1 HIV/AIDS the basics…

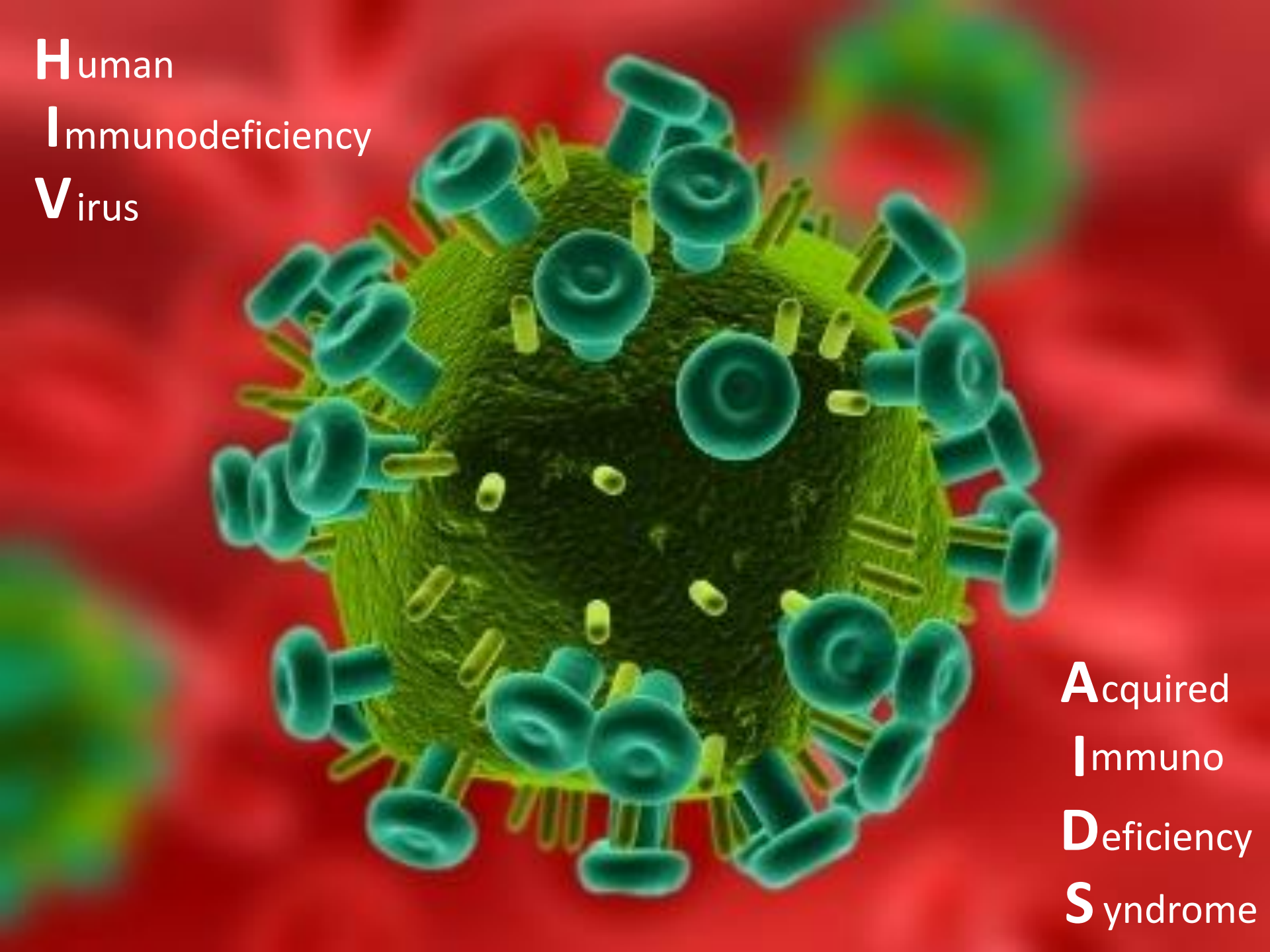
Goal:

This module will present an overview of HIV/AIDS, the basics of how HIV passes from person to person, and a brief description of who is at risk for HIV in California.

Learning Objectives:

At the end of this module participants will be able to:

1. Differentiate basic HIV concepts, such as: exposure, infection, modes of transmission, replication, infectious/non-infectious body fluids
2. Explain the effects of HIV in the human body
3. Express basic AIDS concepts such as diagnosis and opportunistic infections
4. Evaluate basic local HIV epidemiology

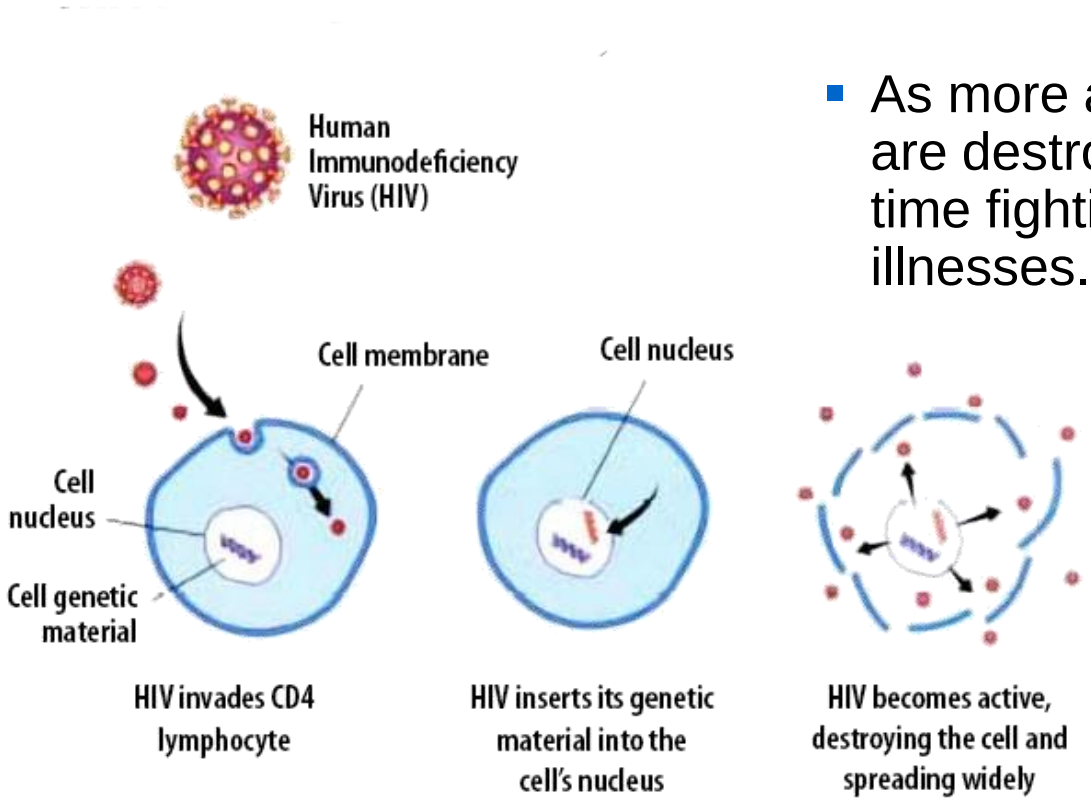

Human
Immunodeficiency
Virus
Acquired
Immuno
Deficiency
Syndrome

What is HIV?

- A retrovirus
- Transmitted only between humans
- Multiplies inside specific cells of the immune system
- Destroys immune system cells
- Causes inflammation of arteries and of the heart
- Causes a condition called AIDS

HIV Invades CD4+ Cells

- HIV is a virus that invades CD4+ cells, which are a critical part of our immune system.
- Once inside a CD4+ cell, the virus uses the cell to create more virus. In the process HIV destroys the original cell.
- As more and more immune system cells are destroyed, the body has a harder time fighting off both HIV and other illnesses.



HIV is an Inflammatory Disease

We are learning that HIV seems to do more than just impair the immune system. It is also an inflammatory disease which over time can cause damage to arteries and to the heart as well as to other organs.

Because of this inflammatory effect, a person who has HIV and who does not smoke has the same risk for heart attack as a person who doesn't have HIV but who does smoke.

What is AIDS?

- A serious health condition caused by an advanced stage of HIV infection
- The immune system becomes severely damaged by HIV and can no longer protect the body from infections.
- Rare “opportunistic” infections and cancers become more common.

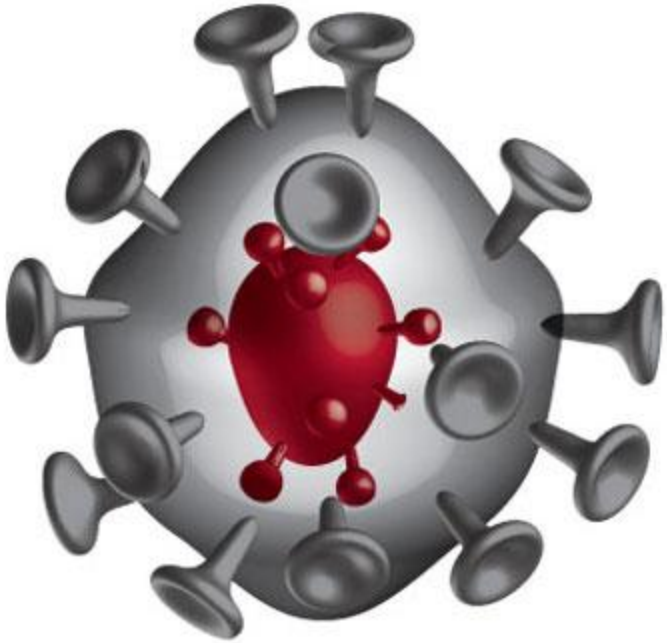
Opportunistic Infections (OIs)

OIs are illnesses that take advantage of a person's weakened immune system. OIs do not normally appear in persons with healthy immune systems.

The Centers for Disease Control and Prevention (CDC) have generated a list of 40 OIs, which includes: Kaposi's sarcoma, *pneumocystis jiroveci* pneumonia, Toxoplasmosis, Cryptococcal Meningitis, Mycobacterium Avium Complex (MAC), Cytomegalovirus retinitis, among others.

What Gives an AIDS Diagnosis?

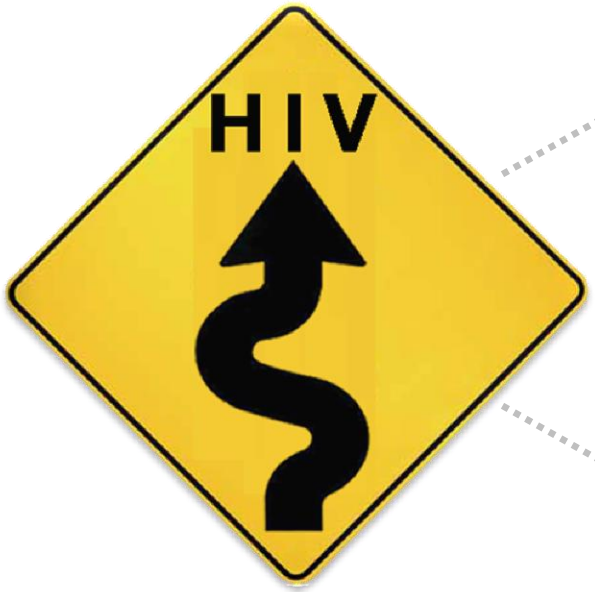
- HIV positive, **AND**
  - CD4 (T-cell) count below 200
  - **And/or** presence of one or more opportunistic infections



Viral Load (VL)

Viral load is the amount of HIV in a sample of blood. HIV medications fight HIV and work to keep the virus from making copies of itself. VL tests are used along with the CD4 cell count to monitor the status of HIV disease, guide recommendations for therapy, and predict the future course of HIV. It is important to keep VL at an undetectable level. Undetectable does not mean your HIV infection is gone. It means that the amount of HIV in your blood is too low to be measured with current tests. Also, an undetectable VL means that the risk of transmitting HIV has decreased but has not been eliminated. People do get infected with HIV even when their HIV+ partner's VL is undetectable. Undetectable VLs in blood are not a guarantee that HIV is also undetectable in semen.

Exposure vs. Infection



exposure

- HIV exposure happens when infected body fluids come in contact with a person

infection

- HIV infection happens when the virus enters a human cell and multiplies, creating more viruses

Not every case of exposure will result in HIV infection

Infectious Bodily Fluids

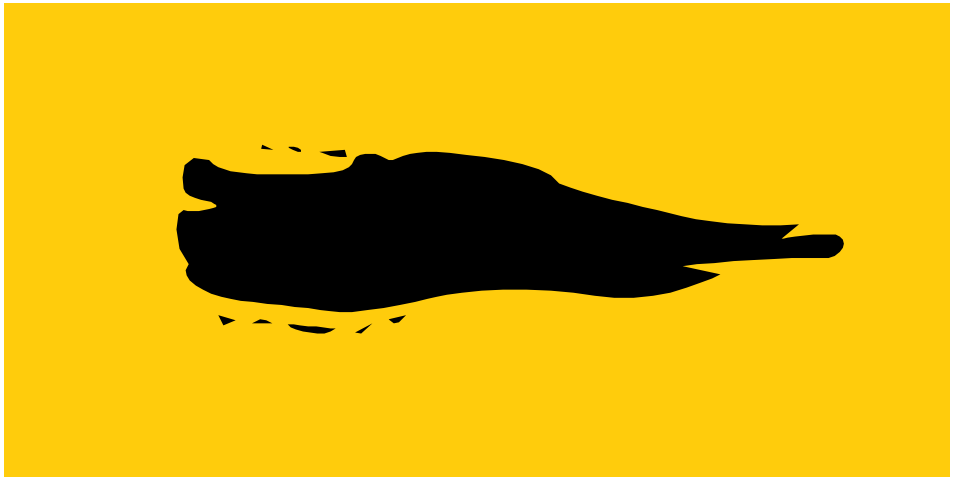
The body fluids containing HIV at levels high enough to infect someone else include:

- **Blood**
- **Semen**
- **Pre-ejaculate**
- **Vaginal Secretions**
- **Breast Milk**

(for infants)

Non-Infectious Bodily Fluids

- **Saliva**
- **Tears**
- **Sweat**
- **Urine**
- **Sputum**
- **Nasal secretion**
- **Feces**



Small traces of HIV have been found in some of the body fluids mentioned above. However, the amount of virus present is so small that these body fluids are not able to transmit HIV. These fluids only present a risk for HIV transmission if they are mixed with blood.

Requirements for Infection

The following three factors need to happen in order for HIV to cause infection:

1. HIV must be present,

2. In sufficient quantities to cause infection,

- Blood
- Sexual fluids
- Breast milk

3. And be able to get into the bloodstream

- Directly through damaged skin or through injection
- Absorption through mucous membranes

If you remove one of these factors, infection cannot take place.

HIV is transmitted through….

Unprotected anal and vaginal sex with an HIV positive partner.

Vertical transmission from HIV infected mother to child.

Sharing needles and equipment with an HIV positive person.

Contact with infected blood during health care or other occupational exposure

HIV is NOT transmitted by:

- Hugging
- Kissing
- Massage
- Shaking hands
- Insect bites
- Pets
- Donating blood
- Swimming pools or hot tubs
- Casual contact with someone who has HIV (sharing dishes, food, showers or toilets, phone)
- Casual contact with saliva, tears, sweat, or urine

The U.S. National Institutes of Health and the U.S. Centers for Disease Control and Prevention have found that none of the above are ways that people contract the virus.

What does HIV look like in CA?

- 74% of those who are HIV-positive are men who have sex with men (MSM) including MSM who inject drugs (MSM-IDU) (6%)
- 29% are between 20 and 29 years old;
- 36% are between 30 and 39 years old,
- 22% are between 40 and 49 years old
- 18% are African American (7 percent of Californians are African American)
- 30% are Latino (36 percent of Californians are Latino)
- Women are the fastest growing demographic for HIV

***Source*: California HIV/AIDS Surveillance Statistical Reports 2011**