HIV 101

- The recorded number of people living with HIV worldwide is about 37 million, or about the population of Canada.
- About 4,932 people will become infected with HIV each day—about 205 every hour.
- Worldwide nearly 2500 young people ages 15 – 24 acquire HIV every day
- Over 50% are female
- **In 2015 there were 2570 new cases in Canada (239 in BC); approximately 7 new cases every day.**
- **The HIV virus doesn't discriminate! It's not who you are, but what you do that puts you at risk.**
- While the HIV virus doesn't discriminate, there are still groups that do pose a higher risk of HIV transmission. These include; MSM, IDU, Sex Workers, Prison inmates, Aboriginal, Trans population, and Endemic Countries.

HIV
H – Human
I – Immunodeficiency
V – Virus

AIDS
A – Acquired
I – Immuno
D – Deficiency
S – Syndrome

HIV is the virus someone can get.

AIDS is a stage in the illness when HIV has done so much damage to the immune system that it is too weak to fight off illness and infections.

HIV is a virus that is transmitted from human to human only.

It is a very fragile virus outside of the human body. Once exposed to air, it generally dies very quickly (in less than 30 seconds).

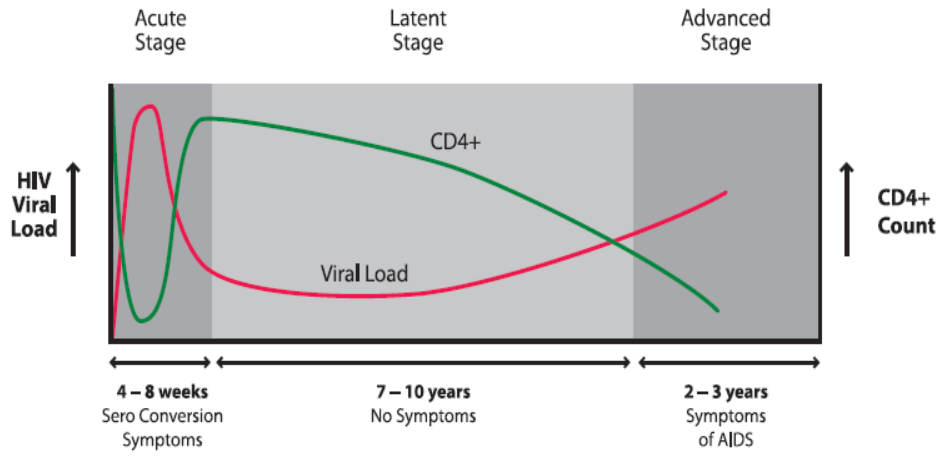
HOW THE HIV VIRUS WORKS

CD4 cells help to make up the immune system. They are our bodies fighting army and help to fight off illness and infections.
The average person usually has between 500 – 1200 CD4 cells/microL.
HIV attaches to these cells and tells them to stop making copy of themselves and instead make copies for the virus.

Antibodies When our body comes into contact with a virus or vaccine our immune system will try to make antibodies to clear the virus.
Most HIV tests test for the antibodies that the immune system produces.
It can take between 7 days to 12 weeks for enough antibodies to be produced to give a positive HIV test result. This is called "*The Window Period*".

Viral Load is the amount of virus detected in the system of a person with the HIV. When someone is **undetectable** it means that their medications are working well to supress the virus, and because of this the risk of passing on the virus is pretty much non-existent (less than 1%). **U = U: HIV Undetectable = Untransmittable.**

Stages of HIV/AIDS (when untreated)



Initially, after becoming infected with HIV, the viral load is very high, and because most people are unaware that they are infected, there is a higher risk of transmission.

While some people may show flu like symptoms of various degrees upon first being infected, many people don't and can live many years before the virus has weakened their immune system so much that they become very ill.

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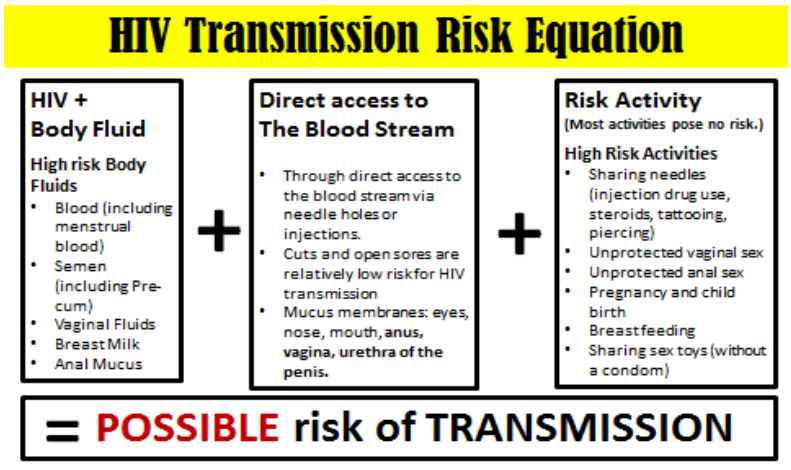

The Risk Transmission Equation can also be seen as Source or Reservoir of virus + Susceptible Host (person at risk) + Mode of Transmission.

- If someone is HIV+ the virus is present in all of their body fluids, but only these five have a high enough content to pose a possible risk of transmission.
- There can be a lot of friction during sexual activity, this can cause fissures. To help reduce the risk of fissures it's recommend to use a water-based lubricant.
- Vertical Transmission – During pregnancy and labour, if the mother is HIV+, the use of certain HIV medications can dramatically reduce the risk of passing HIV to the infant.
- Low Risk Activities: Oral Sex, Occupational Exposure, Blood Products (transfusions).

HIV Treatment Timeline

1981 – The beginning of the HIV/AIDS crisis.
1987 - The FDA approves the first antiretroviral medicine, zidovudine (AZT) for use.
1995: The FDA approves the first protease inhibitor, saquinavir, which stops the spread of the virus by blocking an enzyme produced by HIV/AIDS when it wants to infect healthy cells. This opens the door for a new type of drug therapy.
2006: First pill approved by the FDA that combines three drug treatments into one, once-a-day medicine, Atripla.
2011: First evidence is presented that individuals without HIV/AIDS who take an antiviral pill each day have a lower chance of contracting the disease through sexual contact.
2012: The FDA approves the first drug that could prevent the spread of HIV/AIDS via sexual contact in healthy individuals. The drug, Truvada, was the first pre-exposure prophylaxis (PrEP) medicine on the market.
2015 – Trials for long acting injectable formulization as well as oral regimen. Dosed every 8 weeks, and is safe and generally well tolerated. Treatment will likely hit the market in 2019.

RESOURCES

- Positive Living BC - https://positivelivingbc.org/
- CATIE: Canada's source for HIV and hepatitis C information - http://www.catie.ca/en/home/

What are PEP, nPEP, and PrEP?

PEP: Post –exposure Prophylaxis (Occupational or Sexual Assault)
nPEP: Post –exposure Prophylaxis (Non-Occupational exposure from needle sharing or high risk sex when the individual is HIV- and the partner/s status is either unknown or HIV+)

Treatment started within 72 hours after a recent exposure. It is an ART (anti-retroviral treatment) and must be taken once or twice a day for 28 day. PEP is effective in preventing HIV transmission when administered correctly, but not 100%.
There would be a risk assessment and Point of Care test to determine the course of action.

PrEP: Pre –exposure Prophylaxis
PrEP is a way for people who do not have HIV, but who are at substantial risk of getting it, to prevent HIV infection by taking a pill every day.
A combination of two HIV medicines (tenofovir and emtricitabine {emtriva}), sold under the name Truvada
PrEP should be taken daily on a continuous basis and regular testing is required.
When taken consistently, PrEP has been shown to reduce the risk of HIV infection in people who are at high risk by up to 92%. PrEP is much less effective if it is not taken consistently.