Going Up In Smoke?

Concerns About the Legalization of Cannabis in Illinois

Parents, Professionals and Conversation
January 2020

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Disclosures

- As a matter of policy, Yellowbrick and its employees are prohibited from accepting gifts from all medical and pharmaceutical companies.

- Yellowbrick, Yellowbrick Foundation and Yellowbrick Professional Staff have never accepted gifts, grants, funds or services from Industry.
Why now?

January 2020: Illinois became the 11th state to legalize recreational cannabis for adult use

1978: Medical Marijuana technically legal in Illinois, but state agencies did not act to create regulations so didn’t happen

2013: Medical Cannabis became reality under IL state law
Why “cannabis” and not “marijuana?”

Linguistic history:
Harry Anslinger (1892 – 1975), 1st Commissioner of the Federal Bureau of Narcotics. Prohibitionist campaigning against cannabis from 1930 – 1937:

“By the tons it is coming into this country — the deadly, dreadful poison that racks and tears not only the body, but the very heart and soul of every human being who once becomes a slave to it in any of its cruel and devastating forms. ... Marihuana is a short cut to the insane asylum...”

His descriptions often included strong racist overtones, appealing to prevalent attitudes of the time, indicating smoking cannabis would lead to miscegenation and other forms of “corruption”
“My kids know (or think they know) a lot more than I do about cannabis. I’m no authority…”
KIDS, WE NEED TO HAVE A TALK ABOUT CANNABIS.

SURE... WHAT DO YOU WANT TO KNOW?
What is Cannabis?

- Flowering plant
- Variant: Hemp, cannabis that is cultivated for fiber and other industrial uses, no more than 0.3% THC
- Contains **483** known compounds
- More than 60 of these are cannabinoid compounds—potential to interact with cannabinoid receptors in humans
- Short list of SOME of the cannabinoids in the plant:
  - CBGA (Cannabigerolic acid)
  - THCA (Δ9-tetrahydrocannabinolic acid)
  - CBDA (Cannabidiolic acid)
  - CBCA (Cannabichromenic acid)
  - CBCVA (Cannabichromevarinic acid)
  - CBGVA (Cannabigerovarinic acid)
  - THCVA (Tetrahydrocanabivarinic acid)
  - CBDVA (Cannabidivarinic acid)
  - CBCVA (Cannabichromevarinic acid)
- PLUS 475 more compounds, including 50+ other cannabinoids
THC: tetrahydrocannabinol
CBD: cannabidiol

Organic chemicals act as “jigsaw pieces” with receptors in the body and brain...
THC: tetrahydrocannabinol

Known “active ingredient” in Cannabis about which the most is known, most researched, and the concentration of which has increased in cultivated cannabis plants over the past 40+ years.

Most cannabis that is used as is, or converted to other forms, contains 3% to 20% THC, with reports of up to 33% THC.
“Pot didn’t hurt me. Why should I be worried about my kid’s brain?”
Heavy Cannabis Users Drive Worse, *even when not intoxicated*

“those who began using cannabis consistently before they were 16 years of age ... had significantly more collisions, missed more stop signs, stopped less at red lights, and drove a greater percentage of distance over the speed limit.”

This correlates with Yellowbrick finding on CANTAB (Cambridge Neuropsychological Test Automated Battery), that those who use cannabis multiple times/day score in bottom 20% on processing speed subtest.

Likely explanation: Cannabis interferes with myelin formation, which interferes with learning!

1970’s: 3-4% THC concentration in usual cannabis plant

2018: 12% THC in plant, and much higher in other forms, up to 79% in crystals.

(Barbara Deckert at the site of her fiancé, Ron Edwards’ death. He was killed when a cannabis-intoxicated driver in Colorado ran a red light and hit him on his motorcycle)
Variability in THC and CBD Concentration

<table>
<thead>
<tr>
<th>Product</th>
<th>THC</th>
<th>CBD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>Flower</td>
<td>&lt;1%</td>
<td>35%</td>
</tr>
<tr>
<td>Pre-Rolls</td>
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<td>40%</td>
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<tr>
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<td>64%</td>
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<tr>
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<td>61%</td>
<td>85%</td>
</tr>
<tr>
<td>Crystals</td>
<td>67%</td>
<td>79%</td>
</tr>
</tbody>
</table>

Source: “Learn About Marijuana,” Alcohol and Drug Institute, University of Washington
Yellowbrick
Find Your Way Home

Higher THC content: Why does it matter?

• Higher concentration of THC doesn’t just result in more of the same effect
• There are unpredictable “thresholds” above which qualitatively different effects can occur. Different for each individual.
  • Panic
  • Psychosis—short term or activation of chronic illness
According to DSM-V criteria, 9% of those who are exposed to cannabis develop cannabis use disorder, compared to 20% for cocaine, 23% for alcohol and 68% for nicotine. Cannabis abuse disorder in the DSM-V involves a combination of DSM-IV criteria for cannabis abuse and dependence, plus the addition of craving, minus the criterion related to legal troubles.

Which Nine Percent?
“If it’s used as a medicine, how can it be harmful? It’s just a plant, and plants are safe!...”
Plants are safe, right?

**Hemlock**
Poison!!: in high doses stops your breathing, and...

**Medicine:**
- Asthma
- Teething pain
- Bronchitis
- Whooping cough
- Anxiety
- Mania
- epilepsy

**Foxglove**
Poison!! In high doses stops your heart, and...

**Medicine:** used to make Digitalis or Digoxin, medicine for heart diseases
Forms of THC “delivery”:

- Plant (buds, leaves etc.)
- Kief (powder)
- Hashish (“hash”)
- Hash Oil (resinous matrix made through solvent extraction)
- Infusion (used in edibles)
As the endocannabinoid system plays an important role in brain development, it is plausible that prolonged use during adolescence results in a disruption in the normative neuromaturational processes that occur during this period. We identify synaptic pruning and white matter development as two processes that may be adversely impacted by cannabis exposure during adolescence. Potentially, alterations in these processes may underlie the cognitive and emotional deficits that have been associated with regular use commencing during adolescence.

Cannabis use during brain development, especially in adolescence, interferes with the formation of brain structures and connections between them.
Higher THC content: Why does it matter?

- Reactions can include:
  - Cannabinoid hyperemesis syndrome (potentially fatal)
  - Hallucinations
  - Panic attacks (short term)
  - Depression, +/- suicidality
  - Paranoia up to and including delusional thinking (short term)
  - Activation of psychotic illness (long-term, non-curable)
From qz.com ("Global news and insights for a new generation of business leaders."), in reference to The Lancet, a well-respected British medical journal, publishing an article indicating heavy cannabis smokers have a significant risk of developing psychotic symptoms:

“Furthermore, the authors point out that many daily users did not develop a psychotic disorder…”

Which ones won’t become psychotic!? 
Is Cannabis “Addictive?”

Yes
Reward Deficiency Syndrome

• Genetic variant in dopamine receptors in the brain
• Makes it harder to feel rewarded by ordinary life experiences
• Those with this variant tend to seek higher levels of stimulation/gratification in order to achieve this feeling
• The process is self-reinforcing
• Anything we consume, eat, smoke, inject or do can potentially become problematic if it hijacks the dopamine system
• Cannabis is NO EXCEPTION
Receptor Interaction

Lots to see here, but take home is: Dopamine!! The feel-good molecule.
Is there a Cannabis Withdrawal Syndrome?

Yes
Cannabis Withdrawal Syndrome (DSM Diagnosis)

- Symptoms appear within one week after stopping:
  - Anger, irritability, and/or aggressiveness
  - Extreme nervousness or anxiety
  - Insomnia, vivid disturbing dreams or nightmares
  - Decreased appetite with or without significant weight loss
  - Restlessness and general malaise
  - Depression
- Physical symptoms may include:
  - Abdominal pain
  - Fever
  - Chills
  - Sweating
  - Headache
  - Tremors or shakiness.
How can I take away the only thing my kid says helps with anxiety, sleep, etc.?
Given all of the above, the risks for young people far outweigh potential benefits. For all psychiatric symptoms there are alternative medicines and alternatives TO medicines:

- CBT
- Meditation and mindfulness practices
- TMS
- Neurofeedback
- Relationships!
“Now that it’s legal, I have no control over my son or daughter—why bother talking to them about cannabis?... And what credibility do I have when they know I smoked?”
As [Lady] Gaga’s hip injury grew worse on her Born This Way Ball tour, the singer revealed that she was smoking up to 15 joints per day to help numb the pain. “I was just numbing, numbing, numbing myself then sleeping it off, then getting on stage, killing it in pain, then getting off and smoking, smoking, smoking, not knowing what the pain was, [emphasis added]” she admitted. After her hip surgery, Gaga attended a retreat to get sober.”
Why talk to your son or daughter?

Why not!? The most effective communication isn’t based on whether or not you used yourself, or on how much you know about cannabis, it’s based on direct expression of how you feel about him or her using:

Be honest and direct, and leave room to listen.
Yellowbrick
Find *Your* Way Home