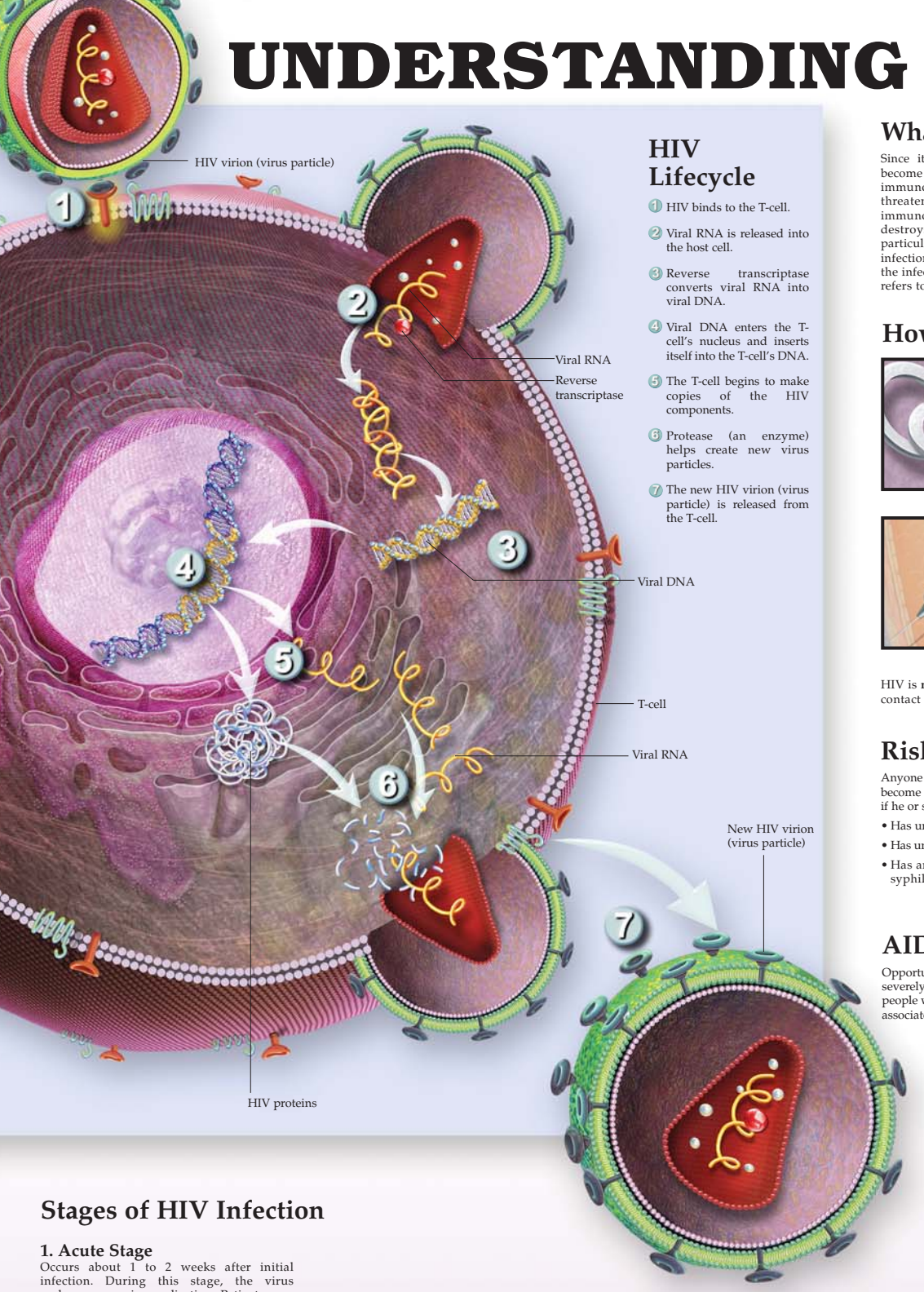
UNDERSTANDING HIV AND AIDS



HIV Lifecycle

1. HIV binds to the T-cell.
2. Viral RNA is released into the host cell.
3. Reverse transcriptase converts viral RNA into viral DNA.
4. Viral DNA enters the T-cell's nucleus and inserts itself into the T-cell's DNA.
5. The T-cell begins to make copies of the HIV components.
6. Protease (an enzyme) helps create new virus particles.
7. The new HIV virion (virus particle) is released from the T-cell.

What Are HIV and AIDS?

Since it was first reported in 1981, HIV/AIDs has become a major worldwide epidemic. AIDS (acquired immunodeficiency syndrome) is a chronic, life-threatening condition caused by the human immunodeficiency virus (HIV). HIV damages or destroys certain cells of the immune system, particularly T-cells, weakening the body's response to infections and certain types of cancers. The virus and the infection are known as HIV, while the term "AIDS" refers to the later stages of HIV infection.

HIV Testing

HIV tests tell patients if they are infected with the human immunodeficiency virus (HIV). The tests look for antibodies (proteins made by the immune system to fight a specific disease) to HIV. The most common type of HIV test is a blood test known as an enzyme-linked immunosorbent assay (ELISA) screening. It searches for antibodies to HIV in the blood. A positive result should always be confirmed with a second test. Another blood test is called the Western blot analysis, which looks for antibodies to several HIV proteins.

How Is HIV Transmitted?

Sexual Activity

Having unprotected sexual contact with an infected partner is the most common method of spreading HIV. Contact with infected blood, semen, or vaginal secretions can lead to the transmission of HIV.

Pregnancy

A woman can transmit the virus to her unborn infant during pregnancy, delivery, or after birth when she is breastfeeding. Babies born to infected mothers have a 15% to 25% chance of becoming infected.

Contaminated Needles

The virus can survive for several days in the small amounts of blood left in a needle after use. Used needles are a high risk for HIV transmission. Injection needles can pass blood directly from one person's bloodstream to another.

Blood or Blood Products

Infected blood is where HIV is found in the highest concentrations. Since 1985 the HIV antibody test has been used to screen blood donations for the virus. Now it is rare to become infected by receiving blood or blood products through transfusion.

HIV is **not** transmitted by insect bites; casual contact; sharing dishes or food; swimming pools and hot tubs; pets; contact with saliva, tears, or sweat; contact with toilets; or donating blood.

Risk Factors

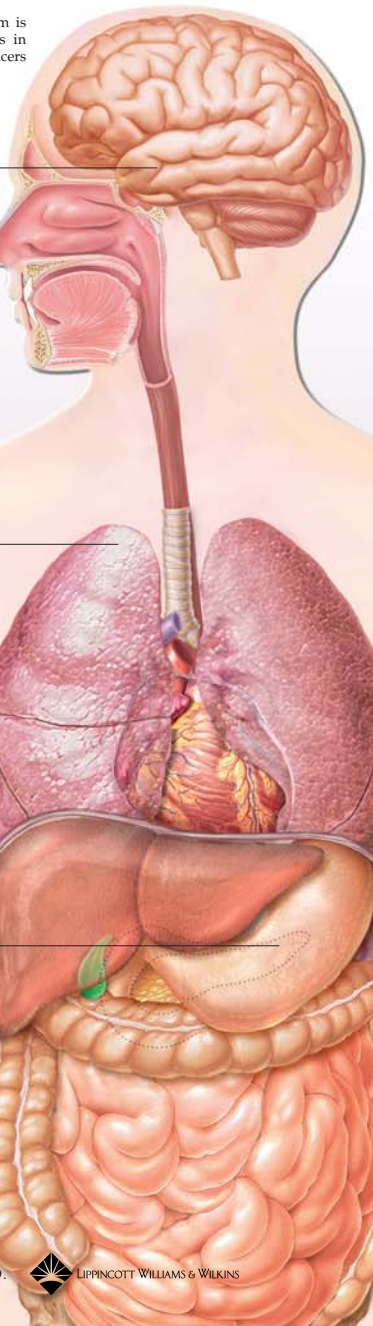
Anyone of any age, race, gender, or sexual orientation can become infected with HIV, but a person is at greatest risk if he or she:

- Has unprotected sex with multiple partners.
- Has unprotected sex with a partner who is HIV-positive.
- Has another sexually transmitted infection such as syphilis, herpes, or gonorrhea.
- Shares needles during intravenous drug use.
- Is a hemophiliac who received blood products before April 1985.
- Received a blood transfusion or blood products before 1985.

Newborns or nursing infants whose mothers are HIV-positive are also at high risk. Anyone at risk should be tested for HIV infection.

AIDS-Related Illnesses

Opportunistic infections (OIs) occur only when the immune system is severely damaged. These infections cause life-threatening illnesses in people with AIDS. Below is a partial list of some of the infections/cancers associated with AIDS, along with some of their symptoms.



Nervous system:

- **Toxoplasmosis–** fever, headache, partial loss of vision, seizures, paralysis on one side of the body, confusion
- **Cryptococcosis–** confusion, fever, headache, seizures
- **Non-Hodgkin's lymphoma–** one or more painless swellings in neck, armpits, or groin; fever, sweats
- **Herpes zoster (shingles)–** painful rash of fluid-filled blisters found on chest, abdomen, face or extremities

Respiratory system:

- **Pneumocystis carinii pneumoni (PCP)–** fatigue, fever, dry cough, shortness of breath
- **Tuberculosis (TB)–** persistent cough, chest pain, shortness of breath, weight loss, coughing up of blood (hemoptysis), fever

Skin:

- **Herpes simplex–** painful blisters on or around lips or genitals
- **Kaposi's sarcoma–** raised, purple or pinkish-brown lesions on skin

Digestive system:

- **Cryptosporidiosis–** watery diarrhea, abdominal pain, fever, vomiting
- **Candidiasis–** white plaques in mouth and/or throat, pain with swallowing or eating
- **Cytomegolavirus (CMV)–** diarrhea, non-itchy rash, fever, abdominal pain, visual changes yellowing of skin and whites of eyes (very rare)
- **Isosporiasis–** watery diarrhea, abdominal pain, weight loss, fever

Stages of HIV Infection

1. Acute Stage

Occurs about 1 to 2 weeks after initial infection. During this stage, the virus undergoes massive replication. Patients may be asymptomatic or have a flu-like syndrome.

2. Asymptomatic HIV

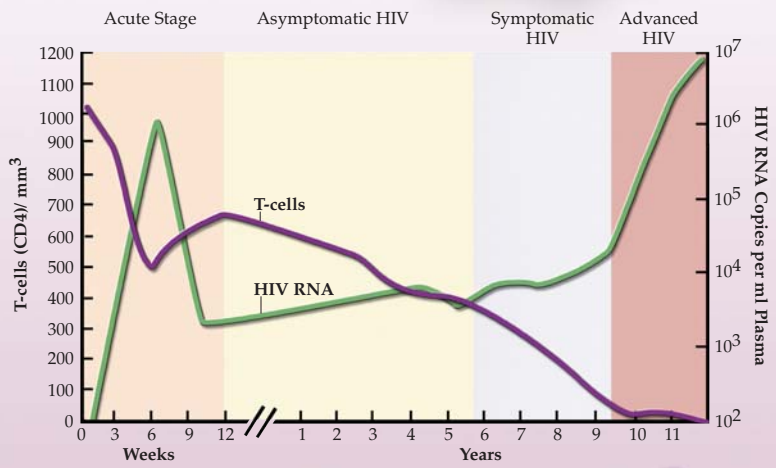
During this stage, chronic signs or symptoms are not present. T-cell count may be used to monitor progression of the disease. With the patient's own resistance and drug therapy, this stage can last for 10 to 12 years or longer.

3. Symptomatic HIV

This stage has two phases: early and late. When the T-cell count falls below 200 cells per cubic millimeter of blood, it is the late phase. This stage of HIV is defined mainly by the emergence of opportunistic infections and cancers to which the immune system normally helps maintain resistance.

4. Advanced HIV

A T-cell count of 50 cells per cubic millimeter or less represents advanced HIV. With the onset of this stage, patients are at the highest risk for opportunistic infections and malignancies.



Signs and Symptoms of HIV Infection

Depending on the stage of infection, the symptoms of HIV vary. Symptoms can include:

- Short-term memory loss
- Persistent headaches
- High fever
- Confusion and forgetfulness
- Seizures and lack of coordination
- Persistent or frequent oral infections
- Difficult or painful swallowing
- Loss of appetite
- Heavy night sweats
- Cough and shortness of breath
- Swollen lymph nodes in neck, armpits, and groin
- Persistent skin rashes or flaky skin
- Severe weight loss
- Chronic diarrhea
- Lack of energy and muscle weakness

Treatment

HIV and AIDS are not curable, but early detection and treatment can increase life expectancy. There are no vaccines available, but medications can slow the progression of HIV and the development of AIDS. Other medications are available to protect against and treat the variety of illnesses that may develop. Consult with a physician that specializes in caring for HIV-infected individuals. It is critical that all prescribed medication be taken as directed.

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