

HIV and AIDS in the United States

7 contact hours - \$45.00

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This course is derived from the Washington State Department of Health Outline of HIV/AIDS Curriculum Topics, 2007 Revised Edition.

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Course Objectives

When you finish this course, you will be able to:

- Describe the etiology and epidemiology of HIV in the United States.
- Identify transmission and infection control precautions for prevention of HIV transmission.
- Discuss common testing and counseling requirements for HIV-infected individuals.
- Characterize the main clinical manifestations of HIV / AIDS and treatment options.
- Outline legal and ethical issues associated with HIV.
- Describe the main psychosocial issues facing HIV-infected persons and their caregivers.

A glossary of terms appears at the end of the course.

Part One: Etiology and Epidemiology of HIV / AIDS

AIDS is a complex condition caused by the human immunodeficiency virus (HIV), which kills or impairs cells of the immune system and progressively destroys the body's ability to fight infection and disease. People with damaged immune systems are vulnerable to diseases that do not threaten people with healthy immune systems. HIV infection causes a combination of symptoms, diseases and infections—this condition is known as a **syndrome**.

The term AIDS applies to the most advanced stages of an HIV infection. Medical treatment can delay the onset of AIDS. The diagnosis of AIDS requires a positive HIV antibody test or evidence of HIV infection and the appearance of some very specific conditions or diseases. Only a licensed medical provider can make an AIDS diagnosis. HIV infection is not necessarily the same thing as AIDS. All people diagnosed with AIDS have HIV, but not all people with HIV have reached an AIDS diagnosis.

Definition of HIV and AIDS

Human immunodeficiency virus (HIV) attacks the immune system, causing deficiency or damage in the immune system. HIV damages the body's ability to fight diseases and infections. HIV infection leads to acquired immunodeficiency syndrome (AIDS). Without a healthy, functioning immune system, a person may become vulnerable to infections by bacteria, other viruses and disease-causing organisms. These infections may cause life-threatening illnesses.

AIDS (sometimes immune-deficiency syndrome) is **acquired**—it is not hereditary and it is not passed casually from one person to another. HIV must enter the bloodstream in order to infect someone.

The Immune System

The immune system is the body's defense against infection and disease. **Immunodeficiency** occurs when the immune system becomes damaged and is unable to fight off infectious diseases. Over time, a person with a deficient immune system may become vulnerable to infections by disease-causing organisms such as bacteria or viruses. These infections may cause life-threatening illnesses.

How HIV Works in the Body

HIV enters the bloodstream and seeks out **T-helper lymphocytes**, white blood cells essential to the functioning of the immune system. One of the functions of these cells is to regulate the immune response in the event of attack from disease-causing organisms such as bacteria or viruses. When the virus infects the T-helper lymphocyte, the cell sends signals to other cells, which produce antibodies. This T-helper lymphocyte cell may also be called the **T4** or the **CD4** cell.

Antibodies are produced by the immune system to help get rid of specific foreign invaders that can cause disease. Producing antibodies is an essential function of our immune systems. The body makes a specific antibody for each disease. 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 foreign invaders. 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.

Primary or Acute HIV Infection

Primary or 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. It can be hard to detect because symptoms, if any, mimic a mild flu and the body has not yet produced any detectable antibodies.

Window Period

The **window period** is the period of time between first infection with HIV and when the body is able to produce antibodies to HIV. It may take between 2 weeks and 3 months for antibodies to develop. Most people develop antibodies by 6 to 12 weeks. During this time, the person is "infectious," meaning he or she can pass the virus to someone else, and will remain infectious throughout life.

During the window period a person may not produce sufficient antibodies to be detectable on an HIV antibody test. This means they might get a negative result on an antibody test, while actually having HIV. This is why a newly infected person can infect a partner before antibodies develop, when high amounts of virus in the blood are present, and the newly infected person does not yet know they have HIV.

Asymptomatic Stage

After the acute stage of HIV infection, people infected with HIV continue to look and feel completely well for long periods, sometimes 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."

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 when hunters became exposed to infected blood. HIV transmission is driven by changes in migration, housing, travel, sexual practices, drug use, war, and economics that affect both Africa and the entire world.

HIV Strains and Subtypes

HIV has divided into two primary strains: **HIV-1** and **HIV-2**. Worldwide, the predominant virus is HIV-1, and generally when people refer to HIV without specifying the type of virus they are referring to HIV-1. The relatively uncommon HIV-2 type is concentrated in West Africa and is rarely found elsewhere.

HIV is a highly variable virus which mutates very readily. This means 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 subtypes. 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.

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. AIDS was first recognized in the United States in 1981. Since then, the number of AIDS cases has continued to increase both in the U.S. and other countries. In 1983, HIV was discovered to be the cause of AIDS.

People who are infected with HIV come from all races, 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 U.S. Centers for Disease Control and Prevention (CDC) estimates that a quarter of people with HIV are unaware that they are living with the virus.

HIV and AIDS Cases

HIV cases became reportable to the Department of Health in the fall of 1999. The CDC estimates that there are between 1,039,000 to 1,185,000 persons infected with HIV in the United States. Additionally, it is estimated that 40,000 persons in the United States become newly infected with HIV each year.

AIDS cases have been reportable since 1984. In the U.S., there are estimated to be over 17,000 people with AIDS who are dying each year in the U.S. As therapies have improved, fewer people have died of AIDS each year. However, the treatments have not reduced the number of new infections.

The number of HIV-infected people worldwide has grown dramatically. The United Nations AIDS Program estimates there were 38.6 million people in the world living with HIV or AIDS in 2005. An estimated 4.1 million people worldwide became infected with HIV in 2005. Half of these new infections were in people between the ages of 15–24. There were 3 million deaths worldwide from AIDS in 2000.

The discovery of antiviral "combination" drug therapies in 1996 resulted in a dramatic decrease in the number of deaths due to AIDS (among persons taking the drug therapies). 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 health care systems and cost, many people with HIV have no access to the newer drug therapies.

HIV and AIDS Cases are Reportable

As previously mentioned, AIDS and symptomatic HIV infections have been reportable (meaning physicians must confidentially report any cases among their patients) in many states for several years.

Part 2: Transmission and Infection Control

Infection with HIV

HIV is a relatively fragile virus, which is not spread by casual contact. HIV is not easy "to catch"—it must be acquired. In order for HIV to be transmitted, three conditions must occur:

- There must be an HIV source.
- There must be a sufficient dose of virus.
- There must be access to the bloodstream of another person.

Body Fluids that Can Transmit HIV

The concentration and amount of HIV necessary for infection to occur is called a **sufficient dose**. Anyone infected with the virus is potentially a source of HIV infection. 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. Therefore the most common body fluids considered potentially infectious for HIV are blood, semen, vaginal secretions and breast milk.

Blood

Access to another person's bloodstream involves behaviors or circumstances that place someone at risk for infectious fluid entering their bloodstream. The most common of the risk behaviors are unprotected sexual intercourse (anal, vaginal, oral) with an infected person, and 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 brother" rituals, or any other type of ritualistic ceremonies where blood is exchanged or when un-sterilized equipment contaminated with blood is shared. HIV transmission may also occur in occupational settings.

HIV Transmission

People may become infected with HIV if they engage in specific risk behaviors or if they are exposed through needle stick 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, and oral intercourse
- Sharing needles or other injection equipment
- A mother passing the virus to her baby either before or during birth
- An infected woman breastfeeding her infant
- Accidental needlestick injuries, or infected body fluid coming into contact with the broken skin or mucous membranes of another person (as with healthcare workers)
- A transfusion prior to 1986 of HIV-infected blood or blood products

In extremely rare cases, HIV can be transmitted by sharing razors or toothbrushes if infected blood from one person were deposited on the toothbrush or razor, and the blood were to enter the bloodstream of another person.

HIV Transmission Requirements

The transmission of HIV depends upon the availability of the infectious agent (HIV) in sufficient quantity and the viability of the infectious agent (how strong it is). It also depends upon the virulence of the infectious agent (how infectious it is) and the ability of the infectious agent to reach the blood stream, mucous membranes or broken skin of a potential host.

One of the predictors of how infectious an HIV-positive person is their **viral load**—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.

Blood Transfusions

Transmission by contaminated blood or blood products occurred in the United States before March, 1985. Testing for HIV at blood banks and organ transplant centers began in 1985 and has almost completely eliminated these risks for transmission in developed countries. In 1999, about 1% of national AIDS cases were caused by transfusions or use of contaminated blood products. The majority of those cases were in people who received blood or blood products before 1985.

Probability of HIV Transmission from One HIV Exposure

Donor screening, blood testing and other processing measures have reduced the risk of transfusion-caused HIV transmission to between 1 in 450,000 to 600,000 transfusions in the U.S. In the U.S., donating blood is always safe, because sterile needles and equipment are used. All used syringes, needles, blood or body fluid spills should be considered potentially infectious, and should be treated using Standard Precautions, also commonly known as universal precautions.

The CDC has estimated the following probabilities of infection following **one** exposure to HIV. (A 1% risk means 1 chance in 100 for infection to occur. A 10% risk means 1 chance in 1,000):

Source of infection	HIV infection rate
Contaminated blood transfusion (prior to 1986)	95%
One intravenous syringe or needle exposure	0.67%
One percutaneous exposure (e.g. a needlestick)	0.4%
One episode of receptive anal sexual intercourse	0.1%–3%
One episode of receptive vaginal intercourse	0.1%–0.2%
One episode of insertive vaginal intercourse	0.03–0.09%

Sexual Intercourse

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.

Anal Intercourse

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.

Vaginal Intercourse

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 men. 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.

Sharing Needles and Drug Injection Equipment

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, HBV and HCV.

Indirect sharing occurs when drug injectors share injection paraphernalia 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, or rinse water. Sharing these items (sometimes called "works") may transmit HIV or other bacteria and viruses. Examples of indirect sharing are when a user squirts the drug back (from a dirty syringe) into the drug cooker or someone else's syringe or shares a common filter or rinse water.

HIV and Pregnancy

An HIV-infected woman may transmit the virus to her baby during pregnancy, during the birth process, or following pregnancy by breastfeeding. 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. In 2002, medications such as AZT and others are used during pregnancy and delivery to prevent transmission of HIV.

HIV is transmitted from an HIV-infected woman to her baby in about 25% of pregnancies if intervention with antiretroviral medications does not occur. The perinatal transmission rate has dropped dramatically in the U.S. due to the widespread use of AZT by HIV-infected pregnant women. When a woman's health care is monitored closely and she receives a combination of antiretroviral therapies during pregnancy the risk of HIV transmission to the newborn drops below 2 percent.

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 medical provider with experience in treating HIV+ pregnant women. Most states require pregnant women to be counseled regarding risks around HIV and offered voluntary HIV testing.

Lifelong Infection

HIV infection is lifelong—once a person becomes infected with HIV, their blood, semen, vaginal secretions and breast milk will always be potentially infectious.

Transmission of Multidrug 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.

The Presence of Other STDs

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 HIV-infected white blood cells present at the sore or infected area. The infected person's immune system may be less able to suppress or combat HIV infection. Sores or lesions from STDs break down the protective surface of the skin or mucous membrane, which makes the infected person more vulnerable to other infections.

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

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

Multiple Partners

Having **multiple partners** for drug injection 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 only one partner is still be at risk if the person is HIV-positive and they have unprotected sex and/or share needles.

Use of Non-Injecting Drugs

Use of other substances, including alcohol and non-injected "street drugs," can also put a person at risk for getting HIV. These substances can impair judgment which can 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

Lack of power in a relationship can affect a person's ability to insist on sexual protection, such as the use of condoms. Women are often socially and economically dependent upon men in many countries. This can make them unable to ask their partner to use condoms or to 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. Other cultures promote the value of the male having multiple sexual partners, while discouraging the same behavior in females.

Casual Contact

HIV is not transmitted through the air or by sneezing, breathing, or coughing. 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.

HIV is not transmitted through casual contact in the workplace. 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.

Unusual Cases of HIV Transmission

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. To date, there were three instances where transmission of HIV could only be tracked to the HIV-infected doctor, dentist or nurse treating the patient. At least one of these cases occurred prior to the implementation of strict equipment disinfection.

Biting

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.

Workplace Situations

Workplace exposures occur through an unintentional needlestick injury or potentially through a splash with potentially infectious blood or blood-contaminated material

Risk Reduction Methods

There are many effective methods for reducing the risk of sexual and drug-related transmission of HIV.

Sexual Abstinence

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

Non-Penetrative Sex

Non-penetrative sex, where the penis does not enter the vagina or anus, nor are penetrative sex toys shared, is a safer sex method that greatly decreases your risk of getting infected with HIV. This practice will not transmit HIV, provided that there is no exchange of blood, semen, vaginal fluids or breast milk in the sexual contact. Non-penetrative sexual intercourse may still be a risk factor for the transmission of other sexually transmitted diseases.

Monogamous Long-Term Relationships

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. In order for monogamy to protect against HIV and STDs both partners must be free of disease and both partners must remain monogamous.

Limiting Partners

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

Latex condoms, when used correctly and consistently during sexual intercourse, (anal, vaginal and oral) are highly effective in preventing the transmission of HIV. Only water-based lubricants should be used to prevent tearing of latex condoms. Oil-based lubricants like petroleum jelly or cooking oils should not be used because the oil in these products breaks down the condom.

Polyurethane Condoms

For the male, **polyurethane 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.

Female or **insertive condoms** fit inside the vagina or anus. They are made of polyurethane, which blocks sperm and viruses (like HIV). These condoms may be inserted several hours before intercourse.

Dental Dams

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 can be cut into a square for use as a dental dam. Simply cut off the tip and then down one side, and open it into a 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

Natural membrane condoms (“skins”) do **not** provide protection from HIV, HBV and some other STDs. They can help prevent pregnancies and some STDs, such as syphilis.

Both Partners HIV Positive

If two people are infected with HIV, do they still need to have protected sex? Some people think it's safe for HIV-infected people to have unprotected sex with each other. Latex condoms are advised when both partners are HIV-positive. Each additional exposure to the virus may further weaken an immune system already damaged by HIV. Other STDs are transmitted through unprotected sex. Any additional viral or bacterial infection stresses the immune system and should be avoided.

Avoid Injection of Drugs

Not 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 use a clean needle each time and do not share injection equipment. This includes people who use needles to inject insulin, vitamins, steroids or prescription or non-prescription drugs.

Syringe Exchange

Syringe exchange, or needle exchange, is a disease prevention program for people who use illegal drugs. It provides new sterile syringes in exchange for used ones. People who trade in their used syringes/needles for clean ones at needle exchanges significantly reduce their risk for sharing needles and becoming infected with HIV or hepatitis.

Syringe exchanges are also referral sources for drug treatment. Participants may be able to access drug treatment through the intervention of the syringe exchange staff. Public support for syringe exchange has grown in recent years. Many local health departments, 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.

It is safest to always use new, sterile needles and syringes, as well as other "works" which can all become contaminated with blood (cotton, cooker, water, etc.). If someone cannot avoid sharing syringes, rinsing out the syringe/needle with full strength bleach and clean water helps clean the syringe/needle and kill HIV inside it.

There is high prevalence of HBV and HCV infection among injecting drug users; these viruses are stronger than HIV and are not likely to be killed by short contact with bleach. Cleaning the syringe with bleach and water is not likely to prevent transmission of HBV or HCV. There is no substitute for a new syringe. If there is no possible way to obtain new needles, the directions for using bleach to clean syringes/needles follows:

- 1) Fill the syringe completely with water.
- 2) Tap it with your finger to loosen any traces of blood.
- 3) Shake the syringe and shoot out the bloody water.
- 4) Repeat steps 1 through 3 until you can't see any blood.
- 5) Fill the syringe completely with fresh bleach.
- 6) Keep the bleach inside the syringe for at least 30 seconds.
- 7) Shoot out the used bleach.
- 8) Rinse out the syringe with **new clean** water.
- 9) Shake the syringe and 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

Occupational exposure means 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** means a specific eye, mouth, other mucous membrane, non-intact skin or parenteral contact with blood or other potentially infectious materials (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 HBV/HCV/HIV include, but are not limited to, health care employees, law enforcement, fire, ambulance, and other emergency response and public service employees.

Bloodborne Pathogens

While HBV and HIV are specifically identified in the standard, **bloodborne pathogens** include any human pathogen present in human blood or other potentially infectious materials (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.

Blood and Other Potentially Infectious Materials (OPIM)

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 and 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
- Specimens with concentrated HIV, HBV and HCV viruses.

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”. 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 (ECP)

Each employer must develop an Exposure Control Plan (ECP). The 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 your 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.

Bloodborne Pathogens Training

All new employees or employees being transferred into jobs involving tasks or activities with potential exposure to blood/OPIIM shall receive training prior to assignment to tasks where occupational exposure may occur. Training will include information on the hazards associated with blood/OPIIM, 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 as questions arise.

Hepatitis B Vaccination

All employees with occupational exposure to blood or OPIIM must be offered hepatitis B vaccination after receiving required training and within 10 days of initial assignment. The vaccine must be provided 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. The provision of employer-supplied hepatitis B vaccination may be delayed until after probable exposure for employees whose sole exposure risk is the provision of first aid.

Infection Control Systems

Universal Precautions is a system designed to prevent transmission of bloodborne pathogens in healthcare and other settings. Under universal precautions, blood / OPIIM 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, should be considered to be potentially infectious.

Universal and Standard Precautions involve the use of protective barriers—defined below in the "personal protective equipment" section—to reduce the risk of exposure of the employee's skin or mucous membranes to OPIIM. It is also recommended that all health care workers take precautions to prevent injuries caused by needles, scalpels, and other sharp instruments or devices. Both Universal and Standard Precautions apply to blood and OPIIM listed above in the "Blood and Other Potentially Infectious Materials (OPIIM)" section.

Personal Protective Equipment (PPE)

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 OPIIM. 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 advised to use when dealing with blood or OPIIM. However, there have been documented cases of people with allergies to latex. In most circumstances, nitrile, vinyl and other glove alternatives meet the definition of "appropriate" gloves and may be used in place of latex gloves. Employers are required to provide non-latex alternatives to employees with latex and other sensitivities. Reusable PPE must be cleaned and decontaminated, or laundered by the employer.

Lab coats and scrubs are generally considered to be worn as uniforms or personal clothing. When

contamination is reasonably likely protective gowns should 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

Hand hygiene (soap and water washing or use of a waterless alcohol based hand rub) must be performed after removal of gloves or other protective equipment, immediately after hand contact with blood or other infectious materials, and upon leaving the work area.

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

Housekeeping

The work area is to be maintained 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. Contaminated broken glassware must be removed using mechanical means, like a brush and dustpan or vacuum cleaner.

Disinfectants

Chemical germicides and disinfectants used at recommended dilutions must be used to decontaminate environmental surfaces. Consult the Environmental Protection Agency (EPA) lists of

registered sterilants, tuberculocidal disinfectants, and antimicrobials with HIV/HBV efficacy claims for verification that the disinfectant used is appropriate.

Specimen Handling

Specimens of blood or OPIM must be placed in a closeable, labeled or color-coded leak proof container prior to being stored or transported.

Laundry

Laundry that is or may be soiled with blood or OPIM, 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. Guidance regarding laundry handling and washing procedures in the health care setting can be found in the CDC Guidelines for Environmental Infection Control in the Healthcare Facilities, 2003.

Regulated Waste Disposal

All regulated waste must be placed in closeable, leak proof containers or bags that are color-coded (red-bagged) or labeled to prevent leakage during handling, storage and transport. Disposal of waste shall be in accordance with federal, state and local regulations. "Regulated waste" is defined as any of the following:

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

Individual county or health jurisdiction waste management regulations may need to be consulted.

Sharps Disposal

Needles are **not** to be recapped, purposely bent or broken, removed or otherwise manipulated by hand. After they are used, disposable syringes and needles, scalpel blades and other sharp items are to be immediately placed in puncture-resistant, labeled containers for disposal.

Phlebotomy needles must not be removed from holders unless require by a medical procedure. The intact phlebotomy needle/holder must be placed directly into an appropriate sharps container.

Tags / Labels

Tags or labels must be used to protect employees from exposure to potentially hazardous biological agents. 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

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.

Post-Exposure Management

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 States Public Health Service recommendations

The employer is also responsible for arranging source individual testing.

Management of Occupational Exposure to HIV / HBV / HCV and Other Bloodborne Pathogens

Occupational Exposure

An 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 other potentially infectious materials.

The CDC states that the risk of infection varies case by case. Factors influencing the risk of infection include: whether the exposure was from a hollow-bore needle or other sharp instrument; to non-intact skin or mucus membranes (such as the eyes, nose, and/or mouth); the amount of blood that was involved and the amount of virus present in the source's blood.

Risk of HIV Transmission

The risk of HIV infection to a health care worker through a needlestick is less than 1 percent. 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. Through December 2002, the CDC reports 57 documented cases and 139 possible cases of occupational exposure to HIV since reporting started in 1985.

Risk of Hepatitis B and C Transmission

The risk of getting HBV from a needlestick is 22–31% if the source person tests positive for hepatitis B surface antigen (HBsAg) and hepatitis B e antigen (HBeAg). 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 health care workers a year are reported to be infected with HBV following occupational exposure. There are no exact estimates on how many health care workers contract HCV from an occupational exposure, but the risk is considered low.

Treatment after a Potential Exposure

Follow the protocol of your employer. As soon as safely possible, wash the affected area(s) with soap and water. 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 there is exposure to the eyes, nose or mouth, flush thoroughly with water, saline, or sterile irrigants. The risk of contracting HIV through this type of exposure is estimated to be 0.09%.

Sharps Injuries

Wash the exposed area with soap and 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; however, the use of antiseptics is not contraindicated. 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 health care professional.

Note: 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 a potential bloodborne pathogens

exposure unless the fluid is visibly contaminated with blood. Follow your employer's procedures for cleaning these fluids.

Reporting the Exposure

Follow the protocol of your employer. 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.

Your employer is required to provide an appropriate post exposure management referral at no cost to you. In addition, your employer must provide the following information to the evaluating health care professional:

- 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.

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 and the 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 blood-borne 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 antiviral 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. PEP is not as simple as swallowing one pill. The medications must be started as soon as 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.

HIV / HBV / HCV Testing Post-Exposure

All occupational exposures should be evaluated by a health care 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 >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 (e.g., for 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 (e.g., for those persons with an impaired ability to mount an antibody response to infection) may also be considered.

Source Testing

In many states, employers are required to arrange to test the “**source individual**”—someone 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 employee.

Mandatory Source Testing

Because of an increased risk for HIV exposure, many states provide for HIV antibody testing of a “source” when a law enforcement officer, fire fighter, health care provider or health care facility staff, and certain other professions experience an occupational exposure. If you experience an occupational substantial exposure to another person's blood or OPIM, you can request HIV testing of the source individual through your employer or local health officer.

Before the health officer will issue a health order for HIV testing of the source individual, she or 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 health care workers, if the employer is unable to obtain permission of the source individual, the employer may request assistance from the local health officer provided the request is made within 7 days of the occurrence.

Source testing does not eliminate the need for baseline testing of the exposed individual for HIV, HBV, HCV and liver enzymes. Provision of PEP should also not be contingent upon the results of a source's test. Current wisdom indicates immediate provision of PEP in certain circumstances, with discontinuation of treatment based upon the source's test results.

Non-Occupational Exposure to HIV

PEP for occupational exposure is standard, and its effectiveness has been documented. PEP for sexual exposure (assault or consenting) or for needle-sharing is not standard medical practice in many communities. Depending on your location, 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) 514-4PEP after hours.

If your doctor has questions, he or she can call PEPLine, the University of California at San Francisco's hotline for clinicians: 1-888-HIV-4911. This is **not** a hotline for answering basic

questions about HIV. **PEP should never be used for primary prevention of HIV.** Unlike emergency contraception to prevent pregnancy, there are no good studies to show that PEP works for post-sexual exposure. It is a complicated combination of medicines that sometimes have serious side effects.

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 when caretakers 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

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 pretreated 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 Spills 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 absorbing the spill with paper towels and sturdy rubber gloves. 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 and 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/OPIII. 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 other animal's feces, or eat 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 and use care when tasting food. Use a clean spoon and 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 wooden 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 Disposal of Sharps

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 needle sticks and illness. There are different rules and disposal options for different circumstances. Contact your local health department to determine which option applies to your situation.

Found Syringes in Parks and Other Public Locations

Syringes that are found in parks, along roadsides, in laundromats, or in other public locations present potential risk for accidental needlesticks. 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 health care worker from a needlestick containing HIV-positive blood is about 1 in 300, according to CDC data.

Anyone with an accidental needlestick requires an assessment by a medical 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 a gloves and tongs, shovel or broom and dustpan to pick it up. Hold the needle away from your body.
- **Do not break the needle off from the syringe.** Needles can carry HIV, hepatitis and other germs. Please 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

The CDC believes that many people in the United States have HIV but have not been tested for it. These people do not know they are infected and that they need medical care. Also, they can unknowingly pass HIV infection on to others.

Some people do not find out that they are infected with HIV until they get sick or show symptoms and go to a clinic or hospital and get a test to find out their HIV status. Since most people don't have symptoms for years they do not find out their status until later in the disease progression. By the time they find out they are infected, they have missed opportunities to take care of their health and avoid passing the infection on to others. It is important for anyone at risk of HIV infection to get tested. Those who are uninfected can learn to take steps to avoid infection and those who are infected can take steps to take care of their own health as well as to avoid passing the infection on to others.

HIV Testing: HIV Antibody Tests

The first HIV antibody test was available in 1985. Since then, new HIV antibody tests have been developed and approved by the Food and Drug Administration (FDA). Currently, these antibody tests have a two 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 (“EIA” or “ELISA”). This type of 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 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 test are conducted at the test site—often with the client present—and negative results are available in under an hour. “Reactive” (antibodies detected) results from a rapid test 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 the confirmatory test verifies that HIV antibodies are present.

When a person has a reactive (positive) screening test, a confirmatory test called the Western Blot 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 EIA 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 a blood-based test. This test detects HIV antibodies in blood. Depending on 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 doctor 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 (oral mucosal transudate) of the mouth. The oral test kit uses a special collection device that looks like a toothbrush. No needles are used. 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 although 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 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 physician's 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, 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 always look for the test on the list of FDA approved HIV tests (<http://www.fda.gov/cber/products/testkits.htm>).

The test requires a few drops of blood, which is 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 HIV Tests

p24 Antigen Test

This 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.

Plasma HIV RNA or Proviral DNA Tests

These blood tests may be run on 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.

HIV Viral Load Test

This test measures the amount of HIV in an infected person's bloodstream. It is rarely used to

diagnose HIV infection. It is most often used in individuals who are HIV-positive to measure the effectiveness of antiretroviral medications used to treat HIV infection.

How and Where to get Tested for HIV

Who Should Be Tested?

Anyone who has put themselves at risk through anal, vaginal or oral sex, or shared needles and anyone 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. For occupational exposure, refer to your employer protocol or to the Infection Control section of this manual starting on page 6 for more information.

Where to Test for HIV

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

Confidential Testing

With confidential HIV testing, the client 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.

Anonymous 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. If you want to know where to get tested anonymously, call your public health department for information about anonymous testing in your area.

Informed Consent Required

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.

Testing Information and Risk Assessment Required

Except for the exceptions listed above, all people 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.

HIV Antibody Test Results

The Window Period

It is important to remember that HIV antibody testing has a window period. The window period is the time between infection with the virus and when the HIV-infected person develops enough antibodies 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 two 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 enough antibodies for detection by 12 weeks (three months). Therefore, to be sure people should test three months after the last potential HIV exposure.

Because people 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. Therefore, during the window period it is possible for an infected person to test negative (before they develop antibodies) 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 has not produced enough antibodies to be detected by the test.

If a person is concerned about a recent incident, they should test three months from the date of their last possible exposure. A negative test result does not mean a person is immune to HIV. If risky behavior continues, infection may occur.

Positive Results

A positive confirmatory test indicates the presence of HIV antibodies:

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

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

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, 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

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

In most states, HIV test counseling is 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 (the person testing the client does not have to provide the counseling themselves).

The person who provides HIV test counseling to clients should direct the counseling towards increasing the client's understanding of their own risk of acquiring or transmitting HIV; motivating the client to reduce their risk; and assisting the client to build skills to reduce their risk.

Pre-Test Counseling

Pre-test counseling should be based on the Federal Centers for Disease Control and Prevention's (CDC) Revised Guidelines for HIV Counseling, Testing and Referral recommendations (<http://www.cdc.gov/hiv/topics/testing/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 skills-building opportunities to support their behavior change goals
- Provide or refer for other appropriate prevention, support or medical services.

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 negative clients) 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 and results is confidential information and must not 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.

HIV Testing: Pregnancy

Health care providers caring for pregnant clients are required by in most states to ensure HIV counseling and testing for each pregnant woman who is seeking prenatal care. 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 take AZT during pregnancy and delivery.

HIV Testing: Sexual Assault

Sexual assault is prevalent in the U.S. More than 300,000 women and almost 93,000 men are raped annually, according to the National Violence Against Women Survey (NVAWS). Based on existing crime report data, an estimated 40% of female rape victims are under age 18; and most sexual assault victims know their assailant. Men are also victims of sexual assault; however they are much less likely to report being assaulted so data and reporting are not accurate. Apart from the emotional and physical trauma that accompanies sexual assault many victims are concerned about HIV.

Sexual Assault HIV Risks

According to CDC, the odds of HIV infection from a sexual assault in the U.S. are 2 in 1,000. This is a low risk. Unfortunately, the fear of HIV, even though it is a low risk, adds an additional emotional burden to many people who have been a victim of sexual assault.

HIV Testing

HIV is a low risk from sexual assault. However; because so many assault victims are concerned about HIV, it can help the healing process to have an HIV test. Almost all HIV tests will be negative and be a relief to the victim. For those very few that are positive, the individual will need that information both for health reasons and for criminal court cases.

Assault and the Window Period

Bear in mind that the window period for HIV antibody testing must be taken in to account when testing after an assault. Any test shortly after the 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 through an assault as 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 no other behaviors the victim engaged in could have infected the victim).

Other Testing

When counseling victims about the risk of HIV from assault, remember that the risk is low and that there other higher risks victims should consider: contracting other STDs and, if the victim is female, becoming pregnant.

The risk of STDs and pregnancy are much higher than HIV. Victims of sexual assault should get testing for STDs, and if female, she should take emergency contraception. 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 health care 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.

Assailant Testing

In many states, 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 their partners. When public health staff notify partners, they 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 who 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 conditions in most states.

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

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 if an individual has behaviors which put him or her at risk for HIV and is presenting with the above symptoms. If individuals experience these symptoms after having unprotected sex or sharing needles, they should seek medical care and tell their provider why they are concerned about HIV infection. 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. HIV antibodies are detectable sometime within the first six weeks 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:

- 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
- Recurrent vaginal yeast infections in women
- 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, or the person's physical condition. There is a list of "AIDS-defining illnesses," 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.

Cofactors

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.

Time from Infection to Death

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

The 1993 Revised AIDS Surveillance Case Definition

In 1987, the CDC defined AIDS using a positive HIV antibody test plus a list of conditions that indicated a deficient immune system. In 1993, the CDC revised the definition of AIDS to include more conditions and a variety of CD4-cell counts. The revised definition meant that more people were considered to have AIDS. That year there was a "jump" in the number of people with AIDS which reflected the change in classification system.

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

The 1993 AIDS Surveillance Case Definition for Adolescents and Adults, which is the most current definition, is comprised of a 3 x 3 staging system. In this definition, any person who is HIV-infected and has either: 1) an AIDS indicator condition (see table 1), or 2) a CD4+ ("T-cell count") less than 200 cells/mm³ or less than 14% is considered to have AIDS.

Table 1: AIDS Indicator Conditions in Adults (A positive HIV test plus one or more of the following:)

- Candidiasis, of esophagus, trachea, bronchi or lungs
- Cervical cancer, invasive
- Coccidioidomycosis, extrapulmonary
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis with diarrhea greater than one month
- Cytomegalovirus of any organ other than liver, spleen, or lymph nodes
- Herpes simplex with mucocutaneous ulcer lasting longer than one month or bronchitis, pneumonitis, esophagitis
- Histoplasmosis, extrapulmonary
- HIV-associated dementia: disabling cognitive 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

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.

HIV 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, scientists have reported further differences in the way that HIV affects men, women and children.

Scientists are always learning new information about how HIV affects the body. 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
- Amount of fat and muscle distribution in the body
- Structure and functioning of the brain
- Normal functioning of the immune system
- 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 disease 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. 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.

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. Scientists 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.

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.

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.

The Impact of New Drug Therapies on HIV Clinical Progression: History of Newer HIV Drug Therapies

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, either protease inhibitors or non-nucleoside reverse transcriptase 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).

Not everyone with HIV infection benefits from the new drug therapies. Some people cannot tolerate the unpleasant or serious side effects from the medications. Others cannot adhere to the complex treatment schedule. If a person does not take their medication every day according to their physician's instructions, the drugs do not work effectively and viral resistance may develop.

Cost of new drug therapies can be prohibitive. Insurance programs and government programs for individuals with low income pay for much of the cost of the HIV medicines. These medicines may cost upwards of \$2,000 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 will increase. Even during treatment, viral replication occurs and **the person remains infectious to others.**

Resistance

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

Patients often have unpleasant side effects when they use prescription medications to treat their HIV infection. Side effects from HIV prescription medications include:

- Nausea
- Diarrhea
- Peripheral neuropathy (numbness or pain in feet and hands)
- Lipodystrophy: changes in body fat distribution, which presents with large fat deposits on the back of the neck, on the stomach area and in breast size in women and with 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 or other body organs

Alternative Therapies

People have 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. While there is 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.

Interactions with Other Medications / Drugs

It is important for people who are taking alternative therapies to tell their medical provider. There may be drug reactions or other harmful side effects from the interactions of the "natural" medicine and antiretrovirals. 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 doctor, pharmacist and social worker about all other drugs they take.

Vaccine

Scientists have worked for years to develop a vaccine to prevent, or alleviate the severity of HIV infection. 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 Management

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

Tuberculosis, Other Sexually Transmitted Diseases and Hepatitis B and C

Because of the interrelationships between tuberculosis (TB) sexually transmitted diseases, HBV, HCV and HIV, a brief discussion of each of these is included in this curriculum.

Tuberculosis and HIV: Definition of Tuberculosis (TB)

Mycobacterium tuberculosis (hereafter referred to as *M. tuberculosis* or TB) 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.

Cause of TB

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.

Epidemiology of TB

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.

Transmission and Progression

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 asymptomatic, 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 goes to the lungs. In most cases, this process, called primary infection, resolves by itself and something called "delayed-type hypersensitivity" is established.

This is measured with the tuberculin skin test. The incubation period for this primary infection is two to 10 weeks. In most cases, a latent state of TB develops. 90% of people with latent TB never experience subsequent disease. Other than a positive tuberculin skin test, people with latent TB infection have no clinical, radiographic (x-ray), or laboratory evidence of TB and cannot transmit TB to others. Among the other 10% of infected individuals, the TB infection undergoes "reactivation" at some time and they develop active TB. About 5% of newly infected persons do so within the first two years of primary infection and another 5% will do so at some point later in life.

Symptoms of TB

The period from 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.

Prevention of TB

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.

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.

Treatment of TB and Multidrug Resistant-TB

In order to prevent drug resistance and cure TB, the CDC recommends that TB be treated with a multidrug regimen, which may last six to 12 months. Treatment of multidrug-resistant TB (MDR-TB) is much more difficult and must be individualized. The patient with MDR-TB requires treatment for two years or more.

TB/HIV Co-Infection

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

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

Pulmonary TB and extrapulmonary TB are among the conditions included in the 1993 AIDS surveillance case definition. Any HIV-infected person with a diagnosis of TB disease should be reported as having TB and AIDS. For more information on TB contact the communicable disease staff in each county health department/district or the Centers for Disease Control and Prevention Division of TB Elimination Web site: <http://www.cdc.gov/nchstp/tb>.

Other STDs and HIV

Definition of STD

The term STD (sexually transmitted disease) refers to more than 25 infectious organisms transmitted through sexual activity and dozens of clinical syndromes that they cause. STDs affect men and women and can be transmitted from mothers to babies during pregnancy and childbirth. They are also called sexually transmitted infections (STIs).

Bacterial, Viral, and Other Causes of STD

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.

STD, Nationally and Internationally

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 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:

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

STD Transmission

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 and HPV infection, syphilis, scabies and pubic lice.

Symptoms of STD

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.

Prevention of 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.

STD Tests

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

STD Treatment

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.

Prevention of HBV

A vaccine to prevent HBV is available. Hepatitis B vaccine is administered intramuscularly as a three dose series over 6 months. More than 90% of people who take the 3 injections become immune to HBV. Why isn't everyone vaccinated for HBV? 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.

HBV Epidemiology

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 **not** transmitted by:

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

Risk Factors for HBV Infection

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.

Progression of HBV

The average incubation period for HBV is about 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.

HBV causes damage to the liver and other body systems, which can range in severity from mild, to severe, to fatal. Most people recover from their HBV infection and do not become carriers. Carriers (about 2–6% 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.

Symptoms of HBV

People with HBV may feel fine and look healthy. Some people who are infected with HBV display only mild symptoms, which could 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, and cirrhosis (chronic liver damage).

Prevention of HBV

A vaccine for HBV has been available since 1982. 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
- 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.

Treatment of HBV

There are no medications available for recently acquired (acute) HBV infection. There are antiviral drugs 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.

HCV Epidemiology

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 United States, 8,000–10,000 deaths per year are attributed to HCV-associated liver disease. The number of deaths from HCV is expected to triple in the next 10–20 years.

Transmission of HCV

HCV is transmitted primarily by blood and blood products. Blood transfusions before 1992 and the use of shared or unsterilized needles and syringes have been the main causes of the spread of HCV in the U.S. 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 is considered low, but accounts for 10–20% of infections. 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 or coughing
- Hugging
- Kissing
- Sharing eating utensils or drinking glasses
- Food or water
- Casual contact

Progression of HCV

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 chronic 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

Symptoms of HCV

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

Prevention of HCV

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 lower the small risk of passing HCV to their sex partner by using latex condoms and practicing safer sex.
- 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.

Treatment of HCV

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.

Testing for HCV

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 1992
- Hemophiliacs who received clotting factor concentrates produced before 1987
- Persons who 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 Co-Infection

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 co-infection is possible in some cases with close physician supervision.

Comparison Chart of HIV, HBV, and HCV

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

Part 5: Legal and Ethical Issues

AIDS and HIV are Reportable Conditions

AIDS and HIV are reportable conditions in most states. 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.

Definition of Reportable

In the case of HIV or AIDS, providers who diagnose a person must submit a confidential case report to the local health jurisdiction within 3 days.

Anonymous Tests and Reporting

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

Spousal Notification

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

"Notification" means that 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 health care 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. In most states there are special requirements around HIV and AIDS. 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.

Additional Confidentiality Protections for HIV, Mental Health, Substance Abuse and other Selected Records

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 of 1990 (ADA) and Section 504 of the Federal Rehabilitation Act of 1973, as amended.

Discrimination

Persons with HIV infection 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 their state Human Rights Commission.

Disability

HIV infection and AIDS are medical conditions that are considered disabilities under the federal Americans with Disability Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973. These laws mean that it is illegal to discriminate against people who have AIDS or are 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.)
- Health care, legal services, home repairs, and other personal services available to the general public
- Applying for a loan or credit card, or other credit transaction
- Certain insurance transactions

Note: Federal and state jurisdictions differ.

The laws also protect HIV infected and AIDS-diagnosed people from employment discrimination. 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: 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.

Discrimination-Free Environment

Employers are required to provide and maintain a working environment free of discrimination. They must assure that no harassment, intimidation or adverse action or 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 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 their 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.

Reasonable Accommodation

Employers are responsible for providing reasonable worksite accommodations which will enable a qualified, disabled employee or job applicant to perform the essential tasks of his/her 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.

Potentially Prejudicial Information

When a person goes for a job interview or is hired it is best practice for an employer to not ask questions directed at the perception or presence of HIV infection or AIDS unless the employer has obtained a “bona fide occupational qualification” (BFOQ) from their state Human Rights Commission. 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: Most states prohibit discrimination based on age, creed, religion, race, color, national origin, sex, sexual orientation and gender identity, HIV and hepatitis C 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 the above are applicants for the U.S. military, the Peace Corps, the Job Corps, and persons applying for U.S. citizenship, under federal law, which supersedes state law.

Behaviors Endangering the Public Health

State law 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.

Authorities and Responsibilities of the Health Officer

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 disease.
- 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.

Reporting Non-Compliance

By state law and rule, health care 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.

When a healthcare provider has knowledge that a specific patient is failing to comply with prescribed 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.) they 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.

Case Investigation

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.

Part VI: Psychosocial Issues

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

Difficult Realities

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.

Ninety percent 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 certain 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.

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.

Losses

HIV often produces many losses including loss of:

- Physical strength and abilities
- Mental abilities/confusion
- Income and savings
- Health insurance
- Job/work
- Housing, personal possessions, including pets
- Emotional support from family, friends, co-workers, religious and social institutions
- Self-sufficiency and privacy
- Social contacts and roles
- Self esteem

People experiencing multiple losses may feel:

- Guilt
- Grief
- Helplessness
- Rage
- Numbness

Physical weakness and pain can diminish a person's ability to cope with psychological and social stresses.

Psychological Suffering

Infection with HIV can cause distress for those who have HIV, 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.

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 or 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.

Caregivers

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.

Stages of Grief

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

Caregivers may find it necessary to acknowledge their own experiences and feelings when dealing with all aspects of this disease. Good self-care for the caregiver is important.

Things to Do

- **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.

Things to Avoid

- **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 guidelines around safe home care.

Special 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

American society has issues with homosexuality. Grief may not be validated when relationships are viewed through prejudice and 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. It is more difficult to reach those men who do not identify as being gay with HIV prevention efforts and activities. Bisexual men face many similar 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 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.

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, 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 may be very far apart from the ability to stop. The reality about inpatient treatment facilities is that while there is a large demand for spaces, very few are available. 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 anti-hemophilic 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, 90% of severe hemophiliacs contracted HIV 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.

Some people considered hemophiliacs to be innocent victims of HIV, but there has 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) in their hometowns.

Women with HIV

Women in the United States and worldwide are becoming infected with HIV at higher rates than any other group of people. This is particularly true with women of color. Women who are infected with HIV, or who have family members who have HIV, face some unique challenges.

Women may become infected with HIV from a partner who either used injecting drugs, or who had other sexual partners. Many of these women assumed that the relationship was monogamous, or that they "knew" their partner's history. Many others are unable to discuss or implement safer sex practices due to issues of self-efficacy or domestic violence affecting their relationship.

Women may postpone taking medication, or going to medical appointments, in order to care for their children or other family members. Women (and also men) may fear disclosing their HIV status to others, fearing loss of 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 lack of income, housing, access to medical care, possible abusive relationships, and concerns about their children.

People of Color

African Americans and Hispanics have disproportionately higher rates of AIDS cases in the United States, 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 U.S. 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 United States. Hispanics make up about 13% of the population, but account for 20% of the AIDS cases in the United States. In some areas, disparities also exist in the number of AIDS cases in American Indians.

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.

Reference

Washington State Department of Health Outline of HIV/AIDS Curriculum Topics, 2007 Revised Edition.

http://www.doh.wa.gov/CFH/HIV_AIDS/Prev_Edu/training_curriculum/KNOW_2007.pdf.

Resources

National Resources

National HIV/AIDS and STD Information (English and Spanish) 1-800-CDC-INFO

1-800-232-4636

1-888-232-6348 TTY

24 Hours/Day

cdcinfo@cdc.gov

National AIDS Information Clearinghouse 1-800-458-5231

Curriculum Sources

HIV Prevention and Education Services

www.doh.wa.gov/cfh/hiv.htm

Department of Labor and Industries 1-800-423-7233

www.lni.wa.gov

Centers for Disease Control and Prevention

(www.cdc.gov) 1-404-639-3311

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 late stage of the illness triggered by infection with Human Immunodeficiency Virus (HIV). According to the official definition published by the Centers for Disease Control (CDC), a person receives an AIDS diagnosis when he or she has a CD4 Cell count of less than 200 and/or certain opportunistic infections common with advanced immune deficiency.

AIDS—Defining Illness

One of the serious illnesses that occurs in HIV-positive individuals and a reason for an AIDS diagnosis according to the Centers for Disease Control (CDC)'s definition of AIDS. Among these conditions are *Pneumocystis Carinii* Pneumonia (PCP), *Mycobacterium Avium* Complex (MAC), AIDS Dementia Complex, AIDS Wasting Syndrome, invasive cervical cancer and Kaposi's Sarcoma (KS).

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. At the point the person seeks medical care, they give their real name and results of the HIV antibody test are 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. Nucleoside Analogs and Protease Inhibitors are examples of antiretroviral drugs.

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. .

Azidothymidine (also called zidovudine or ZDV) 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 (BBP) standards are enforced by the Department of Labor and Industries. BBP training may be an annual requirement of certain jobs.

Bodily Fluids

Any fluid produced by the human body, such as blood, urine, saliva, sputum (spit), tears, semen, mother's milk or vaginal secretions. Only blood, semen, mother's milk and vaginal secretions have been linked directly to the transmission of the HIV virus.

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.

Centers for Disease Control and Prevention (CDC)

Federal health agency which is a branch of the U.S. Department of Health and Human Services. The CDC provides national health and (CDC safety guidelines and statistical data on AIDS, 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 HIV tests are now reportable to local public health officials, as are many other diseases.

Diagnosis

The determination of the presence of a specific disease or infection, usually accomplished by evaluating clinical symptoms and laboratory tests.

ELISA/EIA Screening

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 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 he or she 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 T-Cells

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

Hepatitis B (HBV)

One of several different viral infections affecting the liver. The effects of the disease on the liver can range from mild 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

Behaviors, practices and activities that increase the risk of acquiring or transmitting sexually transmitted diseases. 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 negative HIV antibody test result means that a person does not have detectable HIV antibodies at the time of the test. Since it can take up to 3 months after HIV infection for antibodies to develop, a negative test result is reliable only if the person has not had any sexual or needle-sharing risk behavior during the 3 months prior to testing. Some people with recent risk behavior will test HIV antibody negative, yet may have actually been infected during the previous 3 months.

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 seropositivity 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. 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

An impairment of the immune system functions, thus making a person susceptible to certain diseases that they would not ordinarily develop.

Infection

The state or condition in which the body (or part of the body) is invaded by an infectious agent (e.g., a bacterium, fungus or virus), 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 occurs especially or exclusively in persons with weak immune systems due to AIDS, cancer or immunosuppressive drugs. Examples: Kaposi's Sarcoma (KS), Pneumocystis Carinii Pneumonia (PCP), Toxoplasmosis and Cytomegalovirus.

OSHA

Occupational Safety and Health Administration.

p24 Antigen Test

A test that checks for the presence of HIV's capsid protein, P24, in serum. 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 including, but not limited to, gloves, masks, eyewear and Equipment 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)

Post-Exposure Prophylaxis: administering drug treatment to prevent disease in an individual after exposure to an infectious organism. For example, guidelines have been established for post-exposure prophylaxis of health care providers who have been exposed to HIV through needle sticks. Also can refer to provision of anti-HIV medications (antiviral medications) to someone who has had a substantial exposure, usually to the blood of another person. PEP should be started optimally within 2 hours of the exposure, preferably within 24 hours of exposure. PEP can only be provided by a medical practitioner and after evaluation of the possible exposure.

Primary HIV Infection

The first 4–6 weeks of HIV infection, when an individual may show 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 binds to and blocks 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

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 the standard Enzyme-linked Immunosorbent Assay (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 or oral sex.

Sexually Transmitted Disease (STD)

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, nonspecific urethritis, chlamydial infections, cytomegalovirus, AIDS, Herpes Simplex Virus II and *Molluscum Contagiosum*.

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 1) blood; 2) all body fluids, secretions, and excretions except sweat, regardless of whether or not they contain visible blood; 3) non-intact skin; and 4) 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 ELISA, 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.

“Works”

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

Post Test

1. HIV:
 - a) Causes the body's immune system to attack body organs.
 - b) Destroys the body's ability to fight infection and disease.
 - c) Is the same as AIDS.
 - d) Is a hereditary disease.
2. AIDS:
 - a) Refers to the beginning stages of the disease.
 - b) Cannot be delayed by treatment.
 - c) Is a term that refers to the most advanced stages of HIV infection.
 - d) Causes an increase in the body's ability to fight infection and disease.
3. HIV:
 - a) Is a virus that attacks T-helper lymphocytes that regulate the body's immune response.
 - b) Can be transmitted by casual contact.
 - c) Attacks the body's red blood cells resulting in a decline in the immune system.
 - d) Increases antibody production by T-helper lymphocytes.
4. Acute HIV infection:
 - a) Is the first stage of HIV and may seem to be merely a mild flu.
 - b) Is the time when antibodies are first detected.
 - c) Is not yet contagious because it doesn't show up on tests.
 - d) Is the final stage of HIV before AIDS.
5. The window period:
 - a) Is the time between first infection with HIV and production of detectable antibodies.
 - b) Typically lasts only a week or two.
 - c) Refers to the stage of disease when the newly infected person is not yet contagious.
 - d) Is the first stage of HIV disease.
6. During the asymptomatic stage of HIV infection:
 - a) The virus can be passed through unprotected sex, but cannot be passed to a baby through breast-feeding.
 - b) The virus is in the dormant stage and is not replicating.
 - c) People infected with HIV experience frequent illnesses.
 - d) An untreated person can look and feel healthy for an average of 10 years before the start of AIDS symptoms.
7. The HIV virus originated in chimpanzees native to west equatorial Africa and spread to humans by hunters exposed to infected blood.
 - a) True
 - b) False
8. Antiviral "combination" drug therapies:
 - a) Have dramatically decreased the number of new HIV infections.
 - b) Are relatively inexpensive and easy to use.
 - c) Have resulted in a dramatic decrease in AIDS deaths.
 - d) Are widely available in developing countries.

9. Conditions for the transmission of HIV include:
- Access to the bloodstream of another person, sufficient dose of virus, and an HIV source.
 - Only casual contact with an infected person.
 - A genetic predisposition to HIV and a compromised immune system.
 - Dispersal of droplets from an infected person with cough.
10. Transmission of HIV can occur through:
- Coughing.
 - Unprotected oral sex.
 - Hand to hand contact.
 - Donating blood.
11. Viral load is:
- The concentration and amount of HIV necessary for infection.
 - The amount of HIV is present in the bloodstream.
 - Not a predictor of how infectious an HIV-positive person is.
 - Decreased during the asymptomatic stage of infection.
12. The behavior associated with the highest risk of HIV transmission is:
- Unprotected vaginal intercourse.
 - Breast-feeding.
 - Unprotected anal intercourse.
 - Indirect sharing of drug paraphernalia.
13. During pregnancy:
- An HIV infected woman rarely passes the infection to the baby.
 - C-sections actually increase the risk of infecting the baby with HIV.
 - The HIV transmission rate to the baby drops with the use of AZT.
 - HIV counseling is voluntary in most states.
14. The presence of HIV infection with other STDs does not increase the risk of HIV transmission.
- True
 - False
15. There have been some cases of HIV transmission:
- Through the air by sneezing, breathing or coughing.
 - Through sharing of computers, telephones or swimming pools.
 - From healthcare worker to patient.
 - Eating food in a restaurant prepared or served by an HIV-infected employee.
16. Behaviors that can reduce the risk of HIV infection include:
- Use of natural membrane condoms.
 - Use of latex condoms.
 - Use of oil lubricants like petroleum jelly or cooking oils.
 - Washing used needles with soap and water.

17. Occupational exposure means:
- Exposure to food served by an HIV infected employee of a restaurant.
 - Reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or OPIM that may result from the performance of an employee's duties.
 - A specific eye, mouth, or other mucous membrane contact with blood or OPIM that results from the performance of an employee's duties.
 - Caring for a patient who has HIV.
18. According to the CDC, the most common bloodborne infection in the United States is:
- HIV
 - Creutzfeldt-Jakob disease
 - Hepatitis D
 - HCV
19. Body fluids linked to transmission of HIV, HBV and HCV and which require Standard Precautions and Universal Precautions include:
- Blood products and sweat.
 - Cerebral spinal fluid and urine without visible blood.
 - Pericardial fluid and vomitus not visibly contaminated with blood.
 - Vaginal secretions and amniotic fluid.
20. Urine, feces and vomitus are not considered OPIM unless visibly contaminated by blood.
- True
 - False
21. An Exposure Control Plan must include:
- Mandatory hepatitis B vaccinations for all employees with potential for occupational exposures.
 - A syringe exchange program.
 - The procedure for evaluating the circumstances surrounding exposure incidents.
 - A bi-annual update of the plan.
22. Bloodborne pathogens training:
- Must occur for all employees with potential exposure to blood/OPIM within a year of assignment to tasks where exposure may occur.
 - Is required prior to job assignment and every 5 years thereafter.
 - Includes protective measure to minimize the risk and what to do if exposure occurs.
 - Is not required for nurses in the United States.
23. Universal and Standard Precautions:
- Are not implemented unless a patient has been diagnosed with AIDS or hepatitis C.
 - Must include the use of latex gloves.
 - Include PPEs such as masks, gloves, protective eyewear and face shields.
 - Consider all body fluids, including sweat, to be potentially infectious.
24. Hand hygiene:
- Is required only after contact with blood or other infectious materials.
 - Is not required after removing gloves.
 - Includes the use of lotion to prevent dry skin.
 - Is required after removal of gloves or other PPEs and upon leaving the work area.

25. Regulated waste:
- Must be flushed down toilets in specified areas.
 - Must be red-bagged or labeled in leak proof containers to prevent leakage during handling and transport.
 - Includes chemical germicides and disinfectants.
 - Does not include items that are caked with dried blood.
26. Biohazard labels:
- Must be written in the three major languages of the workers employed in that area.
 - Can only be presented in pictographs.
 - Are used to protect employees from hazardous biological exposure.
 - Need not be understood by housekeeping staff.
27. An example of an occupational exposure is:
- Carrying a red-bagged urine specimen to the lab.
 - Taking the temperature of an HIV infected patient using Universal Precautions.
 - A needlestick from a patient who does not have HIV.
 - Assisting an HIV infected patient to walk in the hallway using Universal Precautions.
28. HIV transmission to health care workers:
- Is most likely through a blood splash to the eyes, nose or mouth.
 - Is approximately 22–31% from a needlestick from an infected patient.
 - Has never been caused by blood contact with intact skin.
 - Does not depend on the amount of blood or virus present in the exposure.
29. Treatment after a potential exposure includes all of the following except:
- Washing the affected area with soap and water.
 - Flushing exposed eyes, nose or mouth with water, saline or sterile irrigants.
 - Removal of potentially contaminated clothing.
 - Application of antiseptics in place of washing.
30. Sharps injuries:
- Should be "milked" or squeezed.
 - Must not be treated with antiseptics.
 - Should be washed with soap and water.
 - Are not considered an occupational exposure.
31. Following HIV exposure, the employee must:
- Call their personal physician to set up an appointment.
 - Report the incident to the person responsible for managing exposure immediately after cleansing exposed area.
 - Be assigned to another department until the incident is fully investigated.
 - "Milk" the wound if it is a needlestick.
32. The source individual:
- Should be treated with PEP within 24 hours of exposure.
 - Must be tested as soon as feasible with or without their consent.
 - May be ordered by a local health officer to have HIV testing if exposure occurred on the job and if substantial exposure occurred.
 - Is the law enforcement officer, fire fighter or health care provider with an occupational exposure.

33. When caring for an HIV infected person at home:
- It is not necessary to take precautions with blood or OPIM.
 - Clothes or towels that are contaminated with blood or OPIM should be cleaned and disinfected before further use.
 - Urinals and bedpans should be disposed of after each use.
 - Hands should be washed before contact with pets to prevent transmission of HIV to the animals.
34. HIV testing:
- Can be done quickly and accurately using many kits available on the internet.
 - Can use an infected person's sweat to obtain accurate results.
 - Done by "reactive" blood fluid screening tests does not have to be confirmed with a Western Blot test.
 - Done by "reactive" blood fluid screening tests must be confirmed with a Western Blot test.
35. A negative HIV test result means:
- The person may be immune to HIV and can never become infected.
 - This person is infected with HIV and will remain infected for life.
 - This person is in the acute stage of HIV infection.
 - This person may not have produced enough antibodies to be detected by the test.
36. Positive HIV test results mean this person:
- Is infected with HIV and can spread the virus to others.
 - Can not spread the virus until symptoms of AIDS develop.
 - Can be cured with current antiviral drugs.
 - Does not have HIV.
37. Seroconversion is:
- A formerly positive HIV test that converts to a negative test.
 - The possible cause of an "indeterminate" or "inconclusive" test result.
 - Always the cause of "indeterminate" results.
 - The stage of HIV infection when symptoms develop known as AIDS.
38. The "natural history" of untreated HIV infection is:
- Asymptomatic HIV infection, seroconversion, primary HIV infection, AIDS and symptomatic HIV infection.
 - Viral transmission, seroconversion, primary HIV infection, symptomatic HIV infection, asymptomatic HIV infection and AIDS.
 - Viral transmission, primary HIV infection, seroconversion, asymptomatic HIV infection, symptomatic HIV infection, and AIDS.
 - Viral transmission, the "window period", seroconversion sickness, asymptomatic HIV infection, symptomatic HIV infection and AIDS.
39. Symptomatic HIV infection can include:
- Persistent headaches, difficulty recovering from colds and flu, and recurrent vaginal yeast infections in women.
 - Invasive cervical cancer.
 - HIV associated dementia.
 - Kaposi's sarcoma.

40. Opportunistic diseases and infections:
- a) Are only seen during the window period of HIV infection.
 - b) Affect the kind and number of blood cells in HIV infected patients.
 - c) Are caused by a suppressed immune system that provides weaker defenses against bacteria, viruses and fungi.
 - d) Affect the amount of fat and muscle distribution in the body and the body's basic metabolism.
41. HIV infection in children:
- a) Has the same disease progression as adults.
 - b) Has been reduced by the use of antiretroviral drugs during the mother's pregnancy.
 - c) Does not usually cause symptoms until puberty.
 - d) Should not be treated until two years of age.
42. HAART therapy:
- a) Is a newly-discovered antiretroviral drug that has cured AIDS.
 - b) Is usually easily tolerated by patients.
 - c) Decreases viral load to a point where patients are no longer contagious.
 - d) Is the primary reason for the reduction of deaths from AIDS in the US.
43. STDs:
- a) Are the cause of multi-drug resistant TB.
 - b) Can increase HIV viral shedding.
 - c) Are treated with a nine month course of Isoniazid.
 - d) Are not transmitted from mother to baby during childbirth.
44. HBV:
- a) Can be transmitted by breastfeeding or sharing eating utensils.
 - b) Can be prevented in more than 90 % of people who receive the HBV vaccine.
 - c) Can be detected through PAP tests in women.
 - d) Can not be transmitted by contaminated tattoo or body piercing equipment.
45. Hepatitis C:
- a) Is primarily transmitted through injection drug use.
 - b) Can be transmitted through breastfeeding.
 - c) Rarely leads to chronic liver disease.
 - d) Does not currently have approved antiretroviral treatments.
46. Positive HIV test results are not reportable to the health department unless that person seeks medical care for conditions related to HIV or AIDS.
- a) True
 - b) False
47. HIV testing and results may be disclosed:
- a) By providers who diagnose HIV infections who must submit a confidential case report to the local health jurisdiction within 3 days.
 - b) Using "a good faith effort" to notify all spouses with or without the consent of the infected person.
 - c) Only to the manager of an HIV infected person in the workplace.
 - d) When positive HIV results are obtained through anonymous testing.

48. Chronic grief:

- a) Is caused by "the fear of the unknown" that many HIV sufferers encounter.
- b) Allows the individual to move through the stages of grief and come out of the grieving process.
- c) Is one of the psychological symptoms of AIDS caused by brain infection.
- d) Is caused by "cumulative" multiple loss or grief saturation.

49. The group with the highest rate of new HIV infection in the United States and worldwide is:

- a) Hispanic children
- b) Gay men
- c) American Indians
- d) Women

Answer Sheet

HIV/AIDS in the United States

Name (Please print your name): _____

Date: _____

Passing score is 80%

- 1. _____
- 2. _____
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- 48. _____
- 49. _____

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Please answer each of the following questions. Questions with asterisks (*) are required.

* 1. This course met the goals and learning objectives.

Yes No

* 2. The author was well prepared to write about the content in a way that facilitated my learning.

Yes No

* 3. This course was free from commercial bias.

Yes No

* 4. The learning activity met my continuing education needs.

Yes No

* 5. The learning activity took me 60 minutes per contact hour. (If you answer "No", please enter the total time it took to finish the course, test, and evaluation.)

Yes

No**

** If your answer was no, how long did it take to finish the course, test, and evaluation?

6. My professional educational level is (check one):

Nursing

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BSN MSN Nurse Practitioner / Advanced Practice Nurse

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Therapy

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Other (please specify): _____

(continued on next page)

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- No_____

9. Comments or suggestions (optional): _____

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Email (required if you want your certificate sent by email): _____

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- Evaluation Learning Activity
- Registration Form (this page)

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