CATIE

Building Blocks

A CATIE Webinar Series

The Basics of HIV

Presented by:

Melissa Egan, Regional Health Education Coordinator, CATIE

Date:

Tuesday October 8th, 2013, 1-2pm EST

Agenda

1. HIV and the immune system
2. The progression of untreated HIV
3. Monitoring HIV

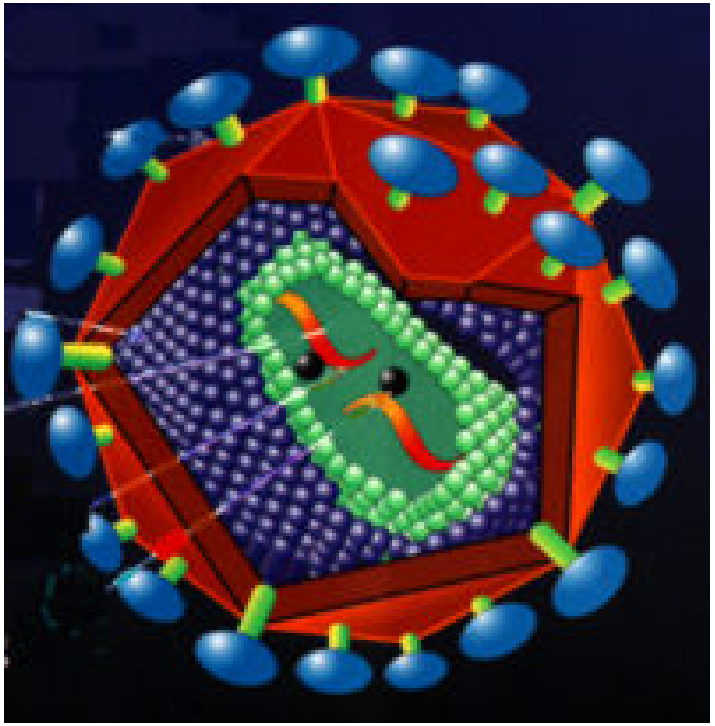
The Basics

HIV and AIDS

Human

Immunodeficiency

Virus



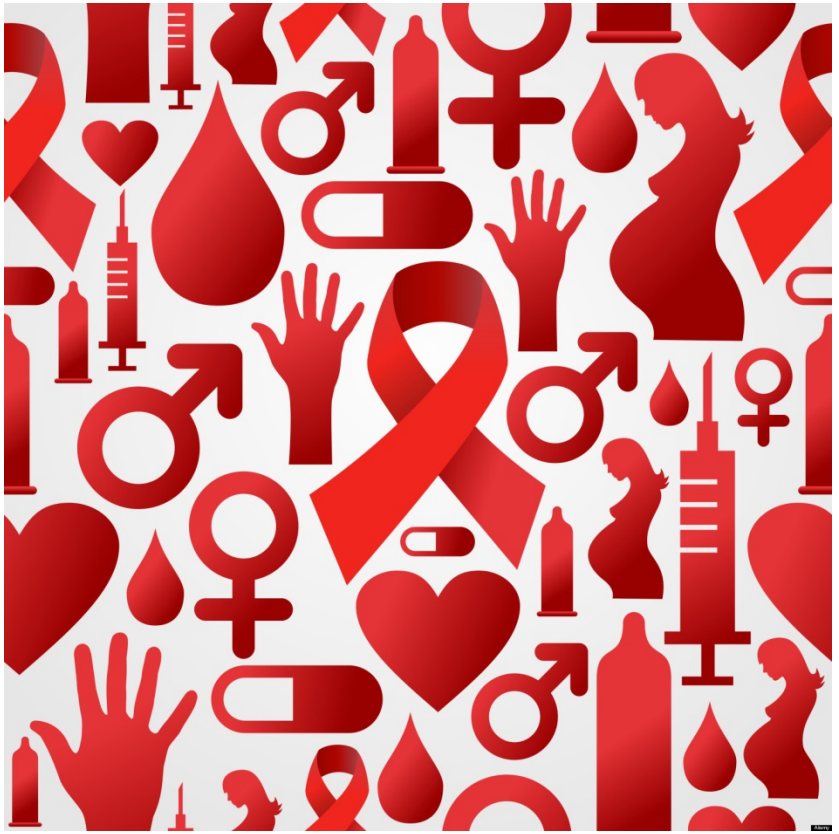
HIV and AIDS

Acquired

Immune

Deficiency

Syndrome



HIV Transmission

- **Semen**
- **Vaginal fluid**
- **Blood**
- **Breast milk**
- **Rectal fluid**

Source of infection

+

Route of entry

+

Activity

- **Break in the skin**
- **Mucous membrane**
- **Sore/lesion on mucous membrane**

- **Unprotected sex**
- **Sharing drug equipment**
- **Vertical transmission (without HIV treatment)**

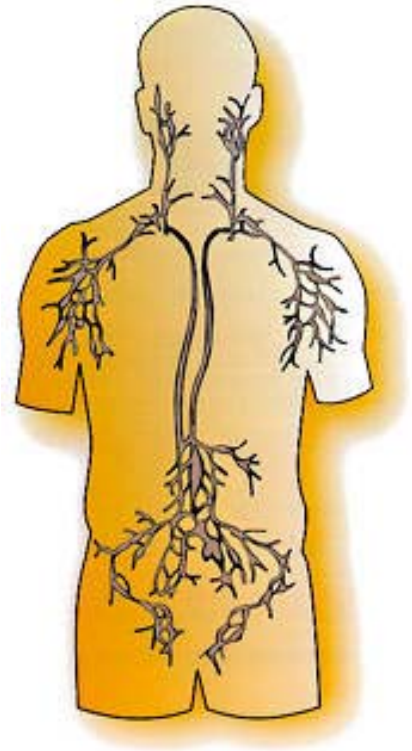
***Possible* HIV Transmission**

Relationship between HIV and AIDS

- HIV is the virus that can lead to AIDS if untreated
- You can have HIV without having AIDS...
- But you can’t have AIDS without having HIV in your body

Part One

HIV and the
Immune System

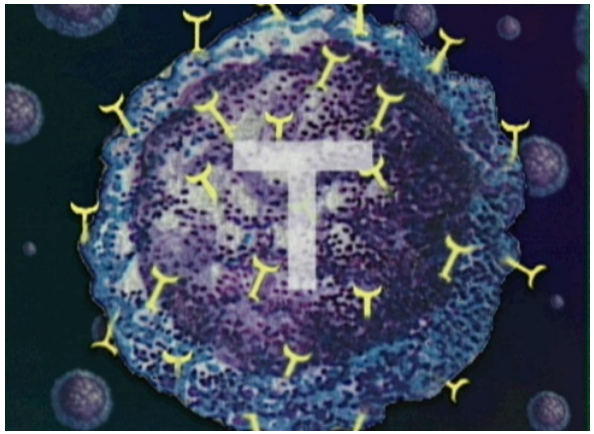


The immune system

- The immune system helps to protect our bodies from infection and disease
- It is a complex system that involves different types of cells, tissues and organs that are in constant communication
- It recognizes, targets and destroys disease-causing microbes like harmful bacteria, viruses and parasites

CD4 cells

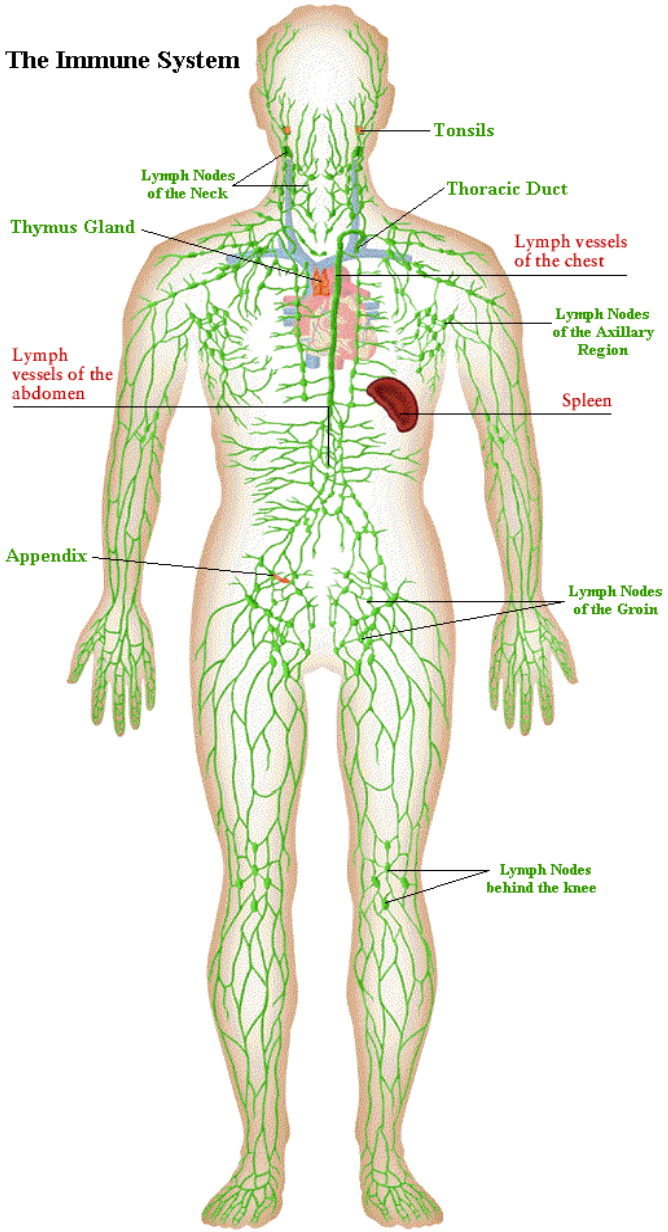
- CD4 cells are one type of immune cell
- CD4 cells activate and direct other immune cells; they help coordinate and lead the body's immune response



- They are often compared to an orchestra conductor... They are an essential part of a healthy immune response

HIV and the immune system

- HIV weakens the immune system by entering the body and taking control of CD4 cells
- HIV prefers to take over and multiply inside the CD4 cell

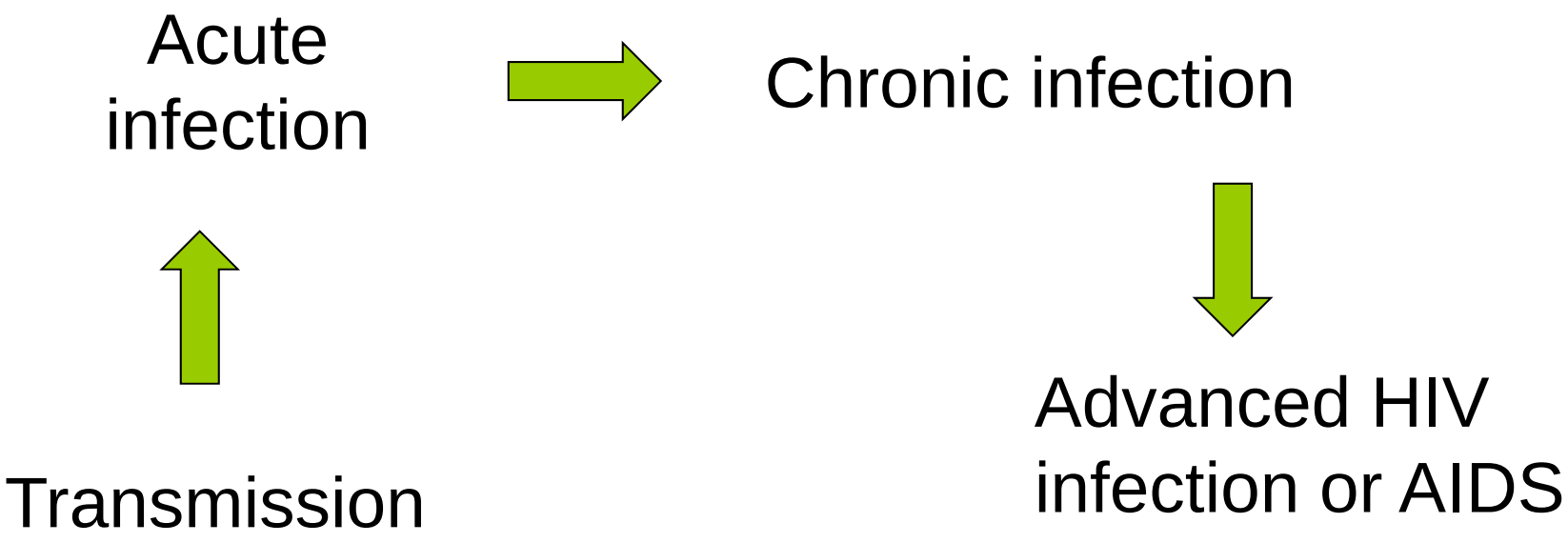


Part Two

The Progression of Untreated HIV

The progression of untreated HIV

The stages of untreated HIV infection:



Acute Infection

- Right after a person is infected with HIV, their body starts to make antibodies to the virus – this phase of acute infection usually takes 1 to 3 months
- Once someone has developed antibodies, they have “seroconverted”

Acute Infection

- Some people experience symptoms like a rash, fever or sore throat during acute infection
- These symptoms may last a few days or a few weeks

- Not everyone gets these symptoms

- ***Symptoms are not an accurate way of diagnosing HIV – the only way for someone to know if they are infected with HIV is to get an HIV test***

Chronic infection

- People infected with HIV may live without any symptoms for many years
- If HIV is left untreated, CD4+ counts gradually drop as HIV continually replicates within the cell
- It will continue to replicate resulting in a decrease of CD4 cells which further weakens the immune system

Chronic infection

- We used to refer to this stage as ‘asymptomatic’
- HIV leaves the body in a “switched-on” state
- We now know that damage to the body is occurring.

Advanced HIV Infection or AIDS

- HIV plus one or more opportunistic infections or certain cancers
- Many opportunistic infections can be prevented or treated

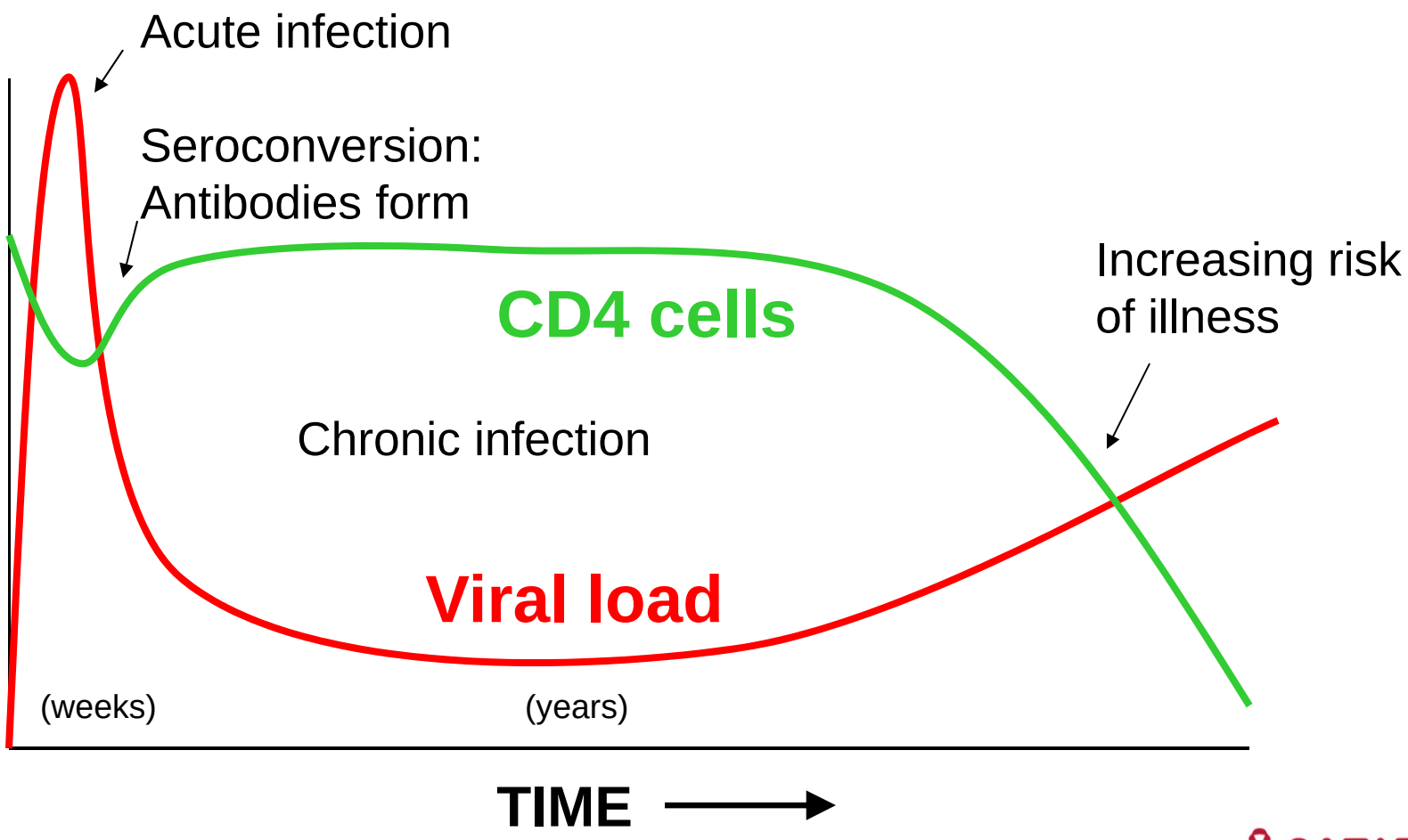
Opportunistic infections

- Tuberculosis (TB)
- CMV retinitis
- Candidiasis (thrush)
- Pneumocystis pneumonia (PCP)
- Toxoplasmosis
- Kaposi's sarcoma
- Non-Hodgkin's lymphoma
- Cervical cancer
- Anal cancer

Part Three

Monitoring HIV

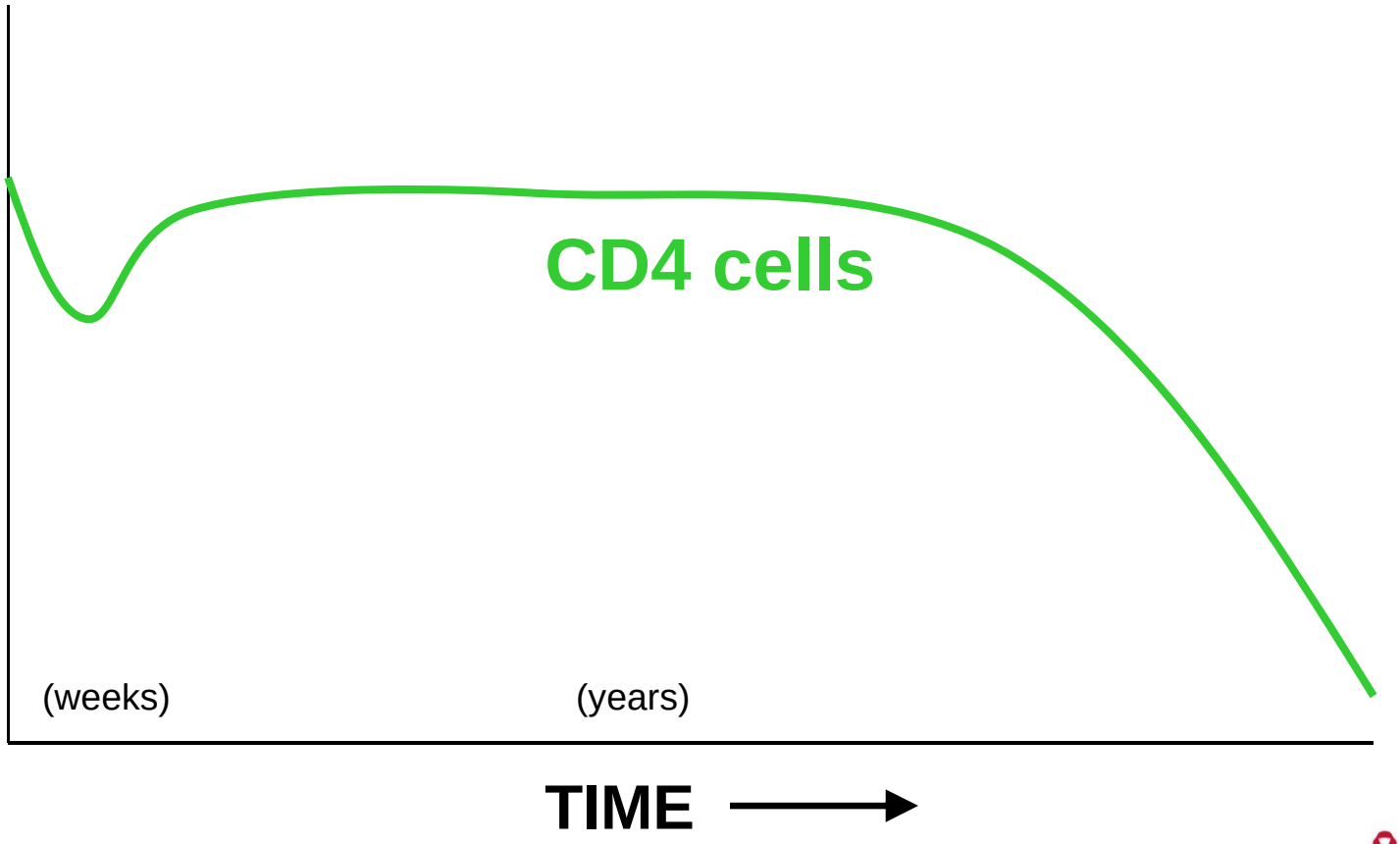
Typical untreated HIV disease



CD4 count

- CD4 count is one of the most important measurements used to assess HIV disease progression and immune system strength
- Measured in number of CD4 cells per cubic millimetre (mm^3), or microlitre (µl), of blood

Typical untreated HIV disease

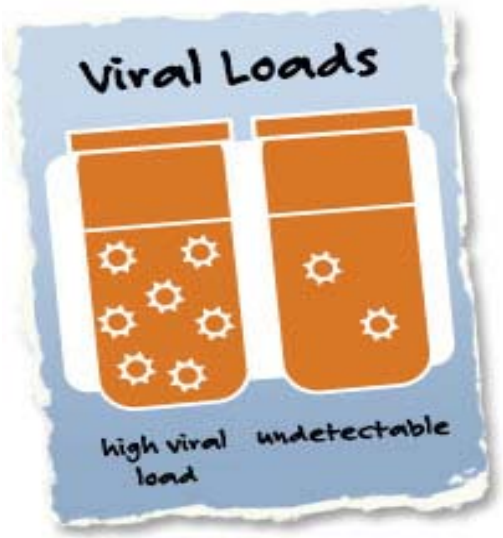


CD4 count

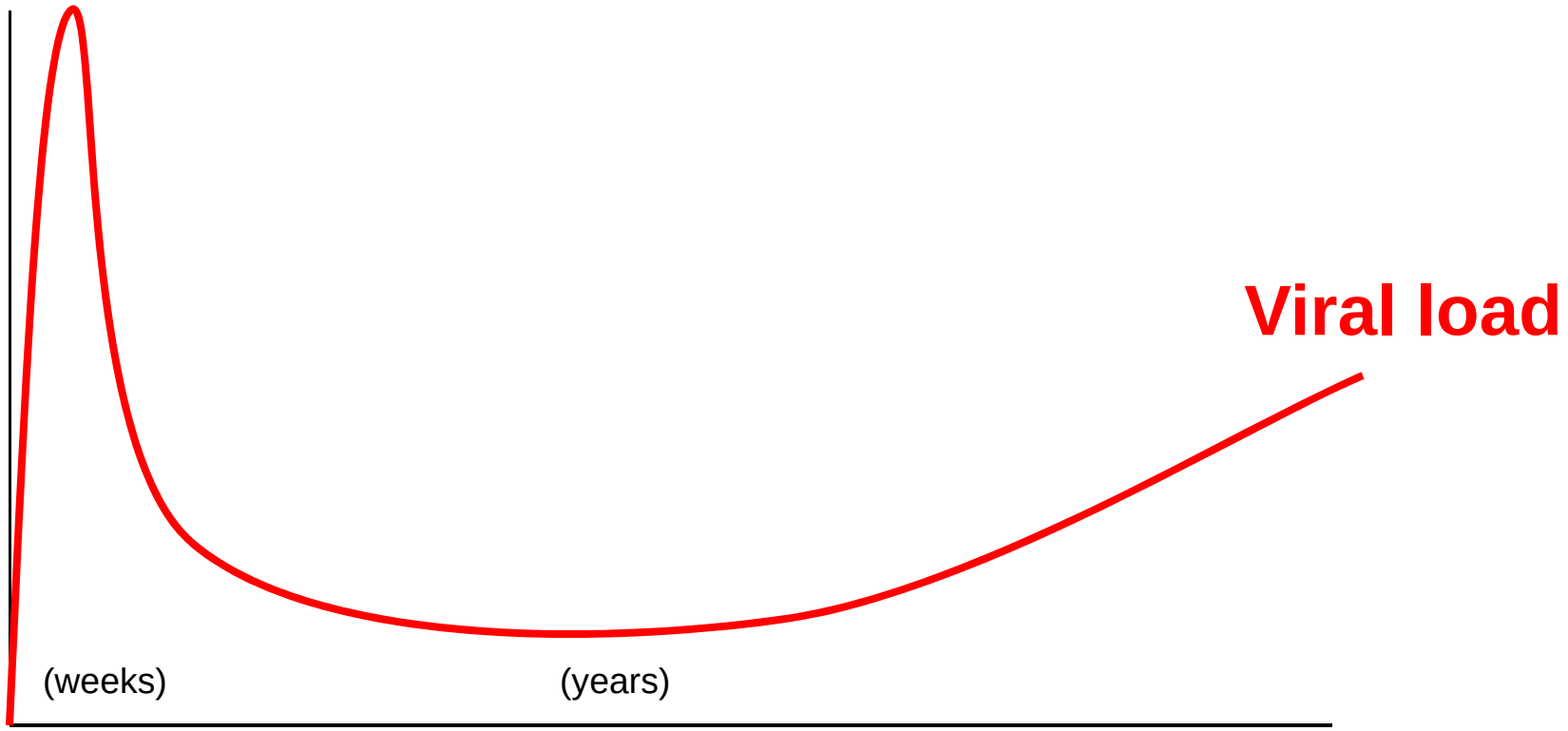
- People with HIV will have their CD4 counts monitored regularly
- Overall trends are more important than any single measurement
- The risk of acquiring an opportunistic infection increases as CD4 count decreases
- Guidelines are changing to encourage people to begin treatment as soon as possible rather than using CD4 counts as the deciding factor

Viral load

- Viral load measures the amount of HIV circulating in the blood
- Measured in copies of HIV per cubic millilitre (ml) of blood
- A higher viral load will cause greater damage to immune system



Viral load during untreated HIV infection



Viral load

- The goal of treatment is an undetectable viral load of less than 40 copies of HIV per ml
- Viral load can be used to measure how well a particular drug combination is working in a person by a decrease in viral load over time
- Trends are more important than any single measurement

Key Points

- Transmission Equation
  - Fluids that can transmit HIV
  - How HIV can get into the body
  - Activities that facilitate that entry
- Progression of Untreated HIV
  - How, in the absence of treatment, HIV progresses in the body
  - How treatment can improve health outcomes for people with HIV
- CD4 Count and Viral Load Tests
  - These measurements are key indicators of health and treatment success for people living with HIV

Thank you

~ Next Webinar ~

Building Blocks

A CATIE Webinar Series

HIV Testing in Canada: Technologies and Approaches

Presenter: Tsitsi Watt, Manager, Program Delivery, CATIE

Date: Thursday November 14th, 2013, 1-2pm EST

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Please evaluate this webinar!