Cannabis: Evidence-Informed Practical Approaches

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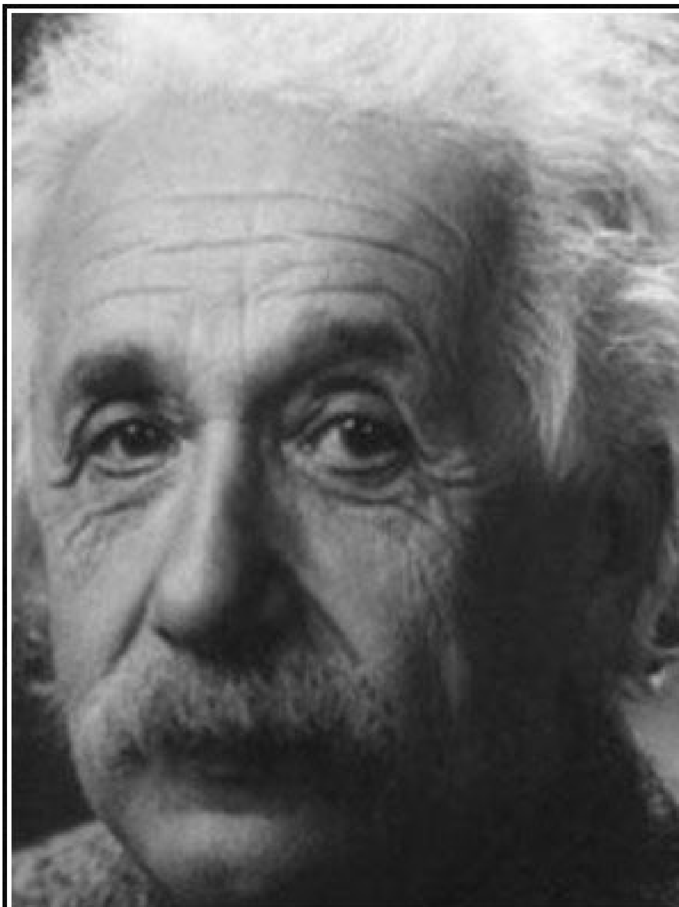
November 16, 2023

Disclosures

- I have no financial relationships that might compromise my objectivity in analyzing and reporting on the subject of today's talk.
- Off-label uses of medications are not discussed.
- I will attempt to provide some estimate of the strength of the literature behind my recommendations.



What we don't know is much more than what we know.

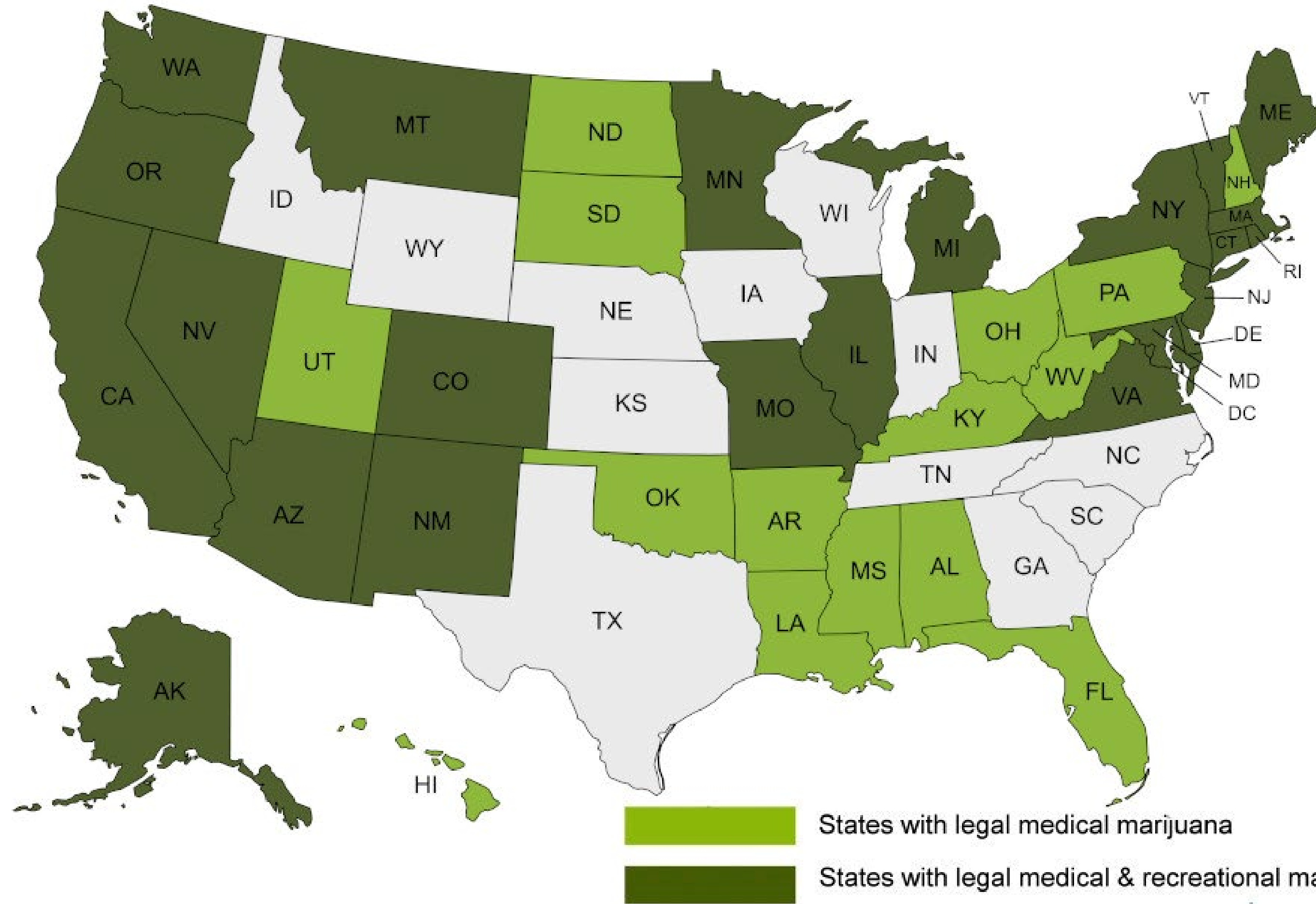
— *Albert Einstein* —

AZ QUOTES

Objectives

1. We need to understand the current science of cannabis in pregnancy. This will be reviewed.
2. We need to understand the concept of harm reduction as it relates to cannabis use in pregnancy.
3. Does contingency management represent one strategy for limiting cannabis use in pregnancy? We will briefly discuss this option.

Legal Medical & Recreational Marijuana States



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Updated 6/2023

Epidemiology

- 3-34% of pregnant women
  - Gundersen study (2012)- 6.5%- marijuana only
  - Midwest OB resident clinic report (unpublished) (2023)- 25%
- Most women stop or cut back during pregnancy
  - 46-78% quit (various studies)
  - Most that do not quit, cut back
- Many women start using again postpartum

- Sorry for the generalizations, but it's complicated

Fetal Effects

- Marijuana is not a teratogen

Metz TD, Stickrath EH. Marijuana use in pregnancy and lactation: a review of the evidence. Am J Obstet Gynecol 2015;213:761-78.https://doi.org/10.1016/j.ajog.2015.05.025
Metz TD, Borgelt LM. Marijuana Use in Pregnancy and While Breastfeeding. Obstet Gynecol. 2018;132:1198-1210. doi: 10.1097/AOG.0000000000002878.
Thompson R, DeJong K, Lo J. Marijuana Use in Pregnancy: A Review. Obstet Gynecol Surv. 2019 Jul;74(7):415-428. doi: 10.1097/OGX.0000000000000685.

. . .and a plethora of other reviews.

Fetal Effects

- Growth restriction
  - Confounded by tobacco
  - If there is an effect, likely small and unclear consequences
- Stillbirth
  - Increased association with stillbirth (THC in umbilical cord)
  - Never easy to categorize causes of IUFD

Fetal Effects

- Preterm Birth
  - Conflicting results
  - Confounders (history of PTB, iatrogenic)
  - Positive biologic screen seems more correlated
  - Unclear the effects (early versus late preterm)

Concurrent Tobacco Use

- 79% of cannabis users also smoke tobacco (Suris 2005)
- Increased risk compared to tobacco alone (Chabarria, AJOG 2016)
- Preterm birth (OR 2.6)
- Low birth weight (OR 2.8)
- Pre-eclampsia (OR 2.5)

Maternal Effects

- Decreased attention
- Decreased concentration
- Decreased speed of information processing
- Decreased memory
- Decreased associative learning
- Cannabis associated psychosis
- Contaminating substances
- Pulmonary effects
  - Acute bronchodilation
  - Long-term can cause airway obstruction

Comorbidities

- Substance use disorder in cannabis users
  - Opiates 4.6x higher
  - Alcohol 6x higher
  - Tobacco 6.2x higher
  - Cocaine 9.3x higher
- Psychiatric diagnoses
  - Women with mood disorders are 2-3x more likely to use cannabis
  - 70% of bipolar women use marijuana
  - 30% of bipolar women have a SUD
  - ? Cannabis-induced psychosis

Long-term Effects: Neurodevelopmental

- Animal Studies
  - Alterations in the dopaminergic pathway (reward)
  - Increased hyperactivity
  - Learning disabilities
  - Memory impairment
- Human Studies
  - Decreased language comprehension
  - Difficulty with attention
  - Memory impairment
  - Increased hyperactivity
  - Increased impulsivity
  - Younger age at onset of substance use

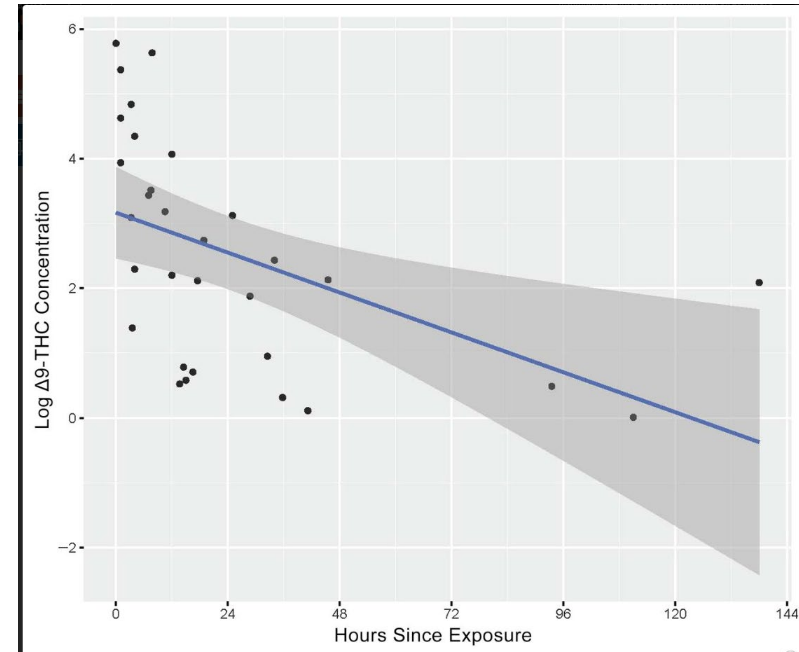
Are we on the verge of defining a “cannabis spectrum disorder”? Schreiber et al 2019

Roncero C, Valriberas-Herrero I, Mezzatesta-Gava M, Villegas JL, Aguilar L, Grau-López L. Cannabis use during pregnancy and its relationship with fetal developmental outcomes and psychiatric disorders. A systematic review. Reproductive Health. 2020;17:1-9.

Breastfeeding

Breastfeeding

- Detection for up to 6 days
- Related to dose and frequency of use
- Decreased approximately 3% per hour after exposure



- Half life of approximately 27 hours
- Extremely variable concentrations, likely due to lipophilic nature

Bertrand, Pediatrics 2018

Breastfeeding Recommendations

- AAP: "Street drugs such as PCP, cocaine and cannabis can be detected in human breastmilk and their use by breastfeeding mothers is of concern, particularly in relation to the infant's long-term neurodevelopment, and are thus contraindicated"

- **"Maternal substance abuse is not a categorical contraindication to breastfeeding."**

Bertrand, Pediatrics 2018

Marijuana: Postpartum

- High rates of relapse
- Second-hand exposure to the infant

Perceptions of Harm

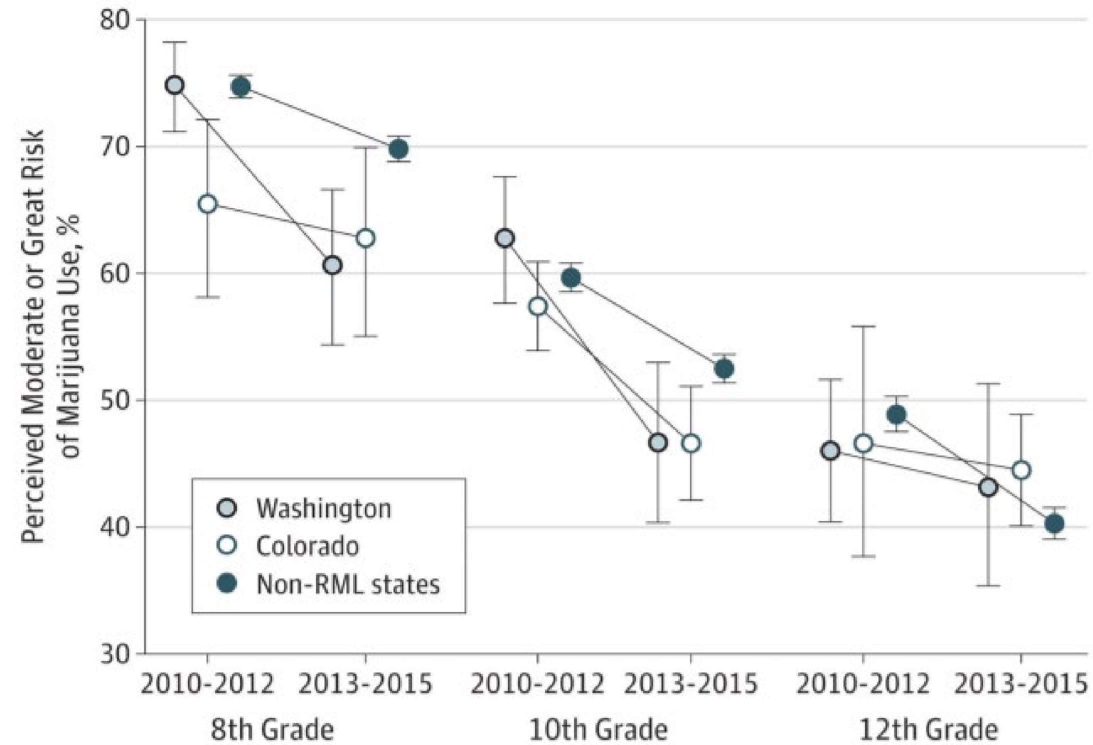


Figure 1. Perceived Harmfulness of Marijuana Use Before and After Legalization in Colorado, Washington, and States Without Recreational Marijuana Laws (RML)
The solid lines indicate the adjusted prevalence of perceived harmfulness of marijuana use before and after RML in Colorado, Washington, and non-RML states by grade. Error bars indicate 95%CIs.

Cerda, JAMA Pediatrics 2016

Reasons for Using Cannabis

Anecdotally women report ongoing use in pregnancy to relieve nausea, decrease pain, and for psychiatric disorders such as anxiety and depression. In a cross-sectional survey (N=1,749), the majority of women reported use to help with depression and anxiety (63%) followed by help with pain (60%). Only 39% of the women with current use reported using marijuana for fun or recreation. Given that women perceive medical benefits of marijuana use, there is an opportunity for providers to query women as to the reasons for use and discuss alternative therapies.*

*Retail Marijuana Public Health Advisory Committee. *Monitoring Health Concerns Related to Marijuana in Colorado: 2016. Changes in Marijuana Use Patterns, Systematic Literature Review, and Possible Marijuana-Related Health Effects*. Colorado Department of Public Health and Environment; https://drive.google.com/file/d/0B0tmPQ67k3NVQlFnY3VzZGVmdFk/view.

How Effective is Marijuana as an Anxiolytic?

The literature evaluating the efficacy of cannabis in anxiety disorders is in its infancy. The survey data is generally positive.*

Be careful in interpreting withdrawal symptoms for anxiety and use of marijuana as therapeutic.

*Van Ameringen 2020

Harm Reduction

- Harm reduction is used to decrease negative consequences of recreational drug use without requiring abstinence, recognizing that those unable or unwilling to stop can still make positive change to protect themselves and others.
- Harm reduction is an evidence-based approach that is critical to engaging with people who use drugs and equipping them with life-saving tools and information to create positive change in their lives and potentially save their lives. Harm reduction is a key pillar in the U.S. Department of Health and Human Services' Overdose Prevention Strategy. (SAMHSA, 2023)

Is the Abstinence-only Model Dead?

- Have our goals changed from long-term abstinence to “keeping people alive”?
- Are we so unsuccessful in treatment programs that we need to accept some drug use as acceptable? Is abstinence-based treatment dead?
- Are we overwhelmed by the number of patients using drugs that we are just trying to do the best we can? Inadequate funding, too much focus on quick results?
- “Harm reduction measures might lead you to addiction treatment, and ultimately abstinence. But this is not really the goal of harm reduction. Many people who achieved abstinence credit it to how well they were treated in harm reduction programs.”

Harm Reduction

- "When I have to do harm reduction, it makes me feel sort of dirty."

Colleague

Harm Reduction in Pregnancy

Tricia Wright described a successful harm reduction model for methamphetamine-using patients in 2012.*

Frequently utilized. Poorly researched.

No studies found that speaks to the use of marijuana to reduce the use of other drugs.

General concern about the failure of abstinence-only models for other substances (eg opioids)

- Risk of overdose
- Lack of successful treatment

*Wright, Tricia E., et al. "Implementation and evaluation of a harm-reduction model for clinical care of substance using pregnant women." *Harm reduction journal* 9.1 (2012): 1-10.

Harm Reduction in Pregnancy

Reducing risks of complications? Dose/response curves don't exist

Will CPS take my baby?

Contingency Management

- No literature to support CM for marijuana use in pregnancy or postpartum
- Literature demonstrates improvement in use in adolescents and young adults