

# HIV/AIDS: Causes, Symptoms and Treatments

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**AIDS** (Acquired immune deficiency syndrome or acquired immunodeficiency syndrome) is a syndrome caused by a virus called **HIV** (Human Immunodeficiency Virus). The illness alters the immune system, making people much more vulnerable to infections and diseases. This susceptibility worsens as the syndrome progresses.

HIV is found in the body fluids of an infected person (semen and vaginal fluids, blood and breast milk). The virus is passed from one person to another through blood-to-blood and sexual contact. In addition, infected pregnant women can pass HIV to their babies during pregnancy, delivering the baby during childbirth, and through breast feeding.

HIV can be transmitted in many ways, such as vaginal, oral sex, anal sex, blood transfusion, and contaminated hypodermic needles.

Both the virus and the syndrome are often referred to together as **HIV/AIDS**. People with HIV have what is called HIV infection. As a result, some will then develop AIDS. The development of numerous opportunistic infections in an AIDS patient can ultimately lead to death.

According to research, the origins of HIV date back to the late nineteenth or early twentieth century in west-central Africa. AIDS and its cause, HIV, were first identified and recognized in the early 1980s.

There is currently no cure for HIV or AIDS. Treatments can slow the course of the condition - some infected people can live a long and relatively healthy life.

## **What is HIV/AIDS?**

**HIV is** the virus which attacks the T-cells in the immune system.

**AIDS is** the syndrome which appears in advanced stages of HIV infection.

**HIV is** a virus.

**AIDS is** a medical condition.

HIV infection causes AIDS to develop. However, it is possible to be infected with HIV without developing AIDS. Without treatment, the HIV infection is allowed to progress and eventually it will develop into AIDS in the vast majority of cases.

HIV testing can identify infection in the early stages. This allows the patient to use prophylactic (preventive) drugs which will slow the rate at which the virus replicates, delaying the onset of AIDS.

AIDS patients still have the HIV virus and are still infectious. Someone with AIDS can pass HIV to someone else.

## **Causes of HIV/AIDS**

HIV is a retrovirus that infects the vital organs of the human immune system. The virus progresses in the absence of antiretroviral therapy. The rate of virus progression varies widely between individuals and depends on many factors (age of the patient, body's ability to defend against HIV, access to health care, existence of coexisting infections, the infected person's genetic inheritance, resistance to certain strains of HIV).

### **HIV can be transmitted through:**

- **Sexual transmission.** It can happen when there is contact with infected sexual secretions (rectal, genital or oral mucous membranes). This can happen while having unprotected sex, including vaginal, oral and anal sex or sharing sex toys with someone infected with HIV.
- **Perinatal transmission.** The mother can pass the infection on to her child during childbirth, pregnancy, and also through breastfeeding.
- **Blood transmission.** The risk of transmitting HIV through blood transfusion is nowadays extremely low in developed countries, thanks to meticulous screening and precautions. Among drug users, sharing and reusing syringes contaminated with HIV-infected blood is extremely hazardous.

Thanks to strict protection procedures the risk of accidental infection for healthcare workers is low.

Individuals who give and receive tattoos and piercings are also at risk and should be very careful.

## **Common Myths About HIV and AIDS**

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"

HIV/AIDS: Symptoms and Diagnosis

### **Symptoms of HIV and AIDS**

**What is the difference between a sign and a symptom?** A sign is something other people, apart from the patient can detect, such as a swelling, rash, or change in skin color. A symptom is something only the patient feels and describes, such as a [headache](#), [fatigue](#), or dizziness.

For the most part, the symptoms of HIV are the result of infections caused by bacteria, viruses, fungi and parasites. These conditions do not normally develop in individuals with healthy immune systems, which protect the body against infection.

### **Symptoms of early HIV infection**

Many people with HIV have no symptoms for several years. Others may develop symptoms similar to [flu](#), usually two to six weeks after catching the virus. The symptoms can last up to four weeks.

### **Symptoms of early HIV infection may include:**

- [fever](#)
- chills

- joint pain
- muscle ache
- **sore throat**
- sweats (particularly at night)
- enlarged glands
- a red rash
- tiredness
- weakness
- weight loss

### **Asymptomatic HIV infection**

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 damages the immune system. This process can take up to 10 years. The infected person will experience no symptoms, feel well and appear healthy.

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

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

#### **Symptoms of late-stage HIV infection may include:**

- blurred vision
- **diarrhea**, which is usually persistent or chronic
- dry cough
- fever of above 37C (100F) lasting for weeks
- night sweats
- permanent tiredness
- shortness of breath
- swollen glands lasting for weeks
- 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. Examples include:

- **esophagitis** (an **inflammation** of the lining of the lower end of the esophagus)
- infections to the nervous system (acute aseptic **meningitis**, subacute **encephalitis**, peripheral **neuropathy**)
- **pneumonia**
- some **cancers**, such as **Kaposi's sarcoma**, invasive **cervical cancer**, **lung cancer**, rectal carcinomas, hepatocellular carcinomas, head and neck cancers, cancers of the immune system known as **lymphomas**
- toxoplasmosis (a disease caused by a parasite that infects the brain. It can also cause disease in the eyes and lungs)
- **tuberculosis**

Life-threatening illnesses may be controlled and treated with proper HIV treatment.

## Diagnosis of HIV/AIDS

A 2011 report issued by the CDC (Centers for Disease Control and Prevention), USA, found that about **1 in every 5 HIV-positive Americans is unaware of their HIV-status**, and only 49% of those who are aware receive ongoing medical care and treatment.

## Blood test

Diagnosis is made through a blood test that screens specifically for the virus.

If the HIV virus has been found, the test result is "*positive*". The blood is re-tested several times before a positive result is given to the patient.

For those whose tests came back positive, they will be asked to undergo some other tests to see how the infection has progressed, and also to decide when to start treatment.

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. Also, precautions can be taken to prevent the virus from spreading to other people.

After infection with HIV, it can take up from three weeks to three months for the virus to show up in testing. Re- testing may be necessary.

If a patient's most at risk moment of becoming HIV infected was within the last three months, he/she can have the test immediately. However, a good doctor will urge that another test be carried out within a few weeks.

HIV/AIDS: Treatments, Prevention and Management

## **Treatments for HIV/AIDS**

**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.

When an HIV-positive adult's CD4 cell count is 500 cells/mm<sup>3</sup> or lower they should start treatment immediately.

According to Margaret Chan, WHO Director-General "These guidelines represent another leap ahead in a trend of ever-higher goals and ever-greater achievements. With nearly 10 million people now on antiretroviral therapy, we see that such prospects - unthinkable just a few years ago - can now fuel the momentum needed to push the HIV epidemic into irreversible decline."

Currently, there is no vaccine or cure for HIV/AIDS. But treatments have evolved which are much more efficacious - they can improve patients' general health and quality of life considerably.

## **Emergency HIV pills**

If an individual believes they have been exposed to the virus within the last 72 hours (three days), anti-HIV medication, 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 very demanding treatment lasting four weeks. It is also associated with unpleasant side effects (diarrhea, malaise, nausea, weakness and fatigue).

After a positive HIV diagnosis, regular blood tests are necessary to monitor the progress of the virus before starting treatment. The therapy is designed to reduce the level of HIV in the blood.

## 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, patients take a combination of medications called HAART (highly active antiretroviral therapy).

The combination 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. Common side effects include nausea, fatigue, diarrhea, skin rashes, moodiness, alterations to the adipose (fat) tissue, birth defects.

[Antifungal cream Ciclopirox may help eradicate HIV](#) - researchers at the Rutgers New Jersey Medical School reported in the journal *PLoS ONE* that Ciclopirox, a widely used antifungal cream, as well as Deferiprone, a medication used to remove excess iron from the body, eradicate HIV in cultured cells. They added that when treatment stops, the virus does not return.

## Complementary or alternative medicine

Although widely used, alternative/complementary medications, such as herbal ones, have not been proven to be effective or ineffective. According to some limited studies, mineral or [vitamin](#) supplements may provide some benefits. Patients are urged to discuss these options with their doctors.

## New clue towards an AIDS vaccine

The outer shell of HIV has a vulnerable spot, which [enabled two HIV-positive people to make antibodies powerful enough to kill off the majority of HIV types known globally](#).

A glycan, a form of sugar, in a specific part on the protein coat that covers HIV (location known as "position 332") is a vulnerable spot that allows the body to mount an effective attack using broadly neutralizing antibodies.

The scientists, from the University of the Witwatersrand, Johannesburg, South Africa, said their discovery offers new clues about stimulating the body to produce "broadly neutralizing antibodies". They believe these antibodies are key for making an AIDS vaccine, because they destroy most of the HIV types around the world. They published their findings in *Nature Medicine* (21 October, 2012 issue).

## **April 2013 - A step closer to an HIV vaccine**

A team led by scientists from the Duke Human Vaccine Institute, and the NIH Vaccine Research Center say they have charted a new route that may help develop a vaccine which boosts an individual's ability to destroy HIV. They published their findings in the journal *Nature* (April 2013 issue).

Barton F. Haynes, M.D., John Mascola, M.D. and team studied an HIV-infected patient whose immune system attacked the virus, allowing them to describe the co-evolution of the antibodies.

HIV has proven especially difficult in inducing an antibody response, making it very hard to develop a vaccine. As soon as HIV antibodies are produced, the virus changes rapidly to avoid them.

The team used a new form of technology that can detect infection early on and track the body's immune system.

## **HIV Prevention**

To prevent being infected with HIV, healthcare professionals advise precautions related to:

### **Unprotected sex**

Having sex without a condom can put a person at risk of being infected with HIV and other sexually transmitted infections (STIs). HIV can be spread by having unprotected sex (vaginal, oral and anal sex). It can also be caught from sharing sex toys with someone infected with HIV.

### **Drug abuse 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.

### **Body fluid exposure**

Exposure to HIV can be controlled by employing precautions to reduce the risk of exposure to contaminated blood. At all times, health care workers should use barriers (gloves, masks,



protective eyewear, shields, and gowns). Frequent and thorough washing of the skin immediately after being contaminated with blood or other bodily fluids can reduce the chance of infection.

## **Pregnancy**

Anti-HIV medicines 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 caesarean section may be necessary. Breastfeeding may have to give way to bottle-feeding if the mother is infected.

A study by scientists from Columbia University, New York, found that [breastfeeding for 6+ months with antiretroviral therapy could help reduce mother-to-child HIV transmission](#) as well as improve chances of infant's survival.

## **Education**

Health education is an important factor in reducing risky behavior.

Credits

to:

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<http://www.medicalnewstoday.com/articles/17131.php>