DOUGLAS COUNTY HEALTH DEPARTMENT COLORADO

Cannabis & Pregnancy - Brief

- Cannabis use in the United States is rising quickly, especially among adults of reproductive age. (1)
- Cannabis use in pregnancy is also rising significantly among pregnant women during the 1st trimester between ages 18 to 25. (2)
- This is different than what is seen with patterns of alcohol and tobacco use in pregnancy, which have decreased over time. (3)
- Legalization of cannabis in Colorado has been associated with increased use in pregnancy. (4)
- Among reproductive-aged women in the United States, the belief that cannabis has no important risks has increased 3-fold from 2005 to 2015. Cannabis use before pregnancy seems to have increased its acceptability during pregnancy. Cannabis legalization has likely influenced these attitudes and beliefs. Despite growing evidence demonstrating adverse outcomes associated with cannabis in pregnancy, many pregnant women continue its use. Cannabis use remains common and is often thought of as safe among postpartum women. (5, 6, 7, 8)
- There is significant uncertainty regarding the safety of cannabis use in pregnancy. This is due to the fact that majority of published studies have been limited by retrospective or observational study designs, a dependence on patient self-reporting, significant confounding issues (e.g. polysubstance use), small sample sizes, a lack of biological drug testing, inconsistent dose information, and a focus on the effects of smoking cannabis rather than other current forms of cannabis use. (9)
- As the potency of cannabis has increased greatly in recent years, there are limited data regarding the dose of THC delivered to users in relation to the concentration of THC in currently consumed cannabis products, the frequency of cannabis use, and THC concentrations in maternal blood. (10, 11, 12, 13, 14, 15, 16)
- Medical societies recommend stopping cannabis use in women who are contemplating pregnancy or are currently pregnant. However, health care providers may not counsel patients on this issue. This may be in part due to uncertainties provider may have regarding the risks associated with cannabis use in pregnancy. Some medical societies recommend universal screening for substance use in pregnancy through validated questionnaires. (17, 18)
- The most common reasons for cannabis use during pregnancy include treatment of hyperemesis gravidarum, anxiety, insomnia, nausea, and chronic pain. (19, 20)
- There are currently no established evidence-based interventions for cannabis use in pregnancy. (21)
- Current evidence does not reliably demonstrate any pregnancy-related adverse maternal outcomes. (22)
- There is increasing evidence of THC-associated adverse effects on fetal and neonatal development. These include fetal brain maturation which could affect neurocognitive and neuropsychiatric functions. Evidence suggests that prenatal cannabis exposure is associated with babies who are small for gestational age, defined as a birth weight less than the 10th percentile. Many studies show that prenatal cannabis use may increase the risk of preterm birth, meaning delivery before 37 weeks. (23, 24)
- Evidence does not currently demonstrate an association of maternal cannabis use with an increased risk of fetal anomalies. (25)
- There is a lack of knowledge regarding potential harms that could arise from postnatal infant exposure to cannabis through breastfeeding. THC concentrations may be up to 8 times higher in breast milk compared to plasma, but there is little known about the developmental impact of cannabis exposure through breastfeeding. (26, 27)

Sources:

1. Center for Behavioral Health Statistics and Quality. 2019 National Survey on Drug Use and Health: Detailed Tables. Substance Abuse and Mental Health Services Administration. September 11, 2020. Available at: https://www.samhsa.gov/data/report/
2. Volkow ND, Han B, Compton WM, et al. Self-reported medical and nonmedical cannabis use among pregnant women in the United States. JAMA. 2019;322:167–169.

3. Agrawal A, Rogers CE, Lessov-Schlaggar CN, et al. Alcohol, cigarette, and cannabis use between 2002 and 2016 in pregnant women from a nationally representative sample. JAMA Pediatr. 2019;173:95–96.
4. Gnofam M, Allshouse AA, Stickrath EH, et al. Impact of marijuana legalization on prevalence of maternal marijuana use and perinatal outcomes. Am J Perinatol. 2020;37:59–65.
5. Jarlenski M, Koma JW, Zank J, et al. Trends in perception of risk of regular marijuana use among US pregnant and nonpregnant reproductive-aged women. Am J Obstet Gynecol. 2017;217:705–707.
6. Ko JY, Farr SL, Tong VT, et al. Prevalence and patterns of marijuana use among pregnant and nonpregnant women of reproductive age. Am J Obstet Gynecol. 2015;213:201.e1–201.e10.
7. Mark K, Gryczynski J, Axenfeld E, et al. Pregnant women's current and intended cannabis use in relation to their views toward legalization and knowledge of potential harm. J Addict Med. 2017;11:211–216.
8. Skelton KR, Hecht AA, Benjamin-Neelon SE. Recreational cannabis legalization in the US and maternal use during the preconception, prenatal, and postpartum periods. Int J Environ Res Public Health. 2020;17:909.
9. Lo JO, Hedges JC, Girardi G. Impact of cannabinoids on pregnancy, reproductive health, and offspring outcomes. Am J Obstet Gynecol. 2022;227:571–581.
10. Parikh N, Kramer WG, Khurana V, et al. Bioavailability study of dronabinol oral solution versus dronabinol capsules in healthy volunteers. Clin Pharmacol. 2016;8:155–162.
11. Parikh N, Kramer WG, Khurana V, et al. Bioavailability study of dronabinol oral solution versus dronabinol capsules in healthy volunteers. Clin Pharmacol. 2016;8:155–162.
12. Wall ME, Sadler BM, Brine D, et al. Metabolism, disposition, and kinetics of delta-9-tetrahydrocannabinol in men and women. Clin Pharmacol Ther. 1983;34:352–363.
13. Ohlsson A, Lindgren JE, Wahlen A, et al. Plasma delta-9 tetrahydrocannabinol concentrations and clinical effects after oral and intravenous administration and smoking. Clin Pharmacol Ther. 1980;28:409–416.
14. Huestis MA. Human cannabinoid pharmacokinetics. Chem Biodivers. 2007;4:1770–1804.
15. Tortoriello G, Morris CV, Alpar A, et al. Miswiring the brain: Δ9-tetrahydrocannabinol disrupts cortical development by inducing an SCG10/stathmin-2 degradation pathway. EMBO J. 2014;33:668–685.
16. Boskovic R, Klein J, Woodland C, et al. The role of the placenta in variability of fetal exposure to cocaine and cannabinoids: a twin study. Can J Physiol Pharmacol. 2001;79:942–945.
17. Braillon A, Bewley S. Committee Opinion No. 722: Marijuana use during pregnancy and lactation. Obstet Gynecol. 2017;130(4):e205-e209.
18. Bayrampour H, Zahradnik M, Lisonkova S, et al. Women's perspectives about cannabis use during pregnancy and the postpartum period: an integrative review. Prev Med. 2019;119:17–23.
19. Metz TD, Borgelt LM. Marijuana use in pregnancy and while breastfeeding. Obstet Gynecol. 2018;132:1198–1210
20. Vanstone M, Taneja S, Popoola A, et al. Reasons for cannabis use during pregnancy and lactation: a qualitative study. CMAJ. 2021;193:E1906–E1914.
21. Swewnson K., Cannabis for morning sickness: areas for intervention to decrease cannabis consumption during pregnancy. J Cannabis Res. 2023 Jun 17;5(1):22
22. Singh S, Filion KB, Abenhaim HA, et al. Prevalence and outcomes of prenatal recreational cannabis use in high-income countries: a scoping review. BJOG. 2020;127:8–16.
23. Grzeskowiak LE, Grieger JA, Andraweera P, et al. The deleterious effects of cannabis during pregnancy on neonatal outcomes. Med J Aust. 2020;212:519–524
24. Dodge P, Nadolski K, et al. The impact of timing of in utero marijuana exposure on fetal growth. Front Pediatr 2023 May 16;11:1103749
25. Kharbanda EO, Vazquez-Benitez G, Kunin-Batson A, et al. Birth and early developmental screening outcomes associated with cannabis exposure during pregnancy. J Perinatol. 2020;40:473–480.
26. Bertrand KA, Hanan NJ, Honerkamp-Smith G, et al. Marijuana use by breastfeeding mothers and cannabinoid concentrations in breast milk. Pediatrics. 2018;142:e20181076.
27. Crume TL, Juhl AL, Brooks-Russell A, et 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.