

Human Immunodeficiency Virus (HIV)

Background Note



Overview

The Human Immunodeficiency Virus (HIV) is a virus which weakens a person's immune system. Without effective treatment, HIV can multiply within the body and destroy essential immune cells that work to help the body fight off infections.

When the immune system cannot fight off infections it becomes compromised (weakened). When a person living with HIV has a compromised immune system and is unable to fight off more than one infection they may be diagnosed as having developed Acquired Immunodeficiency Syndrome (AIDS).

It is important to remember that HIV is not the same as AIDS, as HIV is a virus and AIDS is a syndrome (set of symptoms) resulting from advanced HIV infection that has not been treated.

HIV (Human Immunodeficiency Virus)

When HIV enters the body it searches for certain immune cells to make copies of itself (replicates) to increase its presence within the body. In this process, HIV can reduce the function of a person's immune system as HIV destroys immune cells when it makes copies. As this process occurs, the immune system becomes weaker (compromised) and less able to fight off infections and diseases.

Today, there is effective treatment (medication) which prevents HIV from making copies of itself. This means that people living with HIV (which is referred to as being 'HIV-positive') can take medication to manage their condition.

Like a number of other conditions which require people to take ongoing medication, HIV is considered to be a chronic but manageable condition, and HIV-positive people can lead long and healthy lives, with a similar life expectancy to a person who does not have HIV (i.e. 'HIV-negative').

Currently there is no cure for HIV, but there is a lot of research underway looking for both a cure and a vaccine to prevent HIV. However, there are some medications that can help prevent the transmission of HIV:

PrEP (Pre-exposure prophylaxis) is a medication that HIV-negative people (at higher risk of HIV) can take to prevent HIV infection. When taken daily, it is highly effective at preventing HIV transmission.

Human Immunodeficiency Virus (HIV)

Background Note

PEP (Post-exposure prophylaxis) is a course of medication that is taken soon after (within 72 hours) a potential exposure to HIV. These medicines help to reduce the risk of HIV becoming established in the body.

Antiretroviral therapy (ART) is the use of HIV medicines to treat HIV infection. A HIV-positive person who is taking ART can bring their viral loads down to an 'undetectable' level which means that there is no risk of passing on HIV. This requires continual medication and regular viral load monitoring appointments at a doctors to maintain.

Acquired Immunodeficiency Syndrome (AIDS)

When the immune system is deficient, it is unable to fight off infections and disease caused by a variety of germs (viruses, bacteria, fungi and parasites) that a healthy immune system can normally manage.

When a person living with HIV, whom has not been able to prevent HIV from replicating by taking effective treatment, reaches a stage where they have a compromised immune system (with one or more opportunistic infections) they may be considered as having developed AIDS.

A person with AIDS has an advanced stage of HIV infection. If medical treatment is sought before opportunistic infections progress, a person with AIDS can recover and treatment can improve the function of their immune system by reducing the amount of HIV in the body. This means that it is possible to have AIDS, to recover from AIDS, and be diagnosed as no longer having AIDS. However, because HIV causes AIDS, if a person develops AIDS they will still have HIV. This is because currently there is no cure for HIV.

Today, people living with HIV on effective treatment rarely develop AIDS.

Transmission of HIV

How is HIV spread?

HIV can be transmitted when body fluids containing the virus enter the bloodstream of a person who does not have HIV.

HIV can be transmitted through blood-to-blood contact and sexual activity (including the exchange of sexual fluids and blood) as well as from an infected mother to her child during pregnancy or childbirth, or from breastfeeding.

Human Immunodeficiency Virus (HIV)

Background Note

At risk bodily fluids include:

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

This can happen by:

- having unprotected anal or vaginal
- sex sharing drug injecting equipment, particularly needles and syringes
- sharing and /or using unsterile body piercing or tattooing equipment
- the natural exchange of fluids from a woman who is HIV-positive to her baby during pregnancy, birth or breastfeeding
- receiving unsafe blood via transfusion, organ or tissue transplantation (especially in countries with inadequate regulations for screening the blood supply as well as organs and tissues for presence of HIV).
- unsafe medical or dental procedures (especially in countries with inadequate regulations for sterilisation and hygiene practices).

How you can't get HIV

HIV cannot be spread through everyday social contact, such as shaking hands or sharing a glass.

Activities where a person **cannot** get HIV include:

- kissing
- mosquito or insect bites
- an HIV positive person coughing or sneezing on someone
- living, working and/or going to school with an HIV positive person
- hugging
- French/tongue kissing
- 'love bites'

Human Immunodeficiency Virus (HIV)

Background Note

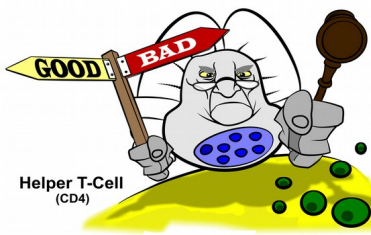
- sharing eating and drinking utensils
- sharing the same toilet seats
- swimming in public swimming pools or spas.

HIV **cannot** be spread through contact with saliva, sweat or tears from a HIV-positive person.

How the immune system works

The immune system is the body's main defense against germs and is made up of different types of cells and organs.

Lymphocytes are a type of white blood cell and are the main cells in the immune system. They patrol the body finding and destroying bacterial or viral invaders. There are T and B lymphocytes which work together to combat infections and disease. There are two major types of T cells: the 'helper' T cell and the 'killer' T cell.



Helper T-cells (or CD4 cells) - These cells help other cells of the immune system, and operate as the 'judge' that identifies infections and 'orders' their destruction by supporting/helping B-cells to make antibodies. Antibodies then roam through the bloodstream ready to combat invading bacteria, viruses and other organisms. T-cells also produce chemicals that help in other immune responses.

Fighter T and B white blood cells – Lymphocytes or white blood cells patrol the body as bacteria and virus–'killing police'. The body produces different types of white blood cells called T and B cells which work together to combat infection.

Helper T-cells (or CD4 cells) – operate as the judge that identifies infections and 'orders' their destruction by supporting/helping B cells to make antibodies. Antibodies then roam through the bloodstream ready to combat invading bacteria, viruses and other organisms. T cells also produce chemicals which help in other immune responses.



Human Immunodeficiency Virus (HIV)

Background Note

Fighter/Killer T-cells – or suppressor cells cause helper T cells to stop making their chemicals once the infection is under control.

A healthy person has twice as many helper T cells as suppressor cells. However, a person with AIDS has many more suppressor cells than helper T cells which further weakens the entire immune system making it vulnerable to common everyday infections.

The CD4 cell count indicates how well an immune system is functioning and how capable it is to fight off infection. A person with a normal healthy immune system has a CD4 cell count of approximately 1200 while a person with AIDS would typically have a CD4 cell count of 200 or less.

Signs and symptoms of HIV infection

Soon after HIV infection, some people feel as if they have the flu, with symptoms such as:

- fever
- headache
- tiredness

Some people may not have any symptoms. You can have HIV and feel and be healthy. Many people do not realise they have HIV because they do not see or feel anything wrong.

As the virus continues to attack the immune system, a person will start to develop symptoms. These can include:

- constant tiredness
- swollen glands
- rapid weight loss
- night sweats
- memory loss

The only way to establish if a person has HIV is through a blood test. However for a short period (known as the 'window period') of a couple weeks just after HIV first enters the body it cannot be picked up with a test. This means that if a person's results are negative at first and there has been risk behaviour they will need a further test in a couple of months.

Human Immunodeficiency Virus (HIV)

Background Note

Preventing the transmission of HIV

- Always use condoms with water-based lubricant when you have sex.
- People who inject drugs, never share needles, syringes, filters, water or spoons. Always use new, sterile needles and syringes
- People in a relationship should ensure that both partners have been tested and are aware of each other's HIV status.
- People having casual sex (sex with different people on a regular basis) need to schedule regular STI checks
- Avoid sharing personal items such as razors and toothbrushes because- they could contain traces of other people's blood.
- Before considering body art (such as tattooing or piercing) ensure the body artist uses only sterilised equipment, and new razors, inks and needles each time.

Treatment for HIV infection

Although there is currently no cure for HIV, the condition can be managed with daily treatment. Treatment is generally in the form of one or more tablets which need to be taken daily to keep the HIV under control.

HIV treatment, taken correctly can lead to an HIV positive person having an undetectable viral load. This does not mean that the HIV infection is cured, but that the level of viral infection in the blood is too small for tests to detect. This also means a reduced likelihood that HIV is transmitted to others on occasions of risk behaviour.

Relevant resources

Guest speakers

[Talking HIV Sex Education Series](#), WA AIDS Council

Short, free or low-cost presentations for older students about safer sex and healthy relationships.

Websites

[WA AIDS Council](#)

Human Immunodeficiency Virus (HIV)

Background Note

[UNESCO HIV & AIDS Education Clearinghouse](#)

Fact sheets, booklets and videos

[HIV and AIDS](#), Get the Facts

[Safer sex](#), Get the Facts

[HIV and AIDS](#), WA Department of Health

[HIV](#) animated slide show, Queensland Health

A short animated slide show explaining how HIV can be passed on from person to person and how it affects the immune system and eventually leads to AIDS.

[Blood to blood transmission](#) animated slide show, Queensland Health

A short animated slideshow explaining how blood can transmit diseases and infections from one person to another and how you can come into contact with someone else's blood.

Postscript

This Background Note relates to the following Learning Activities:

- [Blood-borne virus safety](#)

- [How common is HIV?](#)
- [Are there any STIs that cannot be cured/treated?](#)

Date printed

19 January 2022

Human Immunodeficiency Virus (HIV)

Background Note
