Agenda:

According to WHO 147 million people or 2.5% of the world are reported as using marijuana. In 2017 Canadians spent $5.7 billion on medical and non-medical marijuana. With the introduction of legalized recreational marijuana use in Canada it is important to explore:

Marijuana Legal History:

Canada's history with marijuana land how the legal perspective on marijuana has changed:

- Canada 2nd country in the world to legalise recreational cannabis use.

Over the years growing interest and lobbying as well as legal cases presented arguments for the constitutional rights of individuals to use marijuana for medical purposes such as pain management.

It wasn't until 2001 MMAR was introduced allowing individuals to:

- Apply for a license to use marijuana for medical purposes. (px Physicians required to declare that conventional treatments had been used and or were found to be medically inappropriate.
- License to grow marijuana at home for their personal use or designate someone to grow for them.

Growing pressure from Health Canada around improving the access to medical marijuana and cutting down on home cultivation saw a change to the legal access in 2013. MMPR introduced in 2013 and the changes were focused around home cultivation of the plant (no longer able to do so).

In 2016 again regulations were changed with the MMPR now being replaced in 2016 by the ***ACMPR***. The changes here were focused again around the right to produce and distribute. Legal case Allard vs Canada recognized the infringement to Canadian liberty and safety by regulating the ability to grow your own.

The Canadian government announced in 2017 a move towards the legalization of recreational marijuana use with the introduction of the **Bill C-45 The Cannabis Act** 2018.

Legal Allowances:

The government is going to have control over production and distribution, so what does this look like? It isn't going to look the same in every province as the implementation and regulation of the Act will be a joint Federal, Provincial and Territorial government responsibility. The Act has laid out some baseline regulations and the provinces/ territories are able to implement within those regulations.

One example of this is the legal age: the act states no person may sell or provide cannabis to a person under 18 the legal age will in this case be decided by each province/ territory. In Ontario the legal age will be 19 and older.

Another difference in Ontario will be there will be no brick and mortar stores for the first year. Any purchases will be online on the Ontario Cannabis Store. The Ontario government have moved to align marijuana use with that of Smoke Free Ontario Act which discusses the ability to smoke Tobacco in public spaces (with some restrictions). Mainly individuals must remain at least 20 meters from children's playgrounds or sport fields and 9 meters from hospital entrances. The main difference between tobacco and marijuana public use will be the inability to smoke marijuana whilst in a motor vehicle.

Individuals are able to purchase, possess and or share up to 30g of dry cannabis and cannabis oil as well as grow up to 4 plants per household obtained from government-licensed distributors.
Individuals are able to produce their own cannabis products at home with some strict regulations around the materials used for this process. The market for edibles or other cannabis products will also be opened in 2019.

Prohibitions:

- Use in public place, place of work or vehicle ($1,000-$5,000 fine)
- Driving impaired (license suspension, impounding vehicle, fines, criminal record and or jail time)

-Field sobriety test/ oral fluid screening devices/ blood tests
-Young or novice drivers, zero tolerance

- Distributing to under 18/19 years or more than 30g
- Promotional packaging and labeling cannabis or cannabis products that could be appealing or encourage use in young persons

THC:

There are over 500 known chemicals in the Cannabis plant. THC (delta 9-tetrahydrocannabinol is the most researched psychoactive element of the Marijuana plant. It is often associated with hallucinogenic effect but cannabis doesn't neatly fit in to any one-drug classification.

THC enters the blood stream upon being ingested; this is where it makes its journey to the brain. Firstly the body and brain has its own endo-cannabanoid. During this research what they found was that the brain and CNS has a THC receptor CB1 and CB2. A neurotransmitter Anandamide was found and it binds to CB1 receptor and acts as a mood enhancer. An example of this interaction is to picture THC as a key that is very similar to Anandamide in the body, its able to get in to the lock or CB1 receptor in the brain and interfere with the ability to regulate things like perception. This process also releases Dopamine a neurotransmitter that makes you feel rewarded and ultimately the basis of all addictions.

BRAIN REGIONS:

Based on where THC lands in the brain it will disrupt the processes associated with brain functioning in that region.

E.G: if THC lands in the Hypothalamus it will increase endorphins, which in turn increase appetite. The hippocampus is important for short-term memory when the THC binds with the cannabinoid receptors inside the hippocampus it interferes with the recollection of recent events.

There has been much clinical work to suggest THC in particular is damaging to the growing brain and so cognitive impairment is particularly prevalent in young adults.

CBD v THC:

CBD is currently a controlled substance in Canada available to those with a medical license. Under the new Act it will become legal for recreational use.
CBD can be sourced from both Hemp as well as Marijuana and is sold in different ratios of CBD to THC.
CBD is slow releasing, takes 1-3 hrs to peak in blood level compared to THC that takes 3-10 minutes.
CBD works as an antagonist to undo or block the effects of THC thus producing no high and is said to have little to no indication of potential for abuse or dependence.
CBD has been shown in some clinical trials to be therapeutic in treating pain, anxiety and depression.

Methods of use:

Some of the forms of inhaling cannabis is smoking in a spliff, vape pen, sheesha or bong and dabbing.
Smoking provides the quickest way to experience a high. The lungs are covered in millions of alveoli which cover a large surface are and make it easy for cannabis to be passed in to the blood stream quickly.
The harms associated with inhaling differ by method. Spliff's are hand rolled cigarettes which can have tobacco, dry cannabis, using methods such as twaxing can enhance the potency even further. The method of smoking here is by lighting it and causing combustion. The smoke is what is inhaled. This is primarily where the health risks are posed.

Vapes although less harmful than spliff's can have additives and thinners added to help form a liquid. Sheeshas often use charcoal to heat the product and this can cause high levels of carbon monoxide, heavy metals and other cancer causing chemicals. Smoking sheesha once exposes

lungs to 90,000 ml of smoke compared to 500-600 mls when smoking a cigarette so it is by no means a lesser harm.
Edibles make it easier to overdose as the process is a slow one due to digestion and individuals often mistake how much is needed to produce a desired high. Eating THC changes the molecules slightly resulting in a more psychedelic effect.

The Body:

Some presentations which can be observed during intoxication are: red eyes, pupils can dilate causing colors to appear more intense.
Often low mood is observed in chronic use as well as during withdrawal this is demonstrated in clinical trials by a significant drop in dopamine activity.
Depression, anxiety, and suicidality are frequent presentations in all ages.
Even occasional use increases risk of psychosis by 40%.

Addiction:

Tolerance: The need to use more over time to get the desired effect. Most commonly used in reference to physical tolerance.

Dependence: Often mistaken as addiction, refers to the physical adaptation to presence of substance, whereby withdrawals can be expected.

Addiction: Broadly defined by compulsive engagement with substance which can lead to dependence. Important to note here that dependence can occur with licit substances whereas with addiction there is compulsion despite bio-psycho-social drawbacks.

Withdrawal: Physiological and or psychological effects due to the cessation of use or reduction in intake of a psychoactive substance

Symptoms: anxiety, depressed mood, irritability, sleep difficulty, strange or very vivid dreams, anger, decreased appetite, headaches, sweating, chills, stomach pain and general physical discomfort.

The question surrounding addictive potential of marijuana is a complex one. Many variables impact the effects of use on each individual. Broadly, Marijuana has addictive potential. The presence of withdrawal symptoms demonstrates a clear ability for physical tolerance and therefore dependence, which is often observed alongside addiction. Psychological cravings are often observed but go unrecognized by the individual.