

Human Immunodeficiency Virus (HIV) Infection

HIV stands for Human Immunodeficiency Virus (HIV). Without treatment, HIV infection will usually result in Acquired Immunodeficiency Syndrome (AIDS). New HIV therapies introduced in the mid 1990s have resulted in much less AIDS-related illness and death. However, HIV remains a life-long infection.

A few weeks after infection with HIV, the infected person may develop an illness (seroconversion illness) which is often mild, consisting of muscle aches, low-grade fever, headaches and sometimes a rash. Swelling of the lymph glands may also occur. This illness at the beginning of the infection is so similar to many other viral infections that the diagnosis of HIV infection may not be made at this time. This flu-like illness may last for a few weeks and then there is a return to seemingly normal health. This period of 'normal' health varies widely between persons. Some experience fairly rapid development of disease due to the HIV infection, whereas others may remain free of any symptoms for many years. When symptoms do eventually develop, they may not be specific and can include chronic loss of appetite, diarrhoea, weight loss, fever, lethargy and fatigue.

HIV destroys certain cells within the immune system (CD4+ or helper T cells) from the time of infection onwards, causing more and more damage. Eventually the point is reached where the damage to the immune system is so great that the body can no longer stop some infections or cancers it normally fights successfully. Infections not usually seen in healthy persons, called opportunistic infections, and certain unusual tumours such as Kaposi's sarcoma, may also occur. Women with HIV infection are at increased risk of developing cervical cancer and both men and women are at increased risk of anal cancer. HIV can cause infection within brain tissue, which can lead to nervous system disorders or dementia in some HIV infected persons.

Without antiviral treatment the majority of people with HIV will develop AIDS and die from infections, cancers and other illnesses that the body's immune system can no longer fight. In countries such as Australia where there is access to HIV treatment, about 80% of people on treatment will have long-term suppression of symptoms and a reduced viral load (the amount of HIV in the blood).

However, treatment outcomes over a whole lifetime are not yet known and drug resistance can emerge which limits the treatment options available to the person. Some of the drugs have significant side effects and all must be taken very accurately, requiring quite some effort on the part of the HIV infected person to take the medications for a long period, and probably for life.

Diagnosis of HIV infection is made using blood tests. A positive blood test indicates the development of antibodies to HIV and therefore the presence of the virus. Antibodies to HIV usually develop within a few weeks to three months. Occasionally this period may be longer. Even though the blood test for antibodies may not be positive during the early stage of infection, the virus will be present in blood and body fluids, making them infectious to other people. PCR tests can be used for the early detection of HIV genetic material in the blood.

HIV infection occurs when particular body fluids (blood, semen, vaginal fluid and breastmilk) containing the virus come into contact with another person's tissues beneath the skin (for example, through needle puncture or broken skin), or mucous membranes (lining of eyes, nose, mouth, anus, vagina and urethra).

In Australia, most infections have resulted from:

- > unprotected sex (anal and vaginal intercourse)
- > sharing injecting equipment
- > receiving blood or blood products before the introduction of screening in 1985
- > mother-to-baby transmission during pregnancy, birth or breastfeeding.

Routine social or community contact with an HIV infected person carries no risk of infection.

There is no evidence of spread of HIV through social contact in schools, at home or in the work place. HIV has not been transmitted through air or water, swimming pools or toilets, sharing of plates, cups or cutlery, kissing, coughing, sneezing or spitting. In addition, there is no evidence that HIV can be spread by mosquitoes or other biting insects.

Human Immunodeficiency Virus (HIV) Infection (cont.)

Incubation period

(time between becoming infected and developing symptoms)

Illness may not occur for months or years after HIV infection. Without treatment, most adults will develop severe disease within 10 years of infection. Treatment of HIV with drug therapy has become much more effective in the past few years, prolonging the life of people with this infection, as well as increasing their quality of life. It is uncertain what effect these treatments, or treatments yet to be developed, will have upon long-term HIV infection in any individual.

Infectious period

(time during which an infected person can infect others)

Once a person has been infected with HIV they remain infected for life and are able to transmit the virus to others. Transmitting the infection to another person may be dependent on the level of virus in body fluids of the infected person. The risk is higher when the viral load (the amount of HIV in the blood) is higher, in particular in early infection, when a person may not even be aware they have HIV, and late in infection when the immune system is failing. Even when the viral load (the amount of HIV in the blood) is undetectable by blood tests, some potential for transmission remains.

Treatment

Specific therapy (antiretrovirals) is available and all people with HIV infection should have access to this treatment. Although available antiretroviral drugs have dramatically improved the outlook for people with HIV, these medications often have side effects and the virus may also develop resistance to the medications. There is no drug yet which can cure HIV infection and no vaccine or immunisation.

When HIV infection is advanced and has caused immune system destruction, secondary infections (opportunistic infections) can occur. Using other antibiotics and antiviral drugs to prevent secondary infection may prevent severe illness and premature death.

Regular assessment is important in monitoring the effects of HIV infection, determining the best time to start therapy and monitoring the effect of therapy or the development of complications.

Measurement of the viral load and the levels of CD4+ cells assists in indicating the effectiveness of treatments.

An infectious diseases specialist or general practitioner with expertise in HIV medicine is recommended to undertake these assessments.

Control of spread

- > Everyone has a responsibility to help prevent transmission of HIV and to take care of themselves and others. This means:
 - Practising safer sex – use condoms and water based lubricants for penetrative sex. These reduce the risk of getting HIV, as well as other sexually transmitted infections (STIs). Having any STI increases the risk of getting HIV infection.
 - Not sharing injecting equipment (including needles, syringes, filters, spoons, swabs, tourniquets etc).
 - Safely disposing of found or used needles and syringes in a Sharpsafe, or other sealable and puncture-proof container.
 - Always using Standard Precautions if blood or body fluids must be handled. This will minimise and generally eliminate the risk of transmission of HIV.
 - Covering any open sores, cuts or abrasions with waterproof dressings.
 - Understanding the risk of body tattooing or any body piercing. The risk of being infected with HIV through these practices is lower than for hepatitis B or C, but there is still a risk if there is use of unsterile equipment or re-used dyes.
 - People with HIV or at risk of infection with the virus should not donate blood, organs or other tissue. All donated blood and body organs are screened for HIV infection.

Human Immunodeficiency Virus (HIV) Infection (cont.)

Control of spread cont.

- > Administration of anti-HIV medication to HIV-positive pregnant women during pregnancy and labour and after delivery, as well as to the newborn baby, reduces mother-to-baby transmission of HIV.
- > If a person is exposed to HIV there is a four-week treatment that may prevent them becoming infected. It is called Post Exposure Prophylaxis (PEP). If a person thinks they have been exposed to HIV, they can call the South Australian 24 hour PEP triage hotline on 1800 022 226, or ask their local doctor, sexual health clinic or emergency department for more information – but they need to do this immediately, because the treatment will not be effective more than 72 hours after exposure. If a person has been exposed through their work (e.g. in health care occupations), PEP assessment should be provided through the Occupational Health, Safety and Welfare procedures at their workplace.
- > Exclusion from child care, preschool, school or work is not necessary. Children with HIV infection may be advised to stay away from school during outbreaks of infectious disease (for example, chicken pox) to prevent them getting more serious infection.
- > Infected health care workers must comply with the requirements of their professional boards.
- > Although there is no HIV vaccine, HIV infections are entirely preventable through safe behaviour.

- > PCR
- > Post Exposure Prophylaxis (PEP)
- > Handling Blood and Other Body Substances (standard precautions)
- > Avoiding Sexually Transmitted Infections (STI)

Useful websites

- > AIDS Council of South Australia
<http://www.acsa.org.au/>
- > Clinic 275
<http://www.stdservices.on.net/>
- > Australian Federation of AIDS organisations
<http://www.afao.org.au/>
- > Resources in many languages
<http://www.multiculturalhivhepc.net.au/>



HIV and AIDS are notifiable diseases