

Human Immunodeficiency Virus (HIV) Infection

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Topic Overview

What is HIV? What is AIDS?

HIV (human immunodeficiency virus) is a virus that attacks the immune system, the body's natural defense system. Without a strong immune system, the body has trouble fighting off disease. Both the virus and the infection it causes are called HIV.

White blood cells are an important part of the immune system. HIV invades and destroys certain white blood cells called CD4+ cells. If too many CD4+ cells are destroyed, the body can no longer defend itself against infection.

The last stage of HIV infection is AIDS (acquired immunodeficiency syndrome). People with AIDS have a low number of CD4+ cells and get infections or cancers that rarely occur in healthy people. These can be deadly.

But having HIV does not mean you have AIDS. Even without treatment, it takes a long time for HIV to progress to AIDS—usually 10 to 12 years. If HIV is diagnosed before it becomes AIDS, medicines can slow or stop the damage to the immune system. With treatment, many people with HIV are able to live long and active lives.

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What causes HIV?

HIV infection is caused by the human immunodeficiency virus. You can get HIV from contact with infected blood, semen, or vaginal fluids.

- Most people get the virus by having unprotected sex with someone who has HIV.
- Another common way of getting the virus is by sharing drug needles with someone who is infected with HIV.
- The virus can also be passed from a mother to her baby during pregnancy, birth, or breast-feeding.

HIV doesn't survive well outside the body. So it cannot be spread by casual contact such as kissing or sharing drinking glasses with an infected person.

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Spread of Disease

HIV is spread when blood, semen, or vaginal fluids from an infected person enter another person's body, usually through:

- Sexual contact. The virus may enter the body through a tear in the lining of the rectum, vagina, urethra, or mouth. Between 75% and 80% of all cases of HIV are transmitted by sexual contact.³
- Infected blood. HIV can be spread when a person:
 - Shares needles, syringes, cookers, cotton, cocaine spoons, or eyedroppers used for injecting drugs or steroids.
 - Is accidentally stuck with a needle or other sharp item that is contaminated with HIV.

Spread of HIV to babies

A woman who is infected with HIV can spread the virus to her baby during pregnancy, delivery, or breast-feeding.

- Most children younger than 13 years who have HIV were infected with the virus by their mothers.
- The risk of a woman spreading HIV to her baby can be greatly reduced if she is on medicine that reduces her viral load (HIV RNA) to undetectable levels during pregnancy, if she receives - antiretroviral medicine before the baby is born, and if she does not breast-feed her baby. The baby should also receive treatment after it is born.

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What are the symptoms?

HIV may not cause symptoms early on. People who do have symptoms may mistake them for the flu or mono. Common early symptoms include:

- Fever
- Sore throat
- Headache
- Muscle aches and joint pain
- Swollen glands (swollen lymph nodes in groins)
- Skin rash

Symptoms may appear from a few days to several weeks after a person is first infected. The early symptoms usually go away within 2 to 3 weeks.

After the early symptoms go away, an infected person may not have symptoms again for many years. Treatment usually keeps the virus under control and helps the immune system stay healthy. But without treatment, the virus continues to grow in the body and attacks the immune system. After a certain point, symptoms reappear and then remain. These symptoms usually include:

- Swollen lymph nodes
- Extreme tiredness
- Weight loss
- Fever
- Night sweats

A doctor may suspect HIV if these symptoms last and no other cause can be found.

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Contagious and incubation period

- **“The incubation period**—the time between when a person is first infected with HIV and when early symptoms develop—may be a few days to several weeks.”
 - It can take as little as 2 weeks or as long as 6 months from the time you become infected with HIV for the antibodies to be detected in your blood. This is commonly called the "window period," 5During the window period, you are contagious and can spread the virus to others. If you think you have been infected with HIV but you test negative for it, you should be tested again 6 months later.
 - After you become infected with HIV, your blood, semen, or vaginal fluids are always infectious, even if you receive treatment for the HIV infection.
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How is HIV diagnosed?

The tests that detect HIV antibodies in urine, fluid from the mouth (oral fluid), or blood can diagnose HIV. If a test on urine or oral fluid shows that you are infected with HIV, you will probably need a blood test to confirm the results. If you have been exposed to HIV, your immune system will make antibodies to try to destroy the virus. Blood tests can find these antibodies in your blood.

Most doctors use two blood tests, called the ELISA (Enzyme-linked immunosorbent assay) and the Western blot assay. If the first ELISA is positive (meaning that HIV antibodies are found), the blood sample is tested again. If the second test is positive, the doctor will do a Western blot to be sure.

It may take as long as 6 months for HIV antibodies to show up in a blood sample. If you think you have been exposed to HIV but you test negative for it:

- Get tested again in 6 months to be sure you are not infected.
- Meanwhile, take steps to prevent the spread of the virus. If you are infected, you can still pass HIV to another person during this time.

You can get HIV testing in most doctors' offices, public health clinics, and hospitals.

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Testing positive for HIV infection

Testing positive for HIV will probably make you anxious and afraid about your future. The good news is that people being treated for HIV are living longer than ever before with the help of medicines that slow the rate at which HIV progresses to AIDS, or even prevent AIDS from developing. Your doctor can help you understand your condition and how best to treat it.

If you test positive for HIV, your doctor will complete a medical history and physical examination. He or she may order several lab tests to evaluate your overall health condition and identify current or previous infections that may become more complicated because of HIV. These tests include:

- A complete blood count (CBC), to identify the numbers and types of cells in your blood
- A chemistry screen, to measure the blood levels of certain substances (such as electrolytes and glucose) and to evaluate liver and kidney function
- Syphilis testing
- Screening for hepatitis A, hepatitis B, and hepatitis C, to test for past or current infection with viruses that cause hepatitis
- Tuberculosis (TB) screening, to detect bacteria that cause tuberculosis

Some strains of HIV may be resistant to certain medicines. If you tested positive for HIV, your doctor may test you at this stage to see if you have been infected with a drug-resistant strain of HIV. This will help him or her determine which medicines to use when the infection is treated.

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Stages of Disease:

HIV infection progresses in stages. These stages are based on your symptoms and the amount of the virus in your blood. Most people go through the following stages after being infected with HIV:

Initial stage (acute retroviral syndrome)

Acute retroviral syndrome is an illness with symptoms like mononucleosis. It often develops within a few days of infection, but it may occur several weeks after the person is infected. Symptoms may include:

- Abdominal cramps, nausea, or vomiting
- Diarrhea
- Enlarged lymph nodes in the neck, armpits, and groin
- Fever
- Headache
- Muscle aches and joint pain
- Skin rash
- Sore throat
- Weight loss

These first symptoms can range from mild to severe and usually disappear on their own after 2 to 3 weeks.

Chronic stage

It may take years for HIV symptoms to develop. But even though no symptoms are present, the virus is multiplying (or making copies of itself) in the body during this time. HIV multiplies so quickly that the immune system cannot destroy the virus. After years of fighting HIV, the immune system starts to weaken.

A doctor may suspect HIV if symptoms persist or if a cause of the symptoms (such as the flu) cannot be identified. HIV may also be suspected when several of the following symptoms are present:

- Confusion
- Diarrhea or other bowel changes
- Difficulty concentrating
- Dry cough
- Fatigue
- Fever
- Loss of appetite
- Mouth sores
- Nail changes
- Night sweats
- Swollen lymph nodes in the neck, armpits, and groin
- Pain when swallowing
- Personality changes
- Repeated outbreaks of herpes simplex
- Shortness of breath
- Tingling, numbness, and weakness in the limbs
- Unexplained weight loss
- Yeast infection of the mouth (thrush)

In addition, HIV may be suspected when a woman has at least one of the following:

- More than 3 vaginal yeast infections in one year that are not related to the use of antibiotics
- Recurrent pelvic inflammatory disease (PID)
- Abnormal Pap test or cervical cancer

Children with HIV often have different symptoms (for example, delayed growth or an enlarged spleen) than teens or adults.

Late stage

AIDS occurs during the last stage of infection with HIV. If HIV goes untreated, AIDS develops in most people within 12 to 13 years after the initial infection. With treatment for HIV, the progression to AIDS may be delayed or prevented.

After your immune system starts to weaken, you are more likely to develop certain infections or illnesses. Examples include some types of pneumonia or cancer that are more common when you have a weakened immune system or Body Defence System.

A small number of people who are infected with HIV are rapid progressors (means HIV infection develops faster in these people as compared to others). They develop AIDS within a few years if they do not receive treatment. It is not known why the infection progresses faster in these people.

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When to Consult a Doctor

Consult your doctor, if any of the following conditions develop:

- Seizures
- Loss of consciousness
- New weakness in an arm, a leg, or one side of the body
- New inability to move a body part (paralysis)
- New inability to stand or walk

- Fever higher than 103°F (39.4 °C)
- Fever higher than 101°F (38.3 °C) for 24 hours
- Shortness of breath
- Cough that produces mucus or sputum
- New changes in balance or sensation (numbness, tingling, or pain)
- Ongoing diarrhea

- Unusual bleeding, such as from the nose or gums, blood in the urine or stool, or easy bruising
- Ongoing headache
- Changes in vision
- Rapid, unexplained weight loss
- Night sweats
- Fatigue
- Swelling of lymph nodes in the neck, armpits, or groin
- Unusual sores on the skin or in the mouth
- Increased outbreaks of cold sores
- Severe numbness or pain in the hands and feet
- Personality changes or decline in mental ability, such as confusion, disorientation, or an inability to do mental tasks that the person has done in the past
- Sores, bumps, rashes, blisters, or warts that appear on or around the genital or anal areas

Suspected or known exposure to HIV and symptoms are present

Many people have a flu-like illness 3 to 6 weeks after they are first infected with HIV, but symptoms can occur within a few days of infection. Symptoms of acute retroviral syndrome (such as nausea and headache), which are the first signs of HIV infection, are often mistaken for symptoms of another viral infection.

Call your doctor to determine whether HIV testing is needed if you suspect you have been exposed to HIV, particularly if you engage in high-risk behavior and develop any of the following symptoms:

- Abdominal cramps, nausea, or vomiting
- Diarrhea
- Enlarged lymph nodes in the neck, armpits, and groin
- Fever
- Headache
- Muscle aches and joint pain
- Skin rash
- Sore throat
- Weight loss
- Yeast infection of the mouth (thrush)

Initial symptoms of HIV infection may be mild to severe and usually disappear on their own after 2 to 3 weeks.

Suspected or known exposures to HIV but symptoms are not present

If you have not been tested for HIV, call your doctor if:

- You suspect that you have been exposed to HIV
- You have engaged in high-risk behavior and are concerned that you were exposed to HIV
- Your sex partner engages in high-risk behavior
- Your sex partner may have been exposed to HIV
- Your sex partner has HIV
- You develop any of the symptoms listed above

Getting tested for HIV can be scary, but the condition is treatable so it is important to get tested if you think you have been exposed. Early detection and monitoring of HIV will help your doctor determine whether the disease is progressing and when to start treatment.

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How is it treated?

Antiretroviral medicines (Which act against the Retro virus HIV) slow the rate at which the virus multiplies. By Taking proper medicines one can reduce the rate at which it multiplies and may even reduce the amount of virus which help you stay healthy.

It may not be easy to decide the best time to start treatment, before you have symptoms. Discuss these with your doctor so you understand your choices.

To monitor the HIV infection and its effect on your immune system, a doctor will do two tests:

- Viral load, which shows the amount of virus in your blood .
- CD4+ cell count, which shows how well your immune system is working.

If you have no symptoms and your CD4+ cell count is at a healthy level, you may not need treatment yet. Your doctor will repeat the tests on a regular basis to see how you are doing. If you have symptoms, you should consider starting treatment, whatever your CD4+ count is.

After you start treatment, it is important to take your medicines exactly as directed by your doctor. When treatment doesn't work, it is often because HIV has become resistant to the medicine. This can happen if you don't take your medicines correctly. Ask your doctor if you have questions about your treatment.

Treatment has become much easier to follow over the past few years. New combination medicines include two or three different medicines in one pill. Many people with HIV get the treatment they need by taking just one or two pills a day.

To stay as healthy as possible during treatment:

- Don't smoke. People with HIV are more likely to have a heart attack or get lung cancer. Smoking can increase these risks even more.
- Eat a healthy, balanced diet to keep your immune system strong.
- Get regular exercise to reduce stress and improve the quality of your life.
- Don't use illegal drugs, and limit your use of alcohol
- Use safer Sex Practices.

Learn all you can about HIV so you can take an active role in your treatment. Your doctor can help you understand HIV and how best to treat it. Also, consider joining an HIV support group. Support groups can be a great place to share information and emotions about HIV infection

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How can you prevent HIV?

HIV can be spread by people who don't know they are infected. To protect yourself and others:

- Practice safe sex to prevent HIV. Always use a condom during sexual activity, unless you are in a relationship with one partner who does not have HIV or other sex partners.
- If you do have sex with someone who has HIV, it is important to practice safe sex and to be regularly tested for HIV.
- Reduce your number of sex partners, preferably to one partner.
- Talk with your sex partner or partners about their sexual history, as well as your own sexual history. Find out whether your partner has engaged in high-risk behaviors.
- Avoid alcohol and drugs, which can impair both your judgment and your immune system. People who know and understand safer sex practices may not practice them when they are under the influence of alcohol or drugs.
- Do not share intravenous (IV) needles, syringes, cookers, cotton, cocaine spoons, or eyedroppers with others if you use drugs.

If you are HIV-positive (infected with HIV) or have engaged in sex or needle-sharing with someone who could be infected with HIV, take precautions to avoid spreading the infection to others.

- Tell your sex partner or partners about your behavior and whether you are HIV-positive.
- Follow safe sex practices, such as using condoms.
- Do not donate blood, plasma, semen, body organs, or body tissues.

- Do not share personal items, such as toothbrushes, razors, or sex toys that may be contaminated with blood, semen, or vaginal fluids.