CONDITION

Acquired immunodeficiency syndrome

Learn how AIDS develops from untreated HIV, how it is diagnosed and treated, and which symptoms need urgent medical care.

WHAT IT IS
Most advanced stage of HIV infection

BODY SYSTEM
Immune system

MAIN SYMPTOMS
Ongoing fever, unexplained weight loss, persistent tiredness, long-lasting diarrhea

WHAT CAUSES IT
Untreated or inadequately controlled HIV infection

HOW IT IS DIAGNOSED
Confirmed HIV testing and CD4 count or AIDS-defining illness

MAIN TREATMENT
Antiretroviral therapy

CAN IT BE CURED?
No, HIV cannot routinely be removed

IS IT AN EMERGENCY?
Sometimes, with severe breathing difficulty

LONG-TERM OUTLOOK
Many people on consistent treatment live long, active lives

Overview

Acquired immunodeficiency syndrome, or AIDS, is the most advanced stage of infection with the human immunodeficiency virus (HIV). HIV attacks the immune system, especially immune cells called CD4 T cells. These cells help the body recognize and fight infections.

Without treatment, HIV can gradually reduce the number of CD4 cells. This can leave the body vulnerable to serious infections and certain cancers that a healthy immune system would usually control. These are called opportunistic conditions because they take advantage of weakened immune defenses.

A person with HIV is considered to have AIDS, also called stage 3 HIV, when either of the following occurs:

HIV and AIDS are not the same. HIV is the virus, while AIDS describes advanced immune damage caused by HIV. Not everyone with HIV develops AIDS. Modern antiretroviral therapy can prevent HIV from progressing and can help the immune system recover, even after an AIDS diagnosis.

There is no cure that routinely removes HIV from the body. However, effective treatment can reduce the amount of virus in the blood to an undetectable level. Many people receiving consistent treatment live long, active lives. A person whose viral load remains undetectable does not transmit HIV through sex. This is known as "undetectable equals untransmittable," or U=U.

- The CD4 cell count falls below 200 cells per cubic millimeter of blood.
- The person develops an AIDS-defining condition, regardless of the CD4 count.

Symptoms

AIDS does not have one specific set of symptoms. Symptoms usually come from severe immune suppression, an opportunistic infection, or an HIV-related cancer. Some people have few obvious symptoms until their immune system is seriously weakened.

Possible symptoms include:

These symptoms can have many causes and do not by themselves mean that someone has AIDS. HIV testing, a CD4 count, and medical evaluation are needed.

Contact a healthcare professional promptly if you have HIV and develop a new fever, persistent diarrhea, unexplained weight loss, mouth or swallowing problems, a new rash, or worsening cough. Early assessment may prevent an infection from becoming more serious.

Seek urgent or emergency care for symptoms such as:

- Ongoing fever or repeated night sweats
- Unexplained weight loss
- Severe or persistent tiredness
- Long-lasting diarrhea
- Swollen lymph nodes
- White patches, soreness, or difficulty swallowing from a yeast infection
- Frequent or severe infections
- Persistent cough or shortness of breath

- New skin growths, sores, or unusual purple or brown patches
- Headache, confusion, weakness, balance problems, or changes in vision
- Severe trouble breathing
- Chest pain
- Confusion, fainting, or difficulty waking
- A seizure
- A sudden severe headache, especially with fever or a stiff neck
- New weakness, loss of coordination, or trouble speaking
- Sudden vision loss
- Inability to drink fluids or signs of severe dehydration

Causes and risk factors

AIDS is caused by untreated or inadequately controlled HIV infection. HIV is transmitted through certain body fluids, including blood, semen, vaginal and rectal fluids, and breast milk.

Transmission can occur through:

HIV is not spread through ordinary social contact. It is not transmitted by hugging, shaking hands, sharing toilets or dishes, coughing, sneezing, or insect bites. HIV also is not sexually transmitted by a person who takes treatment and maintains an undetectable viral load.

The main risk factor for developing AIDS is having HIV that is not effectively treated. This may happen when HIV has not been diagnosed, treatment is not available, or medication is difficult to take consistently. Side effects, cost, unstable housing, stigma, mental health conditions, substance use, transportation problems, and difficulty accessing healthcare may all create barriers to treatment.

Some people are diagnosed late because early HIV infection may cause mild flu-like symptoms or no symptoms at all. A person can feel well for years while the virus continues to damage the immune system. Regular HIV testing is therefore important for people who may have been exposed.

- Anal or vaginal sex when HIV is not virally suppressed
- Sharing needles, syringes, or other drug-injection equipment
- Pregnancy, childbirth, or breastfeeding without effective preventive care

- Occupational exposure to infected blood, although this is uncommon
- Transfusions or transplants in places where blood and donated organs are not reliably screened

Diagnosis

AIDS cannot be diagnosed from symptoms alone. The evaluation begins by confirming HIV infection.

Most laboratory testing starts with an HIV antigen-antibody test. This test looks for antibodies made by the immune system and for part of the virus called the p24 antigen. If the result is reactive, additional testing is used to confirm HIV and identify whether it is HIV-1 or HIV-2. A nucleic acid test, which detects the virus's genetic material, may be used when very early infection is suspected or when other results are unclear.

No HIV test can detect every infection immediately after exposure. The time between infection and when a test can reliably detect HIV is called the window period. A clinician may recommend repeat testing if an exposure was recent.

After HIV is diagnosed, blood tests help assess immune health and guide care:

A person may also meet the definition of AIDS after developing an AIDS-defining illness. Examples include Pneumocystis pneumonia, cryptococcal meningitis, toxoplasmosis of the brain, certain forms of tuberculosis, recurrent bacterial pneumonia, Kaposi sarcoma, and some lymphomas.

Clinicians use symptoms, examination findings, scans, blood tests, and sometimes samples of tissue or body fluid to diagnose these conditions. Once a person has met the criteria for AIDS, that diagnosis remains part of the medical history even if treatment later raises the CD4 count.

- CD4 count: Measures CD4 immune cells. A count below 200 cells per cubic millimeter meets the immune-system criterion for AIDS.
- HIV viral load: Measures how much HIV is in the blood. It is used to track how well treatment is working.
- Drug-resistance testing: Looks for changes in HIV that may affect which medicines will work.
- General health tests: Check blood cells, kidney and liver function, and other conditions that may affect treatment.

Treatment and management

Antiretroviral therapy, often shortened to ART, is the central treatment for HIV and AIDS. ART combines medicines that block HIV at different stages of its life cycle. Treatment is recommended as soon as possible after HIV is diagnosed, including for people with advanced disease.

The goals of treatment are to:

The specific medication plan depends on factors such as drug-resistance results, other medical conditions, pregnancy, possible medicine interactions, and the ability to take a treatment consistently. A clinician with experience in HIV care can help select and monitor therapy. Patients should not stop or change HIV medicines without medical guidance because the virus can become detectable again and may develop drug resistance.

Some people feel better soon after beginning treatment, but immune recovery takes time. Rarely, symptoms from a known or previously hidden infection may temporarily worsen as the recovering immune system begins to respond. This is called immune reconstitution inflammatory syndrome. New or worsening symptoms after starting ART should be reported rather than assumed to be a routine treatment effect.

Opportunistic infections require specific treatment. Depending on the CD4 count and medical history, a clinician may also prescribe preventive medicine against certain infections. The need for prevention can change as the immune system recovers. Medication choice and duration must be individualized.

Management may also include:

Some live vaccines may not be appropriate during severe immune suppression. An HIV care clinician should review vaccination plans rather than having the person avoid all vaccines.

- Reduce the viral load to an undetectable level
- Allow the immune system to recover
- Prevent opportunistic infections and HIV-related complications
- Prevent sexual transmission of HIV
- Support long-term health and quality of life
- Vaccinations selected according to age, health, and immune status
- Screening and treatment for tuberculosis, hepatitis, and sexually transmitted infections
- Cancer screening appropriate for the person's age, anatomy, and risks
- Nutrition, mental health, dental, and substance-use support

- Help with insurance, transportation, housing, or medication access
- Pregnancy and reproductive care when relevant

Complications

Severe immune suppression can allow infections to affect the lungs, brain, eyes, digestive tract, skin, and other organs. These infections may be harder to treat if they are diagnosed late.

AIDS also raises the risk of certain cancers, including Kaposi sarcoma, non-Hodgkin lymphoma, and invasive cervical cancer. Other cancers may occur more often in people with HIV, particularly when HIV is not controlled.

Additional complications may include weight and muscle loss, nerve problems, kidney or liver disease, anemia, and problems with memory or concentration. Some complications come from HIV itself, while others result from infections, inflammation, cancer, or unrelated health conditions.

Effective ART greatly reduces these risks. Recovery may be slower when the CD4 count was very low before treatment, but viral suppression remains beneficial.

Follow up

HIV and AIDS require ongoing care even when a person feels well. Follow-up usually includes viral-load testing, CD4 monitoring when needed, review of medications and side effects, and screening for other health concerns.

An undetectable viral load is a sign that treatment is working. It does not mean HIV has been eliminated. Continuing treatment is necessary to maintain viral suppression and the prevention benefit described by U=U.

Routine appointments are a good time to discuss missed doses, side effects, emotional health, sexual health, pregnancy plans, smoking, alcohol or drug use, and practical barriers to care. These conversations should be supportive rather than judgmental.

Contact the HIV care team between routine visits for new symptoms, repeated vomiting, difficulty taking medicines, troublesome side effects, or missed treatment lasting more than a brief period. Emergency symptoms such as severe breathing difficulty, seizures, confusion, or sudden neurologic changes require immediate care.

People who have been diagnosed with AIDS may regain strong immune function with treatment. Regular care remains important because the history of severe immune suppression

can affect future monitoring and preventive care.

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