

# Testimony on S. 278 – An act relating to cannabis

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## Adolescent Brain Development

Brain development continues into the mid-20s, especially in:

- Prefrontal cortex (executive function, impulse control)
- Amygdala (emotional regulation, fear response)
- Hippocampus (memory formation, learning)

Regular adolescent cannabis use is associated with:

- Altered amygdala development and emotional processing
- Reduced hippocampal volume
- Impaired white matter connectivity
- Disrupted neural maturation

Observed outcomes in youth users:

- Increased rates of depression (2x in weekly users)
- Increased anxiety
- Increased suicidal ideation and suicide attempts
- Lower academic achievement (one study quoted an 8-point IQ drop)
- Increased dropout rates

## Addiction and Dependence

~30% of users will develop cannabis use disorder.

Higher potency is associated with:

- Increased dependence
- Increased daily use
- Greater withdrawal symptoms

High THC exposure is linked with adolescents being more vulnerable to dependence than adults.



## Psychosis and THC Potency

Significant negative outcomes associated specifically with high-potency cannabis (defined in most studies as greater than or equal to 10% THC. 10% THC is much lower than being discussed in the S.278 Legislation.)

- Individuals using high potency cannabis have a 3x increase in likelihood of psychosis like schizophrenia
- Daily users have a 5x increase amongst non-users

**Dose-response relationship between increased risk and frequency and potency.**

**Population impact:**

- Seeing an increase in psychosis in markets where cannabis is legal, a concerning trend across the country and in Vermont.
- Up to ~20% of new psychosis cases overall attributable to cannabis.
- In high potency markets, seeing high correlation between psychosis and cannabis use in up to 50% of users.
- Psychosis can lead to permanent disability and lifelong psychiatric care which increases cost to health system and diminishes the labor force.

## Emergency Department Utilization

**In Vermont between 2016 and 2022 we have seen:**

- Significant Increase in Cannabis Poisoning Visits
- Significant Increase in Cannabinoid Hyperemesis Syndrome; challenging to treat
  - Severe, recurrent vomiting
  - Abdominal pain
- Significant increase in Behavioral health presentations linked to cannabis
- Increased cost related to cannabis

## Cardiovascular Risk

Cannabis/THC usage can be linked to:

- Increased risk of stroke
- Hypertension
- Myocardial infarction
- Arrhythmias

Risk observed across smoked and edible products.

## Original Intent

Original intent of the legislation was to shift from an illicit market to a regulated system. Changing the original intent may have a significant public health outcome that should be considered when discussing S.278 changes.

- Initial Framework Included:
  - Potency caps
  - Purchase limits
  - Advertising restrictions to minors
  - Municipal control
  - Youth protection measures

## Full List of Sources:

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4. Depression: <https://pmc.ncbi.nlm.nih.gov/articles/PMC135489/>
5. Suicidal Ideation: <https://www.healthvermont.gov/sites/default/files/document/dsu-cannabis-youth-health.pdf>;  
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6. IQ Decline: <https://pmc.ncbi.nlm.nih.gov/articles/PMC3479587/>
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8. Potency & Dependence: <https://pmc.ncbi.nlm.nih.gov/articles/PMC4611354/>; [The Problem with the Current High Potency THC Marijuana from the Perspective of an Addiction Psychiatrist - PMC](#)
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10. Adolescent vs. Adult Outcomes: [Association Between Recreational Marijuana Legalization in the United States and Changes in Marijuana Use and Cannabis Use Disorder From 2008 to 2016 | Psychiatry and Behavioral Health | JAMA Psychiatry | JAMA Network](#); [Understanding Your Risk for Cannabis Use Disorder | Cannabis and Public Health | CDC](#)
11. Psychotic Disorder: [The contribution of cannabis use to variation in the incidence of psychotic disorder across Europe \(EU-GEI\): a multicentre case-control study - The Lancet Psychiatry](#)
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15. New Psychosis: [The contribution of cannabis use to variation in the incidence of psychotic disorder across Europe \(EU-GEI\): a multicentre case-control study - The Lancet Psychiatry](#)
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17. Increased Cost Related to Cannabis: [Emergency Department Burden of Nausea and Vomiting Associated with Cannabis Use Disorder: U.S. Trends from 2006 to 2013 - PMC](#); [EE233 Economic and Procedural Burden of Cannabinoid Hyperemesis Syndrome in the U.S. Emergency Department Setting: Unmet Need for a Diagnostic - Value in Health](#)

18. Cannabis & Heart Conditions: [Association of Endothelial Dysfunction With Chronic Marijuana Smoking and THC-Edible Use | Cannabis | JAMA Cardiology | JAMA Network](#)
19. Heart Conditions with Smoked & Edible Products: [Association of Endothelial Dysfunction With Chronic Marijuana Smoking and THC-Edible Use | Cannabis | JAMA Cardiology | JAMA Network](#)

**Supplemental Resources:**

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