Prenatal cannabis use has been the topic of much clinical, public health, and societal debate in recent years. Growing evidence supports the notion that in utero cannabis exposure is associated with adverse neonatal health outcomes.\(^1,2\) The study by Marchand et al\(^3\) is the latest to contribute to this growing body of evidence. In their systematic review and meta-analysis, Marchand et al\(^3\) examined neonatal outcomes of infants with in utero cannabis exposure compared with infants who were not exposed. Importantly, this is among the largest meta-analyses on this topic to date. Findings demonstrated a significant difference in several adverse neonatal outcomes among infants with in utero cannabis exposure, including higher rates of low birth weight (ie, <2500 g) and small for gestational age (ie, <fifth percentile), lower mean birth weight, preterm delivery (ie, <37 weeks' gestation), higher rate of admission to the neonatal intensive care unit, poorer Apgar scores at 1 minute, and smaller head circumference. There were no significant differences, however, for length at delivery, gestational age at birth, mean Apgar score at 5 minutes, or rate of Apgar scores of less than 7 at 5 minutes.

These findings reflect a growing body of evidence of adverse birth outcomes associated with prenatal cannabis use. A strength of the study by Marchand et al\(^3\) is the number of studies (10) that were published in 2015 or later. This is especially important because the potency of \(\Delta-9\)-tetrahydrocannabinol (THC), the main psychoactive ingredient in cannabis, has tripled in recent decades.\(^4\) Furthermore, state legalization of recreational cannabis and cannabis commercialization have both contributed to the proliferation of novel cannabis products with many modes of administration. Thus, most prior systematic reviews and meta-analyses examining neonatal health outcomes are not reflective of the products and chemical variability of contemporary cannabis. These changes consequently reduce the overall utility and applicability of prior evidence.

The notion that prenatal cannabis use is without consequence is a false narrative perpetuated by a combination of outdated evidence and recent changes to state-level cannabis policies. States that have legalized and commercialized cannabis must therefore work to retroactively prioritize protection of neonatal health. As such, we urge voters and policy makers to fully weigh the potential benefits of recreational cannabis legalization (in states that have yet to legalize) against the growing body of evidence on neonatal health outcomes. Ultimately, it is better to put safeguards to protect infant and child health outcomes in place prior to cannabis legalization rather than after the fact, which most states with cannabis legalization and commercialization have failed to accomplish.

A clear opportunity for intervention lies with prenatal care clinicians and other women’s health care professionals. Clinician-directed communication about cannabis has been criticized by pregnant women, with recent findings supporting a need for increased cannabis communication by clinicians. Preconception cannabis use is strongly associated with prenatal cannabis use, and recreational cannabis legalization has been associated with increased prevalence of preconception cannabis use by women.\(^5\) Subsequently, clinicians and other health care professionals who encounter individuals trying to become pregnant or who are currently pregnant must be vigilant about communicating risks of prenatal cannabis use with their patients.

Results from Marchand et al\(^3\) support the need for additional public health safeguards but should be interpreted within the context of study limitations. First, most included studies assessed a single exposure and failed to examine variability of cannabis exposure (including dose, frequency,
and mode of administration). In turn, this restricted the ability of Marchand et al\(^3\) to delineate a dose-response association or elaborate on potential risks of different modes of administration among prenatal cannabis users. Ideally, future meta-analyses should examine variability of cannabis exposure and extrapolate a dose-response association. Second, as noted by the authors,\(^4\) most of the included studies relied on maternal self-report. Self-report of prenatal cannabis use is highly underreported compared with biochemical estimates of use.\(^5\) Future reviews should aim to include more studies with biochemical estimates of use and compare findings with those studies using self-reported measures only. Third, it is well known that tobacco and marijuana co-exposure is common during pregnancy. However, Marchand et al\(^3\) did not adjust for co-exposure, affecting the generalizability of findings and another important consideration that future systematic reviews and meta-analyses should address. Lastly, Marchand et al\(^3\) focused on birth outcomes; additional evidence is needed to examine the longer-term consequences of in utero cannabis exposure. Despite these limitations, the evidence provided by Marchand et al\(^3\) adds to the growing body of evidence that prenatal cannabis use is not without consequence. Future systematic reviews and meta-analyses should focus on addressing limitations of prior studies, including uncontrolled confounding, reliance on self-reported measures of cannabis exposure, and inclusion of studies within the past decade.

Rates of prenatal cannabis use are alarmingly high in the United States. As such, the time for action is now. We urge clinicians, public health professionals, and policy makers to carefully consider the consequences of in utero cannabis exposure identified by Marchand et al\(^3\) and partner to ensure prioritization of infant and child health during this time of precipitous cannabis legalization and commercialization. Without necessary safeguards to protect neonatal health, prenatal cannabis use poses a substantial threat to current and future generations of children.

**ARTICLE INFORMATION**


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