

# Stirring The Pot

Supporting Students with Early Psychosis  
and the Impacts of Cannabis Use Among Youth

## Early Psychosis Intervention Ontario Network

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# Outline

- Ilyas – Part 1
- Psychosis – What, Who, When, How?
- Early Warning signs on Campus
- What is early psychosis intervention?
- How to support students with psychosis
- Cannabis
- Ilyas – Part 2

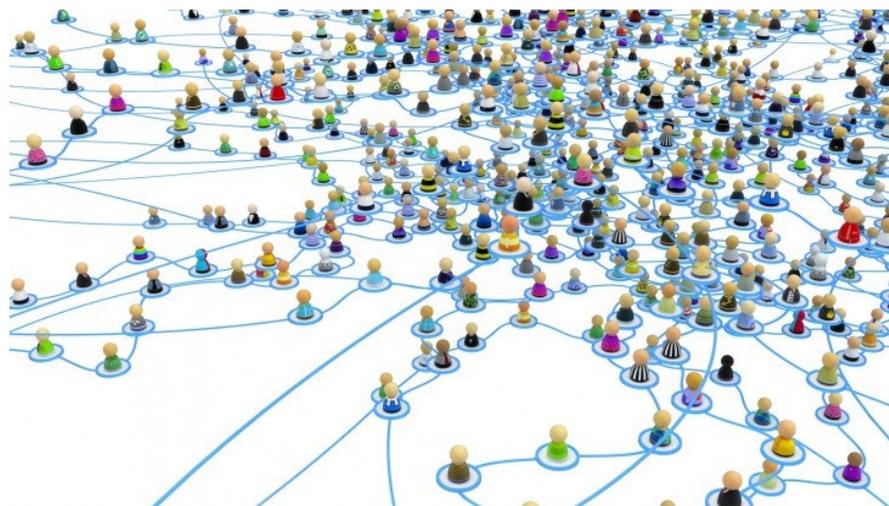


# Ilyas' Story – Pt 1

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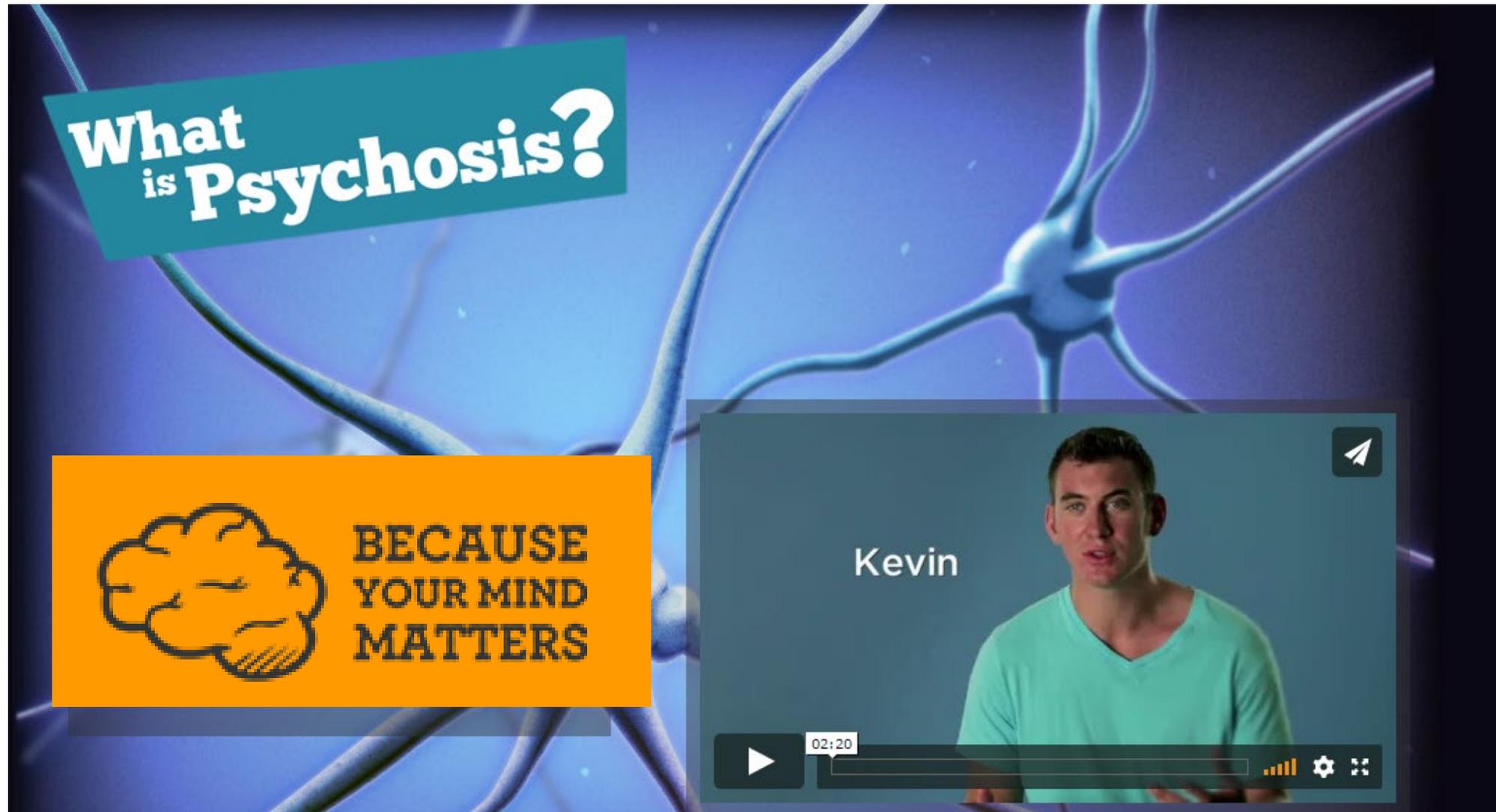
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# What Is Psychosis?



# What Is Psychosis?

- A medical condition
- Psychosis is a symptom, not a diagnosis

<b>POSITIVE SYMPTOMS</b>	<b>LOOK BEYOND THE SURFACE.</b> If any of these are interfering or blocking what you want to do, contact your family physician or your local Early Psychosis Intervention program.		
 <b>NEGATIVE SYMPTOMS</b>  <b>COGNITIVE SYMPTOMS</b>	<b>POSITIVE SYMPTOMS:</b> Something ADDED. <ul style="list-style-type: none"><li>• Hallucinations</li><li>• Delusions (false beliefs)</li><li>• Disorganized thoughts and speech</li></ul>	<b>NEGATIVE SYMPTOMS:</b> Something MISSING. <ul style="list-style-type: none"><li>• Apathy</li><li>• Reduced socializing</li><li>• Restricted facial expression</li><li>• Change in rate of speech</li></ul>	<b>COGNITIVE SYMPTOMS:</b> Something CHANGED. <ul style="list-style-type: none"><li>• Difficulties with attention, concentration, memory, planning, and organization</li></ul>



# Who Does It Affect?

- Affects 3/100 people
  - As common as type 2 diabetes
- Most common in young adults – 16-30 year olds
- Equally as common in males and females
  - First episode for females is usually later than for males



# Causes

- Genetically based
  - >60% of clients have no family history
- Biochemical abnormalities
  - Dopamine appears to be significant
- Abnormal brain structure
  - E.g., larger lateral ventricles, abnormalities in pattern of blood flow and electrical activity
- Environmental influences
  - Viruses, prenatal or antenatal difficulties, immigration, trauma and urban living
- Street drug use
  - Marijuana in particular has been associated with increased risk of schizophrenia



# The Stress Vulnerability 'Bucket'



# What you might see on campus

- Discomfort around people - avoiding class (especially with group work)
- Difficulty concentrating in class
- Difficulty with reading comprehension
- Falls behind – effects on self esteem
- Higher degree of movement from one program to another and to another
- Low mood and lack of facial expression – turn people off
- Avoids events in dorm and on campus
- Decreased hygiene
- Lack of interest in many activities
- Spending more time in room alone
- Difficulty with sleep – affects concentration
- May initially present with expressed depression or anxiety
- If not living on campus – increased isolation, difficulty connecting with campus services



# Assessing and Engaging Students

- Psychosis rarely presents in “neat parcels”, and students rarely volunteer the information
- Observation...observation...observation
- Avoid overly textbook or medical language
- Open-ended, non-leading questions
- General description of experience
- Use language adolescents understand:
  - “uncomfortable”
  - “worries about safety”
  - “confused”/ “figure things out”
- General to specific
- Understand cultural context within which information is presented
- Refer to local EPI service
- Consider engaging family if applicable



# Early Psychosis Intervention

- Specialized services for young people experiencing early symptoms of psychosis
- 63 programs located throughout the province
  - <http://help4psychosis.ca/looking-for-help/where-to-get-help/>
- Provincial standards
  - Comprehensive assessment
  - Psychosocial support
  - Intensive follow up – medical + case management
  - Family support
  - Focus on recovery and hope
  - Research and education
- Different than general psychiatry
- Multidisciplinary care to support health and vocational recovery



# Why is this important?

- The sooner, the better! The longer the duration of untreated psychosis, the higher the risk of:
  - Derailing of life goals and functioning (Relationships, School, Work)
  - Hospitalization
  - Suicide
  - Substance abuse
  - Disability
- Psychosis is treatable, people can and do recover!



# Supporting Students with Psychosis Return to School

- Dispel myths and stigma – can be hard to return to school
- Remember psychosis is a brain disorder.
- Medications are a foundation of treatment; consider the side-effects of medications.
- Allow for difficulties in concentration and thinking.
- Provide academic accommodations as required.
- Support reintegration; campus life, back to classes, residence.
- Connect with the student's EPI service providers (with consent)
- Maintain a positive, encouraging stance with students.



# Working with EPI Services

- Multidisciplinary teams to support recovery and help young adults work towards their goals – which often focus on education
- EPI services advocate for students to connect with accessibility services
- Ability to provide on-site visits
  - Accompany to appointments with accessibility services, teachers, learning strategists, health team
  - Check in sessions at school – how are things going?
- Frequent regular contact: With both the student and the support services team
- Sharing recovery plans
- Peer support options
- Crisis Supports: change in health impacting function at school, exam deferrals, OSAP applications and deferrals



# What accommodations might help and why?

- Classroom
  - Exams
  - Assignments
  - Financial assistance
  - Scheduling/Timetable
  - Academic
  - Withdrawal from class accommodations
  - Accessibility workshops
  - Residential accommodations
  - Provision of support services
  - Assessment for provision of adaptive technology
- 
- Not always a straight forward process – barriers from the student and the school can occur



# Remember:

- More than 1 in 4 families is touched by psychosis.
- Don't dismiss change as adjustment to post-secondary school or substance misuse.
- Pay attention to family, friends, dons, & faculty etc. concerns.
- Psychosis is treatable!
- Early intervention is important and closely tied to recovery.
- Culturally competent care is important.
- Your responsibility does not end with referral.
  - Your ongoing support and reintegration into school and campus living is essential part of recovery.

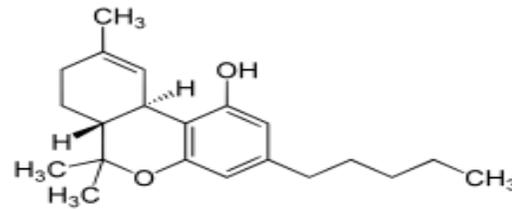


# All aboard the Cannabus!



# What is Cannabis? - 400+ compounds

## $\Delta$ -9-Tetrahydrocannabinol (THC)



Myrcene

Linalool

$\alpha$  Bisalol

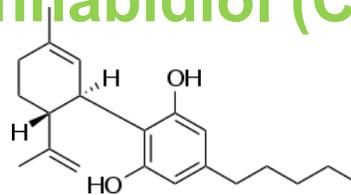
Borneol

Caryophyllene

$\alpha$  Pinene

$\beta$  Pinene

## Cannabidiol (CBD)



## Cannabinol (CBN)

## Cannabigerol (CBG)

## Cannabichromene (CBC)

Camphene

Terpineol

$\Delta$ -3-carene

Limonene

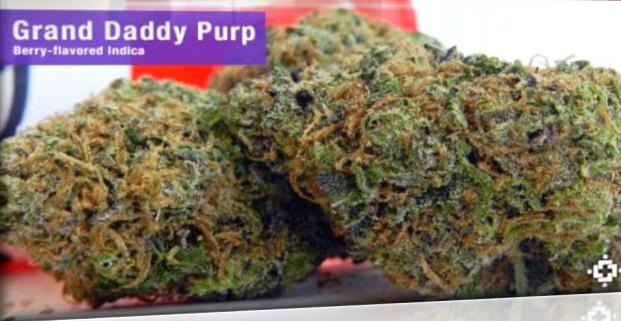
Eucalyptol

Humulene

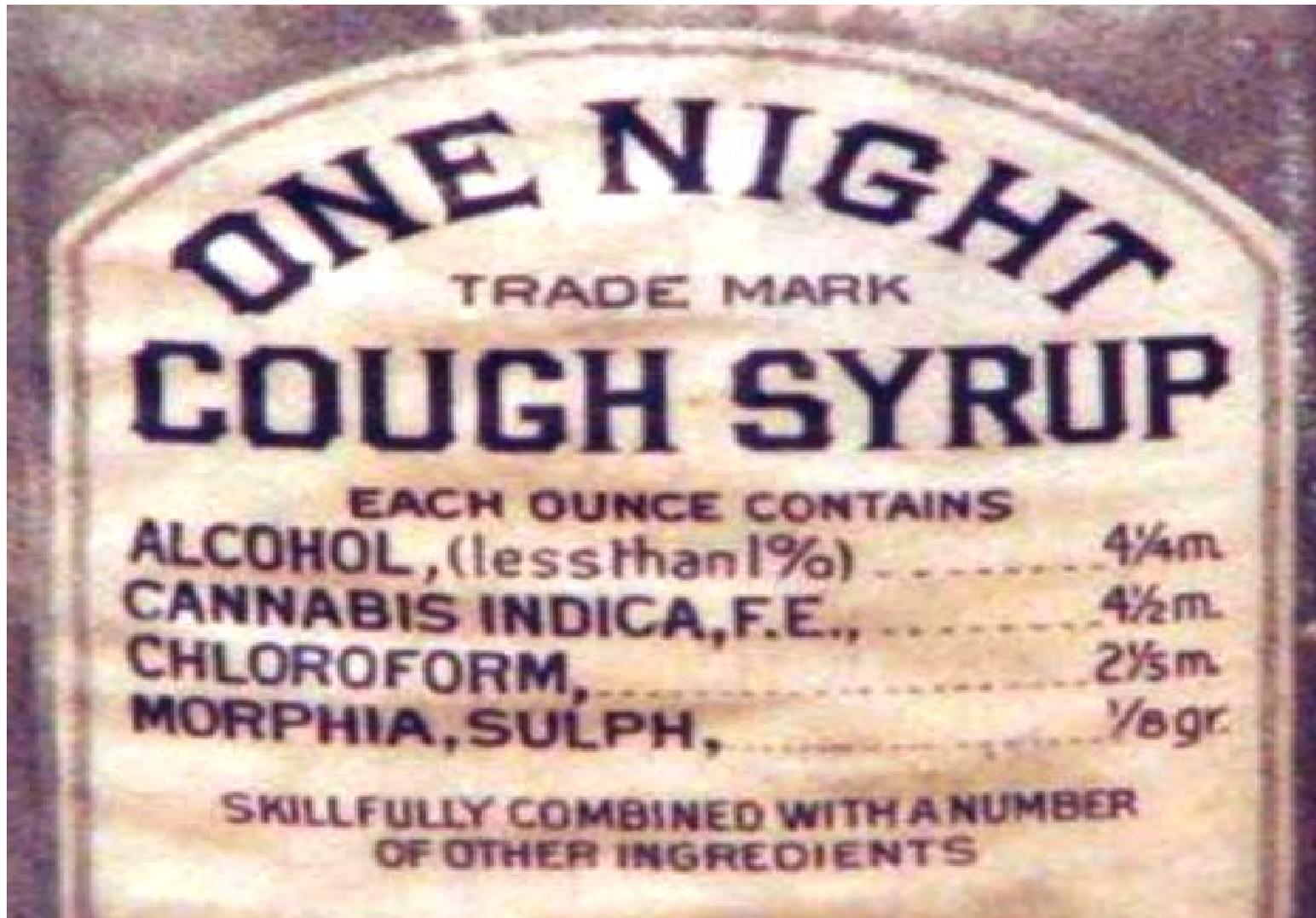
Trans-neroliol



# Cannabis - Not your grandmother's weed



# Cannabis – It tastes awful and it...it...zzzzzz!



# Administration

- Eat it (Cookies, brownies)
- Smoke it (Joints, bong, hash oil)
- Drink it (Tea)
- Vap it
- Swallow it (pills)
- Dab it
- Rub it (topical)
- Even insert it...?(suppositories)

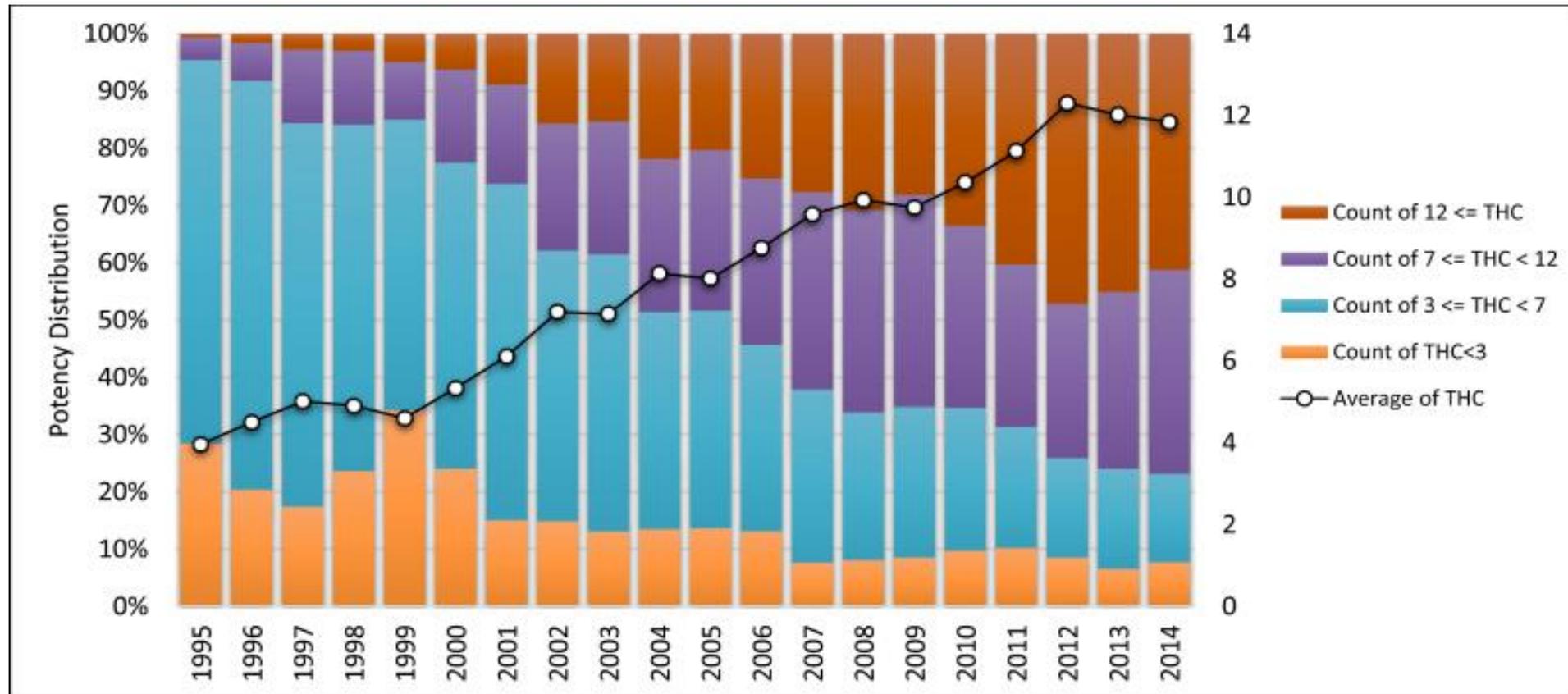


# Cannabis in Canada – We’re #1! We’re #1!

- Canada highest rate of teen cannabis use in the developed world (WHO, 2010)
  - Canadian teens 2x more likely to use than adults
  - Up to 10% of grade 12 students smoke pot every day
  - 28% Canadian children aged 11-15 admit to using in past year
    - 23% in US legalized states, 17% in Netherlands
  - 19% Ontario post-secondary students have used in past 30 days (ACHA, 2016)
- The most potent cannabis the world has ever known
  - Up to 30x higher THC content than that smoked at Woodstock
  - Shatter has up to 80% THC content
- Anecdotally, cannabis is the #1 drug that youth are seeking treatment for
- **We’re only beginning to understand the effects of this**
  - **There is a LOT we don’t know**
- **Legalization “National Experiment”**



# Cannabis - Increase in THC



# Cannabis - Survey says...

“Medical marijuana  
is scientifically  
proven as cure for  
\_\_\_\_\_”

“I study  
better  
high”

“It’s totally  
safe to drive  
stoned. I just  
drive slower”

“You can’t  
get addicted  
to pot”

“The effects  
only last a  
couple days”

“It’s legal now  
so it must be  
good for you”



# Cannabis – Short and long term cognitive impacts

- Heavy cannabis use in youth found to cause a number of cognitive impairments
  - Attention/concentration, working memory, thinking speed, and memory
- Structural changes in brains of **18-25 year olds** who smoked pot at least once /week
  - Significant changes in the brain (thinning of cortex) among users 16 or younger vs non-users
- **So what?**
  - Evidence suggests structural changes may or not be permanent
  - Loss of intelligence (lower IQ)
  - The brain needs to “work harder”
  - Teens who smoke pot daily are 60% less likely to finish high school or university
- Still lots we don't know – individual, doses...
- Impacts less severe for older users (25+)



# Cannabis and psychosis

- Cannabis use in adolescence significantly increases the likelihood of developing psychosis later in life
  - Doubles the risk
- Genetic studies have shown some people are more vulnerable to use and impacts than others
  - History of mental illness in family
- Cognitive difficulties are often worse for individuals with psychosis
- Increased risk of relapse with use – even if they are in treatment
- Cannabis induced psychosis and cannabis withdrawal can be psychiatric emergencies requiring visits to ED
- Components:
  - Risk of psychosis, euphoria and addiction linked to THC
  - Cannabidiol
    - Non-psychoactive, has shown promise for protective factors for substance induced psychosis, an anti-inflammatory, and an experimental treatment for cancer



# Cannabis and Psychosis



From Harry's Journey: courtesy of Dr. Suzanne Archie



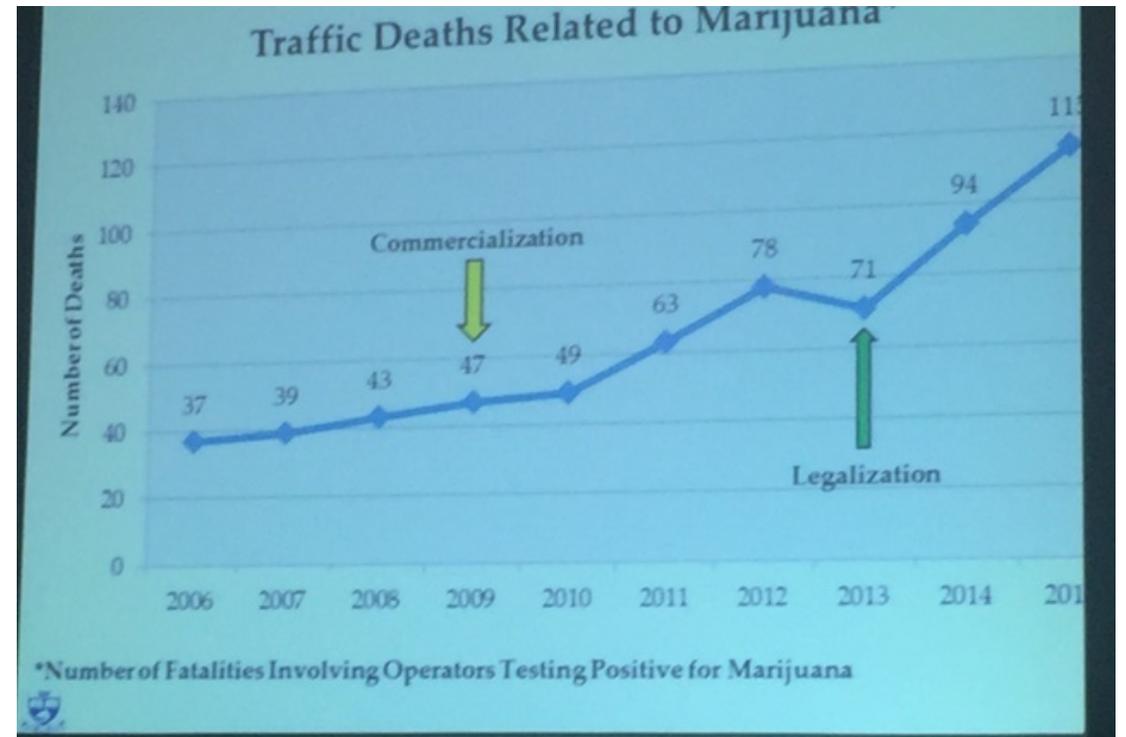
# Cannabis and other areas

- Mental health:
  - Appears to be greater risk for depression, anxiety, suicide and depression:
- Physical Health:
  - Lungs: Marijuana contains twice as much tar as cigarette smoke associated with increased risk of lung cancer, bronchitis and emphysema
  - Sex: Association of marijuana use with increased rates of sexual risk behavior and sexually transmitted diseases (STDs).
- Pregnancy:
  - Marijuana can have an effect on child's development, cognitive functioning, behavior, substance use, mental health and overall wellbeing that can last into teenage years
  - No safe amount



# Cannabis Myth – Driving

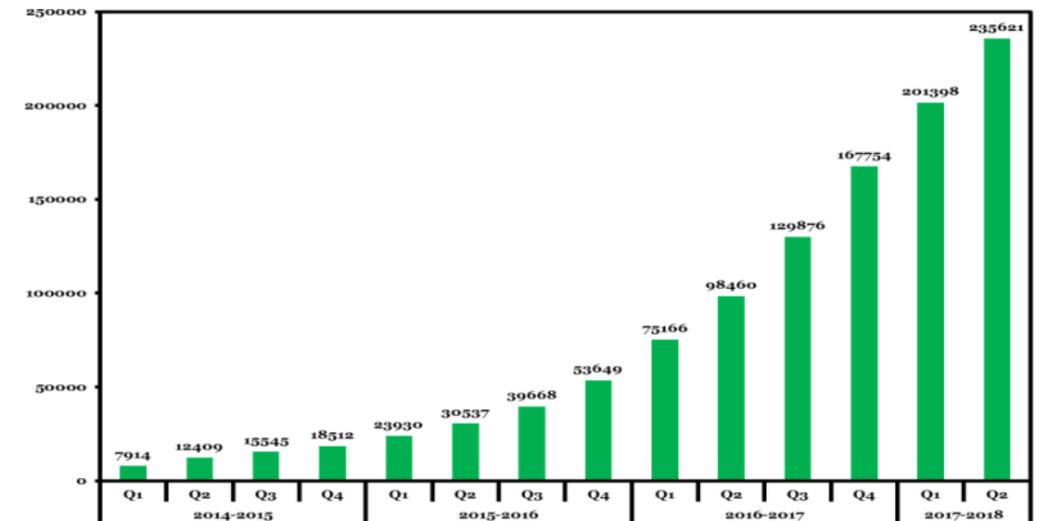
- Compromises reaction time, attention, visual ability and judgment
- Number of people driving under influence has increased
- No reliable roadside test



# Cannabis - Medicinal Marijuana

- Is it the same as prescription medicine?
  - No.
  - Authorized, not prescribed
  - No drug identification number (DIN)
  - Less standardized product
  - Imprecise dosing

Registered Medical Cannabis Users, 2014-2017 (Health Canada)



Geneva International Convention on Narcotics Control

1925



Peter Boris Centre  
FOR ADDICTIONS RESEARCH

Marihuana for Medical Purposes Regulations (MMPR)

2001

Medical Marihuana Access Regulations (MMAR)

2014

2017

Access to Cannabis for Medical Purposes Regulations (ACMPR)

2018

Federal Legalization



# Cannabis – Medicinal Marijuana

Research

## Original Investigation

### Cannabinoids for Medical Use A Systematic Review and Meta-analysis

Penny F. Whiting, PhD; Robert F. Wolff, MD; Sohan Deshpande, MSc; Marcello Di Nisio, PhD; Steven Duffy, PgD; Adrian V. Hernandez, MD, PhD; J. Christiaan Keurentjes, MD, PhD; Shona Lang, PhD; Kate Misso, MSc; Steve Ryder, MSc; Simone Schmidtkofer, MSc; Marie Westwood, PhD; Jos Kleijnen, MD, PhD

**IMPORTANCE** Cannabis and cannabinoid drugs are widely used to treat disease or alleviate symptoms, but their efficacy for specific indications is not clear.

**OBJECTIVE** To conduct a systematic review of the benefits and adverse events (AEs) of cannabinoids.

**DATA SOURCES** Twenty-eight databases from inception to April 2015.

Of 79 trials, only  
4 judged to have  
low risk of bias

Increased risk of  
short-term side effects

Low quality evidence  
in general

Moderate quality  
evidence for pain  
and spasticity in MS

# Cannabis – Medicinal Marijuana

## Supportive Evidence

- Reducing chemotherapy-induced nausea and vomiting
- Reducing chronic pain
- Reducing spasticity in MS
  
- 15 different indications as *possibly* viable for medical by Health Canada but no sound evidence yet

## Side Effects

- Motor impairment
- Cognitive difficulties
- Anxiety
- Paranoia
- Cannabis use disorder
- Overdose
- Psychosis



# Cannabis – Addiction

- Cannabis can be addictive
- 9% of cannabis users develop an addiction to it – TWICE as likely among youth than adults (Anthony, J.C., 2006)
  - Relative risk for nicotine (68%), alcohol (23%), cocaine (21%)
- More and more young people are seeking treatment and support
- 1/5 people seeking addiction treatment have cannabis related issues (CRISM)
- Early psychosis programs seeing a profound increase in cannabis use



# Other Considerations for Youth – the Grey Zone

- Advertising / marketing geared towards youth
- Education
  - Evidence vs. “Evidence”
  - Online opinion
  - Meaningful (not fear based)
- Non-legal markets
  - Street, Online dispensaries...
- Culture of use
  - Family, peers, media...
- People are using...youth need to be a part of the solutions



# EPION Advocacy



December 20, 2016

The Honourable Jane Philpott  
P.C., M.P. Minister of Health  
House of Commons  
Ottawa, Ontario K1A 0A6

Dear Minister,

We are writing as the executive of the Early Psychosis Intervention Ontario Network (EPION) to apprise you about a recent forum that we convened on cannabis and psychosis. EPION is funded by the Ontario Ministry of Health and Long-Term Care to support training and networking amongst the over 50 early psychosis programs across the province that treat young people experiencing a first episode of psychosis and their families.

We are aware that the Task Force on Cannabis Legalization and Regulation has released their report after significant deliberations and the federal government will be moving ahead with legislation and regulation in 2017. We understand that many adult users, in fact the majority, are able to use marijuana without experiencing harmful effects. We feel compelled, however, to write this letter because of the strong messages heard at our recent forum from researchers who presented empirical evidence, clinicians who struggled to understand how to manage this understudied drug, and families who are helping their loved ones recover from an episode of psychosis.

This letter documents scientific concerns about the increased risk of psychosis associated with regular marijuana use among youth. By 'regular marijuana use,' we mean three times a week or more. At the end of this letter you will find seven recommendations which we very much hope can be taken into consideration as the government works on legislation and regulation.

Attached to this letter, please find a description of EPION's role and work.

- Public Education
- Treatment
- Package warnings
- Legal age
- Limiting TCH content
- Information and training for healthcare providers
- Research

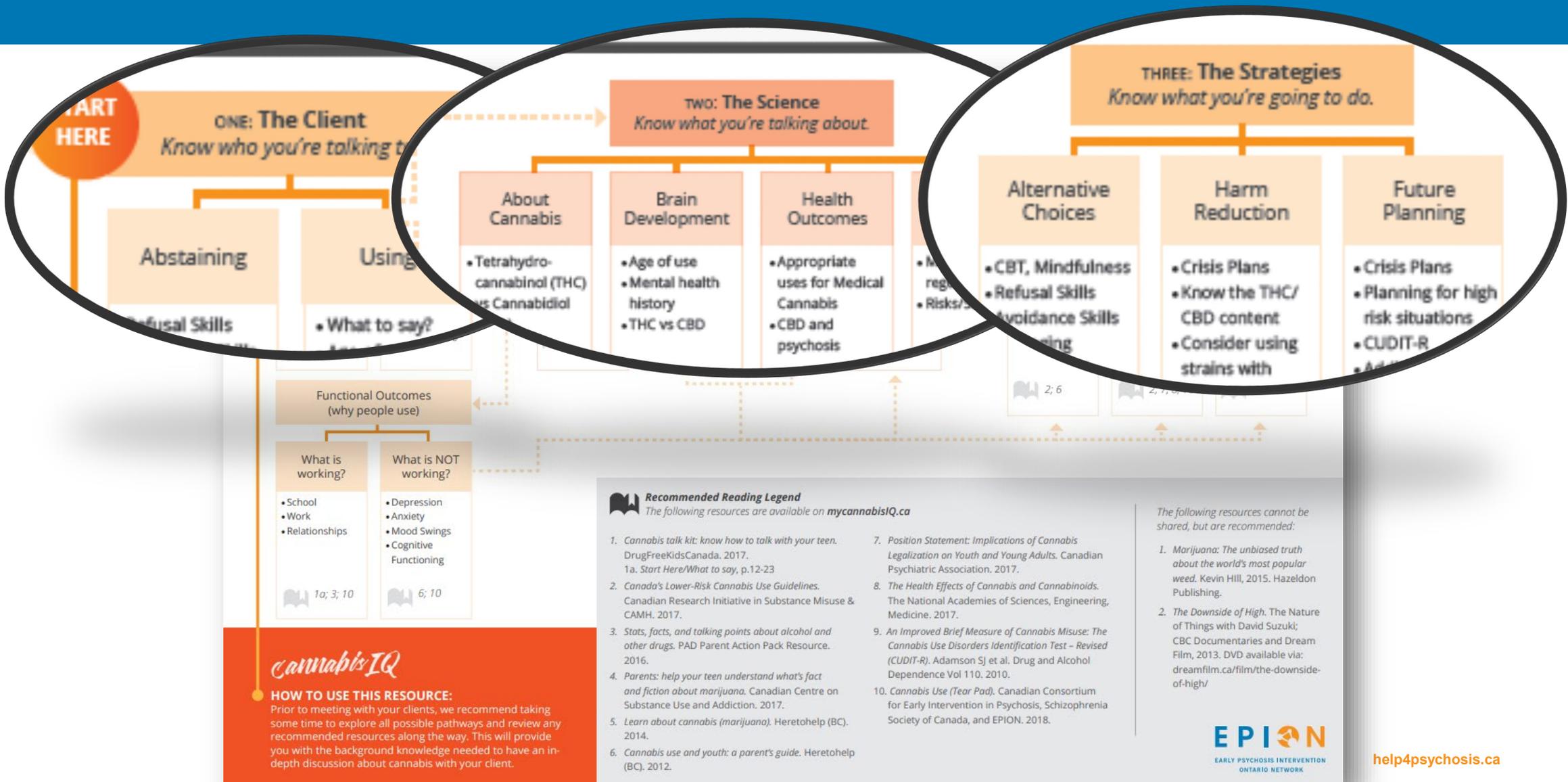


# #mycannabisIQ.ca

- EPION Resource for:
  - Young people
  - Families
  - Care providers



# #mycannabisIQ.ca – EPION Resource for clinicians



# Cannabis – Harm Reduction

- Evidence based, client centred approach - policies or programmes that focus directly on reducing the health and social harms associated with substance use
- Reduce
  - Problems with thinking, memory or physical co-ordination
  - Impaired perceptions or hallucinations
  - Injuries, accidents due to impairment
  - Mental health problems and dependence
  - Chronic respiratory or lung problems



# Cannabis – Harm Reduction

- **Marijuana use has health risks best avoided by abstaining**
- **Delay marijuana use until later in life**
  - 25+
- **Identify and choose lower-risk cannabis products**
  - high potency products, with high tetrahydrocannabinol (THC) content are more likely to result in harms
  - choose products with lower THC/higher CBD content
- **Choose safer ways of using**
  - Smoking marijuana, especially when combined with tobacco, can harm your lungs and respiratory system
    - Avoid harsher smoking practices (e.g. holding breath)
  - Choose other methods, such as vaporizers or edibles instead – but, recognize that they also come with risks (e.g. edibles are safer for your lungs, but you may consume larger doses and experience more severe impairment because effects are delayed)



# Cannabis – Harm Reduction

- **Limit and reduce how often you use**
  - Frequent use (daily or almost daily) is strongly linked to a higher risk of health and social problems
- **Don't use and drive**
  - Driving while impaired by marijuana increases your risks of being involved in a motor-vehicle accident
  - Wait at least 6 hours after using marijuana before driving
  - Combining marijuana and alcohol further increases impairment



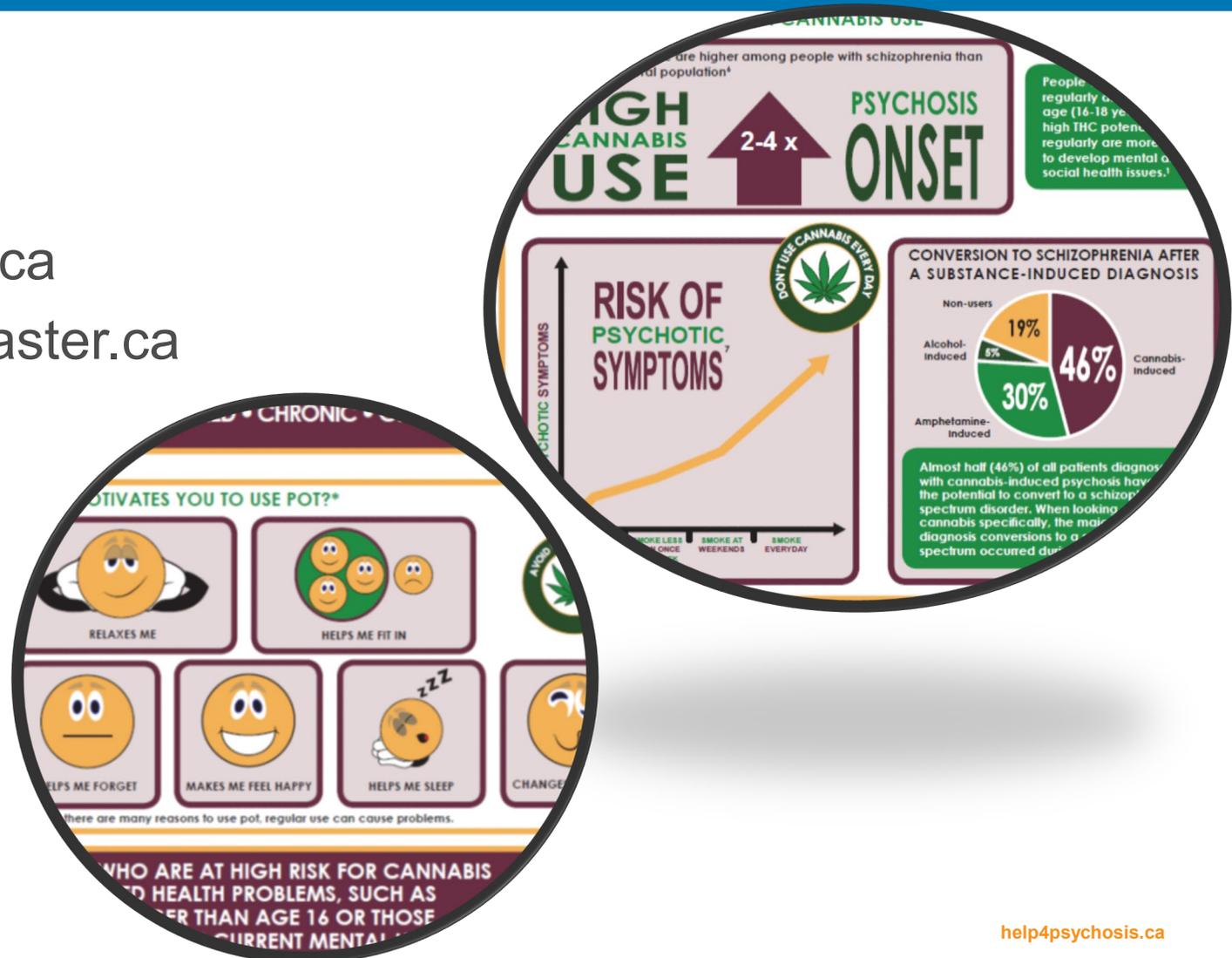
# Cannabis – Harm Reduciton

- **Avoid marijuana use altogether if you are at risk of mental health problems or are pregnant**
  - If you, or a family member, has a history of psychosis or substance use disorder, your risk of marijuana related mental health problems increases
    - A conversation around mental health and addictions in your family
  - Pregnant women should not use marijuana because it could harm the fetus or newborn
- **Avoid combinations of these risks**



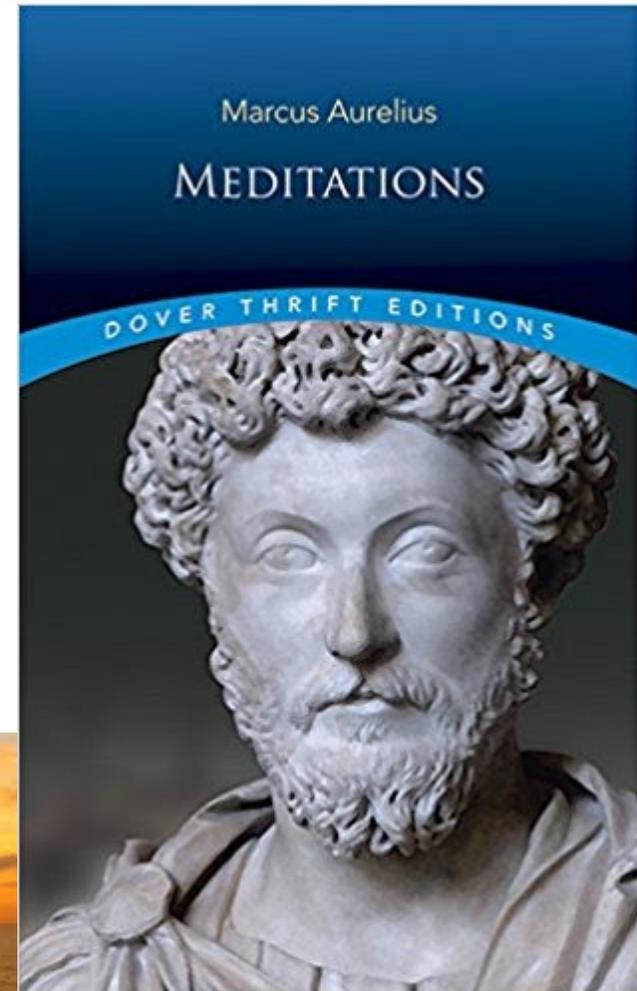
# A few additional resources

- [MyCannabisIQ.ca](http://MyCannabisIQ.ca)
- [Weedmyths.ca](http://Weedmyths.ca)
- [CannabisAndPsychosis.ca](http://CannabisAndPsychosis.ca)
- [Cannabisresearch.mcmaster.ca](http://Cannabisresearch.mcmaster.ca)
- ...



# Ilyas' Story – Part 2







# TEACH

Teach, Empower, Advocate for Community Health

*Our Beautiful Minds*



St. Joseph's  
Healthcare Hamilton

Cleghorn  
Early Intervention Clinic





# References

- Adlaf, E. M., P. Begin and E. Sawka (2005). Canadian Addiction Survey (CAS): A national survey of Canadians' use of alcohol and other drugs: Prevalence of use and related harms: Detailed report. Ottawa, Canadian Centre on substance Abuse: 48-54.
- Anderson (2014) : The case for why teens should wait to smoke up Accessed January 18th, 2017 from <http://www.theglobeandmail.com/life/health-and-fitness/health/the-case-for-why-teens-should-wait-to-smoke-up/article16996804>
- Anthony, J.C. (2006). The epidemiology of cannabis dependence. In R.A. Roffman & R.S. Stephens (Eds.), Cannabis dependence: Its nature, consequences and treatment (pp. 58–105). Cambridge, UK: Cambridge University Press
- Archie, S. and K. Gyömörey (2009). "First Episode Psychosis, Substance Abuse and Prognosis: A Systematic Review." *Current Psychiatry Reviews* **5**: 153-163.
- Archie, S., B. R. Rush, N. Akhtar-Danesh, R. Norman, A. Malla, P. Roy and R. B. Zipursky (2007). "Substance use and abuse in first-episode psychosis: prevalence before and after early intervention." *Schizophr Bull* **33**(6): 1354-1363.
- Arseneault, L., M. Cannon, R. Poulton, R. Murray, A. Caspi and T. E. Moffitt (2002). "Cannabis use in adolescence and risk for adult psychosis: longitudinal prospective study." *BMJ* **325**(7374): 1212-1213.
- Arseneault, L., M. Cannon, J. Witton and R. M. Murray (2004). "Causal association between cannabis and psychosis: examination of the evidence." *Br J Psychiatry* **184**: 110-117.
- Barton, A (2014) Your kid's brain on pot: The real effects of marijuana on teens. Accessed January 18th, 2017 from <http://www.theglobeandmail.com/life/health-and-fitness/health/your-kids-brain-on-pot-the-real-effects-of-marijuana-on-teens/article21127612/>
- Caspi, A., T. E. Moffitt, M. Cannon, J. McClay, R. Murray, H. Harrington, A. Taylor, L. Arseneault, B. Williams, A. Braithwaite, R. Poulton and I. W. Craig (2005). "Moderation of the effect of adolescent-onset cannabis use on adult psychosis by a functional polymorphism in the catechol-O-methyltransferase gene: longitudinal evidence of a gene X environment interaction." *Biol Psychiatry* **57**(10): 1117-1127.
- D'Souza, D. C., W. M. Abi-Saab, S. Madonick, K. Forselius-Bielen, A. Doerscher, G. Braley, R. Gueorguieva, T. B. Cooper and J. H. Krystal (2005). "Delta-9-tetrahydrocannabinol effects in schizophrenia: implications for cognition, psychosis, and addiction." *Biol Psychiatry* **57**(6): 594-608.
- D'Souza, D. C., E. Perry, L. MacDougall, Y. Ammerman, T. Cooper, Y. T. Wu, G. Braley, R. Gueorguieva and J. H. Krystal (2004). "The psychotomimetic effects of intravenous delta-9-tetrahydrocannabinol in healthy individuals: implications for psychosis." *Neuropsychopharmacology* **29**(8): 1558-1572.
- D'Souza, D. C., R. A. Sewell and M. Ranganathan (2009). "Cannabis and psychosis/schizophrenia: human studies." *Eur Arch Psychiatry Clin Neurosci* **259**(7): 413-431.
- Dawe, S., L. Geppert, S. Occhipinti and W. Kingswell (2011). "A comparison of the symptoms and short-term clinical course in inpatients with substance-induced psychosis and primary psychosis." *J Subst Abuse Treat* **40**(1): 95-101.
- DeVillaeer, M. (2016) Cannabis Law Reform: Still a Role for Decriminalization? Presentation – Mental Health and Addiction Program Rounds, St. Joseph's Healthcare Hamilton, November 17, 2016
- Fisher et al. (2017) Lower-Risk Cannabis Use Guidelines: A Comprehensive Update of Evidence and Recommendations. *AJPH* August 2017, Vol 107, No. 8
- French, L., C. Gray, G. Leonard, M. Perron, G. B. Pike, L. Richer, J. R. Seguin, S. Veillette, C. J. Evans, E. Artiges, T. Banaschewski, A. W. Bokde, U. Bromberg, R. Bruehl, C. Buchel, A. Cattrell, P. J. Conrod, H. Flor, V. Frouin, J. Gallinat, H. Garavan, P. Gowland, A. Heinz, H. Lemaitre, J. L. Martinot, F. Nees, D. P. Orfanos, M. M. Pangelinan, L. Poustka, M. Rietschel, M. N. Smolka, H. Walter, R. Whelan, N. J. Timpson, G. Schumann, G. D. Smith, Z. Pausova and T. Paus (2015). "Early Cannabis Use, Polygenic Risk Score for Schizophrenia and Brain Maturation in Adolescence." *JAMA Psychiatry* **72**(10): 1002-1011.
- Gibbs, M., C. Winsper, S. Marwaha, E. Gilbert, M. Broome and S. P. Singh (2015). "Cannabis use and mania symptoms: A systematic review and meta-analysis." *Journal of Affective Disorders* **171**: 39-47.
- Health Canada (2013) Information for Health Care Professionals: Cannabis ... Retrieved October 27, 2016, from [http://www.hc-sc.gc.ca/dhp-mps/alt\\_formats/pdf/marihuana/med/infoprof-eng.pdf](http://www.hc-sc.gc.ca/dhp-mps/alt_formats/pdf/marihuana/med/infoprof-eng.pdf)
- Hendershot, Christian S. ; Magnan, Renee E. ; Bryan, Angela D. Maisto, Stephen A. (editor) *Psychology of Addictive Behaviors*, 2010, Vol.24(3), pp.404-414 [Peer Reviewed Journal] <http://psycnet.apa.org.ezproxy.uwindsor.ca/journals/adb/24/3/404>
- ElSohly, M.A. (2017) Changes in Cannabis Potency over the Last Two Decades (1995-2014) - Analysis of Current Data in the United States. *Biol Psychiatry*, **79**(7): 613-619.
- McLoughlin, B. C., J. A. Pushpa-Rajah, D. Gillies, J. Rathbone, H. Variend, E. Kalakouti and K. Kyprianou (2014). "Cannabis and schizophrenia." *Cochrane Database Syst Rev*(10): CD004837.
- Smit, F., L. Bolier and P. Cuijpers (2004). "Cannabis use and the risk of later schizophrenia: a review." *Addiction* **99**(4): 425-430.
- van Os, J., M. Bak, R. V. Hanssen, R. V. Bijl, R. de Graaf and H. Verdoux (2002). "Cannabis use and psychosis: A longitudinal population-based study." *Am J Epidemiol* **156**: 319-327.
- Whiting et al. (2015) Cannabinoids for Medical Use: A Systematic Review and Meta-analysis. *JAMA*;313(24):2456-73





EPION is a network of people who work in early psychosis intervention (EPI) services in Ontario, individuals who have received EPI services, and their family members and caregivers.

We help strengthen early intervention services across Ontario and support the implementation of the MOHLTC's Early Psychosis Intervention Program Standards, released in May 2011.

 [help4psychosis.ca](http://help4psychosis.ca)

 [info@epion.ca](mailto:info@epion.ca)

 [@help4psychosis](https://twitter.com/help4psychosis)

[www.eenet.ca/initiatives/EPION](http://www.eenet.ca/initiatives/EPION)

[www.eenetconnect.ca/g/the-epion-group](http://www.eenetconnect.ca/g/the-epion-group)

## Today's Presenters:

Crystal Morris

Ilyas Khamis

Brian Cooper

November 22, 2018