

HIV AND AIDS

(THE SILENT CRISIS SWEEPING THE WORLD)



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« يَا أَيُّهَا النَّاسُ قَدْ جَاءَتْكُمْ مَوْعِظَةٌ مِنْ رَبِّكُمْ وَشِفَاءٌ لِمَا فِي الصُّدُورِ وَهُدًى وَرَحْمَةٌ
لِلْمُؤْمِنِينَ » الآية 57 من سورة يونس.

(وَلَا تَقْرَبُوا الزَّوْنَىٰ ۗ إِنَّهُ كَانَ فَحِشَةً وَسَاءَ سَبِيلًا)
[سورة الإسراء، الآية 32].



What is HIV?

- **HIV** (human immunodeficiency virus) is a virus that attacks the body's immune system.
- It is a non-oncogenic retrovirus and is the causative agent of acquired immune deficiency syndrome (AIDS).
- It was first described in 1981 and the virus was isolated by the end of 1983.
- HIV is also called a **human T - cell lymphotropic virus**.
- HIV is also known as the **human T- lymphocyte virus (HTLV)** .
- If HIV is not treated, it can lead to AIDS (**Acquired Immunodeficiency Syndrome**).
- There is currently no effective cure. Once people get HIV, they have it for life.
- **But with proper medical care, HIV can be controlled. People with HIV who get effective HIV treatment can live long, healthy lives and protect their partners.**

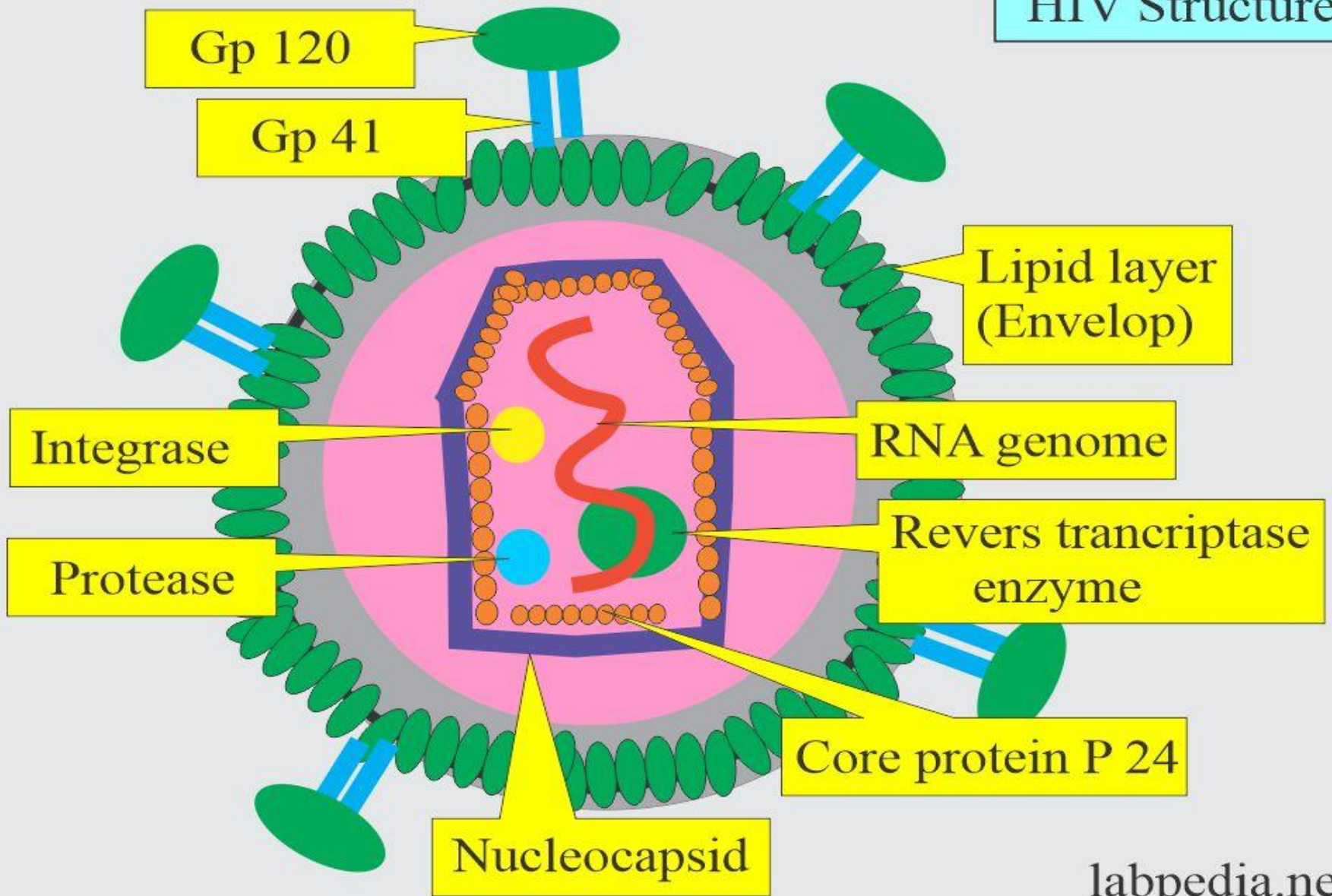
The structure of HIV

The HIV is roughly spherical with about 80-130 (120) nanometres in diameter. **Red blood cells are nearly 60 times bigger than HIV.**

HIV has a lipid envelope and the surface glycoprotein gp120 is attached to the transmembrane glycoprotein gp41 are embedded in this envelope. These two viral proteins are encoded by the env gene and are helpful in an attachment to the host cell.

The core proteins are p24 and p6. The nucleocapsid protein p7 which is bound to the RNA.

HIV Structure



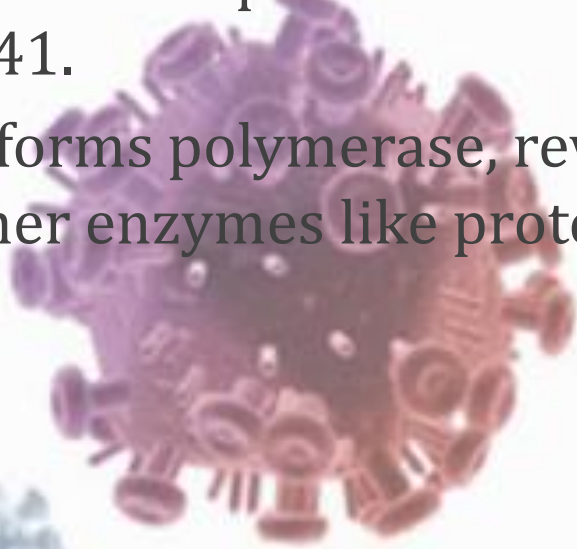
Types of HIV:

- HTLV III or LAV (lymphadenopathy-associated virus).
- HIV type I. This is common in the USA and western Europe.
- HIV type II. This is more common in West African countries.

Property	HIV I	HIV II
Envelope protein	GP 41 and GP 120	GP 36 and GP 105
Core protein	p 24 and p 18	p 34 and p 68
Spread	Parenteral and sexual	Sexual transmission
The course of the disease	Faster than HIV-1 to develop AIDS	Slow to develop AIDS
ELIZA test	Available	Not available (Western Blot can be used)
Prevalence	Worldwide pandemic	Endemic in West Africa and spread to India

The viral genes are:

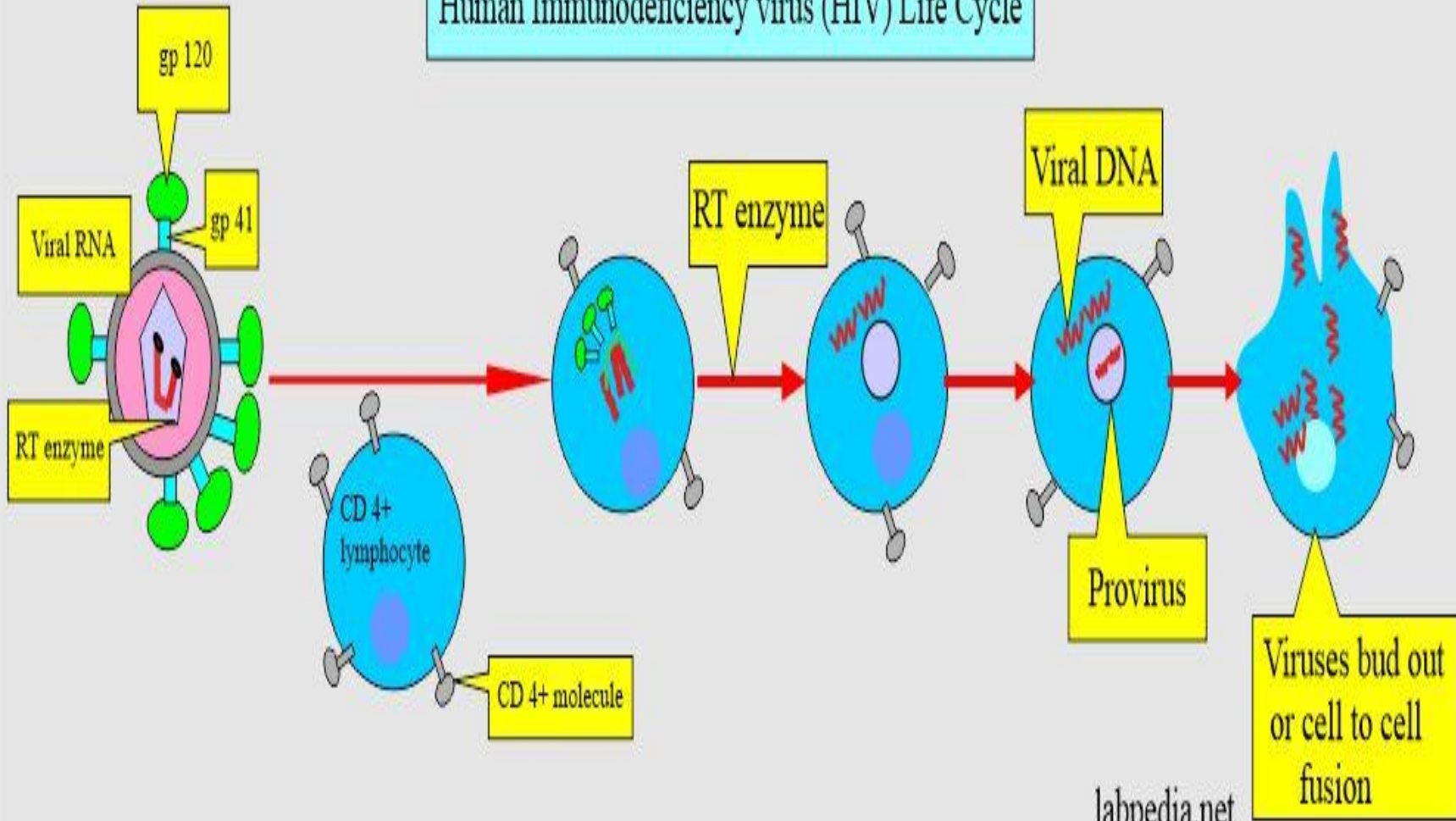
- **(Gag)** forms group-specific proteins, antigens, and these proteins are named p24 and p18.
- **(Env)** forms envelope proteins that are necessary for the interaction and presentation of target cells. These are gp120 and gp41.
- **(Pol)** forms polymerase, reverse transcriptase enzymes, and other enzymes like protease and integrase.



The mechanism of injury:

1. HIV has a receptor present on the CD4+ cells, Helper cells, and macrophages.
2. Virus gp 120 attaches to CD4+ molecules on cells that are present on the lymphocytes.
3. It is then internalized in the cell with the help of the reverse **transcriptase enzyme**.
4. It changes RNA to DNA and integrates with the target cell DNA with the help of viral integrase.
5. These are known as provirus.
6. This will enter into the DNA of the host.
7. Now, this may become latent.
8. When the virus is assembled and leaves the cells, it does so by budding out, incorporating the host cell membrane into its coat.

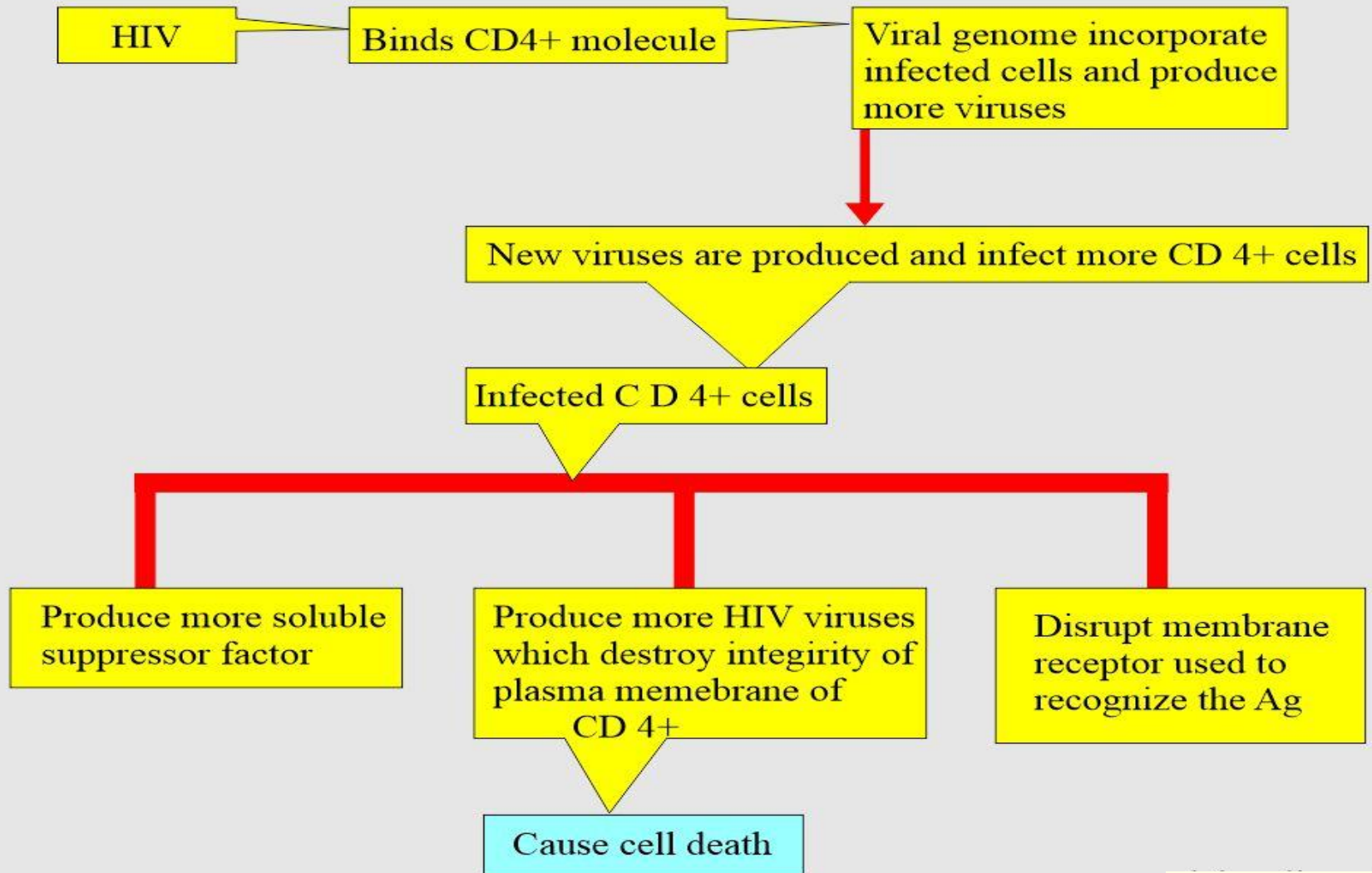
Human Immunodeficiency virus (HIV) Life Cycle



HIV leads to the destruction of the host immune system

- HIV destroys T lymphocytes, mainly T lymphocytes, which are CD4 positive cells (T-helper cells).
- HIV damages the immune system and leads to acquired immune deficiency syndrome (AIDS).
- HIV infection may be present for as long as 10 years before the patients develop signs and symptoms or become AIDS patients.

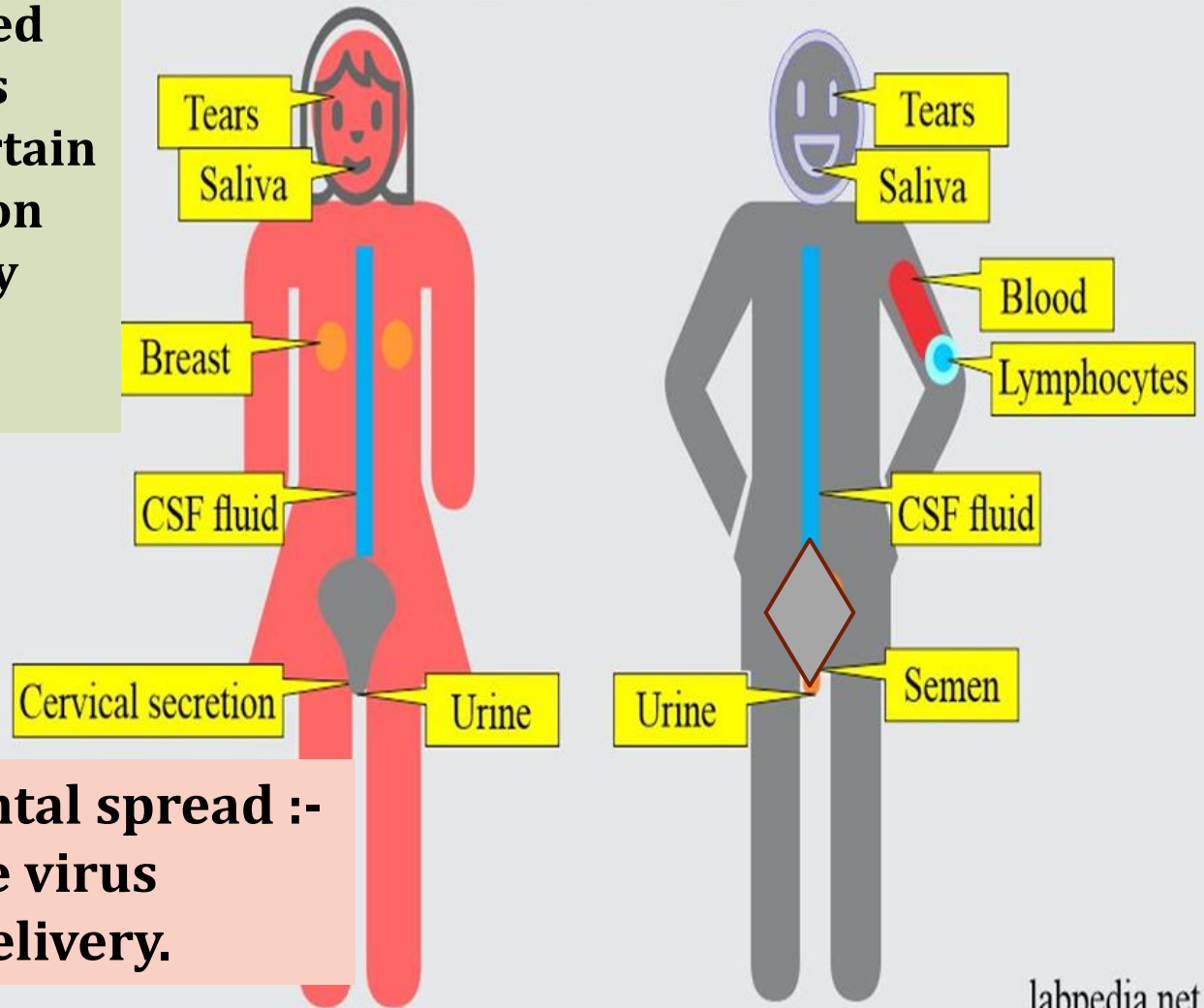
Destruction of Immune system by HIV




How is HIV spread?

The spread of HIV from person to person is called HIV transmission. HIV is spread only through certain body fluids from a person who has HIV. These body fluids include:

AIDS (HIV) Mode of Spread



There is a transplacental spread :-
Infants exposed to the virus
during gestation or delivery.



The spread of HIV from a woman with HIV to her child during pregnancy, childbirth, or breastfeeding is called **perinatal transmission of HIV**.

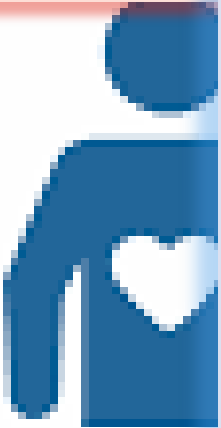
High-Risk Patients Are:

- Homosexuals in males.
- Bisexual men and women with multiple partners.
- Intravenous drug abusers.
- Contaminated blood transfusion.
- Infants exposed during delivery to positive mothers

HIV can't transmitted by :

- Coughing, Sneezing.
- Insect bites.
- Touching.
- Hugging.
- Water, food.
- Public baths/pools
- Toilets
- Handshakes
- Work or school contact
- Telephones
- Cups, glasses, plates, or other utensils.

HIV is not airborne and cannot be caught by touching skin, sweat or saliva.



TOILET



**SNEEZING/
COUGHING**



SYMPTOMS OF HIV INFECTION

Severe headaches



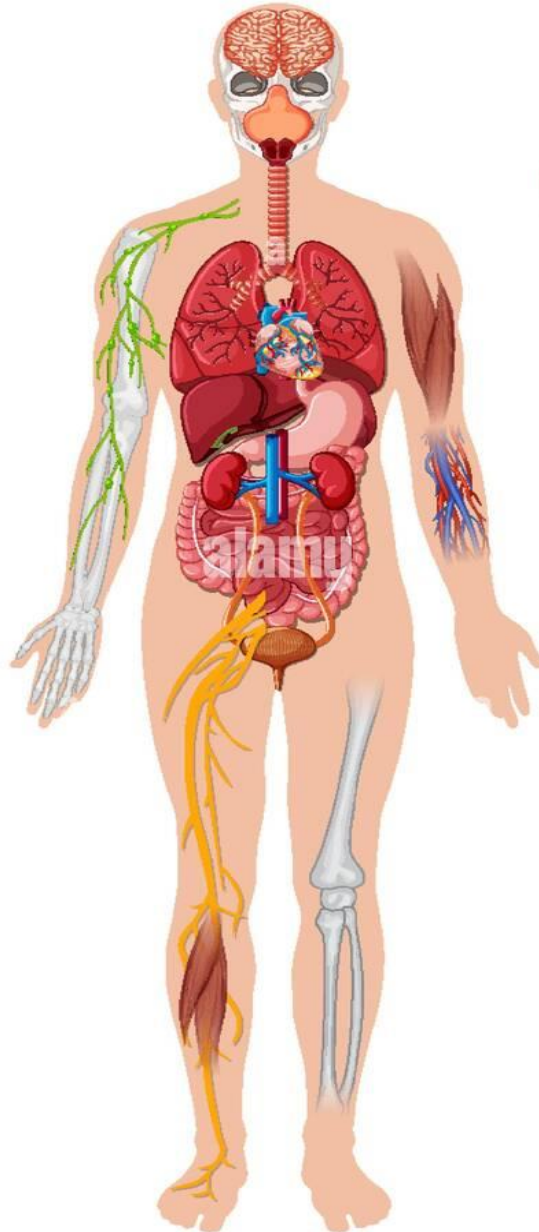
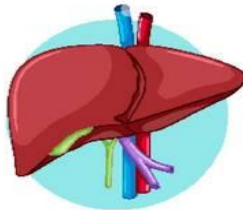
Swollen lymph nodes



Ulcers in the mouth



Enlargement



• Body rash



• Nausea
• Vomiting
• Diarrhea



• Joint pain



• Muscle aches

What are the stages of HIV?

When people with HIV don't get treatment, they typically progress through three stages. But HIV treatment can slow or prevent progression of the disease.

Stage 1: Acute HIV Infection

People have a large amount of HIV in their blood and are very contagious.
Many people have flu-like symptoms.



Stage 2: Chronic Infection

- This stage is also called asymptomatic HIV infection or clinical latency.
- HIV is still active and continues to reproduce in the body.
- People may not have any symptoms or get sick during this phase but can transmit HIV.
- People who take HIV treatment as prescribed may never move into Stage 3 (AIDS).
- Without HIV treatment, this stage may last a decade or longer, or may progress faster. At the end of this stage, the amount of HIV in the blood (viral load) goes up and the person may move into Stage 3 (AIDS).

Stage 3: Acquired Immunodeficiency Syndrome (AIDS)

- The most severe stage of HIV infection.
- People with AIDS can have a high viral load and may easily transmit HIV to others.
- People with AIDS have badly damaged immune systems. They can get an increasing number of opportunistic infections or other serious illnesses.
- Without HIV treatment, people with AIDS typically survive about three years.

Some facts about AIDS

1. Fact: Anyone Can Get HIV and Not Know It

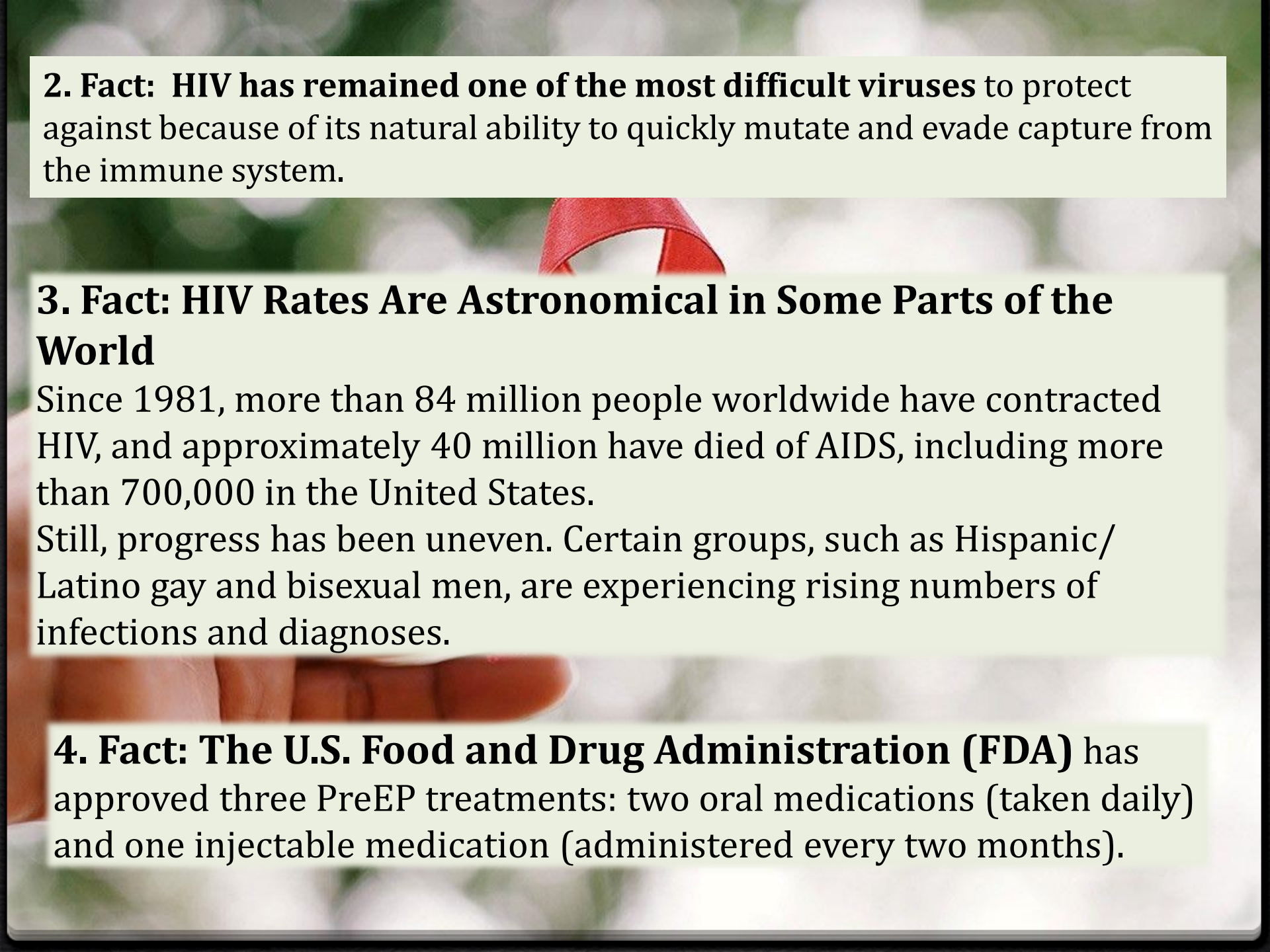
It's estimated that about one in eight people with HIV don't know they have it.

Within the first two to four weeks of an HIV infection, a person may experience flu-like symptoms such as fatigue, fever, headache, sore throat, and muscle and joint pain. Other HIV symptoms can include painful, swollen lymph nodes and a skin rash with small bumps.

But in some cases people won't experience any symptoms at all during this early (acute) stage of infection, the CDC reports, and they can spread the virus without realizing it.

The only way to know for sure whether you or a partner is HIV positive is to get tested.

One misconception that stubbornly endures is that only gay men can get HIV. It's true that in the United States, gay, bisexual, and other men who have sex with men (MSM) continue to have the greatest risk of HIV infection. In 2020, MSM accounted for an estimated 71 percent of new HIV diagnoses, according to the federal government website [HIV.gov](https://www.hiv.gov).



2. Fact: HIV has remained one of the most difficult viruses to protect against because of its natural ability to quickly mutate and evade capture from the immune system.

3. Fact: HIV Rates Are Astronomical in Some Parts of the World

Since 1981, more than 84 million people worldwide have contracted HIV, and approximately 40 million have died of AIDS, including more than 700,000 in the United States.

Still, progress has been uneven. Certain groups, such as Hispanic/Latino gay and bisexual men, are experiencing rising numbers of infections and diagnoses.

4. Fact: The U.S. Food and Drug Administration (FDA) has approved three PreEP treatments: two oral medications (taken daily) and one injectable medication (administered every two months).

5. Fact: HIV Treatment Can Make Viral 'Load' So Low It's Undetectable

- Before 1996, HIV was basically a death sentence. But over the course of the next two decades, a lifesaving regimen of drugs known as **antiretroviral therapy (ART)** came into use.
- ART is a combination of HIV medicines taken every day. This treatment regimen helps prevent the virus from replicating, which reduces the viral load (the amount of HIV in the body). **This gives the immune system a chance to recover so that it's strong enough to fight off infections and certain HIV-related cancers.**
- A primary goal of HIV treatment is to reduce a person's viral load until it is undetectable in the blood, as measured in a viral load test.

6. Fact : Scientists design, validate promising vaccine strategy against HIV

Risk for opportunistic infections (OIs)

There are many types of OIs:

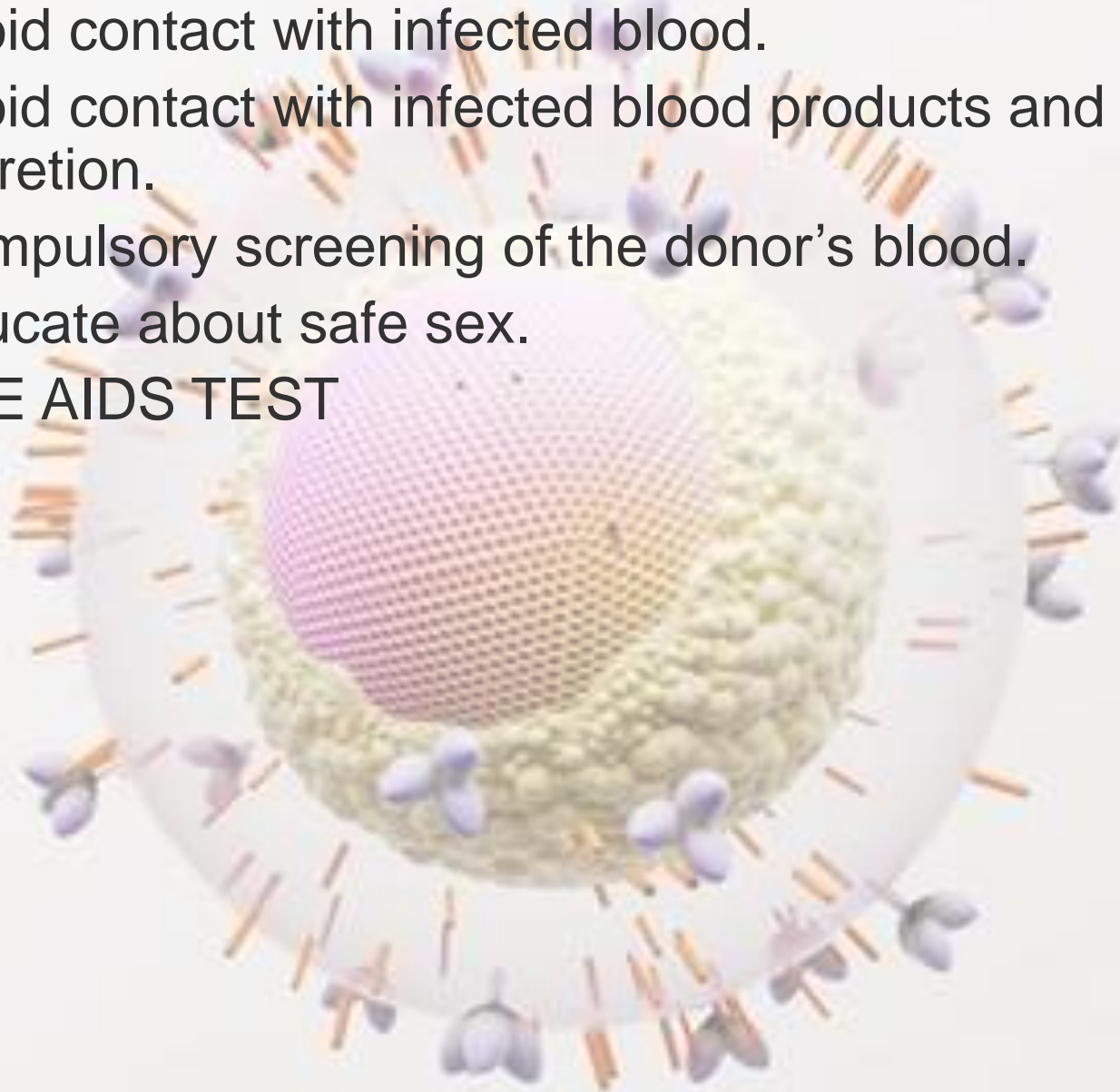
- Bacterial infections, including tuberculosis and a serious related disease, Mycobacterium avium complex (MAC)
- Viral infections, such as cytomegalovirus (CMV) and hepatitis C
- Fungal infections, like yeast infections, cryptococcal meningitis, pneumocystis carinii pneumonia (PCP) and histoplasmosis
- Parasitic infections, such as crypto (cryptosporidiosis) and toxo (toxoplasmosis)
- Having HIV/AIDS can make infections harder to treat. People with HIV/AIDS are also more likely to have complications from common illnesses such as the flu.
- can prevent infections by taking HIV/AIDS medicines. Other things that can help include safe sex .

Globally, according to the World Health Organisation, 38.4 million people were living with HIV at the end of 2021. An estimated 0.7 per cent of adults aged 15–49 years worldwide are living with HIV, although the burden of the epidemic continues to vary between countries and regions.



o Prevention:

1. Avoid contact with infected blood.
2. Avoid contact with infected blood products and body secretion.
3. Compulsory screening of the donor's blood.
4. Educate about safe sex.
5. USE AIDS TEST



UNAIDS Global AIDS Update 2022

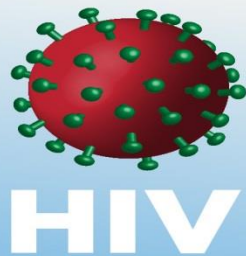
- Eastern Europe and central Asia, the Middle East and North Africa and Latin America have all seen increases in annual HIV infections over the past decade.
- UNAIDS considers gay men and other men who have sex with men, sex workers, transgender people, people who inject drugs, and prisoners and other incarcerated people as the five main key population groups that are particularly vulnerable to HIV and frequently lack adequate access to services.

➤ 4000 PEOPLE BECOME INFECTED WITH HIV EVERY DAY

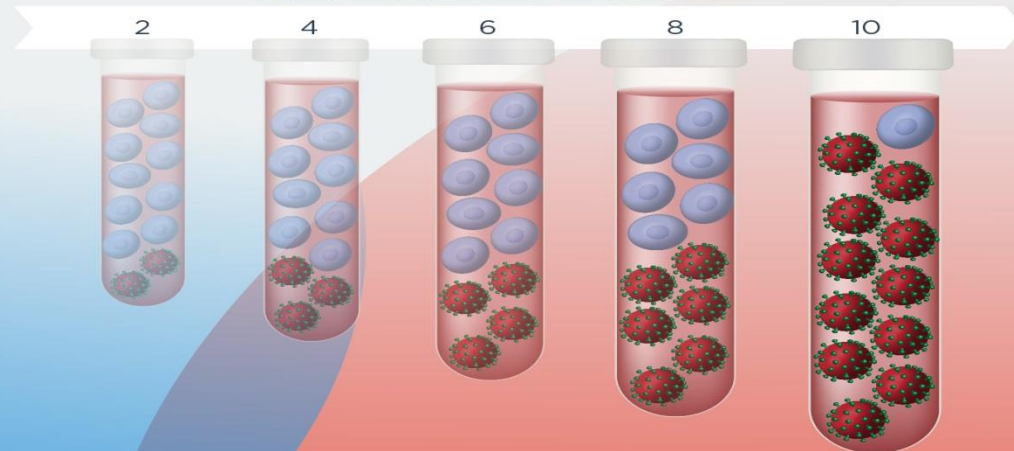
➤ 650 000 PEOPLE DIED OF AIDS RELATED CAUSES IN 2021

79 million infections HIV remains the deadliest pandemic of our time, said UNAIDS.

HIV and AIDS



Years without HIV medicines



AIDS

For more information, visit [HIVinfo.
NIH.gov](https://www.hivinfo.nih.gov)

AIDS IN IRAQ

it is, "In the year 2022, we conducted approximately 272,000 medical examinations for HIV/AIDS," "the Ministry of Health has doubled the examination this year compared to previous years to diagnose carriers of this disease." And Muhammad added, "These tests confirmed 28 positive cases that were confirmed in the examination center in the city of Erbil," noting that "18 of the injured are foreigners and from other regions of Iraq."

The number of people infected with human immunodeficiency virus (AIDS) officially registered in Iraq is 241, but there are fears of an outbreak of the disease. Because of social traditions, which prevent some patients from undergoing medical .

Iraq had imported blood bags from the French company "Mario" in 1986, to treat "hemophilia" (hereditary blood deficiency) patients, who were 238 patients, and two years later 199 of them died, and it was later found that the blood was contaminated with the AIDS virus.

The Iraqi Ministry of Health stresses that the number of infected people officially registered in the ministry's databases is still far below the level set globally.

THANK U 4 ATTENTION

وَأَنْفِقُوا فِي سَبِيلِ اللَّهِ وَلَا تُلْقُوا بِأَيْدِيكُمْ إِلَى التَّهْلُكَةِ [البقرة: 195]

