

Path to Ending the threat of HIV in Papua New Guinea.

19th October 2023

Percy Pokeya

Where did HIV come from?



- Theories?

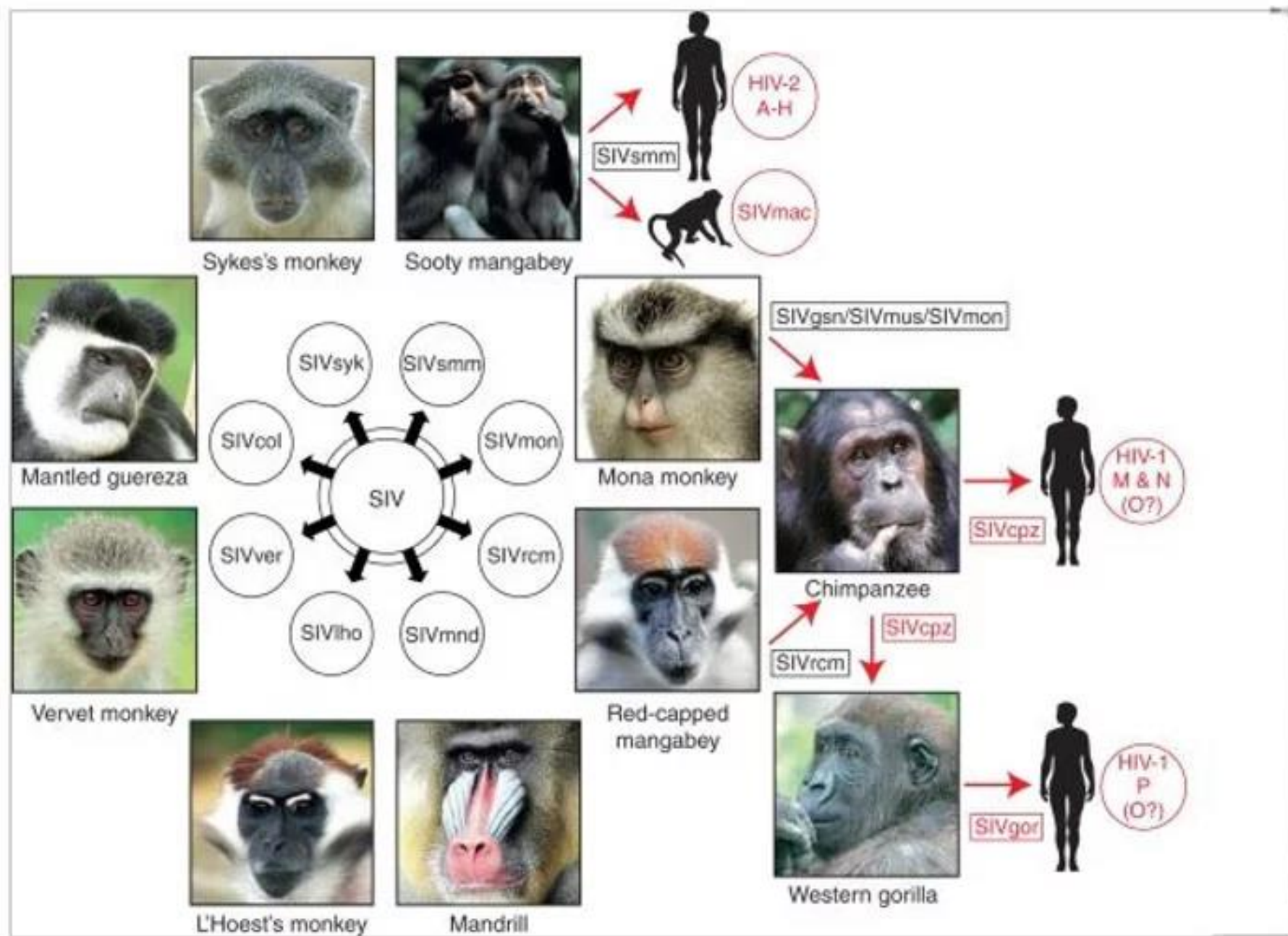
Discuss with your neighbour



HIV history – Origin and epidemic emergence



Origin of HIV?



HIV history - Origin and epidemic emergence

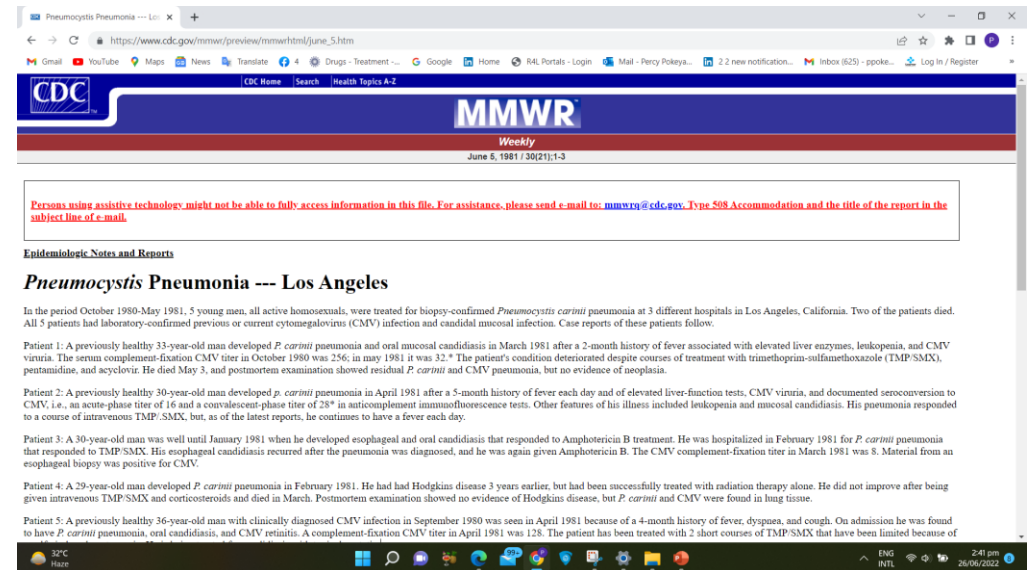


- **Eating primate meat was the probable cause of the initial transfer to humans.**
- **The most recent evidence HIV-1 dates back to the Belgian Congo city of Leopoldville (modern Kinshasa), from around 1910.**
- **HIV became epidemic after colonialism and growth of large African cities. (Growing cities led to social changes, including more sexual activity, increase in prostitution, and the high frequency of genital ulcer diseases.)**

HIV history – 1981 as a turning point

Publication describing clusters of Kaposi's sarcoma, *Pneumocystis Carinii* pneumonia, as it was then called, and herpes simplex lesions, with a commentary describing a new acquired cellular immunodeficiency. Seen in

- Men having sex with other men
- Injecting users
- Haemophiliacs
- Haitians



1930

1959

1981



HIV history - Isolated and characterised in 1983-84



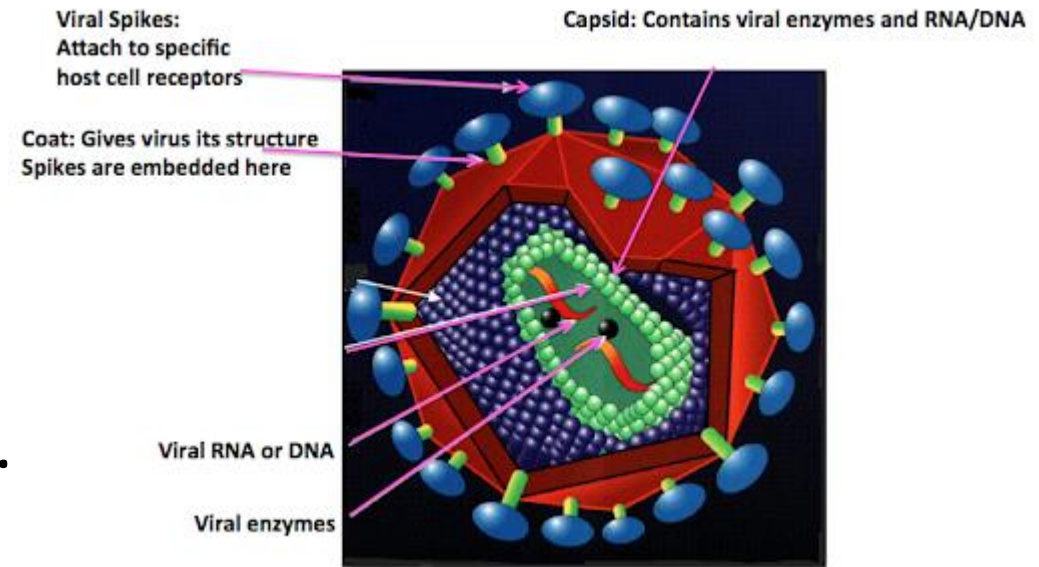
Robert Gallo
National Institutes of
Health US



Luc Montagnier
Pasteur Institute Paris

What is a virus?

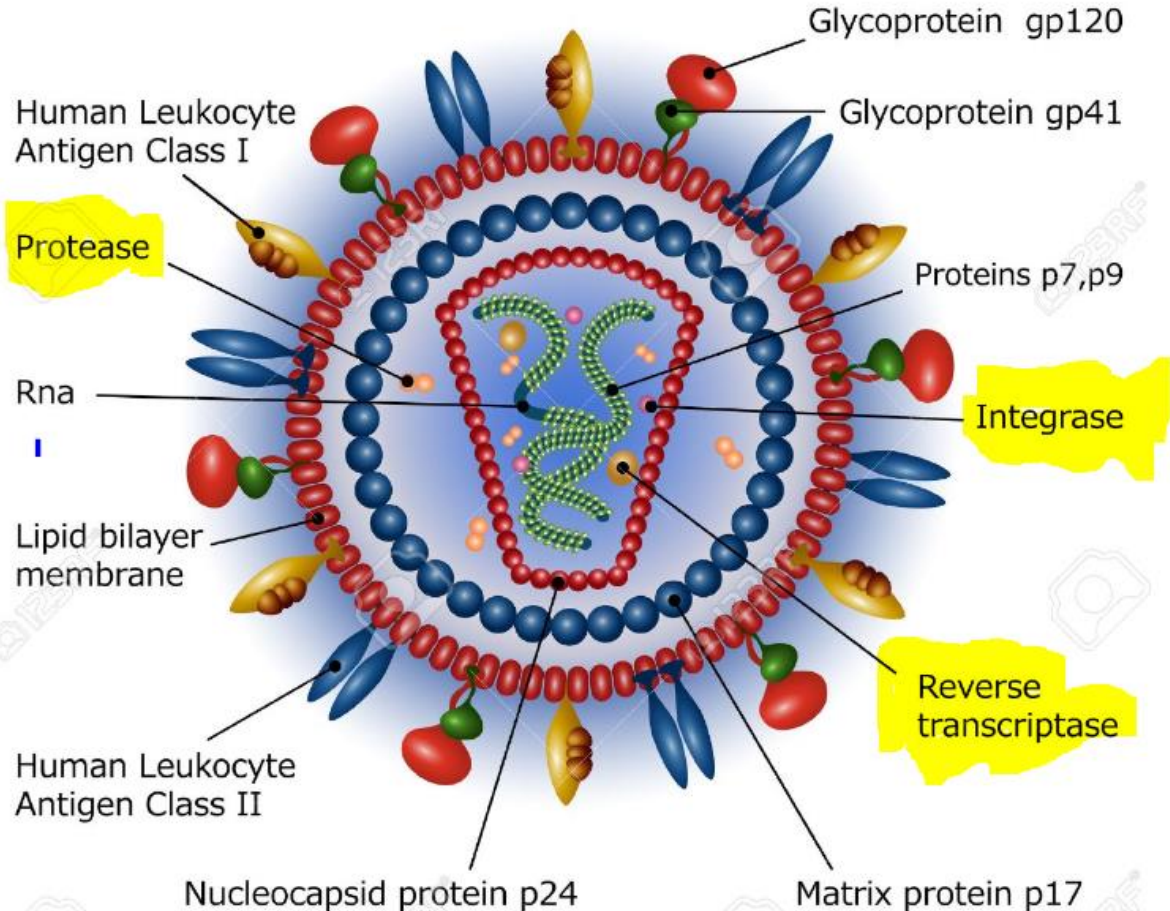
- Viruses are the smallest of all the microbes.
- They are **only alive and able to multiply inside the cells of other living things**. The cell they multiply in is called the host cell.
- A virus is made up of
 - a core of genetic material, either DNA or RNA,
 - surrounded by a protective coat called a capsid which is made up of protein. Sometimes the capsid is surrounded by an additional spikey coat called the envelope.
 - Viruses are capable of latching onto host cells and getting inside them.



HIV Virus Structure

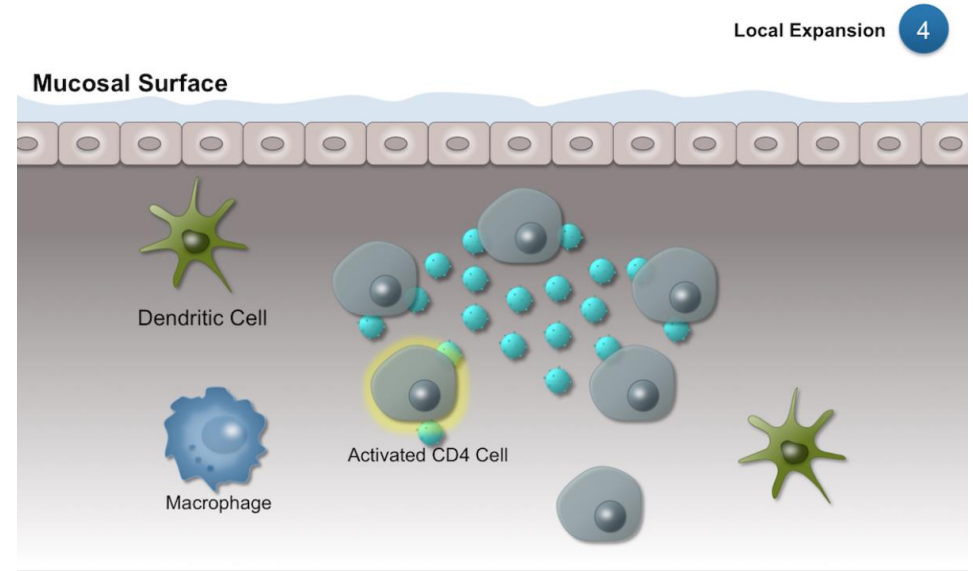
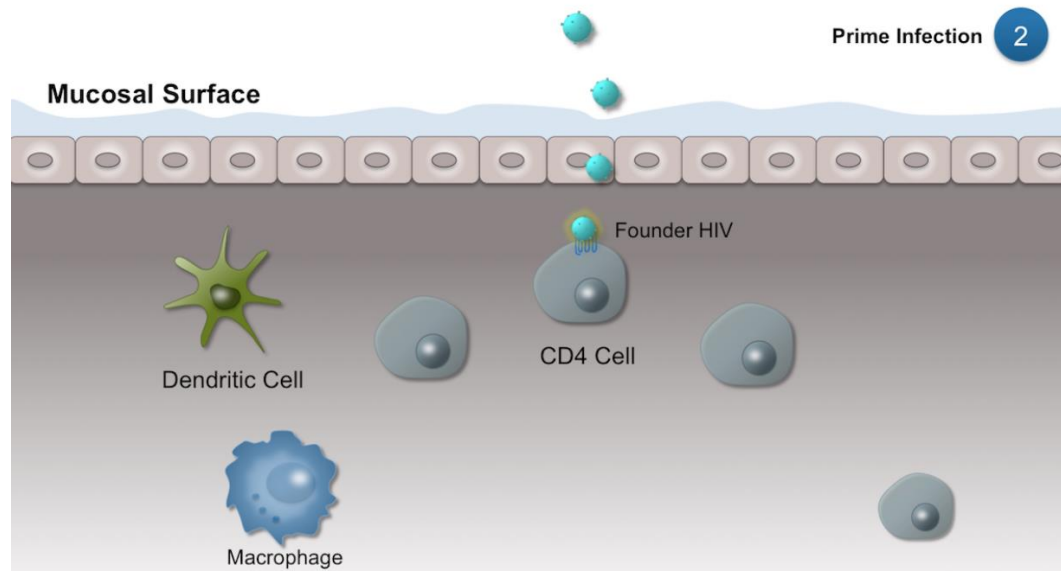
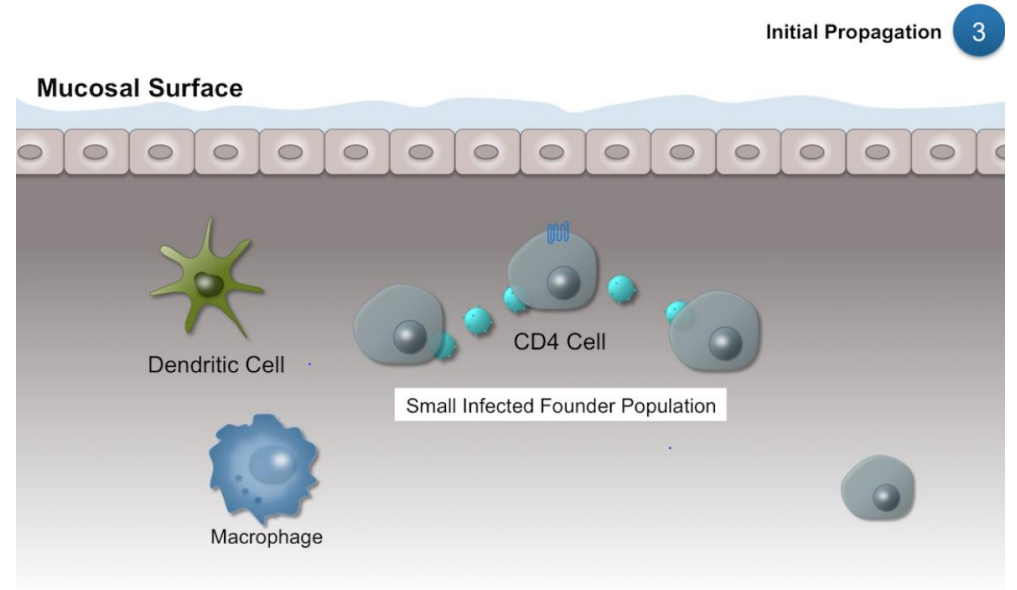
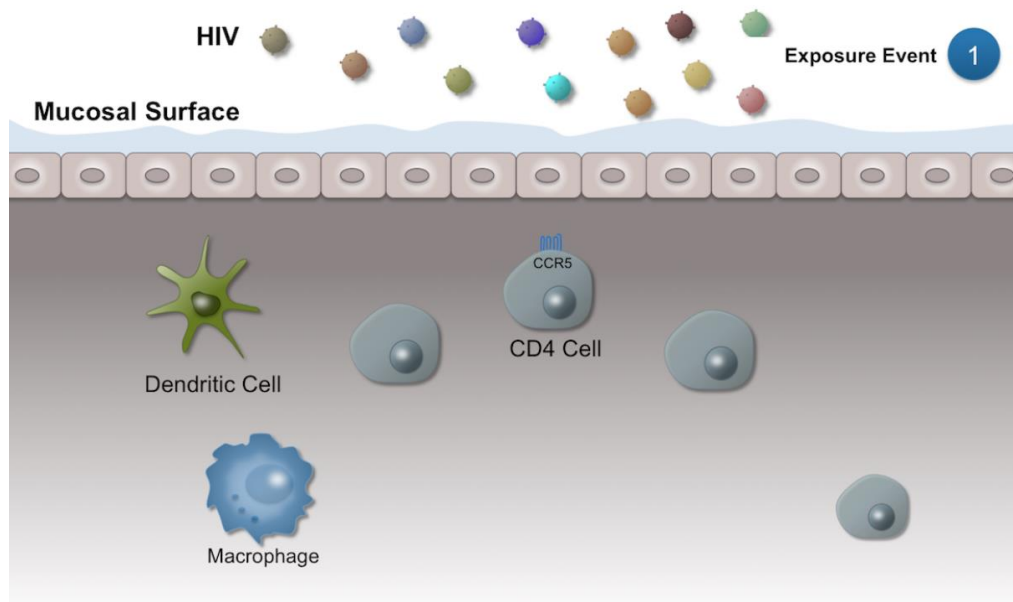
Human Immunodeficiency Virus

Baltimore Group VI (ssRNA-RT)



How is HIV transmitted?

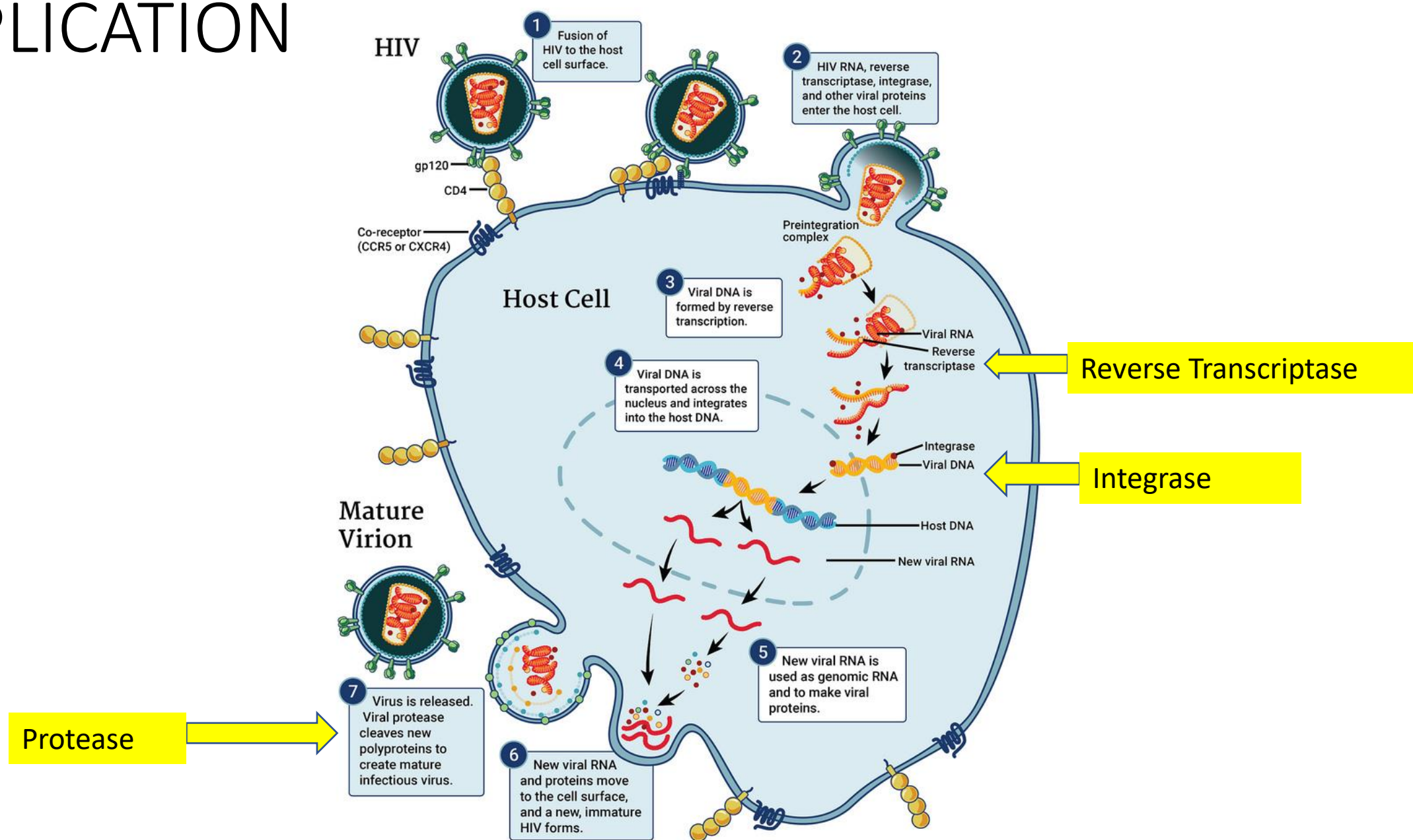
- HIV can be transmitted only in certain body fluids from a person who has HIV:
 - Blood
 - Semen
 - Pre-seminal fluids
 - Rectal fluids
 - Vaginal fluids
 - Breast milk
 - ??*Saliva*



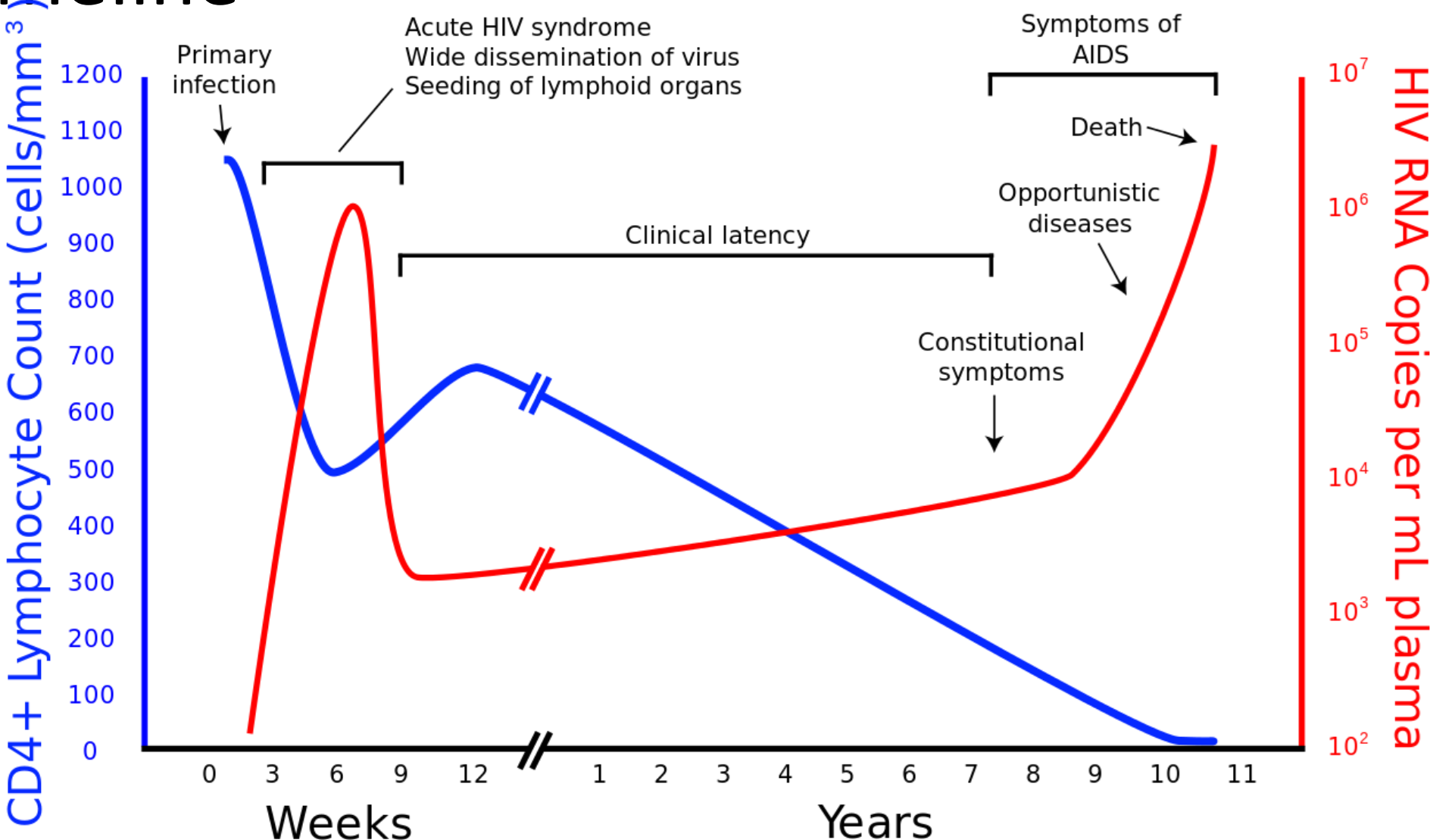
Factors influencing HIV transmission:

- Viral Load of HIV infected persons.
- Exposure of uninfected person.
- Integrity of mucosa/skin.

HIV REPLICATION



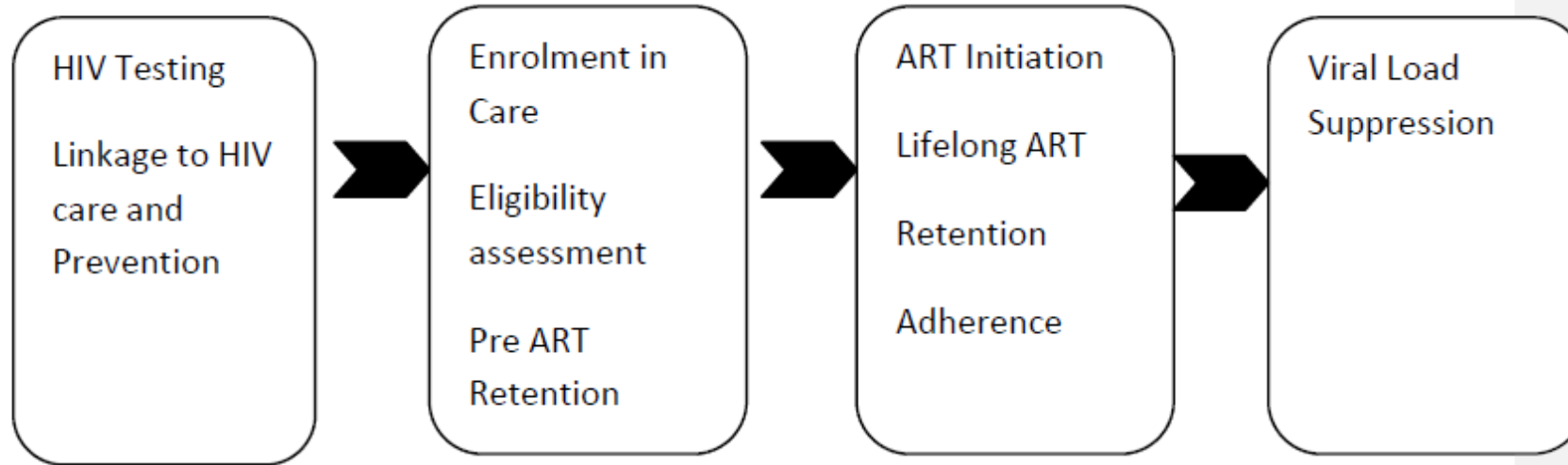
HIV progression: CD4 and viral load mapped on a timeline



AIM of Anti Retroviral Therapy

- Suppress HIV Viral Replication (Stop transmission)
- Good clinical outcome for patient.

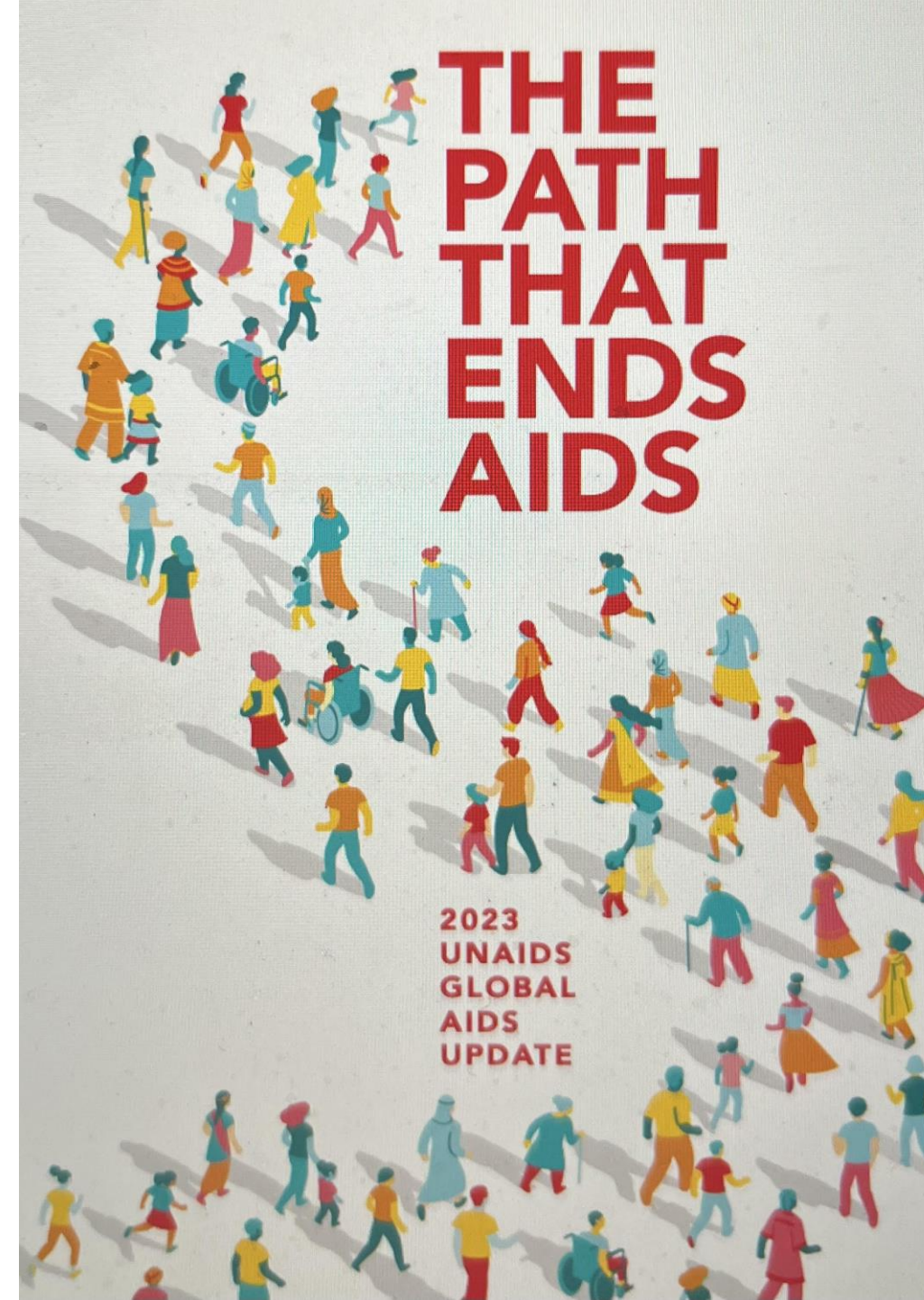
HIV Prevention Care and Treatment Continuum



- The goal of antiretroviral therapy (ART) is to achieve virological suppression – **U=U**

Milestones of HIV in PNG!




- 1987 - First Case of HIV diagnosed in PNG.
 - 1997 - National Aids Counsel Secretariat established by act of Parliament.
 - 2005 – Antiretroviral Treatment first introduced into PNG.
 - 2017 – First national HIV Drug Resistance Survey which showed that PNG had high rates of HIV drug resistance (5th Highest according WHO 2020 HIV drug resistance report)
 - 2019 – PNG introduced optimum ART regimen (Tenofovir/Lamivudine/Dolutegravir – TLD once daily pill)
-
- We are all in this together.
 - We have come a long Way.
 - We have a long way to go.
 - We need to accelerate.

The illustration on the left side of the slide depicts a diverse group of people walking along a path. The figures are rendered in various colors and styles, representing different ages, ethnicities, and abilities. Some individuals are using wheelchairs or canes. The overall scene is one of a community moving forward together.

THE PATH THAT ENDS AIDS

2023
UNAIDS
GLOBAL
AIDS
UPDATE

2022 HIV statistics of concern for PNG

-  6500 new infections.
-  72000 Total PLHIV
-  HIV Vertical Transmission – 34%
- 33 % HIV Testing at ANC

Why is there a rise in new infections?

- **Transmission** of HIV infection.

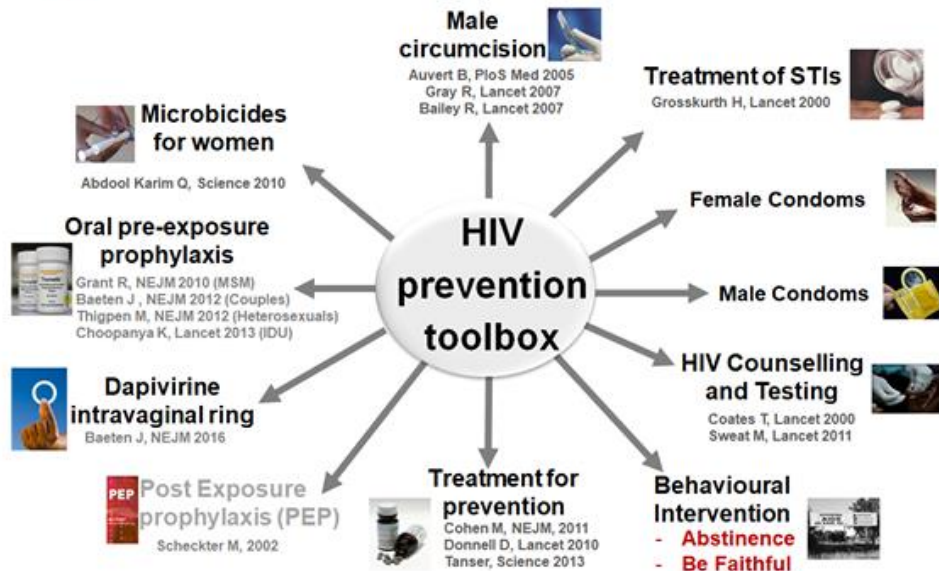
What must we do to be on the path to end HIV in PNG?

- **STOP HIV
TRANSMISSION**

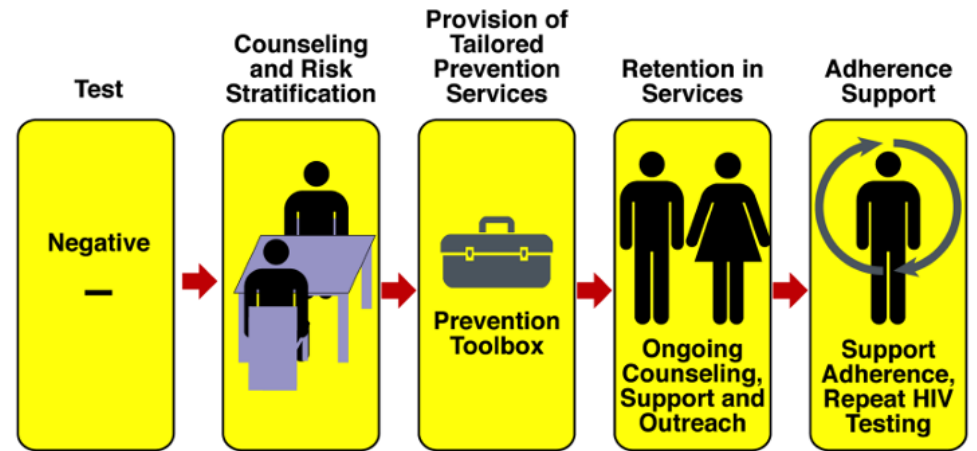
How do you stop HIV transmission?

- **HOW?**

Prevention toolbox



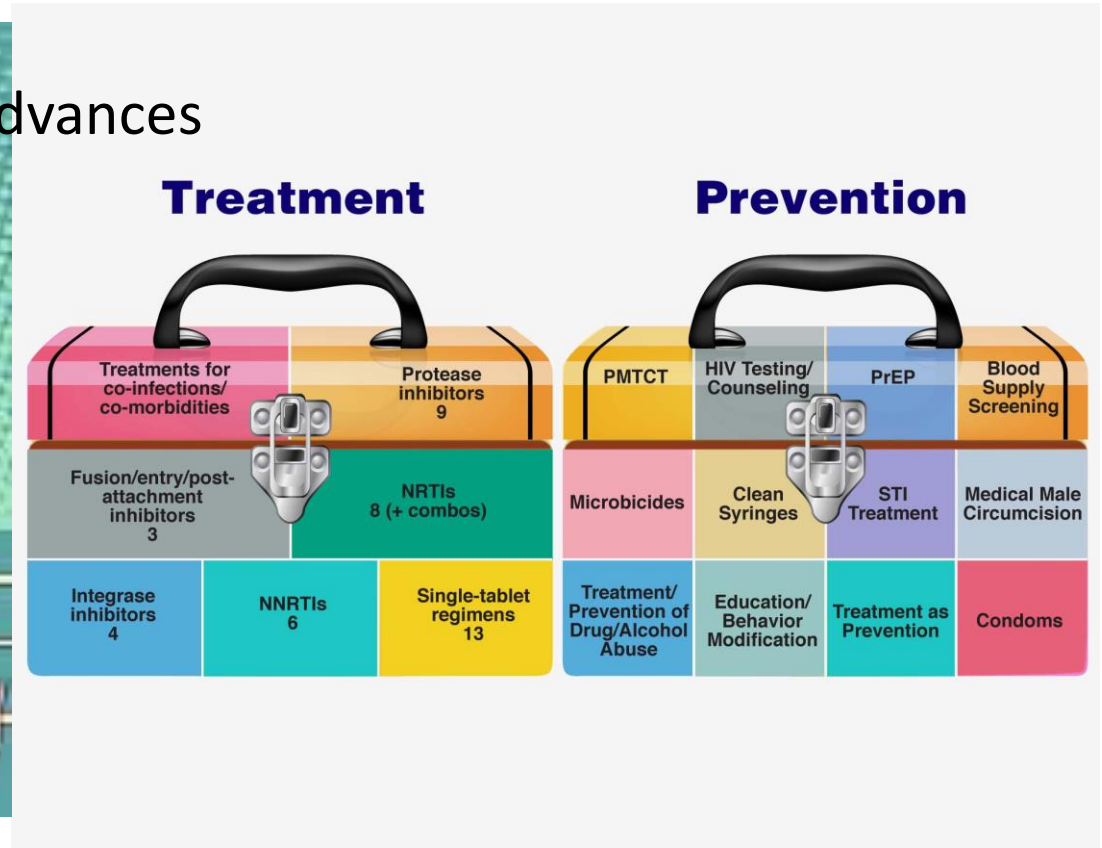
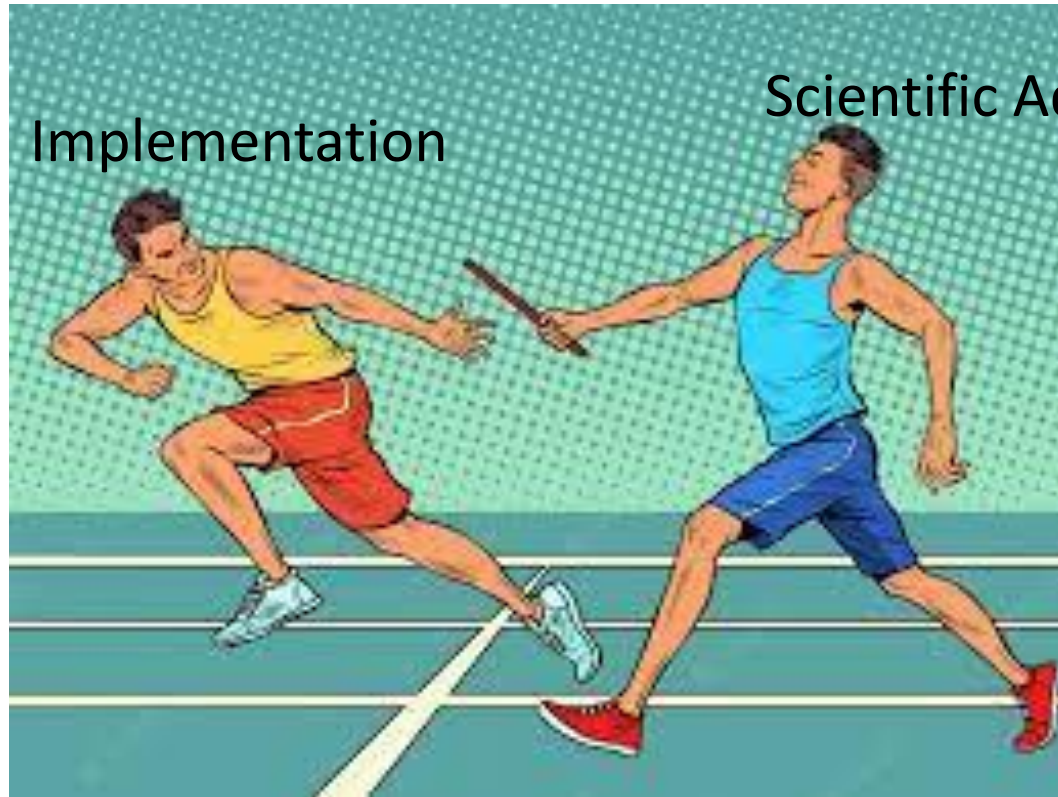
HIV Prevention Continuum



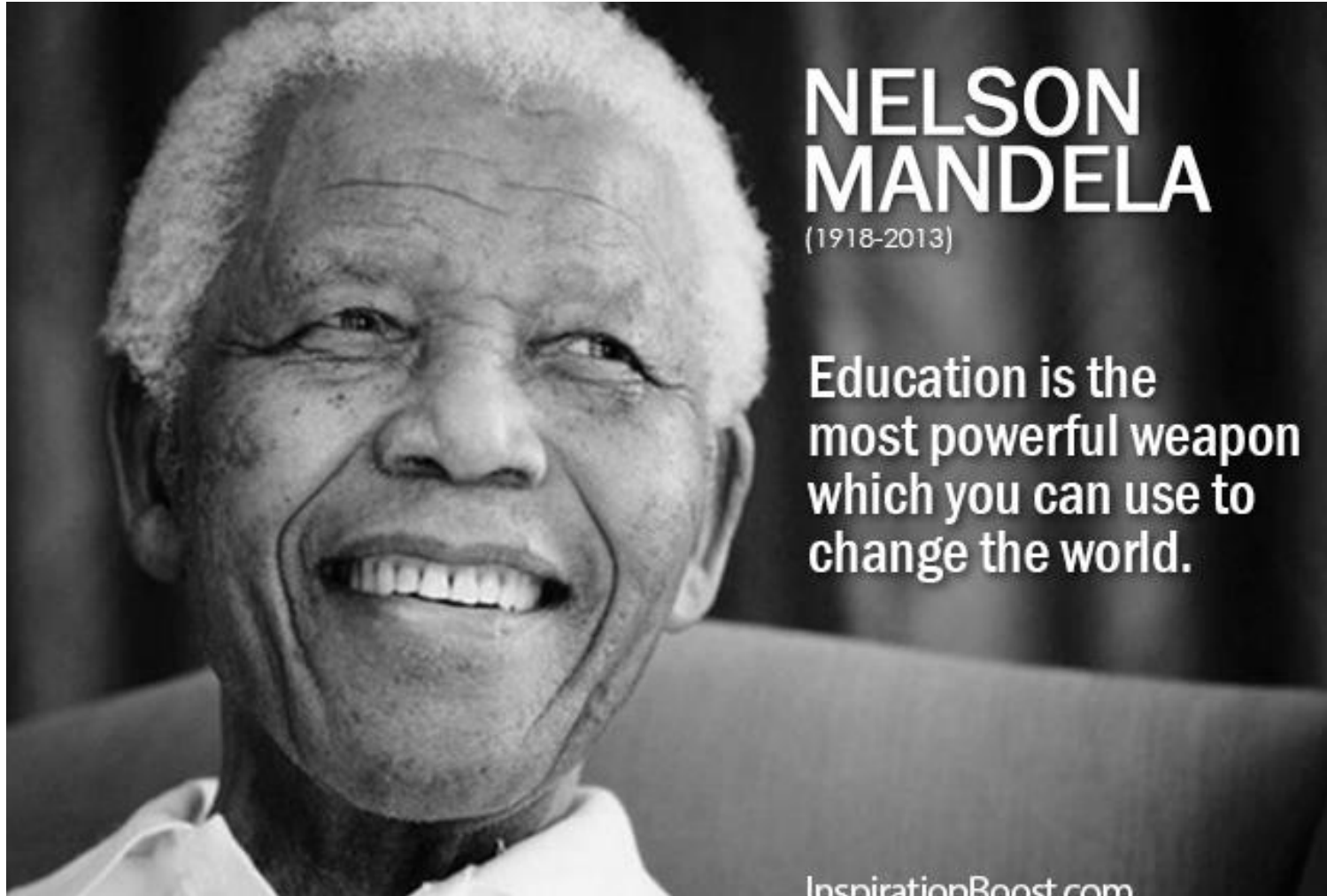
Adapted from: ML McNairy and WM El-Sadr, *Clin Infect Dis* 59: S12-S15, 2014.

AS Fauci/NIAD

Do we have what it takes to win the race to put PNG on the path to ending HIV?



We can do this!



Thank you
for listening!