AIDS

What is HIV?

HIV is a virus that damages the immune system. The immune system helps the body fight off infections. Untreated HIV infects and kills CD4 cells, which are a type of immune cell called T cells. Over time, as HIV kills more CD4 cells, the body is more likely to get various types of infections and cancers.

HIV is transmitted through bodily fluids that include:

- blood
- semen
- vaginal and rectal fluids
- breast milk

The virus doesn’t spread in air or water, or through casual contact.

HIV is a lifelong condition and currently there is no cure, although many scientists are working to find one. However, with medical care, including treatment called antiretroviral therapy, it’s possible to manage HIV and live with the virus for many years. Without treatment, a person with HIV is likely to develop a serious condition called AIDS. At that point, the immune system is too weak to fight off other diseases and infections. Untreated, life expectancy with AIDS is about three years. With antiretroviral therapy, HIV can be well-controlled and life expectancy can be nearly the same as someone who has not contracted HIV.

It’s estimated that 1.1 million Americans are currently living with HIV. Of those people, 1 in 5 don’t know they have the virus. HIV can cause changes throughout the body. Learn about the effects of HIV on the different systems in the body.

What is AIDS?

AIDS is a disease that can develop in people with HIV. It's the most advanced stage of HIV. But just because a person has HIV doesn't mean they'll develop AIDS. HIV kills CD4 cells. Healthy adults generally have a CD4 count of 500 to 1,500 per cubic millimeter. A person with HIV whose CD4 count falls below 200 per cubic millimeter will be diagnosed with AIDS.

A person can also be diagnosed with AIDS if they have HIV and develop an opportunistic infection or cancer that's rare in people who don't have HIV. An opportunistic infection, such as pneumonia, is one that takes advantage of a unique situation, such as HIV.

Untreated, HIV can progress to AIDS within a decade. There's no cure for AIDS, and without treatment, life expectancy after diagnosis is about three years. This may be shorter if the person develops a severe opportunistic illness. However, treatment with antiretroviral drugs can prevent AIDS from developing. If AIDS does develop, it means that the immune system is severely compromised. It's weakened to the point where it can no longer fight off most diseases and infections. That makes the person vulnerable to a wide range of illnesses, including:

- pneumonia
- tuberculosis
- oral thrush, a fungal infection in the mouth or throat
- cytomegalovirus (CMV), a type of herpes virus
- cryptococcal meningitis, a fungal infection in the brain
- toxoplasmosis, a brain infection caused by a parasite
- cryptosporidiosis, an infection caused by an intestinal parasite
- cancer, including Kaposi's sarcoma (KS) and lymphoma

HIV and AIDS: What's the connection?

To develop AIDS, a person has to have contracted HIV. But having HIV doesn't necessarily mean that someone will develop AIDS.

Cases of HIV progress through three stages:

.

- **stage 1:** acute stage, the first few weeks after transmission
- **stage 2:** clinical latency, or chronic stage
- **stage 3:** AIDS

As HIV lowers the CD4 cell count, the immune system weakens. A typical adult's CD4 count is 500 to 1,500 per cubic millimeter. A person with a count below 200 is considered to have AIDS.

How quickly a case of HIV progresses through the chronic stage varies significantly from person to person. Without treatment, it can last up to a decade before advancing to AIDS. With treatment, it can last indefinitely.

There is no cure for HIV, but it can be controlled. People with HIV often have a near-normal lifespan with early treatment with antiretroviral therapy. Along those same lines, there's technically no cure for AIDS. However, treatment can increase a person's CD4 count to the point where they're considered to no longer have AIDS. (This point is a count of 200 or higher.) Also, treatment can typically help manage opportunistic infections.

HIV transmission: Know the facts

Anyone can contract HIV. The virus is transmitted in bodily fluids that include:

- blood
- semen
- vaginal and rectal fluids
- breast milk

Some of the ways HIV is spread from person to person include:

- through vaginal or anal sex — the most common route of transmission, especially among men who have sex with men
- by sharing needles, syringes, and other items for injection drug use
- by sharing tattoo equipment without sterilizing it between uses
- during pregnancy, labor, or delivery from a woman to her baby
- during breastfeeding
- through “pre-mastication,” or chewing a baby’s food before feeding it to them
- through exposure to the blood of someone living with HIV, such as through a needle stick

The virus can also be transmitted through a blood transfusion or organ and tissue transplant. However, rigorous testing for HIV among blood, organ, and tissue donors ensures that this is very rare in the United States.

It’s theoretically possible, but considered extremely rare, for HIV to spread through:

- oral sex (only if there are bleeding gums or open sores in the person’s mouth)
- being bitten by a person with HIV (only if the saliva is bloody or there are open sores in the person’s mouth)
- contact between broken skin, wounds, or mucous membranes and the blood of someone living with HIV

HIV does NOT spread through:

- skin-to-skin contact
- hugging, shaking hands, or kissing
- air or water
- sharing food or drinks, including drinking fountains
- saliva, tears, or sweat (unless mixed with the blood of a person with HIV)
- sharing a toilet, towels, or bedding
- mosquitoes or other insects

It’s important to note that if a person with HIV is being treated and has a persistently undetectable viral load, it’s virtually impossible to transmit the virus to another person.

Causes of HIV

HIV is a variation of a virus that infects African chimpanzees. Scientists suspect the simian immunodeficiency virus (SIV) jumped from chimps to humans when people consumed infected chimpanzee meat. Once inside the human population, the virus mutated into what we now know as HIV. This likely occurred as long ago as the 1920s.

HIV spread from person to person throughout Africa over the course of several decades. Eventually, the virus migrated to other parts of the world. Scientists first discovered HIV in a human blood sample in 1959.

It's thought that HIV has existed in the United States since the 1970s, but it didn't start to hit public consciousness until the 1980s

Causes of AIDS

AIDS is caused by HIV. A person can't get AIDS if they haven't contracted HIV.

Healthy individuals have a CD4 count of 500 to 1,500 per cubic millimeter. Without treatment, HIV continues to multiply and destroy CD4 cells. If a person's CD4 count falls below 200, they have AIDS.

Also, if someone with HIV develops an opportunistic infection associated with HIV, they can still be diagnosed with AIDS, even if their CD4 count is above 200.

Early Symptoms of HIV

- fever
- chills
- swollen lymph nodes
- general aches and pains
- skin rash
- sore throat
- headache
- nausea
- upset stomach

Early Symptoms of HIV

- recurrent fever
- chronic swollen lymph glands, especially of the armpits, neck, and groin
- chronic fatigue
- night sweats
- dark splotches under the skin or inside the mouth, nose, or eyelids
- sores, spots, or lesions of the mouth and tongue, genitals, or anus
- bumps, lesions, or rashes of the skin
- recurrent or chronic diarrhea
- rapid weight loss
- neurologic problems such as trouble concentrating, memory loss, and confusion
- anxiety and depression

HIV prevention

Although many researchers are working to develop one, there's currently no vaccine available to prevent the transmission of HIV. However, taking certain steps can help prevent the spread of HIV.

Safer sex

The most common way for HIV to spread is through anal or vaginal sex without a condom. This risk can't be completely eliminated unless sex is avoided entirely, but the risk can be lowered considerably by taking a few precautions. A person concerned about their risk of HIV should:

- **Get tested for HIV.** It's important they learn their status and that of their partner.
- **Get tested for other sexually transmitted infections (STIs).** If they test positive for one, they should get it treated, because having an STI increases the risk of contracting HIV.
- **Use condoms.** They should learn the correct way to use condoms and use them every time they have sex, whether it's through vaginal or anal intercourse. It's important to keep in mind that pre-seminal fluids (which come out before male ejaculation) can contain HIV.
- **Limit their sexual partners.** They should have one sexual partner with whom they have an exclusive sexual relationship.
- **Take their medications as directed if they have HIV.** This lowers the risk of transmitting the virus to their sexual partner.

Other prevention methods

Other steps to help prevent the spread of HIV include:

- **Avoid sharing needles or other drug paraphernalia.** HIV is transmitted through blood and can be contracted by using contaminated materials.
- **Consider PEP.** A person who has been exposed to HIV should contact their healthcare provider about obtaining post-exposure prophylaxis (PEP). PEP can reduce the risk of contracting HIV. It consists of three antiretroviral medications given for 28 days. PEP should be started as soon as possible after exposure, but before 36 to 72 hours have passed.
- **Consider PrEP.** A person at a high risk of HIV should talk to their healthcare provider about pre-exposure prophylaxis (PrEP). If taken consistently, it can lower the risk of contracting HIV. PrEP is a combination of two drugs available in pill form.