

Perinatal Cannabis Use: Understanding the Concerns

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ATTC

Addiction Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration

SAMHSA
Substance Abuse and Mental Health
Services Administration

Objectives

- Identify three maternal/fetal physiological concerns associated with cannabis use during the perinatal period
- Recognize two of the most common reasons why pregnant and postpartum people use cannabis during the perinatal period
- Discuss the current recommendations regarding cannabis use during pregnancy and lactation
- Consider the potential impact of cannabis legalization on the pregnant and postpartum people

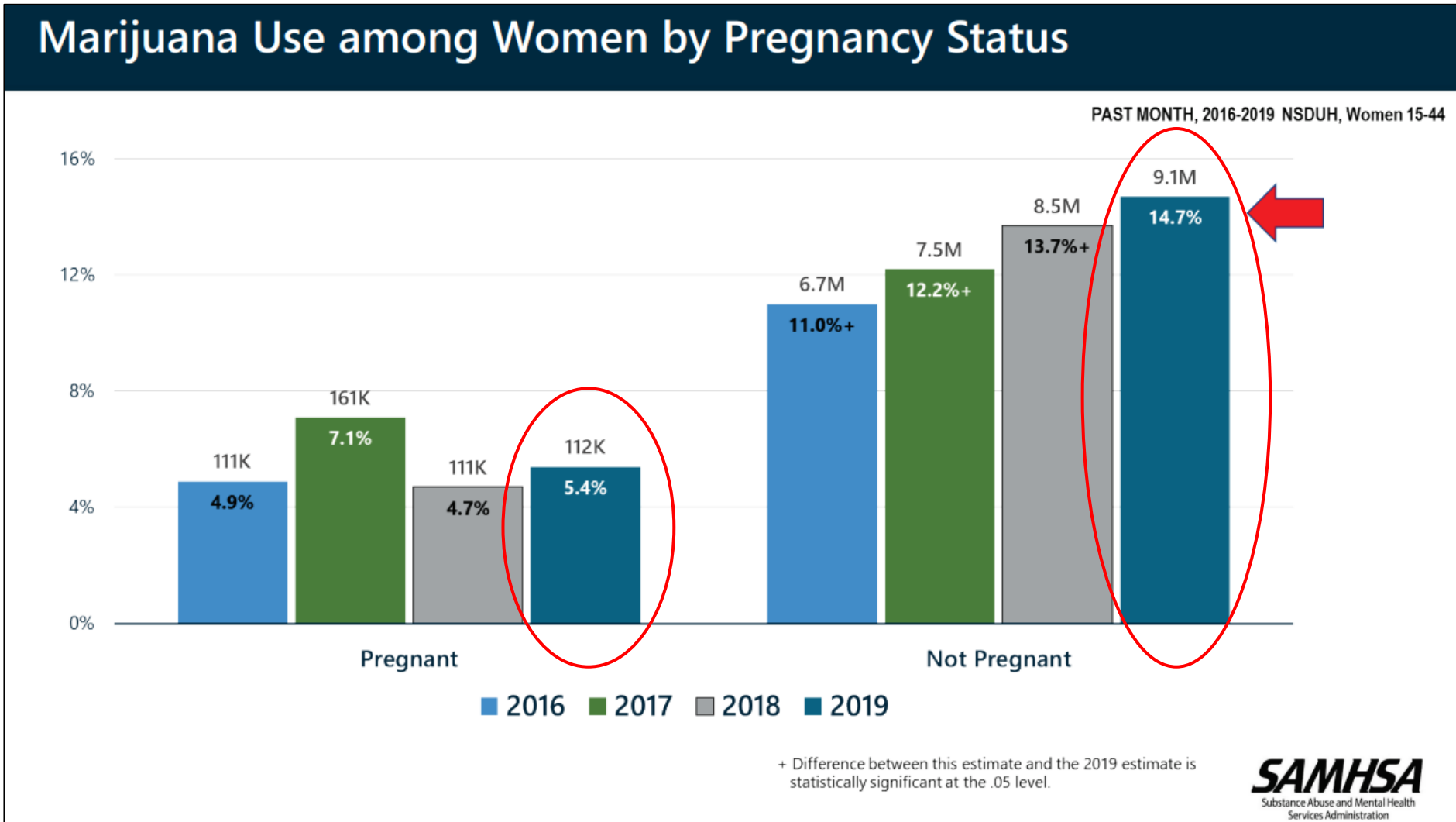
Background

- Estimated that 34-60% of women who use cannabis continue to use during pregnancy (Marchand et al, 2022; SAMHSA, 2019; Thompson, DeJong, LO, 2019)
- Prevalence of perinatal use likely due to
 - Recent legalization trend
 - Appeal in potentially providing relief from common discomforts of pregnancy (Thompson, DeJong, Lo, 2019)
 - **Perceived safety:** Perception of women reporting “no risk” of harm with use is increasing (Polcaro & Vettrano, 2020)
 - NSDUH published a nationally representative survey on substance use and asked, “ How much do people risk harming themselves physically and in other ways when they smoke marijuana once or twice per week?”
 - Over the study period (2005-2015): 17% of pregnant nonusers reported “no risk of harm” (up from 3.5%)
 - 65% pregnant persons with recent use reported “no risk of harm” (up from 26%) (Jarlenski et al., 2017; Thompson, DeJong, Lo, 2019)

Perceived Safety

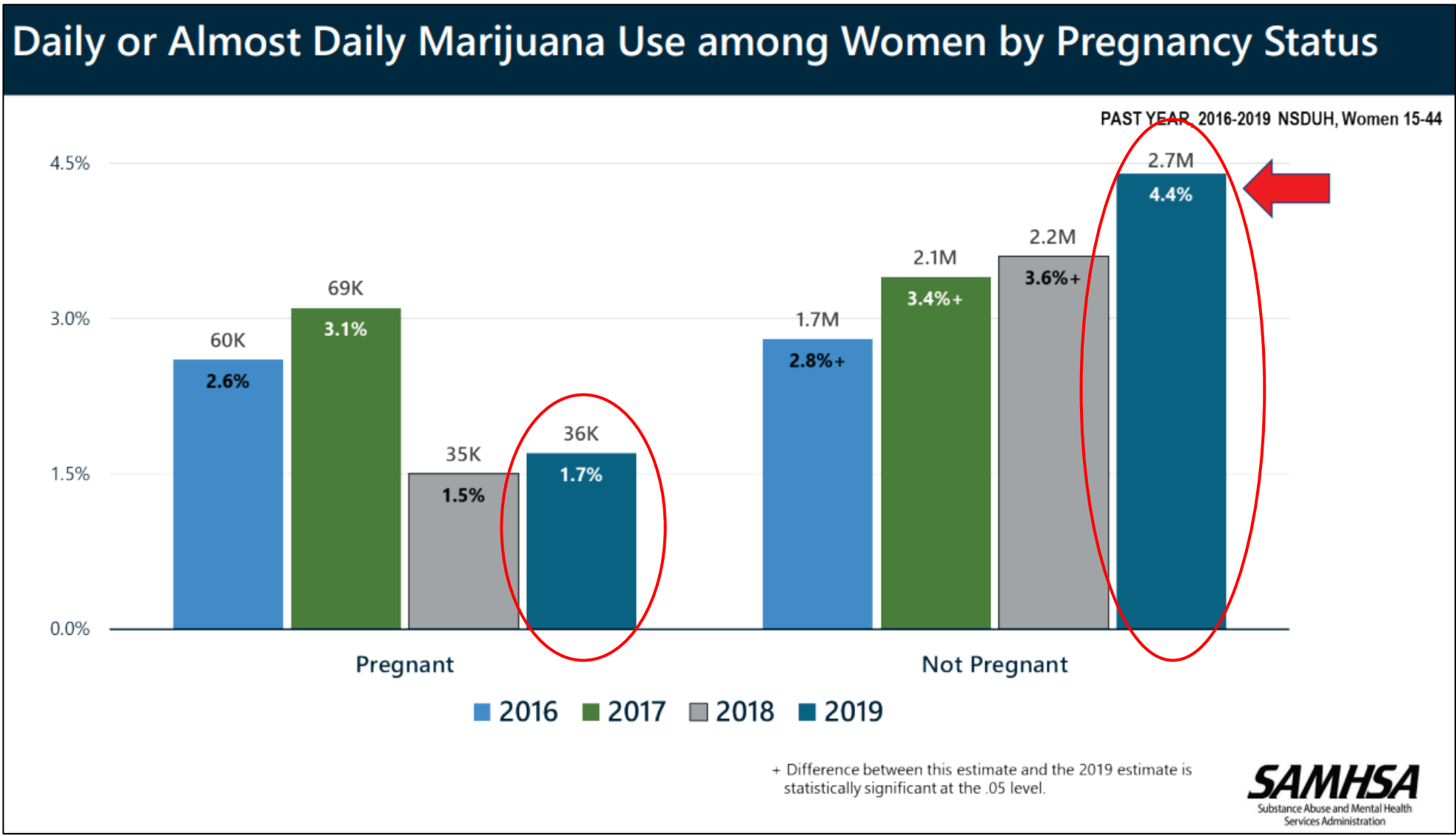
- Online marijuana and physical marijuana dispensaries are often recommending marijuana as a harmless and effective treatment for nausea and vomiting in pregnancy
 - Study contacted 400 dispensaries in CO
 - Found that 69% recommended marijuana products to treat T1 morning sickness
 - 65% based recommendation on personal opinion
 - 36% stated cannabis use is safe in pregnancy
 - Only 31% encouraged discussion with health care provider without prompting
 - Similar studies found consistent results (Dickson et al, 2018)
- Women also found to rely on anecdotal experiences, advice from friends and internet searches (Jarlenski et al, 2017)
- Recent study analyzed online media items from 2015-2017
 - Found that 28% mentioned marijuana for treatment of N/V in pregnancy
 - 10% portrayed prenatal or postpartum marijuana benefits as greater than risks (Jarlenski et al, 2018)

Current Statistics (NSDUH, 2020)



Marijuana use among pregnant & reproductive-aged women, increased 62% in last decade (Jarlenki et al, 2017)

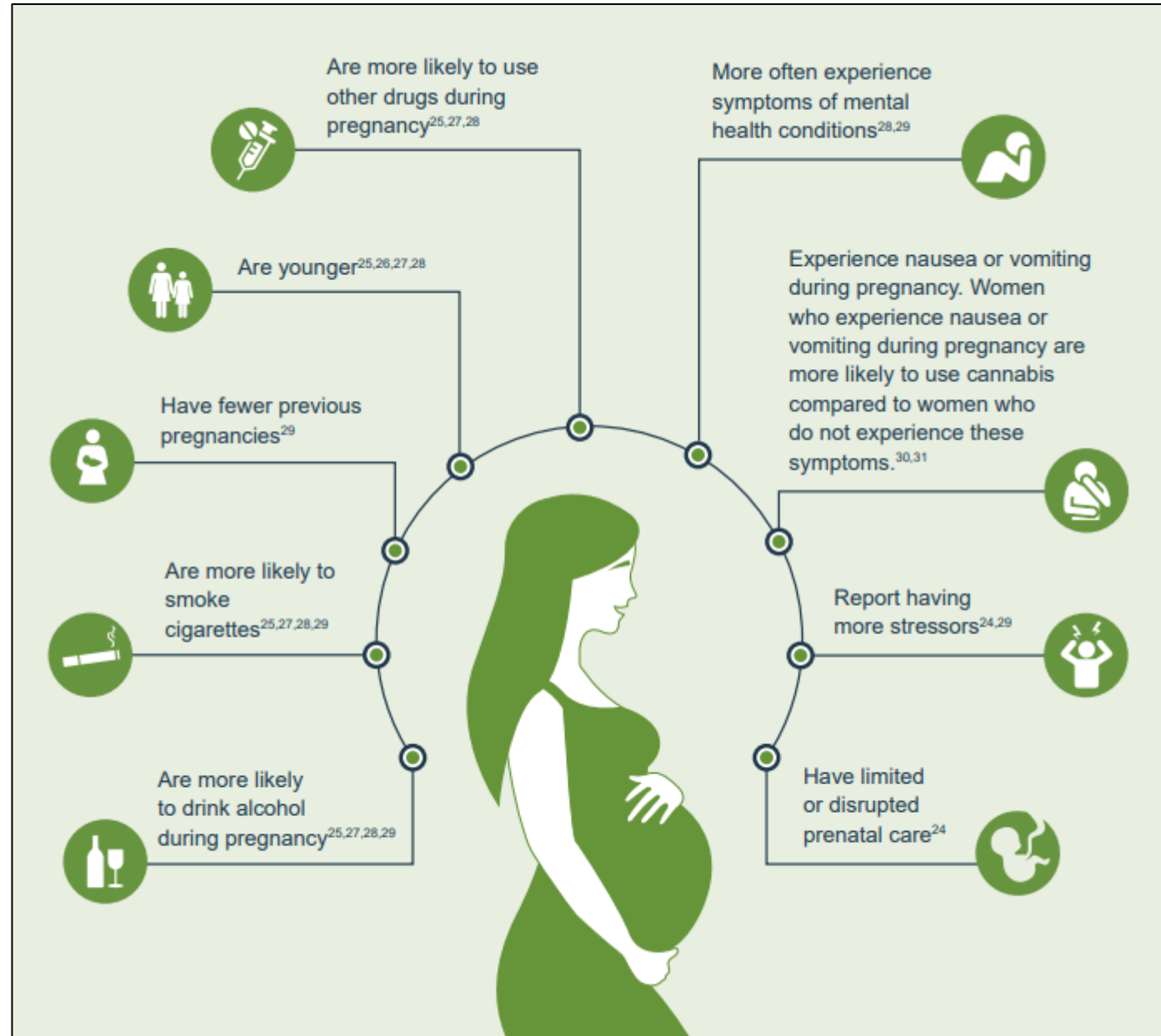
Current Statistics (NSDUH, 2020)



A recent study estimated that 18% of pregnant women met criteria for abuse or dependence (Stickrath, 2019)

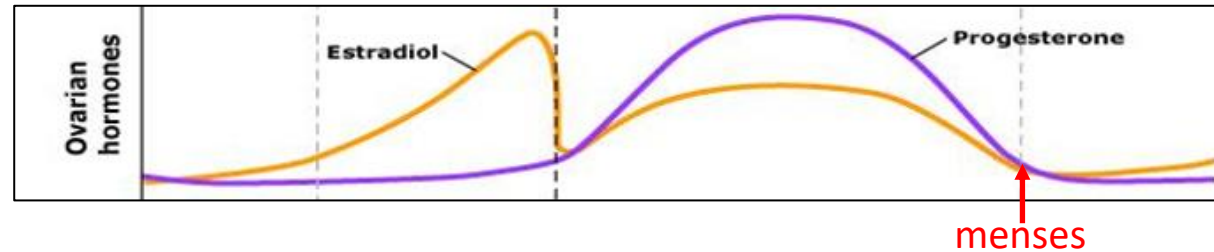
Compared to women who do not use marijuana during pregnancy, women who use marijuana during pregnancy...

(SAMHSA, 2019)



Cannabis Use and the Female Reproductive Cycle: Starting at the Beginning

Addiction and the Reproductive Cycle



- Menstrual Cycle Impact
- Fluctuation of ovarian hormones may be associated with sensitivity to rewards
 - Follicular phase: Increased estrogen (peak during ovulation), lower progesterone = enhanced sensitivity to reward
 - Have noted an association with greater responsiveness to stimulants here
 - Luteal phase: Lower estrogen, rising progesterone = may try to reduce negative effects, associated with greater responsiveness to nicotine
- Mood also fluctuates during menstrual cycle
 - Negative mood increases premenstrually and menstrually
 - Positive mood increases during ovulation

Addiction and The Reproductive Cycle

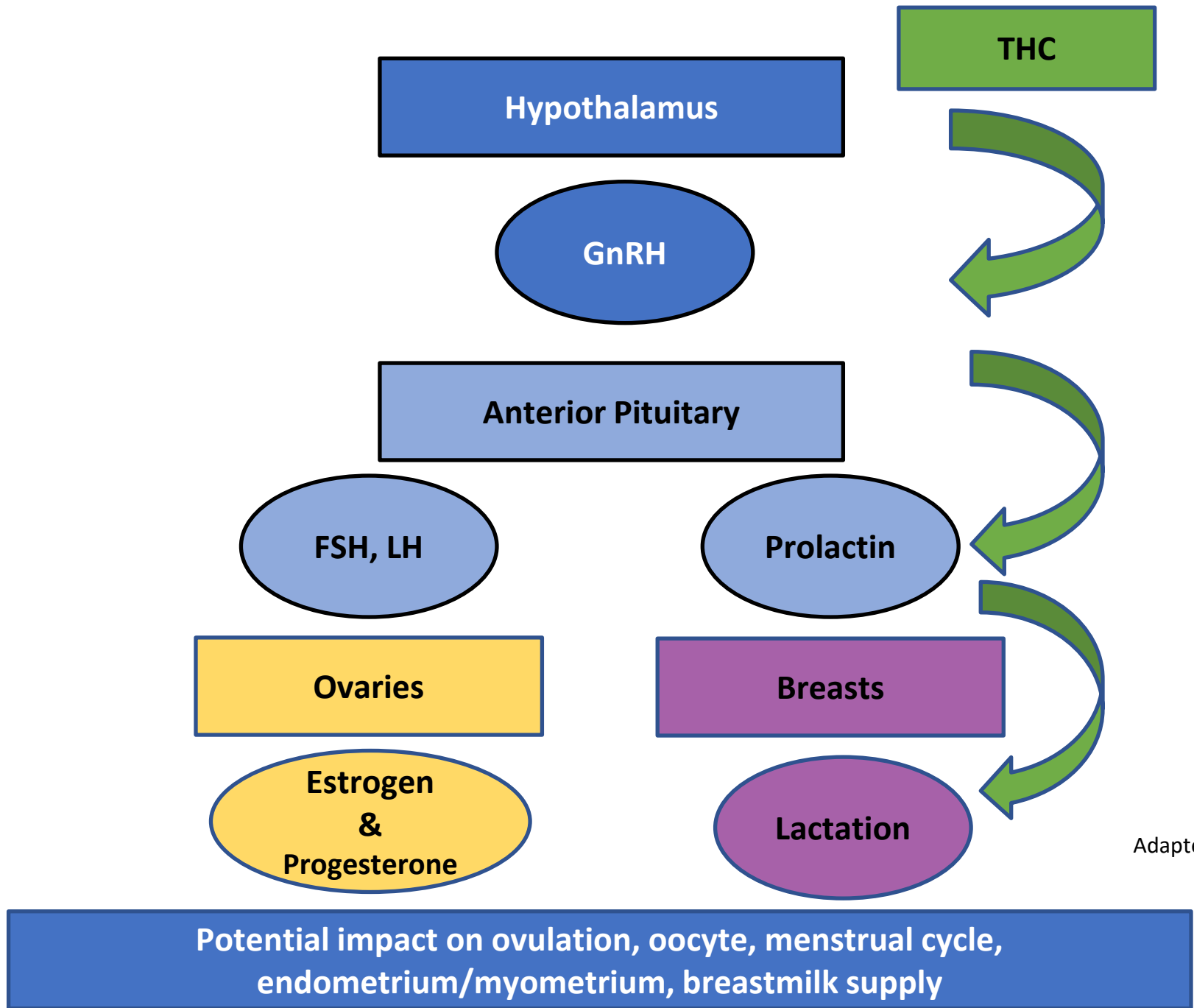
- Emotion-focused Theories
 - Self-medication theory: addictive behaviors are used to reduce elevations in negative affect
 - Reward-sensitivity theory: hypersensitivity to addictive behavior-induced positive mood during specific phases of menstrual cycle
- In combination with mood fluctuations:
 - Possibility that excessive addictive behaviors during specific menstrual cycle phases (premenstrual and menstrual), may reduce negative affect and/or enhance positive mood, during phases where there is heightened sensitivity to rewards (follicular-**OVULATION**-luteal), leading to higher likelihood of addiction (Joyce et al, 2021)

Addiction and The Reproductive Cycle

- Generally found that addictive disorder susceptibility is greater among those with PMDD and PMS (Joyce et al, 2021)
 - i.e. Strong evidence that nicotine use is increased during premenstrual and menstrual phases (consistent with self medication theory)
 - Inconclusive with cannabis: Two studies found increased cannabis use premenstrually, one study found no difference in use throughout cycle
- Females may also initiate drug use as a coping strategy to deal with anxiety, low self-esteem, depression, isolation
- In general, females tend to experience faster onset from initial use to onset of dependence and first admission to treatment
 - Especially noted with opioids, cannabis and alcohol

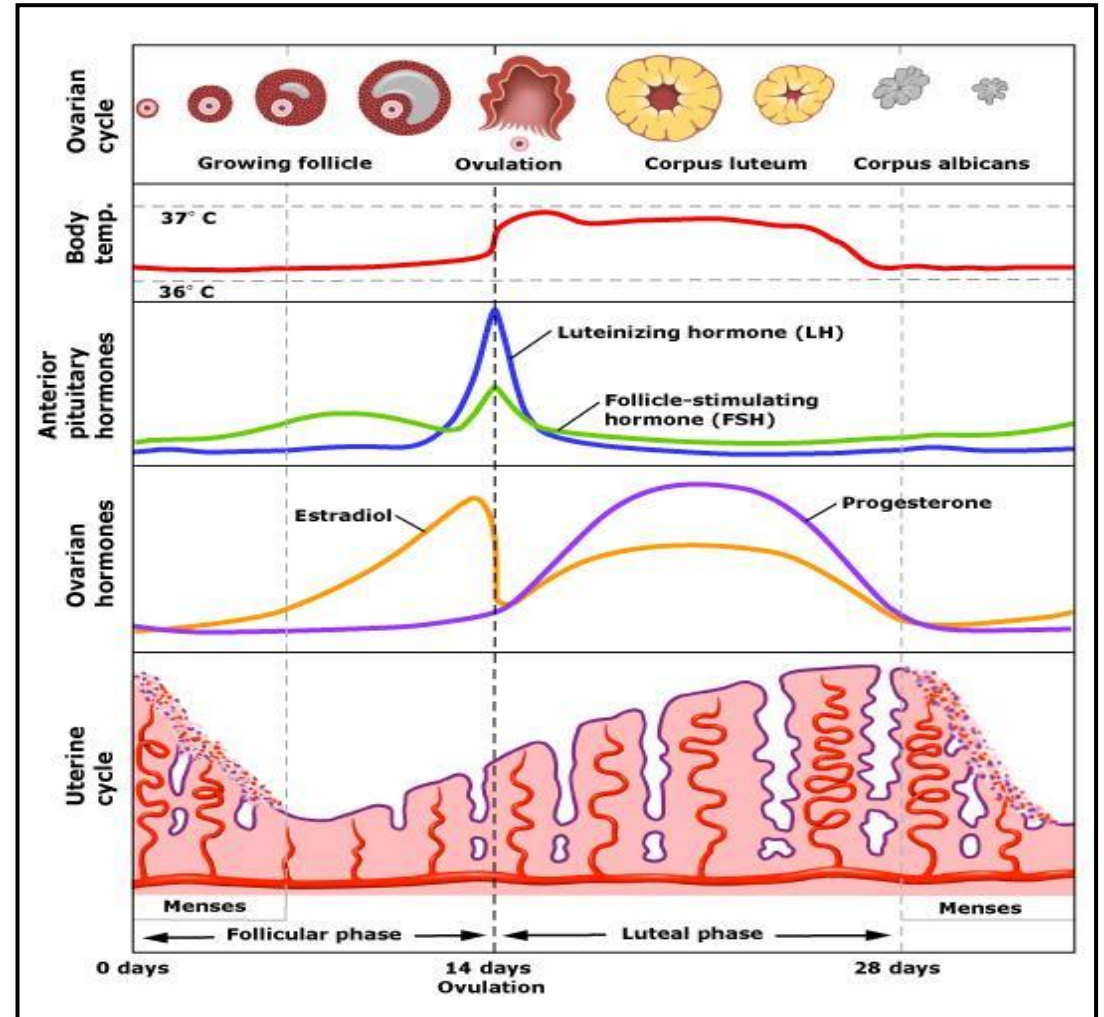
Endocannabinoid System (ECS) and Female Reproductive System

- ECS found in many cells where both endogenous and exogenous cannabinoids are associated with regulation of female reproductive events
(Walker, Holloway, Raha, 2019)
- ECS has been localized to areas in hypothalamus responsible for producing GnRH
 - Chronic exposure to cannabinoids has been shown to delay sexual maturation, disrupt menstrual cycles, depress ovarian follicular maturation, reduce LH and sex hormones
- THC effect on hypothalamic-pituitary ovarian (HPO) axis
 - THC may suppress release of GnRH and thyrotropin-releasing hormone from hypothalamus
 - Trickle down effect; prevents release of gonadotropins (FSH & LH) and prolactin from anterior pituitary (Brents, 2016)



Adapted from Brents (2016), Walker et al, (2019)

- Females who use cannabis have slightly elevated rate of anovulatory cycles
 - May be at higher risk for decreased fertility
 - Possible association with prolonged follicular phases (+3.5 days) leading to delayed ovulation; other studies note shorter luteal phase (11 days) (Brents, 2016)
 - Luteal phase defect may affect ability of lining to properly thicken, making it more difficult to become or remain pregnant
- *Tobacco smoking also associated with shorter luteal phase



Mom Talk



- Many women get moody with their periods in response to changing hormones
 - It might seem like a good idea to use cannabis or other substances to improve our mood or help us not feel bad, but in the long-term, it could lead to addictive behaviors
- Cannabis can change our menstrual cycles; especially when, or if, we ovulate
 - Our hormones rely on each other to work in a specific order
 - Using cannabis can interrupt that order and:
 - Ovulation might not happen
 - Fertilization and implantation might not happen
 - The lining of the uterus might not thicken enough to support a pregnancy
- Chronic substance use/abuse can also lead to fewer or absent periods leading people to believe they can't get pregnant....
 - This is a myth and may be a contributing factor to the higher (80%) unintended pregnancy rate we often see among females with SUDs

THC and Male Reproductive system

- Cannabis use is associated with
 - Reduced sperm count & concentration
 - Changes in sperm motility and morphology
 - Banana shaped, amorphous
 - Increased detachment of heads from tails
 - No evidence to suggest that cannabis changes genetic material
 - Reduced sperm viability
 - Decrease may be dose dependent
 - Hormone changes
 - May reduce testosterone levels but research is inconclusive
 - Studies in animals have linked cannabis to testicular atrophy
 - Reduction in libido and sexual performance
 - Possible paradoxical effect: short-term libido enhanced but ability to achieve erection may be diminished (Payne et al, 2019)

Mom (and Partner) Talk



- When males use cannabis there is a risk that their sperm might look different and not move as efficiently
- Total sperm counts can also go down
- Cannabis might get the party started....but the event might not be everything you hoped for 😊

Cannabis Use and Pregnancy

Looking at the Science

- Overall lack of high-quality research, lack of ability to do research because of federal regulations, ethical considerations
 - Difficult to find “definite” answers in the research
 - Amount of product often not quantified in studies
 - i.e. heavy use, daily, episodic, chronic
 - Different strains, potencies, routes of ingestion
 - Lack of randomized controlled trials; small sample sizes; most are self-report
- Increased risk of polysubstance use
 - Women who use cannabis in pregnancy, are more likely to use alcohol, tobacco, illicit drugs (Badowski & Smith, 2020)
 - Many studies do not exclude or control for polysubstance use; many are confounded by concurrent tobacco use; therefore, results are mixed (Metz & Borgelt, 2018)



The Physiological Concerns

Endocannabinoid System (ECS)

- THC may slow progress of zygote through fallopian tube
- THC may alter normal implantation, development and growth of placenta (Brents,2016; Thompson, DeJong, Lo, 2019; Ryan, Ammeraman, O'Connor, 2018)
 - Impairs cytotrophoblast and syncytiotrophoblast cellular remodeling
 - Increased placental resistance and decreased placental circulation
 - Affects placental transport functions (Ryan, Ammeraman, O'Connor, 2018)
 - Increased resistance and pulsatility index of uterine artery>impacts uterine blood flow
- ECS detectable in early embryonic development (by 5-14 weeks gestation)
 - Plays essential role in early stages of neuronal development and cell survival
 - THC, exogenous cannabinoid, a partial agonist, can act on endogenous cannabinoid receptors and “hijack” normal ECS during early fetal brain development
 - Can result in long-term neurobehavioral consequences; particularly impactful on areas of brain that regulate emotions, cognition, memory (Ryan et al, 2018, ACOG, 2021)

Endocannabinoid System (ECS)

- Cannabis can decrease fetal folic acid uptake (Friedrich et al, 2016)
 - Folic acid is essential for placental and embryo development; decreased amounts associated with neural tube defects, lower birth weight
- Some studies have proposed that cannabis may interfere with regulation of glucose and insulin acting as a teratogen associated with fetal growth (Marchand et al, 2022)
- Epigenetic mechanisms
 - Possible explanation for consequences of prenatal cannabis exposure on fetal neurodevelopment
 - May explain why prenatally exposed adolescents/adults demonstrate increased vulnerability to later addiction and psychiatric disorders
 - Independent predictor of marijuana use by age 14ys (ACOG, 2021)

Prenatal Cannabis Exposure

- Cannabis rapidly crosses the placenta and passes into fetal blood
 - THC highly lipophilic & distributed rapidly to the brain and fat of fetus
 - The amount of THC in fetal blood can vary depending on route of use; research varies
 - Maternal inhaled and IV use can result in a 3-fold increase in fetal concentration compared to oral use (Foeller & Lyell, 2017)
 - Oral: THC absorption >90% but bioavailability is <20% secondary to first-pass hepatic metabolism
 - Vaginal suppositories available; similar to oral mucus membrane absorption (Thompson, DeJong, Lo, 2019)
 - Overall, concentrations of THC in fetal blood are ~ 1/3 to 1/10 of maternal concentrations (Ryan, Ammeraman, O'Connor, 2018)

*Note: When cannabis is smoked, blood carbon monoxide concentrations in pregnant persons are 5 x higher than those when tobacco is smoked

Cannabis and Pregnancy Outcomes

- Increased risk of stillbirth
 - 2017 Study: (500 women, 2 urban University obstetric clinics, tobacco and cannabis users)
 - Cannabis only group 12x higher odds of stillbirth or miscarriage (Coleman-Cowger et. al, 2018)
 - Stillbirth Collaborative Research Network: (663 stillbirth deliveries, 5 clinical sites, >2y (2006-2008))
 - THC significantly associated with stillbirth (Stickrath, 2019; Varner et al, 2014)
- Fetal growth restriction and LBW (<2500g)
 - Range in 84-256g (3-9 ounces) difference noted in several studies
 - Frequency of cannabis use may impact weight difference
 - Association with smaller head circumference
 - Especially with co-use of cannabis/tobacco (Coleman-Cowger et al, 2018)
 - Results more pronounced among women who used more cannabis, particularly in T1 & T2 (ACOG, 2021)

Cannabis and Pregnancy

- Preterm labor and delivery
 - Most studies note association with concomitant tobacco/cannabis use
 - Some indication that if cannabis is used at least weekly, may be increased risk (ACOG, 2021)
 - 2022 Systematic review and meta-analysis did show significant increase in risk of preterm delivery (Marchand et al, 2022)
- Increased risk of dysfunctional labor
 - Inconclusive
- No reported association with chromosomal or fetal anomalies (ACOG, 2021)
- Increased risk of neonatal intensive care unit admissions (Marchand et al, 2022;Thompson, DeJong, Lo, 2019)
 - No significant difference in infant Apgar scores at 1 & 5 minutes (Marchand et al, 2022)
 - Neonatal Abstinence Syndrome: mixed
 - Possible increased tremors, irritability, sleep disturbance, uncoordinated suck-swallow reflex, and increased startle response after birth (Metz & Borgelt, 2018)
 - No well-defined approach to clinical withdrawal symptoms; environmental and non-pharmacological interventions used
 - Newborn testing: umbilical cord homogenate, meconium, serum, or urine
 - The umbilical cord homogenate can be used after the second trimester, easier to collect, but less sensitive, than meconium (Thompson, DeJong, Lo, 2019)

Cannabis and Newborn/Childhood Outcomes

- Neurodevelopmental effects
 - Disruption of brain development affecting memory, learning, behavior (hyperactivity, poor cognitive function, impulsivity)
 - Generally associated with decreased attention span and behavioral problems
- Three longitudinal cohort studies have provided some of the most comprehensive data to date and have followed mothers during pregnancy and offspring into childhood (Badowski & Smith, 2020; Metz & Borgelt, 2018; Ryan et al, 2018

Thompson, DeJong, Lo, 2019)

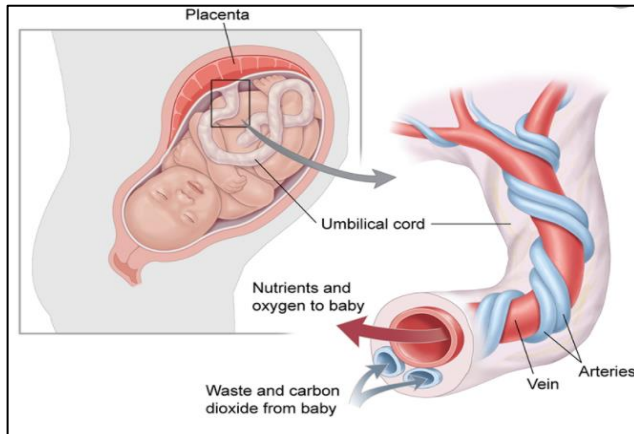
| | Ottawa Prenatal Prospective Study (OPPS) 1978 | Maternal Health Practices and Child Development Study (MHPCD) 1982 | Generation R Study 2002-2006 |
|---|---|--|---|
| Population (all with polysubstance use) | Low-risk, white, middle-class families (689 women) | High-risk, low SES, white and predominantly African-American women (1360 women) | Netherlands, higher SES, 7452 enrolled multiethnic pregnant women + ~2000 subgroup |
| Pregnancy | No independent r/shp with PTB, miscarriage | No independent r/shp with PTB, miscarriage | Reduced fetal growth beginning in T2 and overall lower birth weight |
| | Decrease in gestational age by 0.8 weeks with heavy use | | |
| Childhood Effects | <4y: no differences noted 4-8y: Lower scores in verbal reasoning & memory tasks, reading tasks; Greater impulsivity and hyperactivity 9-16y: difficulty with impulse control, visual problem-solving, attention, analytic skills Early adulthood: deficits in executive functioning; higher rates of depressive symptoms; higher rates of marijuana & tobacco use | 9mos-3y: impaired mental development 3-6y: deficits in executive function, negative sleep continuity, poorer memory and verbal reasoning, impaired sustained attention, increased impulsivity and hyperactivity 9-12y: increased impulsivity and hyperactivity, decreased attention 13-16y: lower reading, math, & spelling scores (esp with T1, T3 exposures) Early adulthood: higher rates of depressive symptoms; higher rates of marijuana & tobacco use | 18mos: female infants found to have more aggression and inattention 30-36mos: no difference in nonverbal cognition or vocabulary development |
| | Does appear that neurocognitive effects can persist into young adulthood, but effects can vary at different stages of child's life | → | |

*Adapted from multiple authors; some discrepancies found between reporting authors

Mom Talk



- During pregnancy, cannabis passes through the placenta from mom to the baby
 - It can change how effectively the placenta delivers oxygen and nutrients to the baby
 - Cannabis likes to be stored in high fat areas like the baby's brain
 - Very early in pregnancy, cannabis can interfere with normal brain development and cause changes to future emotions, learning abilities, and memory
 - These changes may be seen in newborns and throughout childhood
 - Teens may even be more likely to start using cannabis if they were exposed to it during pregnancy
 - When cannabis is used during pregnancy, it might cause an increased risk of stillbirth, preterm delivery, or having a smaller baby. Your baby might have a higher chance of needing to spend time in the NICU too



(Illustration) Babycenter, 2021

The Recommendation

- Cannabis is neither regulated nor evaluated by U.S. FDA for use in pregnancy or lactation
 - No approved indications, contraindications, safety precautions, or recommendations regarding use during pregnancy or lactation
 - No standardized formulations, dosages, or delivery systems
 - Use of medical marijuana should be discouraged during perinatal period (ACOG, 2021)

ACOG Committee Opinion 722

(2017, Reaffirmed October 2021)

- Women who are pregnant or contemplating pregnancy should be encouraged to to discontinue marijuana use
- No evidence that marijuana helps morning sickness
- Insufficient data to evaluate the effects of marijuana use on infants during lactation and breastfeeding, and in the absence of such data, marijuana use is discouraged

Marijuana AND Pregnancy

If you use marijuana during pregnancy, you may be putting your health and your fetus's health at risk.

| Possible Effects on Your Fetus | Possible Effects on You |
|--|--|
| Disruption of brain development before birth | Permanent lung injury from smoking marijuana |
| Smaller size at birth Higher risk of stillbirth | Dizziness, putting you at risk of falls |
| Higher chance of being born too early, especially when a woman uses both marijuana and cigarettes during pregnancy | Impaired judgment, putting you at risk of injury |
| Harm from secondhand marijuana smoke Behavioral problems in childhood and trouble paying attention in school | Lower levels of oxygen in the body, which can lead to breathing problems |

DID YOU KNOW?

- ▶ Medical marijuana is not safer than recreational marijuana. Recreational and medical marijuana may be legal in some states, but both are illegal under federal law.
- ▶ There's no evidence that marijuana helps morning sickness (ask your obstetrician-gynecologist [ob-gyn] about safer treatments).
- ▶ You also should avoid marijuana before pregnancy and while breastfeeding.

Marijuana and pregnancy don't mix. If you're pregnant or thinking about getting pregnant, don't use marijuana.

If you need help quitting marijuana, talk with your ob-gyn or other health care professional.

Research is limited on the harms of marijuana use for a pregnant woman and her fetus. Because all of the possible harms are not fully known, the American College of Obstetricians and Gynecologists (ACOG) recommends that women who are pregnant, planning to get pregnant, or breastfeeding not use marijuana. ACOG believes women who have a marijuana use problem should receive medical care and counseling services to help them quit.

ACOG
The American College of Obstetricians and Gynecologists
400 12th Street NW
Washington, DC 20004-2188
www.acog.org

FIGURE 12. This information is designed as an educational call to patients and does not constitute information and opinions related to women's health. It is not intended as a statement of the standard of care, nor does it represent all possible treatments or methods of care. It is not a substitute for a treating clinician's independent professional judgment. For ACOG's complete disclaimer, visit www.acog.org/AboutACOG/Disclaimer. Copyright 2018 by the American College of Obstetricians and Gynecologists. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, printed on the internet, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission from the publisher.

Other Professional Guidelines

- American Academy of Pediatrics (Ryan et al, 2018)
 - Women...”need to be informed about the lack of definitive research and counseled about the current concerns regarding potential adverse effects of THC” ...
 - Present data are insufficient to assess the effects of exposure of infants to maternal marijuana use during breastfeeding. Maternal marijuana use while breastfeeding is discouraged
 - Pregnant or breastfeeding women should be cautioned about infant exposure to smoke from marijuana in the environment, given emerging data on the effects of passive marijuana smoke
- Centers for Disease Control and Prevention (2021)
 - “Using marijuana while breastfeeding can allow harmful chemicals to pass from the mother to the infant through breast milk or secondhand smoke exposure. To limit potential risk to the infant, breastfeeding mothers should be advised not to use marijuana or products containing cannabidiol (CBD) in any form while breastfeeding”

Don't Forget Postpartum!

- Even if abstinence has been achieved and maintained during pregnancy, return to substance use is common within the first 6-12 months postpartum
 - Childcare demands are high, sleep is lacking, support may be minimal
- Mental health concerns are also prominent here
 - 50-80% of people will experience Baby Blues within 1-2 weeks after birth
 - At least 1 in 7 pregnant persons will experience perinatal depression
 - 20% of those with Baby Blues will develop postpartum depression (PPD)

Don't Forget Postpartum!

- Growing evidence notes co-occurrence of cannabis use and depression
 - Some point to cannabis use leading to depression, others note inverse relationship (Feingold & Weinstein, 2021)
 - Depression is a consistent risk factor for marijuana use disorder symptoms (Dierker et al., 2018)
- Very few studies looking at cannabis use and PPD
 - Data analyzed from Pregnancy Risk Assessment Monitoring System (2009-2011) noted 9-14% of postpartum cannabis users experienced PPD (Ko et al., 2018)
 - Preconception cannabis use was associated with an increased risk of postpartum depression in an Australian longitudinal cohort (Cao et al, 2021)
- Please screen for PPD AND cannabis use in postpartum period!

Cannabis and Breastfeeding

Cannabis and Breastfeeding

- THC is 99% protein bound, lipid soluble, has low molecular weight
 - Facilitates transfer into fatty breastmilk and lipid-filled fetal brain
 - Theoretically because infant's brain is continuing to develop, THC in breastmilk could affect ongoing brain development
(Thompson, DeJong, Lo, 2019)
- Concentration of cannabis in breast milk likely related to
 - Maternal dose
 - Frequency of dosing
 - How much stays trapped in the breast milk fat
- THC inhibits secretion of prolactin (Remember the HPO axis!)
 - Potentially impacts milk production

Cannabis and Breastfeeding

- Fat storage and slow release over time potentially continues newborn exposure even after stopping use;
 - One study noted an 8-fold accumulation of THC in breast milk in comparison with plasma levels; metabolites found in neonate's feces (Metz & Borgelt, 2018; Ordean & Kim, 2019)
 - Overall, estimated that infant gets an average RID of 2.5% of maternal THC (smoking) dose through breastmilk (Martin, 2020)
 - Believed that highest concentration of THC in breastmilk occurs 1 hour after post-inhalation (Martin, 2020; Thompson, Dejong, Lo, 2019))
 - Duration of detection in milk has ranged from 6 days to > 6 weeks after usage (LactMed, 2021)
- No current data available regarding transfer of cannabis into breastmilk through maternal edible cannabis use

Cannabis and Breastfeeding

- Some concern regarding motor development in newborn; noted to be slightly reduced at 1 year of age (possibly dose dependent)
 - One study (68 moms), especially noted when indicated use was smoking on more than 15 days/month during first month of lactation (LactMed, 2021)
 - Another study found no differences in motor or mental skills (Metz & Borgelt, 2018)
- A study done in CO noted that both prenatal and postpartum cannabis use was associated with a shorter duration of breastfeeding
- A large study found that postpartum women who reported using cannabis were more likely to
 - Also smoke cigarettes
 - Experience postpartum depressive symptoms and
 - Breastfeed less than 8 weeks (LactMed, 2021)

Cannabis and Breastfeeding Recommendations

- American Academy of Pediatrics & The American College of Obstetricians and Gynecologists recommend against cannabis use during breastfeeding
- “If a mother continues to use marijuana or CBD while breastfeeding, she should be encouraged to significantly reduce her intake” (CDC, 2021)
- “To minimize secondhand smoke exposure [to THC], marijuana products should not be smoked around babies or children” (CDC, 2021; Metz & Borgelt, 2018)
 - Recent studies have found strong associations between reports of having someone in the home (i.e. parent, relative, caretaker) who used marijuana and the child having detectable levels of THC (CDC, 2021)

Mom Talk



- We don't recommend using cannabis while you breastfeed because it can transfer into your breastmilk
 - The amount that transfers may vary depending on the dose and how often it is being used
 - We believe the highest amount of cannabis [THC] is found in breastmilk about 1 hour after smoking
 - If you cannot quit using cannabis when you are breastfeeding, try to decrease the baby's risk of exposure to THC in breast milk by not breastfeeding for at least 1 hour after smoking cannabis (Adapted from Ordean & Kim, 2019)
- Cannabis can interfere with the hormone prolactin and decrease your milk supply
 - Prolactin is a hormone important for ongoing milk production
 - If your milk supply drops it could affect your baby's nutrition
- It is important to remember that if you smoke cannabis while you are breastfeeding, or if others are smoking around you, your baby can be exposed to second-hand cannabis smoke too!



Screening for Cannabis Use During the Perinatal Period

General Screening Information

- AAP, ACOG, ASAM recommend that all people considering pregnancy, pregnant people throughout their pregnancy, and those attending predelivery pediatric visits be screened routinely for alcohol and other drug use, including cannabis, by using a validated screening questionnaire (Ryan et al, 2018)
 - Remember, verbal screening can be equally or even more efficacious
- The goal of screening is to provide counseling about potential adverse effects, to both mother and fetus, and referral for services... not to punish or prosecute
 - However, pregnant people should also be informed of the potential ramifications of a positive screen result, including any mandatory reporting requirements in their state

Screening

- Current study with obstetric providers found that 48% did not follow up on disclosure of cannabis use or offer counseling
 - If counseling was offered, most did not include education on risks or outcomes related to cannabis use in pregnancy or on neonatal health
 - Instead only focused on legal and child protection consequences of detection at delivery (Coleman-Cowger et al, 2018; Metz & Borgelt, 2018; Ryan et al., 2018)
 - Pregnant persons often perceive this as a threat to report to CPS (Woodruff, Scott, Roberts, 2021)
- Seeking obstetric–gynecologic care should not expose a woman to criminal or civil penalties for marijuana use, such as incarceration, involuntary commitment, loss of custody of her children, or loss of housing (ACOG, 2021)



Reality Check: Legalization of cannabis for recreational purposes does not resolve barriers that CPS reporting requirements impose on patient-provider discussion of cannabis use during pregnancy (Woodruff, Scott, Roberts, 2021)

Remember WIC and the IBCLCs!

- International Board Certified Lactation Consultants & WIC staff / WIC Peer Breastfeeding Counselors
 - Both are underutilized partners in management of maternal cannabis use and education
 - Mothers may be more likely to disclose cannabis use due to trust and rapport developed while counseling on lactation (Skelton et al, 2020)
 - 40% of women do not attend a single postpartum visit but they often continue working with their WIC staff
- Screening can be done in multiple settings with different providers

Reasons for Cannabis Use

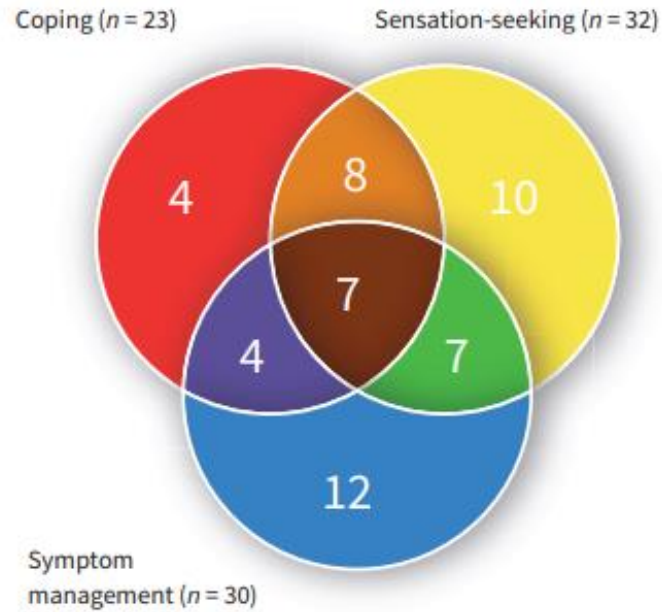
Screening for use should include the “**WHY**” behind the use!

Reasons for Perinatal Cannabis Use

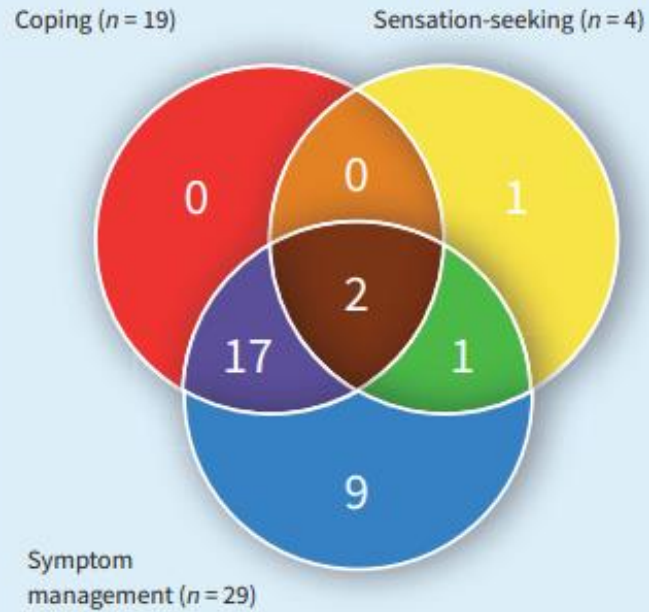
- Study done in Canada asked pregnant or breastfeeding people about reasons for use
- Three themes emerged:
 - **Sensation-Seeking (recreational)**
 - **Symptom Management (alleviate a condition)**
 - **Coping (alleviate unpleasant aspects of life)**
 - **Examples:**
 - Nausea and vomiting of pregnancy*
 - Weight gain (increase appetite) during pregnancy
 - Depression/Stress/Anxiety
 - General discomforts of pregnancy
 - Fun
 - Insomnia/sleep difficulty
 - Manage pre-existing conditions (mental health, pain) (Vanstone et al, 2021)

*While cannabis products have been shown to help alleviate severe or intractable nausea in patients with cancer, currently no data to support efficacy of cannabis for N/V of pregnancy (Metz & Borgelt, 2018)

Prepregnancy
 $n = 52$



Pregnancy
 $n = 52$



Lactation
 $n = 33$

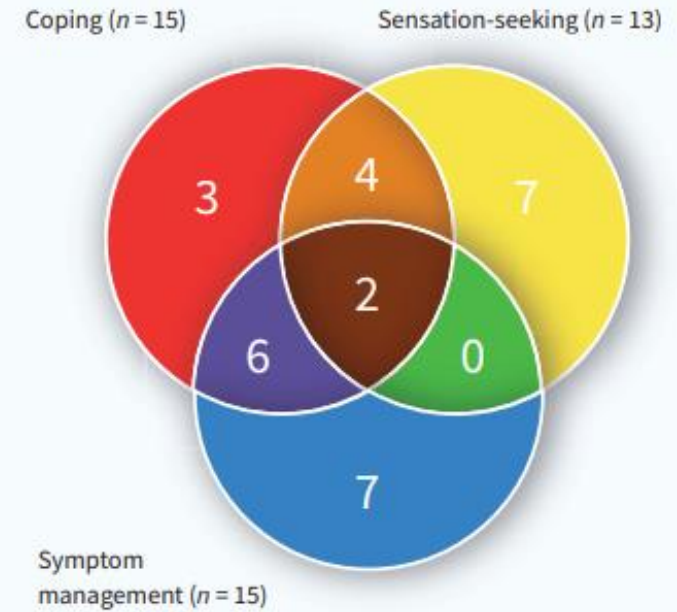


Figure 1: Reasons for using cannabis in each stage of reproduction, and overlap in reasons for use. Each Venn diagram depicts the number of participants who described their use as pertaining to a specific category at the described stage of reproduction. Each of the 3 categories is represented by a primary-coloured circle. The overlapping areas represent the number of participants who described their use as pertaining to multiple categories.

Reasons for Perinatal Cannabis Use

- Surveys of people in the United States who used cannabis during pregnancy indicate similar results
 - Used to relieve stress, anxiety, chronic pain, nausea and vomiting
(Ko et al, 2017)
- Recent presentation by Dr. Thomas Hale R.Ph., PhD (Transfer of Opioids, Bipolar Meds, and Cannabis into Human Milk, Medela Education, February, 2022)
 - Among breastfeeding mothers
 - 80% used cannabis for anxiety/stress
 - 64% for depression
 - 49% for GI disease/symptoms
 - 41% for chronic pain
 - 31% for PTSD

Reasons for Perinatal Cannabis Use

- If we try to learn the reasons WHY pregnant and breastfeeding people are using cannabis, we can take the opportunity to discuss safer alternatives to treat their symptoms
 - Encourage perinatal discontinuation of cannabis use for medicinal purposes in favor of an alternative therapy for which there are better pregnancy-specific safety data and medications with higher safety of use
- Encourage mothers to disclose use AND ASK providers how to address their concerning symptoms

Potential Perinatal Impacts of Legalization of Cannabis Use

Potential Perinatal Impacts of Legalization

- Many states have legalized recreational or medicinal cannabis, but have not fully decriminalized possession or use of cannabis, creating social and legal repercussions for pregnant and postpartum people
 - Additional burden on child protection agencies
 - Disciplinary or legal interventions may have adverse psychosocial effects on a new families (Barbosa-Leiker et al., 2020)
 - Strained patient/provider interactions
 - Increased self-reported, and biologically detected, prevalence of cannabis use in pregnant women was observed after legalization in CO
 - BUT: Poor agreement between self-reported measure of cannabis use and biological sampling: prevalence of use by urine or meconium testing increased from 7% prior to legalization to 26% after legalization (Gnofam et al, 2020)
 - Same trend not seen with alcohol and other drugs
 - Is unconscious bias a concern?

Potential Perinatal Impacts of Legalization

- Still a great deal of stigma surrounding pregnant and postpartum people with all SUDs, including cannabis use, and disclosure
 - Stigma may lead pregnant and postpartum persons to seek medical and scientific advice from non-medical sources; may decrease disclosure and timely access to treatment
- Health
 - Overall, women in states with legalized recreational cannabis more likely to use during preconception, prenatal, and postpartum periods compared to women in states where it is illegal (Skelton, Hecht, Benjamin-Neelon, 2020)

Potential Perinatal Impacts of Legalization

- Needed Action
 - Imperative need to increase accurate public health education
 - Consider PSAs, placing perinatal specific warning labels on legally sold cannabis products similar to those used with alcohol (Taylor, et al., 2021)
 - Examine and improve social media messages
 - Screening is more impactful if we INCLUDE education
 - If providers fail to educate on potential risks, perceived safety of use may also persist
 - Recent study found that pregnant and postpartum people often received mixed messages from providers
 - Same study found that pregnant and postpartum persons want more reliable information and were frustrated about the lack of research and consistent information available to them (Barbosa-Leiker et al., 2020)
 - Is provider “Information Privilege” contributing to the education we provide?

Potential Perinatal Impacts of Legalization

- Other Things to Consider

- Recent study found that 63% of participants who lived in state with mixed cannabis policies reported that they would be more likely to use cannabis to relieve labor pain if it were legal! (Chernek & Skelton, 2022)

- Start labor and delivery pain management conversations prenatally

- Increase in pediatric exposure to cannabis appears to be associated with additional availability of cannabis-containing products and increase in cannabis users in U.S

- Ingestion and second-hand inhalation

- 150% increase in regional poison control center cases and pediatric hospitalizations after recreational cannabis legalized (Skelton, Hecht, Benjamin-Neelon, 2020)

*Not inferring this is only related to perinatal use but potential implication for entire family

- Postpartum education should include information about second-hand exposure

In summary:

The research regarding perinatal use of cannabis is still emerging, but we are finding pockets of consistent concerns.

The current message and collective recommendation is that people should avoid cannabis use during pregnancy and while breastfeeding.

Questions