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Florida: HIV / AIDS, 3 units (327)

Contact hours: 3

Price: \$29

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This course meets the HIV 3-unit continuing education requirement for most healthcare providers in the State of Florida.

Course Summary

Comprehensive discussion of HIV and AIDS in Florida, including prevalence and incidence, cause and mechanism of HIV infection, basic components of HIV antibody testing and confirmation, infection control in healthcare facilities, prevention of bloodborne pathogens, and clinical management of HIV patients. The course also discusses populations at higher risk for contracting HIV, details prevention strategies, outlines the psychosocial impact of receiving an HIV diagnosis, and describes policies related to testing and informed consent in Florida.

Accreditation Information

Florida Board of Nursing (provider approval #50-10593)

Course Objectives

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

1. Discuss the prevalence and incidence of HIV and AIDS.
2. Identify the 3 mechanisms required for HIV transmission to occur.
3. Outline the basic components of HIV antibody testing.
4. Name 3 infection control practices shown to prevent transmission of HIV.
5. Describe 3 ways to prevent occupational exposure to a bloodborne pathogen.
6. Explain 3 components of an HIV evaluation.
7. Identify 4 special populations that may be at higher risk for HIV infection.
8. Relate 3 components of an effective HIV prevention program.
9. Discuss 3 psychosocial issues associated with HIV and AIDS.
10. Name three components of the Florida Omnibus AIDS Act.

1. Prevalence and Incidence of HIV

In many parts of the world, COVID-19 is colliding with the ongoing HIV epidemic. As the latest UNAIDS report shows, the HIV epidemic remains enormous, unfinished business.

António Guterres, 2020
UN Secretary-General

Human immunodeficiency virus (HIV) is a serious and often fatal disease that is one of the top ten leading causes of death among certain populations. HIV has negatively impacted millions of individuals, families, and communities worldwide since it was first identified forty years ago in the United States. In 2021, the United Nations estimated 38 million people worldwide were living with HIV or AIDS (acquired immune deficiency syndrome), including 36 million adults and 2 million children under 15 years of age (UNAIDS, 2021).



Source: HIV.gov

United States and Worldwide

In 2020, approximately 1.5 million people were newly infected—a decline of 30% compared to 2010. Progress against the disease over the past decades has been promising but uneven, largely due to differences in the availability of services and treatment. Twenty-five countries have seen more than a 50% drop in infections since 2001, including a 42% drop in the Caribbean (UNAIDS, 2021).

HIV TESTING ACROSS THE GLOBE

About **84%** of people with HIV worldwide have been tested and **know their HIV status**.

Testing is the essential **first step** to accessing treatment.



Although worldwide 84% of people have been tested and know their HIV status, about 6 million people remain unaware. Source: HIV.gov.

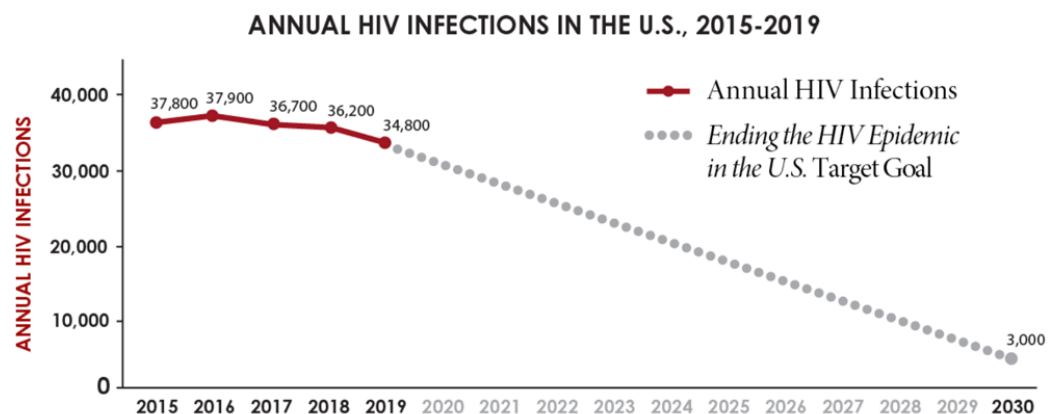
Most new cases are occurring in low-income countries. In 2020, more than half of new cases were in eastern and southern Africa; 13% were in western and central Africa; 15% in Asia and the Pacific; and 6% in western and central Europe and North America (UNAIDS, 2021).

Worldwide, deaths related to AIDS, the final stage of HIV-infection, have decreased by 61% since 2004. In 2020, deaths decreased to approximately 690,000 million (compared to 1.2 million in 2010) (HIV.gov, 2021, June 25). However, **increases** in deaths have

been seen in the regions that experienced an increase in new HIV infections—namely the Middle East, North Africa, Eastern Europe, and Central Asia (UNAIDS, 2021).

In the U.S., the number of **active** cases (prevalence) was 1.2 million in 2021. The number of **new** cases (incidence) in the U.S. has declined by ~8% since 2015 (HIV.gov, 2021, June 2).

NEW HIV INFECTIONS FELL 8% FROM 2015 TO 2019, AFTER A PERIOD OF GENERAL STABILITY



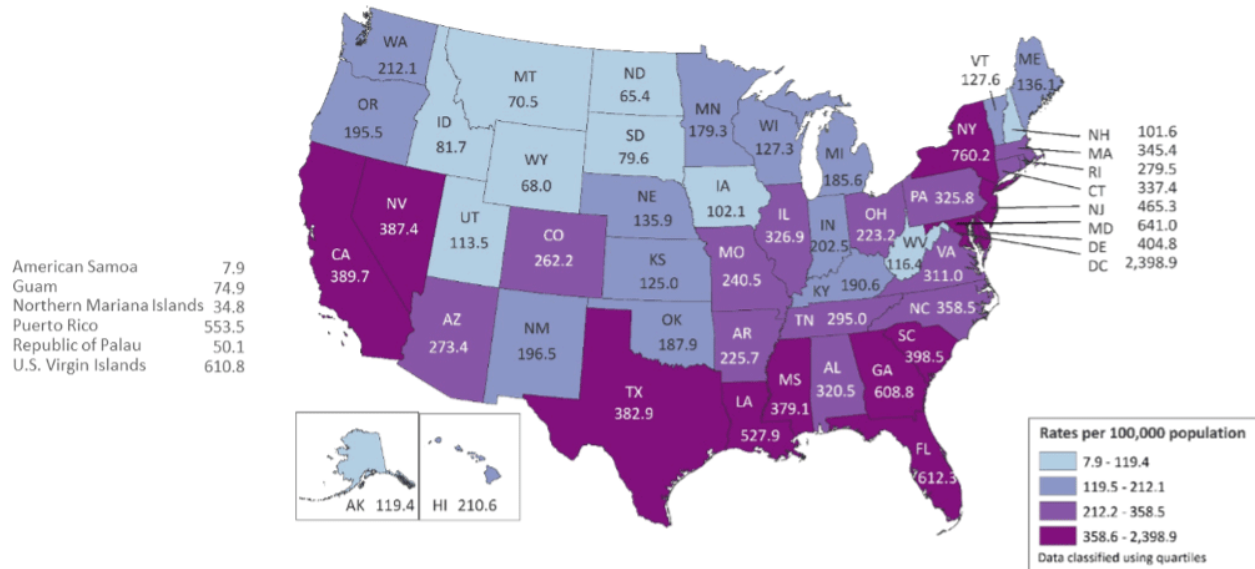
For more information, visit cdc.gov/nchhstp/newsroom



Source: CDC.gov/nchhstp/newsroom, 2021.

In the U.S., HIV cases are not distributed evenly among the states; the highest prevalence and incidence occur in the South and in low socioeconomic areas more concentrated by ethnic groups. The highest rates of infection are in people aged 25 to 34; the rate for males is 5 times the rate for females. In 2019, the largest percentage of HIV infections (81%) occurred in male-to-male sexual contact (CDC, 2019).

Rates of Adults and Adolescents Living with Diagnosed HIV Infection, by Area of Residence, Year-end 2017—United States and 6 Dependent Areas



Although there is no cure for HIV, access to treatment has improved. Worldwide, about three-quarters of people infected with the virus have access to antiretroviral therapy (ART). Roughly 84% of pregnant women with HIV have received ART to prevent neonatal transmission. Of those receiving ART, 66% show viral suppression*. Unfortunately, 10 million people worldwide have barriers to access or are waiting for treatment.

***Viral suppression:** defined as having less than 200 copies of HIV per milliliter of blood. HIV medicine can even make the viral load so low that a test can't detect it. This is called an **undetectable viral load**.

A person with HIV who takes HIV medicine as prescribed and gets and stays virally suppressed or undetectable can stay healthy and has effectively no risk of sexually transmitting HIV to HIV-negative partners.

HIV/AIDS in Florida

Reducing the transmission of HIV is one of the top priorities of the Florida Department of Health. Although more than 4,500 new cases of HIV infection were reported among adults in Florida in 2019, this is a decrease of almost a thousand new cases compared to previous years. More than 115,000 people in Florida are living with HIV, which accounts for ~12.5% of all cases in the United States. Miami has the largest HIV-positive population in Florida (Elflein, 2021).

Cases among Black, Hispanic, and gay men make up 74% of new infections in Florida (O'Donnell, 2021). Although Black men and women represent just 14% of Florida's adult population, they account for 44% of the adult HIV-infection cases and 53% of the adult AIDS cases reported in 2021. The HIV case rate among Black women is 15 times that of white women (FDOH, 2021, October 22).

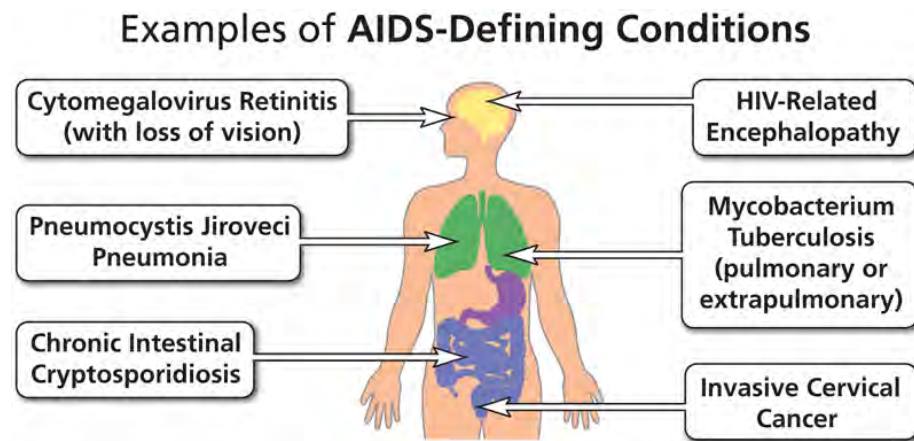
Hispanic people, who comprise 22% of Florida's adult population, account for 23% of HIV cases and 21% of AIDS cases. Throughout the state, since 2018, the rates of infection among Black and Hispanic/Latinx populations have decreased slightly, mirroring a nationwide trend (FDOH, 2021, October 22).

Since the peak year of 1995 there has been a significant decline in deaths of Florida residents due to HIV. This is due to awareness, improved screening programs, and prompt initial medical treatment.

AIDS-Defining Illnesses

Certain serious and life-threatening diseases that occur in HIV-positive people are called *AIDS-defining illnesses*. When a person gets one of these illnesses, he or she is diagnosed with the advanced stage of HIV infection known as AIDS.

An *AIDS-defining condition* is any HIV-related illness included in CDC's list of diagnostic criteria for AIDS. AIDS-defining conditions include opportunistic infections and cancers that are life-threatening in a person with HIV (HIV.gov, 2021 9th edition).



Source: clinicalinfo.hiv.gov.

An *AIDS case definition* means a person infected with HIV has AIDS if he or she has one of the following:

- A CD4+ T-cell count below 200 cells/ μ l

or

- A CD4+ T-cell percentage of total lymphocytes of less than 15%

or

- Has one of the defining conditions.

2. HIV Infection and Transmission

HIV, the virus that causes AIDS, was first identified in 1981. For some people, many years may pass between the time of infection and symptoms of illness begin or are identified. Those who have the virus but are not yet sick may have no symptoms and may not know they are infected. If a person suspects he or she has been exposed to HIV, there are medications that can be taken after exposure to reduce the likelihood of post exposure infection (PEP).

Cause of HIV

HIV attacks the immune system by destroying CD4+ T cells, a type of white blood cell that is vital to fighting off infection. The destruction of these cells can leave people with untreated HIV vulnerable to life-threatening infections and complications (NIAID, 2020, June 19).

The destructive power of HIV comes from its ability to affect the normal functioning of CD4 cells* by replacing CD4 RNA** with HIV RNA. This process manipulates the CD4 cell into duplicating the HIV virus. Once altered, the CD4 cell can no longer flag dangerous pathogens, affecting the body's ability fight off opportunistic infections (Wilkins, 2020). Over time, a person's immune system becomes vulnerable to infections by common disease-causing organisms such as bacteria, fungi or viruses.

***CD4 cells:** CD4 cells, also known as T cells, are white blood cells that fight infection and play an important role in your immune system.

****RNA:** Ribonucleic acid, or RNA is one of the three major biological macromolecules that are essential for all known forms of life (along with DNA and proteins).

Transmission

HIV is a relatively fragile virus that is not spread by casual contact. For HIV to be transmitted, there must be:

- A source
- A sufficient dose
- Access to the bloodstream of another person

An HIV **source** is a person (host) who is HIV-positive—a person with sufficient **viral load** to transmit the virus to another person. One of the predictors of the infectiousness of an HIV-positive person is their viral load—how much HIV is present in the bloodstream. There is a clear connection between higher viral load and increased transmissibility.

HIV Virus

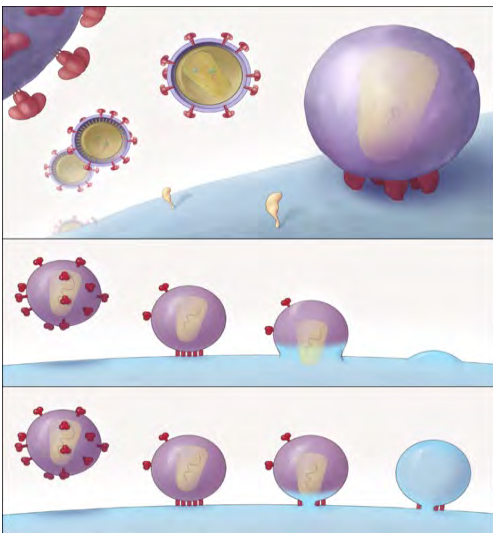


HIV has a protein shell encapsulating the genetic information and enzymes of the virus; a lipid membrane around the protein capsule; and glycoproteins that dot the surface of the virus, which aid in processes such as entry into macrophages and T-helper cells of the host. Source: Courtesy of Zygote Media Group, Inc.

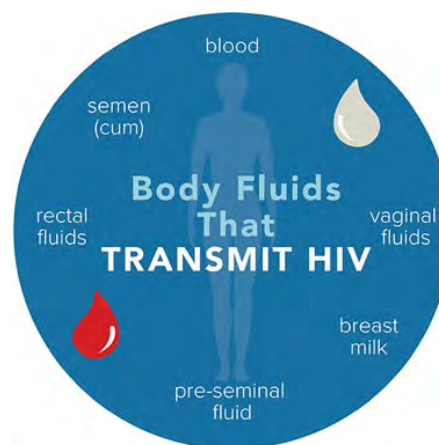
HIV can be transmitted through unprotected anal, vaginal, and oral intercourse. It can also be transmitted through accidental needlestick injuries, or by body fluids from an infected person contacting broken skin or mucous membranes of another person. Other routes of transmission:

- An infected person sharing needles or other injection equipment
- A mother passing the virus to her baby either before or during birth
- An infected woman breastfeeding her infant
- A transfusion prior to 1986 of HIV-infected blood or blood products

HIV Entry into T Cell



The top panel shows the HIV virus attaching to a T cell. The second and third panels show HIV viruses (dotted with red glycoproteins) attaching to the T cell and depositing the HIV virus particle into the T cell. Source: Sougrat et al., 2007. PLoS Creative Commons Attribution 2.5 license.



Source: CDC.

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

In settings such as hospital operating rooms, other fluids—cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, amniotic fluid—may be considered potentially infectious if the source is HIV-positive. These fluids are generally not found outside the hospital setting.

HIV transmission can occur during practices such as tattooing, blood-sharing activities such as "blood brother" rituals or any other type of ritualistic ceremonies where blood is exchanged, or when unsterilized equipment contaminated with blood is shared. Up to 40% of **new** HIV infections are transmitted by people who are unaware they have the virus.

Improvements in public awareness has helped decrease HIV/AIDS cases due to the availability of prompt testing and treatment. **Pre-exposure prophylaxis (PrEP)** has been shown to be effective in preventing HIV for those at higher risk.

PrEP is highly effective for preventing HIV when taken as prescribed. It reduces the risk of getting HIV from sex by about 99%. It also reduces the risk of getting HIV from injection drug use by at least 74% (CDC, 2021, August 6).

In late 2021, the FDA approved **Apretude**, an extended-release injectable medication for use in at-risk adults and adolescents weighing at least 77 pounds for pre-exposure prophylaxis to reduce the risk of sexually acquired HIV. Apretude is given first as two injections administered one month apart, and then every two months thereafter. Patients can either start their treatment with Apretude or take oral cabotegravir (Vocabria) for four weeks to assess how well they tolerate the drug (FDA, 2021, December 20).

Transmission During Pregnancy and Breastfeeding

An HIV-infected woman can transmit the virus to her baby during pregnancy, during the birth process, or following pregnancy by breastfeeding. HIV is transmitted from an HIV-infected woman to her baby in about 25% of pregnancies if intervention with antiretroviral medications **does not** occur.

The perinatal transmission rate has dropped dramatically in the U.S. due to the widespread use of **zidovudine** (AZT, Retrovir) by HIV-infected pregnant women. When a woman's health is monitored closely and she receives antiretroviral therapies during pregnancy, the risk of HIV transmission to the newborn drops to a 1 in 1000 chance (HIV.gov, 2021, February 10).

A predictor of how infectious the woman will be to her baby is her viral load. Women with new or recent infections or people in later stages of infection tend to have higher viral loads and may be more infectious.

In some pregnancies, a cesarean section may be recommended to reduce the risk of transmission from mother to baby. Advice should be provided on an individual basis by a medical provider with experience in treating HIV-positive pregnant women. Most states, including Florida, require pregnant women to be counseled regarding risks around HIV and offered voluntary HIV testing.

For a woman with HIV, the risk of transmitting HIV to her baby can be 1% or less if she:

- Takes HIV medicine as prescribed throughout pregnancy, birth, and delivery.
- Gives HIV medicine to her baby for 4 to 6 weeks after giving birth.
- Does **not** breastfeed or pre-chew her baby's food.

CDC, 2020, August

When a pregnant woman tests positive for HIV, in addition to medical and support services, she should also be referred to the Healthy Start Care Coordination System. For more information on the availability of services, contact the Family Health Line at 800 451-BABY or the Florida AIDS Hotline at 800 FLA-AIDS.

Untreated HIV

If left untreated, HIV progresses in a predictable pattern: sometimes called the “natural history of disease progression”. Infection begins with entry of the virus into the host’s bloodstream (**viral transmission**). In 1 to 2 weeks, the virus begins to establish itself in the body and change the functioning of the immune system’s CD4 cells (**primary HIV infection**).

Seroconversion occurs when antibodies to the HIV virus can be identified by laboratory test. During this **asymptomatic phase**, an infected person will look and feel healthy, but the virus is active and continues to damage the immune system.

As the disease progresses, **symptoms** begin to appear, which may include skin rash, night sweats, mouth ulcers, weight loss, and fungal infections. Finally, **AIDS** develops, which is a CD4+ T-lymphocyte count of <200 cells/μL or CD4+ T-lymphocyte percentage of total lymphocytes of <14, or documentation of an “AIDS-defining condition.”

This “natural progression” has been dramatically altered in developed countries because of new medications. In countries where there is no access to medications because of access or cost, or in cases where people do not become aware of their HIV infection until very late, the disease progresses as described above (Melhuish & Lewthwaite, 2018).

Transmission by People Unaware of Their HIV Status

Globally, many people infected with HIV have not been tested and about 6 million people are unaware that they are living with the virus. About 15% of those in the U.S. are unaware they are infected (~162,000 people), a decline from the 25% in 2003. Awareness of HIV status is critical because most people who know they are infected will reduce behaviors that could transmit the virus (HIV.gov, 2021, June 25).

3. HIV Testing

The only way to know your HIV status is to get tested. It is recommended that everyone between the ages of 13 and 64 get tested at least once. Those who have put themselves at risk through anal, vaginal, or oral sex, or shared needles, as well as anyone who has had an occupational exposure, should be tested. Partners of people with risk factors, (along with their partners) should consider testing.

Early detection allows people with HIV to receive medical treatment soon after infection. Early treatment protects the immune system of infected people and encourages healthy habits and safer sex practices. New drug therapies can sustain an infected person's health for long periods of time and early detection allows people to take precautions to prevent infecting others.



Many HIV tests are now quick, free, and painless. Ask your healthcare provider for an HIV test or use the HIV Services Locator to find a testing site near you. You can also buy an FDA-approved home testing kit at a pharmacy or online. Source: HIV.gov.

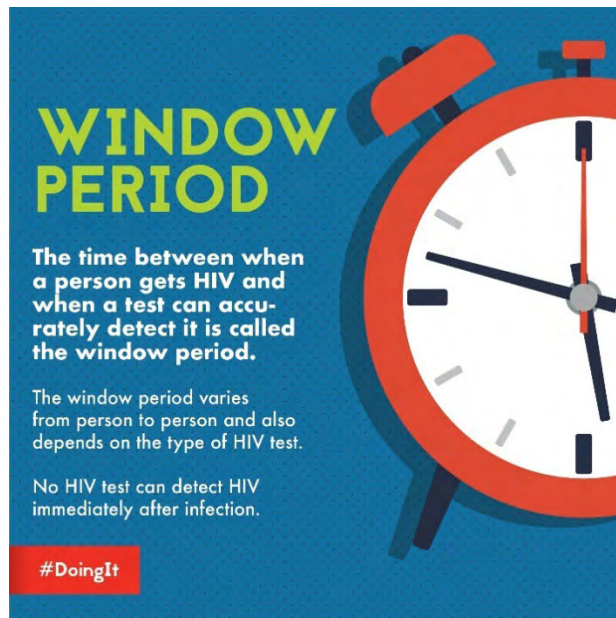
There currently is no test that can detect HIV immediately after exposure as the viral load may be too small to detect. If someone believes they have been exposed to HIV they should begin **post exposure prophylaxis (PEP)** medication as soon as possible. PEP is the use of antiretroviral drugs after a single high-risk event to stop HIV seroconversion. PEP must be started as soon as possible to be effective—and always within 72 hours of a possible exposure.

Florida has more than 1,460 publicly funded and registered testing sites, with 70% using rapid tests. A new, fourth-generation screening and confirmatory test has replaced the traditional Western Blot, allowing quicker results and faster initiation of treatment (FDOH, 2021, July 16).

Florida law requires those who perform HIV tests in county health departments and other registered testing sites to obtain the informed consent of the test subject, confirm positive preliminary results with a supplemental test before informing the test subject of the result (except as provided for by statute), and make a reasonable attempt to notify the test subject of the test result (FDOH, 2021, July 16).

Each type of HIV test has a “window period” that varies from person to person and depends on the type of test. The **window period** is the time between infection with the virus and when the HIV-infected person develops enough antibodies to be detected by the antibody test. Until the infected person’s immune system makes enough antibodies to be detected, the test will be negative even though the person is infected with HIV.

There is no way to know how long an infected person will take to develop antibodies. Some infected people can produce antibodies as early as 2 weeks after infection and almost everyone will develop enough antibodies to be detected by 12 weeks (3 months) after infection.



Source: CDC.

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

HIV screening is recommended for patients in all healthcare settings following notification unless the patient declines (opt-out screening). People at high risk for HIV infection should be screened for HIV at least annually (CDC, 2019, October 21).

For pregnant women, HIV screening tests:

- Should be included in the routine panel of prenatal screening tests for all pregnant women.
- 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 (CDC, 2019, October 21).



Knowing your HIV status gives you powerful information to help you take steps to keep you and your partner(s) healthy. Source: HIV.gov.

Types of HIV Tests

Currently there are three types of HIV tests available: (1) **nucleic acid tests (NAT)**, (2) **antigen / antibody tests**, and (3) **antibody tests**. They are typically performed on both blood, oral fluid, or urine.

A *NAT* looks for the actual virus in the blood and involves drawing blood from a vein. The test can either tell if a person has HIV or tell how much virus is present in the blood. While a NAT can detect HIV sooner than other types of tests, this test is very expensive and not routinely used for screening individuals unless they recently had a high-risk exposure or a possible exposure and have early symptoms of HIV infection (CDC, 2021, May 13).

An *antigen/antibody test* looks for both HIV antibodies and antigens and involves drawing blood from a vein. **Antigens** are foreign substances that activate the immune system. **Antibodies** are produced by the immune system when a person has been exposed to a foreign substance such as the HIV virus.

When a person is infected with HIV, an antigen (foreign substance) called *p24* is produced even before antibodies develop. An antigen/antibody test performed by a laboratory on blood from a vein can usually detect HIV infection 18 to 45 days after an exposure. Antigen/antibody tests done with blood from a finger prick can take longer to detect HIV (18 to 90 days after an exposure) (CDC, 2021, May 13).

HIV antibody tests only look for antibodies to HIV in blood or oral fluid. These types of tests can take 23 to 90 days to detect HIV infection after an exposure. Antibody tests that use blood from a vein can detect HIV sooner after infection than tests done with blood from a finger prick or with oral fluid. Most rapid tests and the only currently approved HIV self-test are antibody tests (CDC, 2021, May 13).


































HIV Self-Tests

Did You Know. . .

The coronavirus (COVID-19) pandemic has made it more difficult for some people to access traditional places where HIV testing is provided. Self-testing allows people to get tested for HIV while still following stay-at-home orders and social distancing practices.

There are two kinds of HIV self-tests. A *Rapid Self-Test* is done entirely at home or in a private location and can produce results within 20 minutes. The only rapid self-test currently available in the U.S. is an oral fluid test (OraQuick) (CDC, 2021 July 16).

Mail-In Self-Tests can be ordered through various online merchant sites or through a healthcare provider. The test includes a specimen collection kit that contains supplies to collect dried blood from a fingerstick at home. The sample is then sent to a lab for testing and the results are provided by a healthcare provider (CDC, 2021, July 16).

<h3>WHICH HIV SELF-TEST IS RIGHT FOR YOU?</h3> <p>HIV self-testing allows you to take an HIV test at home or other private location. There are two kinds of HIV self-tests: Rapid and Mail-In. Learn the differences and which may be right for you.</p>		
	Rapid Self-Test	Mail-In Self-Test
 Can I order it myself?		
 Can my health care provider order it for me?		
 Is it available at a pharmacy?		
 Can it be ordered online?		
 Does it offer quick results?		
 Can it find HIV soon after exposure?		
 Does it use an oral swab?		
 Does it use a small blood spot from a finger-stick?		
 Is it covered by insurance?		
 Is it covered by Health Savings Account and Flexible Spending Account?		
<p>For more information visit www.cdc.gov/hiv/basics  Yes  Sometimes  No</p>		

Source: CDC.

Counseling

In most states, HIV test counseling is offered to clients who are at risk for HIV or who request counseling. The goal is to help individuals assess risk, understand test results, and develop a personalized prevention plan. Counseling is an opportunity to provide education about risky behaviors, exposures, and risk-reduction strategies.

Florida law no longer requires **pre-test counseling**—except in cases related to pregnancy. However, the Florida Department of Health recommends that HIV testing be preceded by a pre-test counseling session that includes test purpose and procedures, information about infection and transmission, ramifications of a positive test, reducing risky behavior, available support services, and information on how to obtain test results. Florida law allows minors under the age of 18 to waive parental consent and forbids informing parents of the minor's HIV test, results, or treatment (FDOH, 2021, July 16).

Florida law also no longer requires face-to-face **post-test counseling** except when test results are provided. For **positive** results, information must be provided on preventing transmission, availability of medical and support services, and the importance of notifying sex and/or needle-sharing partners who may have been exposed. Providers must make a good faith effort to ensure that spouses and former spouses (from the past 10 years) of HIV-infected people are notified.

For **negative** results, information should be provided on the prevention of HIV transmission.

The Florida Department of Health still *recommends* face-to-face post-test counseling that includes information about the meaning of the test results, potential consequences of a positive result, the need for retesting and risk reevaluation, support services, virus transmission, tuberculosis, and appropriate referrals.

4. Infection Control in Healthcare Facilities

Within healthcare facilities, prevention is an important component of any infection control program. Environmental control factors, engineering, and work practice controls, as well as training and education of healthcare workers, are all part of a comprehensive infection prevention program.

Standard Precautions

Standard Precautions are the minimum infection prevention practices that apply to all patient care, regardless of suspected or confirmed infection status of the patient, in any setting where healthcare is delivered. These practices are designed to both protect healthcare workers and prevent them from spreading infections to patients. Standard Precautions include:

1. Hand hygiene.
2. Use of personal protective equipment (e.g., gloves, masks, eyewear).
3. Respiratory hygiene / cough etiquette.
4. Sharps safety (engineering and work practice controls).
5. Safe injection practices (i.e., aseptic technique for parenteral medications).
6. Sterile instruments and devices.
7. Clean and disinfected environmental surfaces.

If exposures to blood or other body fluids are reasonably anticipated, facilities are required by the Occupational Safety and Health Administration (OSHA) *Bloodborne Pathogens Standard* to develop an *Exposure Control Plan*.

An *Exposure Control Plan* is designed to protect staff who may be exposed to blood and other body fluids. By protecting staff, facilities also control exposure incident costs. Such a plan is meant to be a “living” document—a source for answering bloodborne pathogen–related questions and an assurance that exposure control activities are in place.

Percutaneous Exposures

Occupational exposure to viruses and other pathogens can occur following percutaneous injury*, mucous membrane exposure (such as eyes, nose and mouth) or non-intact skin exposure to blood and body fluids. Percutaneous injuries carry the greatest risk of infection, accounting for 66–95% of all occupational exposures to bloodborne pathogens (Auta et al., 2018).

***Percutaneous injury:** when a needle or other sharp object penetrates the skin.

Globally each year, percutaneous injuries result in approximately 66,000 HBV infections, 16,000 HCV infections and 1,000 HIV infections. More than 90% of these infections occur in developing countries where adherence to standard precautions is poor (Auta et al., 2018).

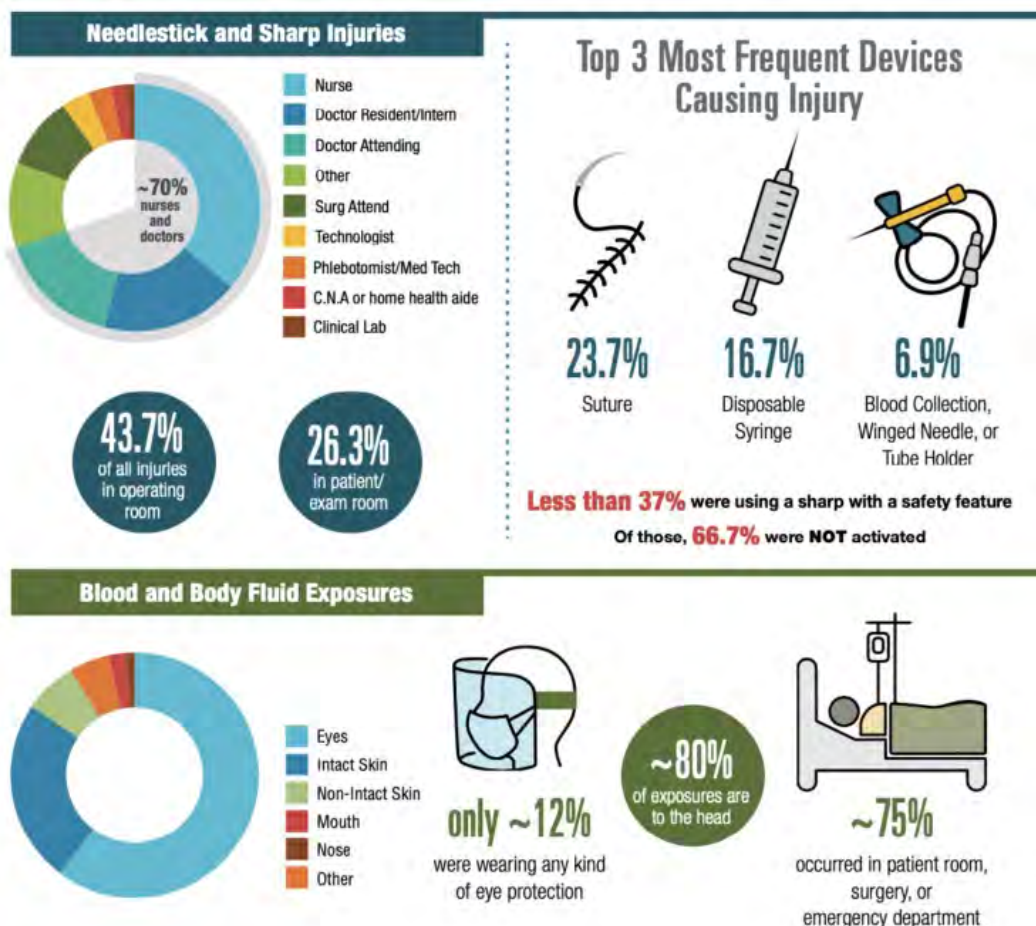
In the U.S., EPINet publishes annual data that provides a picture of sharp object injury and blood and body fluid exposure patterns in healthcare settings. According to data from 41 participating hospitals, most sharps injuries were among nurses and doctors with more than half occurring during an intramuscular (IM) or subcutaneous injection or during suturing (ISC, 2021).

Nearly half of injuries occurred in the OR/recovery areas. About 2/3 of injuries were to the left hand although over 90% of the injured workers were right-handed. In most cases (90%) the sharp was contaminated (ISC, 2021). Additional exposure findings:

- Was blood visible on device: yes = 69%
- What was the purpose of the device: injection, IM/subcutaneous = 26%; suturing = 28%
- What was the time of injury: during use = 53%
- Did the needle or sharp have a safety design: no = 56%
- Was the safety mechanisms on the needle or sharp activated: no = 67%

ISC, 2021

Needlesticks, Sharps Injuries, and Blood and Body Fluid Exposures



Blood Occupational Exposure Data for Needlesticks, Sharps Injuries, and Blood and Body Fluid Exposures 2020 EPINet®. Used with permission.

Because injuries from needles and other sharps have been associated with transmission of hepatitis B, hepatitis C, and HIV, the prevention of sharps injuries is an essential part of Standard Precautions. Needles and other sharp devices should be handled in a manner that prevents injury to the user and to others who may encounter the device during or after routine patient care.

Case Example

An experienced ER nurse recently had a sharps injury to her right hand from a small needle without a safety device. Although she had used this type of needle hundreds of times without incident, in this case she was distracted while talking to a patient. She gave the shot, pulled out the syringe and (usually) immediately disposed of the used sharp in a sharp's disposal container. While still holding the syringe in her right hand, she stopped to explain to the patient that the medication might cause a flush or redness in the patient's body. To describe the possible reaction, the nurse swept her hand down the front of her body and stuck herself on her right finger as the syringe turned over in her hand. She washed with soap and water, applied a band aid, and reported the needle stick to her supervisor.

Preventing Occupational Exposures

Hand hygiene is the single most important procedure for preventing the spread of infections, and strict adherence protects both patients and workers. Washing your hands can prevent the spread of germs, including those that are resistant to antibiotics. On average, healthcare workers clean their hands less than half as often as they should.



Personal protective equipment should be provided and worn by employees in all instances where they may come into contact with blood or other potentially infectious material. This includes but is not limited to dentistry, phlebotomy, or processing of any bodily fluid specimen, as well as postmortem procedures. Reusable PPE must be cleaned and decontaminated, or laundered, by the employer.

During the COVID-19 pandemic, some infection control standards were relaxed or ignored because PPE was in short supply and many items had to be worn multiple times. To address this, OSHA established the *Emergency Temporary Standard for Healthcare* for preventing the spread of COVID-19. The standard is aimed at protecting workers facing the highest coronavirus hazards—those working in healthcare settings where suspected or confirmed coronavirus patients are treated. This includes employees in hospitals, nursing homes, and assisted living facilities; emergency responders; home health care workers; and employees in ambulatory care settings where suspected or confirmed coronavirus patients are treated (OSHA, 2021, June 21).

The standard requires facilities to conduct a hazard assessment and have a written plan to mitigate virus spread. It requires healthcare employers to provide some employees with N95 respirators or other personal protective equipment. In addition, covered employers must ensure 6 feet of distance between workers. In situations where this is not possible, employers should erect barriers between employees where feasible (OSHA, 2021, June 21).

The standard also requires covered employers to provide workers with paid time off to get vaccinated and to recover from any side effects. Covered employees who have coronavirus or who may be contagious must work remotely or otherwise be separated from other workers, if possible, or be given paid time off up to \$1400 per week (OSHA, 2021, June 21).

5. Healthcare Worker Risk of Infection from a Bloodborne Pathogen

Occupational exposure to bloodborne pathogens following contact with human blood and body fluids is a serious concern for healthcare workers globally. Hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV) are the three leading causes of occupationally related bloodborne infections among healthcare workers (Auta et al., 2018).

The need to protect healthcare workers from bloodborne exposures resulted in the publication of the *Bloodborne Pathogens Standard* by OSHA in 1991.

Part of the Standard is the requirement that every healthcare worker who may have contact with body fluids on the job must receive specific annual education. This education includes:

- Instruction in the basics of infection control and prevention
- Bloodborne pathogens training
- Instruction in modes of transmission, needlestick precautions, and contact precautions

The risk of infection by a bloodborne pathogen varies. Factors influencing the risk of infection include whether the exposure was from a hollow-bore needle or other sharp instrument to non-intact skin or mucus membrane (such as the eyes, nose, and/or mouth), the amount of blood involved, and the amount of pathogen present in the source person's blood (OSHA, 2021).




Risk of HIV Infection

Occupational HIV transmission is extremely rare. The risk of HIV infection to a healthcare worker through a needlestick is less than 0.23%. The risks of HIV infection through splashes of blood to the eyes, nose, or mouth is even smaller—approximately 1 in 1,000. There have been no reports of HIV transmission from blood contact with intact skin.



There is a theoretical risk of blood contact to an area of skin that is damaged, or from a large area of skin covered in blood for a long period of time. The CDC has reported fifty-eight documented cases of occupational HIV transmission to healthcare workers in the U.S., with no confirmed cases since 1999 (CDC, 2019).

Transmission ports for bloodborne pathogens. Source: CDC.

The risk of occupational HIV transmission varies by the type of exposure.	
Splashes with body fluids	 Near zero, even if the fluids have blood in them.
Fluid splashes to intact skin or mucous membranes	 Extremely low risk, even if blood is involved.
Percutaneous (needle-stick) injury	 Less than 1%.

Source: CDC.

Risk of Hepatitis B and C Infection

Although becoming infected with hepatitis B (HBV) from a needlestick is more common than HIV for healthcare workers, the risk has decreased considerably since the implementation of an HBV vaccine in the early 1980s. For healthcare workers vaccinated against hepatitis B, infection from a single needle stick is very low—about 1 in 300. For a healthcare worker not vaccinated against HBV, the risk of infection can be as high as 30%.

The risk is 2% to 19% if the source person tests positive for hepatitis B surface antigen (HBsAg) and hepatitis Be antigen (HBeAg). If the source person is HBsAg-positive and HBeAg-negative, there is a 1% to 6% risk of getting HBV unless the person exposed has been vaccinated (Lewis et al., 2015).

The risk of getting hepatitis C (HCV) from a needlestick is 1.8%. The risk of getting HBV or HCV from a blood splash to the eyes, nose, or mouth is possible but believed to be very small. Approximately three million healthcare workers per year are exposed to HBV and HCV through occupational instrument injuries. There are no exact estimates on how many healthcare workers contract HCV from an occupational exposure, but the risk is considered low (Coppola et al., 2016).

Treatment After a Potential Bloodborne Exposure

As soon as safely possible after a potential exposure, wash the affected area with soap and water. Application of antiseptics is not a substitute for washing. Remove any potentially contaminated clothing as soon as possible. Be familiar with existing protocols and the location of emergency eyewash or showers and other stations within your facility.

If there is exposure to the eyes, nose, or mouth, flush thoroughly with water, saline, or sterile irritants. The risk of contracting HIV through this type of exposure is estimated to be 0.09%.

If a sharps injury occurs, wash the exposed area with soap and water. Do not "milk" or squeeze the wound. There is no evidence that using antiseptics like hydrogen peroxide will reduce the risk of transmission for any bloodborne pathogens; however, the use of antiseptics is not contraindicated. If the wound needs suturing, emergency treatment should be obtained. The risk of contracting HIV from this type of exposure is estimated to be 0.3%.

Exposure to saliva is not considered substantial unless there is visible contamination with blood. If exposed, wash the area with soap and water, and cover with a sterile dressing as appropriate.

Did you know. . .

For human bites, the clinical evaluation must include the possibility that both the person bitten and the person who inflicted the bite were exposed to bloodborne pathogens.

For human bites, the clinical evaluation must include the possibility that both the person bitten and the person who inflicted the bite were exposed to bloodborne pathogens.

Exposure to urine, feces, vomitus, or sputum is considered a potential bloodborne pathogen exposure even if the fluid is not visibly contaminated with blood.

Reporting a Bloodborne Exposure

If a bloodborne exposure has occurred, cleanse the exposed area and report the exposure. Your employer is required to provide an appropriate post exposure management referral at no cost to you. Post exposure treatment should begin as soon as possible.

Your employer must provide the following information to the healthcare professional completing the exposure evaluation:

- Description of the exposed employee's job.
- Job or procedure the employee was performing when exposed.
- Documentation of the routes of exposure and circumstances under which exposure occurred.
- Results of the source person's blood testing, if available.
- Medical records, including vaccination status relevant to the employee.

Post Exposure Prophylaxis

Post exposure prophylaxis (PEP) provides anti-HIV medications to someone who has had a substantial exposure, usually to blood. PEP has been the standard of care for occupationally exposed healthcare workers since 1996. PEP should be started as soon as possible (within 72 hours), even while awaiting test results from the source person. The PEP medication regime should be continued for 28 days (4 weeks).

PEP for HIV does not provide protection from other bloodborne diseases like HBV or HCV. Hepatitis B post exposure prophylaxis involves administration of hepatitis B immune globulin and an HBV vaccine. The HBV vaccine provides 90% protection from HBV. PEP should occur as soon as possible and no later than 7 days post exposure.

No PEP has been demonstrated to be effective against HCV. The benefit of the use of antiviral agents to prevent HCV infection is unknown and antivirals are not currently FDA-approved for prophylaxis.

The national bloodborne pathogen hotline provides 24-hour consultation for healthcare workers who have been exposed on the job. Call 888-448-4911 for the latest information on prophylaxis for HIV, hepatitis, and other pathogens.

6. Clinical Management of HIV

Florida's plan to decrease HIV transmission and reduce HIV-related deaths has four components:

1. Implementing routine HIV and STI screening in healthcare settings
2. Providing rapid access to treatment
3. Improving access to antiretroviral pre-exposure prophylaxis (PrEP)
4. Increasing HIV awareness through community outreach, engagement, and messaging (FDOH, 2021, October 22).

Every patient with HIV entering into care should have a complete medical history, physical examination, laboratory evaluation, and counseling. The purpose is to confirm the presence of HIV infection, obtain appropriate baseline historical and laboratory data, ensure patient understanding about HIV infection and its transmission, and initiate treatment and care (HIV.gov, 2021, August 16).

The initial evaluation should also include an introductory discussion on the benefits of antiretroviral therapy (ART) for the patient's health and prevention of HIV transmission. The baseline information should be used to define management goals and plans with the patient (HIV.gov, 2021, August 16).

The CD4+ T-cell count, known as the *CD4 count*, serves as the major clinical indicator of immune function in patients who have HIV-infection. It is one of the key factors in determining the urgency of antiretroviral therapy (ART) initiation and the need for opportunistic infection prophylaxis. It is also the strongest predictor of subsequent disease progression and survival according to clinical trials and cohort studies (Thompson et al., 2020).

Treatment

Several studies have demonstrated that overall outcomes in patients with HIV are better when care is delivered by clinicians with HIV expertise, reflecting the complexity of HIV transmission and its treatment. Appropriate training, continuing education, and clinical experience are all components of optimal care. Providers who do not have this requisite training and experience should consult HIV experts when needed (HIV.gov, August 16, 2021).

Antiretroviral Therapy (ART)

In 1996, researchers discovered that taking combinations of antiviral medications (the **cocktail**) dramatically reduced the amount of HIV viral load in the bloodstream of a person infected with HIV. Clients with HIV/AIDS consumed a bulky regimen of multiple pills several times per day. The reduction of deaths from AIDS in the U.S. has been primarily attributed to this combination therapy, known as **antiretroviral therapy (ART)**.

Antiretroviral therapy for the treatment of HIV infection has improved steadily since 1996. ART has dramatically reduced HIV-associated morbidity and mortality and has transformed HIV infection into a manageable chronic condition, with life expectancy approaching that for people without HIV (HIV.gov, August 16, 2021).

ART is highly effective at preventing sexual transmission of HIV in patients who have adequately suppressed viral loads. Unfortunately, in 2016, only 51% of people with HIV in the U.S. had maximally suppressed viral loads; the lack of suppression is mostly due to undiagnosed HIV infection and failure to link or retain patients with HIV in care (HIV.gov, August 16, 2021).

Antiretroviral therapy has reduced HIV-related morbidity and mortality at all stages of HIV infection and has reduced HIV transmission. Suppression of the virus delays or prevents the development of drug-resistance mutations, preserves or improves CD4 T lymphocyte (CD4) cell numbers, and provides substantial clinical benefits, all of which are important treatment goals (HIV.gov, August 16, 2021).

HIV suppression with ART may also decrease inflammation and immune activation thought to contribute to higher rates of cardiovascular and other end-organ damage reported in cohorts with HIV. Despite these benefits, **eradication** of HIV infection cannot be achieved with available antiretrovirals. Treatment interruption has been associated with rebound viremia, worsening of immune function, and increased morbidity and mortality (HIV.gov, August 16, 2021).

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

- Maximally and durably suppress plasma HIV RNA;
- Restore and preserve immunologic function;
- Reduce HIV-associated morbidity and prolong the duration and quality of survival; and
- Prevent HIV transmission. (HIV.gov, August 16, 2021).

Achieving viral suppression requires the use of combination ARV regimens that generally include three active drugs from two or more drug classes. Patient characteristics and results from drug resistance testing guide design of the specific regimen. When initial HIV suppression is not achieved or not maintained, changing to a new regimen with at least two active drugs is often required. The increasing number of antiretroviral drugs and drug classes makes viral suppression below detection limits an achievable goal in most patients (HIV.gov, August 16, 2021).

After initiation of effective ART, viral load reduction to below detection usually occurs within the first 12 to 24 weeks of therapy. Predictors of virologic success include the following:

- Low baseline viremia;
- High potency of the antiretroviral regimen;
- Tolerability of the regimen;
- Convenience of the regimen; and
- Excellent adherence to the regimen. (HIV.gov, August 16, 2021)

Proper patient education is essential for adherence to the prescribed schedule and monitoring of side effects. Regular testing after initial diagnosis for CD4 response guides medical personnel to the effectiveness of treatment, which reduces the chance of transmission, and calls attention to any opportunistic infections or drug resistance. Lab work to monitor CD4 should be done at 2 and 4 weeks after initiating drug therapy and then every 3 to 6 months.

Regular appointments to monitor kidney and liver function is recommended. Other complications from pharmacologic treatment should also be closely followed:

- Nausea, vomiting
- Poor appetite and weight loss
- Osteopenia or osteoporosis
- Hyperlipidemia
- Hyperglycemia
- Cognitive and emotional problems
- Sleep disorders

Identifying what is due to the disease and what is due to medication side effects can be confusing. Regular physical exams will check for skin sores; swollen lymph node in the mouth, throat and neck, abdomen and groin; nervous system disorders; and respiratory complications.

Many studies have demonstrated that better outcomes are achieved when a clinician with HIV expertise cares for HIV-infected people as outpatients. Appropriate training and experience, as well as ongoing continuing education, are important components for optimal care.

Access to HIV Medications

In the early 2000s, lack of access to HIV/AIDS treatment was declared a global health emergency, and world leaders set a goal of universal access to antiretroviral therapy by 2010. By the end of 2020, more than 27 million people with HIV were getting ART treatment, representing about 73% of all people with HIV (HIV.gov, 2021, June 25).

The addition of new drugs and combination therapy has contributed to a decline in mortality for people infected with HIV but has placed the cost of treatment beyond the means of many people. Even the lowest price—U.S. \$1800 to \$4500 per person per month—for the first-line ART regimen remains out of reach for many patients in resource-limited settings (Nazario, 2020).

Name brand medications are beyond the means of many patients: Truvada costs \$2,000/month and Epivir is \$400 for a 30-day supply in the United States. The newer Biktarvy and Cabenuva are even more expensive.

Commercial and private insurance, Medicare, Medicaid, and other federal government programs such as Ryan White HIV/AIDS Program are available for drug assistance programs. Unfortunately, private insurance companies may charge high copayments. For more information see [HIV.gov](https://www.hiv.gov), which has an *HIV Testing and Care Services Locator*.

Second-line antiretrovirals have emerged, offering therapeutic improvements with fewer pills. Although the prices of some new second-line antiretrovirals have also declined in some countries, second-line treatment is nearly always more expensive than first-line treatment.

As treatment scales up globally, many HIV/AIDS patients receiving first-line therapies will need therapeutic alternatives. The cost of second- and third-line HIV/AIDS treatment and access to the latest ARV therapies is a problem of public health concern globally.

Rural and Underserved Areas

Primary care providers without HIV experience, such as those who provide service in rural or underserved areas, should identify experts in the region who will provide consultation when needed (DHHS, 2020, May 12).

Peer Support Increase Medication Adherence

Peer Support is an individual- and group-level intervention that aims to increase medication adherence among HIV-positive patients. Patients who are HIV-positive, taking antiretroviral therapy (ART), and adherent to their treatment are trained to serve as “peers” for patients who are either ART-experienced or ART-naïve and need additional support (CDC, 2021, August 2).

Patients who serve as peers provide medication-related social support through group meetings and weekly individual telephone calls. Group meetings are led by peers, who are supervised by agency or clinic program staff. The group meetings are designed to give patients an opportunity to engage face-to-face with their assigned peer, meet other peers and patients who are taking ART and share experiences with the group (CDC, 2021, August 2).

Video: The Power of HIV-Positive Peers to Change Lives (5:27)

Two medical clinicians, at Highland Hospital, Oakland, CA and Kansas City Free Health Clinic, MO, talk about how HIV-positive peers have helped their patients link to care and adhere to treatment. From ThePEERCenter, 2009.

<https://www.youtube.com/watch?v=hgXsIllyCQe4>

The weekly individual peer phone calls provide in-depth personal attention and feedback to answer any questions the patient may have felt uncomfortable asking during group meetings. Group discussions focus on identifying barriers to ART adherence and problem-solving strategies to overcome barriers (CDC, 2021, August 2).

Group meetings may also focus on life issues that may affect adherence, including disclosure, romantic relationships, substance use, and mental health issues. Based on issues identified by group members, peers may work with program staff to schedule speakers (e.g., nutritionist) to present during group sessions (CDC, 2021, August 2).

HIV and Viral Hepatitis Co-Infection

People infected with HIV are at risk for contracting viral hepatitis. About one-third of HIV-infected people are co-infected with either HBV or HCV.

Viral hepatitis progresses faster and causes more liver-related health problems among people with HIV due to their impaired immune response. Although drug therapy has extended the life expectancy of people with HIV, liver disease related to HBV and HCV has become the leading cause of non-AIDS-related deaths in this population (Lewis & Sifri, 2015).

To prevent co-infection with HBV, the *Advisory Committee on Immunization Practices* recommends universal HBV vaccination for high-risk patients with HIV. High-risk people are considered people who have multiple sex partners; gay, bisexual, and other men who have sex with men; injection drug users; and those who are exposed to blood at their jobs.

Co-infection with viral hepatitis can complicate the treatment and management of HIV. Because hepatitis infection combined with HIV may lead more quickly to liver damage, it is recommended that all people with HIV be tested for HBV and HCV (AASLD, 2020).

HIV/HBV and HIV/HCV co-infections can be effectively treated in many people, but treatment is complex and people with co-infection should look for healthcare providers with expertise in the management of both HIV infection and viral hepatitis.

Aging with HIV

As a result of improvements in effectiveness of antiretroviral therapy and initiation of HIV “treatment without delay”, people with HIV are surviving to older ages in the United States. Despite a concentration of new infections among younger ages, the proportion of people living with HIV over 60 years of age increased from 6% to 10% from 2014–2018 (Kasaie et al, 2022).

People who are aging with HIV have an increased burden of age-related chronic conditions, including renal impairment, cardiovascular disease, cancer, end-stage liver disease, hypertension, and diabetes. This is due to both chronic immune activation from the viral infection as well as metabolic outcomes linked to some earlier versions of antiretroviral medications. In addition, persons with HIV have a higher prevalence of traditional risk factors for age-related conditions, the most prominent being a higher prevalence of smoking (Althoff, 2021).

HIV and COVID-19 (SARS-CoV-2)

A fuller picture is emerging of the interplay between HIV infection and SARS-CoV-2 infection, and of COVID-19 vaccine response in people living with HIV. Evidence indicates that people living with HIV who acquire SARS-CoV-2 infection are at heightened risk of serious illness and death. The risk is especially high for people who are not controlling their HIV infection with antiretroviral therapy (UNAIDS, December 1, 2021).

A recent study involving 5.8 million people at 54 clinical sites in the U.S. found that living with HIV was associated with a 20% higher risk of being hospitalized for COVID-19 infection and a 29% higher risk of COVID-19 mortality. The risk of adverse outcomes among people living with HIV is highest among those who have low CD4 cell counts or detectable HIV viral loads. This highlights the importance and multiple benefits of successful HIV treatment (UNAIDS, December 1, 2021).

People living with HIV and with low CD4 cell counts may be at higher risk of poor COVID-19 outcomes even if they are virally suppressed. This suggests that people who have recently started HIV treatment or those who have experienced low CD4 cell counts for long periods may need closer observation if they acquire COVID-19. The CDC recommends a COVID-19 vaccine booster for people with advanced or untreated HIV (UNAIDS, December 1, 2021).

There is no evidence that HIV infection is associated with adverse reactions to current COVID-19 vaccines. There is conflicting evidence on whether people living with HIV may have weaker vaccine-induced antibody responses. A recent study in the U.S. reported a lower vaccine-induced antibody response in people living with HIV than in HIV-negative people, with the effect seeming to differ depending on the vaccine. The response was poorest in people with unsuppressed HIV infections. Antibodies, though, are not the only determinant of vaccine response, and this study did not measure T-cell responses (UNAIDS, December 1, 2021).

7. Groups Disproportionally Affected by HIV

Although HIV infection affects people from all ethnic groups, genders, ages, and income levels, some groups are at greater risk. This includes men who have sex with men, injecting drug users, people with hemophilia, infants and children, and women.

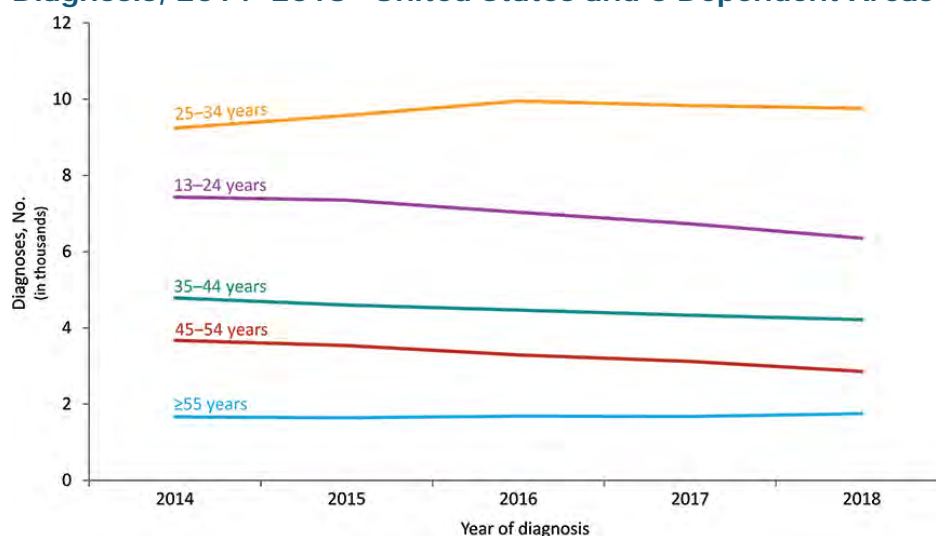
In the U.S., HIV is spread mainly through anal or vaginal sex or by sharing drug-use equipment with an infected person. Although these risk factors are the same for everyone, some groups are more affected than others. This is because some population groups have higher rates of HIV in their communities, thus raising the risk of new infections with each sexual or drug use encounter. Additionally, a range of social, economic, and demographic factors—such as stigma, discrimination, income, education, and geographic region—affect the risk for HIV (CDC, 2021, October 5).

Men Who Have Sex with Men

Gay, bisexual, and other men who have sex with men (MSM) are the population most affected by HIV in the United States. Stigma, homophobia, and discrimination put MSM of all races/ethnicities at risk for multiple physical and mental health problems and can affect whether they seek and receive high-quality healthcare, including HIV testing, treatment, and other prevention services (CDC, 2020, May 7).

In 2018, adult and adolescent MSM accounted for 69% of the nearly 38,000 new HIV diagnoses in the U.S. and 6 dependent areas. Many Black/African American and Hispanic/Latino MSM with HIV, particularly young MSM, are unaware of their HIV infection. Lack of awareness of HIV status among young MSM may be due to recent infection, not getting tested due to underestimation of personal risk, or fewer opportunities to get tested. Persons who do not know they have HIV do not get medical care or receive treatment and can unknowingly infect others (CDC, 2020, May 7).

Diagnoses of HIV Infection among Men Who Have Sex with Men, by Age at Diagnosis, 2014–2018—United States and 6 Dependent Areas



Source: CDC

People Who Inject Drugs

Harm reduction is about showing love, compassion, and dignity to people who use drugs, without judgement, and providing them with safer ways to use substances as well as ways to get resources in the community.

Lorie Violette

Director of Prevention, Face To Face, 2021

From 2014 through 2018 in the U.S. and 6 dependent areas, the percentage of diagnoses of HIV infection attributed to injection drug use increased. In 2018, among 1,434 male adult and adolescent persons who inject drugs with diagnosed HIV infection, approximately:

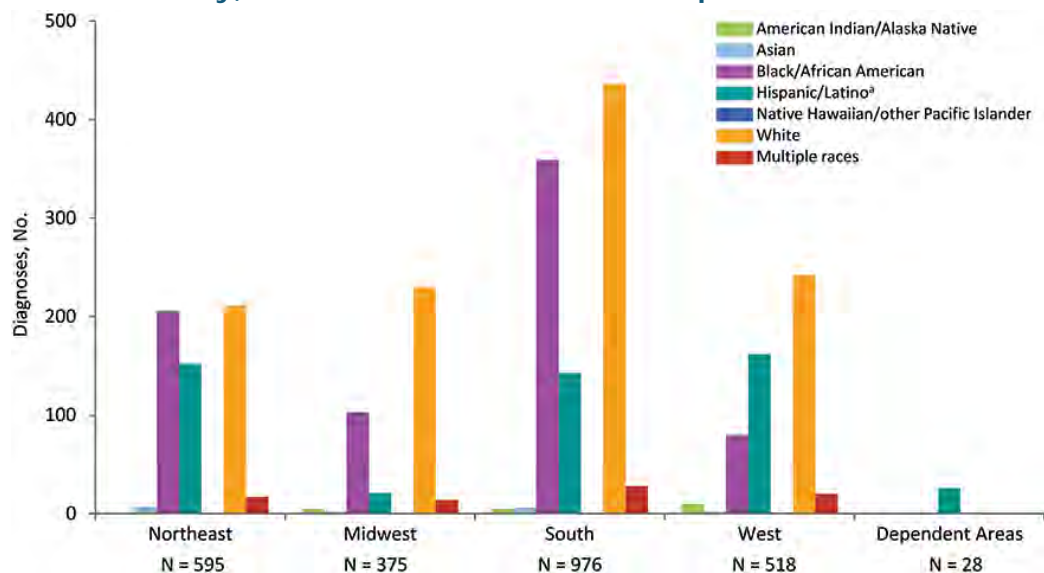
- 41% were white
- 30% were Black/African American, and
- 24% were Hispanic/Latino (CDC, 2020, May 7).

Among more than 1,000 adults females and adolescents who inject drugs with diagnosed HIV infection:

- 50% were white,
- 30% black/African American, and
- 15% Hispanic/Latino (CDC, 2020, May 7).

People who continue to inject recreational drugs are candidates for harm-reduction measures such as needle exchange programs, which have been proven to reduce the transmission of bloodborne pathogens like HIV, HBV, and HCV.

Diagnoses of HIV Infection among Persons Who Inject Drugs, by Region and Race/Ethnicity, 2018—United States and 6 Dependent Areas



Source: CDC.

People with Hemophilia

Hemophilia refers to a group of genetic disorders resulting in deficiencies in blood-clotting proteins. Hemophilia A (classic hemophilia) is a deficiency of factor VIII, and hemophilia B (Christmas disease) is a deficiency of factor IX. Because both hemophilia A and B are X-linked disorders, they primarily affect males (Schieve et al., 2020).

Before the 1970s, life expectancy for persons with severe hemophilia was in the teens or early 20s. In the mid-1960s, factor VIII concentrates derived from plasma were developed, resulting in both extended life expectancies and vast improvements in quality of life (Schieve et al., 2020).

The gains in life expectancy for hemophilia patients were short lived. Factor concentrates, prepared from large pools of human plasma were contaminated with bloodborne pathogens, most notably HIV and HCV. An estimated 60%–70% of persons with severe hemophilia were infected with HIV from contaminated blood by the early 1980s while HCV infected nearly all persons with severe hemophilia. By 2002, HIV infection and AIDS resulted in the deaths of nearly 40% of the estimated 10,000 persons with hemophilia living in the U.S. in 1977 (Schieve et al., 2020).

The incidence of HIV and HCV infection among persons with hemophilia decreased during the 1990s because of safer blood products and the development of recombinant, non-blood-based factor VIII and factor IX products. Surveillance systems were established to track the safety of hemophilia treatments and to better understand the healthcare needs of persons with hemophilia (Schieve et al., 2020).

Today, donated blood is screened extensively to prevent HIV-infected blood from entering the blood supply; the risk of acquiring HIV from a blood transfusion is extremely rare. Additionally, the FDA has imposed strict guidelines on the donation of blood from high-risk groups.

Women, Infants, and Children

Certain strains of HIV may infect women more easily. Women who are “receptive” partners are more easily infected with HIV than “insertive” partners because intercourse causes micro abrasions in the vaginal wall, allowing blood transmission to the female. In general, receptive partners are at greater risk for transmission of any sexually transmitted disease, including HIV (CDC, 2021, September 22).

Though HIV diagnoses among women have declined in recent years, more than 7,000 women were diagnosed with HIV in the U.S. and 6 dependent areas in 2018. About 11% are unaware of their positive status (CDC, 2020, May 7).

Some women may be unaware of their male partner’s risk factors for HIV and may not use condoms or medicines to prevent HIV. For women with sexual behaviors that increase their risk of acquiring HIV, HIV testing rates within the past year were low (especially for women who reported anal sex) (CDC, 2020, May 7).

In 2018, for women in the United States:

- Blacks/African Americans (13% of the female population) accounted for 58% of HIV diagnoses.
- Whites (62% of the female population) accounted for 21% of HIV diagnoses.
- Hispanics/Latinos (16% of the female population) accounted for 17% of HIV diagnoses.
- Asians (6% of the female population) accounted for 1% of HIV diagnoses.
- Females of multiple races (2% of the female population) accounted for 3% of HIV diagnoses.
- Native Hawaiians/other Pacific Islanders and American Indians/Alaska Natives (each 1% or less of the female population) each accounted for less than 1% of HIV diagnoses.

CDC, 2020, May 7

HIV-Positive Women are at Increased Risk for Complications

Women infected with HIV are at increased risk for gynecologic problems, such as pelvic inflammatory disease, abscesses of the fallopian tubes and ovaries, and recurrent yeast infections. They may have an increased risk of infection with the human papilloma virus (HPV).

Certain strains of HPV can cause cervical dysplasia, a precancerous condition of the cervix. Cervical dysplasia in HIV-infected women often becomes more aggressive as the woman's immune system declines. This may lead to invasive cervical carcinoma, which is an AIDS-indicator condition.

Women who are infected with HIV, or who have family members who have HIV, often provide care for children or other family members, and may postpone medical appointments or even postpone taking medications. Some may lack of transportation or health insurance. Low income and low health literacy complicate care.

Several studies have shown that women in the U.S. who have HIV receive fewer healthcare services and HIV medications than men. This may be because women aren't diagnosed or tested as frequently (HIV.gov, 2021, June 3).

Violence against women increases the risk of contracting HIV. This can occur through forced sex, sexual abuse in childhood, and human trafficking and sex trafficking (OWH, 2018). Empowering adolescent girls and young women can not only reduce their HIV risk but also confer a broad array of lifelong health and social benefits. Education reduces HIV vulnerability while helping build strong, resilient societies, underscoring the importance of investments in education systems generally—and specifically in measures to help keep girls in school (UNAIDS, 2021, December 1).

Risk of Perinatal Transmission for Women with HIV

It is vital that women know their HIV status before and during pregnancy; antiretroviral treatment significantly reduces the chance that their child will become infected. Advances in research, prevention, and treatment have made it possible for many women with HIV to give birth to babies who are free of HIV. Because of these advances, the annual number of HIV infections through perinatal transmission in the U.S. and dependent areas has declined by more than 95% since the early 1990s (CDC, 2021, September 22).

In Florida, prevention of perinatal HIV is a high priority. Initiatives focused on perinatal transmission include public awareness, proper prenatal care, early testing, and strict adherence to antiretroviral therapy. Babies born with HIV has reached an all-time low in Florida. Since 1993, perinatal transmission is down 95%, with a transmission rate of 1.2% (FDOH, 2015).

HIV can be passed from mother-to-child anytime during pregnancy, childbirth, and breastfeeding. This is called perinatal transmission.

Early diagnosis of HIV infection in newborns is possible with rapid tests. Antiretroviral therapy for infants is now the standard of care and should be started as soon as the child is identified to be HIV-infected. **Uninfected children** born to HIV-positive mothers are currently treated with antiretroviral medicines for 6 weeks to reduce any possibility of HIV transmission.

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

Before the development of antiretroviral therapies, most HIV-infected children were very sick by 7 years of age. In 1994, scientists discovered that a short treatment course of the medication AZT for pregnant women dramatically reduced the number, and rate, of children who became infected perinatally.

Heterosexually Acquired HIV

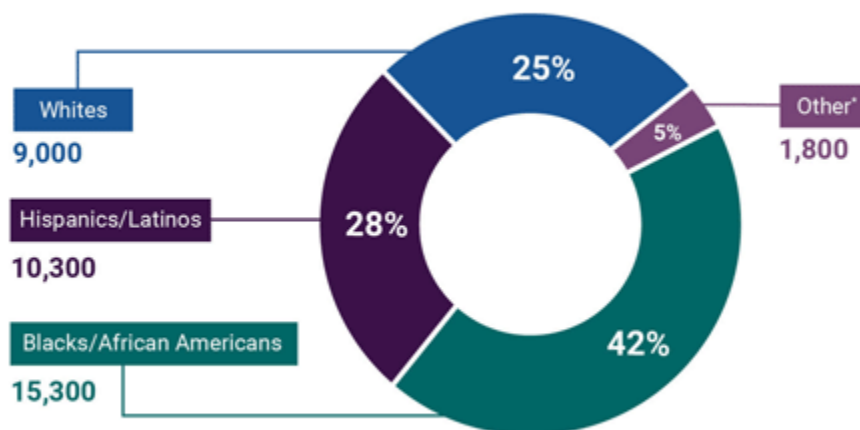
Although HIV diagnosis rates among heterosexually active adults in the U.S. have declined, reducing disparities in HIV prevention and treatment remains a priority. A recent analysis among heterosexually active adult men in the U.S. from 2014–2018 revealed substantial racial and ethnic inequities (Martin et al., 2021).

Although HIV diagnosis rates are highest among persons reporting male-to-male sexual contact, nearly 10% of new diagnoses among males and 85% of new diagnoses among females 13 years or older are heterosexually acquired. To meet national, state, and local “ending the epidemic” goals, further reduction of new infections among heterosexually active adults is needed, particularly among women (Martin et al., 2021).

Numerous factors contribute to inequities in HIV infection rates and health outcomes. Social and structural factors include poverty, unstable housing, incarceration, socioeconomic status, educational attainment, access to quality HIV prevention and care, and racial discrimination. An analysis of viral suppression among adolescents and young adults nationally found that while disparities existed for all racial and ethnic groups, Black persons had the lowest durable viral suppression, which in turn increases transmission risk (Martin et al., 2021).

There are reasons why viral suppression is lower among Black populations. First, minority patients are less likely to have healthcare providers of the same racial and ethnic identity. Similar racial identity is associated with better patient-provider relationships while lower **cultural competence** among providers is associated with worse HIV care outcomes. Second, lower health literacy among Black persons with HIV may also negatively impact adherence to antiretroviral therapy. Structural racism, discrimination, and mistrust in the health system also create barriers to HIV services among Black persons. These mechanisms also apply to other racial and ethnic minority groups (Martin et al., 2021).

The latest incidence estimates indicate that effective prevention and treatment are not adequately reaching people who could benefit most.



* Includes American Indians/Alaska Natives, Asians, Native Hawaiians/Other Pacific Islanders, multiple races

The disproportionate impact of HIV on Black/African American and Hispanic/Latino communities is evident in incidence (new HIV infections). Source: HIV.gov.

For heterosexually active women, there are several reasons why the HIV diagnosis rate is twice as high when compared to men. First, heterosexually active women may be more likely to be screened for HIV than heterosexually active men in the context of receiving reproductive healthcare services. Second, heterosexual intercourse has twice the likelihood of transmitting an infection from the male to the female during vaginal intercourse (Martin et al., 2021).

Third, many infections among heterosexually active women may be associated with male sex partners who are connected to men who have sex with men. Other reasons include lack of awareness of their male sexual partners' HIV status and risk factors and higher engagement in risky behaviors among women who have been sexually abused, with women experiencing higher rates of intimate partner violence than men (Martin et al., 2021).

The legacy of historic racism and trauma to Black women from the era of slavery to modern times have contributed to worse sexual health outcomes. This includes coerced medical experimentation, race-based events such as rape and lynching, and inadequate healthcare, among others. This historical context highlights the importance of culturally responsive interventions to improve involvement and retention in HIV prevention programs and high-quality HIV care for Black women (Martin et al., 2021).

Higher HIV diagnoses among Black heterosexually active women is consistent with research highlighting disparities in sexual health outcomes among Black women. This includes higher rates of maternal morbidity and mortality, congenital syphilis among their newborns, higher rates of unplanned pregnancy among women with HIV, and lower rates of pre-exposure prophylaxis use than either men or White women. More generally, Black populations (including men) experience disparities across health conditions including COVID-19, diabetes, cancer, and other health outcomes (Martin et al., 2021).

8. HIV Prevention

Over the past decade, advances in HIV treatment have yielded new drug combinations, once-daily dosing, and, most recently, the introduction of long-acting injectables for pre- and post-exposure prevention and treatment.

Liz Scherer, WebMD Health News
September 2, 2021

National HIV/AIDS Strategy

In July 2010, the White House released the *National HIV/AIDS Strategy*, a comprehensive roadmap for reducing the impact of HIV. The strategy sets clear priorities and targets for HIV prevention and care in the U.S. and calls on government agencies and their public and private partners to align efforts toward a common purpose (CDC, 2020, May 12).

The strategy includes ambitious prevention goals for the next 5 years:

- Lower the annual number of new infections by 25%
- Increase from 79 to 90% the percentage of people living with HIV who know of their infection
- Reduce the HIV transmission rate by 30%
- Increase the percentage of newly diagnosed people linked to care within 3 months from 65 to 85%
- Increase the proportion of HIV-diagnosed gay and bisexual men, African Americans, and Latinos with undetectable viral load by 20%

CDC, 2020, May 12

The *National HIV/AIDS Strategy* has clear priorities for increasing the impact of HIV prevention efforts in reducing new infections:

- Intensify HIV prevention in the communities where HIV is most heavily concentrated
- Expand targeted use of effective combinations of evidence-based HIV prevention approaches
- Educate all Americans about the threat of HIV and how to prevent it

CDC, 2020 May 12

CDC and its partners are pursuing a *High-Impact Prevention* approach to reducing new HIV infections. This refers to the use of combinations of scientifically proven, cost-effective, and scalable interventions targeted to the right populations in the right geographic areas, and it is intended to increase the impact of HIV prevention efforts.

Syringe Exchange Programs

Syringe exchange programs (SEPs) provide free sterile syringes in exchange for used syringes to reduce transmission of bloodborne pathogens among injection-drug users. SEPs in the U.S. began as a way to prevent the spread of HIV and other bloodborne infections such as HBV and HCV. People who choose to inject drugs are encouraged to use a new, sterile syringe for each injection. There are approximately 950,000 U.S. residents living with HIV/AIDS—25% of infections are directly linked to injection drug use.

As of November 2021, a total of 185 syringe exchange programs were operating in 36 states, the District of Columbia, and Puerto Rico (ACLU, 2021). Florida approved **needle exchange programs (NEPs)** in 2019 and added education, counseling, testing and efforts to control the opioid epidemic by handing out free Narcan (Mack, 2019).

HIV Prevention Through Behavior Change

Several studies have shown that broad behavioral change programs have been central to reversing national epidemics. Hundreds of studies have demonstrated that individual, small group, and community-level interventions can generate safer behaviors (Vu et al., 2015).

Behavioral changes include reducing the number of sexual partners, improving treatment adherence, increasing the availability of clean needles, and increasing the correct use of condoms. These prevention programs target individual behavior and try to address underlying drivers of the epidemic. Media helps by promoting public awareness and encouraging broad-based efforts aimed at altering social norms.

Successful behavioral change and prevention programs emphasize:

- Treating sexually transmitted infections
- Encouraging medical male circumcision
- Providing substitution therapy for chemical dependence
- Providing access to clean injecting equipment

These interventions have led to some dramatic successes within resource-limited settings throughout the world. Countries in a wide variety of settings have contributed to changes in HIV risk behaviors and have saved countless lives. National implementation of these HIV-prevention efforts has been associated with a 50% to 90% decline in HIV incidence and prevalence in key populations.

For people at high risk for HIV infection, behavioral surveillance is conducted by the CDC using the *National HIV Behavioral Surveillance* (NHBS) system. Surveillance is conducted in rotating, annual cycles in three different populations at increased risk for HIV (CDC, 2021, October 3):

1. Gay, bisexual, and other men who have sex with men (**MSM cycle**).
2. Persons who inject drugs (PWID); known as the injection drug use or **IDU cycle**, and
3. Heterosexually active persons at increased risk for HIV infection (**HET cycle**).

NHBS collects data relating to behavioral risk factors for HIV such as sexual behaviors, drug use, HIV testing behaviors, the receipt of prevention services, and use of prevention strategies (e.g. condoms, PrEP). All NHBS participants are offered an HIV test (CDC, 2021, October 3).



National HIV Behavioral Surveillance. PWID = people who inject drugs; MSM = men who have sex with men; HET = heterosexual. Source: CDC.

The data collected by NHBS is used to provide a behavioral context for trends seen in HIV surveillance data. Focusing on populations at increased risk for HIV infection provides information about the leading edge of the epidemic. NHBS monitors the impact of the *National HIV/AIDS Strategy*, which focuses on decreasing HIV incidence, improving linkage to care, and reducing disparities (CDC, 2021, October 3).

The Florida Department of Health, HIV/AIDS Section has implemented the NHBS system in Florida to monitor behaviors that place people at risk for HIV infection. This provides data on 1) trends in sexual and drug-use risk behaviors, 2) HIV prevalence and incidence, 3) HIV testing patterns, and 4) the use and impact of prevention services (FDOH, 2021, March 5).

The Florida project is known locally as *ACXION* (Assessing Characteristics of population X In ON-going surveillance). In collaboration with the University of Miami, the Florida HIV/AIDS Section, and the CDC, consenting participants complete an anonymous interview consisting of a NHBS questionnaire and a local questionnaire tailored to South Florida. Local questions address topics such as crystal methamphetamine use, use of the internet for high-risk behaviors, depression, and social support. Participants also receive anonymous HIV counseling and testing, as well as referrals to psychosocial and healthcare services (FDOH, 2021, March 5).

HIV Vaccine

Development of a safe, effective, preventive HIV vaccine remains key to realizing an end to the HIV/AIDS pandemic. Developing an HIV vaccine is challenging because HIV mutates rapidly and has unique ways of evading the immune system. There are no documented cases of a person living with HIV developing an immune response that cleared the infection (NIAID, 2019).

There is growing confidence that a vaccine for HIV is coming. As with the COVID-19 vaccine, the proposed vaccine is based on an mRNA* model. "We know that ultimately, we are going to have to induce broadly neutralizing antibodies against more than one target," says Mark Feinberg, president, and CEO of the *International AIDS Vaccine initiative*. The work is promising but has not yet produced the desired vaccine (WebMD, 2021, November 3).

***mRNA:** Messenger RNA (mRNA) vaccines teach cells how to make a protein that will trigger an immune response inside our bodies.

COVID-19 and HIV Prevention Programs

The damage done to HIV programs by COVID-19 varies across countries. There have been substantial setbacks, particularly during the first six months of the pandemic (UNAIDS, December 1, 2021).

Harm reduction services for people who use drugs were disrupted in nearly two thirds of 130 countries surveyed in 2020. Voluntary medical male circumcision programs were also badly disrupted in 2020, with some countries suspending the procedures altogether (UNAIDS, December 1, 2021).

The pace of HIV testing declined almost uniformly, HIV diagnoses decreased, and fewer people living with HIV initiated treatment in 2020 in 40 of the 50 countries that reported data to UNAIDS. The biggest disruptions were in the first half of 2020, when many countries were in their first lockdowns and HIV programs were scrambling to adapt (UNAIDS, December 1, 2021).

The number of people living with HIV receiving antiretroviral therapy increased slightly between January and June 2020. This was followed by a larger increase from July 2020 to December 2020, reaching 27.3 million people and another increase during the first six months of 2021. At the end of June 2021, there were 28.2 million people living with HIV on treatment globally (UNAIDS, December 1, 2021).

9. Psychosocial Issues with HIV and AIDS

People with HIV/AIDS and their families and friends face many difficult realities. Many adults with AIDS are in the prime of life and may not be prepared to deal with thoughts of death and dying. The infections and malignancies that accompany AIDS—along with certain medications—can diminish and disfigure the body. Adults caring for children with HIV face many difficult realities.

Some people infected with HIV may be members of groups that are already stigmatized and face discrimination and encounter even more societal pressure and stigma following an HIV or AIDS diagnosis. People infected with HIV may be rejected by family, friends, or co-workers.

Health workers, social workers, teachers, and unpaid caregivers risk their health to provide care and ensure that basic goods and services remain available. Yet they often work in unsafe and exploitative working conditions, they are chronically underpaid and under-resourced, and they are underappreciated during all but the most acute phases of crises. Elevating essential workers and providing them with the resources and tools they need is critical to keeping them on the job (UNAIDS, 2021, December 1).

Most states, including Florida, offers services at local departments of health to link people with care and support services. HIV-infected or HIV-affected people can be linked to medical care, insurance programs, volunteer groups, hospice, and other types of care and support services.

Psychological Suffering

People living in communities that have been significantly affected by HIV may have seen many of their friends pass away, which can lead to **chronic grief**. Grief can intensify over time and manifest in physical symptoms such as clinical depression, hypochondria, anxiety, and insomnia.

A person newly diagnosed with HIV may react with disbelief and numbness. The fear of the unknown, the onset of infections, swollen lymph nodes, and weight loss (or unusual weight gain) can be accompanied by fear of developing AIDS, or of getting sicker. In some cases, guilt develops about the disease, about past behaviors, or about the possibility of having unwittingly infected someone else.

People living with HIV may feel that their "normal" lives have ended. The need to maintain a detailed medication schedule and attend multiple medical appointments can be stressful—especially for a previously healthy young person. Medications are costly and may result in financial hardship, even if the person has medical coverage.

Sadness, hopelessness, helplessness, withdrawal, and isolation are often present. Anger is common: at the virus, at the effects of medications or the failure of some of the medications, and at the prospect of illness or death.

Healthcare professionals should be aware of the psychological suffering people with HIV/AIDS may be experiencing, which can often be masked by maladaptive behaviors such as sexual promiscuity or drug and alcohol abuse.

Some people with HIV may consider suicide or attempt suicide, and some may succeed. Due to the success of antivirals, the suicide rate among people with HIV/AIDS has dropped significantly in recent years. Nevertheless, suicide rates remain higher than the general population. If you someone who is thinking about suicide, call the **National Suicide Hotline** for more information.

Issues for Caregivers in the U.S.

A caregiver is someone who assists a person in need of care. Care can be physical, financial, or emotional. Caregivers can help with basic activities of daily living or with more complex tasks such as medication and home management. A caregiver may provide direct care or manage care from a distance and can be a family member, a neighbor, a friend, or a professional.

Feelings experienced by caregivers—such as a sense of vulnerability, helplessness, and isolation—can mirror those of the person living with HIV. Finding a support system, including a qualified counselor, can be just as important for the caregiver as for the person living with HIV. Good self-care is vital and must be focused on issues specific to each caregiver.

Although families are the primary source of support they are often overwhelmed, marginalized, and under-resourced. Professionals knowledgeable about HIV can help identify vulnerable families, provide access to services, coordinate care, and monitor progress (Kidman and Heymann, 2016).

For people caring for HIV-affected children, HIV can exacerbate existing vulnerabilities, leading to economic, psychological, and social strain. For example, poverty is intensified in HIV-affected families. Medical bills drain resources and illness interferes with income-generating work. For elderly caregivers, the HIV-related death of their own children means that they must not only raise grandchildren but do so without the intergenerational support they might have otherwise received (Kidman and Heymann, 2016).

HIV-affected children commonly reside in the same household as HIV-infected family members, creating dual caregiving responsibilities. Vulnerabilities are interwoven and compound one another. For instance, food scarcity amplifies caregiver depression; depression accelerates disease progression; and poor health among caregivers results in more poor health among children (Kidman and Heymann, 2016).

Some vulnerabilities are unique to HIV-affected caregivers and require specialized services. HIV-positive caregivers need timely access to quality medical care. Caregivers also need help caring for HIV-positive family members at home and constitutional protections against discrimination. These needs are HIV-specific (Kidman and Heymann, 2016).

Policies that support HIV-affected caregivers include:

- Offering adequate sick and family leave policies.
- Providing economic security.
- Protecting income during illness.
- Providing access to education.
- Ensuring access to quality healthcare.
- Expanding social services. (Kidman and Heymann, 2016)

10. HIV and AIDS in Florida

In 1988, Florida became one of the first states with high rates of HIV-infection to enact comprehensive legislation to address the AIDS epidemic. The *Florida Omnibus AIDS Act* requires all licensed healthcare providers to take a course on HIV/AIDS, and licensed healthcare facilities must educate their workforce on HIV infection. It also set standards for testing, informed consent, confidentiality, and reporting requirements (FDOH, 2019).

The *Florida Omnibus AIDS Act* prohibits discrimination against those who are HIV-positive in employment, housing, public services, health and life insurance, and public accommodations.

Testing and Informed Consent

The *Florida Omnibus AIDS Act* stipulates that HIV testing must be “informed, voluntary, and confidential” and “shall be preceded by an explanation of the right to confidential treatment of information identifying the subject of the test and the results of the test to the extent provided by law” (FDOH, 2013).

Consent does not have to be in writing but an explanation of the test and an indication that consent was obtained must be recorded in the medical chart. The person tested must be informed that a positive test will be reported to the county health department with sufficient information to identify the test subject (FDOH, 2013).

“All reasonable efforts” must be made to inform the person of a positive test result. In addition, healthcare providers are required to confirm positive test results through corroborating tests before informing the subject of the result (FDOH, 2013).



A doctor discussing an HIV test result with a patient.
Source: CDC.

There are some exceptions in Florida law to the requirement to obtain informed consent prior to conducting a test for HIV. Informed consent may be waived when deemed necessary by a medical examiner, during medical emergencies, when mandated by a court order, or when a healthcare

worker has had significant exposure to a patient's blood, and a blood sample is already available that was given voluntarily for other purposes (FDOH, 2013).

The *Florida Omnibus AIDS Act* also stipulates the waiving of informed consent when a person is convicted of prostitution or procuring another to commit prostitution, when an inmate is released from prison, or when done at a victim's request in a prosecution for any type of sexual battery where a blood sample is taken from the defendant voluntarily (FDOH, 2013).

Additionally, informed consent may be waived when a blood test is performed as part of an autopsy for which consent was obtained, for epidemiologic research, or when human tissue is collected lawfully without the consent of the donor for corneal removal or enucleation of the eyes. Exceptions may be provided for blood, plasma, organs, skin, semen, or other human tissue (FDOH, 2013).

The *Florida Omnibus AIDS Act* also directs the Florida Department of Health to conduct epidemiologic studies and provide testing and patient care services throughout the state.

Pregnancy

Florida law requires that during pregnancy every healthcare professional, including physicians and midwives, attending a pregnant woman for conditions relating to pregnancy during the period of gestation and delivery must offer the woman tests for sexually transmissible diseases, including HIV (FDOH, 2013).

In 2005 the law was amended to mandate “opt-out” testing for pregnant women. Pregnant women are advised that they will be tested for HIV, but they have the right to refuse. Any refusal must be obtained in writing and placed in the woman’s medical record (FDOH, 2013).

Minors

Minors under the age of 18 do not need parental consent for HIV and STD testing in the state of Florida. Florida law specifically forbids informing the parents of the minor’s HIV test, results, or treatment, even indirectly (FDOH, 2013).

Instances in which informed consent may be waived:

- When a woman is pregnant
- When obtaining informed consent would be detrimental to the patient
- When a hospitalized infant is determined to be abandoned
- When done on a person already determined to be HIV positive and for repeat testing (FDOH, 2013).

Confidentiality

With confidential HIV testing, information about the testing is maintained in a client’s medical records and results are confidential. Results and testing information are not released except when medically necessary or under special circumstances, including when a release is signed for the results to be given to another person or agency.

All patient medical records are confidential, but to encourage voluntary testing the *Florida Omnibus AIDS Act* makes HIV test results **super confidential**. The super confidentiality applies only to the results of laboratory reports and does not extend to clinical observations regarding symptoms associated with AIDS. Breach of confidentiality of sexually transmitted disease information is a third-degree felony.

Anonymous HIV antibody testing is available. Clients do not give their name and the person who orders or performs the test maintains no record of the name of the person being tested. As part of the informed consent process, clients must be given information on the availability and location of anonymous test sites. Each Florida county health department maintains a list of available anonymous test sites (FDOH, 2021, July 16).

Reportable Disease

Acquired immune deficiency syndrome (AIDS) is a reportable disease in Florida. Facilities providing healthcare services must submit case reports for reportable diseases and conditions, in line with the *Health Care Practitioner Reporting Guidelines*, to the appropriate county health department contact. Medical records must be made available for epidemiologic investigations (FDOH, 2021, October 4).

The reporting requirement can be fulfilled in 2 ways:

1. Electronic case reporting (eCR)
2. Fax reporting

Electronic case reporting is now automated. Traditionally, healthcare providers communicated with public health agencies about cases by manually compiling and sending case reports to health departments via FAX, phone call or email. eCR makes it possible to automatically generate case reports from electronic health records and transmit them via a secure, web-based platform (FDOH, 2021 October 4).

Entities that provide both healthcare **and** laboratory services (e.g., physicians providing point of care lab testing) must fulfill the requirement for healthcare providers **and** laboratory providers (FDOH, 2021 October 4).

11. Conclusion

Many well-documented and successful strategies have been employed in the U.S. and throughout the world to address the devastating expansion of the AIDS epidemic. Nevertheless, the cost in lives and lost productivity remains a staggering problem. HIV/AIDS affects people of all ages and ethnic backgrounds, worldwide and in the United States. In Florida, HIV/AIDS is the third leading cause of death among women between the ages of 25 and 44, and the sixth leading cause of death in men in that age group.

As healthcare workers, we can encourage practices that are known to reduce the spread of AIDS, including use of antiretroviral therapy, behavioral change, access to quicker testing, prompt treatment of sexually transmitted disease, use of clean injectable drug equipment, routine HIV testing, patient education and counseling, and consistent condom use. The goal is to eliminate new HIV-infections entirely in Florida, and throughout the U.S. and the world. We all play a vital role in accomplishing this goal.

For Further Reading

Florida State Resources

Florida Department of Health HIV/AIDS

<http://www.floridahealth.gov/diseases-and-conditions/aids/index.html>

Housing Opportunities for Persons with AIDS (HOPWA) Florida State Program

<http://www.floridahealth.gov/diseases-and-conditions/aids/patient-care/hopwa.html>

Disease Reporting Information for Health Care and Laboratory Providers

<http://www.floridahealth.gov/diseases-and-conditions/disease-reporting-and-management/index.html>

National Resources

National HIV/AIDS Strategy 2022-2025

<https://www.hiv.gov/federal-response/national-hiv-aids-strategy/national-hiv-aids-strategy-2022-2025>

Office on Women's Health: Violence Against Women and HIV Risk

<https://www.womenshealth.gov/hiv-and-aids/women-and-hiv/violence-against-women-and-hiv-risk>

HIV Testing Sites & Care Services Locator

<https://www.hiv.gov/locator>

Global Resources

Unequal, Unprepared, and Under Threat: Why Bold Action against Inequalities is Needed to End AIDS

<https://www.unaids.org/en/resources/documents/2021/2021-World-AIDS-Day-report>

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Quiz: Florida HIV / AIDS, 3 units (327)

1. According to UNAIDS estimates, since 2004 new cases of HIV infection are:

- a. Increasing in every region of the world.
- b. Increasing only in Asian countries.
- c. Decreasing in every region of the world.
- d. Increasing in some regions and decreasing in others.

2. Most HIV cases in the United States:

- a. Occur in women of Hispanic ancestry.
- b. Occur in male-to-male sexual contact.
- c. Are in African American women.
- d. Are seen in teenage boys.

3. An AIDS-defining condition is:

- a. Is determined within 2 weeks of a positive HIV test.
- b. Any illness such as seasonal influenza.
- c. Any HIV-related illness included in CDC's list of diagnostic criteria for AIDS.
- d. Is unrelated to a diagnosis of AIDS.

4. HIV:

- a. Progressively destroys the body's ability to fight infection and disease if left untreated.
- b. Immediately destroys the body's ability to fight infection and disease whether it is treated or not.
- c. Can be treated with a vaccine.
- d. Is the same as AIDS.

5. The term AIDS:

- a. Refers to the period immediately after HIV infection.
- b. Can be used interchangeably with the term HIV.
- c. Refers only to the most advanced stage of HIV infection.
- d. Refers to the period when the person is least vulnerable to other infections.

6. HIV attacks the immune system by destroying CD4+ T cells, a type of white blood cell that is vital to fighting off infection.

- a. True
- b. False

7. For HIV to be transmitted, there must be:

- a. A source
- b. A sufficient dose
- c. Access to the bloodstream of another person
- d. All of the above.

8. Approximately 15% of people in the U.S. who are infected with HIV do not know they are infected.

- a. True
- b. False

9. For an HIV-infected person who contracts COVID-19:

- a. People living with HIV who acquire SARS-CoV-2 infection may be at heightened risk of serious illness and death.
- b. Research has shown that people with HIV are at not at greater risk of acquiring SARS-CoV-2 infection.
- c. People with HIV are at lower risk for acquiring SARS-CoV-2 infection.
- d. A person with HIV who contracts COVID-19 cannot pass the COVID virus to another person.

10. There are several tests available to test for HIV infection. A positive test means you:

- a. Do not have HIV.
- b. Are infected with HIV and can infect others who come into contact with your blood, semen, or vaginal fluids.
- c. Are infected with HIV but cannot infect another person for at least 6 months.
- d. Do not have HIV but may be in the "window period" with no detectable antibodies for up to 6 months.

11. Which of the following is true about HIV counseling in Florida?

- a. State law requires face-to-face pre- and post-test counseling.
- b. Department of Health recommends pre- and post-test counseling by phone.
- c. State law requires no counseling of any type for anyone.
- d. Department of Health recommends face-to-face post-test counseling.

12. Standard Precautions:

- a. Are the minimum infection prevention practices that apply to all patient care, regardless of suspected or confirmed infection status of the patient, in any setting where healthcare is delivered.
- b. Are not implemented unless a patient has been diagnosed with AIDS or hepatitis C.
- c. Should be followed only when infection status is suspected or confirmed, in any setting where healthcare is delivered.
- d. Mandate only the use of protective eyewear and face shields for nurses and doctors.

13. Hand hygiene:

- a. Is required only after contact with blood or other infectious materials.
- b. Is not required if double gloves are used during an invasive procedure.
- c. Includes the use of lotion to prevent dry skin.
- d. Is the single most important procedure for preventing the spread of infections.

14. A percutaneous exposure occurs when:

- a. Carrying a red-bagged urine specimen to the lab.
- b. Taking the temperature of an HIV-infected patient using Standard Precautions.
- c. When a needle or other sharp object penetrates the skin.
- d. When assisting an HIV-infected patient to walk in the hallway.

15. Personal protective equipment (PPE) is:

- a. Not required to be provided by the employer.
- b. Specialized clothing or equipment worn by an employee for protection against infectious materials.
- c. Only required to be worn by nursing staff.
- d. Not worn by housekeeping staff.

16. An occupational exposure to a bloodborne pathogen can occur when:

- a. Your non-intact skin is exposed to blood, tissue, or other potentially infectious material.
- b. You are stuck with a sterile needle when arranging equipment prior to surgery.
- c. When you are changing the bedding of an HIV-infected patient.
- d. When assisting an HIV-infected during a meal.

17. HIV transmission risk through a needlestick to healthcare workers is:

- a. Highest with a blood splash to the eyes, nose, or mouth.
- b. Less than 0.23%.
- c. The same as that of HCV.
- d. Not affected by the amount of virus present in the exposure.

18. Sharps injuries:

- a. Should be "milked" to increase cleansing blood flow.
- b. Must not be treated with antiseptics.
- c. Should be washed with soap and water immediately after the exposure.
- d. Are not considered an occupational exposure.

19. Treatment after a potential exposure includes all the following except:

- a. Washing the affected area with soap and water.
- b. Flushing exposed eyes, nose, or mouth with water, saline, or sterile irrigation.
- c. Removal of potentially contaminated clothing.
- d. Application of antiseptics when washing is inconvenient.

20. Post exposure prophylaxis (PEP):

- a. Is only recommended after engaging in unprotected sex.
- b. Provides anti-HIV medications to someone who has had a substantial exposure, usually to blood.
- c. requires that the affected employee be assigned to another department until the incident is fully investigated.
- d. Is only started after consultation with the county health department.

21. The reduction of deaths from AIDS in the U.S. has been primarily attributed to:

- a. A gradual decrease in the potency of the HIV virus.
- b. Behavioral changes among young men.
- c. Combination therapy, known as **antiretroviral therapy (ART)**.
- d. The development of new antibacterial medications.

22. People who are aging with HIV:

- a. Have an increased burden of age-related chronic conditions, including renal impairment, cardiovascular disease, cancer, end-stage liver disease, hypertension, and diabetes.
- b. Experience chronic immune activation from the viral infection as well as metabolic outcomes linked to some earlier versions of antiretroviral medications.
- c. Have a higher prevalence of traditional risk factors for age-related conditions, the most prominent being a higher prevalence of smoking.
- d. All of the above.

23. The population most affected by HIV in the United States is:

- a. Gay, bisexual, and other men who have sex with men.
- b. Heterosexual women over the age of 50.
- c. Youth of Asian descent.
- d. Gay, bisexual women who have sex with women.

24. Women who are "receptive" partners are more easily infected with HIV than "insertive" partners because intercourse causes micro abrasions in the vaginal wall, allowing blood transmission to the female.

- a. True
- b. False

25. HIV can be transmitted from mother to child anytime during pregnancy, childbirth, breastfeeding.

- a. True
- b. False

26. Treatment for HIV infection in infants:

- a. Is the same as treatment for the mother.
- b. Should be started as soon as the child tests positive for HIV-infection.
- c. Should not be used in uninfected children who are born to mothers who are HIV-positive.
- d. Should not be started until 2 years of age or later.

27. HIV infections among heterosexually active women may be associated with:

- a. Male sex partners who are connected to men who have sex with men.
- b. Lack of awareness of their male sexual partners' HIV status.
- c. Higher engagement in risky behaviors among women who have been sexually abused.
- d. All of the above.

28. The *National HIV/AIDS Strategy* increases the impact of HIV prevention efforts by:

- a. Intensifying HIV prevention in the communities where HIV is most heavily concentrated.
- b. Expanding evidence-based HIV prevention programs.
- c. Educating all Americans about the threat of HIV and how to prevent it.
- d. All of the above.

29. Behavioral change programs aimed at reducing the spread of HIV include reducing the number of sexual partners, improving treatment adherence, increasing the availability of clean needles, and increasing the correct use of condoms.

- a. True
- b. False

30. Chronic grief can occur after an HIV diagnosis because many adults with AIDS are in the prime of life and may not be prepared to deal with thoughts of death and dying.

- a. True
- b. False

31. HIV often exacerbates existing vulnerabilities in HIV-affected families. Existing poverty is intensified, increased medical bills drain resources, and illness interferes with income-generating work.

- a. True
- b. False

32. The Florida Omnibus AIDS Act requires that HIV testing be:

- a. Informed, voluntary, and consensual.
- b. Informed and voluntary only.
- c. Informed, voluntary, and confidential.
- d. Mandatory and confidential.

33. Florida law makes HIV test results super confidential. Breach of this confidentiality is:

- a. A third-degree felony.
- b. A misdemeanor.
- c. Cause for a reprimand.
- d. Punishable by a \$10,000 fine.

34. In Florida, minors under the age of 18:

- a. Must get parental permission for HIV and STD testing.
- b. Do not need parental consent for HIV and STD testing.
- c. Should not be engaging in unprotected sex.
- d. Cannot be offered HIV or STD testing.

Answer Sheet: FL HIV / AIDS, 3 units (327)

Name (Please print) _____

Date_____

Passing score is 80%

1. _____	13. _____	24. _____
2. _____	14. _____	25. _____
3. _____	15. _____	26. _____
4. _____	16. _____	27. _____
5. _____	17. _____	28. _____
6. _____	18. _____	29. _____
7. _____	19. _____	30. _____
8. _____	20. _____	31. _____
9. _____	21. _____	32. _____
10. _____	22. _____	33. _____
11. _____	23. _____	34. _____
12. _____		

Course Evaluation: Florida HIV / AIDS, 3 units (327)

Please use this scale for your course evaluation. Items with asterisks * are required.

1 = Strongly agree 2 = Agree 3 = Neutral 4 = Disagree 5 = Strongly disagree

*Upon completion of the course, I was able to:

- Discuss the prevalence and incidence of HIV and AIDS. 1 2 3 4 5
- Identify the 3 mechanisms required for transmission to occur. 1 2 3 4 5
- Outline the basic components of HIV antibody testing. 1 2 3 4 5
- Name 3 infection control practices shown to prevent transmission of HIV. 1 2 3 4 5
- Describe 3 ways to prevent occupational exposure to a bloodborne pathogen. 1 2 3 4 5
- Explain 3 components of an HIV evaluation. 1 2 3 4 5
- Identify 4 special populations that may be at higher risk for HIV-infection. 1 2 3 4 5
- Relate 3 components of an HIV prevention program. 1 2 3 4 5
- Discuss 3 psychosocial issues associated with HIV and AIDS. 1 2 3 4 5
- Name 3 components of the Florida Omnibus AIDS Act. 1 2 3 4 5

*The author(s) are knowledgeable about the subject matter. 1 2 3 4 5

*The author(s) cited evidence that supported the material presented. 1 2 3 4 5

*Did this course contain discriminatory or prejudicial language? Yes No

*Was this course free of commercial bias and product promotion? Yes No

*As a result of what you have learned, will make any changes in your practice? Yes No

If you answered Yes above, what changes do you intend to make? If you answered No, please explain why.

*Do you intend to return to ATrain for your ongoing CE needs?

____ Yes, within the next 30 days. ____ Yes, during my next renewal cycle.

____ Maybe, not sure. ____ No, I only needed this one course.

*Would you recommend ATrain Education to a friend, co-worker, or colleague?

____ Yes, definitely. ____ Possibly. ____ No, not at this time.

*What is your overall satisfaction with this learning activity? 1 2 3 4 5

*Navigating the ATrain Education website was: ____ Easy ____ Somewhat easy ____ Not at all easy.

*How long did it take you to complete this course, posttest, and course evaluation?

- ☐ 60 minutes (or more) per contact hour ☐ 59 minutes per contact hour
☐ 40-49 minutes per contact hour ☐ 30-39 minutes per contact hour
☐ Less than 30 minutes per contact hour

I heard about ATrain Education from:

- ☐ Government or Dept of Health website. ☐ State board or professional association.
☐ Searching the Internet. ☐ A friend.
☐ An advertisement. ☐ I am a returning customer.
☐ My employer. ☐ Social Media
☐ Other _____

Please let us know your age group to help us meet your professional needs

- ☐ 18 to 30 ☐ 31 to 45 ☐ 46+

I completed this course on:

- ☐ My own or a friend's computer. ☐ A computer at work.
☐ A library computer. ☐ A tablet.
☐ A cellphone. ☐ A paper copy of the course.

Please enter your comments or suggestions here:

[Continue to next page for registration and payment]

Registration and Payment Form (327)

Please answer all of the following questions (* required).

*Name: _____

*Email: _____

*Address: _____

*City and State: _____

*Zip: _____

*Country: _____

*Phone: _____

*Professional Credentials/Designations:

*License Number and State: _____

Payment Options

You may pay by credit card*, check or money order.

*Fill out this section **only** if you are paying by credit card.

3 contact hours: \$29

Credit card information

*Name: _____

Address (if different from above):

*City and State: _____

*Zip: _____

*Card type: Visa Master Card American Express Discover

*Card number: _____

*CVS#: _____ *Expiration date: _____