

- HIV is a virus that attacks the immune system. If untreated, a person's immune system will eventually be destroyed.
- AIDS refers to a set of symptoms and illnesses that occur at the final stage of HIV infection.

### What is HIV?

HIV is a virus that attacks the immune system, which is our body's natural defence against illness. The virus destroys a type of white blood cell in the immune system called a T-helper cell, and makes copies of itself inside these cells. T-helper cells are also referred to as CD4 cells.

As HIV destroys more CD4 cells and makes more copies of itself, it gradually breaks down a person's immune system. This means someone living with HIV, who is not receiving treatment, will find it harder and harder to fight off infections and diseases.

If HIV is left untreated, it may take up to 10 or 15 years for the immune system to be so severely damaged it can no longer defend itself at all. However, the speed HIV progresses will vary depending on age, health and background.

### Basic facts about HIV

- HIV stands for human immunodeficiency virus.
- There is effective [antiretroviral treatment](#) available so people with HIV can live a normal, healthy life.
- The earlier HIV is diagnosed, the sooner treatment can start - leading to better long term health. So regular [testing](#) for HIV is important.
- HIV is found in semen, blood, vaginal and anal fluids, and breast milk.
- HIV cannot be transmitted through sweat, saliva or urine.
- Using [male condoms](#) or [female condoms](#) during sex is the best way to prevent HIV and other [sexually transmitted infections](#).
- If you [inject drugs](#), always use a clean needle and syringe, and never share equipment.
- If you are [pregnant](#) and living with HIV, the virus in your blood could pass into your baby's body, or after giving birth through breastfeeding. Taking [HIV treatment](#) virtually eliminates this risk.

### What is AIDS?

AIDS is not a virus but a set of [symptoms](#) (or syndrome) caused by the HIV virus. A person is said to have AIDS when their immune system is too weak to fight off infection, and they develop certain defining symptoms and illnesses. This is the last stage of HIV, when the infection is very advanced, and if left untreated will lead to death.

## **Basic facts about AIDS**

- AIDS stands for acquired immune deficiency syndrome.
- AIDS is also referred to as advanced HIV infection or late-stage HIV.
- AIDS is a set of symptoms and illnesses that develop as a result of advanced HIV infection which has destroyed the immune system.
- Treatment for HIV means that more people are staying well, with fewer people developing AIDS.

Although there is currently no [cure for HIV](#) with the right treatment and support, people with HIV can live long and healthy lives. To do this, it is especially important to take treatment correctly and deal with any possible side-effects.

## **HIV/AIDS**

AIDS (acquired immunodeficiency syndrome) is a syndrome caused by a virus called HIV (human immunodeficiency virus). The disease alters the immune system, making people much more vulnerable to infections and diseases. This susceptibility worsens if the syndrome progresses.

HIV is found throughout all the tissues of the body but is transmitted through the body fluids of an infected person (semen, vaginal fluids, blood, and breast milk).

HIV is a virus that attacks immune cells called CD-4 cells, which are a subset of T cells. AIDS is the syndrome, which may or may not appear in the advanced stage of HIV infection.

**HIV is a virus.**

**AIDS is a medical condition.**

HIV infection can cause AIDS to develop. Without treatment, HIV can progress and, eventually, it will develop into AIDS in the vast majority of cases.

## **Causes**

HIV can be passed from one person to another through blood-to-blood and sexual contact.

HIV is a retrovirus that infects the vital organs and cells of the human immune system.

The virus progresses in the absence of antiretroviral therapy (ART) - a drug therapy that slows or prevents the virus from developing.

The rate of virus progression varies widely between individuals and depends on many factors.

These factors include the age of the individual, the body's ability to defend against HIV, access to healthcare, the presence of other infections, the individual's genetic inheritance, resistance to certain strains of HIV, and more.

### **How is HIV transmitted?**

**Sexual transmission** — it can happen when there is contact with infected sexual fluids (rectal, genital, or oral mucous membranes). This can happen while having sex without a condom, including vaginal, oral, and anal sex, or sharing sex toys with someone who is HIV-positive.

**Perinatal transmission** — a mother can transmit HIV to her child during childbirth, pregnancy, and also through breast feeding.

**Blood transmission** — the risk of transmitting HIV through blood transfusion is extremely low in developed countries. However, among people who inject drugs, sharing and reusing syringes contaminated with HIV-infected blood is extremely hazardous.

### **Symptoms**

For the most part, the later symptoms of HIV infection are the result of infections caused by bacteria, viruses, fungi, and/or parasites.

#### **Early symptoms of HIV infection**

Some people with HIV infection have no symptoms until several months or even years after contracting the virus. However, around [80 percent](#) may develop symptoms similar to [flu](#) 2-6 weeks after catching the virus. This is called acute retroviral syndrome.

The symptoms of early HIV infection may include:

- [fever](#)
- chills
- joint pain
- muscle aches
- [sore throat](#)
- sweats (particularly at night)
- enlarged glands
- a red rash

- [tiredness](#)
- weakness
- unintentional weight loss
- thrush

It is important to remember that these symptoms appear when the body is fighting off many types of viruses, not just HIV. However, if you have several of these symptoms and believe you could have been at risk of contracting HIV in the last few weeks, you should take a test.

### **Asymptomatic HIV**

In many cases, after the initial symptoms disappear, there will not be any further symptoms for many years.

During this time, the virus carries on developing and damaging the immune system and organs. Without medication that stops HIV replicating, this process of slow immune depletion can continue, typically for an average of 10 years. The person living with HIV often experiences no symptoms, feels well, and appears healthy.

### **Late-stage HIV infection**

If left untreated, HIV weakens the ability to fight infection. The person becomes vulnerable to serious illnesses. This stage is known as AIDS or stage 3 HIV.

Symptoms of late-stage HIV infection may include:

- blurred vision
- [diarrhea](#), which is usually persistent or chronic
- dry cough
- fever of above 100 ° F (37 ° C) lasting for weeks
- night sweats
- permanent tiredness
- shortness of breath (dyspnea)
- swollen glands lasting for weeks
- unintentional weight loss
- white spots on the tongue or mouth

During late-stage HIV infection, the risk of developing a life-threatening illness is much greater. Serious conditions may be controlled, avoided, and/or treated with other medications, alongside HIV treatment.

### **HIV and AIDS myths and facts**

There are many misconceptions about HIV and AIDS. The virus cannot be transmitted from:

- shaking hands
- hugging
- casual kissing
- sneezing
- touching unbroken skin
- using the same toilet
- sharing towels
- sharing cutlery
- mouth-to-mouth resuscitation
- or other forms of "casual contact"

### **Diagnosis**

The CDC (Centers for Disease Control and Prevention) estimates that about [1 in every 8](#) HIV-positive Americans is unaware of their HIV status.

### **HIV blood tests and results**

Diagnosis is made through a blood test that screens specifically for the virus. If HIV has been found, the test result is "positive." The blood is re-tested several times before a positive result is given.

If a person has been exposed to the virus, it is crucial that they get tested as soon as possible. The earlier HIV is detected, the more likely the treatment will be successful. A home testing kit can be used as well.

After infection with HIV, it can take from 3 weeks to 6 months for the virus to show up in testing. Re-testing may be necessary. If the moment an individual was most at risk of infection was within the last 6 months, they can have the test immediately. However, the provider will urge that another test is carried out within a few weeks.

### **Treatment**



The red ribbon is the worldwide symbol of support and awareness for people living with HIV.

There is currently no cure for HIV or AIDS. Treatments can stop the progression of the condition and allow most people living with HIV the opportunity to live a long and relatively healthy life.

Earlier HIV antiretroviral treatment is crucial — it improves quality of life, extends life expectancy, and reduces the risk of transmission, according to the World Health Organization's guidelines issued in [June 2013](#).

Currently, there is no vaccine or cure for HIV, but treatments have evolved which are much more effective and better tolerated; they can improve patients' general health and quality of life considerably, in as little as one pill per day.

It is now established that, given the right treatment, someone living with HIV can reduce his or her viral load to such a degree that it is no longer detectable. After assessing a number of large studies, the [CDC](#) concluded that individuals who have no detectable viral load "have effectively no risk of sexually transmitting the virus to an HIV-negative partner."

**This is referred to as undetectable = untransmittable (U=U).**

#### **Emergency HIV pills (post-exposure prophylaxis)**

If an individual believes they have been exposed to the virus within the last 72 hours (3 days), anti-HIV medications, called PEP (post-exposure prophylaxis) may stop infection. The treatment should be taken as soon as possible after contact with the virus.

PEP is a treatment lasting 4 weeks, a total of 28 days. Monitoring for HIV will be continued after completion of the treatment.

#### **Antiretroviral drugs**

HIV is treated with antiretrovirals (ARVs). The treatment fights the HIV infection and slows down the spread of the virus in the body. Generally, people living with HIV take a combination of medications called HAART

(highly active antiretroviral therapy) or cART (combination antiretroviral therapy).

There are a number of subgroups of antiretrovirals; these include:

### **Protease inhibitors**

Protease is an enzyme that HIV needs to replicate. As the name suggests, protease inhibitors bind to the enzyme and inhibit its action, preventing HIV from making copies of itself. These include atazanavir/cobicistat (Evotaz), lopinavir/ritonavir (Kaletra), and darunavir/cobicistat (Prezcobix).

### **Integrase inhibitors**

HIV needs the integrase enzyme to infect T cells. This drug prevents that step. Integrase inhibitors are often used in the first line of treatment because they are effective for many people, and cause minimal side effects. Integrase inhibitors include elvitegravir (Vitekta), dolutegravir (Tivicay), and raltegravir (Isentress)

### **Nucleoside/nucleotide reverse transcriptase inhibitors (NRTIs)**

These drugs, also referred to as "nukes," interfere with HIV as it tries to replicate and make more copies of itself. NRTIs include abacavir (Ziagen), lamivudine/zidovudine (Combivir), and emtricitabine (Emtriva)

### **Non-nucleoside reverse transcriptase inhibitors (NNRTIs)**

NNRTIs work in a similar way to NRTIs, making it more difficult for HIV to replicate.

### **Chemokine co-receptor antagonists**

Also known as CCR5, these drugs block HIV from entering cells. They are rarely used in America because other drugs are more effective.

### **Entry inhibitors**

Entry inhibitors prevent HIV from entering T cells. Without access to these cells, HIV cannot replicate. As with chemokine co-receptor antagonists, they are rarely used in the United States.

A combination of these drugs will be used; the exact mix of drugs is adapted to each individual. HIV treatment is usually permanent and lifelong. HIV treatment is based on routine dosage. Pills must be taken on a regular schedule, every time. Each class of ARVs has different side effects, but some possible common side effects include:

- nausea
- fatigue
- diarrhea
- [headache](#)
- skin rashes

#### Prevention

To prevent contracting HIV, healthcare professionals advise precautions related to:

**Condomless sex** - having sex without a condom can put a person at risk of contracting HIV and other [sexually transmitted infections](#) (STIs). HIV can be transmitted by having sex without a condom (vaginal, oral, and/or anal sex). It can also be transmitted by sharing sex toys with someone infected with HIV. Condoms should be used with every sexual act.

**Drug injection and needle sharing** - intravenous drug use is an important factor in HIV transmission in developed countries. Sharing needles can expose users to HIV and other viruses, such as [hepatitis C](#). Strategies such as needle-exchange programs are used to reduce the infections caused by drug abuse. If someone needs to use a needle, it must be a clean, unused, unshared needle.

**Body fluid exposure** - exposure to HIV can be controlled by employing precautions to reduce the risk of exposure to contaminated blood. Healthcare workers should use barriers (gloves, masks, protective eyewear, shields, and gowns) in the appropriate circumstances. Frequent and thorough washing of the skin immediately after coming into contact with blood or other bodily fluids can reduce the chance of infection.

**Pregnancy** - some ARVs can harm the unborn child. But an effective treatment plan can prevent HIV transmission from mother to baby. Precautions have to be taken to protect the baby's health. Delivery through [cesarean section](#) may be necessary.

HIV-infected mothers can pass the virus through their breast milk. However, if the mother is taking the correct medications, the risk of transmitting the virus is greatly reduced. It is important for a new mother to discuss the options with a healthcare provider.

**Education** - teaching people about known risk factors is vital.