

## How HIV works

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The initials HIV stand for Human Immunodeficiency [Virus](#) [1]A small infective organism which is incapable of reproducing outside a host cell.. HIV attacks your immune system, a system of organs and cells throughout the body which usually fight off infection and keep you well.

HIV affects the immune system by targeting and destroying cells which normally fight off infection. The main cells infected by HIV are called the CD4 (or T4) cells — a type of white blood cell. These cells are a major part of your immune system.

If you have been told that you are HIV positive, this means that you have been infected with HIV, and your immune system has made antibodies specifically to fight the virus. But HIV antibodies don't kill the virus. Instead, HIV continues to reproduce itself within the CD4 cells, creating 'viral copies' which cause further damage to the immune system. The more HIV is reproduced, the greater the number of new cells likely to become infected and destroyed by the virus. If your immune system is weakened, this is often described as being 'immunosuppressed' or 'immunocompromised'. This means that you are at risk of developing 'opportunistic illnesses' or other more serious diseases that are associated with AIDS.

HIV [antiviral](#) [2]A medication or substance which is active against one or more viruses. May include anti-HIV drugs, but these are more accurately termed antiretrovirals. treatments are drugs which aim to stop the virus from reproducing, and so dramatically inhibit its ability to infect and destroy new cells. Sometimes people with HIV commence or restart treatments when their immune system has already been damaged. Treatments have proven to have the ability to prevent further damage and additionally allow the immune system to partially restore itself.

### Natural history of HIV without HIV antiviral treatment

The following is a description of what is called the 'natural history' of HIV: that is, it describes what often happens in HIV disease without antiviral treatment. It's important to remember that antiviral treatment has significantly altered this natural history, often stalling disease progression before immune system damage can cause AIDS or illness, and improving health and survival for many people – including people who have previously had opportunistic infections or been diagnosed with AIDS.

The natural history below describes the stages of HIV disease. It is a common, but not universal description of HIV disease. People often think that without treatment, HIV leads inevitably to illness and AIDS. However, even without treatments, a small but significant number of people have been able to live with HIV for a long time. This is often called being a "long-term non-progressor".

### Stage 1

#### Primary infection

When people first become infected with HIV, they may in many cases experience a [flu](#) [3]A highly contagious and relatively common viral infection of the respiratory system, transmitted by infected droplets of moisture which may be spread through coughing and sneezing. Most people with flu recover but some go on to develop secondary infections such as pneumonia which may be fatal.-like illness, sometimes accompanied by a rash, which is referred to as seroconversion illness. Not all people who have been exposed to HIV will experience seroconversion illness, though: some people don't have any symptoms at all.

### Stage 2

#### Asymptomatic infection

For a number of years following infection, many people with HIV remain well and symptom-free.

## Stage 3

### Symptomatic illness

The symptoms people might experience at this stage include diarrhoea, minor skin conditions, minor oral (mouth) conditions, lack of energy, night sweats, and/or persistently swollen glands lasting longer than two months.

## Stage 4

### Advanced disease (AIDS)

At this stage, HIV will have done great damage to your body's ability to cope with illness and infection. People with AIDS experience severe symptoms, and are at risk of opportunistic illnesses.

**For the majority of people, treatments have changed this 'natural history', improving health and survival.**

## What are opportunistic illnesses?

Opportunistic illnesses are infections which most people have been exposed to at some point in their lives but which are suppressed by healthy immune systems. HIV can weaken a person's immune system to the point where these infections can overcome the immune system and establish themselves as acute (sudden onset) or ongoing infections or illnesses. Alternately, some people with weakened immune systems may become sick if exposed to an opportunistic illness for the first time, whereas people with stronger immune systems would not.


Some opportunistic illnesses can cause serious illness (including some types of cancers) or can be fatal. There are effective treatments available for most opportunistic illnesses. You can reduce the risk of some opportunistic illnesses by taking treatments which may prevent the illness from occurring. This is called prophylaxis. In particular, if your CD4 count is under 250, or you have ever had an AIDS-defining illness, you should talk to your doctor about whether you should be taking prophylaxis. For some people, treating HIV involves using both antiviral and prophylactic treatments.

## The "history" of HIV taking into account current antiviral treatments.

Although treatments have improved there remain a number of unanswered questions about the impact of this on the life expectancy and long-term health of people with HIV. Prior to the advent of effective antiviral treatments it was estimated that 50% of people with HIV infection would progress to an AIDS diagnosis within 10 years.

A number of studies have attempted to estimate the average life expectancy of people with HIV, presuming they have access to the most effective antiviral treatments. The average estimate is that with early access to the current antiviral treatments the number of years of expected life for people with HIV from the time they get HIV infection has more than doubled from the time when no treatments were available.

It is possible that with optimal treatments, many people with HIV will be able to live long lives. However, there is a large range in these estimates and the impact of long term and potentially serious side effects of current treatments are, at this stage, only rough estimates. Prior to the advent of effective treatments the illnesses and symptoms caused by HIV were due to opportunistic illnesses and to those caused directly by HIV itself. Now the side effects of antiviral drugs – both short and long term – can be a significant cause of illness for people with HIV and may have an impact on quality of life.

Attachment	Size	Type
<a href="#">HIV Tests and Treatments 2009 Edition</a> [4]	2.15 MB	 PDF
<a href="#">← Changes in managing HIV</a> [5] <a href="#">up</a> [6] <a href="#">Viral Load</a> > [7]		

- [Understanding HIV treatments](#)
- [ANET resources](#)

Links: From the NAPWA website at

[1] <http://www.napwa.org.au/glossary/term/125>  
<http://www.napwa.org.au/resource/hiv-tests-and-treatments/how-hiv-works>

[2] <http://www.napwa.org.au/glossary/term/123>

[3] <http://www.napwa.org.au/glossary/term/350>

[4] [http://www.napwa.org.au/files/HIV Tests and Treatments 2009 4th Edition\\_1.pdf](http://www.napwa.org.au/files/HIV%20Tests%20and%20Treatments%202009%204th%20Edition_1.pdf)

[5] <http://www.napwa.org.au/resource/hiv-tests-and-treatments/changes-in-managing-hiv>

[6] <http://www.napwa.org.au/resource/hiv-tests-and-treatments>

[7] <http://www.napwa.org.au/resource/hiv-tests-and-treatments/viral-load>