags or labels must be used to protect employees from exposure to potentially hazardous biological agents in accordance to the requirements contained in WACs 296-823-14025, 296-823-14050, and 296-800-11045. 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 work areas that carry occupational exposure.

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.

Post-exposure management is required to be provided by employers. Employers must make a confidential post-exposure medical evaluation available to employees who report an exposure incident. The post-exposure medical evaluation must be:

- Made immediately available
- Kept confidential
- Provided at no cost to the employee
- Provided according to current United State Public Health Service recommendations (see the CDC's *Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis.*)

The employer is also responsible for arranging source individual testing in accordance with WAC 296-823-160.

Additional requirements for HIV/HBV research laboratories and production facilities can be found in WAC 296-823-180.

Occupational Exposure In Healthcare Settings

Occupational exposure is defined as a percutaneous injury (e.g., a needlestick or cut with a sharp object) or contact of mucous membrane or non-intact skin (e.g., exposed skin that is chapped, abraded, or afflicted with dermatitis) with blood, tissue or OPIM.

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. Since 2002, 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 is 22-31% if the source person tests hepatitis B surface antigen (HBsAg) and Hepatitis B e antigen (HBeAg) positive. If the source person is HBsAg positive and HBeAg negative, one has a 1-6% risk of getting HBV unless the person exposed has been vaccinated.

The risk of getting HCV from a needlestick is 1.8%. 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, but the risk is considered low.

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). 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 or the saliva emanates from a dental procedure.. Wash the area with soap and water, and cover with a sterile dressing as appropriate. All bites should be evaluated by a healthcare professional. For human bites, the clinical evaluation must include the possibility that both the person bitten and the person who inflicted the bite were exposed to bloodborne pathogens.

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.

Obtain medical evaluation as soon as possible. Discuss with a healthcare professional the extent of the exposure, treatment, follow-up care, personal prevention measures, the need for a tetanus shot and other care.

The employer is required to provide an appropriate post exposure management referral at no cost to the employee. In addition, the employer must provide the following information to the evaluating healthcare professional:

- A copy of WAC 296-823-160.
- A description of the job duties the exposed employee was performing when exposed.
- Documentation of the routes of exposure and circumstances under which exposure occurred.
- Results of the source person's blood testing, if available.
- All medical records that you are responsible to maintain, including vaccination status, relevant to the appropriate treatment of the employee.
- Note: HIV and hepatitis infection are notifiable conditions under WAC 246-101.

Post-exposure Prophylaxis

Post-exposure prophylaxis (PEP) provides anti-HIV medications to someone who has had a substantial exposure, usually to blood. PEP has been the standard of care for occupationally-exposed healthcare workers with substantial exposures since 1996. Animal models suggest that cellular HIV infection happens within 2 days of exposure to HIV. Virus in blood is detectable within 5 days. Therefore, PEP should be started as soon as possible, within hours, not days, after exposure 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. The benefit of the use of antiviral agents to prevent HCV infection is unknown and antivirals are not currently FDA approved for prophylaxis.

Because of the frequent advances in treatment, doses and medications are not listed here. Post-exposure prophylaxis can only be obtained from a licensed healthcare provider. Your facility may have recommendations and a chain of command in place for you to obtain PEP. After evaluation of the exposure route and other risk factors, certain anti-HIV medications may be prescribed. The National Bloodborne Pathogen Hotline provides 24-hour consultation for clinicians who have been exposed on the job. Call 1.888.448.4911 for the latest information on prophylaxis for HIV, hepatitis, and other pathogens.

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 (2005)* available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5409a1.htm>.

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

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

In rural areas, police, firefighters and other at-risk emergency providers should identify a 24-hour source for PEP.

In addition, Washington state workers have a right to file a worker's compensation claim for exposure to bloodborne pathogens. Industrial insurance covers the cost of post-exposure prophylaxis and follow-up for the injured worker.

HIV/HBV/HCV Testing Post-exposure

All occupational exposures should be evaluated by a healthcare professional. Evaluation should include follow-up counseling, post-exposure testing, and medical evaluation regardless of whether or not PEP is indicated. Antibody testing for HIV, HBV and HCV should be conducted for the first 6 months after occupational exposure. After baseline testing at the time of exposure, follow-up testing is recommended

to be performed at 6 weeks, 12 weeks and 6 months after exposure. Extended HIV follow-up (for up to 12 months) is recommended for those who become infected with HCV after exposure to a source co-infected with HIV. Extended follow-up in other circumstances, such as for those persons with an impaired ability to mount an antibody response to infection, may also be considered.

WAD 296-823-16010 requires the employer to arrange to test the **source individual**, the person whose blood or OPIM an employee was exposed to, for HIV, HBV and HCV as soon as feasible after getting their consent. If the employer does not get consent, the employer must document such and inform the exposed employee.

Because of an increased risk for HIV exposure, the Revised Code of Washington 70.24.340 provides for HIV antibody test of a source when a law enforcement officer, fire fighter, healthcare provider or healthcare facility staff, and certain other professions experience an occupational exposure.

If the employee experiences an occupational substantial exposure to another person's blood or OPIM, the employee can request HIV testing of the source individual through the 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.

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. Depending on your location in Washington State, providers may not even be familiar with the idea of providing PEP to people who have post-sexual exposure to HIV. The University of California at San Francisco has operated a PEP clinic for non-occupational exposure since 1997. For more information, call 415.487.5538 or 415.4PEP after hours.

Good places to start PEP include your local emergency room. In Seattle and Western Washington there are clinics that specifically treat HIV-positive people. You can get information about these clinics through Public Health Seattle-King County's website: www.metrokc.gov/health/news.

If the treating 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.

Non-occupational Exposure to 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.

Bloodborne Pathogen, Sanitary and Food Preparation Procedures for Homes and Home-like Settings

People who live or work in homes and home-like settings should practice good hygiene techniques in preparing food, handling body fluids and medical equipment. Cuts, accidents, or other circumstances can result in spills of blood/OPIM. These spills may be deposited upon carpeting, vinyl flooring, clothing, on a person's skin, or other surfaces. It is important that everyone, even young children, have a basic understanding that they should **not** put their bare hands in, or on, another person's blood. This section outlines practices for some commonly encountered situations.

Gloves

Gloves are available in latex, nitrile or vinyl. Some people have allergies to latex. Gloves should be worn in the following situations:

- Caretakers should wear gloves when they anticipate direct contact with any body substances (blood or OPIM) or non-intact skin.
- When you are through, carefully pull the gloves off, inside-out, one at a time, so that the contaminated surfaces are inside and you avoid contact with any potentially infectious material.
- Gloves should be changed, and hands washed as soon as possible between children, patients, etc.
- Never rub the eyes, mouth or face while wearing gloves.
- Latex gloves should never be washed and reused.

Handwashing Technique

Correct handwashing is extremely important. The steps to follow for good handwashing technique include:

- Use soap, warm (almost hot) water, and good friction, making 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).

A waterless handwashing product should be made available for immediate use if a suitable sink is not readily available in the home or work setting. This product does not replace proper handwashing with soap and water. Refer to the manufacturer's directions for use. People who have been exposed to body fluids should wash their hands **before**, as well as after, using the toilet. The paper towel that was used to dry the hands may also be used to open the bathroom door, if necessary, before disposing of the towel.

Precautions With Personal Hygiene Items

People **should not share** razors, toothbrushes, personal towels or washcloths, dental hygiene tools, vibrators, enema equipment or other personal care items.

Cleaning Blood/OPIM From Skin Surfaces

Wear appropriate gloves. Use sterile gauze or other bandages, and follow normal first-aid techniques to stop the bleeding. After applying the bandage, remove the gloves slowly, so that fluid particles do not splatter or become aerosolized. Hands should be washed using good technique as soon as possible.

Cleaning Body Fluid Spills on Vinyl Floors

Any broken glass should be swept up using a broom and dustpan, **never bare hands**. Empty the dustpan in a well-marked plastic bag or heavy-duty container. The body fluid spill may be pre-treated with full-strength liquid disinfectant or detergent. Next, wipe up the body fluid spill with either a mop and hot, soapy water, or appropriate gloves and paper towels. Dispose of the paper towels in the plastic bag. Use a good disinfectant (e.g., household bleach 5.25% mixed fresh with water 1:10) to disinfect the area that the spill occurred. If a mop was used for the cleaning, soak it in a bucket of hot water and disinfectant for the recommended time. Empty the mop bucket water in the toilet, rather than a sink. Sponges and mops used to clean up body fluid spills should not be rinsed out in the kitchen sink, or in a location where food is prepared.

Cleaning Body Fluid Spill on Carpeting

Pour dry kitty litter or other absorbent material on the spill to absorb the body fluid. Then pour full-strength liquid detergent on the carpet, which helps to disinfect the area. If there are pieces of broken glass present, the broom and dustpan method can be used next to sweep up the kitty litter and visible broken glass. Use carpet-safe liquid disinfectant instead of diluted bleach on the carpeting. Pour this carefully on the entire contaminated area; let it remain there for the time recommended by the manufacturer. Follow this by using sturdy rubber gloves to absorb the spill with paper towels. Vacuum normally afterwards.

Any debris, paper towels, or soiled kitty litter should be disposed of in a sealed plastic bag that has been placed inside another plastic garbage bag. Twist and seal the top of the second bag as well.

Cleaning Clothes or Other Laundry in Home Settings

Clothes, washable uniforms, towels or other laundry that have been stained with blood/OPIM should be cleaned and disinfected before further use. If possible, have the person remove the clothing, or use appropriate gloves to assist with removing the clothes. If it is a distance to the washing machine, transport the soiled clothing items in a sturdy plastic bag. Next, place the items in the washing machine, and soak or wash the items in cold, soapy water to remove any blood from the fabric. Hot water permanently sets blood stains. Use hot soapy water for the next washing cycle, and include sufficient detergent, which will act as a disinfectant, in the water. Dry the items using a clothes dryer.

Wool clothing or uniforms may be rinsed with cold soapy water, then dry cleaned to remove and disinfect the stain.

Diaper Changes

Care providers should use a new pair of appropriate gloves to change diapers. Gloves should be removed carefully and discarded in the appropriate receptacle. Hands should be washed immediately after changing the diaper. Disinfect the diapering surface afterwards. Cloth diapers should be washed in very hot water with detergent and a cup of bleach, and dried in a hot clothes dryer.

Cleaning Sponges and Mops

Sponges and mops that are used in a kitchen should not be used to clean body fluid spills or bathrooms. All sponges and mops should be disinfected routinely with a fresh bleach solution or another similar disinfectant.

Toilet/bedpan Safety

It is safe to share toilets/toilet seats without special cleaning, unless the surface becomes contaminated with blood/OPIM. If this occurs, disinfect the surface by spraying on a solution of 1:10 bleach. Wearing gloves, wipe this away with disposable paper towels. Persons with open sores on their legs, thighs, or genitals should disinfect the toilet seat after each use.

Urinals and bedpans should not be shared between family members, unless they are thoroughly disinfected beforehand.

Thermometers

Electronic thermometers with disposable covers do not need to be cleaned between users, unless they are visibly soiled. Wipe the surface with a disinfectant solution if necessary. Glass thermometers should be washed with soap and warm water before and after each use. If it will be shared between family members, the thermometer should be soaked in 70-90% ethyl alcohol for 30 minutes, then rinsed under a stream of warm water between each use.

Pet Care Precautions

Certain animals may be health hazards for people with compromised immune systems. These animals include turtles, reptiles, birds, puppies and kittens under the age of eight months, wild animals, pets without current immunizations, and pets with illnesses of unknown origin.

Pet cages and cat litter boxes can harbor infectious, sometimes aerosolized organisms. These pet items should be cared for only by someone who is not immunocompromised. If this is not possible, a mask with a sealable nose clip, and disposable latex gloves should be worn each time pet care is done. Follow all pet care with thorough handwashing.

Animals may carry a variety of diseases harmful to people with weakened immune systems. Some of these diseases may be passed by the animal licking their person's face or open wounds. Wash hands after stroking or other contact with pets. Keep cats' and dogs' nails trimmed. Wear latex gloves to clean up a pet's urine, feces, vomit, etc. The soiled area should be cleaned with a fresh solution of 1:10 bleach.

Pet food and water bowls should be regularly washed in warm, soapy water, and then rinsed. Cat litter boxes should be emptied out regularly and washed at least monthly. Fish tanks should be kept clean. It is possible to order disposable latex "calf-birthing" gloves from a veterinarian for immunocompromised individuals. These gloves should offer protection from the organisms that are present in the fish tank. Do not let your pet drink from the toilet, eat another animal's feces, any type of dead animal or garbage. It is best to restrict cats to the indoors only. Dogs should be kept indoors or on a leash.

Many communities have volunteer groups and veterinarians that will assist people with HIV take care of their pets, if needed. Do not hesitate to consult your veterinarian with your questions.

Kitchen Safety and Proper Food Preparation Skills

- Wash hands thoroughly before preparing food.
- Use care when tasting food. Use a clean spoon to taste food. Wash the spoon after using it once.
- Persons with HIV infection should avoid unpasteurized milk, raw eggs or products that contain raw eggs, raw fish, and cracked or non-intact eggs. Cook all meat, eggs and fish thoroughly to kill any organisms that may be present in them. Wash fruits and vegetables thoroughly before eating.
- Disinfect countertops, stoves, sinks, refrigerators, door handles and floors regularly. Use window screens to prevent insects from entering the room.
- Discard food that has expired or is past a safe storage date, shows signs of mold or smells bad.
- Use separate cutting boards for meat and for fruits and vegetables. Disinfect cutting boards frequently. Avoid wood cutting boards if possible.
- Kitchen garbage should be contained in a leak-proof, washable receptacle that is lined with a plastic bag. Seal the garbage liner bags and remove the garbage frequently.

Safe and Legal Sharps Disposal

Disposal of syringes, needles and lancets is regulated. These items are called sharps. They can carry hepatitis, HIV and other germs that cause disease. Throwing them in the trash or flushing them down the toilet can pose health risks for others. Regulations governing disposal of sharps protect garbage and other utility workers and the general public from needlesticks and illness. There are different rules and disposal options for different circumstances. Contact your local health department to determine which option applies in your situation.

Found Syringes in Public Locations

Used syringes that are tossed aside in parks, along roadsides, in laundromats, etc., present a real danger for accidental needle sticks. Risks for infection from a found syringe depends on a variety of factors, including the amount of time the syringe was left out, presence of blood and the type of injury (scratch versus puncture). The risk of HIV infection to a healthcare worker from a needle stick containing HIV-positive blood is about 1 in 300, according to CDC data.

Anyone with an accidental needle stick requires an assessment by a healthcare professional. The medical professional should make certain that the injured person had been vaccinated against Hepatitis B and tetanus; s/he may also recommend testing for HIV, HCV, and HBV.

If a found syringe is handled, but no needle stick occurred, testing for HIV is not necessary. Handling a syringe is not a risk for HIV transmission.

Safe Disposal of Found Syringes

Found used syringes or needles present a risk for HIV, HBV, HCV and other pathogens. Parents and other caregivers should make sure children understand they should never touch a found needle or syringe, but instead should immediately ask a responsible adult for help.

For safe disposal of found syringes:

- If you find a syringe or needle, do not pick it up with your bare hands. Use gloves or tong, shovel or broom and dustpan to pick it up. Hold the needle away from the body.
- Do not break the needle off from the syringe. Needles can carry HIV, hepatitis and other germs. **Do not flush needles or syringes down the toilet.**
- Place used sharps and syringes in a safe container: one with at least a one-inch opening and a lid that will seal tightly. An empty plastic laundry detergent, shampoo, pickle, oil or similar bottle or jar will work. If a glass jar is used, place it into a larger plastic bucket or container that has a tight-fitting lid. Soda cans are NOT good containers to use because people often try to recycle discarded cans.
- Carefully place the needle or syringe into the bottle or jar and seal the lid tightly. Tape it shut for added safety, and label it with the warning: "**Sharps, Do Not Recycle**". The sealed container should NOT be placed where children might open it.
- Call your local health department to determine what disposal sites are available to you.

Part 3. Testing and Counseling

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

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

An estimated one-fourth of the approximately 1 million persons in this country who are living with HIV do not know they are infected (CDC, 2006). That's approximately 250,000 persons who could be spreading HIV to their partners unknowingly. This unwitting spread of HIV infection is part of the reason why the Center for Disease Control and Prevention (CDC) issued new guidelines in September, 2006 regarding HIV testing. The *Revised Recommendations for HIV Testing of Adults, Adolescents, and Pregnant Women in Healthcare Settings* (CDC, 2006) aim to make HIV testing a routine part of medical care in addition to expanding the gains made in diagnosing HIV infection among pregnant women. The goal is to make HIV testing may be a routine part of healthcare with yearly testing integrated into physicals similar to other tests used for screening such as cholesterol, Prosthetic Specific Antigen (PSA), and stools for occult blood. As HIV screening becomes a more routine aspect of medical care, more people will know they are infected with HIV and hopefully will utilize prevention measures.

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

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

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

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

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

HIV Testing: HIV Antibody Tests

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

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

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

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

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

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

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

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

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

Different Antibody Testing Specimen Options

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

Blood

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

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

Oral Fluid

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

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

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

Urine

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

Rapid HIV Test

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

Home HIV Test Kits

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

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

Internet Test Kits

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

Other Tests for HIV

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

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

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

Who Should 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 has been covered in an earlier section of this course.

Where to Get Tested for HIV

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. Call the Washington State HIV/AIDS hotline at 1-800-272-2437 for a referral to a public health, family planning or community clinic in your county.

Confidential HIV Testing

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

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

Anonymous HIV Testing

An anonymous HIV antibody test means that the client doesn't give their name and the person who orders or performs the test does not maintain a record of the name of the person they are testing. For information on anonymous test sites, call the Washington State HIV/AIDS hotline at 1.800.272.2437.

Informed Consent

HIV testing can only be done with the person's consent. Consent may be contained within a comprehensive consent for medical treatment. It can be verbal or written, but must be specific to HIV and must be documented. There are some rare exceptions where a person can be tested without their consent, including source testing relating to occupation exposures and legally-mandated situations specified in Washington State law. See the Legal section of this course for more information on mandatory testing.

Testing Information and Risk Assessment Required

People who are being tested for HIV should be assessed for their risk of infection and, unless previously tested and declining information, they should be provided with appropriate information about the test including, but not limited to:

- The benefits of learning their HIV status and the potential dangers of the disease;
- How HIV is transmitted and way in which it can be prevented;
- Meaning of HIV test results and the importance of obtaining the results; and
- As Appropriate, the availability of anonymous testing and the differences between anonymous and confidential 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 to be detected by the antibody test. Until the infected person's immune system makes enough antibodies to be detected, the test will be negative even though the person is infected with HIV.

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

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

Negative Results

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

- Either the person is not infected with the virus, or
- The person became infected recently and is in the window period.

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

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

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

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

Indeterminate Test Results

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

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

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

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

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

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

Advantages of Early Testing for HIV Infection

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

HIV Counseling with HIV Testing

Washington State law (WAC 246-100-207 and 209) requires that HIV test counseling be offered to all clients who are at risk for HIV or who request counseling. At the same time, the law states that persons who refuse counseling should not be denied an HIV test (clients can refuse counseling); and that the person conducting the HIV test does not have to provide the counseling themselves. They can refer the client to another person or agency for counseling.

Pre-test Counseling

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

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

Post-test Counseling

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

to achieve these goals, provide skills-building to support achieving these goals and provide appropriate referrals.

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

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

Testing Confidentiality

Information about a person's HIV test results is confidential and cannot be shared with others. 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 will be covered in the Legal section of this course.

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 it's rounds in the community, and he would probably feel much better in several days. He was encouraged to go home, rest, take extra fluids, and take Tylenol as needed for fevers. Five days later he was still not feeling better. In fact, he noticed that his lymph nodes were enlarged and his whole body felt achy. Because it was a weekend he went to the local ED, hoping to get something that would make him feel better before returning to work on Monday.

In the ED the provider asked a lot more questions than his usual PCP had asked. In fact, he was irritated when he was asked about his sexual history and remarked, "What does that have to do with my sore throat and swollen glands?" The provider explained that people who are in the stage of seroconversion with HIV often come in for medical care with symptoms similar to the ones he was complaining of. He thought about a woman he had had sex with on his vacation several months earlier. They had not planned to be intimate, but things happened and he hadn't prepared by bringing a condom. Thinking back, he remembered her as being very attractive and healthy. Still, he agreed to have the HIV test.

Results of the test were positive. Mr. J. was early in the infection and his body was responding to invasion of the virus. An appointment was made for him the following week with an HIV specialist. The provider also offered to help him connect with the Department of Health Partner Notification Program, but he declined saying that he had not been sexually active since his vacation. The provider stressed the need to use condoms in the future whenever he planned on sexual activities.

Pregnancy and HIV Testing

Healthcare providers caring for pregnant patients are required by Washington State law to ensure HIV counseling for each pregnant woman who is seeking prenatal care (RCW 70.24.095 and WAC 246-100-208). All pregnant women are to be offered an HIV test and should be tested unless they refuse the HIV test. Those who refuse HIV testing must sign a form saying that they "opt-out" of the HIV test.

HIV-infected women can reduce the chance of transmitting the virus to their children if they receive antiretroviral treatment during pregnancy and delivery. See the Transmission and Infection Control section, covered earlier in this course.

HIV Testing and Sexual Assault

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

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

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

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

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

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

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

In Washington State, only the victims of **convicted** sexual offenders may learn the attacker's HIV status. 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 service provided to HIV-positive people and their sex and/or injection equipment-sharing partners. This service is provided using a variety of strategies to maintain the confidentiality of both the HIV-infected client and the partners.

HIV infected people are counseled about the importance of their partners being notified of exposure to HIV and offered an HIV test. Clients can notify their partners themselves or have public health staff notify them of their exposure, provide counseling and information, and offer HIV testing without informing the partner who tested positive.

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

Reporting Requirements

HIV and AIDS are both reportable in Washington State. See Part 5. Ethical and Legal Issues for more information on reporting.

Part 4. Clinical Manifestations and Treatment

The Natural History of HIV Infection

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

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

These stages are sometimes called the "natural history" of 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.

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). This is sometimes called "seroconversion syndrome" or "seroconversion sickness." It resembles mononucleosis infection, with similar symptoms and length of illness.

These initial symptoms go away in a few weeks, but the individual continues to be infectious to others. It is extremely important that healthcare providers consider the diagnosis of HIV primary infection of 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. An HIV antibody test should be done, but it will only reflect the person's prior HIV status. To detect acute HIV infection, an HIV RNA test that tests directly for the HIV virus must be done.

There are many arguments for and against treatment in primary infection, and healthcare providers have different opinions regarding whether or not a newly HIV infected person should start drug therapies immediately.

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 Evolution of Case Definitions of HIV/AIDS

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. In 2008, the CDC again made revisions in the case definition (see below).

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 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/mm³, or less than 14%, is considered to have AIDS.

In 2008, for adults and adolescents (aged ≥ 13 years), the case definitions for HIV infection and AIDS was revised into a single case definition for HIV infection that includes AIDS and incorporates the HIV infection classification system. Laboratory-confirmed evidence of HIV infection is now required to meet the surveillance case definition for HIV infection, including stage 3 HIV infection (AIDS). Diagnostic confirmation of an AIDS-defining condition alone (see below), without laboratory-confirmed evidence of HIV infection, is no longer sufficient to classify an adult or adolescent as HIV infected for surveillance purposes. The 2007 World Health Organization (WHO) revised surveillance case definition for HIV infection also requires laboratory confirmation of HIV infection (CDC, 2008b).

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, esopagitis
- 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-Hodgkins 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

A **cofactor** is a separate condition that can change or “speed up” the course of disease. There are several cofactors that can increase the rate of progression to AIDS. They include: a person’s age; certain genetic factors; and possibly drug use, smoking nutrition and HCV.

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

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 health care services and HIV medications, compared to men. This may be because women aren't 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.

People in Washington State may begin to access an HIV specialist through the assistance of the case manager(s) in their county. Call your local health department or health district for information on case management programs.

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
- Integrase Inhibitors

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

<http://www.aidsmeds.com/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. Others 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 Washington State. These medicines may cost several thousands of dollars per person each month. People who live in other countries where the medication is unaffordable have very limited 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
- Very high cholesterol or triglycerides
- 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 inform their medical provider. While there seems to be no evidence of harm from these treatments, there is also very little evidence of benefit. Many of these remedies have not been studied to see if they help. There may be drug reactions or other harmful side effects from the interactions of the "natural" medicine and antiretrovirals. For example, St. John's Wort is an herbal remedy that has major interactions with the HIV medications.

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. Washington state has several systems in place to provide prescription and medical assistance to people living with HIV and AIDS. Contact your local health department or district to find case management in your community. You can also call the Washington State Department of Health Client Services toll-free at 1-877.376.9316.

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. Local community-based organizations like the Northwest Family Center in Seattle, and specialty hospitals like Children's Medical Center in Seattle and Mary Bridge Children's Hospital in Tacoma may also provide additional support to children and families.

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.

A total of 256 new cases of tuberculosis were diagnosed among Washington residents in 2005. Twenty-three of 39 counties had at least one new case of TB. In 2005, the five counties with the highest specific incidence rates were King (7.0), Yakima (5.6), Skagit (5.4), Snohomish (3.6), and Pierce (3.5).

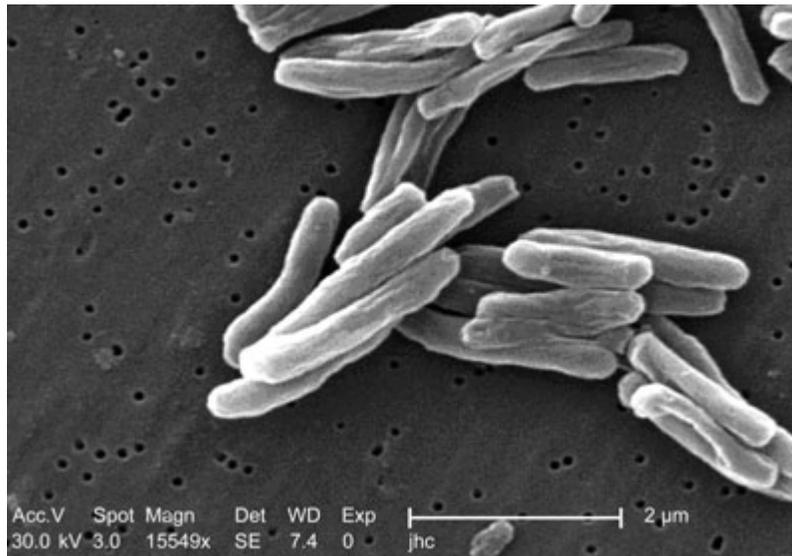


Photo Courtesy of the Public Health Image Library.

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

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

When infectious secretions sneezed or coughed by an adult with pulmonary TB are breathed in by another person, the bacteria may come to rest in the lungs. After several weeks, the bacteria multiply and some as pneumonia-like symptoms may occur.

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

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

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

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

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

The treatment course with Isoniazid will vary. Isoniazid daily regimen for 9 months is recommended because prospective, randomized trials in HIV negative persons indicate that 12 months of treatment is more effective than 6 months of treatment. Although a 9 month regimen of isoniazid is the preferred regimen for the treatment of LTBI, a 6 month regimen also provides substantial protection. In some situations, treatment for 6 months rather than 9 months may provide a more favorable outcome from a cost-effectiveness standpoint. Thus, based on local conditions, health departments or providers may conclude that a 6 month rather than a 9 month course of isoniazid is preferred.

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

In order to prevent drug resistance and cure TB, the CDC recommends that TB be treated with a multidrug regimen, which may last six to 12 months. Current recommendations can be found in the *Washington State Department of Health's Guidelines for the Prevention, Treatment and Control of TB*. A copy may be obtained by calling the Washington State Department of Health TB Program at (360) 236-3447.

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.

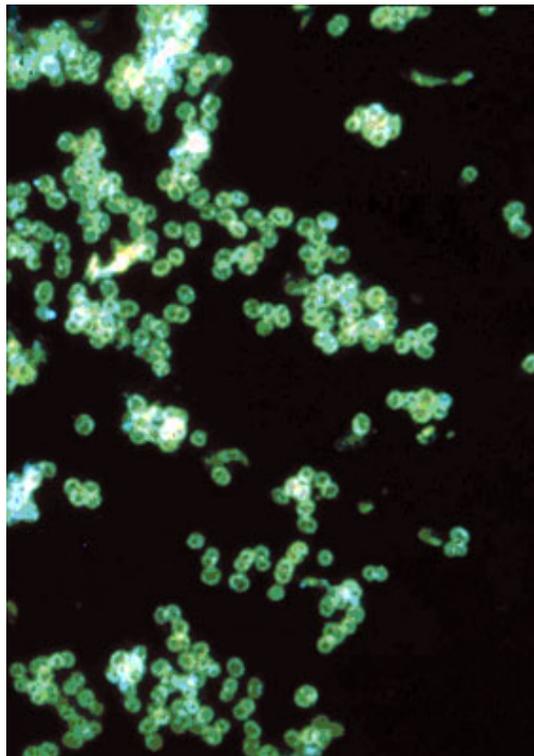
Pulmonary TB and extrapulmonary TB are among the conditions included in the 1993 AIDS surveillance case definition. Any HIV-infected person with a diagnosis of TB disease should be reported as having TB and AIDS.

For more information on TB, contact:

- The communicable disease staff in each county health department/district
- The Washington State Department of Health TB program, (360) 236-3447
- The Centers for Disease Control and Prevention, Division of TB Elimination website at <http://www.cdc.gov/nchstp/tb>.
- Washington State Department of Health: www.doh.wa.gov/cfh/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, usually gonorrhea and/or chlamydia. Non-gonococcal urethritis (NGU) is usually caused by bacteria.

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 2004, 929,462 new cases of Chlamydia were reported to the CDC. Reported cases of gonorrhea rose to 330,132 in that same year.

Primary and secondary cases of syphilis increased 11.2% to 7,980 cases from 2003 to 2004. The Kaiser Family Foundation's website (www.kff.org) lists estimates for incidence (new cases) and prevalence (total number of cases) of both bacterial and viral STDs in the US, noting that by age 24, at least one in three sexually active people are estimated to have contracted an STD.

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

HIV and STDs

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

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

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

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

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

The following steps will help prevent STD infection:

- Abstain or be in a mutually monogamous relationship with an uninfected partner;
- Know that many STDs have no symptoms;
- Know that birth control pills and shots do not prevent infections - you must use condoms along with other birth control methods;
- Go with your sex partner(s) for tests;
- Avoid douching;

- Learn the right way to use condoms and then use them correctly and consistently every time you have sex;
- Be sure all sex partners are examined and treated if an STD occurs;
- Change the ways you have sex so that there is no risk of infection;
- Learn how to talk about correct use of condoms with all sex partners;
- Practice the prevention you have learned for HIV and hepatitis.

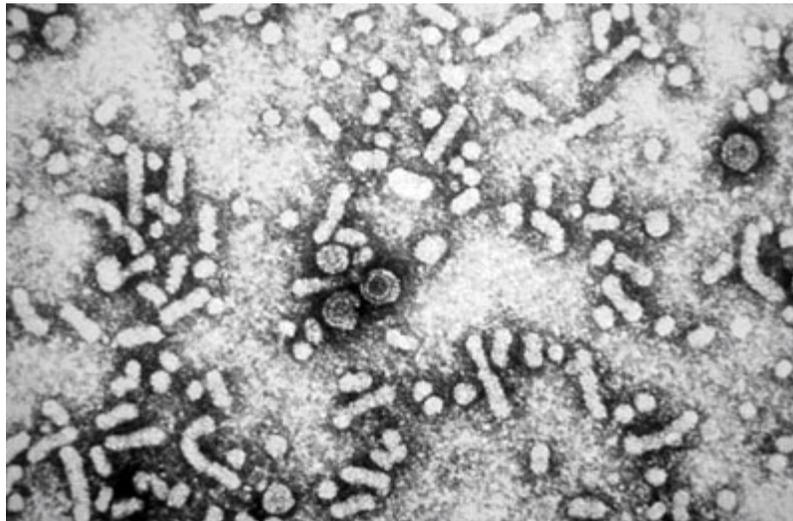
At some sites, new urine LCR tests (you'll be asked to urinate in a cup) for some STDs are available. Western Blot blood tests for herpes and hybrid capture tests for genital warts may also be available. In most places, however, cultures, wet preps and blood draws for syphilis remain the standard testing 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 (fecal/oral transmission), 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. Mycobacterium tuberculosis 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 60,000 people become infected with HBV. Of these, about 2-6% 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 or with more than one partner;
- Are a man and have sex with a man;
- Work where they come in contact with blood or body fluids, such as in a health care setting, prison, or home for the developmentally disabled;
- Use the personal care items (razors, toothbrushes) of an infected person;
- Are on kidney dialysis;
- Were born in a part of the world with a high rate of Hepatitis B (China, Southeast Asia, Africa, the Pacific Islands, the Middle East, South America and Alaska);
- Receive a tattoo or body piercing with equipment contaminated with the blood of someone infected with HBV.

The average incubation period for HBV is 12 weeks. 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:

- Loss of appetite
- Extreme fatigue
- Abdominal pain
- 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 of this course)
- 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 are no medications available for recently acquired (acute) HBV infection. There are antiviral medications available for the treatment of chronic HBV infection, however treatment success varies by individual. 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.

Globally, 180 million people are infected with HCV. An estimated 4.1 million Americans have been infected with HCV. This means that they have a current or previous infection with the virus. About 3.2 million are chronically infected. The CDC estimates that as many as 1 million Americans were infected with HCV from blood transfusions and that 3.75 million Americans do not know they are HCV-positive. Of these, 2.75 million people are **chronically infected**, and are infectious for HCV. In the U.S., 8,000-10,000 deaths per year are attributed to HCV-associated liver disease. The number of deaths from HCV are expected to triple in the next 10-20 years. An estimated 110,000 people in Washington State are infected with HCV.

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 5-6% 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 (unless blood is present)
- Sneezing
- Hugging
- Kissing
- 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
- 70% may develop chronic liver disease
- 20% may develop cirrhosis over a period of 20-30 years
- 1-5% may die from chronic liver disease

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 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. However, treatment for coinfection is possible in some cases with close medical supervision.

Transmission by	HIV	HBV	HCV
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	No	No
Target in the body	Immune System	Liver	Liver
Risk of infection after needlestick exposure to infected blood	0.5%	1-31%	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

Reporting HIV/AIDS

AIDS and HIV are reportable conditions in Washington State, by statute WAC 246-101. AIDS (medically diagnosed) and symptomatic HIV infection have been reportable conditions in Washington since 1984 and 1993 respectively. In 1999, asymptomatic HIV infection also became reportable.

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 HIV or AIDS, providers who have made that diagnosis on a patient, must submit a confidential case report to the local health jurisdiction within 3 days.

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 department.

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 if the test result is positive, the individual testing positive will be counseled about the importance of notifying spouses and partners and 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).

Confidentiality

All medical records are confidential and must be maintained in a manner that protects that confidentiality. There are special requirements around HIV and AIDS, found in WAC 246-101 and RCW 70.24.105.

Confidentiality of medical information means that a person's medical information (including HIV testing and HIV results) may not be disclosed to anyone unless the individual signs a release of information form. However, there are exceptions to this. Medical information can be disclosed under certain circumstances including:

- When it is given from one health provider to another health care provider for related on-going medical care of the patient
- 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 Title II of the Americans with Disability Act (ADA) of 1990 and Section 504 of the Federal Rehabilitation Act of 1973, as amended. In Washington State, the Washington Law Against Discrimination (WLAD) regulates disabled status and explicitly prohibits discrimination on the basis of HIV and Hepatitis C Infection. RCW 49.60.174. The WLAD is enforced by the Washington State Human Rights Commission (WSHRC)..

Persons with HIV infection and/or AIDS who feel discriminated against on the basis of their disease may file a complaint with the Office for Civil Rights (OCR) of the U.S. Department of Health and Human Services, **or** the Washington State Human Rights Commission.

WSHRC jurisdiction information can be found on its website, www.hum.wa.gov. The WSHRC does not investigate anonymous complaints, and may have to release a complaint under the State's Public Disclosure Act. In certain circumstances, OCR will not disclose a complainant's identity.

HIV infection and AIDS are medical conditions that are considered disabilities under the Washington State Law Against Discrimination (RCW 49.60) and the federal Americans with Disability Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973.

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

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

Note: Federal and state jurisdictions differ.

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

Note that state and federal laws do not cover all employers. For example, state law does not cover employers with fewer than eight employees, religiously controlled non-profits and Indian tribes.

Employers are required to provide and maintain a working environment free of discrimination. They must assure that no harassment, intimidation or adverse action personnel distinction is made in terms and conditions of employment based on HIV status. If a worksite situation develops that poses the threat of discrimination, it is best practice for the employer to provide education and supervision to employees in

order to end harassment, the use of slurs and/or intimidation. An employer should promptly investigate allegations of discrimination, take appropriate action, and not retaliate against the person who complained.

If someone is in a situation in which they feel they are being discriminated against, they should first document the discrimination, speak with their supervisor, and follow the entity's internal process to file a discrimination charge. However, it is not necessary to follow an internal grievance process. If these remedies do not work, a person should contact the Office for Civil Rights or the Washington State Human Rights Commission. An aggrieved person can also file directly in state court. A complaint must be filed within 180 days of the alleged discriminatory incident.

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 modifications to a worksite or job, in the context of the entire employer's operation, 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

An employee with a disability must self-identify and request a reasonable accommodation. The employer must engage in an interactive process with the requestor. The reasonable accommodation grant may not be exactly the same one as requested by the employee, but can be equally effective. The employer does not have to change the essential nature of its work, or engage in undue hardship or heavy administrative burdens. The essential functions of the job must be accomplished, with or without reasonable accommodations.

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

- It is best practice for an employer to NOT ask questions directed at the perception or presence of HIV infection or AIDS, unless based on a "bona fide" occupational qualification (BFOQ) from the Washington State Human Rights Commission. RCW 49.60.172 and WAC 246.100.204.
- It is best practice for an employer to not ask lifestyle questions such as inquiring about an applicant's religion, living arrangements, sexual orientation or gender identity.

Note: Chapter 49.60 RCW, the Washington Law Against Discrimination, prohibits discrimination based on age, creed, religion, race, color, national origin, sex, sexual orientation and gender identity, HIV and HCV status, whistleblower retaliation, marital status (housing and employment), families with children (housing), or the presence of any sensory, mental or physical disability or the use of a trained dog guide or service.

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

Washington State law (RCW 70.24) and rules (WAC 246-100 and 246-101) gives state and local health officers the authority and responsibility to carry out certain measures to protect the public health from the spread of sexually transmitted disease (STD), including HIV.

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 HIV, Washington State law permits an additional step - the detention of an HIV-infected person who continues to endanger the health of others. After all less restrictive measures have been exhausted, a person may be detained for periods up to 90 days after appropriate hearings and rulings by a court. The detention must include counseling.

By state law and rule, healthcare providers are required to provide instruction on infection control measures to the patient who is diagnosed with a communicable disease. They are also required to report certain information to the local health officer where there are either impediments to or refusal to comply with prescribed infection control measures.

For example, 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, call the Washington State Hotline at 1-800-272-2437, or ask a knowledgeable person to provide the information to your group.

Part 6. Psychosocial Issues

Washington State has a system to link people with HIV infection and AIDS to care services. 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.

To find a case manager, contact the HIV/AIDS Program in your county's health department or district, or call the Washington State DOH at 1.877.376.9316.

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.
- 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 HIV or 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.

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.

HIV often produces many losses:

1. Loss of physical strength and abilities
2. Loss of mental abilities/confusion
3. Loss of income and savings
4. Loss of health insurance
5. Loss of job/work
6. Loss of housing, personal possessions, including pets
7. Loss of emotional support from family, friends, co-workers, religious and social institutions
8. Loss of self-sufficiency and privacy
9. Loss of social contacts/roles
10. 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.

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

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

People living with HIV may feel as though their "normal" lives have completely ended, as they must plan detailed medication schedules and medical appointments. The cost of the medications for HIV may result in financial hardship, even if the person has medical coverage. Call the Washington State DOH at 1.877.376.9316 if you or someone you know needs help paying for HIV care and medications.

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. Call your local Crisis Line listed in your phone book, or call the National Suicide hotline at 1.800.784.2433 or 1.800.273.8255.

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

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

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

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

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

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

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

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

following information details how these different populations may be uniquely affected by the AIDS epidemic.

Men Who Have Sex With Men

Among MSM overall, there were more new HIV infections in young black MSM (aged 13–29) than any other age/racial group of MSM. The number of new infections among young, black gay and bisexual men was roughly twice that of whites and of Hispanics/Latinos (5,220 infections in blacks vs. 3,330 among whites and 2,300 among Hispanics/Latinos) (CDC, 2008e). White MSM accounted for close to half (46%) of HIV incidence in 2006. Most new infections among white MSM occurred in those aged 30–39 (4,670), followed by those aged 40–49 (3,740) (CDC, 2008e). Among Hispanic/Latino MSM, most new infections occurred in the youngest (13-29) age group (2,300), though a substantial number of new HIV infections were among those aged 30–39 (1,870) (CDC, 2008e).

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. 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

According to the CDC, in 2005, HIV/AIDS was diagnosed for an estimated 9,708 women in the US. This number is a decrease from the 11,941 females in 2001. Women accounted for 26% of the estimated 37,163 diagnoses for adults and adolescents in 2005.

Women with AIDS made up an increasing part of the epidemic. Worldwide, at the end of 2005, according to the World Health Organization (WHO), 17.5 million women worldwide were infected with HIV (NIAD, 2006). In 1992, women accounted for an estimated 14% of adults and adolescents living with AIDS in the 50 states and the District of Columbia. By the end of 2005, this proportion had grown to 23% (CDC, 2008c).

Of the 126,964 women living with HIV/AIDS in 2005, 64% were black, 19% were white, 15% were Hispanic, 1% were Asian or Pacific Islander, and less than 1% were American Indian or Alaska Native (CDC, 2008c).

High-risk heterosexual contact was the source of 80% of these newly diagnosed infections (CDC, 2008c). An estimated 1 in 5 new HIV diagnoses for women are related to injection drug use (CDC, 2008c).

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 (CDC, 2008c).

The rates of HIV diagnosis and the risk factors for HIV infection differ for women of various races or ethnicities—a situation that must be considered when creating prevention programs. For example, even though the annual estimated rate of HIV diagnosis for black women decreased significantly—from 82.7 per 100,000 population in 2001 to 60.2 per 100,000 population in 2005—it remained 20 times the rate for white women. Overall, the rates of HIV diagnosis are much higher for black and Hispanic women than for white, Asian and Pacific Islander, or American Indian and Alaska Native women. The rates for black women are higher than the rates for all men except for black men (CDC, 2008c).

Women suffer from the same complications of AIDS that afflict men but also suffer gender-specific manifestations of HIV disease, such as recurrent vaginal yeast infections, severe pelvic inflammatory disease (PID), and an increased risk of precancerous changes in the cervix including probable increased rates of cervical cancer. Women also exhibit different characteristics from men for many of the same complications of antiretroviral therapy, such as metabolic abnormalities (NIAD, 2006).

Frequently, women with HIV infection have great difficulty accessing healthcare. According to a recent CDC study of more than 19,500 patients with HIV in 10 US cities, women were slightly less likely than men to receive prescriptions for the most effective treatments for HIV infection (CDC, 2008c).

Women 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, 2006). 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

Populations of minority races/ethnicities are disproportionately affected by the HIV epidemic (CDC, 2008c). African Americans make up 12% of the total U.S. population, yet represented 46% of new HIV infections in the United States in 2006 (CDC, 2008e). Of the 1.1 million persons living with HIV infection in the US, the majority were nonwhite (65.4%), and nearly half (48.1%) were men who have sex with men (MSM). The HIV prevalence rates for blacks (1,715.1 per 100,000) and Hispanics (585.3 per 100,000) were, respectively, 7.6 and 2.6 times the rate for whites (224.3 per 100,000) (CDC, 2008d).

TABLE. Estimated number,* percentage, and rate† of persons aged ≥13 years living with human immunodeficiency virus (HIV) infection, by selected characteristics — United States, 2006

Characteristic	HIV prevalence	(95% CI‡)	%	Rate	(95% CI)
Sex					
Male	828,000	(786,000–870,000)	74.8	685.7	(650.9–720.5)
Female	278,400	(253,400–303,400)	25.2	220.4	(200.6–240.2)
Age group (yrs)					
13–24	56,500	(45,000–68,000)	5.1	111.0	(88.4–133.6)
25–49	770,000	(730,000–810,000)	69.6	720.4	(683.0–757.9)
≥50	280,000	(255,000–305,000)	25.3	313.5	(285.5–341.4)
Race/Ethnicity					
White	382,600	(354,600–410,600)	34.6	224.3	(207.9–240.7)
Black	510,100	(478,100–542,100)	46.1	1,715.1	(1,607.5–1,822.7)
Hispanic¶	194,000	(175,000–213,000)	17.5	585.3	(528.0–642.6)
Asian/Pacific Islander	15,100	(12,600–17,600)	1.4	129.6	(108.2–151.1)
American Indian/Alaska Native	4,600	(3,100–6,100)	0.4	231.4	(156.0–306.9)
HIV transmission category					
Male-to-male sexual contact	532,000	(492,000–572,000)	48.1		
Injection drug use (male)	131,500	(114,500–148,500)	11.9		
Injection drug use (female)	73,100	(62,100–84,100)	6.6		
Male-to-male sexual contact and injection drug use	54,900	(44,900–64,900)	5.0		
High-risk heterosexual contact (male)**	104,000	(89,000–119,000)	9.4		
High-risk heterosexual contact (female)**	201,700	(179,700–223,700)	18.2		
Other††	9,100	(7,600–10,600)	0.8		
Total§§	1,106,400	(1,056,400–1,156,400)	100	447.8	(427.5–468.0)

* Estimated numbers, from national HIV/AIDS Reporting System data, are adjusted for reporting delays and reclassification of cases reported without information regarding an HIV transmission category, but are not adjusted for underreporting. Estimates are rounded to the nearest 100.

† Per 100,000 population at the end of 2006. Rates for transmission category subgroups were not calculated because population denominators were unavailable. Rates for racial/ethnic populations do not include an adjustment for redistribution of persons of unknown race/ethnicity.

‡ Confidence interval.

¶ Might be of any race.

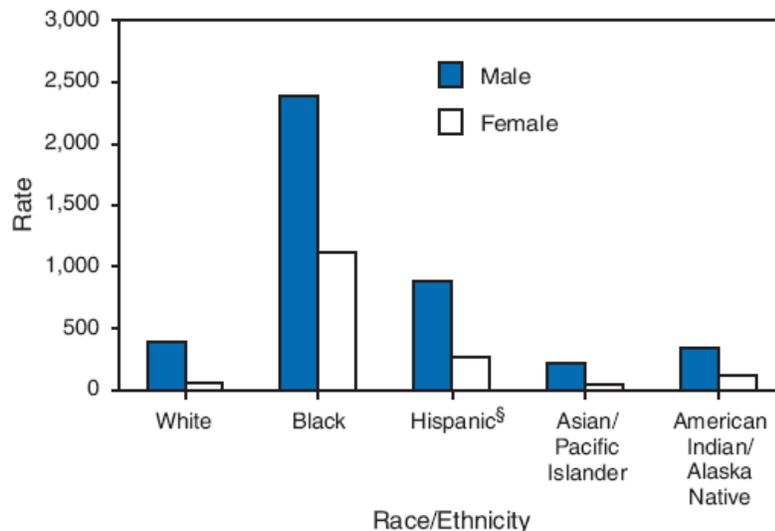
** Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

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

§§ Because column totals were calculated independently of the values of the subpopulations and all values were rounded, the values might not sum to the respective column total.

African Americans and Hispanics specifically have disproportionately higher rates of AIDS cases in the US despite the fact that there are no biological reasons for the disparities. African American and Hispanic women make up less than 25% of the total US population, but account for 77% of all reported AIDS cases in women. African Americans make up about 12% of the population, but account for 37% of all AIDS cases in the US. Hispanics made up 13% of the population but accounted for 20% of reported AIDS cases.

FIGURE. Estimated human immunodeficiency virus (HIV) prevalence rate* among persons aged ≥ 13 years, by race/ethnicity and sex — United States, 2006†



* Per 100,000 population.

† HIV prevalence at the end of 2006 for the 50 states and the District of Columbia, estimated from national HIV/AIDS Reporting System data.

§ Might be of any race.

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

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

There is a significant amount of denial about HIV risk, which continues to exist in these communities. As with other groups, there may also be fear and stigmatization of those who have HIV. Prevention messages must be tailored and presented in a culturally and linguistically appropriate manner. The messages must be carried through channels that are appropriate for the individual community. These channels may include religious institutions or through respected elders in the community. Ironically, it may be these institutions or elders who, in the past, have contributed to the misinformation and stigma associated with HIV. Many HIV prevention programs are recognizing the importance of working with diverse communities. Input from these communities must be included in planning, delivering, and evaluating HIV prevention activities.

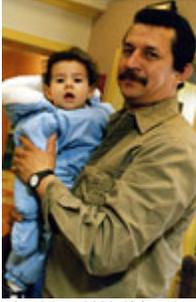


Photo by Lloyd Wolf for the U.S. Census Bureau, Public Information Office

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).



Photo by 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.

Conclusion

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

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

Glossary

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 Defining Illness	One or more of a list of illnesses which, in combination with a Conditions 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	A disease fighting protein created by the immune system, also known as immunoglobulin. Antibodies coat, mark for immune destruction or render harmless foreign matter such as bacteria, viruses or dangerous toxins. Antibodies also tag virus infected cells, making them vulnerable to attack by the immune system.
Antigen	A substance that, when introduced into the body, is capable of inducing the production of a specific antibody.
Antiretroviral	A substance that stops or suppresses the activity of a retrovirus, such as HIV. Examples include: nucleoside analog and protease inhibitors.
Asymptomatic	Showing no outward sign of disease.
Asymptomatic HIV	Used in HIV/AIDS literature to describe a person who has a positive reaction to one of several tests for HIV antibodies, but who shows no clinical symptoms of the disease. Many people with HIV do not look or feel sick.
AZT (Zidovudine)	The first FDA-approved drug used to treat AIDS and HIV infection. Also called ZDV; it is a nucleoside analog that suppresses replication of HIV..
Bloodborne Pathogens	Any pathogen (like a virus or bacteria) present in blood or other potentially infectious material. Bloodborne Pathogen 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. 1.800.CDC.INFO or 1.800.232.4636.
Chronic	Refers to symptoms and diseases that last for an extended period of time without noticeable change.
Confidential Testing	The patient gives their real name and the results of the HIV antibody test are known only to that individual and the health care provider performing the test. Positive results from confidential tests are now

	reportable to local public health officials.
Diagnosis	The determination of the presence of a specific disease or infection, usually accomplished by evaluating clinical symptoms and laboratory tests.
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 false negative test result is one that does not detect what is being tested even though it is present. A false-negative test result may thus suggest that a person does not have a disease or condition being tested for when in fact s/he does.
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. Often including a combination of a Protease Inhibitor or Non-nucleoside Reverse Transcriptase Inhibitor and two Reverse Transcriptase Inhibitors, whose purpose is to reduce viral load to undetectable levels.
Helper/Suppressor	White blood cells (lymphocytes) that are part of the immune T-Cells 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 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 Antibody Screening Test	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 Disease	The term which 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	The complex functions of the body that recognize foreign agents or substances, neutralizes them and has the capacity to recall the response later when confronted with the same challenge. A body system that helps resist disease-causing germs, viruses or other infections.
Immunosuppressed	Impairment of the immune system functions, thus making a person susceptible to certain diseases that they would not ordinarily develop.
Infection	A condition or state of the body (or part of the body) is invaded by an infectious agent which multiplies and produces an injurious effect (active infection).
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 or cancers that occur especially or exclusively in persons with weak immune systems due to AIDS, cancer or immunosuppressive medications. Examples: Kaposi's sarcoma (KS), Pneumocystis Carinii Pneumonia (PCP), Toxoplasmosis and Cytomegalovirus.
OSHA	Occupational Safety and Health Administration.
p24 Antigen Test	Blood test that checks for the presence of HIV's capsid protein, p24. Unlike antibody tests, the p24 antigen test detects HIV directly.
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 administration of drug treatment to prevent disease in an individual after exposure to an infectious organism. For example, guidelines has been established for post-exposure prophylaxis of healthcare providers who have been exposed to HIV through needle sticks. Also can refer to provision of anti-HIV medications (antiretroviral 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, preferable 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. Also called acute infection .
Prophylaxis	Any substance or steps taken to prevent something from happening (for example, condoms, vaccines and possibly antiretroviral therapy).
Protease Inhibitors	Drugs that bind to and block HIV protease from working, thus preventing the production of new functional viral particles.
Reportable Diseases	Under State Board of Health rules, health care providers are required to confidentially notify public health officials of the diagnosis of certain diseases or conditions. Confidential name based reporting is used for AIDS cases and symptomatic infection as well as HIV.
"Safer Sex"	Sexual practices that reduce or eliminate the opportunity for the exchange of blood, semen or vaginal secretions.
Seroconversion	The development of detectable antibodies to HIV in the blood as a result of infection. It normally takes several weeks to several months for antibodies to the virus to develop after HIV transmission. When antibodies to HIV appear in the blood, a person will test positive in standard ELISA test for HIV.
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. Some are: gonorrhea, syphilis, chancroid, granuloma inguinale and lymphogranuloma venereum, scabies, herpes genitalis and anorectal herpes and warts, pediculosis, trichomoniasis, genital candidiasis, molluscum contagiosum, nonspecific urethritis, chlamydial infections, cytomegalovirus, AIDS, and Herpes Simplex Virus II.
Standard Precautions	Recommendations designed to reduce the risk of transmission of bloodborne pathogens and BSI (body substance isolation, which is designed to reduce the risk of transmission of pathogens from moist body substances) and applies to all patients receiving care in hospitals, regardless of their diagnosis or presumed infection status. Standard precautions apply to blood; all body fluids, secretions, and excretions except sweat, regardless of whether or not they contain

	visible blood; non-intact skin; and mucous membranes. Standard precautions are designed to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection in hospitals.
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 set of related symptoms or manifestations of a disease that define a specific condition.
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. For people with immune deficiencies, TB is much more common.
Universal Precautions	Term relating to procedures designed to prevent transmission of bloodborne pathogens in health care 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 contains weakened or killed infectious organisms. A vaccine provides long term immunity against a pathogen by producing an acquired immune response without causing disease. No effective HIV vaccine has yet been discovered.
Viral Load Test for HIV	Measures the amount of HIV RNA per unit of blood plasma. An indicator of virus concentration and reproduction rate, HIV viral load is employed as a measure of the success of antiretroviral therapy. It is expressed in number of copies of or equivalents to the HIV RNA genome per milliliter of plasma.
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. Viruses can reproduce only within living cells into which they inject their genetic material.
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). A western Blot test is more reliable than the EISA, but it is more difficult and more costly to perform. All positive HIV antibody tests should be confirmed with a Western Blot test.
Window Period	The time period between when a person is actually infected with HIV and when antibodies to HIV can be detected in the test is called the window period. 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.
WISHA	Washington Industrial Safety and Health Act.
Works	The collective term for the syringe, needle, "cooker," cotton, and rinse water - elements of the injection drug user's paraphernalia.

Resources

National Resources

National HIV/AIDS and STD Information (English & Spanish)

- 1.800.CDC.INFO 1.800.232.4636
- 1.888.232.6348 TTY
- 24hr/day
- cdcinfo@cdc.gov

National AIDS Information Clearinghouse

- 1.800.458.5231

Curriculum Sources

Washington State Department of Health 1-800-272-2437 HIV Prevention & Education Services
<http://www.doh.wa.gov/cfh/hiv/default.htm>

Department of Labor and Industries 1-800-423-7233 www.lni.wa.gov

Centers for Disease Control and Prevention 1-404-639-3311 <http://www.cdc.gov/hiv/default.htm>

Washington Resources

Washington State HIV Hotline 1-800-272-2437
For updated information on reported AIDS cases in Washington.

For current HIV and AIDS statistics, visit these websites:

- <http://www.doh.wa.gov/cfh/hiv/default.htm>
- <http://hivinsite.ucsf.edu/>
- <http://www.cdc.gov/>

Internet access can be obtained through local libraries. If you are unable to access the internet, contact the Washington State HIV/AIDS hotline at 1-800-272-2437.

Additional resources and community-based organizations may be identified by contacting the Washington State Regional AIDS Service Networks (AIDSNETs).

<p><i>Region 1</i> (509) 324-1551 Spokane County Health District 104 North First St. Spokane, WA 99201-2095</p> <p>Counties: Adams, Asotin, Columbia, Ferry, Okanogon, Pend Oreille, Walla Walla and Whitman</p>	<p><i>Region 2</i> (509) 249-6503 Yakima Health District West 1101 College Ave. Yakima , WA 98901-2667</p> <p>Counties: Benton, Chelan, Douglas, Garfield, Lincoln, Franklin, Grant, Kittitas, Klickitat and Spokane, Stevens, Yakima</p>
<p><i>Region 3</i> (425) 339-5211 Snohomish Health District 3020 Rucker Ave. Suite 208 Everett, WA 98201-3900</p> <p>Counties: Island, San Juan, Skagit, Snohomish and Whatcom</p>	<p><i>Region 4</i> (206) 296-4649 Public Health Seattle & King County 400 Yesler Way Suite 300 Seattle, WA 98104-2615</p> <p>King County</p>
<p><i>Region 5</i> (253) 798-4791 Tacoma-Pierce County Health Department 3629 S. "D" St. MS: 062 Tacoma, WA 98418-6813</p> <p>Counties Pierce and Kitsap</p>	<p><i>Region 6</i> (360) 397-8086 Clark County Health Department PO Box 9825 Vancouver, WA 98666-8825</p> <p>Counties: Clallam, Clark, Cowlitz Grays Harbor, Jefferson, Lewis, Mason Pacific, Skamania, Thurston and Wahkiakum</p>

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Course Test

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

1. HIV is a
 - A. Bacteria that is dispersed through the air on droplet nuclei.
 - B. Fungus that is transmitted through direct contact.
 - C. Virus that is transmitted through blood.
 - 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 plaques.
 - 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. Viral transmission is the initial infection with HIV. When a person is infected with HIV, they will probably have virus circulating in their bloodstream, and may become infectious to others within five days. The person may be infectious before the onset of any symptoms. They will remain infectious for the rest of their lives.
 - A. True.
 - B. False.

7. All the following are true about Primary infection **EXCEPT**:
- A. It occurs in the first few weeks of HIV infection.
 - B. Because antibodies have not yet been developed, those with primary infection cannot pass HIV on to others.
 - C. Typically, people have a very high amount of virus in their bloodstream during this stage.
 - D. Symptoms include fever, swollen glands in the neck, armpits and/or groin, rash, fatigue and sore throat.
8. High risk behaviors for HIV transmission include:
- A. Unprotected heterosexual contact where there may be an exchange of blood, semen or vaginal secretions.
 - B. Unprotected homosexual contact where there may be an exchange of blood, semen or vaginal secretions.
 - C. Sharing injecting drug equipment such as syringes and needles.
 - D. 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 2nd person's skin abrasions and mucus membranes, such as might occur during sex.
- A. True.
 - B. False.
10. Seroconversion is:
- A. Occurs after infection; it is when antibodies are produced that would show positive on an HIV test.
 - B. The time frame may vary from person to person, with most people having HIV antibodies detectable within the first 3-6 months of infection.
 - C. Detectable for life in most cases.
 - D. All of the above.
11. All the following are true about opportunistic infections **EXCEPT**:
- A. They have a high potency ratio, making even one exposure a very high risk.
 - B. These infections are more destructive because of HIV's assaults on the immune system.
 - C. These infections are not generally seen in persons with healthy immune systems.
 - D. 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.
- A. True.
 - B. False.

13. After occupational exposure to HIV in the workplace, the employee should:

- A. Follow facility protocols and policies.
- B. Obtain evaluation as soon as is possible; prophylactic treatment should begin within 2-24 hours
- C. Obtain permission to test the source for HIV infection, if possible.
- D. All of the above.

14. All positive Western Blot tests must be confirmed by the ELISA.

- A. True
- B. False

15. Partner notification consists of:

- A. Confidentially notifying partners of persons who have been tested for HIV, so that they are aware that their partner has had the HIV test.
- B. 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.
- C. 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.
- D. 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:

- A. Go directly to the nearest hospital emergency room, without changing their clothing, bathing or showering first.
- B. 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.
- C. In Washington State, 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.
- D. 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. The 2008 case definition revision for HIV and AIDS was revised into a single case definition for HIV infection that includes AIDS and incorporates the HIV infection classification system. All the following are true **EXCEPT**:
- A. Laboratory-confirmed evidence of HIV infection is now required to meet the surveillance case definition for HIV infection .
 - B. A positive HIV test OR an AIDS indicator condition OR a CD4 count of less than 200 cells/mm.
 - C. Diagnostic confirmation of an AIDS-defining condition alone, without laboratory-confirmed evidence of HIV infection, is no longer sufficient to classify an adult or adolescent as HIV infected for surveillance purposes.
 - D. This definition applies to adults and adolescents age 13 and older.
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**:
- A. Nausea, diarrhea and osteoporosis
 - B. Numbness in feet and hands (peripheral neuropathy) and changes in body fat distribution (lipodystrophy).
 - C. Vomiting, weight gain and restlessness.
 - D. Diabetes or other metabolic changes.

24. In an HIV-infected person, TB disease can develop in the following ways:
- A. A person who already has latent TB infection can become infected with HIV, and then TB disease can develop as the immune system is weakened.
 - B. A person who has HIV infection can become infected with *M. tuberculosis*, and TB disease can then rapidly develop because their immune system is not functioning.
 - C. Both A and B.
 - D. Neither A or B.
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.
- A. True.
 - B. False.
26. Sexually transmitted diseases (STDs) can be prevented through:
- A. Abstaining from sex or 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.
 - B. 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.
 - C. Both A and B.
 - D. 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.
- A. True.
 - B. False.
28. Which of the following statements regarding HIV and HCV co-infections are true:
- A. Many people who become infected with HIV from injection drug use are already infected with HCV. Some estimate that 40% of HIV-infected people in the U.S. are also infected with HCV.
 - B. People who are co-infected with both viruses and have immune system impairment, may progress faster to serious, chronic or fatal liver damage.
 - C. Treating HIV in someone with HCV may be complicated, because many of the medicines that are used to treat HIV may damage the liver.
 - D. All of the above.

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.
- A. True.
 - B. False.
30. Positive HIV results obtained through anonymous testing are:
- A. Submitted to the local health jurisdiction within 3 days.
 - B. Required to initiate partner notification immediately.
 - C. 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.
 - D. None of the above.
31. During the stage of Symptomatic HIV Infection, common symptoms include:
- 1. Fever, Fatigue, Nausea, Vomiting or Diarrhea.
 - 2. Urinary or fecal incontinence.
 - 3. Confusion, dementia, vision or hearing loss.
 - 4. Pain in joints, muscles or nerves, difficulty breathing.
 - 5. Yeast infections in the mouth, chronic pneumonias, sinusitis, or bronchitis.
 - 6. Loss of muscle tissue and body weight.
- A. 2, 3 and 6.
 - B. 1, 4 and 5.
 - C. None of the above.
 - D. All of the above.
32. Violations of Washington States confidentiality laws related to HIV:
- A. Are considered a misdemeanor.
 - B. May result in civil liability actions for reckless or intentional disclosure up to \$10,000 or actual damages, whichever is greater.
 - C. Are the responsibility of the county's health officer to investigate potential breaches of confidentiality of HIV identifying information and report those to the DOH.
 - D. All of the above.
33. HIV infection and AIDS are medical conditions that are considered disabilities under the Washington State Law Against Discrimination (RCW 49.60) and 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 CDC and WAC 246-100-206(11), 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.

- A. True.
- B. False.

35. In Washington State, 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.

- A. True.
- B. False.

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. Confidentiality of medical information means that a person's medical information (including HIV testing and HIV results) may not be disclosed to anyone unless the individual signs a release of information form. However, there are exceptions to this. Medical information can be disclosed under certain circumstances including:
- A. When it is given from one health provider to another health care provider for related on-going medical care of the patient, or to a third party payor.
 - B. In a life or death emergency.
 - C. In the case of reporting notifiable conditions to the local health jurisdiction or the DOH.
 - D. All of the above.