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Contact Hours: **7**

## HIV/AIDS Training for Washington Healthcare Professionals (7 CH)

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BY Judith Swan, MSN, BSN, ADN, RN; Nancy Evans, BS

*The material presented in this course corresponds to Washington State's HIV/AIDS curriculum manual, KNOW: HIV Prevention Education (7th ed.), and reflects current scientific understanding and updates from the CDC and other government agencies.*

**LEARNING OUTCOME AND OBJECTIVES:** Upon completion of this course, you will have increased your knowledge of HIV/AIDS in order to better care for your patients. Specific learning objectives include:

- Discuss the etiology and epidemiology of HIV worldwide, in the United States, and in Washington State.
- List the risk factors for transmission of HIV in general and among healthcare workers in particular.
- Identify preventive and control measures for HIV/AIDS.
- Discuss accepted procedures and regulations for HIV testing and post-test counseling.
- Describe the clinical manifestations and treatment guidelines for HIV/AIDS.
- Explain confidentiality and legal reporting requirements in Washington State for HIV/AIDS.
- Summarize the psychosocial issues associated with HIV/AIDS.

## ETIOLOGY AND EPIDEMIOLOGY OF HIV/AIDS

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Upon completion of this section, you will be able to discuss the etiology and epidemiology of HIV worldwide, in the United States, and in Washington.

### Defining HIV and AIDS

The human immunodeficiency virus (HIV) is like most other viruses contracted by humans, but with one important difference—the body’s immune system can destroy most viruses and clear them from the body, but that is not true for HIV. The immune system cannot get rid of HIV because the virus particles attack a key component of the system, CD4<sup>+</sup> T cells, invade them, use them to produce copies of themselves, and then destroy those cells.

The virus particles that invade the host cells are called virions, consisting of RNA or DNA surrounded by a protein shell. Once the virion invades a host cell, it turns it into a viral “factory.” The infected host cell is then referred to as the provirus, a viral cell that can lie dormant for years until it is activated (Encyclopaedia Britannica, 2015).



A scanning electron microscopic image showing HIV-1 virions (in green) on the surface of a human lymphocyte (red). (Source: CDC/Goldsmith, Feorino, Palmer, & McManus, 1989.)

AIDS (acquired immunodeficiency syndrome) is a complex condition caused by 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. The term *AIDS* applies to the most advanced stages of HIV infection. Medical treatment is available to delay the onset of AIDS.

AIDS is **acquired**. This disease is not hereditary. It is not passed casually from one person to another. To infect someone, the human immunodeficiency virus must enter the bloodstream. The virus causes an **immune deficiency**, and the body cannot defend against infection and disease. Over time, a person with a deficient immune system may become vulnerable to infections by disease-causing organisms such as bacteria, viruses, parasites, or yeasts. These opportunistic



infections may cause life-threatening illnesses. HIV infection causes a specific combination of signs, symptoms, infections, and diseases that are characteristic of **acquired immunodeficiency syndrome**.

## Origin and Strains of HIV

DNA analysis has identified the HIV-1 virus as originating in a substrain of chimpanzees in west equatorial Africa (Gao et al., 1999). It has been determined that the place of origin was a specific city, Kinshasa, which is now the capital of the Democratic Republic of Congo. Scientists theorize that HIV-1 moved from chimps to humans when hunters were exposed to infected blood while handling bush meat (the flesh of various primates, including chimps and gorillas). Once in the human population, HIV quickly became a global pandemic, driven by travel and migration patterns, sexual practices, drug use, war, and economics (Faria et al., 2014).

There are at least two types of HIV virus: HIV-1 is the cause of AIDS, and HIV-2 is a related group of viruses found in West African patients that is less easily transmitted. Worldwide, the predominant virus is HIV-1. Most of the West Africans infected with HIV-2 show none of the symptoms of classic AIDS. Viral load (the amount of HIV in the blood) tends to be lower in persons infected with HIV-2, which may explain this type's lower transmission rates and nearly complete absence of perinatal transmission.

Most persons infected with HIV-2 do not develop AIDS, although when they do, the symptoms are indistinguishable from those of HIV-1. There have been only several hundred cases of HIV-2 diagnosed in the United States, primarily in New York City and surrounding areas and limited mainly to persons born in West Africa. (New York City is the major gateway for African immigrants coming to the United States.) (NYSDOH, 2016).

HIV mutates readily, leading to many different strains of HIV, even within the body of a single infected person. Based on genetic similarities, the numerous viral strains may be classified into types, groups, and subtypes. HIV-1 comprises four distinct groups: M, N, O, and P. Group M was the first to be discovered and represents the pandemic form of HIV-1. The other three groups are quite uncommon and only occur in Cameroon, Gabon, and Equatorial Guinea (AVERT, 2016a).

## Disease Mechanism

The underlying mechanism of this disease is quite complex. A basic explanation is as follows:

- The process begins when a virus particle (virion) attaches to and fuses to a lymphocyte called a CD4<sup>+</sup> T cell. It then releases HIV RNA into the cell.
- Once inside the cell, the HIV RNA is changed into HIV DNA using an enzyme called reverse transcriptase.
- The HIV DNA then splices itself into the DNA in the nucleus of the host T cell and controls it.



- The HIV DNA then makes long strands of HIV proteins. These HIV proteins and HIV RNA move to the outer edge of the cell.
- This material then forms new HIV particles, which are released from the T cell and go on to infect other T cells.

T cells are lymphocytes essential for the functioning of the immune system in fighting infection. HIV demolishes the T cells and damages their ability to signal for antibody production. This process continues until the immune system is badly compromised (Sax, 2016a).

## HIV INFECTION STAGES

**Acute HIV infection stage** is the time period immediately following infection with the virus. HIV replication is very rapid in the six to eight weeks after acquiring the HIV infection and results in a high amount of HIV in the blood (viral load). During this time, the infected person may be symptom-free and unaware of the infection, but the viral load is the highest it will ever be because the body's defenses have not yet responded. It is at this time that the person is at high risk of transmitting HIV to others. This interval of time is often referred to as the **window period**—the time before the immune system produces antibodies that can be detected by HIV testing.

Eventually, the body's immune response will begin to reduce the level of virus in the body and become relatively stable. This is referred to as the **clinical latency stage**, also referred to as "asymptomatic HIV infection" or "chronic HIV infection." During this period, the person experiences no symptoms, or only mild ones. Once infected, however, the person remains infectious for life (Sax, 2016b; USDHHS, 2016a).

During early HIV infection, it has been estimated that up to 60% of those infected will report having had no symptoms. However, one study showed that almost all had at least one symptom or sign during the first four weeks of infection that was short-lived, nonspecific, and not likely to have warranted concern outside of the study setting. Such signs and symptoms may include:

- Headache or fever
- Tiredness
- Swollen lymph nodes or sore throat
- Rash
- Muscle and joint pain
- Diarrhea

Most symptoms experienced by those with early HIV infection resolve without treatment. The severity and duration, however, vary greatly from patient to patient (Sax, 2016b).

Following this period, the person can remain asymptomatic for many years before the start of **symptomatic AIDS**, which may include:



- Rapid weight loss
- Extreme and unexplained tiredness
- Prolonged swelling of lymph nodes in axillae, groin, or neck
- Night sweats
- Recurring fever
- Diarrhea that lasts for more than a week
- Sores in the mouth, anus, or genitals
- Pneumonia

The average time from HIV acquisition to advanced immunosuppression (AIDS) is 8 to 10 years (Bartlett, 2016).

## Epidemiology

### A GLOBAL PANDEMIC

Around the world there were approximately 2.1 million new cases of HIV in 2015, and as of June 2016, about 36.7 million people worldwide were living with HIV. In 2015, an estimated 1.1 million people died from AIDS-related illnesses. Sub-Saharan Africa carried the heaviest burden, accounting for almost two thirds of all new HIV infections (CDC, 2016a).

#### **GLOBAL HIV/AIDS STATISTICS, 2015**

##### **Number of people living with HIV in 2015**

- Total: 36.7 million
- Adults: 34.9 million
- Women (15+): 17.8 million
- Children (<15 years): 1.8 million

##### **People newly infected with HIV in 2015**

- Total: 2.1 million
- Adults: 1.9 million
- Children (<15 years): 150,000

##### **AIDS deaths in 2015**

- Total: 1.1 million
- Adults: 1.0 million
- Children (<15 years): 110,000

Source: WHO, 2016a.



## HIV/AIDS IN THE UNITED STATES

In 1984, the Centers for Disease Control and Prevention (CDC) began to develop a surveillance system in order to uniformly track the HIV/AIDS epidemic in the United States. Information is collected from state and local health departments and reported to the CDC for analysis to determine who is being affected and why. The main goal is to have in place a nationwide system that combines information on AIDS cases, new HIV infections, and the behaviors and characteristics of people at high risk.

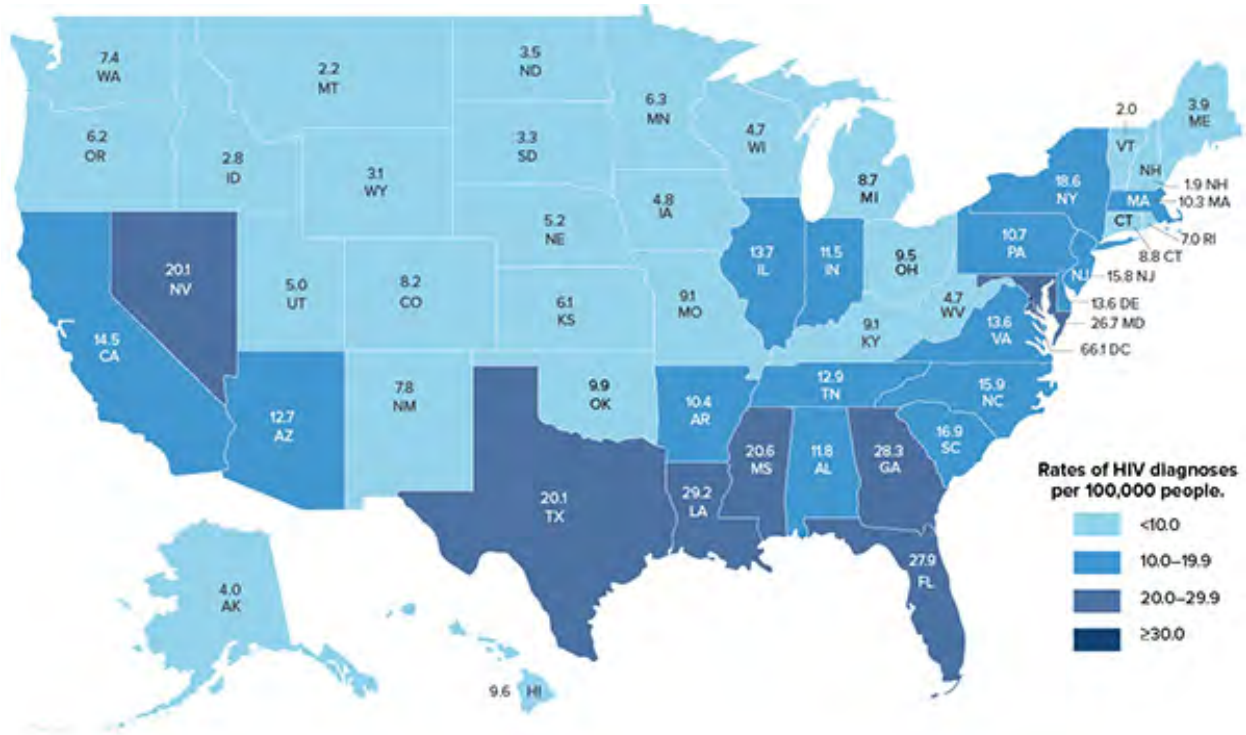
Data collected in 2015 reveals that 39,513 people in the United States were diagnosed with HIV infection. There were 31,991 diagnoses among adult and adolescent males 13 years or older, 7,402 among adult and adolescent females, and 120 among children younger than 13 years (CDC, 2016a).

<b>HIV INFECTION DIAGNOSIS AMONG ADULTS AND ADOLESCENTS BY GENDER AND RACE/ETHNICITY, 2015</b>		
<b>Race/Ethnicity</b>	<b>Male</b>	<b>Female</b>
Native American/Alaska Native	<1%	1%
Asian	3%	2%
Black/African American	41%	61%
Hispanic/Latino (any race)	25%	15%
Native Hawaiian/other Pacific Islander	<1%	<1%
White	28%	19%
Multiple races	2%	2%
Source: CDC, 2016b.		

At the end of 2013 (the most recent data available as of this writing), there were an estimated 1,242,000 adults and adolescents living with HIV in the United States. The CDC estimates 51% of those living with HIV do not know they are infected and are at high risk for transmitting the virus to others. In 2014, CDC statistics indicate 6,721 deaths attributed directly to HIV (CDC, 2016a).

HIV has been reported in all 50 states, the District of Columbia, and U.S. dependencies. It has not, however, been uniformly distributed, with the highest burden among the southern states. The South generally is behind other regions in some key HIV prevention and care indicators, which accounts for this increased burden. In 2015, the South accounted for 52% of new AIDS diagnoses despite having only one third of the total national population. It was followed by the Northeast, the West, and the Midwest (CDC, 2016c).





Rates of HIV diagnoses per 100,000 people, 2015. (Source: CDC, 2016d.)

From 2005 to 2014 the number of new HIV diagnoses in the United States fell 19%. Because HIV testing has remained stable or increased in recent years, this appears to be a true decline in new infections. There were dramatic declines among heterosexuals, people who inject drugs, African American women, and heterosexual men. The proportion of Americans with HIV who know their status has risen to an all-time high of 87%. The CDC attributes this to the implementation of the Affordable Care Act, which increased access to HIV testing, prevention, and care services nationwide (CDC, 2016e).

Although definite progress has been made, it has been uneven, and diagnoses have increased among a few groups. HIV diagnoses dropped among white men who have sex with men (MSM) between 2005 and 2014 but increased among Latino MSM. Diagnoses increased among black MSM, although the increases have leveled off since 2010 (CDC, 2016e).

Key affected populations can be grouped by transmission category, sex, and race/ethnicity.

NEW HIV DIAGNOSES IN THE UNITED STATES FOR THE MOST-AFFECTED SUBPOPULATIONS, 2015*	
Subpopulation	Diagnoses
Black men who have sex with men (MSM)	10,315
White MSM	7,570
Hispanic/Latino MSM	7,013

Black heterosexual women	4,142
Black heterosexual men	1,926
Hispanic/Latina heterosexual women	1,010
White heterosexual women	968
* Subpopulations representing 2% or less of HIV diagnoses are not reflected in this chart.	
Source: CDC, 2016a.	

In 2015, African Americans were the most affected by HIV. Although they made up only 13% of the population, they had 45% of all new HIV diagnoses. Additionally, Hispanic/Latinos (of any race) were also strongly affected. They made up 18% of the U.S. population but accounted for 24% of all new HIV diagnoses (CDC, 2016a).

In 2015, gay and bisexual men accounted for two thirds of all new HIV diagnoses in the United States, and individuals infected through heterosexual sex made up one quarter (CDC, 2016a).

Scientific advances have provided improved testing methods, early treatment with antiretroviral medications, and preexposure prophylaxis (PrEP). Despite this, just 57% of people diagnosed with HIV are receiving care, and only 55% have their virus suppressed through treatment (CDC, 2016e).

### **NATIONAL HIV/AIDS STRATEGY**

In 2016, the federal government issued a comprehensive National HIV/AIDS Strategy for the United States (NHAS), which has four overarching goals to be reached by 2020:

- Reducing infection rates
- Increasing access to care for those infected and optimizing health outcomes
- Eliminating disparities in prevalence, diagnosis, and treatment
- Achieving a more coordinated national response by addressing HIV care and housing to enhance service delivery

The NHAS envisions a future in which “the United States will become a place where new HIV infections are rare and, when they do occur, every person, regardless of age, gender, race/ethnicity, sexual orientation, gender identity, or socioeconomic circumstance, will have unfettered access to high-quality, life-extending care, free from stigma and discrimination.”

Source: USDHHS, 2016b.





## HIV/AIDS IN WASHINGTON STATE

Washington State received its first report of AIDS in 1981, and HIV cases have been reported since 1999. Recent statistics from the Washington State Department of Health include the data from 2014 and show that new cases in the state have decreased slightly.

- By the end of 2014, more than 12,500 people were living with HIV across the state.
- There were an average of 492 new HIV infections reported per year from 2010 to 2014; in 2014 there were 440 new HIV infections reported.
- Cumulative HIV diagnoses from 1981 through 2014 total 20,437.
- Cumulative AIDS diagnoses from 2010 through 2014 total 1,325.
- From 1981 (when the first AIDS case was reported) through 2014, there have been a total of 6,730 HIV/AIDS deaths in the state.
- King County had the highest number of new HIV cases in 2014, with 273 (62%).  
(WADOH, 2015)

Efforts to screen pregnant women for HIV and to treat those women who test positive for the virus have markedly reduced the incidence of pediatric HIV/AIDS in Washington. From 2000 to 2014, there have been only seven cases of perinatal (mother-to-child) HIV transmission (WADOH, 2014a).

## At Risk Populations

Nationally, HIV/AIDS takes a heavy toll on people of all ethnicities, genders, ages, and income levels. However, men who have sex with other men is the population most affected by HIV. Other important groups at risk for HIV include blacks, women and children, seniors, incarcerated populations, commercial sex workers, and transgender people. Each of these groups has unique needs for outreach and education on prevention and treatment of HIV infection.

### MEN WHO HAVE SEX WITH MEN (MSM)

Gay, bisexual, and other MSM comprised only 2% of the population in 2013, but they made up 55% of those living with HIV and 54% of those diagnosed with AIDS in the United States. They also accounted for 83% of the estimated new HIV diagnoses among males ages 13 and older and 67% of all estimated new diagnoses.

A study completed in 2016 estimated there are 4.5 million gay and bisexual men in the United States. Of these, 15% are living with HIV, and of that percentage, 1 in 7 are estimated to be unaware of their infection. In Washington State, an estimated 1 in 8 is not aware (CDC, 2016f).



Several factors put this population at high risk for becoming HIV infected, including:

- Unprotected anal sex with an HIV-positive person. Anal sex is the riskiest type of sexual activity for getting or transmitting HIV. Receptive anal sex is 13 times as risky as insertive anal sex. Because the walls of the anus are thin and more easily torn, an entry point is easily created for HIV to enter the bloodstream.
- Being unaware of the high risk of having unprotected sex with a person who has become recently infected, because HIV levels in semen peak in the three to four weeks after infection.
- Having multiple sexual partners. This is more common among the MSM population, and many do not consistently use condoms. In many countries worldwide, access to condoms remains inadequate.
- Those who are unaware they are infected unknowingly transmitting the virus to others. Those who know they are infected are more likely to take precautions to protect their partners.
- Alcohol and drugs. These are a common part of socializing among this group and can make it more likely to engage in unprotected sex with a higher number of partners.
- Homophobia, stigma, discrimination, fear, and violence. These factors can drive this population to hide their identity and sexual orientation. (As many as one third of countries around the world still criminalize same-sex conduct, and in some it is punishable by death.) Many MSM fear a negative reaction from healthcare workers and, as a result, often are less likely to access HIV services.

(AVERT, 2016b)

### **PEOPLE WHO INJECT DRUGS (PWID)**

HIV prevalence among PWID is 28 times higher than among the rest of the population. On average, 1 in 10 new HIV infections are the result of sharing needles and syringes. A needle used by a person infected with HIV can introduce HIV infection into the bloodstream of the next person who uses it, and sterile syringes are not always readily available, including in Washington State.

Three countries account for nearly half of all people who inject drugs globally—China, Russia, and the United States. Despite the high risk, these individuals are among those with the least access to HIV prevention, treatment, and healthcare because drug use is often criminalized and stigmatized.

Injection drug use can cause other diseases and complications, such as other bloodborne and sexually transmitted infections, viral hepatitis, skin infections and abscess formation, infections of the heart, as well as overdose and death.



Factors that put this population at high risk for HIV infection include:

- The high-risk practices of sharing needles, syringes, and other injection equipment are common among PWID. There are many reasons for this, one of which may be that sharing is a social and cultural norm and/or it can act as a form of bonding.
- Laws that criminalize possession and use of drugs and drug paraphernalia for personal use leads to more risky forms of drug use.
- Marginalization due to criminalization leads to stigma and discrimination, causing mistrust of the healthcare system and preventing PWID from obtaining HIV testing, care, and treatment.
- The epidemic of prescription opioid misuse and abuse has led to increased numbers of PWID. This places new populations at increased risk for HIV and increases use in nonurban areas with more limited HIV prevention and treatment services.
- Injecting drugs can reduce inhibitions and increase risky sexual behaviors, such as having sex without a condom or without medicines to prevent HIV, having multiple partners, or trading sex for money or drugs.
- Social and economic factors limit access to HIV prevention and treatment, with more than half of PWID reported to be homeless, one third incarcerated, and one fifth with no health insurance in the last 12 months.

(AVERT, 2016c; CDC, 2016g)

## **AFRICAN AMERICANS**

African Americans are the racial/ethnic group most affected by HIV in the United States. Gay and bisexual men account for more than half of the estimated new HIV diagnoses among African Americans.

Although the number of HIV diagnoses among African American women has declined nationwide, including in Washington State, it is still high compared to women of other races/ethnicities.

Factors that contribute to the high rates of HIV infection among African Americans include:

- They have a greater risk of HIV infection with each new sexual encounter because of the prevalence of people living with HIV in African American communities and the fact that African Americans tend to have sex with partners of the same race/ethnicity.
- In African American communities, diagnosis of HIV commonly occurs late in the course of the infection. This results in missed opportunities to get early medical care and prevent transmission to others.



- The rate of poverty is higher among African Americans than other groups. Socioeconomic issues associated with poverty directly or indirectly increase the risk for HIV infection and affect the health of people with and at risk for HIV. Such issues include limited access to high-quality health care, housing, and HIV prevention education.
- African Americans have a higher rate of other sexually transmitted infections (STIs) than other groups in the United States, and this significantly increases a person's chance of getting or transmitting HIV. HIV and STIs tend to be linked. When someone gets an STI, they may have been exposed to someone at risk for other STIs and HIV. Persons infected with HIV are more likely to shed HIV when they have urethritis or a genital ulcer (both associated with STIs), which may allow infection with HIV that would otherwise have been stopped by intact skin.
- Stigma, fear, discrimination, homophobia, and negative perceptions about HIV testing place African Americans at high risk and discourage testing.  
(CDC, 2016h, 2016i)

## WOMEN AND CHILDREN

Globally, HIV remains the leading cause of death among women of reproductive age. In the United States, about 1 in 4 people living with HIV are women. In 2014 women made up 19% of the estimated 44,073 new HIV diagnoses in the United States. Of these, 87% were attributed to heterosexual sex and 13% to injection drug use. During 2013, an estimated 1,859 women died from HIV or AIDS.

In Washington State, the number of women newly diagnosed with HIV remains steady at about two HIV cases per 100,000 each year. Although many women are not sure how they became infected, most female HIV cases in Washington are believed to be the result of unprotected sex with a male partner infected with HIV. An estimated 23% are the result of injection drug use. Since the epidemic began, over 1,400 women have been diagnosed with AIDS in Washington, and more than 480 women have died as a result of their HIV illness (WADOH, 2014a).

Factors that increase the risk of HIV infection among women include:

- Women may be unaware of their partner's risk factors and may not use condoms. Unprotected vaginal sex is a much higher risk factor for HIV transmission for women than for men, and unprotected anal sex is riskier for women than unprotected vaginal sex. In a survey of heterosexual women at increased risk of HIV infection, 25% reported having anal sex without a condom in the previous year.
- Gender inequality and intimate partner violence prevents many women, particularly young women, from protecting themselves against HIV.
- The norm in many societies is for the woman to remain faithful to her partner, even if in an abusive relationship, while men often engage in unprotected extramarital sex.



- Abusive husbands are more likely to be infected with HIV than nonabusive husbands.
- Social and economic factors, especially poverty, affect access to all healthcare, and disproportionately among women infected with HIV. Many face additional barriers to accessing medical care if they use injection drugs; abuse other substances; or are homeless, incarcerated, mentally ill, or uninsured.

The most common route of transmission for HIV infection in children is perinatal, either during pregnancy, labor and delivery, or breastfeeding. The following factors increase the risk for HIV infection among children:

- Pregnant women with HIV may not know they are infected.
- Many women do not get tested for HIV during pregnancy.
- The risk of perinatal HIV transmission is higher if the mother's antiretroviral HIV treatment is interrupted at any time during pregnancy, labor, or delivery, or if HIV medications are not provided to her infant.
- Social and economic factors, especially poverty, affect access to all healthcare, and disproportionately affect women living with HIV.  
(AVERT, 2016d; CDC, 2016j, 2016k)

## **OLDER ADULTS**

People aged 55 and older accounted for over one quarter of all Americans living with diagnosed or undiagnosed HIV infection in 2013. Older adults are more likely to be diagnosed with HIV infection later in the course of their disease because healthcare providers may not always test older people for HIV infection. As a result, treatment is started later, resulting in more immune system damage.

Older adults with HIV infection also face challenges in preventing other diseases because age and HIV increase the risk for cardiovascular disease, thinning of the bones, and certain types of cancer. They must also be concerned about interactions between medications used to treat common age-related conditions such as hypertension, diabetes, elevated cholesterol, and obesity and those used to treat HIV.

Factors and issues of concern that increase the risk of HIV infection in this population include the following:

- People aged 50 and older are sexually active and have the same HIV risk factors as young people, but may be less aware of them.
- People may believe known and trusted partners are not or cannot become infected.
- Older adults may mistake HIV symptoms for those of normal aging.



- Older adults may be widowed or divorced and are dating again.
- Older women no longer worry about becoming pregnant and may be less likely to use a condom or to practice safer sex.
- Age-related thinning and dryness of vaginal tissue may raise older women's risk for HIV infection.
- The availability of erectile dysfunction medications may make sex easier for older men who otherwise would not have been capable of vaginal or anal intercourse.
- Although they visit their healthcare providers more frequently, older people are less likely than younger people to discuss their sexual habits or drug use with them.
- Many seniors are sexually active well into their 70s and 80s, a fact sometimes overlooked by health professionals. Thus, physicians and other healthcare workers fail to ask patients about unprotected sex or to offer voluntary HIV testing.  
(CDC, 2016l; USDHHS, 2016c; Touhy & Jett, 2016)

## **INCARCERATED POPULATIONS**

More than 2 million people in the United States are incarcerated in federal, state, and local correctional facilities on any given day. The rate of diagnosed HIV infection among inmates in state and federal prisons is more than five times greater than the rate among the general population. Most inmates with HIV acquire it in their communities before they are incarcerated.

Among the jail population, African American men are five times as likely as white men and twice as likely as Hispanic/Latino men to be diagnosed with HIV; and African American women are more than two times as likely to be diagnosed with HIV as white or Hispanic/Latina women.

Many prison inmates engage in high-risk behaviors before being incarcerated, including unprotected sexual intercourse, drug and alcohol abuse, and unregulated tattooing, behaviors that often continue inside prisons.

Factors that increase the risk of HIV infection among this population include:

- Lack of awareness about HIV and lack of resources for HIV testing and treatment in the inmate's home community.
- Lack of resources for HIV testing and treatment in correctional facilities. Mandatory testing for all inmates is done in only 16 state prison systems. A 2014 survey showed that only 19% of prison systems and 35% of jails provide opt-out HIV testing as recommended by the CDC. Since March 2010, the Washington State Department of Corrections has notified all inmates that HIV screening will be performed during the prison intake medical evaluation unless they decline.



- Most HIV programs in correctional facilities are in prisons, but most incarcerated people are detained in jails, where rapid turnover of prisoners occurs. Nine out of 10 jail inmates are released in less than 72 hours, which makes it difficult to test them for HIV and help them find treatment.
- Many incarcerated persons do not disclose their high-risk behaviors due to fear of being stigmatized, and in some facilities prisoners with HIV have no confidentiality or privacy regarding their HIV status.
- Despite the fact that consensual and nonconsensual sex is illegal in all, and a crime in some, U.S. correctional facilities, unprotected sexual behaviors continue.
- Although both the CDC and WHO recommend condom distribution in jails and prisons, there are only two state prison systems that do so: Vermont has made condoms available upon request since 1987, and in 2014 California passed the Prisoner Protections for Family and Community Health Act to develop and institute a five-year plan to make condoms available in all of its adult prison facilities.  
(CDC, 2016m; Center for HIV and Law & Policy, 2016; WA State Legislature, 1997; Sevcik, 2014)

## COMMERCIAL SEX WORKERS

The mathematical reality that sex workers have hundreds of partners each year makes this population a critical element in the spread of HIV throughout the wider community. However, few large-scale studies have been done among commercial sex workers in the United States. The illegal and often criminalized nature of exchange sex makes it difficult to gather data, and this places barriers to the development of targeted HIV prevention efforts.

The CDC reported in 2016 that many socioeconomic and structural factors are involved in sex work. These individuals may have a history of homelessness, unemployment, incarceration, mental health problems, violence, emotional/physical/sexual abuse, and drug use. They are stigmatized, marginalized, and criminalized, and a lack of legal protection leaves sex workers open to abuse, violence, and rape, creating an environment that can facilitate HIV transmission. Many women and girls in the United States as well as around the world are trafficked into the commercial sex industry to function as sex slaves.

Persons who regularly engage in sex as a source of income are at highest risk. These include escorts; people who work in massage parlors, brothels, and the adult film industry; exotic dancers and state-regulated prostitutes (in Nevada); and men, women, and transgender persons who participate in survival sex (basic needs for daily living).

Some transgender persons may turn to the exchange of sex because of discrimination and lack of economic opportunities. They may exchange sex to generate income for rent, drugs, medicines, hormones, and gender-related surgeries.



Factors that increase the risk for HIV infection among this diverse population include:

- Having multiple high-risk sex partners, many of whom do not know they are living with HIV or other STIs.
- Inconsistent use of condoms because they may receive more money for sex without a condom. They may use condoms less often with regular clients than with one-time clients and even less frequently with intimate partners.
- Not using condoms because police may use possession of condoms as evidence of sex work, which impedes sex workers' efforts to protect themselves.
- Unequal power in a relationship with clients, which may make it difficult to negotiate condom use.
- Receiving more money for sex with partners known to be HIV positive.
- Use of drugs and alcohol. There is a strong link between exchange sex and drug and alcohol use that impairs judgment. They are more likely to share needles and other drug paraphernalia.
- Reluctance to seek or stay in care due to mistrust of the healthcare system or concern that they may lose income if identified as being HIV positive. There may be financial circumstances and other barriers may affect access to healthcare.

(CDC, 2016n; AVERT, 2016e)

## TRANSGENDER PEOPLE

*Transgender* is an inclusive term for persons whose gender identity, expression, or behavior differs from the norms expected from their birth sex. Gender identity refers to a person's internal understanding of his or her gender. Gender expression refers to people's outward presentation of their gender. Transgender women are people who are assigned male at birth but identify as being women. Transgender men are people who are assigned female at birth but identify as being men.

Among 3.3 million HIV testing events reported to the CDC in 2013, the highest percentages of newly identified HIV positives were among transgender persons. Transgender women are 49 times more likely to be living with HIV than the general population, and in the United States black/African American transgender women are more likely to have HIV than transgender women of other races/ethnicities.

Factors that put these individuals at risk for HIV infection include the following:

- Behaviors among transgender people include receptive anal sex without a condom or medicines to prevent HIV.
- There is a high prevalence of HIV in their sexual networks.
- They have multiple sex partners.





- They may exchange sex for drugs or money.
- Drug and alcohol abuse, mental health disorders, incarceration, homelessness, and unemployment are common among this population.
- Stigma and discrimination marginalize these individuals and may prevent them from seeking healthcare.
- There may be limited access to healthcare, and many experience negative healthcare encounters, which inhibits healthcare-seeking behavior.  
(CDC, 2016o; AVERT, 2016f)

## TRANSMISSION AND INFECTION CONTROL

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**Upon completion of this section, you will be able to list the risk factors for transmission of HIV in general and among healthcare workers in particular, and identify preventive and control measures for HIV/AIDS.**

### Transmission Routes

Contrary to myths and misinformation, HIV is not transmitted by casual contact such as hugging, other nonsexual touching, and the shared handling of objects. Insects do not carry HIV, nor is the virus transmitted through air or water. HIV is a relatively fragile virus. Once outside the human body, HIV has a very short lifespan, which makes most medical procedures and caregiving activities safe if standard infection control procedures are followed.

In terms of the classic “chain of infection,” three links are necessary for the transmission of HIV:

1. An HIV source
2. A sufficient dose (viral load) of virus
3. Access to the bloodstream of another person

Varying levels and concentrations of HIV have been found in most body fluids of infected persons, including blood, semen, saliva, tears, breast milk, and vaginal and cervical secretions. However, **only** blood, semen, breast milk, and vaginal and cervical secretions have been proven to transmit HIV infection. Healthcare workers, however, may be exposed to some other body fluids with high concentrations of HIV, including amniotic, cerebrospinal, pericardial, pleural, and synovial fluids.

### SEXUAL CONTACT

Transmission of HIV occurs primarily through sexual contact with an infected person. This includes anal, oral, and vaginal contact. The risk of transmission depends on sexual practices. Receptive anal contact without a latex condom carries the greatest risk, probably because of the



larger surface area of mucous membranes involved. Receptive partners are at greater risk for transmission of any sexually transmitted infection, including HIV.

Although rare, HIV transmission between women who have sex with women can occur. In 2012 a case was reported that was supported in 2014 by phylogenetic (evolutionary history) analysis of a couple who had unprotected sex during a six-month monogamous relationship. The couple reported having unprotected oral and vaginal contact routinely and using insertive sex toys that were shared between them but with no other persons. They also reported having unprotected sexual contact during the menses of either partner (Chan et al., 2014).

Health professionals need to remember that sexual identity and gender preference do not always predict behavior and that women who identify as lesbian may still be at risk for HIV through unprotected sex with men or injection drug users.

## **INJECTION DRUG USE**

Sharing injection needles, syringes, and other paraphernalia with an HIV-infected person can send HIV directly into the user's bloodstream (along with hepatitis B and C viruses and other bloodborne diseases). Paraphernalia with the potential for transmission include the syringe, needle, "cooker," cotton, and/or rinse water (sometimes called "works").

Transmission also occurs through indirect sharing of contaminated paraphernalia and/or dividing a shared or jointly purchased drug while preparing and injecting it. Indirect sharing includes squirting the drug back from a dirty syringe into the drug cooker and/or someone else's syringe or sharing a common filter or rinse water (Cohen, 2016).

## **TRANSFUSION**

Transmission of HIV through blood transfusion has been uncommon in the United States since 1985 and in other countries where blood is screened for HIV antibodies. Donor screening, blood testing, and other processing methods have reduced the risk of transfusion-caused HIV transmission. Also, other measures are used to screen possible donors. For example, donors are questioned about whether they have any signs and symptoms of HIV or HIV risk factors.

The risk of transmission is estimated conservatively to be 1 in 1.5 to 2 million. Rare cases of HIV infection from transfusion have still been reported, however, most recently in 2008.

HIV transmission may still occur for three theoretical reasons:

- Donations may be collected during the early period of infection, when the donor is infectious but has not yet developed positive HIV laboratory tests.
  - Infection with variant strains of HIV may escape detection by current screening assays.
  - Testing or clerical error may occur.
- (Kleinman, 2016)



## TATTOOING, BODY PIERCING, AND BLOOD-SHARING ACTIVITIES

There are no known cases in the United States of anyone getting HIV from tattooing, body piercing, or blood-sharing activities such as “blood brothers/sisters” rituals or ceremonies where blood is exchanged or unsterilized equipment contaminated with blood is shared.

There is, theoretically, a potential risk, especially during the time period when healing is taking place. It is also possible to get HIV from a reused or not properly sterilized tattoo or piercing needle or other equipment, or from contaminated ink. The risk is very low but increases when the person doing the procedure is not properly trained and licensed (CDC, 2016p).

## PREGNANCY AND BREASTFEEDING

A pregnant woman who is infected can transmit HIV to her fetus. Perinatal HIV transmission can happen at any time during pregnancy, labor, delivery, and breastfeeding. Since the early 1990s, however, infections through perinatal transmission have declined by more than 90%.

Today, if a woman takes HIV medications exactly as prescribed throughout pregnancy, labor, and delivery and provides HIV medicines to her baby for four to six weeks, the risk of transmission can be 1% or less. In some instances, a cesarean delivery can also prevent HIV transmission.

Following delivery, a mother can prevent transmitting HIV to her baby by not breastfeeding and not prechewing her baby’s food. If the mother chooses to breastfeed, breast milk may be expressed and heat-treated (CDC, 2016q, WHO, 2016b).

### HEAT-TREATING BREAST MILK

1. Collect breast milk into a clean glass jar.
2. Cover the jar immediately.
3. Place the covered jar into a cooking pan.
4. Put enough water into the pan to cover the jar halfway up.
5. Bring the water to a boil.
6. Protecting hands, immediately remove the jar from the water.
7. Allow milk to cool before feeding to the infant.

Source: Israel-Ballard et al., 2007.

## BITING

Biting poses little risk of HIV transmission unless 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).



However, bites can transmit other infections and should be treated immediately by thorough washing of bitten skin with soap and warm water and disinfection with antibiotic skin ointment.

<b>PROBABILITIES OF ACQUIRING HIV INFECTION (per one exposure to HIV)</b>	
<b>Type of Exposure</b>	<b>HIV Infection Risk*</b>
Transfusion if blood is HIV-infected**	90%
Needle-sharing during injection drug use	0.6%
Receptive anal intercourse	1.4%
Percutaneous (needle-stick)	0.2%
Receptive penile-vaginal intercourse	0.08%
Insertive anal intercourse	0.1%
Insertive penile-vaginal intercourse	0.4%
Receptive oral intercourse	Low
Insertive oral intercourse	Low
Spitting	Negligible
Biting	Negligible
Throwing body fluids (including semen or saliva)	Negligible
Sharing sex toys, razors, toothbrushes	Negligible
* 1% risk means a likelihood of 1 in 100 for infection to occur; 0.1% means a likelihood of 1 in 1,000.	
** In the United States, however, blood is screened for HIV antibodies, and the risk of transmission during transfusion is estimated conservatively to be 1 in 1.5 to 2 million.	
Source: CDC, 2015a.	

## Factors Affecting Transmission Risk

Many other factors, alone or in combination, affect the risk of HIV transmission.

### OTHER SEXUALLY TRANSMITTED INFECTIONS (STIs)

Infectious organisms transmitted during sexual activity—and the clinical manifestations arising from them—cause sexually transmitted infections. It has long been known that concurrent sexually transmitted infections, both bacterial and viral, increase the risk of both acquiring and transmitting HIV infection.

Having an STI changes the epithelial cells lining the vagina, penis, rectum, or mouth, which facilitates the access of HIV to target cells under the epithelial surface, thereby increasing the risk for HIV to establish a systemic infection.



Some infections, such as syphilis or herpes, can cause lesions or ulcers that can facilitate blood-to-blood contact. Other infections can cause inflammation triggered by the immune system, resulting in an increased concentration of T cells in the genital area, which makes it easier to become infected with HIV. In addition, STIs in an HIV-infected partner can increase viral shedding in the genital tract.

Behavioral **risk factors** for sexually transmitted infections include:

- New sex partner in the past 60 days
- Multiple sex partners or a sex partner with multiple concurrent sex partners
- No or inconsistent condom use outside a mutually monogamous sexual partnership
- Trading sex for money or drugs
- Sexual contact (oral, anal, penile, or vaginal) with sex workers
- Meeting anonymous partners on the Internet

Groups with the highest **prevalence** of STIs include:

- Young people aged 15 to 24
  - Men who have sex with men
  - Those with a history of a prior STI
  - Unmarried people
  - Those with a lower socioeconomic status
  - Those with a high school education or less
  - Those admitted to a correctional facility or juvenile detention center
  - Illicit drug users
- (Ghanem & Tuddenham, 2016)

In the United States both syphilis and HIV are highly concentrated epidemics among men who have sex with men. Men who get syphilis are at very high risk of being diagnosed with HIV in the future. HIV is more closely linked to gonorrhea than chlamydia, which is most common among young women. Herpes is also commonly linked with HIV. Persons infected with the herpes virus have a threefold increased risk of acquiring HIV infection (CDC, 2015b).

### ***Human Papilloma Virus (HPV)***

Human papilloma virus is highly prevalent among HIV-infected women and men, increasing viral shedding and raising the risk of cervical and anal cancers. Multiple strains of this virus are often present in HIV-positive women. The disease is manifested by genital or venereal warts. It is spread from skin surface to skin surface, and common sites for infection include the penis, scrotum, perineum, anal canal, perianal region, vaginal introitus (entrance), vulva, and cervix.



Cervical Pap testing in women is done to determine the presence of cancer. When there are abnormal cells found, a DNA test may be done to determine if the changes are the result of cancer-causing HPV.

In the United States, there are no FDA-approved tests clinically available to detect HPV infection of oropharyngeal, anal, or male genital specimens. There are also no FDA-approved serological or blood tests to detect HPV infection (Palefsky, 2016). There are, however, vaccines for the prevention of HPV infection:

- Gardasil: targets HPV types 6, 11, 16, 18
- Gardasil 9: targets the same HPV types as well as types 31, 33, 45, 52, 58
- Cervarix: targets HPV types 16 and 18 (not available in the United States)

The United States Advisory Committee on Immunization Practices recommends HPV vaccination for females aged 11 to 12 for the prevention of cervical, vaginal, and vulvar cancer. Routine HPV vaccination is also recommended for males aged 11 or 12 to decrease transmission of HPV infection to female sex partners and for prevention of oral cancers associated with HPV (Cox & Palefsky, 2016).

### ***Genital Herpes***

Herpes simplex virus type 2 (HSV-2) is the leading cause of genital ulcer disease in the world. HIV-infected persons have a higher prevalence of HSV-2 infection and an increased risk of asymptomatic HSV genital shedding. Oral herpes is usually caused by herpes simplex virus type 1 (HSV-1) and can spread from the mouth to the genitals through oral sex.

About 1 out of every 6 people between 14 and 49 years of age has genital herpes, and most people with the virus do not have symptoms. HSV-2-related genital ulcerations may range from painless ulcers to typical shallow, erosive genital lesions that can bleed easily. There is an estimated two- to fourfold increased risk of acquiring HIV if exposed to HIV when genital herpes is present.

Antiretroviral therapy can reduce the severity and frequency of genital lesions, but no effective prophylactic or therapeutic vaccine currently exists, although vaccine development is ongoing (Johnston & Wald, 2016; CDC, 2016r).

### ***Chlamydia and Gonorrhea***

*Chlamydia trachomatis* and *Neisseria gonorrhoea* infections are the two most commonly reported communicable diseases in the United States. They can cause cervicitis in women and urethritis and proctitis in both men and women. Among women, most infections are asymptomatic or minimally symptomatic. If left untreated, however, they can lead to serious complications, such as pelvic inflammatory disease, infertility, complications of pregnancy, and chronic pelvic pain.



In males, the infections more often cause symptomatic disease; however, they have a lower risk of long-term complications. The incidence of these infections is highest among adolescents and young adults. Approximately 6% of all people diagnosed with gonorrhea are already living with HIV (Ghanem & Tuddenham, 2016).

## **LACK OF CIRCUMCISION**

HIV acquisition rates among uncircumcised males are higher than for circumcised males. This is believed to be related to a high density of HIV target cells in the male foreskin, including antigen-presenting immune cells and macrophages.

## **Prevention and Risk Reduction**

HIV infection is preventable. For example, screening of blood and blood products for HIV has reduced the risk of HIV transmission with transfusion to 1:1.5 to 2 million (Kleinman, 2016). Mother-to-baby transmission has dropped to a rate of less than 1% (CDC, 2016p). Following Standard Precautions in healthcare has unquestionably prevented thousands, if not millions, of cases of HIV/AIDS in the United States. But, because the virus is transmitted through behaviors that many people find pleasurable—sexual activity and injection drug use—prevention is difficult.

Prevention of HIV/AIDS saves money as well as lives. The CDC estimates that the average cost of lifetime treatment for one person with HIV infection was \$379,668 in 2010 dollars (CDC, 2015c).

The CDC recommends that anyone with HIV/AIDS use prevention strategies even if his or her partner is also HIV infected. The partner may have a different strain of the virus that could behave differently in each individual or that could be resistant to different anti-HIV medications.

Prevention of HIV begins with education and counseling about sexual practices and injection drug use. People unable to “just say no” need basic, practical, how-to information.

## **BEHAVIORAL INTERVENTIONS**

Prevention of transmission and acquisition of HIV includes a focus on behavioral interventions, including the practice of safer sex and the use of injection precautions.

### ***Safer Sex***

Safer sex practices include:

- Abstinence from sexual contact
- Mutual monogamy



- Correct use of latex condoms for all sexual intercourse (anal, oral, and vaginal), even between two HIV-positive partners
- Getting tested and knowing the HIV status of one's partner

Latex condoms are highly effective against HIV. If a partner is allergic to latex, polyurethane or polyisoprene condoms can be used. "Skins," or natural-membrane condoms (such as those made of lambskin), used for birth control, however, will not protect against the virus because they are porous, meaning that infectious agents can pass through them.

Although there have been no confirmed cases of female-to-female transmission of HIV, women who have sex with women should take precautions, as vaginal secretions and menstrual blood are potentially infectious. Precautionary measures include:

- Using female condoms consistently and correctly each and every time for sexual contact or when using sex toys
- Not sharing sex toys
- Using natural-rubber latex sheets, dental dams, cut-open condoms, or plastic wrap during oral sex; however, no barrier methods for use during oral sex have been shown to be effective by the FDA
- Knowing one's own and one's partner's HIV status; this can help uninfected women reduce their risk of becoming infected and assist those who are infected to get early treatment and avoid transmitting the virus to others

### **CORRECT USE OF MALE CONDOMS**

Both women and men may need instruction in the correct use of condoms:

- Use a new latex condom for each act of intercourse.
- Before any genital contact, place the condom on the tip of the erect penis with rolled side out. Unroll the condom all the way to the base of the erect penis.
- Leave space at the tip of the condom as a receptacle for semen and to decrease the risk of condom breakage.
- Hold on to the base of the condom to prevent slippage when withdrawing the penis after ejaculation.
- Do not attempt intercourse with a condom if the penis is only partly erect.
- If the condom breaks or falls off during intercourse but before ejaculation, it should be replaced with a new condom.
- Following removal, check for visible damage, wrap in tissue, and discard. Do not flush down a toilet.





### ***Injection Precautions***

Injection drug users who refuse treatment or who have no treatment programs available to them need instructions about precautions:

- Do not share needles or other paraphernalia.
- If sterile needles are not available, use bleach to clean needles.
- Be aware that anyone who knowingly exposes others to HIV/AIDS endangers the public health and may be taken into custody, tested for HIV without consent, hospitalized, and isolated.

These risk-reduction measures also apply to people who use needles to inject insulin, vitamins, steroids, or prescription or nonprescription drugs.

Syringe services programs (SSPs) have been one effective part of risk reduction efforts for persons who inject drugs (PWID). The basic service offered by SSPs allows PWID to exchange used needles and syringes for new, sterile needles and syringes. As of March 2014, there were 204 SSPs known to be operating in the United States, 17 of which are in Washington State. SSPs prevent the spread of HIV and hepatitis and serve as a bridge to other services such as drug treatment. Evidence of their effectiveness is overwhelming.

Up until 2009 there was a federal ban on funding SSPs. In 2009 Congress removed a 21-year prohibition on the use of federal funds to support SSPs. Two years later, Congress reimposed the ban. The Consolidated Appropriations Act of 2016 prohibits the use of federal funds to purchase sterile needles or syringes for the purposes of hypodermic injection of any illegal drug. It does, however, allow for federal funds to be used for other aspects of SSPs based on evidence of a demonstrated need (experiencing or at risk for a significant increase in hepatitis infections or an HIV outbreak due to injection drug use) by state or local health departments and in consultation with the CDC.

Such aspects of SSPs that can utilize federal funding include:

- Personnel
- Supplies, exclusive of needles/syringes and devices for preparing substances for injection
- Testing kits for HCV and HIV
- Syringe disposal services
- Navigation services to HIV and HCV prevention, treatment, and care
- Provision of naloxone to reverse opioid overdoses
- Educational materials
- Condoms



- Communication and outreach activities
- Planning and evaluation activities  
(USDHHS, 2016d; amFAR, 2016)

## BIOMEDICAL INTERVENTIONS

Antiretroviral-based strategies of treatment have been proven to be highly effective in reducing HIV infection.

### ***Postexposure Prophylaxis (PEP)***

Postexposure prophylaxis is a three-drug antiretroviral-based regimen that may be taken if a person thinks an exposure to HIV occurred:

- During sex (e.g., a condom broke)
- While sharing needles and works to prepare drugs
- Due to sexual assault
- At work

PEP can reduce the risk of HIV when administered correctly, but not by 100%. To be effective, PEP must begin within 72 hours of exposure and must be taken twice daily for 28 days (USDHHS, 2016e).

### ***Preexposure Prophylaxis (PrEP)***

For persons who are not infected with HIV, preexposure prophylaxis using antiretroviral medications is an evidence-based way to prevent new infections among those at greatest risk. Determining risk is accomplished by assessing sexual risk and drug-using behaviors over the last six months, which include:

- Those in an ongoing sexual relationship with an HIV-positive partner
- Gay or bisexual men who are not in a monogamous relationship with a recently tested, HIV-negative partner, and who have either had anal sex without a condom or been diagnosed with a STI
- Heterosexual men or women who are not in a monogamous relationship with a recently tested, HIV-negative partner, and who do not always use condoms with partners whose HIV status is unknown and who are at a high risk of HIV infection

PrEP involves taking an HIV medication (Truvada, a combination of the two HIV medications tenofovir and emtricitabine) on a daily basis, which can lower the risk of getting HIV from sex by more than 90% and from injection drug use by more than 70% (USDHHS, 2016f).



### ***Treatment as Prevention (TasP)***

TasP uses antiretroviral treatment (ART) to decrease the risk of HIV transmission. ART reduces the HIV viral load in the blood, semen, vaginal fluid, and rectal fluid to a very low (undetectable) level, thereby reducing the risk of onward HIV transmission.

There is growing evidence of the benefits of HIV treatment as a prevention method. In one landmark study, it reduced HIV transmission to HIV-negative partners by 96%, and this finding has been verified by a number of follow-up studies. These findings contribute to the idea of the strategy to “test and treat,” which involves increasing testing and treatment coverage in order to decrease community viral load and the rate of new HIV infections.

Such treatment has been used since the mid-1990s in the prevention of HIV transmission from mother to child (AVERT, 2017).

### ***Male Circumcision***

Research has documented that male circumcision significantly reduces the risk of contracting HIV and other STIs through penile-vaginal sex. Studies have shown circumcised men had a 50% to 60% lower incidence of HIV infection compared with uncircumcised men. Circumcision of HIV-infected men, however, may not decrease the risk of HIV transmission to a female partner (Cohen, 2016).

## **PREVENTION RESEARCH**

Research is ongoing to find additional ways to reduce the risk of acquiring HIV.

### ***Contraceptives and HIV***

One concern that is being investigated is the probability that the injectable contraceptive Depo-Provera (depot medoxyprogesterone acetate, or DMPA) increases women’s risk of acquiring HIV. The latest data strengthens those concerns; however, there remains the question as to why this may be so (AVAC, 2016).

### ***Microbicides***

Microbicides are compounds that can be applied inside the vagina and/or rectum to reduce the risk of HIV infection through sexual exposure. They can be formulated as creams, gels, films, vaginal and rectal suppositories, and intravaginal rings that release an active ingredient over a few weeks or months.

Currently there are no licensed microbicides available; however, a vaginal ring containing the antiretroviral drug dapivirine is undergoing trials for the prevention of



HIV infection in women. Studies to date have found the ring is safe and reduced rates of HIV acquisition by about one third (USDHHS, 2016g).

### ***HIV Vaccine***

Researchers are working on and have high hopes that a new HIV vaccine known as HVTN 702 currently under study will provide effective HIV infection prevention. The vaccine is a reformulated version of a vaccine tested four years prior that proved only 31% effective and wore off after a few years. The trial did reveal, however, a previously unknown vulnerability in the virus, and the new vaccine has been revamped to target that vulnerability (NIAID, 2016).

## **Infection Control**

### **RISKS FOR OCCUPATIONAL EXPOSURE**

The acquisition of HIV infection in the workplace is extremely rare. There have been only 58 cases reported in the United States. The most recent confirmed case was reported in 2008 and is the first one reported since 1999.

Healthcare professionals who work in correctional institutions and home care are at higher risk for occupational exposure to HIV and other bloodborne pathogens than those who work in other settings. Other occupational groups with potential exposure to HIV (as well as HBV and HCV) include, but are not limited to:

- Law enforcement
- Fire, ambulance, and other emergency responders
- Morticians and embalmers
- Dental workers
- Ancillary medical facility personnel such as housekeeping, waste management, laundry staff

### ***Needlestick Injuries and Body Fluid Splashes***

Healthcare workers exposed to HIV from a contaminated needlestick have a 0.2% risk of becoming infected, and without prompt antiretroviral treatment, the risk increases with:

- Deep punctures
- Hollow-bore needles
- Visible blood on the needle
- High viral load in the source
- Needle placement in a vein or artery



The risk of acquiring HIV infection following exposure due to splashes with body fluids is thought to be near zero even if the fluid is overtly bloody.

According to the CDC, the risk of infection varies on a case-by-case basis. Factors affecting the risk include:

- Whether the exposure was from a hollow-bore needle or other sharp instrument
- Whether it involved exposure to nonintact skin or to mucous membranes (such as eyes, nose, and/or mouth)
- The amount of blood involved
- The amount of virus present in the source's blood (CDC, 2015d)

### ***In Correctional Institutions***

The high prevalence of HIV infections in correctional institutions increases the risk of exposure, as does the environment itself. The CDC and the National Institute for Occupational Safety and Health cite these challenges:

- Jails and prisons can be unpredictable work settings.
- Security issues are often a higher concern than infection control.
- Inmates may have a higher rate of bloodborne diseases.

Correctional healthcare workers can be bitten or stabbed during an inmate assault, punctured with a used needle, or splashed in the face with blood. Exposure to bloodborne pathogens can happen in any of these situations.

#### **Special Note Regarding WAC 296-823**

Washington Administrative Code (WAC) 296-823, Occupational Exposure to Bloodborne Pathogens, mandates certain standards and procedures to protect employees from exposure to blood or other potentially infectious materials that may contain bloodborne pathogens. The state's Department of Labor and Industries (L&I) Division of Occupational Safety and Health enforces these requirements. Failure to comply with these requirements may result in citations or penalties.

This course contains a brief summary and **is not meant to provide direction on compliance with WAC 296-823.**

The federal Occupational Safety and Health Administration compliance



directive on occupational exposure to bloodborne pathogens, CPL 2–2.69, may be referenced for additional direction. More information or assistance is also available from L&I consultants through their website (see “Resources” at the end of this course).

## WORKPLACE STANDARDS

Standards have been developed to protect workers from bloodborne pathogens such as HIV.

### ***Defining Bloodborne Pathogens***

Bloodborne pathogens include any human pathogen present in human blood or other potentially infectious materials.

#### **OTHER POTENTIALLY INFECTIOUS MATERIALS (OPIM)**

OPIM linked to transmission of HIV, HBV, and HCV are listed here. Standard Precautions apply to all of the following:

- Blood and blood products
- Semen
- Vaginal secretions
- Cerebrospinal fluid
- Synovial fluid
- Pleural fluid
- Peritoneal fluid
- Pericardial fluid
- Amniotic fluid
- Saliva in dental procedures
- Any body fluid or substance visibly contaminated with blood
- All body fluids in situations where it is difficult or impossible to differentiate between body fluids
- Any unfixated tissue or organ (other than intact skin) from a human (living or dead)
- HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV



Body fluids such as urine, feces, and vomit are not considered OPIM unless visibly contaminated by blood. Similarly, wastewater (sewage) has **not** been implicated in the transmission of HIV, HBV, or HCV and is not considered to be either OPIM or regulated waste.

### ***Exposure Control Plan (ECP)***

Each employer covered under WAC 296-823 must develop an Exposure Control Plan. The ECP shall contain at least the following elements:

- A written “exposure determination” that includes those job classifications and positions in which employees have potential for occupational exposures. The exposure determination shall have been made without taking into consideration the use of personal protective clothing or equipment. The exposure determination must contain a list of job classifications where:
  - All employees have occupational exposure
  - Some employees have occupational exposure and a description of all tasks and procedures or groups of related tasks and procedures with occupational exposure for these employees
- The procedure for evaluating the circumstances surrounding exposure incidents, including documentation of the routes of exposure and the circumstances under which the exposure incident happened
- How and when the applicable requirements for this rule are to be implemented
- The infection control system used in the workplace
- Universal Precautions or other at-least-as-effective infection control systems used
- Documentation of consideration and implementation of appropriate, commercially available safer medical devices designed to eliminate or minimize occupational exposure, including documentation of the process used to solicit input and include the identity of employees or positions involved
- An update at least annually and whenever changes occur that affect occupational exposure

### ***Employee Training***

Bloodborne pathogens training is mandated for all new employees or employees being transferred into jobs involving tasks or activities with potential exposure to blood and/or OPIM. This training must be provided at no cost to the employee and take place prior to assignment to tasks where occupational exposure may occur, and must include:



- An accessible copy of the Safety Standards for occupational exposure to bloodborne pathogens, as adopted under the Washington Industrial Safety and Health Act of 1973
- How bloodborne pathogens are transmitted
- An explanation of the exposure control plan and how employees can obtain a copy of the written plan
- How to recognize tasks and other activities that could involve exposure to blood and other potentially infectious materials
- Use and limitations of methods that will prevent or reduce exposure
- Information about personal protective equipment
- Information about the hepatitis B vaccine
- Actions to take and persons to contact when exposure to blood or OPIM occurs outside the normal scope of work
- Procedure to follow if an exposure incident occurs
- Procedures for postexposure evaluation and follow-up following an exposure incident
- Identification of the signs and labeling or color-coding required by this chapter
- An opportunity for interactive questions and answers with the trainer

Retraining is required annually or when changes in procedures or tasks affecting occupational exposure occur.

## INFECTION CONTROL SYSTEMS

To prevent HIV transmission in healthcare settings, the CDC instituted Universal Precautions (blood and body fluid precautions) in the 1980s. Under Universal Precautions, healthcare personnel assumed that the blood and other body fluids from all patients were potentially infectious and therefore followed infection-control precautions at all times and in all settings.

In 1996, this practice was replaced with the current terminology, **Standard Precautions**, and includes:

- Precautions to be used with all patients at all times and in all settings
- Transmission-based precautions to be used when specific modes of transmission are present (e.g., Contact Precautions or Droplet Precautions)

The emphasis has shifted to a more pragmatic focus on what healthcare professionals need to do with specific patients with specific modes of transmission associated with their diagnosis.





These precautions include:

- Routine use of barriers (such as gloves and/or goggles) when anticipating contact with blood or body fluids
- Washing hands and other skin surfaces immediately after contact with blood or body fluids
- Careful handling and disposing of sharp instruments during and after use

### ***Use of Barriers***

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

Latex gloves are recommended when dealing with blood or OPIM. However, people with allergies to latex must be provided with nitrile, vinyl, or other glove alternatives that meet the definition of “appropriate” gloves. Gloves must be changed after each client.

**Gloves** should be worn:

- When working with blood, blood products, semen, vaginal secretions, and any other potentially contaminated body fluids, such as cerebrospinal fluid, amniotic fluid, and saliva, as well as any items or surfaces in contact with the aforementioned fluids
- When touching mucous membranes (such as in the mouth, the lip, the nose, urethral and anal openings, the eyes) or breaks in the skin
- When performing or assisting with any invasive procedures, such as venipuncture, surgery, or repair of traumatic injury
- When working in situations where hand contamination may occur, such as with an uncooperative or aggressive patient
- When the healthcare practitioner has cuts, scratches, or other breaks in their own skin

Clinicians with weeping dermatitis (such as poison ivy or poison oak) or exudative lesions must be prohibited from all patient care and/or handling of patient care equipment or supplies.



**Masks, goggles, face shields, and gowns** should be worn:

- During all invasive procedures and any procedure in which blood or body fluids may spatter or become airborne
- During procedures in which heavy bleeding or other extensive fluid loss (such as peritoneal fluid) may occur; a disposable plastic apron or gown and boots are also recommended

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.

### ***Hand Hygiene***

Soap-and-water handwashing must be performed whenever hands are visibly contaminated or there is a reasonable likelihood of contamination. When hands are visibly dirty or contaminated with proteinaceous material or are visibly soiled with blood or other body fluids, wash hands with either a nonantimicrobial soap and water or an antimicrobial soap and water. If hands are not visibly soiled, an alcohol-based hand rub may be used for routinely decontaminating hands.

Standard Precautions also include the following indications for **decontaminating hands**:

- Before having direct contact with each patient
- Before donning sterile gloves when inserting a central intravascular catheter
- Before inserting indwelling urinary catheters, peripheral vascular catheters, or other invasive devices that do not require a surgical procedure
- If moving from a contaminated body site to a clean body site during patient care
- After contact with a patient's intact skin
- After contact with inanimate objects in the immediate vicinity of the patient
- Immediately after gloves are removed, even if they appear to be intact
- Immediately, if contaminated with blood or other body fluids to which Standard Precautions apply
- Before eating and after using a restroom
- Upon leaving and returning to the work area



Recommendations regarding **fingernails** include:

- Not wearing artificial fingernails or extenders if duties include direct contact with patients at high risk for infection and associated adverse outcomes (e.g., those in intensive care units or operating rooms)
- Keeping natural nail tips less than 1/4-inch long (CDC, 2016s)

#### **CAUTIONS REGARDING ALCOHOL-BASED HAND SANITIZERS**

The use of an alcohol-based hand rub is appropriate in many, but not all, situations.

- Alcohol-based hand sanitizers are not effective against all pathogens, notably the spores of *C. difficile* and anthrax, and have limited effectiveness against *Cryptosporidium norovirus* (winter vomiting virus).
- Hand sanitizers with an alcohol concentration between 60% and 95% are more effective at killing germs than those with a lower alcohol concentration or non-alcohol-based hand sanitizers.
- The presence of protein material on the skin prevents the active ingredient from contacting the skin. Soap-and-water handwashing is recommended after known or suspected contact with blood or other body fluids and after eating to remove any protein from the skin.
- Although hand sanitizers are effective when used correctly, people may not use a large enough volume or may wipe it off before it has dried.

#### ***Bloodborne Standards***

In 1991, the Occupational Safety and Health Administration (OSHA) introduced and published the **Occupational Exposure to Bloodborne Pathogens Standard**, designed to protect workers in healthcare and related occupations from risk of exposure to bloodborne pathogens such as HIV and HBV. In Washington State, all new employees or employees being transferred into jobs involving tasks or activities with potential exposure to blood/OPIM must receive training in accordance with WAC 296-923-120 prior to taking on those tasks.

**Sharps Disposal.** Used sharps should immediately be placed in a sharps disposal container. If an FDA-cleared container is not available, a heavy-duty plastic household container such as a laundry detergent container can be used as an alternative.

Sharps containers must either be labeled with the universal biohazard symbol and the word *biohazard* or be color-coded red.



Reusable containers must not be opened, emptied, or cleaned manually or in any other manner. Sharps containers should be placed as close to the point of use as possible to enhance compliance with correct disposal policies.

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

Phlebotomy or injection needles must not be removed from holders or syringes unless required by a medical procedure. The intact phlebotomy or injection needle and holder or syringe must be placed directly into an appropriate sharps container.

Adhere to agency protocols for disposal of infectious waste.

**Housekeeping and Waste Disposal.** The work area of the facility 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.

**Disinfectants.** All equipment and all environmental and working surfaces must be properly cleaned and disinfected after contact with blood or OPIM. Chemical germicides and disinfectants in recommended dilutions must be used to decontaminate spills of blood and other body fluids. Consult the Environmental Protection Agency (EPA) for lists of registered sterilants, tuberculocidal disinfectants, and antimicrobials with HIV/HBV efficacy claims to verify that the product used is appropriate. (*See “Resources” at the end of this course.*)

**Laundry.** Laundry that is or may be soiled with blood/OPIM must be treated as 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.

**Regulated Waste.** Potentially contaminated broken glassware or sharp items must be removed using mechanical means, such as a brush and dustpan or vacuum cleaner. All regulated waste must be placed in closeable, leak-proof containers or bags that are color-coded (red-bagged) or labeled as required by law 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

Personnel handling laundry and waste are to be aware that these items may contain sharps despite the most stringent policies and the best efforts of healthcare workers. They should be trained in immediate first aid for a needlestick or other break in skin integrity. They should immediately report any potential exposure to a supervisor with the knowledge and authority to implement the exposure control plan.

#### **TAGS AND LABELS**

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

All required tags must meet the following specifications:

- Tags must contain a signal word or symbol and a major message.
- The signal word shall be *BIOHAZARD* or the biological hazard symbol (below).



- 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 must 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 the potential for occupational exposure. Food and drink must not be stored in refrigerators, freezers, or cabinets where blood or OPIM are stored or in other areas of possible contamination (OSHA, 1991).

## PROTOCOLS FOR EXPOSURE TO BLOOD OR OPIM

Any healthcare worker who receives a needlestick or other significant exposure to potential HIV, HSV, or HBV infection should follow the employer's protocol, which is based on guidelines issued by the U.S. Public Health Service (Kuhar et al., 2013).

### *Immediate Response*

Immediately after exposure to blood or OPIM of a patient:

- Wash the affected area(s) with soap and water. Cleansing of small wounds and punctures may be done with antiseptics such as an alcohol-based hand hygiene agent.
- Flush splashes to exposed membranes, including the nose and mouth, with copious amounts of water.
- Irrigate eyes with clean water or saline.
- Remove any potentially contaminated clothing as soon as possible.
- Do not “milk” or squeeze the wound.
- Seek emergency treatment if the wound needs suturing.
- For bites or scratch wounds, wash with soap and water and cover with a sterile dressing. All bite wounds should be evaluated by a healthcare professional.
- Exposure to urine, feces, vomitus, or sputum is **not** considered a bloodborne pathogens exposure unless the fluid is visibly contaminated with blood. Follow the employer's procedures for cleaning these fluids.

### *Reporting and Management of an Exposure Incident*

Immediately report the incident to a supervisor and to the department (e.g., occupational health, infection control) within the agency responsible for managing exposures. Prompt reporting is essential because in some cases postexposure prophylaxis (PEP) may be recommended and started 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. Employees should have already received the hepatitis B vaccine, which is extremely safe and effective in preventing HBV infection.



## WASHINGTON STATE POSTEXPOSURE REQUIREMENTS

Postexposure requirements in Washington State include:

- A confidential postexposure **medical evaluation** available to employees who report an exposure incident. This evaluation must be:
  - Made immediately available
  - Kept confidential
  - Provided at no cost to the employee
  - At a reasonable time and place
  - Administered by or under the supervision of a licensed physician or by another licensed healthcare professional
  - Provided according to current U.S. Public Health Service recommendations
- **Evaluation and follow-up** of the employee includes:
  - A description of the job duties the exposed employee was performing when exposed
  - Documentation of routes of exposure, circumstances under which exposure happened
  - Identification and documentation of source individual
  - Blood collection and testing of the exposed employee
  - Postexposure prevention treatment when medically indicated
  - Counseling
  - Evaluation of reported illnesses
- All **laboratory tests** to be conducted by a laboratory licensed by the state or Clinical Laboratory Improvement Amendments Act (CLIA)
- **Blood testing** of the source person as soon as feasible after getting the person's consent
  - If consent is not obtained, it must be established that legally required consent cannot be obtained.
  - When the law does not require the source person's consent, their blood, if available, must be tested and the results documented.
  - When the source person is already known to be infected with HBV or



HIV, testing their status is not necessary.

- **Providing the results** of the source person's blood test to the exposed employee
- **Providing information** to the healthcare professional evaluating the employee:
  - Copy of WAC 296-823-160
  - Results of source person's blood testing, if available
  - All medical records, including vaccination status, relevant to the treatment of the employee
- Obtaining and providing a copy of the healthcare professional's written opinion on postexposure evaluation to the employee

### ***Postexposure Prophylaxis***

Postexposure prophylaxis is recommended when occupational exposure to HIV occurs. The U.S. Public Health Service (USPHS) recommends the following guidelines:

- Determine, if possible, the HIV status of the exposure source patient to guide the need for HIV PEP.
- Start PEP medication regimens as soon as possible after exposure (within 72 hours) and continue for a four-week duration.
- PEP medication regimens should contain three or more antiretroviral drugs for all occupational exposures to HIV.
- Expert consultation is recommended for any occupational exposure to HIV situation as defined by the USPHS.
- Close follow-up should be provided, including counseling, baseline and follow-up HIV testing, and monitoring for drug toxicity.
- If a fourth-generation combination of HIV p24 antigen-HIV antibody test is used for follow-up HIV testing, testing may be ended four months following exposure. If a new testing platform is not available, follow-up HIV testing is to be concluded six months after exposure.

(Kuhar et al., 2018)

Frequent advances in treatment make it impractical to list medications and dosages here. PEP can only be obtained from a licensed healthcare provider. The employing facility may have recommendations and procedures in place for staff members to obtain PEP. After evaluation, certain anti-HIV medications may be prescribed.





### **PEPline**

Information regarding the most current PEP regimen is available to any clinician in the United States from the **Post-Exposure Prophylaxis Hotline (PEPline): 888-448-4911**.

The National HIV/AIDS Clinician Consultation Center (CCC) offers the HIV Post-Exposure Prophylaxis hotline (PEPline) for providers who require consultation with an HIV specialist concerning management of exposure to bloodborne pathogens.

Healthcare providers are able to register online with the CCC to initiate free, confidential clinical consultation via desktop computer and mobile devices and to receive responses online and by phone from expert clinicians.

PEPline clinicians assist callers in assessing the risk of an exposure, discuss the most recent U.S. Public Health Service postexposure prophylaxis guidelines, and review specific treatment and follow-up options.

The PEPline is an invaluable resource for healthcare workers and their agencies, especially in rural areas. The phone number and website should be listed in appropriate locations, and a plan put in place to contact the PEPline using a relay of information if cellular and/or Internet service is not available in all areas in which workers may be exposed.

Source: NCCC, 2017.

### **Source Testing**

The Washington Revised Code 70.24.340 provides for HIV antibody testing of a source individual when a member of the following groups experiences an occupational exposure:

- Healthcare provider
- Staff of healthcare facilities
- Law enforcement officer
- Firefighter
- Department of Corrections staff person
- Jail staff person
- Other categories of employment determined by the Board

These individuals may request a state or local public health officer to order pretest counseling, HIV testing, and posttest counseling for the person whose bodily fluids he or she has been exposed to.



The source person shall be given written notice of the order promptly, personally, and confidentially, stating the grounds and provisions of the order. If the source person refuses to comply, the state or local public health officer may petition the superior court for a hearing, which must be held within 72 hours of filing the petition, exclusive of Saturdays, Sundays, and holidays. Upon conclusion of the hearing, the court shall issue the appropriate order.

## INFECTION CONTROL IN THE HOME

Healthcare professionals and other caregivers who care for HIV patients at home or in home-like settings are also at risk of exposure to HIV and other bloodborne pathogens. Nurses, nursing assistants, personal care assistants (PCAs), and family members experience percutaneous injuries and other exposures to blood and body fluids during care of an HIV-infected person.

Medical procedures contributing to percutaneous injuries in home care include injecting medications, performing fingersticks and heelsticks, and drawing blood. Other contributing factors include sharps disposal, contact with waste, and patient handling.

Healthcare workers should follow Standard Precautions and the Bloodborne Pathogen Standard when working in patient's homes and other home-like settings. Washington State's *KNOW* curriculum manual provides the following recommendations:

### ***Gloves and Handwashing***

Gloves (latex, vinyl, or nitrile in the case of latex allergy) should be worn whenever a caregiver anticipates contact with any body substance (blood/OPIM) or nonintact skin. Gloves are not necessary for general care or during casual contact (serving food, bathing intact skin). Never rub the eyes, mouth, or face while wearing gloves.

Gloves should be properly removed and disposed of and hands washed as soon as possible after care of each patient. Disposable gloves should never be washed and reused. Correct handwashing is critically important.

### ***Cleaning Blood/OPIM from Surfaces***

Wear appropriate gloves when cleaning blood from **skin surfaces**. 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 fluid particles do not splatter or become aerosolized. Hands should be cleaned using either soap and water or an alcohol-based hand sanitizer as soon as possible.

On **bare floors**, pretreat body fluid spills with full-strength liquid disinfectant or detergent; then wipe up with either a mop and hot soapy water or appropriate gloves and paper towels. Dispose of paper towels into a well-marked plastic bag or heavy-duty



container. Broken glass should be swept up using a broom and dustpan (never bare hands).

Use a disinfectant (such as 1 part household bleach freshly mixed with 9 parts water) to disinfect the area where the spill occurred. If a mop was used for cleaning, soak it in a bucket of hot water and disinfectant for the recommended time. Empty the mop water into the toilet, not the sink. Sponges and mops used to clean up body fluid spills should not be rinsed in the kitchen sink or in a location where food is prepared.

#### **PREPARING A 1:10 SOLUTION OF HOUSEHOLD BLEACH**

A 1:10 solution of household bleach includes 1 part bleach and 9 parts water. The key is using the same volume as a “part”—i.e., a measuring tablespoon or a measuring cup.

- Working in a well-ventilated area, measure 9 parts water into a closable container that will hold the total volume of solution.
- Measure 1 part of household bleach into the same container.
- Close and label the container with the name of the solution (one which everyone in the household can read and understand), the date and time prepared, and an identifier for the person preparing the solution.
- Prepare only as much solution as needed for 24 hours.
- When using, pour solution from the container.
- Do not return used solution to the container.
- Discard any unused solution within 24 hours, rinse the container, and prepare new solution as needed.

Source: CDC, 2009.

On **carpeting**, pour dry kitty litter or another absorbent material onto the spill to absorb the body fluid. Carefully pour carpet-safe liquid disinfectant onto the contaminated carpeting and leave it there for the amount of time indicated in the manufacturer’s instructions. Using sturdy rubber gloves, blot the spill with paper towels until it is absorbed. Vacuum normally afterward.

#### ***Clothing and Other Laundry***

Clothes, washable uniforms, towels, or other laundry stained with blood/OPIM should be washed and disinfected before further use. If possible, have the patient remove the clothing. If necessary, use appropriate gloves to assist with removing the clothes.



If the washing machine is not close by, transport the soiled items in a sturdy plastic bag. Then place the items in the washing machine and soak or wash them in cold, soapy water to remove any blood from the fabric. Hot water will permanently set blood stains.

Use hot water for a second washing cycle and include detergent, which will act as a disinfectant. Dry the items in a clothes dryer. Wool clothing or uniforms may be rinsed with cold soapy water then dry cleaned to remove and disinfect the stain.

### ***Toilet and Bedpan Safety***

It is safe to share toilets/toilet seats without special cleaning, unless the surface becomes contaminated with blood/OPIM. If this occurs, spray the surface with 1:10 bleach solution. Wearing gloves, wipe the seat dry 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 these items are thoroughly disinfected after each person's use.

Use a new pair of gloves to change diapers. Discard disposable diapers in an appropriate plastic bag or receptacle, along with gloves. Wash hands immediately after changing the diaper. Disinfect the diapering surface. Wash cloth diapers in very hot water with detergent and a cup of bleach and dry them in a hot clothes dryer.

### ***Thermometers***

Electronic thermometers with disposable covers do not need to be cleaned between uses for the same individual unless visibly soiled or if there is evidence that the cover integrity has been compromised. Wipe the surface with a disinfectant if necessary. Glass thermometers should be washed with soap and warm water before and after each use. If the thermometer will be shared among family members, after each use it should be soaked in 70% to 90% ethyl alcohol for 30 minutes then rinsed under a stream of warm water.

### ***Personal Hygiene Items***

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

### ***Safe and Legal Disposal of Sharps***

Syringes, needles, and lancets are called *sharps*, and their disposal is regulated. Sharps can carry hepatitis, HIV, and other bacteria and viruses that cause disease. Throwing them in the trash or flushing them down the toilet can pose health risks for others—such as sanitation (garbage) workers, other utility workers, and the public—from needlesticks and illness. Rules and disposal options vary according to circumstances, so it is essential



to check with the local health department to see which option applies to any given situation.

Parents and caregivers should make sure that children understand never to touch a found needle or syringe but to immediately ask a responsible adult for help.

Safe disposal of syringes found in parks and other public locations should follow these guidelines:

- Do not pick up a found syringe or needle with bare hands. Use gloves and tongs, shovel, or a broom and dustpan to pick it up. Hold the needle away from the body.
- Do not break the needle off from the syringe.
- Place used sharps and syringes in a safe container with at least a one-inch opening and a lid that will seal tightly, such as an empty plastic laundry detergent container or glass bottle or jar. If a glass jar is used, place it in 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. Do not flush needles or syringes down the toilet.
- Tape the container shut for added safety and label it with the warning: “SHARPS, DO NOT RECYCLE!”. Place it well out of reach of children.
- Call the local health department to determine what disposal sites are available.

Anyone with an accidental needlestick requires a prompt assessment by a medical professional. Testing for HIV, HCV, and HBV may be recommended. If someone finds and handles a syringe but no needlestick occurs, testing for HIV is not necessary.

## PROTECTING THE PERSON WITH HIV/AIDS IN THE HOME

### *Food Preparation*

Kitchens can harbor bacteria that may prove life threatening to a person with HIV/AIDS due to his or her compromised immune system. Use the following precautions during food preparation and cleanup:

- Wash hands thoroughly before preparing food.
- Use a clean spoon to taste food, and wash the spoon after each taste.
- Avoid unpasteurized milk, raw eggs or products that contain raw eggs, cracked or nonintact eggs, and raw fish. Cook all meat, eggs, and fish thoroughly to kill any organisms that may be present. Wash fruits and vegetables thoroughly.



- Disinfect countertops, stoves, sinks, refrigerators, door handles, and floors regularly. Use window screens to keep out insects.
- 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.
- Keep kitchen garbage in a leak-proof washable receptacle that is lined with a plastic bag. Seal the garbage liner bags and change bags frequently.

### ***Pet Care***

Certain animals can pose hazards for people with compromised immune systems. These animals include turtles, reptiles, birds, puppies and kittens under the age of eight months, wild animals, and pets without current immunizations or with illnesses of unknown origin. Pet cages and cat litter boxes can harbor infectious organisms that may become aerosolized. Pets can also spread disease by licking a person's face or open wounds.

Someone who is not immunocompromised should care for pets. 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. Many communities have volunteer groups and veterinarians who will assist people with HIV/AIDS in taking care of their pets if needed. Questions can be directed to a local veterinarian.

- All pet care should be followed by thorough handwashing.
- Cats' claws and dogs' nails should be kept trimmed.
- Latex or nitrile gloves should be worn to clean up any pet urine, feces, vomit, or OPIM. The soiled area should be cleaned with a fresh 1:10 bleach solution.
- Pet food and water bowls should be washed regularly in warm soapy water and rinsed clean.
- Cat litter boxes should be emptied and washed regularly, even if using "clumping" litter.
- Fish tanks should be kept clean. Heavy latex gloves that reach to the upper arms, such as "calf-birthing" gloves, can be purchased from a veterinarian for immunocompromised individuals to wear to clean a fish tank.
- Pets should not be allowed to drink from the toilet or eat other animal feces, any type of dead animal, or garbage.
- Cats should be restricted to indoors. Dogs should be kept indoors or on a leash.



## HIV TESTING AND COUNSELING

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**Upon completion of this section, you will be able to discuss accepted procedures and regulations for HIV testing and posttest counseling.**

### Testing Recommendations

People who do not know they are infected transmit most HIV infections. Therefore, HIV testing is the first step in halting spread of the virus. Testing is critical to the country's prevention strategy. It is the only way the nearly 15% of Americans living with HIV who do not know they are infected can be diagnosed, and it is the first step in connecting them to the services for prevention, care, and treatment that they require.

Detection and early intervention are associated with a significantly reduced risk for progression to AIDS, AIDS-related events, and death in persons with immunologically advanced disease. In the United States, patients diagnosed early and successfully treated with antiretroviral treatment may go on to have life expectancies similar to those in the general population.

Routine screening is recommended for patients without risk factors for HIV infection, at least once in adults and adolescents 13 to 75 years of age. The U.S. Preventive Services Task Force (2013) previously recommended that clinicians screen for HIV infection in adolescents and adults ages 15 to 65 years. However, the age range has been expanded from 65 to 75 because of the growing number of HIV infections in older patients.

Annual or more frequent testing is recommended for high-risk individuals. The CDC notes that sexually active MSM (men who have sex with men) may benefit from testing every 3 to 6 months. Frequent testing is considered very important for MSM aged 13 to 24 years—an age period in which the rate of new infections has been increasing.

Testing is essential for anyone who has had a potential exposure to HIV. This includes anyone who:

- Has had unprotected anal, vaginal, or oral sex
- Has shared needles or other injection drug preparation equipment
- Exchanges sex for money or drugs
- Has had an occupational exposure
- Has sex with partners whose HIV status is unknown
- Has a partner with any of the above risk factors

It is also recommended that all pregnant women be screened for HIV—including those who present in labor who are untested and whose HIV status is unknown—and be rescreened with each subsequent pregnancy.



Anyone being tested for HIV should be assessed for risk of infection and should be provided with information about the test that includes:

- The benefits of learning their HIV status and the potential dangers of the disease
- How HIV is transmitted and ways in which it can be prevented
- The meaning of HIV test results and the importance of obtaining the results
- The availability of anonymous testing, with an explanation of the difference between anonymous and confidential testing

Screening should be voluntary, undertaken only with the patient's knowledge and understanding that a HIV test is being planned. In the United States, individual states have specific policies regarding the consent process; however, no state still requires written consent by law (Bartlett & Sax, 2016).

### TESTING RECOMMENDATIONS IN WASHINGTON STATE

Washington State rules reflect CDC recommendations, which include the following:

- HIV screening is recommended for patients in all healthcare settings after the patient is notified that testing will be performed unless the patient declines (opt-out screening).
- Persons at high risk for HIV infection should be screened for HIV at least annually.
- Separate written consent for HIV testing should **not** be required; general consent for medical care should be considered sufficient to encompass consent for HIV testing.
- Prevention counseling should **not** be required with HIV diagnostic testing or as part of HIV screening programs in healthcare settings.

Recommendations for **pregnant women** include:

- HIV screening should be included in the routine panel of prenatal screening tests for all pregnant women.
- HIV screening is recommended after the patient is notified that testing will be performed unless the patient declines (opt-out screening).
- Separate written consent for HIV testing should **not** be required; general consent for medical care should be considered sufficient to encompass consent for HIV testing.
- Repeat screening in the third trimester is recommended in certain jurisdictions with elevated rates of HIV infection among pregnant women.





## CONFIDENTIALITY AND INFORMED CONSENT

Washington laws protect the identity of persons reported with HIV or AIDS. Medical tests for HIV are **confidential**, which means that the patient gives his or her real name to the healthcare practitioner only. If the test is positive for HIV, it must be reported confidentially to the local public health department, as is done for most communicable diseases. These reports are kept strictly confidential and are used to understand how the disease is spreading.

Those 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 disclosed in counseling and testing sessions and in test results. HIV test results are kept in locked files, with only a few appropriate staff members having access to them. Results and testing information are not released to others except when medically necessary or under special circumstances, including when the person signs a release for the results to be given to another person or agency.

Washington residents may also choose to obtain an anonymous test for HIV at a local health department. **Anonymous** means that the person does not give a name and the health professional who orders or performs the test does not maintain a record of the name of the person being tested.

Because healthcare providers need test information to provide appropriate healthcare, they usually do not offer anonymous testing. However, all local health departments in Washington State are required to make anonymous HIV testing available. The Washington State HIV/AIDS hotline (800-272-2437) can provide information about anonymous testing locations. Positive HIV results obtained through anonymous testing are not reportable and cannot be used to obtain treatment. However, should persons with positive results seek care for conditions related to HIV or AIDS, the providers are required to report the case to local health departments.

Washington State does not require written consent for HIV testing. Patients must be informed that HIV testing is included in the general consent for medical care and that they may decline or “opt-out” of HIV screening.

## MINORS

As of 2013, 31 states allow minors to consent to HIV testing and treatment without parental approval. Washington State law specifies that children 14 years of age or older who may have come in contact with any sexually transmitted disease or suspected sexually transmitted disease may give consent to the furnishing of hospital, medical, and surgical care related to the diagnosis or treatment of such disease. Seattle and King County, however, will test and treat individuals regardless of age. Parental or legal guardian consent is not necessary, and parent(s) or legal guardians are not liable for payment for any care rendered. Washington State law forbids informing the subject’s parents of the test, or of the results, without the subject’s permission



## VICTIMS OF SEXUAL ASSAULT OR ABUSE

Victims of rape (sexual assault) are at risk for infection with HIV and other STIs. Nearly 1 in 6 women and 1 in 33 men have experienced an attempted or completed rape in their lifetime. One out of every 10 rape victims is male (RAINN, 2016).

Data showing the number of sexual assault victims who acquire HIV are limited, with only a few cases reported. The probability of HIV transmission during a single act of intercourse with an HIV-infected person is probably low according to the CDC (2015e) and depends on many factors. These factors include: type of intercourse (oral, vaginal, anal); presence of oral, vaginal, or anal trauma (including bleeding); site of exposure to ejaculate; viral load in ejaculate; and presence of an STI or genital lesions in the assailant or survivor.

Sexual assault also puts adolescent girls and women at risk of becoming pregnant, so emergency contraception is part of the medical protocol for female rape victims. Counselors must provide victims with the toll-free number for the **emergency contraception hotline** or website (*see “Resources” at the end of this course*).

### ***Assessment Protocol***

A sexual assault victim should go directly to the nearest hospital emergency department (ED) without changing clothing and without bathing or showering, which might remove evidence that could incriminate the assailant. Trained ED staff will counsel the victim and offer testing or referral for HIV, STIs, and pregnancy.

Testing the victim of sexual assault for HIV immediately after the event can establish that the victim was not infected at the time of the assault. However, it is important to consider the window period and retest later if the assailant proves to be HIV-positive. In the rare case that an assault victim is infected by the assailant, the earlier test can serve as evidence in criminal court.

The standard protocol is for the ED physician to take DNA samples of blood or semen from the vagina, rectum, or elsewhere, as indicated, which can be used as evidence for legal and criminal action. Some emergency departments may refer sexual assault victims to the local health jurisdiction for HIV testing.

Questioning sexual assault victims in the ED about their sexual risks can be difficult and unpleasant. However, testing shortly after a sexual assault provides useful baseline information on the various infections—especially for follow-up care and treatment.

Under Washington State law, only the victims of convicted sexual offenders may learn the attacker’s HIV status. Thus, the victim needs to decide whether to start PEP independently of the assailant’s test result because the time between the attack and the conviction will always be longer than the 72 hours in which nonoccupational postexposure prophylaxis (nPEP) should be started.



## ASSESSING ADOLESCENT AND ADULT SEXUAL ASSAULT VICTIMS

Postexposure assessment of adolescent and adult victims includes the following steps to be taken within 72 hours of sexual assault:

- Assess risk for HIV infection in the assailant and test that person for HIV whenever possible.
- Use the CDC algorithm to evaluate the victim for the need for HIV nonoccupational postexposure prophylaxis (nPEP).
- Consult with a specialist in HIV treatment if nPEP is considered.
- If the victim appears to be at risk for HIV transmission from the assault, discuss nPEP benefits and risks.
- If the victim chooses to receive nPEP, provide enough medication to last until the follow-up visit at three to seven days after initial assessment and assess tolerance of medications.
- If nPEP is started, perform CBC and serum chemistry at baseline.
- Perform HIV antibody test at original assessment; repeat at six weeks, three months, and six months.

Source: CDC, 2016t.

### ***HIV and Child Sexual Assault***

Children may be at higher risk for HIV transmission from sexual assault because child sexual abuse is often associated with multiple episodes of assault and may result in mucosal trauma. The CDC has identified certain situations involving high risk for STI transmission to children, including HIV, and these constitute a strong indication for testing:

- The child has experienced penetration or has evidence of recent or healed penetrative injury to the genitals, anus, or oropharynx.
- The child has been abused by a stranger.
- The child has or has had symptoms or signs of an STI or of an infection that can be sexually transmitted, even in the absence of suspicion of sexual abuse. Signs that may be associated with a confirmed STI diagnosis are vaginal discharge or pain, genital itching or odor, urinary symptoms, and genital ulcers or lesions.
- A suspected assailant is known to have an STI or to be at high risk for STIs (has multiple sex partners, a history of STIs, intravenous drug use, MSM).



- A sibling, other relative, or other person in the household or immediate environment has an STI.
- The patient or parent requests testing.
- The prevalence of STIs in the community is high.  
(CDC, 2016t)

### **ASSESSING CHILD SEXUAL ASSAULT VICTIMS**

Postexposure assessment of child sexual assault victims includes the following steps to be taken within 72 hours:

- Review HIV/AIDS local epidemiology and assess risk for HIV infection in the assailant.
- Use the CDC algorithm to evaluate the child for the need for HIV nPEP.
- Consult with a specialist in treating HIV-infected children if PEP is considered.
- If the child appears to be at risk for HIV transmission from the assault, discuss nPEP with the caregiver(s), including its benefits and risks.
- If caregivers choose for the child to receive PEP, provide enough medication to last until the return visit at three to seven days after initial assessment to reevaluate the child and to assess tolerance to medications.
- If nPEP is started, perform CBC and serum chemistry at baseline.
- Perform HIV antibody test at original assessment, six weeks, three months, and six months.

Source: CDC, 2016t.

### **PATIENTS SEEKING TREATMENT OF AN STI**

The CDC (2017a) recommends that all persons who seek evaluation and treatment of STIs be screened for HIV infection. Testing should be done routinely, regardless if the patient is known or suspected to have specific behavioral risks for HIV.

In Washington State, principal healthcare providers must counsel or ensure AIDS counseling as defined in WAC 246-100-011(2) and offer and encourage HIV testing for each patient seeking treatment of an STI.



## INDIVIDUALS IN DRUG TREATMENT PROGRAMS

Patients are significantly more likely to receive an HIV test if done at a drug treatment facility as opposed to being referred elsewhere for testing. However, the availability of testing in these facilities is limited, with fewer than half offering testing on-site to their patients. Unfortunately, few patients follow up on referrals for off-site testing (Kyle et al., 2015).

Washington State law requires that drug treatment programs under chapter 70.96A RCW provide or ensure provision of AIDS counseling as defined in WAC 246-100-011(2) for each person in a drug treatment program.

## HIV Tests

HIV/AIDS testing is available in a variety of settings:

- Home
- Medical clinics
- Substance use treatment programs
- Community health centers
- Hospitals
- Title X family planning clinics
- Pharmacies
- Community-based organizations
- AIDS service organizations
- Mobile testing vans

The **Washington State AIDS hotline** can provide referral to a public health, family planning, or community clinic in each county. (*See “Resources” at the end of this course.*)

## TYPES OF HIV TESTS

There are three main types of HIV tests that may be performed on blood, oral fluid, or urine:

- Antibody tests
- Nucleic acid tests
- Combination or fourth-generation tests



### ***Antibody Tests (Immunoassay)***

Antibody tests (immunoassay) are the most commonly used. They test in blood, oral fluid, or urine for antibodies produced by the host body against HIV; they do not test for HIV itself. (Most HIV tests, including most rapid tests and home tests, are antibody tests.)

It can take 3 to 12 weeks for a person's body to make enough antibodies for an antibody test to detect HIV infection. In general, antibody testing that uses blood can detect HIV slightly sooner after infection than tests done on oral fluid. Most laboratory-performed tests find infection sooner after exposure than rapid HIV tests.

**Rapid HIV tests** produce quick results, in 30 minutes or less, and use blood or oral fluid to look for antibodies. Until these rapid tests became available, many people undergoing testing in public clinics did not return to get their test results. Making results available during the testing appointment means that people can take immediate precautions to prevent transmission to their sexual partners. In addition, the oral fluid test offers another option for those people who may fear a blood test.

The **urine HIV testing** procedure is intended for use with urine samples only and must not be used with other bodily fluids. The assay must be performed in strict accordance with instructions to obtain accurate, reproducible results (CDC, 2016u).

### ***Nucleic Acid Tests (NATs)***

These tests detect HIV most quickly by looking for HIV (the antigen) in the blood before antibodies have had time to develop against it. The tests are highly sensitive and specific for viral nucleic acids, both RNA and DNA, and detect them earlier than other screening methods. It can take 7 to 28 days after infection for NATs to be able to detect HIV.

This test is very expensive and is not routinely used for HIV screening unless the person recently had a high-risk exposure or possible exposure with early symptoms of HIV infection. They can also be ordered as a follow-up test, after a positive antibody test, or as part of a clinical workup (CDC, 2016u).

### ***HIV Combination Tests***

Combination tests are able to detect both the HIV-1 antigen and the HIV-1/HIV-2b antibodies in blood only. Viral antigens such as the viral capsid (core) protein p24 may be detectable two weeks after infection, but may be undetectable after the body begins to produce antibodies. It can take two to six weeks for a person's body to make enough antigens and antibodies for a combination test to detect HIV. These tests are recommended for use in laboratories and are becoming more common in the United States.



When an initial HIV test performed in a laboratory is positive, the laboratory will usually conduct follow-up testing on the same blood specimen as the initial test. When an initial HIV test is a rapid test and is positive, the person will be directed to get follow-up testing. Although HIV tests are generally very accurate, follow-up testing allows the healthcare provider to ensure that the diagnosis is correct (CDC, 2016u).

### ***HIV Viral Load Testing***

This type of test measures the number of HIV virus particles in one milliliter of blood of an infected person. It is seldom used to diagnose HIV infection; rather, it is used to measure the effectiveness of antiretroviral medications that treat HIV infection.

## **HOME TESTING**

Currently there are only two tests that can be done at home.

**Home Access HIV-1 Test System** involves pricking the finger to collect a blood sample and then mailing the sample to a licensed laboratory. If the screening test is positive, follow-up testing is done by the lab to confirm the results. The person then calls the company for results as early as the next business day using an anonymous code number. The manufacturer offers confidential counseling and referral services. Tests conducted on a blood sample at home find infection later than most lab-based tests using blood from a vein but earlier than tests conducted on oral fluid. Studies show a sensitivity of greater than 99.9%.

**OraQuick In-Home HIV Test** provides rapid results in the home. It involves swabbing the mouth for an oral fluid sample and using a kit to test for HIV-1 and HIV-2. Results are available in 20 minutes. If positive, follow-up testing is recommended. The manufacturer provides confidential counseling and referral to follow-up testing sites 24 hours a day, seven days a week. Oral fluid tests find infection later after exposure than do blood tests. Up to 1 in 12 people may receive false negative results. Rarely does the test produce a false positive result (CDC, 2016u).

### **HIV LAB TESTING IN WASHINGTON STATE**

In Washington State, the standard procedure following rapid HIV testing is to conduct follow-up or confirmatory testing for HIV-1. (Because HIV-2 is extremely rare in Washington, most laboratories do not have the testing materials necessary to conduct HIV-2 confirmatory testing.) However, in the case of clients who have had unprotected sex with or have shared needles with someone from an African country, confirmatory testing for both HIV-1 and HIV-2 must be requested.

If confirmatory testing is negative, the rapid HIV test was probably a false positive. However, before concluding a rapid test was false positive, additional testing is recommended. If the confirmatory test results are indeterminate, the person should be advised to return for repeat testing in one month.



Washington State law requires that all sites performing clinical laboratory testing obtain a state medical test site (MTS) license. All agencies conducting waived rapid testing must obtain an MTS license (category: certificate of waiver). The MTS license takes the place of a federal CLIA certificate.

### **WHO CAN COLLECT BLOOD SPECIMENS?**

In Washington State, three categories of healthcare professionals are authorized to collect blood specimens through fingersticks and venipuncture:

1. Licensed healthcare professionals whose scope of practice allows it (physicians and nurses)
2. Certified healthcare assistants (CHCAs)
  - To perform fingersticks, CHCAs must have supervision of a licensed healthcare professional who is immediately available by any means, electronic or otherwise, within a short period of time. Immediate cell phone contact fulfills this requirement. In addition, policies and procedures should be in place that direct the CHCA to call 911 for emergency assistance in the event of an adverse reaction to a fingerstick.
  - To perform venipuncture, CHCAs must have the supervising licensed healthcare professional on the premises. Staffing and supervision policies and procedures for each test site should reflect this.
3. Sexually Transmitted Disease Case Investigators\*
  - Investigators are authorized to perform both venipuncture and skin puncture without supervision).

\*Sexually Transmitted Disease Case Investigators are individuals who: 1) are employed by public health authorities; 2) have been trained by a physician in proper specimen collection procedure; and 3) possess a statement signed by the instructing physician that this training has been completed. No further licensing is required.

## **HIV Antibody Test Results**

HIV test results can be one of three types: negative, positive, or indeterminate.

### **NEGATIVE TEST RESULTS**

If the test result is negative, it means either 1) the person is not infected with the virus or 2) the person became infected recently and antibodies have not yet appeared. A person who tests negative for HIV but remains concerned about a possible recent infection should test again in three months and practice safer behaviors in the meantime. If risky behavior continues, infection may still occur.





Additional testing is recommended as follows:

- If the original confirmatory test specimen was a blood specimen, repeat the confirmatory test with a new blood specimen to rule out specimen mix-up.
- If the original confirmatory test specimen was an oral fluid specimen, repeat the confirmatory test using a blood specimen.

## **POSITIVE TEST RESULTS**

A positive test result shows the presence of HIV antibodies, which means that:

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

## **INDETERMINATE TEST RESULTS**

Occasionally a rapid test or an enzyme immunoassay test will show an “indeterminate” or “inconclusive” test result. This may mean that the person is recently infected and is developing antibodies, a process called *seroconversion*. Indeterminate test results can also be caused by other factors, including but not limited to pregnancy, autoimmune diseases, blood transfusions, recent influenza vaccinations, or organ transplants.

- If the confirmatory test is indeterminate based on a blood specimen, the patient is advised to return for repeat testing in one month and at three months from the last possible exposure to verify that he or she is not infected.
- If the confirmatory test is indeterminate based on an oral fluid specimen, the confirmatory test is repeated using a blood specimen.
- If the repeat blood specimen confirmatory test is also indeterminate, the patient is advised to return for repeat testing in one month.

## **Counseling and Conveying Test Results**

The standard model for HIV testing requires that individuals meet with a counselor or other provider to get tested and then again to receive results. The best practice is to convey an HIV test result face-to-face. In some areas, however, results both positive and negative are already conveyed by phone. If a one-on-one visit is problematic, for example, test results can be discussed by phone. The CDC states that positive test results should always be communicated by personal contact and should never be delivered by mail (Baroudi, 2013).



Washington State rules allow for test results to be conveyed to individuals in person or by telephone, followed by later counseling, if needed. If the person has tested negative for HIV, providers can report results to them by telephone and discuss the one- to three-month window period (the time between infection with HIV and production of enough antibodies to be detected by antibody tests), and if applicable, the need for retesting. However, specific efforts need not be made to contact persons with negative results who do not return or phone in for their results.

If persons test positive for HIV, Washington State law requires that HIV posttest prevention counseling be provided. Providers should discuss HIV transmission, ways to protect partners, and disclosure of status to others. Assertive efforts should be made to contact persons with positive results who do not telephone or return for their results.

It is recommended that persons tested with rapid HIV tests be advised that their preliminary results will be available in the same visit and that confirmatory testing will be needed if the rapid test result is positive. In addition, retesting within three months should be recommended even if the rapid test result is negative.

All testing offers an opportunity for counseling patients. If test results are negative, counseling efforts typically focus on avoiding exposure to HIV through safer sex practices and not sharing needles. If results are positive, counseling typically focuses on preventing transmission of the virus to others and referring the patient to resources for treatment, education, and support.

## **PRETEST PREVENTION COUNSELING**

As in most states, Washington State pretest prevention counseling is required for all persons who are at increased risk for HIV infection and for those who request counseling; however persons who refuse counseling are not to be denied an HIV test.

HIV screening programs in healthcare settings are not required to provide prevention counseling with HIV diagnostic testing but can refer the person for counseling with another person, a local health department, or another appropriate facility, such as a community-based organization that provides counseling services. Pretest counseling should be culturally, linguistically, developmentally, and medically appropriate and include information on:

- Increasing the person's understanding of personal risk of acquiring or transmitting HIV
- Motivating the person to reduce risk and assist in setting realistic behavior-change goals and establish strategies for risk reduction
- Assisting the person to build skills to reduce risk
- Providing or referring for other appropriate prevention, support, or medical services



## POSTTEST COUNSELING

In Washington State, posttest counseling should be offered for everyone who tests negative when they receive their test results. The posttest counseling includes identical information as pretest counseling.

For those who test positive, posttest counseling **must** be provided or referral made. The counseling must include the same information given to those who test negative, but must also include:

- If testing was confidential, notification that HIV is a reportable condition
- Provision of partner notification support or a referral to public health for such services
- Appropriate referrals for alcohol, drug and mental health counseling as well as medical evaluation, TB screening, HIV prevention and other support services
- Assistance for persons newly diagnosed with HIV to obtain appropriate medical care

## COUNSELING PREGNANT WOMEN

In most states, including Washington State, all healthcare providers offering care to a pregnant woman who intends to continue the pregnancy and is not seeking care to terminate the pregnancy or as a result of a terminated pregnancy shall provide or ensure the provision of AIDS counseling.

When ordering or prescribing an HIV test, informed consent from the pregnant woman must be obtained for HIV testing separately or as part of the consent for a battery of other routine tests, provided that the pregnant woman is specifically informed verbally or in writing that a test for HIV is included.

The pregnant woman must be offered an opportunity to ask questions and decline testing. The HIV test should be ordered or prescribed if the woman consents. If the pregnant woman refuses to consent, address and discuss her reasons for refusal and document in the medical record both her refusal and the provision of counseling on the benefits of HIV testing.

If an HIV test is positive for or suggestive of HIV infection, healthcare providers must offer follow-up and reporting as required by law.

## PROVIDING RISK ASSESSMENT AND BEHAVIOR CHANGE GOALS

A patient's individual HIV risk can be determined through risk screening based on self-reported behavioral risk and clinical signs or symptoms. Behavioral risks include injection drug use or unprotected intercourse with a person at increased risk for HIV. Clinical signs and symptoms include those suggestive of HIV infection and other STIs.



### ***Risk Assessment Questions***

Behavioral risks can be identified either through open-ended questions by the provider or through screening questions (i.e., a self-administered questionnaire). An example of an open-ended question is: “What are you doing now or what have you done in the past that you think may put you at risk of HIV infection?”

While not a comprehensive list, examples of other screening questions are: “Since your last HIV test (if ever) have you:

- “Injected drugs and shared equipment such as needles, syringes, cotton, or water with others?”
- “Had unprotected intercourse with someone who you think might be infected?”
- “Had unprotected vaginal or anal intercourse with more than one sex partner?”

### ***Risk Reduction and Support***

Behavior change goals should be: 1) based on the individual’s risk; 2) perceived as realistic **by the individual**; and 3) based on the individual’s readiness and capability to change behavior. The goals of posttest counseling should be to: 1) increase the individual’s understanding of HIV infection; 2) change the individual’s behavior; and 3) if necessary, encourage the individual to notify people with whom there has been potential transmission of HIV.

Depending on the person’s readiness for change, counseling can be simple and brief or complex and lengthy. In many clinical practice settings, time restraints only permit brief and simple counseling.

As an example, for a person who has yet to contemplate behavior change, a realistic goal might be helping the person recognize which behaviors place them at risk for HIV. Skill building could help the person self-identify situations where the risk behavior is practiced.

Other individuals may be further along the behavior change continuum and have identified specific behaviors they wish to change. Support for those identified changes is appropriate. A relevant goal might be to identify barriers to the behavior change and help the person self-identify solutions. Demonstrating how to use a condom or how to discuss condom use with a new partner could be examples of building skills.

For those who have complex needs beyond the provider’s counseling skills or time available, referral to other resources should be arranged.



## HIV REPORTING REQUIREMENT

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

If a person who tests positive for HIV infection fails to return for test results, the healthcare professional must provide the local health officer with the name of the individual and any information that could help locate him or her. The health officer will follow up to assure that posttest counseling and partner notification assistance are provided.

**Washington State requires all HIV and AIDS cases be reported.** Providers who diagnose a person must submit a confidential case report to the local health department within three days. Positive HIV results obtained through anonymous testing are not reportable. However, once a patient with positive results seeks medical care for conditions related to HIV or AIDS, the healthcare provider must then report the case to the health department.

The HIV status of incarcerated individuals may be disclosed legally under the Occupational Safety and Health Administration's Standard for Occupational Exposure to Bloodborne Pathogens. According to state or local laws, an incarcerated person's HIV status may be required to be reported to public health authorities, parole officers, spouses, or sexual partners (USDHHS, 2017).

## PARTNER NOTIFICATION

There are many states and cities that have partner-notification laws. If a person tests positive for HIV, the person or healthcare professional is legally required to notify sex or needle-sharing partners. In some states the person can be charged with a crime if partners are not told of positive HIV results. Some state health departments require healthcare professionals to report names of sex and needle-sharing partners if they know who they are, even if the patient refuses to report that information.

Federal law requires states to take action to require that "good faith" effort be made to notify spouses. States may have "duty to warn" laws requiring healthcare practitioners to notify any third party they know to be at substantial risk for exposure from a person known to be infected with HIV.

In Washington State, public health staff will elicit partner information and then work with the HIV-infected person to determine which partners he or she will reach and which ones public health will contact without disclosing the infected person's identity. Exposed individuals are then offered counseling and HIV testing. This is done in order to facilitate entry into care and to prevent further transmission to others.

Public health officials contact the principal healthcare provider in order to determine the best way to contact the HIV-infected person in order to conduct partner notification. If a healthcare provider recommends that the health officer not meet with the HIV-infected individual, he or she



must inform the HIV-infected person of the necessity to notify partners, assist in notifying partners, and then inform health officials of the identify of certain partners.

## CLINICAL MANIFESTATIONS AND TREATMENT

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**Upon completion of this section, you will be able to describe the clinical manifestations and treatment guidelines for HIV/AIDS.**

The trajectory between infection with HIV and the development of full-blown AIDS can be steep or gradual and may take as long as a decade or more. If the infection is untreated, the average time from HIV infection to a diagnosis of AIDS can be 10 to 15 years. However, early detection and appropriate medical treatment may extend the lives of those infected and reduce the rates of HIV transmission.

### Course of the Disease and Diagnosis

As HIV suppresses immune function, the infected person becomes more vulnerable to opportunistic infections caused by a wide variety of bacteria, viruses, fungi, and other pathogens encountered in daily life. The physical results of these opportunistic infections are called *clinical manifestations*. For example, the opportunistic infection cytomegalovirus (CMV) often causes the clinical manifestation of blindness in people with AIDS.

Some conditions, called *co-factors*—including age, genetic factors, drug use, smoking, nutrition, and coinfection with hepatitis C virus and/or tuberculosis—can affect the course of the disease progression.

### HIV CLASSIFICATION SYSTEMS

Currently there are two major ways to classify HIV:

- For surveillance case definition purposes
- For clinical diagnosis purposes

In 2014 the CDC revised its earlier surveillance case definitions of HIV and AIDS to incorporate criteria for HIV-2 infection used in a report of surveillance for HIV-2 infection and included in one of the new testing algorithms. It is important to recognize that these case definitions are for surveillance purposes only and are not a guide for clinical diagnosis.



STAGES OF HIV INFECTION FOR SURVEILLANCE CASE DEFINITION	
Stage	Description
Stage 0	Criteria consist of a sequence of contradictory test results in which a negative or indeterminate result was obtained within 180 days of a positive result.
Stage 1	For persons aged: <ul style="list-style-type: none"> <li>• &lt;1 year with a CD4<sup>+</sup> T cell count <math>\geq 1,500</math></li> <li>• 1–5 years with a CD4<sup>+</sup> T cell count <math>\geq 1,000</math></li> <li>• 6 years through adult with a CD4<sup>+</sup> T cell count <math>\geq 500</math></li> </ul>
Stage 2	For persons aged: <ul style="list-style-type: none"> <li>• &lt;1 year with a CD4<sup>+</sup> T cell count 750–1,499</li> <li>• 1–5 years with a CD4<sup>+</sup> T cell count 500–999</li> <li>• 6 years through adult with a CD4<sup>+</sup> T cell count 200–499</li> </ul>
Stage 3 (AIDS)	For persons aged: <ul style="list-style-type: none"> <li>• &lt;1 year with a CD4<sup>+</sup> T cell count &lt;500</li> <li>• 1–5 years with a CD4<sup>+</sup> T cell count &lt;500</li> <li>• 6 years through adult with a CD4<sup>+</sup> T cell count &lt;200</li> </ul>
Stage Unknown	If the criteria for stage 0 are not met and information on the above criteria for other stages is missing, then the stage is classified as unknown.
Source: Selik et al., 2014.	

The CDC, the U.S. Department of Health and Human Services, and other organizations such as the World Health Organization identify disease progression through three to five stages of clinical evidence for HIV/AIDS. The following is a synopsis of these various clinical stages.

CLINICAL STAGES OF HIV INFECTION	
Stage	Description
Stage 1: <b>Acute Infection</b>	<ul style="list-style-type: none"> <li>• Occurs within 2–4 weeks after infection</li> <li>• Symptoms similar to the flu</li> <li>• Large amounts of virus produced</li> <li>• Seroconversion occurs with detectable antibodies at 4 to 6 months</li> <li>• Body brings virus back down to low levels</li> </ul>
Stage 2: <b>Clinical Latency</b>	<ul style="list-style-type: none"> <li>• Asymptomatic or only mild ones</li> <li>• Can extend for up to a decade</li> <li>• Generalized lymphadenopathy</li> </ul>



<p>Stage 3: <b>Early-Stage AIDS</b></p>	<ul style="list-style-type: none"> <li>• Development of mild bacterial, viral, and fungal infections</li> <li>• Slight weight loss</li> <li>• Headaches and fatigue</li> <li>• Skin rashes</li> <li>• Night sweats</li> </ul>
<p>Stage 4: <b>Middle-Stage AIDS</b></p>	<ul style="list-style-type: none"> <li>• Increase in fungal infections such as thrush</li> <li>• Herpes infections</li> <li>• Diarrhea</li> <li>• Dramatic weight loss</li> <li>• Persistent fevers</li> </ul>
<p>Stage 5: <b>Late-Stage AIDS</b></p>	<ul style="list-style-type: none"> <li>• Consistent infections</li> <li>• Severely ill</li> <li>• <i>Pneumocystis carinii</i> pneumonia</li> <li>• Cytomegalovirus</li> <li>• Chronic severe diarrhea</li> <li>• Intense night sweats</li> <li>• Memory loss</li> </ul>

### OPPORTUNISTIC INFECTIONS AND CANCERS (AIDS-DEFINING CONDITIONS)

People with normal immune systems have a natural resistance to microorganisms, but when the immune system is suppressed, viruses, fungi, protozoa, and bacteria take the opportunity to cause infection. Without treatment, once a person has a dangerous “opportunistic infection,” life-expectancy is about one year. The following are such opportunistic infections that can affect persons with HIV infection:

- Bacterial infections (multiple or recurrent)
- Candidiasis of bronchi, trachea, or lungs
- Candidiasis of esophagus
- Coccidioidomycosis, disseminated or extrapulmonary
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis, chronic intestinal (>1 month’s duration)
- Cytomegalovirus disease (other than liver, spleen, or nodes)
- Cytomegalovirus retinitis (with loss of vision)
- Herpes simplex: chronic ulcers (>1 month’s duration) or bronchitis, pneumonitis, or esophagitis





- Histoplasmosis, disseminated or extrapulmonary
- Isosporiasis, chronic intestinal (>1 month's duration)
- Lymphoid interstitial pneumonia or pulmonary lymphoid hyperplasia complex
- *Mycobacterium avium* complex (MAC) or *M. kansasii*, disseminated or extrapulmonary
- *M. tuberculosis* (TB) of any site, pulmonary, disseminated, or extrapulmonary
- *Mycobacterium*, other species or unidentified species, disseminated or extrapulmonary
- *Pneumocystis jirovecii* pneumonia
- Pneumonia, recurrent
- Progressive multifocal leukoencephalopathy
- Salmonella septicemia, recurrent
- Toxoplasmosis of brain, onset at age >1 month
- Wasting syndrome attributed to HIV

People with HIV/AIDS are at high risk for developing certain cancers, such as Kaposi sarcoma, non-Hodgkin's lymphoma, and cervical cancer. These three cancers are referred to as "AIDS-defining conditions," and if a person has one of these cancers, it is very likely to signify HIV and the development of AIDS. The connection between HIV/AIDS and cancer is not completely understood but is believed to be the result of a weakened immune system. The following types of cancer are also common for people with HIV/AIDS:

- Hodgkin's lymphoma
  - Angiosarcoma
  - Anal cancer
  - Liver cancer
  - Mouth or throat cancer
  - Lung cancer
  - Testicular cancer
  - Colorectal cancer
  - Multiple types of skin cancer including basal cell carcinoma, squamous cell carcinoma, and melanoma
- (ASCO, 2016)

## MULTISYSTEM EFFECTS OF HIV/AIDS

HIV infection not only affects the immune system but also affects other body systems and organs. HIV is a chronic infection, which contributes to the continued presence of **inflammation**.



The intestinal tract contains about 70% of the body's immune cells, and the immune system in the intestines is called gut-associated lymphoid tissue (GALT). GALT protects the body from germs entering the digestive tract. HIV damages GALT very early in the infection process and causes chronic inflammation. Inflammation in the intestines makes it easier for germs to pass out of the intestine and enter the body's circulation. This leakage contributes to systemic inflammation, affecting all systems of the body.

Chronic inflammation causes tissue damage and scarring. Inflammation changes the structure of blood vessels, making it easier for plasma to pass into the surrounding tissues. The blood vessels remain permeable and white blood cells accumulate in the tissue.

Ongoing inflammation is also related to many other chronic diseases, including heart failure, kidney problems, liver problems, bone loss, metabolic syndrome, diabetes, dementia, and blindness (IAPAC, 2014).

## HIV-RELATED CONDITIONS AMONG SPECIAL POPULATIONS

Signs and symptoms of HIV in the **pediatric population** include:

- Unusually frequent and severe occurrences of common childhood bacterial infections
  - Recurrent fungal infections that do not respond to standard antifungal agents
  - Recurrent or unusually severe viral infections
  - Growth failure
  - Failure to thrive
  - Wasting
  - Failure to attain typical developmental milestones
  - Behavioral abnormalities in older children
- (Rivera, 2016)

HIV-associated nephropathy occurs almost exclusively in persons of **African descent**. The disease may progress rapidly to end-stage renal disease, often occurring over the course of several weeks to months, especially if the person is not being treated with antiretroviral medications. An as-yet unidentified genetic variant or environmental cofactor is believed to be required for the development of this disease in African Americans (Salifu, 2015).

## Management and Care

Optimal care of people with HIV/AIDS includes antiviral therapies, health maintenance, and referral to support services in addition to an emphasis on prevention of transmission to uninfected partners.



## HIV/AIDS SELF-MANAGEMENT

The Institute for Healthcare Improvement (2017) notes that it is extremely important that patients with HIV/AIDS play a major role in managing their condition. Each patient has unique desired outcomes and needs that require appropriate interventions. Each patient should be given basic information about HIV/AIDS and its treatment; assistance with self-management skill building; and ongoing support from the healthcare team, family, friends, and community.

The Institute recommends that self-management include:

- Collaborative goal setting
- Monitoring of symptoms
- Lifestyle modifications to improve overall health and well-being
- Adherence to the medication regimen
- Good communication with the healthcare team, family members, and others
- Involvement in ongoing problem-solving to overcome potential barriers

The healthcare team is advised to assist the patient's self-management efforts by supporting and emphasizing the patient's role in self-management, making recommendations, using effective interventions, and assisting with care-planning and problem-solving to aid in reducing barriers to self-management activities.

## CASE MANAGEMENT

As people with HIV live longer, needs for healthcare services are changing. Depending on their personal support system and other resources, some people may require the assistance of a case manager to link them with various care services.

Case management improves patients' involvement with care and adherence to treatment and provides better screening and diagnosis of related comorbidities as a result of more involvement with healthcare providers. It is an important tool in the implementation of the National HIV/AIDS Strategy. Effective involvement and retention in care results in better health outcomes, avoidance of costly long-term care services, increased value of ongoing medication and treatment expenditures, and prevention of HIV infection by reducing community level of viral load.

Case managers in Washington State HIV/AIDS programs are the primary contact people for services, including medical care, insurance programs, volunteer groups, home care, hospice, and other types of care that may be needed during the course of a person's or family's living with HIV/AIDS. Local health departments or districts can help patients find a case manager, as can the Washington State Department of Health Client Services (*see "Resources" at the end of this course*).



Medical case managers and community-based organizations dedicated to the fight against HIV can also help people with HIV find resources that help them meet the ongoing challenges of living with HIV.

## **Antiretroviral Therapy (ART)**

Antiretroviral therapy has transformed HIV infection into a manageable chronic condition. ART used in the treatment of HIV infection has led to dramatic decreases in morbidity and mortality.

Additionally, it is highly effective at preventing HIV transmission. However, less than one third of individuals infected with HIV in the United States have received treatment to suppress their viral loads, mostly due to undiagnosed HIV infection or failure to connect with or retain diagnosed patients into care.

ART involves taking a combination of HIV medicines every day exactly as prescribed. These medications prevent HIV from multiplying and lead to a reduction in the amount of HIV in the body. ART is recommended for all persons infected with HIV regardless of how long they have had the virus or how healthy they are. If left untreated, HIV will attack the immune system and eventually progress to AIDS.

The action of antiretroviral medications is based on the seven-step life cycle of HIV:

1. Binding to receptors on the T cell
2. Fusion of the HIV and T cell
3. Reverse transcription to convert HIV RNA into HIV DNA
4. Integration of HIV DNA into the T cell nucleus
5. Replication by the HIV-infected cell DNA of HIV building blocks
6. Assembly of new HIV building blocks into immature HIV
7. Budding of immature HIV outside the cell that combine and form mature infectious HIV

There are six major classes of drugs used to treat HIV/AIDS:

- Entry inhibitors (CCR5 antagonists), which interfere with the virus' ability to bind to the cell
- Fusion inhibitors, which interfere with the virus' ability to fuse with the cell membrane
- Two reverse transcriptase inhibitors, which prevent the conversion of HIV RNA into HIV DNA:
  - Nucleoside reverse transcriptase inhibitors (NRTIs)
  - Non-nucleoside reverse transcriptase inhibitors (NNRTIs)
- Protease inhibitors, which interfere with the assembly of the HIV protein



- Multi-class combination products

Among these six drug classes are more than 25 HIV medicines approved to treat HIV infection, and some are available in combination (two or more different HIV medicines combined in one pill). Drug selection could potentially include these 25 medications; however, only a small number is recommended. For most patients, an ART regimen consists of a dual nucleoside combination plus a third agent from a different class (Fletcher, 2016).

## INITIATING ART

In 1996, tests to measure an individual's viral load became available, providing objective criteria for treatment decisions. Following are treatment recommendations by the Panel on Antiretroviral Guidelines for Adults and Adolescents (NIH, 2016):

- ART is recommended for all HIV-infected individuals, including children, regardless of CD4<sup>+</sup> T cell count, to decrease the risk of disease progression.
- Early ART also is recommended for HIV-infected women during pregnancy and continuation of ART after pregnancy.
- Patients initiating ART should be willing and able to commit to lifelong treatment and should understand the benefits and risks of therapy and the importance of adherence. Patients may choose to postpone therapy, and providers, on a case-by-case basis, may elect to defer therapy based on clinical and/or psychosocial factors.

## ART TREATMENT GOALS

Once initiated, ART should be continued, with the following key treatment goals:

- Maximal and durable suppression of HIV RNA (viral load)
- Restoration and preservation of immunologic function
- Reduction of HIV-associated morbidity and prolongation of duration and quality of survival
- Prevention of HIV transmission  
(NIH, 2016)

## ART FOR SPECIAL POPULATIONS

### *Pregnant Women*

Early HIV-1 infection, especially in the setting of high viral load, is associated with a high risk of perinatal transmission. All HIV-1 infected pregnant women should start ART



as soon as possible to prevent perinatal transmission. Once begun, therapy should be continued indefinitely (NIH, 2016).

### ***Adolescents***

The rapid changes in physical maturation, cognitive processes, and lifestyle choices that characterize adolescence pose challenges for effective treatment. Compared to adults, youth historically have shown significantly lower levels of adherence to treatment and lower levels of viral suppression. They also have high rates of viral rebound following initial viral suppression.

An adolescent's ability to adhere to therapy must carefully be considered when determining ART initiation. Clinicians should offer ART while providing effective interventions for assessing and addressing barriers to treatment acceptance and adherence. It is recommended that benefits can be optimized if a multidisciplinary care team provides psychosocial and adherence support (NIH, 2016).

### ***Illicit Drug Users***

The use of illicit drugs (heroin, cocaine, marijuana, and club drugs such as methamphetamine, ketamine, gammahydroxybutyrate [GHB], and amyl nitrate [i.e., poppers]) is especially important to consider in initiating ART. Challenges among this population include:

- Complicating comorbid medical and mental health conditions
- Limited access to HIV care (less likely to receive ART than other populations)
- Poor adherence to therapy
- Medication side effects and toxicities
- Substance abuse treatment requirement
- Depression and anxiety related to withdrawal or the consequence of repeated use (depression is one of the strongest predictors of poor adherence and poor treatment outcomes)

(NIH, 2016)

## **TREATMENT EFFICACY**

Plasma HIV RNA (viral load) and CD4<sup>+</sup> T cell count testing are two markers of HIV treatment efficacy that have been used for decades in the management and monitoring of HIV infection.

Viral load suppression is one of the most reliable indicators of adherence. Poor adherence is the major cause of therapeutic failure. When patients who begin ART fail to achieve viral



suppression by six months of treatment, the possibility of suboptimal adherence and other factors must be assessment.

The assessment of a patient who is experiencing ART failure should include:

- Assessment of adherence
- Drug-drug or drug-food interactions
- Drug tolerability
- HIV RNA and CD4<sup>+</sup> T cell account trends over time
- Treatment history
- Prior and recurrent drug-resistance testing results

Management of a patient experiencing ART failure should involve a new regimen that includes at least two, preferably three, agents that are expected to have antiretroviral activity based on the patient's treatment history, drug-resistance testing results, and/or the drug's mechanism of action.

Adding a single agent to the failing regimen is not recommended due to the risk of development of resistance to all drugs in the regimen. When no viable suppressive regimen can be put together for the patient with multidrug-resistant HIV, the clinician should consider enrolling the patient in a clinical trial of investigational agents or contacting pharmaceutical sponsors who may have such agents available (NIH, 2016).

#### **HIGH COST OF HIV TREATMENT**

HIV medicines may cost more than \$1,300 per person each month. Both private insurance programs and government programs offer coverage for HIV medical visits and antiviral medications. In some cases high deductibles and copayments make it difficult for individuals with low incomes to afford HIV treatment.

#### **ART COMPLICATIONS**

Benefits of viral suppression and improved immune function due to effective ART far outweigh risks of adverse effects. The new regimens currently recommended are associated with fewer serious and intolerable adverse effects than those regimens used in the past. Factors that may predispose persons to adverse effects include:

- Concomitant use of medications with overlapping and additive toxicities
- Comorbid conditions that increase the risk of or exacerbate adverse effects, such as alcoholism or viral hepatitis
- Psychiatric disorders that may be exacerbated



- Borderline or mild renal dysfunction
- Drug-drug interactions
- Genetic factors

ART-associated adverse effects range from acute and potentially life threatening to chronic and insidious. Common and/or serious adverse effects include:

- Bleeding events
- Bone marrow suppression
- Cardiovascular disease
- Cholelithiasis (gallstones)
- Decreases in bone mineral density
- Diabetes mellitus/insulin resistance
- Dyslipidemia
- Gastrointestinal effects
- Hepatic effects
- Hypersensitivity reaction
- Lactic acidosis
- Lipodystrophy
- Myopathy/elevated creatine phosphokinase
- Nervous system/psychiatric effects
- Rash
- Renal effects/urolithiasis (kidney stones)
- Stevens-Johnson Syndrome/toxic epidermal necrosis  
(NIH, 2016)

## **HIV DRUG RESISTANCE**

HIV drug resistance is caused by mutations to the virus's genetic structure that are slightly different from the original virus. Most mutations are harmless and may actually reduce the virus' ability to infect T cells. Some of these mutations can continue multiplying when the person is taking antiretroviral drugs. When this occurs, the virus can develop resistance to a drug and the ART may stop working.





If only one or two antiretroviral drugs are used, it is easy for the virus to develop resistance. Therefore, using just one or two drugs is not recommended. But when two or three drugs are used, a successful mutant would have to resist all of the drugs at the same time. Using combination therapy means that it takes much longer for resistance to develop (IAPAC, 2014).

### ***Drug-Resistance Testing***

Experts recommend that pretreatment drug-resistance testing be conducted when patients with HIV infection are first diagnosed, when changing antiretroviral regimens after drugs cease to be effective (treatment failure), and during pregnancy. Resistance testing helps clinicians better predict viral response to newly initiated therapy.

Two types of resistance assays are used: genotypic and phenotypic assays. **Genotypic assays** detect drug resistance mutations in the viral genes, while **phenotypic assays** measure a virus's ability to grow in different concentrations of antiretroviral drugs. Genotypic assays take one to two weeks, and phenotypic assays take two to four weeks. A genotypic assay is generally recommended for patients who have never had antiretroviral therapy, and also for all pregnant women prior to initiation of therapy and for those entering pregnancy with detectable HIV RNA levels while on therapy.

In certain patients such as those with acute or early HIV infection and in pregnant HIV-infected women, however, ART initiation should not be delayed while awaiting resistance testing results. The regimen can be modified once results are known (NIH, 2016).

### **ART AND OTHER MEDICATIONS/THERAPIES**

Alternative and complementary therapies have long been used by people to treat HIV infection. These therapies may include:

- Vitamins
- Massage
- Herbs
- Naturopathic remedies
- Acupuncture
- Yoga
- Meditation

Although many of these alternative therapies may not cause harm, there is very little evidence that they are effective in treating HIV infection. Some may produce adverse effects when used along with HIV medications.

It is important for providers to ask patients about any alternative or complementary therapies they may be using, as there may be drug reactions or other harmful side effects from the



interactions between these therapies and antiretrovirals. For example, St. John's Wort, a widely available herbal remedy sometimes taken to overcome depression, has known adverse interactions with some HIV medications.

Other drugs, including over-the-counter medications, prescription medications, and "street drugs," may also have serious interactions with antiretroviral medications.

## Coexisting Infections

Infections that are commonly found in HIV-positive patients include a number of other sexually transmitted diseases, TB, and hepatitis. Coexisting infections may increase the risk of transmission of HIV and make its treatment more complex.

### TUBERCULOSIS

The World Health Organization estimates that one third of the world's population is infected with *Mycobacterium tuberculosis* (*M. tuberculosis*, or TB). Globally, TB remains the most common cause of death among patients with HIV/AIDS, killing 1 of 3 patients (WHO, 2015).

In the United States, HIV-related tuberculosis has declined since 1993 as a result of antiretroviral therapy; however, TB cases increased over the previous year in 2015. There were 9,557 cases reported in the United States in 2015, 208 of which occurred in Washington State (CDC, 2016v).

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.

Antiretroviral therapy is the most effective treatment for controlling the progression of HIV; however, drug-drug interactions between the current first-line TB regimen and certain commonly used HIV drugs complicate treatment. The patient's ART regimen may need to be modified to permit the use of the optimal TB treatment regimen. After selecting the ART drugs and TB medication to use, clinicians should determine the appropriate dosage of each and should closely monitor the patients to assure good control of both TB and HIV infections.

### ***TB Transmission***

TB is transmitted by airborne droplets from people with active pulmonary or laryngeal TB during coughing, sneezing, or talking. When these infected droplets are inhaled, the bacteria enter the bloodstream and lymphatic system and circulate throughout the body.

Most of the bacteria settle in the lungs, where they multiply and may cause pneumonia-like symptoms. This process is called *primary infection* and in most cases resolves by itself within 4 to 12 weeks, after which a latent state of TB develops. Nine out of 10



people with latent TB never experience subsequent disease and are not infectious to others. The only evidence of TB infection is a positive tuberculin skin test.

Some people develop TB disease soon after infection, while others develop TB disease later when their immune system becomes compromised. Progression to active disease and obvious symptoms (cough, weight loss, and fever) usually occurs within the first two years after infection but may occur at any time.

### ***TB Testing and Treatment***

All people infected with HIV should be tested for TB using skin testing or interferon-gamma release assay (IGRA) and, if infected, begin complete therapy as soon as possible to prevent active TB disease. HIV-infected persons with either latent TB infection or active TB disease can be effectively treated. All HIV-infected pregnant women with active TB should be started on ART as early as possible both for treatment of maternal HIV infection and to prevent perinatal transmission of HIV.

Recommendations for anti-TB treatment regimens in adults infected with HIV follow the same principles as those for adults without HIV, which includes a multidrug regimen over a period of six to nine months. All of these drugs have significant side effects, which can lead to nonadherence and development of multidrug-resistant TB (MDR-TB) or extensively drug-resistant TB (XDR-TB), which is much more difficult to treat successfully. Coinfected individuals are at increased risk of developing active TB disease once they are infected and also have a higher risk of death once they develop TB (Mahmood, 2016).

## **HEPATITIS**

Hepatitis is inflammation of the liver that may be caused by drugs and toxic agents or by one of several viruses, including hepatitis A, B, C, D, and others. Most viral hepatitis infections in the United States are attributable to hepatitis A, B, and C. All three of these viruses can produce an acute illness characterized by nausea, malaise, abdominal pain, and jaundice. Many acute infections, however, are asymptomatic or cause only mild disease. For this reason, people are unaware they are infected and can have clinically silent infections for decades before developing cirrhosis, end-stage liver disease, or hepatocellular carcinoma.

People who are HIV positive are at risk for hepatitis A, B, and C infection. Hepatitis A virus (HAV) is transmitted by fecal/oral route, usually by contamination of water or food due to poor sanitation. Hepatitis B virus (HBV) and hepatitis C virus (HCV) are transmitted by percutaneous or mucosal exposure to the blood and body fluids of an infected person.

HIV-infected people should be tested for HAV and HBV and, if they test negative, should receive vaccines against both. However, there is no vaccine for HCV.



<b>COMPARISON CHART OF HIV, HBV, AND HCV</b>			
<b>Trait</b>	<b>HIV</b>	<b>HBV</b>	<b>HCV</b>
Transmission by blood	Yes	Yes	Yes
Transmission by semen	Yes	Yes	Rarely (more likely if blood present)
Transmission by vaginal fluid	Yes	Yes	Rarely (more likely if blood present)
Transmission by breast milk	Yes	No (but may be transmitted if blood is present)	No (but may be transmitted if blood is present)
Transmission by 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
Curable?	No	Yes	Yes
Source: WADOH, 2014a.			

### ***Hepatitis B***

Hepatitis B can cause chronic liver disease or liver cancer, which makes vaccination essential to prevention. HBV vaccine is relatively inexpensive for infants and children and commonly administered to most infants before their first birthday. It is critical that infants whose mothers are HBV positive receive the vaccine; otherwise, they have a 90% chance of developing the disease. Adult doses of HBV vaccine cost about \$150 per person, which may explain why most adults are not vaccinated against HBV.

The incidence of acute hepatitis B in the United States has been declining since 1990 mainly due to effective vaccination strategies, and the number of reported cases has remained fairly stable since 2009. In 2014 there were a total of 2,953 acute cases reported. Chronic HBV infection, however, continues to be a major public health concern, with a CDC estimate of 850,000 infected people in the nation. In Washington State, hepatitis B incidence has recently decreased to less than 50 acute cases per year with increased vaccination (CDC, 2016w).



## STRATEGY FOR ELIMINATION OF HBV IN THE UNITED STATES

The current vaccine-based strategy includes:

- Universal vaccination of infants beginning at birth
- Prevention of perinatal HBV infection through routine screening of all pregnant women for HBV infection and provision of immunoprophylaxis to infants born either to infected women or to women of unknown infection status
- Routine vaccination of previously unvaccinated children and adolescents
- Vaccination of adults at increased risk for infection, including:
  - Healthcare workers
  - Dialysis patients
  - Adults with diabetes
  - Household contacts and sex partners of persons with chronic HBV infection
  - Recipients of certain blood products
  - Persons with a recent history of having multiple sex partners concurrently
  - Those with a sexually transmitted infection
  - Men who have sex with men
  - Injection drug users

Source: CDC, 2016w.

Because HIV and HBV have a common route of transmission, patients with HIV infection are at greater risk for HBV infection. Routine screening for hepatitis surface antigen (HBsAG) and immunization are recommended for all HIV-infected patients to prevent primary HBV infection; however, the immune response to HBV vaccine is lower in those with HIV infection than in uninfected persons, and postvaccination testing should be done to document immunity. All persons with HBV/HIV coinfection should also be assessed for hepatitis A virus immunity and vaccinated if negative.

Before initiating antiretroviral therapy for HIV, all patients who test positive for hepatitis B surface antigen should be tested for HBV DNA using a quantitative assay to determine the level of HBV replication.

**Risk factors for HBV** include:

- Being born in areas with a high prevalence of HBV (China, Southeast Asia, Africa, the Pacific Islands, the Middle East, South America, and Alaska)
- Sharing injection paraphernalia



- Having sexual intercourse with an infected person or with multiple partners
- Men having sex with men
- Occupational exposures that involve contact with blood or body fluids, such as in a healthcare setting, prison, or home for the developmentally disabled
- Sharing personal care items such as razors or toothbrushes with an infected person
- Being on kidney dialysis
- Getting a tattoo or body piercing with equipment contaminated with the blood of someone infected with HBV

There are no medications available for recently acquired (acute) HBV infection. For most patients with acute HBV infection, treatment is mainly supportive. Few studies have addressed the role of antiviral therapy during acute infection. There are, however, antiviral drugs available for the treatment of chronic HBV infection, but they are not always effective (Lok, 2017).

### ***Hepatitis C***

Hepatitis C is the most common chronic bloodborne infection in the United States and a leading cause of chronic liver disease. HCV was discovered in the late 1980s, although it was probably being spread for decades prior to that. People infected with HCV may have no symptoms for decades. When symptoms do appear, they are similar to those of HBV.

The CDC (2016w) reports an estimated 30,500 new HCV infections in 2014. Mortality is increasing among HCV-infected persons (primarily adults aged 55 to 64 years), exceeding the number of HIV/AIDS-related deaths. It is estimated there are 3.5 million people living with HCV infection in the United States, and of these, about 75% were born from 1945 to 1965 and may have become infected in the 1960s through 1980s, when HCV transmission was highest. The reason for this is not completely understood, but it is believed they might have become infected from:

- Medical equipment or procedures before Universal Precautions and infection control procedures were adopted
- Contaminated blood and blood products before widespread screening
- Sharing needles or equipment to prepare or inject drugs

Increased rates of cirrhosis in patients with HCV are due to various factors, including older age, alcoholism, male sex, and HIV infection. HCV and HIV coinfection can have significant consequences, including increased liver disease progression, cirrhosis, increased rates of end-stage liver disease, and shortened lifespan after hepatic decompensation.



Patients with HIV infection should be screened for HCV using sensitive immunoassays. To confirm the presence of chronic infection, they should then be tested for HCV RNA using a qualitative or quantitative assay.

Testing for HCV is available through healthcare providers and some community agencies such as health departments, syringe exchange services, and hepatitis support organizations. A home-based test kit is also available from pharmacies.

Drug-induced liver injury following antiretroviral hepatitis therapy is more common in HIV/HCV coinfection. It is important to monitor liver enzymes at one month and then every three months after initiation. Treating both HCV and HIV can be complicated by drug interactions, drug toxicities, and pill burden. Many of the newer anti-HCV drugs have significant interactions with HIV antiretroviral agents (CDC, 2016w).

## Health Management Guidelines for HIV-Infected Persons

The HIV Medicine Association of the Infectious Diseases Society of America recommends the following primary care guidelines:

- Comprehensive history, physical, and review of systems
- HIV tests
  - Serologic test
  - CD4+ cell counts and percentages every three to four months
  - Viral load every three to four months
  - Plasma HIV RNA levels
  - HIV resistance testing
- Laboratory tests
  - Routine complete blood count and chemistry panel
  - Glucose-6-phosphate dehydrogenase
  - Fasting lipid panel
  - Urinalysis and creatinine clearance
- Coinfection and comorbidity screening
  - Tuberculosis (follow-up chest X-ray if positive PPD) repeated periodically
  - *Toxoplasma gondii*
  - Viral hepatitis
  - Herpes viruses
  - Cytomegalovirus
  - Syphilis (RPR or VDRL)
  - Other STIs



- Cervical cancer
- Anal human papillomavirus
- Breast cancer  
(Aberg et al., 2013)
- Vaccine recommendations
  - Pneumococcal infection
  - Influenza annually
  - Tetanus, diphtheria, pertussis with tetanus booster every 10 years
  - Varicella
  - Hepatitis A and B
  - Human papilloma virus (HPV) in both males and females
  - Meningococcal
  - Measles, mumps, rubella
  - Primary varicella
  - Zoster  
(CDC, 2017b)

## LEGAL AND ETHICAL ISSUES

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**Upon completion of this section, you will be able to explain confidentiality and legal reporting requirements in Washington State for HIV/AIDS.**

### Legal Reporting Requirements

AIDS and HIV infection are reportable conditions in Washington State. Medically diagnosed AIDS has been a reportable condition since 1984. Symptomatic HIV was designated as a reportable condition in 1993, and in 1999 asymptomatic HIV infection also became reportable.

Reporting of HIV and AIDS cases assists local and state health officials in tracking the epidemic. The statistics also allow for more effective planning and intervention services to prevent further transmission of HIV and reduce the burden of this disease.

Providers who diagnose an individual with AIDS must submit a confidential case report to the local health jurisdiction within three days. Providers who receive notice of an individual's positive HIV test must report this information, including the individual's name, to the local health jurisdiction within three days. In some local health jurisdictions, the state Department of Health fulfills this function for local authorities.

Positive HIV results obtained through anonymous testing are **not** reportable until the patient seeks medical care for conditions related to HIV or AIDS. At that time, the provider is required to report the case to the local health department.





## Confidentiality

Confidentiality is a paramount concern for people with HIV/AIDS. 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 HIV/AIDS. Workplace, housing, and insurance discrimination have been (and, in some areas, continue to be) barriers to disclosure of HIV status and seeking treatment.

All medical records are confidential and must be maintained in a manner that protects that confidentiality, using an approach consistent with Washington law and, if applicable, the Privacy and Security Rules promulgated by the federal government in the Health Insurance Portability and Accountability Act (HIPAA). Client information must be kept strictly confidential, and records should be managed and stored in a secure manner.

Confidential information includes any material, whether oral or recorded in any form or medium, that identifies (or can readily be associated with the identity of) a person and is directly related to their health and care. All information related to an individual's HIV/AIDS status is protected under medical confidentiality guidelines and legal regulations. Recognizing the sensitive nature of these conditions, medical record protection for HIV and AIDS, like those for substance abuse and mental health, are protected more rigorously than other medical information.

In Washington State confidentiality of medical information means that any information that can be related to a specific patient may not be disclosed to **anyone** except under specific circumstances. This usually means that the individual signs a release-of-information form, but there are exceptions. The most common circumstances permitting disclosure of confidential patient information are:

- Existence of a separate, signed release-of-information form
- Release to another healthcare provider for related ongoing medical care
- A life-or-death emergency
- Release to a third-party payer (insurance provider)
- Reporting notifiable conditions to the local health jurisdiction or the Department of Health

In Washington State, anyone who violates these confidentiality laws may be found guilty of a misdemeanor and may face civil liability for reckless or intentional disclosure of up to \$10,000 or actual damages, whichever is greater. The county health officer has the responsibility to investigate potential breaches of confidentiality of HIV-identifying information and report those breaches to the Department of Health.



## Consent

(See above under “Washington State Postexposure Requirements” and “Testing Recommendations” for information on legal requirements pertaining to HIV testing.)

## Disability and Discrimination

People with HIV/AIDS are protected by federal law under the Americans with Disability Act (1990) and Section 504 of the Federal Rehabilitation Act of 1973, as amended. The Washington Law Against Discrimination regulates “disabled” status. These laws make it illegal to discriminate against someone with AIDS or who has HIV or hepatitis C infection. It is also illegal to discriminate against someone “believed” to have HIV/AIDS, even though that person is not infected. The areas encompassed in the laws include:

- Employment (see below for details)
- Rental, purchase, or sale of apartment, house, or other real estate
- Public places (restaurants, theaters)
- Healthcare, 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.)

## Employment Discrimination

Laws protect people diagnosed with HIV/AIDS from employment discrimination, including:

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



## WORK ENVIRONMENT

Employers are required to provide and maintain a working environment free of discrimination. They must ensure that no harassment, intimidation, or personnel distinction is made in terms and conditions of employment. If a worksite situation poses the threat of discrimination, the employer is required to educate and supervise employees to end the harassment and any use of slurs and/or intimidation. An employer should promptly investigate allegations of discrimination, take appropriate action, and not retaliate against the person who complained.

Employers are responsible for providing reasonable worksite accommodations that will enable a qualified employee or job applicant with a disability to perform the essential tasks of a particular job. Reasonable accommodation means relatively inexpensive and minimal modifications 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.

## EMPLOYEE GRIEVANCES

Employees who feel they are being discriminated against 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 file an internal grievance process. If these remedies do not work, the employee should contact the federal Office for Civil Rights, U.S. Department of Health and Human Services, or the Washington State Human Rights Commission. An aggrieved person can also file directly in state court; a complaint must be filed within 180 days of the alleged discriminatory incident.

### EMPLOYER BEST PRACTICES

Employers do not have the right to potentially prejudicial information about an employee or an applicant. This means that the employer should use the following best practices:



- Not ask an applicant or an employee questions directed at the perception or presence of HIV/AIDS, unless based on a bona fide occupational qualification (BFOQ), which can be obtained from the Washington State Human Rights Commission
- Not require a blood test to determine HIV infection, unless HIV status limits the ability to perform the work (e.g., overseas assignment in a country that requires HIV status certification)
- Not require a physical exam directed to identify HIV infection, except for exams necessary to evaluate the need for, or nature of, reasonable accommodation or specific job-related conditions
- Not ask questions about lifestyle, living arrangements, or sexual orientation

## Protecting Public Health

Washington State law and rules give state and local health officers the authority and responsibility to carry out certain measures to protect public health from the spread of sexually transmitted infections (STIs), including HIV/AIDS.

The local health officer is the physician who directs the operations of the local county's health department or health district. The responsibilities of the health officer include the authority to:

- Interview persons infected with an STI
- 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 health of others

Court enforcement may be necessary. State law specifies the standards that must be met before the health officer may take action.

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

Knowingly transmitting HIV/AIDS is a Class A felony in Washington, punishable by life imprisonment and a fine of up to \$50,000.

Washington State law requires that healthcare professionals offer instruction on infection control measures to any patient diagnosed with a communicable disease. Providers are also required to report to the local health officer any impediments or refusal to comply with prescribed infection control measures.



For example, if a healthcare professional knows that a specific patient is failing to comply with infection control measures (failing to disclose HIV status to sexual or needle-sharing partners or selling HIV-infected blood), that professional should contact the local health officer to discuss the case and determine if the name of the person should be reported for investigation and follow-up.

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

There are other laws and regulations concerning endangering the public health and occupational exposures that may be specific to certain professions and to the jurisdictions of public health officers. The Washington State AIDS Hotline can provide additional information (*see “Resources” at the end of this course*).

## PSYCHOSOCIAL ISSUES

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**Upon completion of this section, you will be able to summarize the psychosocial issues associated with HIV/AIDS.**

### **Personal Impact of HIV/AIDS**

People living with HIV have very specific psychosocial issues they must deal with. How the individual infected with HIV responds to these issues can impact their immune system and their quality of life. These issues may include:

- Loss and grief
- Depression
- Stigma and discrimination
- Anxiety
- Altered body image
- Anger
- Suicide

### **LOSS AND GRIEF**

Individuals who are infected with HIV face loss on many levels, but the loss of a desired future and specter of premature death is a particularly major challenge. They face a future of unpredictable cycles of illness and wellness and ultimately deteriorating health and function. They may become angry and depressed. The fortunate ones have families and friends who share the experience and offer support as needed. For those without a support system, the challenges can seem insurmountable.



Living with HIV/AIDS involves **loss** of many kinds, including loss of:

- Physical strength and abilities, sometimes including vision
- Mental acuity (confusion/dementia)
- Income and savings
- Health insurance
- Employment
- Housing and personal possessions (including pets)
- Emotional support from family, friends, colleagues, and religious and social institutions
- Self-sufficiency and privacy
- Social contacts/roles
- Self-esteem

**Grief**—the normal response to loss—is universal, individual, and unpredictable. Although Elizabeth Kübler-Ross and others have described stages of grief, each person experiences these stages in a different order and at a different pace, depending on their values, cultural norms, and circumstances.

In uncomplicated grief, an individual is able to move through the stages and emerge from the process ready to move on with life. In complicated grief (also called *chronic grief*), the normal process of grieving is prolonged. Complicated grief often results from multiple losses that leave too little time and emotional energy to reintegrate and move on, and can lead to feelings of guilt, helplessness, hopelessness, withdrawal, isolation, rage, and emotional numbness.

People who live or work with the HIV/AIDS community for several years may themselves experience chronic grief from the seemingly endless repetition of deaths, funerals, and lost friends.

HIV-infected individuals may live for 10 or more years before symptoms develop. For those who know they are infected, a decade of uncertainty can be unsettling, even overwhelming. Despite more effective treatment, most people with HIV still die prematurely. Many are in the prime of life, which makes it more difficult to deal with the diagnosis of a fatal disease.

## DEPRESSION

Comorbid major depression is common with HIV disease and hinders effective treatment. Depression can be immobilizing and interfere with adherence to the treatment regimen, leading indirectly to drug resistance and poor management of the disease. Rates of depression among people living with HIV/AIDS are high, and among HIV-infected persons receiving treatment, it is about three times that of the general population (Pieper & Treisman, 2015).



Symptoms of depression include:

- Feeling sad, anxious, or “empty” most of the day, almost every day
- Lack of interest or pleasure in almost all activities, including sex
- Changes in appetite and/or weight
- Altered sleep patterns
- Changes in physical activity, ranging from slowing down to agitation or hyperactivity
- Feelings of worthlessness or excessive guilt
- Inability to concentrate or make decisions
- Recurrent thoughts of death or suicide, or suicide attempts

Depression is treated with both antidepressant medications and psychotherapy. Recognizing the symptoms of depression and referring patients for appropriate treatment may greatly improve their quality of life.

## **STIGMA AND DISCRIMINATION**

Around the world and in many areas of the United States, homosexuality and use of illegal drugs carry an indelible stigma and lead to social and employment discrimination. HIV-related stigma is a psychological and social process in which HIV-positive individuals struggle to cope with the misperceptions, social separation, denigration, and discriminatory actions associated with their status.

Stigma can prevent people infected with HIV from seeking out and obtaining counseling, medical care, and psychological care. When they do seek out care, they may also face HIV-related stigma in healthcare environments. Healthcare providers may be knowledgeable about HIV, but underlying prejudice may remain and can contribute to discriminatory behaviors such as demonstrating fear of transmission through the provision of care (Chambers et al., 2015).

Confidentiality violations may occur with such institutional practices as labeling patient’s records or lab work, infection control markings, warning labels on blood or urine tests, or labels on medications. These could potentially disclose one’s HIV status, particularly in places where these markings are publically displayed, thus violating patient confidentiality.

## **ANXIETY**

People living with HIV tend to experience more anxiety than the general population. Adjustment disorder is common after receiving an HIV diagnosis. Anxiety can cause physical symptoms such as shortness of breath, chest pain, racing heart, dizziness, numbness or tingling, nausea, or a sensation of choking. Anxiety disorders are a major cause of nonadherence to medication.



## ALTERED BODY IMAGE

HIV/AIDS can cause dramatic changes in a person's appearance, including severe weight loss and a wasted appearance. Concurrent infections and malignancies, as well as some of the treatments, can cause major alterations in body image.

Abnormalities in fat distribution and body shape is apparent in up to 40% to 50% of those treated with older antiretroviral medications (those available before the early 2000s). Those drugs led to lipodystrophy (redistribution of body fat). There are two types of lipodystrophy: fat wasting and fat accumulation. A person with fat wasting (also called *lipoatrophy*) loses fat from particular areas of the body, especially the arms, legs, face, and buttocks. Someone with fat accumulation (also called *hyperadiposity*) experiences fat build-up, especially in the belly, breasts, and back of the neck.

The incidence of lipoatrophy seems to be much lower with the use of the newer medications and with earlier initiation of ART, but it remains unclear whether hyperadiposity is less common (AETC, 2016).

## ANGER

People with HIV/AIDS may feel angry with themselves for contracting the disease as well as anger at the person who transmitted it. Their once-normal lives are now organized around medication schedules, medical appointments, and dealing with side effects such as intractable diarrhea and nausea. Expensive medications can create financial hardship, even for those with health insurance.

## SUICIDE

Transient suicidal thoughts are common for some people throughout the course of HIV disease and often do not indicate a significant risk of suicide. However, persistent suicidal thoughts with associated feelings of hopelessness and intent to die are serious, requiring prompt assessment. Compared with people at high risk of suicide who are not HIV-infected, people living with HIV have significantly increased frequency and severity of both suicidal ideation and thoughts of death. The risk for suicide is even higher for patients who have comorbid depression.

Research has shown that people diagnosed with hepatitis, HIV/AIDS, and other infections have higher chances of committing suicide. This may be due to events related to the psychosocial issues surrounding the diagnosis, and may also involve the physiologic changes in the brain caused by the chronic inflammation resulting from HIV infection (Brundin & Grit, 2016).

## Issues for Care Providers and Families

The psychological suffering and grief experienced by people with HIV/AIDS is also shared by family members, friends, caregivers, and partners. These feelings may manifest as physical symptoms, clinical depression, hypochondria, anxiety, insomnia, and the inability to derive





pleasure from normal daily activities. Coping with these issues may lead to self-destructive behaviors such as alcohol or drug abuse.

Caregivers often mirror the feelings of their patients, such as a sense of vulnerability, helplessness, or isolation. Access to a support system, including a qualified counselor, can be as important for the caregiver as for the patient. Support from coworkers is also especially important.

### **RECOMMENDATIONS FOR CAREGIVER SUPPORT**

- Be available to the person for open, honest conversations about HIV.
- Reassure the person that their HIV status does not change your relationship.
- Listen and offer support while reassuring the person that HIV is a manageable health condition.
- Educate yourself about HIV and how people can stay healthy while living with HIV.
- Encourage treatment by helping the person find an HIV care provider.
- Support medication adherence; ask how you can support the person in establishing a medication routine and sticking to it.
- Get support for yourself as a caregiver if you need it.
- Speak out to correct myths and stereotypes when you encounter them to help reduce stigma.
- Connect with other caregivers through a local HIV/AIDS service organization or through social media for support.
- Obtain counseling to discuss your own experiences and feelings.
- Set realistic limits for yourself in caregiving time and responsibility and stick to those limits.
- Ask questions of healthcare providers to better understand what is necessary in a particular instance or setting.

#### **If employed as a healthcare worker:**

- Talk with your employer about ways to reduce stress and the risk of burnout while working with this population.
- Do not continue to work in an area where you “can’t cope.”
- Remember that Standard Precautions are for the patient’s health as well as your own.
- Seek out support from professionals and other peers as necessary to maintain effectiveness and morale as a caregiver.

Source: USDHHS, 2016h.



## Issues Affecting Special Populations

HIV/AIDS takes a heavy toll on all ethnicities, genders, ages, and income levels. However, some populations have been uniquely affected by the epidemic. Some of these populations include men who have sex with men, people who use injection drugs, people with hemophilia, women, and people of color.

### MEN WHO HAVE SEX WITH MEN

A diagnosis of HIV/AIDS adds another layer of social pressure and stress for MSM. Failure of family, friends, or coworkers to accept and support the person with HIV/AIDS can evoke painful guilt about the disease, about past behaviors, or about possibly having infected someone else. The need to practice safer sex can also affect self-esteem and self-image.

Although there have been rapid changes in American society concerning issues of homosexuality, there remains no guarantee of acceptance by all members of society. Stigma and discrimination may still contribute to reluctance on the part of these patients to obtain HIV testing and medical care.

Some religious groups see the epidemic as divine retribution for “unacceptable” and “unnatural” behavior. Many men with HIV/AIDS report lack of support from their church communities because of the stigma attached to homosexuality.

Societal attitudes toward MSM have made it more difficult to live and die with HIV/AIDS. Self-esteem and other psychological issues related to HIV infections complicate the lives of MSM. Grief and loss are not always validated when relationships are judged “unacceptable.”

Over time, MSM people can become “fatigued” with safer sex messages and give less attention to taking precautions against HIV infection. It is also sometime difficult to reach men who do not identify as being “gay” with prevention efforts. Bisexual men may have the same challenges as homosexual men but may lack social and community resources (WADOH, 2014b).

### PEOPLE WHO USE INJECTION DRUGS

People who use injection drugs often are seen as “deserving” their infection rather than deserving treatment for their addiction. Successful efforts to prevent the spread of HIV/AIDS, HBV, and HCV among these individuals, such as syringe exchange programs, may be opposed in some areas because some people equate these programs with approval of drug use.

Many people who use injection drugs also have mental health and self-esteem issues and often are homeless and live in poverty. They may wish to stop using illegal drugs but lack the ability to stop and/or do not have access to inpatient treatment facilities. Waiting lists for treatment programs are long, and by the time a space is available, the individual may be lost to follow-up.



## PEOPLE WITH HEMOPHILIA

During the 1980s, 90% of people with severe hemophilia were infected by HIV and/or HCV through the injection of clotting factor concentrates used to treat their condition. This created understandable anger among the affected community, in part because evidence indicated that the manufacturer of the concentrates knew the dangers of contamination but continued to distribute them anyhow (McHenry & Khosnood, 2014).

Although considered by some to be innocent victims of HIV/AIDS, people with hemophilia have not escaped discrimination. The Ryan White Care Act, which funds HIV/AIDS services, and the Ricky Ray Act, which provides compensation to hemophiliacs infected with HIV, were named for HIV-positive boys with hemophilia who suffered serious discrimination (arson, refusal of admittance to grade school) before they died of AIDS.

## WOMEN

In the United States, a quarter of all people living with HIV are women. Many women become infected by a partner who uses injecting drugs or has had other sexual partners. Women may assume that the relationship they are involved in is monogamous or that they know their partner's history.

Taking care of others' needs—children or other family members—often prevents women with HIV/AIDS from taking care of themselves. Postponing medications or missing medical appointments may also be due to financial or transportation problems. Infection with HIV/AIDS may not seem to be a woman's most serious problem. Income, housing, access to healthcare, and concerns about her children may seem more urgent and important, especially when HIV/AIDS symptoms are mild and manageable. Single mothers are especially vulnerable because they lack adequate financial and emotional support.

Gender issues such as sexual passivity and naivety limit the ability of some women to seek sexual health and HIV information or to be proactive about reducing their risk. Hierarchical, personal, and social relations of power between men and women increase women's vulnerability, making them less able to act in their own best interest to protect themselves from HIV infection. In some societies evidence of virginity before marriage is expected, and this may lead women to engage in high-risk behaviors such as anal sex.

Older women with HIV/AIDS face complex challenges in addition to the common chronic health problems of this group—osteoporosis, high cholesterol, high blood pressure, obesity, and heart disease. Many of the antiretroviral drugs can exacerbate these conditions.

## PEOPLE OF COLOR

African Americans and Hispanics have disproportionately higher rates of HIV/AIDS in the United States. There are no biologic reasons for these disparities in incidence and no single reason why these disparities exist, but there are a number of contributing factors, including:



- Health disparities linked to socioeconomic conditions
- Distrust of the healthcare system based on historical abuses of people of color
- Difficulty communicating health information in culturally appropriate ways to diverse communities
- Diversity within the population, such as immigrant status, religion, languages, geographic location, and socioeconomic conditions
- Denial about HIV risk due to stigma about the disease and its connection to homosexuality and drug use

Prevention messages need to be culturally appropriate and relevant and they must be delivered through channels appropriate to individual communities. These channels may include religious institutions and respected elders in the community. Ironically, some of these same institutions or elders may have contributed to the misinformation and stigma associated with HIV/AIDS.

## CONCLUSION

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The AIDS epidemic began more than thirty years ago. Since then, the AIDS epidemic has claimed the lives of more than 35 million people around the globe, 675,000 of them in the United States. More than a million people are living with HIV/AIDS in the United States, and every year another 50,000 Americans are infected with HIV.

The older generation of Americans may be familiar with the disease and its history, but today's younger people, having been born after the disease became controllable in the United States, may have limited awareness of it, and the public no longer has a sense of urgency or importance about AIDS.

The history of HIV/AIDS is complex and continues to evolve, and the historical impact of HIV/AIDS is closely tied to the public's attitude toward the populations first affected. In the 1970s the American Psychiatric Association classified homosexuality as a psychological disorder, curable with psychotherapy, and because AIDS first appeared in gay men and injection drug users, it was stigmatized by many and seen as punishment by others. Among the religious community many considered AIDS as a moral issue and influenced policy to assure needle exchange programs were not funded by the government and that sex education classes in public schools taught abstinence rather than condom use as the way to prevent the disease.

In the medical field, research has produced drugs that slow but do not stop the disease, and the cost of these drugs has tripled during the past 10 years. No vaccine has proved effective in preventing HIV. So the epidemic continues to spread, primarily among those high-risk persons living in disadvantaged and marginalized groups: the poor, people of color, people in prison, injection drug users, and men who have sex with men. Many do not realize they are infected and unknowingly transmit the virus to others.



The key to controlling this epidemic is prevention. Since most HIV infection is the result of sexual transmission, the most important prevention method is to refrain from having unprotected sexual intercourse—vaginal, anal, or oral—unless it takes place within a monogamous relationship. The CDC recommends using latex condoms consistently and correctly and, when considering a sexual relationship, avoiding any type of sexual contact with someone you do not know, is known to have had several sexual partners, or regularly uses syringes to inject drugs. Secondly, HIV is spread among injection drug users by the sharing of needles. Education and intervention must extend to these individuals to discourage the sharing of any type of drug paraphernalia.

It must be emphasized that individuals should learn their HIV status through routine testing, and efforts should continue to increase the numbers of individuals undergoing testing.

It is well documented that antiretroviral treatment improves the health and prolongs the lives of people with HIV as well as reduces the risk of sexual transmission to others. However, only two thirds of persons with HIV are under treatment, and less than one third of HIV-infected individuals in the United States have suppressed viral loads, mostly as a result of undiagnosed HIV infection and failure to connect with or retain diagnosed patients into care. It is essential to develop strategies to increase the number of persons receiving treatment and to increase ways to maintain good adherence over the long term.

Ignorance, prejudice, and lack of access to healthcare continue to fuel the epidemic. Therefore, health professionals have a critical role in screening and in educating patients, families, and communities about prevention. Only by making prevention a priority will we achieve the goals of the National AIDS Strategy to reduce infection rates; increase access to care for those infected; and eliminate disparities in prevalence, diagnosis, and treatment.



## RESOURCES

AIDSinfo (U.S. DHHS)  
<https://aidsinfo.nih.gov>

Emergency Contraception Hotline  
<http://www.not-2-late.com>  
888-NOT-2-LATE or 888-668-2528

HIV/AIDS (CDC)  
<https://www.cdc.gov/hiv/>

HIV.gov  
<https://www.HIV.gov>

HIV and AIDS (Office on Women's Health)  
<https://www.womenshealth.gov/hiv-and-aids/>



Hotlines and referrals  
<https://www.cdc.gov/hiv/library/hotlines.html>

National HIV/AIDS Strategy  
<https://www.aids.gov/federal-resources/national-hiv-aids-strategy/overview/>

Selected EPA-registered disinfectants  
<https://www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants>

### Washington State Resources

AIDS Hotline (WA DOH)  
(800) 272-2437

Discrimination in the workplace (WA L&I)  
<http://www.lni.wa.gov/WorkplaceRights/ComplainDiscrim/Discrim/default.asp>

HIV/STD program (King County)  
<http://www.kingcounty.gov/depts/health/communicable-diseases/hiv-std.aspx>

*KNOW: An HIV and AIDS Curriculum Manual (7th Edition)* (WA DOH)  
<http://www.doh.wa.gov/portals/1/Documents/Pubs/410-007-KNOWCurriculum.pdf>

Department of Labor and Industries (WA L&I)  
<http://lni.wa.gov>

Lifelong AIDS Alliance  
<http://lifelongaidsalliance.org>

Medical HIV case management (WA DOH Health Client Services)  
<http://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/HIVAIDS/HIVCareClientServices/CaseManagement>

Occupational exposure to bloodborne pathogens, postexposure requirements (WA State Legislature)  
<http://apps.leg.wa.gov/WAC/default.aspx?cite=296-823-160>

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## TEST

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1. Which is a **correct** statement about infection with HIV?
  - a. Being infected with HIV is the same thing as having AIDS.
  - b. The body's immune system cannot destroy HIV.
  - c. The virus invades host cells called virions.
  - d. HIV-1 infection does not occur in the United States.
  
2. The key component of the immune system that HIV attacks is the:
  - a. B cell.
  - b. T cell.
  - c. NK cell.
  - d. T8 cell.
  
3. The rate of HIV diagnosis is highest in which region of the United States?
  - a. Midwest
  - b. West coast
  - c. South
  - d. Northeast
  
4. In Washington State, what was the average number of new HIV infections reported per year from 2010 to 2014?
  - a. 301
  - b. 492
  - c. 917
  - d. 2,596
  
5. Which population group is **most** affected by HIV in the United States?
  - a. Gay and bisexual men
  - b. Black/African American women
  - c. Individuals with multiple sex partners
  - d. Adults between the ages of 18 and 21



6. Which is a **correct** statement about populations at risk for HIV?
- a. Globally, HIV remains the leading cause of death among women of reproductive age.
  - b. African-Americans are the racial/ethnic group least affected by HIV in the United States.
  - c. Most male inmates with HIV acquired it while they were incarcerated.
  - d. Among commercial sex workers, those who engage in sex regularly as a source of income have the lowest risk of acquiring HIV.
7. Which body fluid has been proven to transmit HIV infection?
- a. Saliva
  - b. Urine
  - c. Breast milk
  - d. Sweat
8. In the United States, which route of transmission is **currently** more likely to cause HIV infection?
- a. Blood used for transfusion
  - b. Shared needles and syringes
  - c. Casual contact with an infected patient
  - d. Tattooing and body piercing
9. Which is a **true** statement about HIV and sexually transmitted infections (STIs)?
- a. Having an STI is not a risk factor for transmitting HIV.
  - b. Having an STI facilitates access of HIV to target cells under the epithelial surface.
  - c. HIV is not commonly linked to syphilis.
  - d. Persons infected with the herpes virus are eight times more likely to become infected with HIV.
10. Safer sex practices to reduce the risk of HIV infection include using:
- a. Latex condoms.
  - b. Shared sex toys.
  - c. Natural-membrane condoms or “skins.”
  - d. Universal Precautions.



- 11.** Which is a **true** statement about biomedical prevention interventions?
- Postexposure prophylaxis (PEP) is 100% effective.
  - PEP must begin seven days postexposure and continue for one year.
  - There is no evidence of any benefits for the use of HIV treatment as a prevention method.
  - Preexposure prophylaxis (PrEP) can prevent infections among those at greatest risk.
- 12.** Which work situation poses the **highest risk** for occupational exposure to HIV?
- Working as a plumber at the university medical center
  - Working as a diabetes nurse educator in the endocrine clinic
  - Working as a home-care nurse, specializing in infusion therapy
  - Working as a nursing assistant in the surgical intensive care unit
- 13.** An Exposure Control Plan requires that the employer:
- Decrease the risk of exposure to infectious disease to zero.
  - Identify individuals who have been exposed and report to the CDC database.
  - Fit all employees with full-body protective gear to meet potentially hazardous conditions.
  - Establish a procedure for evaluating the circumstances surrounding exposure incidents.
- 14.** To comply with Standard Precautions, healthcare practitioners should wear gloves:
- From the moment of arrival until the moment of departure from the workplace.
  - When touching the mucous membranes of a patient.
  - While charting if an infected patient is present in the room.
  - When using the restroom.
- 15.** What is the appropriate action for contaminated laundry disposal?
- Placing it in the nearest laundry hamper as quickly as possible
  - At its point of use location, placing it in a labeled or color-coded bag
  - Rinsing any blood-spotted laundry before putting it in the laundry
  - Removing the laundry from the patient's room before placing it in labeled bags
- 16.** After exposure to the blood of a patient, a healthcare professional should **immediately**:
- Contact the National Clinicians' Post-Exposure Prophylaxis Hotline (PEpline).
  - Use disability leave until infection has been ruled out.
  - Remove and properly dispose of exposed clothing.
  - Wash the affected area with soap and water.





- 17.** Postexposure prophylaxis (PEP) for a needlestick injury should begin within:
- 1 to 2 months after exposure.
  - 7 days after exposure.
  - 48 hours after exposure.
  - 72 hours after exposure.
- 18.** CDC recommendations for routine, voluntary HIV screening include:
- Requiring written consent specifically for HIV testing.
  - Screening high-risk persons at least every three years.
  - Requiring prevention counseling with all HIV diagnostic tests.
  - Performing testing without written consent unless the patient declines.
- 19.** According to Washington State law, a victim of sexual assault may learn the assailant's HIV status when the:
- Survivor sustains physical injuries caused by the assault.
  - Sexual assault survivor is a minor.
  - Assailant is a convicted sex offender.
  - Suspected assailant is first found and arrested.
- 20.** Children are at higher risk for HIV transmission resulting from sexual assault because:
- Children become infected more easily due to their immature immune systems.
  - Child sexual abuse is often associated with multiple episodes of assault and mucosal trauma.
  - People who abuse children are more likely to have STIs and be HIV-positive.
  - Postexposure prophylaxis (PEP) is not as effective for children.
- 21.** Patients receiving indeterminate HIV test results should:
- Retest using a blood specimen collected in one month.
  - Retest using a urine specimen eight weeks after the initial test.
  - Retest using a saliva specimen six months after the initial test.
  - Be reassured that further testing is unnecessary.

- 22.** Which is a **true** statement regarding partner notification in cases of patients with known HIV infection?
- a. The federal government requires states to notify all partners of HIV-infected individuals.
  - b. In Washington State, public health officials or healthcare providers may notify partners.
  - c. Washington State requires public health officials to disclose an infected person's identity to his or her partners.
  - d. Only spouses of patients with known HIV infection are notified in Washington State.
- 23.** The clinical stage of HIV infection in which seroconversion occurs is called:
- a. Acute infection.
  - b. Early-stage AIDS.
  - c. Clinical latency.
  - d. Middle-stage AIDS.
- 24.** Which is considered an AIDS-defining condition in a person infected with HIV?
- a. Colorectal cancer
  - b. Non-Hodgkin's lymphoma
  - c. Tuberculosis
  - d. Anal cancer
- 25.** Multisystem effects of HIV/AIDS are the result of:
- a. AIDS-defining conditions.
  - b. HIV-related cancers.
  - c. Metabolic syndrome.
  - d. Chronic inflammation.
- 26.** Antiretroviral therapy (ART) is recommended for patients with HIV infection:
- a. Once they have reached the acute stage of infection.
  - b. When they have received an AIDS diagnosis.
  - c. No matter how long they have had the virus.
  - d. Only during the latency period.

- 27.** A primary goal of antiretroviral therapy is to:
- Treat opportunistic infections.
  - Lower CD4<sup>+</sup> counts.
  - Reduce the long-term cost of HIV treatment.
  - Maximally and durably suppress the HIV viral load.
- 28.** Which is a **correct** statement about adolescents and ART?
- They have lower rates of viral rebound following initial viral suppression.
  - They have significantly higher levels of adherence to treatment when compared to adults.
  - They benefit from a multidisciplinary team providing psychosocial and adherence support.
  - They have very few barriers to treatment and adherence.
- 29.** Which is **not** a common or serious side effect of antiretroviral therapy?
- Kidney damage
  - Bone marrow suppression
  - Diabetes mellitus
  - Depressed creatine phosphokinase
- 30.** Experts recommend that pretreatment drug resistance testing be conducted to:
- Determine reproductive status.
  - Better predict viral response to newly initiated therapy.
  - Identify treatment success.
  - Help patients comply with a complex treatment regimen.
- 31.** Globally, the most common cause of death among patients with HIV/AIDS is:
- Syphilis.
  - Hepatitis B.
  - Chlamydia.
  - Tuberculosis.
- 32.** Which is a **true** statement regarding HIV/TB coinfection?
- Treatment of HIV/TB involves a 6- or 9-month multidrug regimen.
  - TB is not a common coexisting infection for patients with HIV.
  - Patients with HIV do not need to be tested for TB unless they are symptomatic.
  - Treating coexisting HIV/TB infection requires a simple, once-daily drug regimen.



- 33.** Which is a **true** statement about HIV and hepatitis?
- HIV and hepatitis B virus have different routes of transmission.
  - Persons with HIV infection do not need testing for hepatitis before starting ART.
  - Immune response to hepatitis B vaccine is lower in those with HIV infection.
  - Newer anti-hepatitis C drugs do not have significant interactions with HIV drugs.
- 34.** Violation of confidentiality laws is:
- Investigated by the Department of Homeland Security.
  - A misdemeanor that may result in fines and/or imprisonment.
  - A felony that may result in prison time or large fines.
  - Not a concern for patients with HIV because the public has a right to know who is infected.
- 35.** In Washington State, the first step for an employee who believes that he or she is being discriminated against in the workplace based on a HIV/AIDS diagnosis is to document the discrimination and:
- Speak with their supervisor.
  - Speak with the shop steward or union representative.
  - Contact the Washington State Human Rights Commission.
  - File a complaint in state court within 180 days.
- 36.** Symptoms of depression in patients with HIV include:
- Hallucinations and euphoria.
  - Uncomplicated grief.
  - Excessive interest in sex.
  - Feelings of worthlessness.
- 37.** Which is a **correct** statement about HIV stigma and discrimination?
- Stigma about HIV infection is absent in most areas of today's society.
  - Discrimination against those with HIV/AIDS has been eliminated in the workplace.
  - Prejudice still remains among healthcare providers despite education about HIV.
  - Persons infected with HIV are no longer afraid of seeking medical or psychological care.

- 38.** Which is a **correct** statement about suicide among individuals with HIV/AIDS?
- a. HIV/AIDS is not a significant risk factor for suicide.
  - b. Suicidal ideation and thoughts of death are not significantly increased.
  - c. Risk of suicide is not increased for patients who have comorbid depression.
  - d. Suicide incidence may be related to chronic inflammation caused by HIV infection.
- 39.** Which is a **true** statement regarding special issues that affect specific populations of patients with HIV/AIDS?
- a. In today's society, men who have sex with men are no longer stigmatized in regard to HIV/AIDS.
  - b. African Americans have higher rates of HIV/AIDS due to biologic reasons.
  - c. Patients with HIV/AIDS using injection drugs often face long waiting lists for drug treatment programs.
  - d. Women are empowered by modern societal attitudes to resist high-risk activities such as anal sex.

