Marijuana Use in Pregnancy, Breastfeeding, and the Postpartum Period

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- I have nothing to disclose

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Perinatal Case

- Female in her 30's, preconception, presented with chronic Marijuana use several times a day by vaping with history of childhood abuse, complicated family dynamics, history of severe anxiety and depression, on several psychiatric medication for her symptoms.
- Came to treatment to discuss the risks of her medications in a future pregnancy.
- Was not aware of risks of Marijuana use in pregnancy and postpartum
- When tapering off Marijuana has severe anxiety and nausea.

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What is Marijuana?

- Is a greenish-gray mixture of the dried flowers of Cannabis sativa.
- The main psychoactive(mind-altering) chemical in marijuana is **delta-9-tetrahydrocannabinol (THC).** The chemical is found in resin produced by the leaves and buds primarily of the female cannabis plant. The plant also contains more than 500 other chemicals, including more than 100 compounds that are chemically related to THC, called **cannabinoids**.
- Another well characterized cannabinoid is **Cannabidiol (CBD)** that lacks psychoactive properties
- Ways of use: Smoking, Teas, Edibles, Vaporizers.
- **Marijuana can impair judgment and distort perception in the short term and can lead to memory impairment in the long term**

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THC and CBD

Endocannabinoid System

- Is a molecular pathway that regulates several physiological processes in the body including pain, inflammation, neurodevelopment, appetite, stress, metabolism and reproduction.
- It consists of cannabinoid receptors (CB1 and CB2), endocannabinoids, membrane transporters and enzymes for the synthesis and breakdown of the endocannabinoids.
- THC and CBD act on CB1 and CB2 receptors and alters the normal processes that should take place.
- “Double Hit Hypothesis”

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Montana and Marijuana

- As of January 1, 2021, adults 21 and over may possess and use up to one ounce of marijuana with no criminal penalties.
- Adults may cultivate up to two mature marijuana plants and two seedlings for private use in a private residence. The plants may not be visible to the public.
- Certain medical marijuana licensees will be allowed to also sell adult-use marijuana starting on January 1, 2022.
- In counties where the majority of voters supported Initiative 190 in November 2020, adult-use sales may occur starting in January 2022. In counties where the majority of voters opposed Initiative 190, adult-use marijuana sales will remain prohibited
- The total psychoactive THC of marijuana flower may not exceed 35%. These limits do not apply to sales by licensed medical marijuana providers to medical marijuana cardholders

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National Survey of Drug Use and Health (NSDUH) Data

- Among people aged 12 or older in 2020, 17.9% (or about 49.6 million people) reported using Marijuana in the past 12 months.
- Approximately 4.8 million people aged 12 or older in 2019 had a marijuana use disorder in the past year (2019 NSDUH)
- Among people aged 12 or older in 2020, an estimated 5.1% (or about 14.2 million people) had a marijuana use disorder in the past year.

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Prevalence of Marijuana Use among women of Reproductive Age

- Among women of reproductive age, 9.9 % reported Cannabis use within the last month
- The prevalence of Cannabis use within the past month increased from 3.4% to 7.0%
- Clinical reports of Cannabis use during pregnancy vary widely from 3% to 35% in North America
- Data suggest that women using Cannabis during pregnancy are usually daily users, and Cannabis-using pregnant women are more likely to meet criteria for Cannabis use disorders relatively to non-pregnant women of reproductive age (18.1% vs 11.4%)

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Prevalence of Marijuana Use among women of Reproductive Age

- Daily/nearly daily use in pregnant women has more than tripled from 0.9% to 3.4%
- Self report data indicate that the majority of use among pregnant women is recreational.
- Cannabis use is more prevalent in the first trimester (6.44%), decreases in second trimester (3.34%) and third trimester (1.82%).

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Perinatal Marijuana Use Disorder and limitations of studies

- 2.5 percent of women admit to cannabis use during pregnancy; underreporting.
- Lack of standardized diagnosis, mostly based on self report.
- It has been difficult to determine the direct effects of cannabinoids, as there is a high prevalence of concurrent drug use with cannabis, especially tobacco, alcohol and illicit drugs
- Most studies done in 70-80's: higher concentrations of THC (psychoactive compound of marijuana) currently.
- Differences in chemical compositions of marijuana
- Sex dependent outcomes not studied.

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Marijuana (Cannabis) Use Disorder/ DSM-5 Criteria

A problematic pattern of Cannabis use leading to clinically significant impairment or distress as manifested by at least two of the following, occurring within a 12 months period:

1. Cannabis is often taken in larger amounts or over longer period than was intended.
2. There is a persistent desire or unsuccessful efforts to cut down or control cannabis use.
3. A great deal of time is spent in activities necessary to obtain cannabis, use cannabis or recover from its effects
4. Cravings, or a strong desire or urge to use cannabis
5. Recurrent cannabis use resulting in failure to fulfill major role obligations at work, school, or home
6. Continued cannabis use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of cannabis
7. Important social, occupational, or recreational activities are given up or reduced because of cannabis use
8. Recurrent cannabis use in situations in which it is physically hazardous
9. Cannabis use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by cannabis
10. Tolerance (need of increased amounts to achieve intoxication or desired effects or markedly diminished effect with current amount)
11. Withdrawal (characteristic symptoms of need to take to relieve symptoms of withdrawal)

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Cannabis intoxication/ DSM-5 Criteria

1. Recent use of cannabis
2. Clinically significant problematic behavioral or psychological changes (Impaired motor coordination, euphoria, anxiety, sensation of slowed down, impaired judgment, social withdrawal) that developed during or shortly after cannabis use
3. Two or more of the following signs or symptoms developing within 2 hours of cannabis use: Conjunctival injection, increased appetite, dry mouth, tachycardia.
4. Signs or symptoms are not due to another medical condition or another mental disorder, including intoxication with another substance

With Perceptual disturbances: Hallucinations

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Cannabis Withdrawal/ DSM-5 Criteria

1. Cessation of cannabis use that has been heavy and prolonged (daily or almost daily over a few months at least)
2. Three or more of the following signs and symptoms develop within approximately one week of criterion 1: Irritability, anger or aggression; Nervousness or anxiety; Sleep difficulty; Decreased appetite or weight loss; Restlessness; Depressed mood; abdominal pain, shakiness/tremors, sweating, fever, chills, headaches.
3. The signs and symptoms cause clinically significant distress or impairment bin social, occupational or other important area of functioning.
4. The signs and symptoms are not attributable to another medical condition or mental disorder

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Reasons for increased prevalence

- Legalization of marijuana in some states has increased sales, consumption and access
- Most young adults feel that cannabis is not very harmful
- These factors all likely contribute to the high prevalence of its use in pregnancy

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Misinformation of pregnant women

- Perception that there is no risk to regular cannabis use increased 3-fold among reproductive age women (2005 to 2015)
- Perceived positive therapeutic effects
- Lower cost compared to cigarettes
- Legal fears started to fade
- Lack of communication of risks from Healthcare providers
- Feels stigmatized by healthcare providers so don’t share their use.

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Study in Washington State (Published 2020)

- Qualitative study
- 19 women
- Daily users
- Comorbid conditions: anxiety, depression, bipolar disorder, substance use disorders, PTSD, insomnia, Fibromyalgia, chronic pain
- Used for: Treatment of underlying condition (physical and mental), stress, physical toll of parenting, dealing with trauma, used as an alternative for medications that are perceived as more harmful
- They described mixed messages from Healthcare providers (stop using or harm reduction approach), lack of information provided, erroneous information
- Women were active trying to research and make their own decisions. **They made the best decision they could with the information they had.**
- Some did not disclose to their providers due to fears of legal repercussions, some stopped using at the end of the pregnancy due to this fear

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Healthcare Providers and Budtenders insights

- Reported that pregnant women use Marijuana to relieve nausea, anxiety, pain and stress most commonly
- Some budtenders assumed women consulted with the healthcare provider. 30% recommended that pregnant women discuss it with their healthcare provider.
- Women are looking to alternatives to “Big Pharma”
- **Budtenders**: Nonjudgmental interactions and harm reduction approach, had a wide spectrum of beliefs about effects of marijuana in pregnancy (minimal impact, no impact, lack of evidence). 69% recommends use in pregnancy for nausea basing their recommendations in own opinion.
- **Healthcare Providers**: Emphasis on infant safety. More aware of negative impact for mother and baby, recognize need for more training.

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Who is at risk for Marijuana use and misuse during pregnancy and postpartum?

Younger age: 18-25 years old (7.47%) vs 26-44 years old (2.12%)

Low income, socioeconomic disadvantage

Divorced, separated, widowed or never married

Use of tobacco, alcohol, and other illicit drugs.

Past year psychiatric diagnosis.

Childhood trauma

Having a partner that uses marijuana is one of the strongest predictors of marijuana use in pregnancy.

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Effects on pregnancy

Cannabis has been associated with:

Possible congenital malformations

Fetal growth restriction in middle to late pregnancy,

Decreased head circumference

lower birth weight,

stillbirth,

preterm birth,

subtle neurobehavioral disturbances in newborns

Increase in NICU admissions

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Effects on the Placenta

- The endocannabinoid system is present in the placenta and affecting it through Marijuana use can alter normal placenta morphology and function.
- Increased placenta weight
- Enlarged umbilical vessel diameter
- Fibrosis of the placenta
- **These changes may impair maternal to fetal oxygenation and glucose/nutrients transport.**

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Effects on the Newborn

. Short- and long-term metabolic effects on the child: glucose intolerance and dysfunction of metabolic organs later in life.

. Temporary withdrawal like symptoms (go away within 30 days):

tremors, changes in sleeping patterns, increase muscle tone, uncoordinated suck-swallow reflex, irritability, tachycardia, increased blood pressure, seizures, temperature regulation instability, crying.

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Effects on the child/ adolescent

- Long-term growth can also be affected: smaller head circumferences at birth, which increase in disparity in adolescence, adverse neurobehavioral outcomes, aggression and poor attention skills
- Higher rates of depression, anxiety, withdrawal in adolescence.
- Increased vulnerability to Psychosis.
- Increase in sleep problems (insomnia and excessive somnolence)
- A large cohort study found that children exposed to marijuana during the first and third trimesters of pregnancy exhibited increased hyperactivity and impulsivity and decreased attention
- Higher risk for subsequent marijuana and cigarette smoking, addiction

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Effects on breastfeeding

Concentrations in breast milk have been found to be up to eight-fold higher compared with maternal plasma levels

THC has affinity for the infants' brain.

THC has been detected 6 days after use in breast milk.

Infant exposure to cannabis through breast milk has been reported to cause neurodevelopmental effects, delayed motor development, lethargy and less frequent feeding

American Academy of Pediatrics recommends against breastfeeding with regular cannabis consumption

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Exposures in the Postpartum

- Secondhand smoking and risk of SIDS
- Risk of exposure from marijuana use in fathers, which triples the newborn's risk of sudden infant death syndrome
- Co-sleeping risk.
- Storage

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Screening

Pregnancy provides an important opportunity to identify and treat women with substance use disorders

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Screening in Pregnancy

- Screening for perinatal SUD at first appointment and once per trimester

NIDA Quick Screen V1.0

In the past year, how often have you used the following?	Never	Once or twice	Monthly	Weekly	Daily or almost daily
Alcohol For men, 5 or more drinks a day For women, 4 or more drinks a day					
Tobacco Products					
Prescription Drugs for Non-Medical Reasons					
Illegal drugs					

NIDA Quick Screen V1.0

Scoring and Interpretation:

Note: Any positive response should be pursued and is suggestive of a substance use disorder.

- If the patient says **"NO"** for all drugs in the Quick Screen, reinforce abstinence. **Screening is complete.**
- If the patient says **"Yes"** to **one or more days of heavy drinking**, *patient is an at-risk drinker*. Please see NIAAA website "How to Help Patients Who Drink Too Much: A Clinical Approach" http://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/clinicians_guide.htm, for information to **Assess, Advise, Assist, and Arrange** help for at risk drinkers or patients with alcohol use disorders
- If patient says **"Yes"** to **use of tobacco**: *Any* current tobacco use places a patient at risk. Advise *all tobacco users to quit*. For more information on smoking cessation, please see "Helping Smokers Quit: A Guide for Clinicians" http://www.ahrq.gov/clinic/tobacco/clinhlpsmksqt.htm
- If the patient says **"Yes"** to **use of illegal drugs or prescription drugs for non-medical reasons**, proceed to **Question 1** of the NIDA-Modified ASSIST. http://www.drugabuse.gov/publications/resource-guide/step-1-nida-modified-assist

References:

- Smith PC, Schmidt SM, Allensworth-Davies D, Saitz R. A single-question screening test for drug use in primary care. *Archives of internal medicine*. Jul 12 2010;170(13):1155-1160. PMID: 20625025
- National Institute on Drug Abuse. Resource Guide: Screening for Drug Use in General Medical Settings. Available at: https://www.drugabuse.gov/publications/resource-guide Accessed March 15, 2012.

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The Cannabis Use Disorder Identification Test - Revised (CUDIT-R)

Have you used any cannabis over the past six months? YES / NO

If YES, please answer the following questions about your cannabis use. Circle the response that is most correct for you in relation to your cannabis use *over the past six months*

1. How often do you use cannabis?

Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week
0	1	2	3	4

2. How many hours were you "stoned" on a typical day when you had been using cannabis?

Less than 1	1 or 2	3 or 4	5 or 6	7 or more
0	1	2	3	4

3. How often during the past 6 months did you find that you were not able to stop using cannabis once you had started?

Never	Less than monthly	Monthly	Weekly	Daily or almost daily
0	1	2	3	4

4. How often during the past 6 months did you fail to do what was normally expected from you because of using cannabis?

Never	Less than monthly	Monthly	Weekly	Daily or almost daily
0	1	2	3	4

5. How often in the past 6 months have you devoted a great deal of your time to getting, using, or recovering from cannabis?

Never	Less than monthly	Monthly	Weekly	Daily or almost daily
0	1	2	3	4

6. How often in the past 6 months have you had a problem with your memory or concentration after using cannabis?

Never	Less than monthly	Monthly	Weekly	Daily or almost daily
0	1	2	3	4

7. How often do you use cannabis in situations that could be physically hazardous, such as driving, operating machinery, or caring for children:

Never	Less than monthly	Monthly	Weekly	Daily or almost daily
0	1	2	3	4

8. Have you ever thought about cutting down, or stopping, your use of cannabis?

Never	Yes, but not in the past 6 months	Yes, during the past 6 months
0	2	4

This scale is in the public domain and is free to use with appropriate citation:

Adamson SJ, Kay-Lambkin FJ, Baker AL, Lewin TJ, Thornton L, Kelly BJ, and Sellman JD. (2010). An Improved Brief Measure of Cannabis Misuse: The Cannabis Use Disorders Identification Test – Revised (CUDIT-R). *Drug and Alcohol Dependence* 110:137-143.

This questionnaire was designed for self administration and is scored by adding each of the 8 items:
- Question 1-7 are scored on a 0-4 scale
- Question 8 is scored 0, 2 or 4.
Scores of 8 or more indicate hazardous cannabis use, while scores of 12 or more indicate a

Screening, Brief Intervention and Referral to Treatment (SBIRT)

- SBIRT has been found to decrease the frequency and severity of drug and alcohol use, decrease hospital stays and Emergency Department visits and demonstrate net-cost savings
- Screening (S) identifies unhealthy use; 75-85 percent of patients will screen negative and for those who screen positive, further assessment is needed to determine level of risk
- Brief Intervention (BI) provides feedback about unhealthy substance use; also focuses on education, increasing patient insight and awareness about risks related to unhealthy substance use and enhances motivation toward healthy behavioral change
- Referral to Treatment (RT) helps facilitate access to addiction assessment and treatment; a referral is usually indicated for only about five percent of people screened

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Management of Marijuana use disorder in pregnancy and postpartum

Establish alliance, Nonjudgmental approach

Trauma informed approach

Treatment of underlying condition (nausea, sleep, anxiety, etc)

Safe storage

Treatment of withdrawal symptoms.

Education about risks of use.

Chronic user vs sporadic user

Polysubstance abuse and Marijuana use

Risk benefits discussion.

Harm reduction approach

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Common reasons for MJ Perinatal Use	Risks of MJ use/misuse in the perinatal period	Safer Approaches
Nausea	Negative obstetrical outcomes Negative short- and long-term effects for the child. Risk of addiction Risks of polysubstance abuse Risk of legal implications	Ginger, Healthy Eating, Acupressure, Acupuncture Medications:Vitb6+Doxylamine. Other medications prescribed by providers
Anxiety/Stress	Negative obstetrical outcomes Negative short- and long-term effects for the child. Risk of addiction Risks of polysubstance abuse Risk of legal implications	mindfulness, relaxation techniques, correct breathing techniques, dietary adjustments, exercise, cognitive therapy, medication and support groups.
Depression	Negative obstetrical outcomes Negative short- and long-term effects for the child. Risk of addiction Risks of polysubstance abuse Risk of legal implications	Psychotherapies (individual and group), Light Therapy, Exercise Healthy Eating, Mindfulness Yoga, Acupuncture Medications
Insomnia	Negative obstetrical outcomes Negative short- and long-term effects for the child. Risk of addiction Risks of polysubstance abuse Risk of legal implications	Sleep hygiene, CBT-I Mindfulness, Meditation Yoga, Tai-chi Medications.
Pain	Negative obstetrical outcomes Negative short- and long-term effects	hypnosis, group therapy, relaxation, and imagery, Acupuncture, Massage. Medications as last resort.

What are the current recommendations for Perinatal Marijuana Use?

- American College of Obstetrician and Gynecologists
- American Academy of Pediatrics
- Center for Disease Control and Prevention
- Academy of Breastfeeding Medicine

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Key points to remember

The use of Marijuana in pregnancy and postpartum is highly prevalent.

Women make informed decision when using Marijuana in the perinatal period. They tend to treat their symptoms and/or choose the least harmful substance in their view.

There is a general dearth of knowledge and understanding of the short- and long-term effects of Marijuana use for the fetus and the child.

All women should be screened for substance abuse in the perinatal period.

A nonjudgmental, trauma informed, and harm reduction approach will have the best outcomes.

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Resources

- PRISM for Moms 1-833-837-7476
- https://prismconsult.org/prism-for-moms/
- https://mothertobaby.org/fact-sheets/
- https://nida.nih.gov/publications/research-reports/marijuana/what-marijuana
- https://dphhs.mt.gov/prevention/AdultUseMarijuanaLawsMT.pdf
- www.cdc.gov/marijuana/factsheets/pregnancy.htm.
- https://www.masbirt.org/sites/www.masbirt.org/files/documents/toolkit.pdf

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References

- https://nida.nih.gov/publications/research-reports/marijuana/what-marijuana
- https://dphhs.mt.gov/prevention/AdultUseMarijuanaLawsMT.pdf
- Diagnostic and Statistical Manual of Mental Disorders (DSM-5)
- Mc Lafferty LP et al. Psychosomatics 57:2, March/April 2016
- Volkow ND et al. Self reported medical and non medical cannabis use among pregnant women in the United States. JAMA 2019; 332:167-169
- Barbosa-Leiker C et al. Daily Cannabis use during pregnancy and postpartum in a State with legalized recreational cannabis. J Adiict Med Vol 14; 6 (2020)
- Barbosa-Leiker C et al. Healthcare professionals and budtenders perceptions of perinatal cannabis use. Am J Drug Alcohol Abuse 2021 Nov 15; 1-9.
- El Marroun et al. An epidemiological, developmental and clinical overview of cannabis use during pregnancy. Preventive Medicine 116 (2018) 1-5
- Nashed et al. Prenatal Cannabinoid Exposure. Frontiers in Psychiatry. January 2021(11) article 624275.
- Martin GI. Marijuana: the effects on pregnancy, the fetus, and the newborn. J Perinatalogy (2020) 40: 1470-1476
- https://mothertobaby.org/fact-sheet-reference/marijuana-cannabis-ref/
- Rakel D. Integrative Medicine. (2017) 4th edition.

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References

- Huang L et al. Marijuana use in women: to prescribe or not to prescribe. Substance use and Misuse (2020) Vol 55; 12: 2076-2077
- Adamson SJ et al. An improved brief measure of Cannabis misuse. Drug and Alcohol Dependence (2010) 110:137-143.
- Moore BF et al. Fetal Exposure to Cannabis and childhood metabolic outcomes: the healthy start study. The Journal of Clinical Endocrinology & Metabolism (2022) XX, 1-8
- https://www.masbirt.org/sites/www.masbirt.org/files/documents/toolkit.pdf
- Thompson et al. Marijuana use in Pregnancy: a review. Obstet Gynecol Surv.(2019) July; 74 (7): 415-428.
- Ryan et al. Marijuana use during pregnancy and breastfeeding. Pediatrics 2018 (142): e20181889.
- Martinez-Pena AA et al. The impact of early life exposure to cannabis. Int J Mol Sci. (2021), 22, 8576
- Bertrand KA.et al. Marijuana use by breastfeeding mothers and cannabinoid concentrations in breast milk. Pediatrics. (2018) 142 (3)
- Dong et al. Cannabinoid exposure during pregnancy and its impact on immune function. Cell Mol Life Sci. 2019 February; 76 (4): 729-743.
- www.ncbi.nlm.nih.gov/books/NBK425767
- Van Gelder et al. Using Bayesian Models to Assess the Effects of Under-reporting of Cannabis Use on the Association with Birth Defects, National Birth Defects Prevention Study, 1997–2005. Pediatric Perinat Epidemiol 2014 (28) 424-433.
- Coleman-Cowger et al. Prevalence and associated birth outcomes of co-use of Cannabis and tobacco cigarettes during pregnancy. Neurotoxicol Teratol 2018 (68):84-90.
- Crume at al. Cannabis Use During the Perinatal Period in a State With Legalized Recreational and Medical Marijuana: The Association Between Maternal Characteristics, Breastfeeding Patterns, and Neonatal Outcomes. J Pediatr 2018 (197): 90-96.

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Questions?