

HIV 101

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Outline of this Unit

- What is HIV? What is AIDS?
- Transmission of HIV
- Epidemiology of HIV
- Vulnerable groups
- Issues for providers

What is HIV?

HIV stands for Human Immunodeficiency Virus.

HIV is a virus that attacks the body's immune system, leaving it vulnerable to opportunistic infections (OIs) and cancers.

HIV treatment can slow this process and allow people with HIV to live longer, healthier lives.

HIV Transmission

HIV is a blood borne pathogen present in most bodily fluids. It is transmitted from person to person by:



Blood & blood product transfusions (all products are now screened in Canada)



Sexual contact



Childbirth & breastfeeding



Needle stick injuries



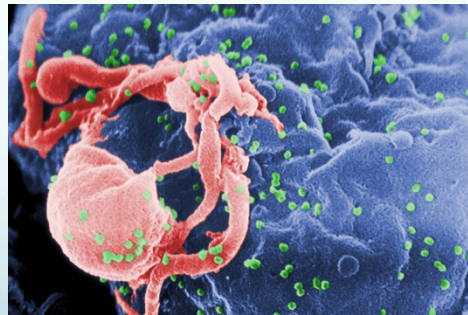
Sharing needles & drug paraphernalia (+crack pipes)

Defining HIV and AIDS

HIV is Human Immunodeficiency Virus

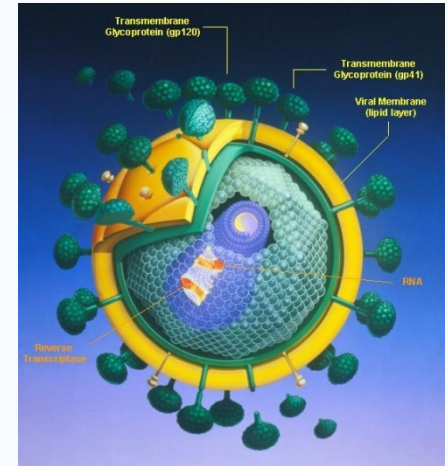
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AIDS is Acquired Immune Deficiency Syndrome



How HIV causes illness

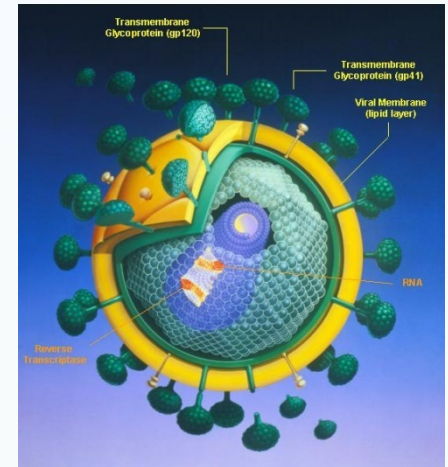
As soon as infection occurs, HIV replicates itself up to 10 billion times a day. A person's immune system attacks HIV quickly and is often able to clear large amounts of the virus in the first 24 hours. But the human immune system is not able to completely eliminate the virus.



HIV attacks the immune system cells called **CD4 cells** and uses them as a 'factory' to make new HIV cells. This fight/attack cycle can last for years in a state of equilibrium.

How HIV causes illness

Over time, HIV gets the upper hand and eventually the number of **CD₄ cells** declines and the **viral load** increases. **Viral load** is a measure of the viral burden in the host – reported as the number of copies of the virus per mL of blood.



After some years, the immune system can no longer function properly under the constant attack of HIV.

As CD₄ levels fall, the immune system is no longer able to fight off other infections and the person becomes sick – when the person has multiple infections, they are classified as having AIDS.

Physical Responses

A person may have 8 to 10 years of symptom-free living after initial infection with the virus. As CD₄ count drops and the viral load increases the potential for opportunistic infections increases.

HIV/AIDS is a chronic episodic disease with an uncertain trajectory.

Median survival after CD₄<200 is 3.7 years.
Median survival after onset of AIDS defining illness is 1.3 years.

Early Symptoms of HIV

Symptoms may appear as early as 2-4 weeks after exposure to HIV (up to 3 months). The person might experience a **sero-conversion illness** or primary HIV infection. It is often described as the “worst flu ever.” But not everyone experiences this. A person might not feel any different.

During early infection there are higher levels of circulating virus, which means that a newly infected individual can more easily transmit the virus to other people.

Possible Symptoms of HIV Infection

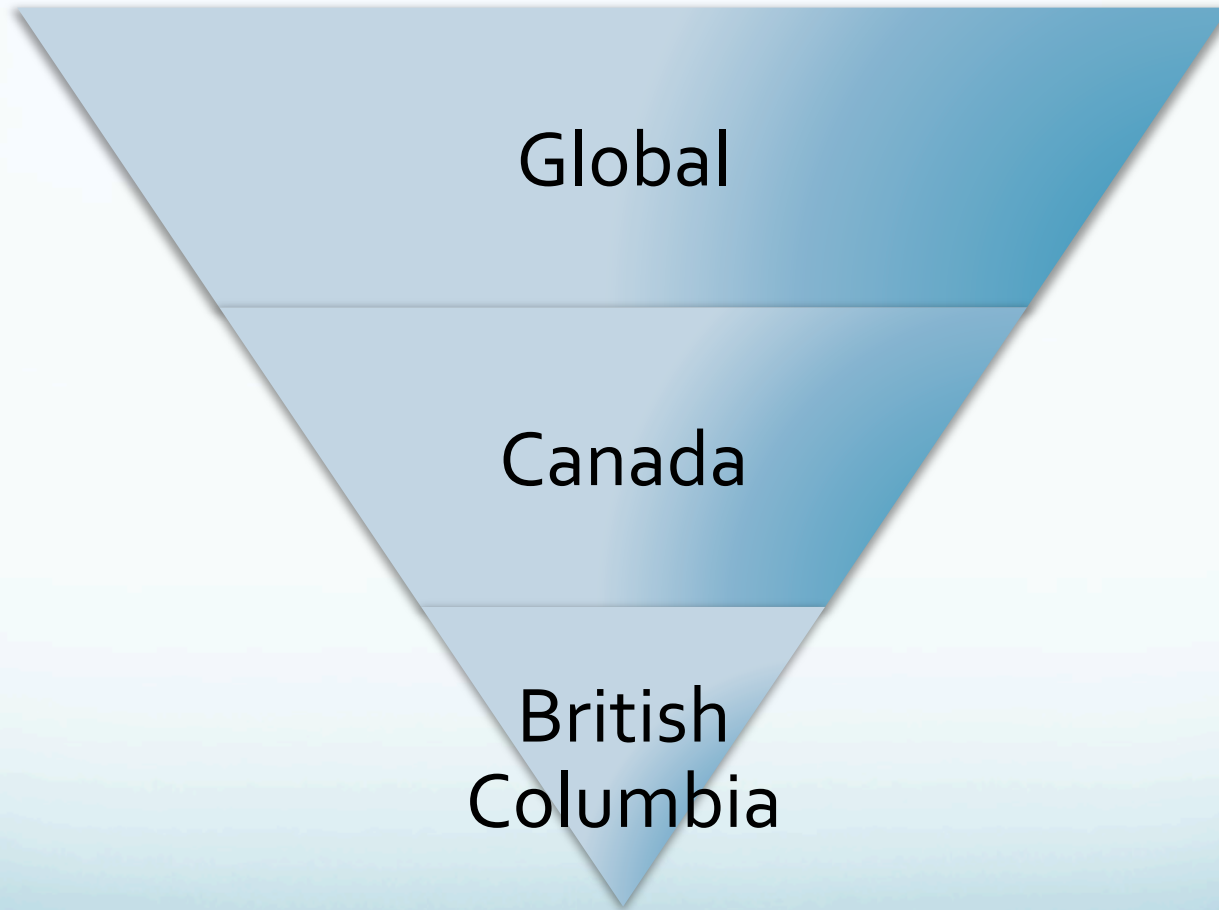
- Fever
- Chills
- Rash
- Night sweats
- Muscle aches
- Sore throat
- Fatigue
- Swollen lymph nodes
- Ulcer in mouth
- No symptoms



Symptoms of Late Stage HIV (AIDS)

- Fatigue
- Diarrhea
- Nausea
- Vomiting
- Fever
- Chills
- Night sweats
- Wasting syndrome

HIV Epidemiology



Global HIV/AIDS

At the end of 2013, it was estimated that there are 35 million people living with HIV worldwide, with 2.1 million new infections that year.



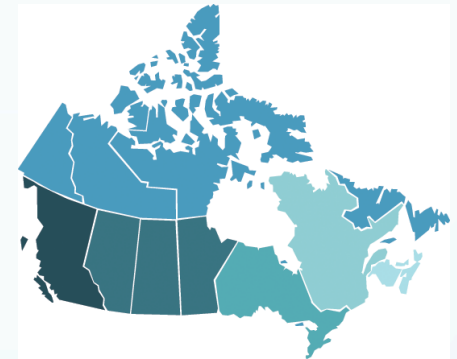
Also in this year, an estimated 1.5 million people living with HIV died from HIV related causes.

Among the global HIV population, 12.9 million people were receiving antiretroviral therapy (ART) in 2013. Unfortunately, amongst people living with HIV in low- and middle-income countries, approximately only 36% are on ART.

HIV in Canada

At the end of 2011, and estimated 71,300 Canadians were living with HIV, which is an 11% increase since 2008. The HIV epidemic is mainly concentrated within specific populations throughout Canada, which are as follows:

- 50%: men who have sex with men (MSM)
- 20%: people who use injection drugs
- 30%: heterosexuals



It is estimated that 17,980 living with HIV in Canada are unaware that they are HIV positive, which represents 25% of all HIV infections in Canada.

HIV in Canada

The current rates of new HIV infections have remained stable over the past several years. Public misperceptions about the effects of drug therapy have meant that people are again engaging in high-risk behaviors.

The rate of new infections among young gay men has increased significantly. In addition, the continuing injection drug use epidemic is fuelling the rate, with the use of cocaine being of particular impact.

It is estimated that over 3,000 Canadians will become infected each year.



HIV in British Columbia

In 2012, there were 239 (5.2 per 100,000) new cases of HIV. This was the lowest number of new infections ever in BC, down from 6.3 per 100,000 in 2011.



The highest rates of new infections were in Vancouver Coastal and Northern Health Authorities, which is likely a direct result of the efforts for increased testing within these areas.

In 2011, there was a decrease in the number of AIDS case reports to 1.5 per 100,000.

Who are the vulnerable populations in Canada?

- Men who have sex with men (MSM)
- Injection drug users (IDU)
- Women
- Aboriginal Peoples (First Nations, Inuit, & Métis)
- Youth
- People with mental health disorders



Men Who Have Sex with Men

Men who have sex with men (MSM) continue to comprise the greatest number of new diagnosis in BC. Anal intercourse is the highest risk sexual activity in relation to HIV transmission.

After several years of decline, the rate of HIV infection in this group has **increased**. 62% of new diagnosis in 2012 were MSM.



Injection Drug Users

Despite common stereotypes, the rate of infection has **declined** in injection drug users over the last few years. This group accounted for approximately 12.2% of new infections in BC in 2012.

The dramatic decrease over the last several years can be attributed to the increase in availability and accessibility to clean needles and other harm reduction supplies, as well as the increased use of Safe Injection Sites.



Women



Women are **increasingly** represented in the statistics, with the majority being infected through heterosexual intercourse. As a result, the rate of infection among women has risen from 12% of the total to approx. 25%.

In 2012, no women were diagnosed through prenatal screening and no infants were diagnosed with perinatally acquired HIV infection.

Aboriginal Peoples



Aboriginal people have been disproportionately represented in BC's HIV epidemic, consistently comprising 12-15% of all new HIV diagnoses despite representing only 4% of the Canadian population.

The estimated HIV infection rate among Aboriginal people was 3.5 times higher than the infection rate among non-Aboriginal people. Aboriginal women are considered to be one of the **highest** risk groups for HIV infection.

HIV and Mental Illness



HIV and mental illness are highly linked. The rate of mental illness in HIV-positive individuals is substantially higher than that of the general population.

Individuals who are HIV-positive often experience increased psychological distress, and suffer from depression and/or anxiety.

Issues for Care Providers

- Provide prevention education to patients who are vulnerable for infection
- Use standard precautions
- Advocate for vulnerable populations
- Provide teaching to patients with HIV about CD₄ and viral load
- Check labs – monitor patient's immune status
- CD₄ and viral load should be part of primary assessment

Concluding Thought

“...HIV/AIDS is qualitatively different from other chronic health conditions. Not only is there an excess of burden on young people, but... HIV/AIDS remains a highly stigmatizing and socially isolating experience for the individual and his or her caregivers.”

- Canadian Palliative Care Association