

**F**REQUENTLY

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IAVI's mission is to ensure the development of a safe, effective, accessible, preventive AIDS vaccine for use throughout the world.

IAVI is a scientific organisation founded in 1996 to speed the search for a preventive AIDS vaccine for use throughout the world. IAVI focuses on four key areas: accelerating scientific progress, education and advocacy; ensuring vaccine access and creating a more supportive environment for industrial involvement in AIDS vaccine development.

# FAQs about HIV/AIDS

## What is AIDS?

Acquired Immunodeficiency Syndrome (AIDS) is called a disease but is actually a collection of infections and cancers. These are generally quite severe and the affected individual shows serious symptoms of at least one of these illnesses. It usually takes several years after initial infection with the Human Immunodeficiency Virus (HIV) for AIDS to show up. Soon after infection, HIV begins to attack the immune system, but this is a very slow process. Most people who live with HIV feel perfectly healthy and may not show any symptoms for many years. This is also the reason why many people do not even know whether they are HIV-positive. Once infected, a person can pass the virus on to others.

Over the years HIV lives and multiplies in the body and causes serious damage to the immune system. The body becomes vulnerable to illnesses that a normal immune system would otherwise be able to ward off. These conditions like pneumonia or tuberculosis (TB) in a HIV-positive person are technically called Opportunistic Infections (OIs), simply because they attack the body taking the opportunity of a weakened immune system. In developing nations, there are chances that an individual may suffer from AIDS and succumb to the disease faster than he or she would in developed countries.

## The AIDS epidemic

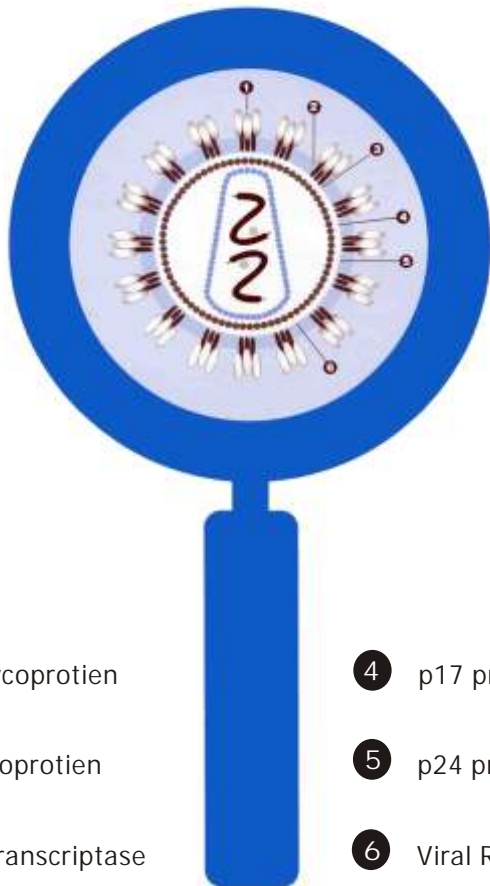
- Across the world, at least 600 people are infected with HIV every hour which is why the AIDS pandemic is recognised as one of the most devastating in human history.
- Since the beginning of the pandemic, HIV has infected more than 60 million people all over the world and more than 25 million have died of AIDS. The Joint United Nations Programme on AIDS (UNAIDS) estimates that globally there were almost 39.5 million people living with HIV at the end of 2006. More than 95 percent of all new infections are occurring in developing countries across the world, where the challenge of protecting people from HIV is much greater than in the developed world.
- In India, according to the National AIDS Control Organization, approximately 5.2 million people were living with HIV at the end of 2005. HIV infection has spread to all the states in India.

## What is HIV?

The Human Immunodeficiency Virus (HIV) attacks the immune system. The body's defense against disease is slowly damaged and destroyed, a condition known as immune deficiency. HIV is much more dangerous than other viruses, because it directly attacks and hijacks blood cells

needed by the immune system to fight infectious diseases. The virus also changes very rapidly and is easily able to evade many of the body's defense systems. There are two types of HIV - 1 and 2 and many subtypes. The most common form of the virus found in India is HIV - 1, subtype C.

## Structure of HIV



- 1 gp120 glycoprotein
- 2 gp41 glycoprotein
- 3 Reverse transcriptase

- 4 p17 protein
- 5 p24 protein
- 6 Viral RNA

### Definition of terms

Proteins (p17, p24) - compounds that make up the structure and define the characteristics of HIV

Glycoproteins (gp41, gp120) - compounds composed of the carbohydrate(s) and protein(s) that make up the structure and define the characteristics of HIV. Both proteins and glycoproteins act as antigens in the human body

Viral RNA - the genetic material contained in HIV; HIV is a retrovirus meaning it contains RNA, rather than DNA (as in most viruses)

Reverse transcriptase - an enzyme (a protein that can cause chemical reactions) that allow single-stranded viral RNA to be converted into double-stranded DNA, which is genetic material needed for cells to reproduce

## What is a virus?

A virus is a tiny microbe that causes disease. It cannot be seen with the naked eye. To be able to live and reproduce, the virus needs to infect other living cells, either plant or animal. In the process of infection, the virus takes over the cell machinery of the plant or animal and uses it to produce new viruses. HIV mainly destroys white blood cells called CD4 or T Helper cells.

## What is the immune system?

The immune system is the set of organs, tissues and cells that defend the body against infection. When the immune system is able to fight an infection and keep the disease at bay, it is said that the person is 'immune' to the disease. This immunity usually results from a group of specialised blood cells and proteins. The immune system has the ability to recognise the difference between what belongs to the body and what does not. It can learn to recognise dangerous invaders such as germs or viruses responsible for diseases. Fever, swollen glands and rashes, for example, may be signs that the immune system is learning to recognise and fight a new invader.

The immune system has only two ways to learn about invaders which may cause disease: some immunity is inherited when a person is born; otherwise the body only learns to recognise an invader the first time it meets it. If the invading germ is strong enough, it may overcome the immune system in that first attack and the person may become infected. Vaccinations are a way of teaching the immune system to recognise invaders before they attack the body for the first time. This means that people who are vaccinated against a certain disease are sufficiently protected because the immune system is ready for the first attack.

## How is HIV transmitted?

HIV is found in blood, semen, vaginal secretions and breast milk. It can be transmitted in several ways:

- By having unprotected sexual intercourse (vaginal, anal or oral sex) without a condom with someone who is HIV-infected
- By using or being injured by unsterilised cutting or piercing equipment, such as injection needles or razor blades, recently brought into contact with the blood of someone who is HIV-infected (so there is no risk from sharing things like eating utensils or clothes which never come into contact with blood. It is also worth noting that dried blood stains and spit do not carry any risk of transmitting HIV)
- By sharing needles, syringes or other drug injecting equipment with someone who is HIV-infected (hospitals and doctors will always show individuals that they are using a new needle, fresh from its plastic case. If this precaution is taken, there is no risk of infection)
- By an HIV-infected mother to her baby during pregnancy, delivery or while breastfeeding
- By receiving blood transfusions, blood products or organ transplants from an HIV-infected individual and where the mandatory screening for HIV has not been done appropriately

- By tattooing and/or piercing with improperly sterilised equipment.

## Is there a cure for AIDS?

No. There is no cure for HIV/AIDS. Since AIDS is a collection of infections, there are medicines that can prevent and control OIs in people living with HIV. These OIs are infections that would either be harmless or at least easily managed in healthy people but they can cripple or kill people with damaged and impaired immune systems, as is the case with people who live with HIV/AIDS.

Today, people living with HIV are receiving treatment using several types of anti-AIDS drugs, commonly known as antiretroviral drugs (ARVs). These drugs can check the pace at which HIV multiplies in the body. But ARVs are meant to be taken life-long, on a daily basis, following a rigid schedule. If patients miss even one dose in 50, the virus can become resistant to the medicines and they lose their effect. Even in patients who remember every dose, the medicines may stop working after some time.

In addition, these drugs are very expensive and some of them are known to cause severe adverse reactions. However, a strict treatment regimen and proper care and treatment have been shown to prolong survival and improve the quality of life

of people living with HIV/AIDS. Babies born to HIV-infected mothers can be protected against HIV infection if the mother and baby receive ARVs during pregnancy and at delivery.

## People living with HIV or AIDS are like you and I.

HIV is most commonly spread during unprotected sexual intercourse with an HIV-infected partner. HIV is more easily transmitted sexually from men to women than vice versa.

HIV is not spread through kissing, touching, hugging or shaking hands; sharing crockery and cutlery; coughing and sneezing; contact with toilet seats; insect or animal bites; sharing a bathing area with or eating food prepared by someone with HIV.