



MASSACHUSETTS
GENERAL HOSPITAL

PSYCHIATRY ACADEMY

Pregnancy & SUD

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February 2026



Disclosures

My spouse/partner and I have the following relevant financial relationship with a commercial interest to disclose:

- Consultant

MCSTAP (Massachusetts Consultation Service for Treatment of Addiction and Pain) funded by Massachusetts government

Bay Cove, Gavin foundation consultant for Acute Treatment Services

- Prior salary support NIDA CTN 0800

- Lumin Health



Learning objectives

- Learn best practices for initial management of psychiatric and opioid use disorder (OUD) medications in pregnancy
- Explain unique features of medications for OUD (MOUD) in pregnancy and postpartum
- Explore a harm reduction approach to cannabis use in pregnancy



Case

- 28yo with severe OUD, CUD, ADHD PTSD, anxiety, MDD since childhood
- Stable x few years on Bup/Nal, LA amphetamine, sertraline, clonazepam
- Medications stopped by psychiatrist when learning of pregnancy at 15 weeks



CASE: Cascade of harms

Upon identifying pregnancy at 15 weeks:

Stops her medication on the advice of her clinician



Has return to use of cocaine and fentanyl a few weeks later



Psychiatric decompensation



Does not establish prenatal care



Risks of untreated mental illness in pregnancy: ACOG 2023

Table 1. General Approach to Risk Counseling for Depression Psychopharmacotherapy

Risks of under-treatment or no treatment for depression during pregnancy include...	Risks of antidepressant use during pregnancy include...*
Limited engagement in medical care and self-care	PPHN
Substance use	Transient neonatal adaptation syndrome
Preterm birth	Preeclampsia (SNRIs)
Low birth weight	Spontaneous abortion (SNRIs)
Preeclampsia	
Postpartum depression	
Impaired infant attachment (which carries long-term developmental effects)	
Disrupted relationship with partner	
Suicide [†]	

PPHN, persistent pulmonary hypertension of the newborn; SNRI, serotonin-norepinephrine reuptake inhibitor.

*Data derived from literature that accounts for the underlying indication for antidepressant use.

[†]Suicide is a leading preventable contributor to maternal mortality in the United States, exceeding hemorrhage and hypertensive disorders.

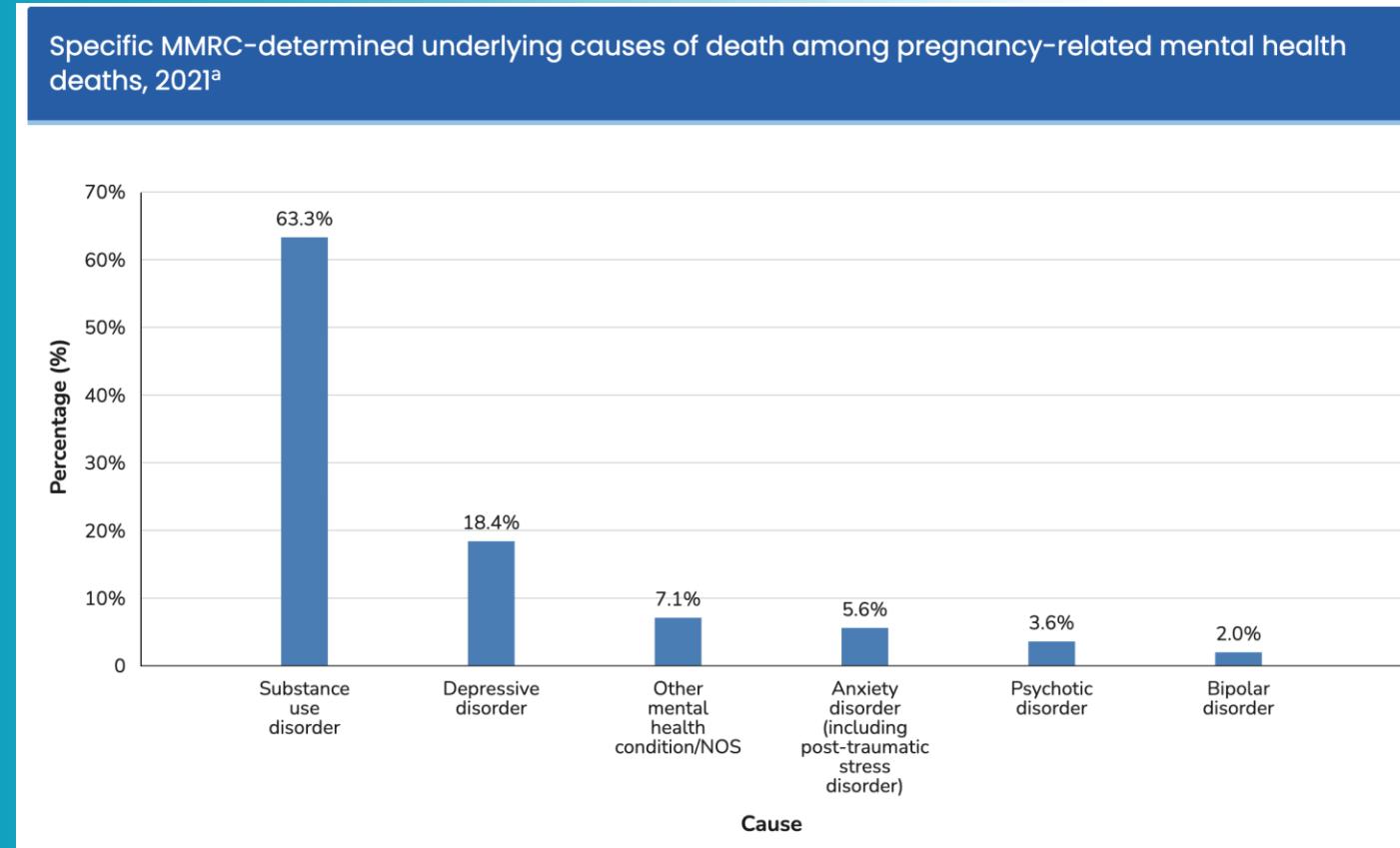
- Use lowest effective dose
- Avoid polypharmacy when able
- Minimize switching medications
- **Consider untreated or inadequately treated mental health disorders an exposure**

Behavioral health issues are the leading cause of maternal mortality - majority substance-use related deaths



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Overdose risk in pregnancy and postpartum



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Dec. 06 2022

Record High Drug Overdose Deaths Reported Among Pregnant and Postpartum Women

Research Letter

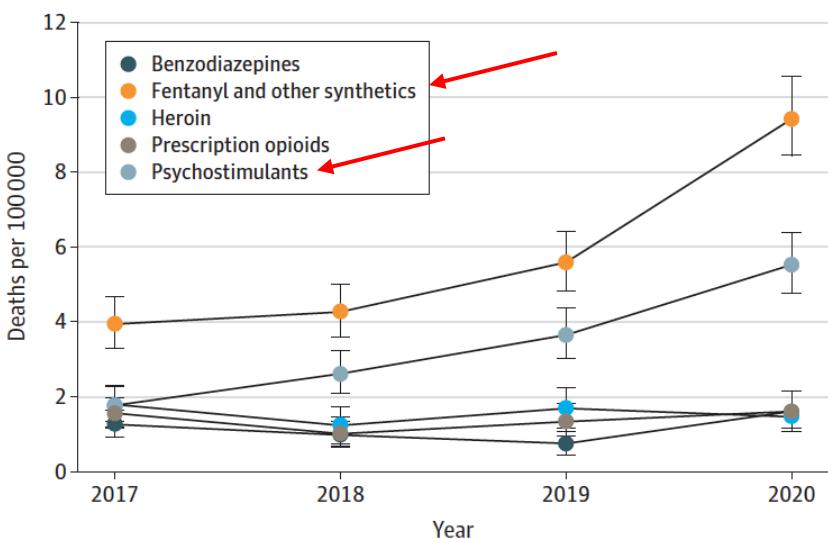
December 6, 2022

US Trends in Drug Overdose Mortality Among Pregnant and Postpartum Persons, 2017-2020

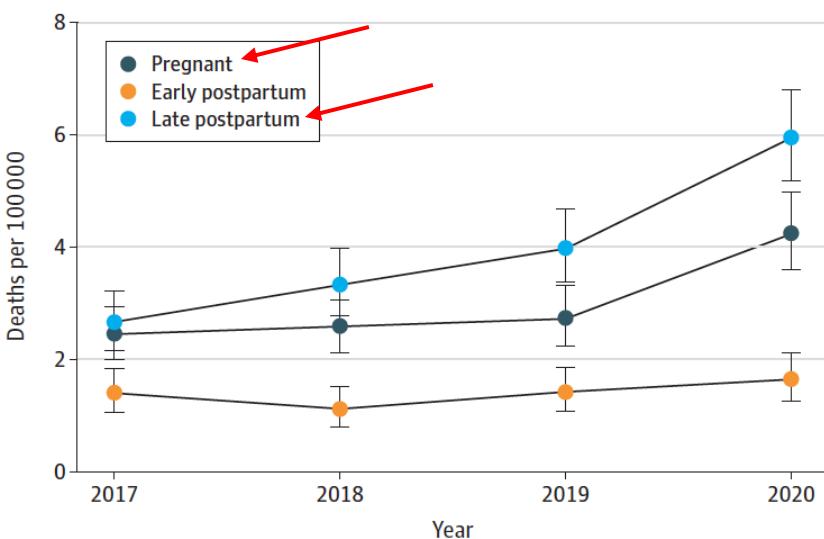
Emilie Bruzelius, MPH¹; Silvia S. Martins, MD, PhD¹

Figure. Pregnancy-Associated Drug Overdose Mortality

A Drug types involved



B Pregnancy timing from 2017 to 2020



¹Bruzelius E, Martins SS. US Trends in Drug Overdose Mortality Among Pregnant and Postpartum Persons, 2017-2020. *JAMA*. 2022.



Benefits and Risks of Opioid Agonist Treatment in Pregnancy

Benefits:

- ✓ Increases adherence to prenatal care
- ✓ Reduces illicit drug use and risky behaviors
- ✓ Prevents fluctuation in maternal drug level
- ✓ Lowers complications from injection drug use
- ✓ Improves maternal nutrition
- ✓ Improves infant birth weight
- ✓ Reduces risk of overdose and maternal mortality

Risks:

- Neonatal withdrawal
- Low birthweight (versus non-opioid exposed)
- Data on neurodevelopmental outcomes in infancy and early childhood mixed: studies often found conflicting evidence



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Opioid Agonist Treatment with methadone or buprenorphine is
the **standard of care** for treatment of OUD in pregnancy
with proven morbidity and mortality benefit

Pharmacotherapy is preferable to medically assisted withdrawal
because withdrawal is associated with high relapse rates which
lead to worse outcomes

ACOG Committee Opinion, 2017



Comparison of OAT in Pregnancy



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Methadone: gold standard in pregnancy since 1970s

- Prevents complications of nonmedical opioid use; improves prenatal treatment adherence; reduces risk of obstetric complications vs untreated population
- Leads to Neonatal Opioid Withdrawal Syndrome (NOWS): A treatable and transient condition

NEJM 2010 MOTHER Trial

- Buprenorphine (BUP) with lower rates of NAS than once daily methadone
- On par with methadone for first line treatment in pregnancy

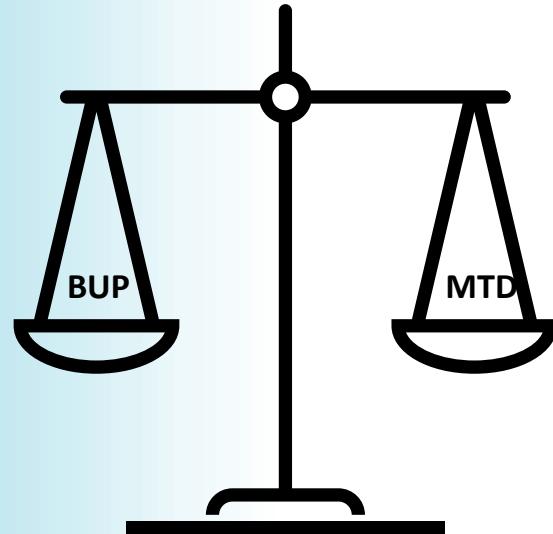
NEJM 2022

- US population-level cohort study of publicly insured pregnant people with either BUP or methadone 2000-2018
 - No difference in maternal outcomes
 - BUP associated with lower risk of adverse neonatal outcomes
 - **commentary by Dr Krans cautions pushing methadone to 2nd line*

Take-home: consider both first line treatment

Choosing an Opioid Agonist in Pregnancy: Practical Considerations

- Patient preference
- Access
- Transportation
- Drug supply





Counseling pearls for OAT in pregnancy

- Address patient's concerns
 - National survey top concerns: neonatal withdrawal, potential CPS involvement, judgment/stigma during delivery, insurance fears
- Avoid fear-based threats
- Present the evidence for MOUD
 - Medically-supervised withdrawal is generally not recommended
 - Withdrawal during pregnancy increases the risk of relapse without fetal or maternal benefit
 - Risks of adulterated drug supply
- Respect patient autonomy
- Reduce barriers to treatment



@drmaypole
Separation of
mom and baby



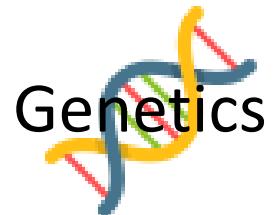
Other Medications



Images: cdc, drugs.com

What Impacts severity of Neonatal Withdrawal?

Drug supply
Adulterants



Emerging adulterants in illicit drug supply

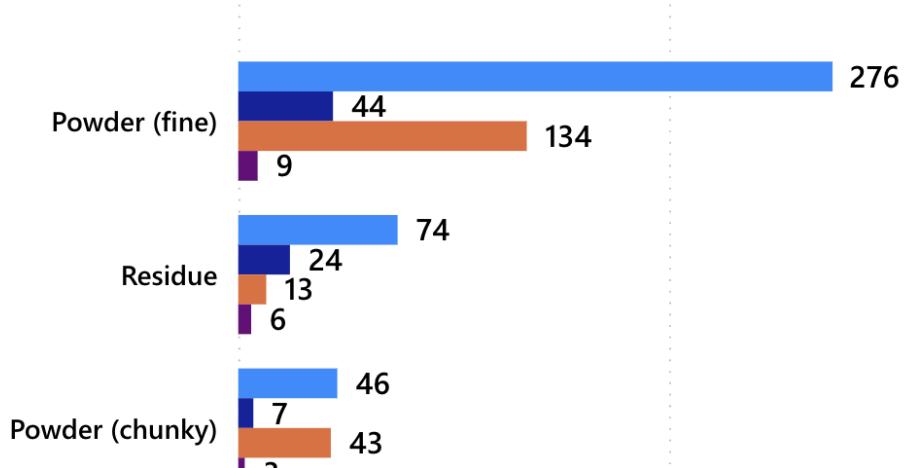


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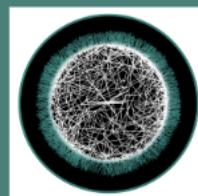
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Emergent Drugs by Common Sample Form - Last 12 Months

● BTMPS ● Carfentanil ● Medetomidine ● Nitazenes



Data displayed for Emergent Drugs: Last 12 months (Nov 1 2024 to Nov 30 2025).



STREET CHECK
COMMUNITY
DRUG CHECKING

www.info.streetcheck.org

WWW.MGHCMEO.ORG

Potent synthetic opioids*:

- Fentanyl analogs
- Nitazenes
- Tianeptine

*respond to Naloxone and MOUD

Veterinary a-2 receptor agonists:

- Xylazine
- Medetomidine

BTMPS:

- Industrial chemical used as UV protectant in plastics and adhesives

Shover CL, Godvin ME, Appley M, et al. UV Stabilizer BTMPS in the Illicit Fentanyl Supply in 9 US Locations. *JAMA*. 2025
Hull, I., et al (2025). A Case of Maternal and Neonatal Withdrawal After Exposure to Fentanyl Adulterated With Medetomidine. *Journal of Addiction Medicine*.

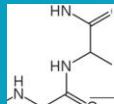
Drug supply adulterants: limited data on maternal/fetal impact



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Medetomidine – veterinary a-2 receptor agonist 200-300x more potent than xylazine



Medetomidine Drug Supply Alert

Medetomidine (MEH-deh-TOH-mih-deen)
Medetomidine is a sedative that is being mixed with fentanyl. It was first found in the Philadelphia area in April 2024. Since summer 2024, it has also been found in Massachusetts. By June 2025, medetomidine showed up in drug samples from every county in the state. Central and Western Massachusetts have the highest levels of it in tested drugs.

What to Look Out For

Withdrawal: People who often use drugs with medetomidine in them can become dependent on it. If they stop using medetomidine, they might go through withdrawal. Withdrawal from medetomidine can be serious. It can also start very quickly. It may cause a fast heartbeat, high blood pressure, headache, seizures or shaking, feeling very anxious or upset, or seeing things that aren't there. Some people may need to go to the hospital to feel better.

Effects

- Medetomidine can cause heavy sleepiness, dry mouth, slow breathing, low heart rate and blood pressure, muscle twitches, and even hallucinations.
- Medetomidine is considered to be stronger and to last longer than xylazine, which is another sedating substance also seen in fentanyl.
- People who used fentanyl with medetomidine said they were: "knocked out instantly; barely able to move, slow breathing, dry mouth, overdose". Other experiences were: "extreme irritability/agitation, hearing things that weren't there".

Safety Resources

Harm Reduction Organizations: Test strips that detect medetomidine are available. If you are concerned about what's in your drugs, contact your local harm reduction program for information about drug checking

A Case of Maternal and Neonatal Withdrawal After Exposure to Fentanyl Adulterated With Medetomidine

Ilana Hull, MD, MSc, Megan Gates, MD, MS, Kelly Dimattio, MD, PhD, Lois Bangiolo, MD, Kenichi Tamama, MD, PhD, and Christine E. Bishop, MD, MA

to reduce harms associated with ongoing use. While rapid testing is not currently available in healthcare settings, point-of-care medetomidine test strips for community use are available, though not 100% accurate.⁸ Further evaluation of test strips as a harm reduction method in high-risk pregnant women is warranted. The patient in this case was not aware of medetomidine in her drug supply, but had noted increasing withdrawal with any period of abstinence, which was a barrier to her seeking care earlier in pregnancy.



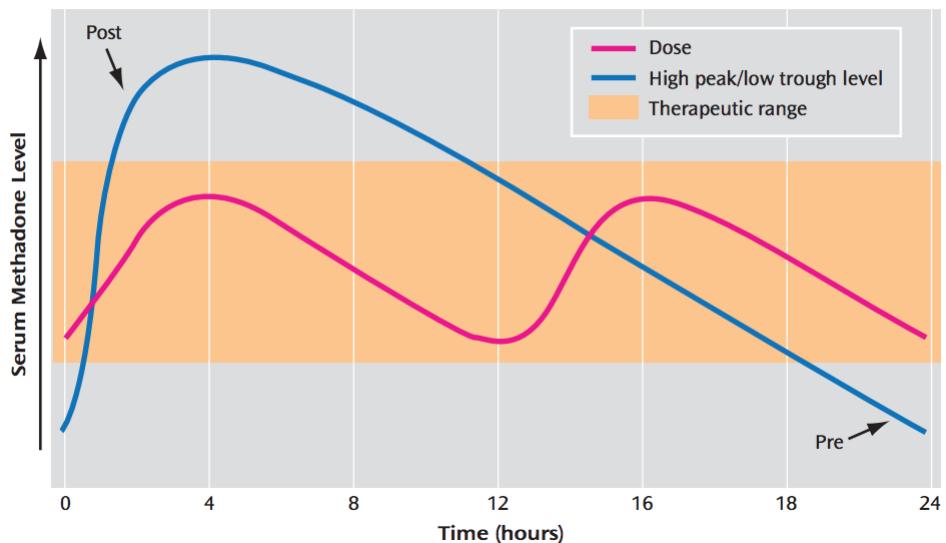
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Optimizing OAT in pregnancy and postpartum

Pregnancy: known state of rapid methadone metabolism

FIGURE 1. Methadone Split Dosing for the Treatment of Opioid Addiction



For maternal stability dose
adjustments needed during
pregnancy and postpartum

- ✓ Dose increases are due to changes in metabolism and not marker of disease severity
- ✓ Offer women split dose in pregnancy to maintain therapeutic level



Methadone in pregnancy: Summary of the literature

- Increased methadone requirements in pregnancy expected
- Higher dose correlated with less illicit drug use (& vice versa)
 - Racial inequities identified in methadone dose at delivery
- Artificial cap (maximum) on methadone dose not advised
- Buprenorphine leads to less severe NAS than *once daily* methadone dosing
- Split dosing improves maternal and neonatal outcomes

Methadone Postpartum Physiology Challenges

- **Maternal function** relies on optimal postpartum dose
 - Too high: risk over-sedation, overdose, safety issues for baby
 - Too low: withdrawals, de-stabilization, return to use
- **Unknown time** to pre-pregnancy metabolism
 - Some women may not have reached therapeutic dose
- **Limited evidence** for adjusting methadone after delivery
 - Should be individualized with close monitoring
 - Caution patients from rapid decrease unless over-medicated
 - Avoid rapid consolidation of split dose



Sublingual buprenorphine in pregnancy

Plasma concentrations can significantly decrease during pregnancy; patients may need dose increases

TID or QID dosing may be required to sustain plasma concentrations that prevent withdrawal symptoms

Sublingual Formulations (Buprenorphine +/- naloxone)

- 2020 Meta-analysis: 5 retrospective studies with Bup/Nal
 - Take-home: reassuring that we are not seeing difference in outcomes
 - Would like to see more prospective data moving forward to settle any lingering concerns on teratogenicity*
 - Recs: continue current formulation if stable
- Practically: can be destabilizing to switch formulations, theoretical incr. risk diversion/coercion; prior shortages; some women have strong feelings in either direction
 - Many programs *only* use combo product
 - MGH: offer women informed choice

**NO compelling data that it is causing fetal harm*

Long-acting injectable buprenorphine in pregnancy



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Overcomes barriers to remaining on treatment

- Daily dosing not needed
- Provides steady state of continuous buprenorphine
- Higher serum levels
- Avoids intolerance to sublingual formulation
- Eliminates need for medication storage at home
 - Possible improvement in child safety
- Only weekly formulation studied in pregnancy, awaiting results
 - None contraindicated; requires shared decision-making given lack of data



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Cannabis use in pregnancy

Case: Cannabis dependence + hyperemesis

- 29yo multip in long-term remission OUD/AUD, anxiety, PTSD, nicotine dependence, seizure disorder, hypothyroid, hyperemesis in prior pregnancies
 - Medical marijuana card for anxiety/appetite
 - Patient-driven goal to quit due to lack of safety data
 - Counseled on lack of FDA approved meds for cannabis withdrawal, trial symptom-directed management



- Stopped cold turkey x 2 weeks, restarted due to intolerable symptoms
 - Multiple ED visits for IV hydration, PO antiemetics. Hot showers not helpful
 - N/V impacting sleep, parenting, PO medication intolerance
 - No weight loss
 - Smoking worsened her nausea: stopped nicotine, switched to edibles

Cannabis in pregnancy: Many unknowns



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- *The relationship between cannabis and nausea in pregnancy is complex, poorly defined*
- *The health effects of cannabis exposure during pregnancy and postpartum are not certain*
- *No known safe level of cannabis use during pregnancy or lactation*

Cannabis in pregnancy: Evidence of harm



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Studies of cannabis use in pregnancy and breastfeeding
sufficiently convincing to recommend avoiding use

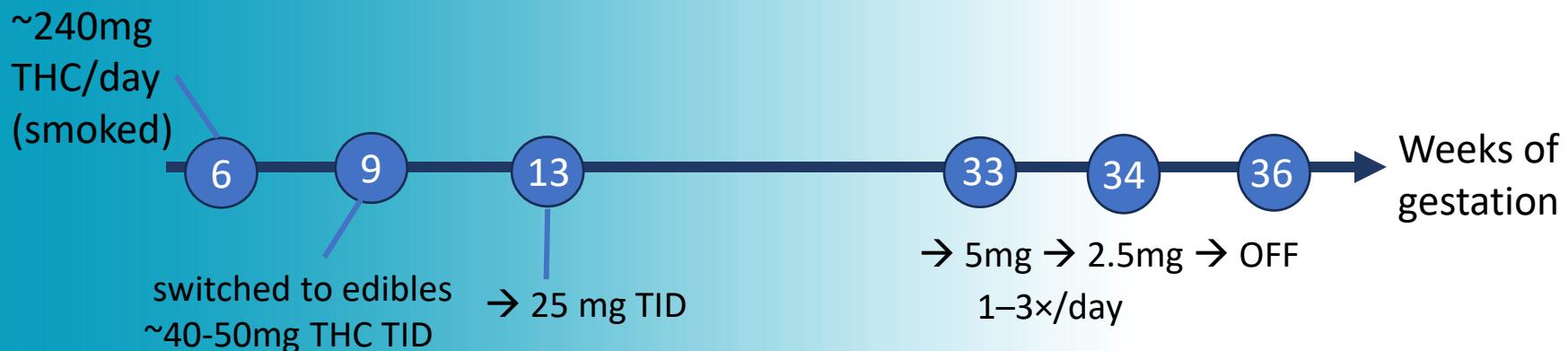
- Increases risk of small for gestational age (SGA) and low birth weight
 - Crosses placenta
 - Likely dose-dependent
- Cannabis use impacts neurodevelopment without specific reproducible phenotype
 - Long-term neurodevelopmental outcomes may persist into young adulthood²
 - Difficult to study due to confounders (SES, quantifying use, timing of use, increasing potency)
 - Impact on developing endocannabinoid system in animal models
- Women using cannabis in combination with tobacco and alcohol during pregnancy seem to be at the highest risk for adverse outcomes³

1. Solmi M, De Toffol M, Kim JY et al. Balancing risks and benefits of cannabis use: umbrella review of meta-analyses of randomized controlled trials and observational studies. *BMJ*. 2023 Aug 30;

2. Sophia Badowski, Graeme Smith. Cannabis Use During Pregnancy and Postpartum. *Canadian Family Physician* Feb 2020; 66 (2): 98-103

3. Gerede, A., Stavros, S., Chatzakis, C., Vavoulidis, et al (2024). Cannabis Use during Pregnancy: An Update. *Medicina*, 60(10), 1691

Back to the Case: Gradual patient-driven taper



- Trial patient – directed taper ~10-20% per day
- Add Promethazine PO/PR to existing regimen; explored IV hydration outside of ED/triage
- Nausea persistent and remains awful: initiate GERD treatment
- Ongoing vomiting
- Maternal weight gain, fetal growth remain appropriate

“It’s been hell, but I did it”

Harm reduction counseling for cannabis use in pregnancy



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Marijuana leaf icon **Until more is known about the short and long-term effects of cannabis, it is safest to avoid using cannabis when pregnant and breastfeeding.**

Marijuana leaf icon **There is no known safe amount of cannabis use during pregnancy.**

Marijuana leaf icon **If you are unable to stop using cannabis completely, try using less, and less often.**

Learn about the effects of cannabis as new information becomes available:

- ❖ Cannabis in Canada. Get the facts
www.canada.ca/cannabis
- ❖ Thinking of using cannabis while parenting?
www.canada.ca/cannabis
- ❖ Are you pregnant or considering pregnancy?
www.pregnancyinfo.ca
- ❖ Nausea and vomiting
www.pregnancyinfo.ca/nausea-and-vomiting
- ❖ Canada's Lower-Risk Cannabis Use Guidelines
www.camh.ca

Marijuana leaf icon **Although cannabis is a natural plant, it doesn't make it safe during pregnancy.**



Principles of Perinatal Harm Reduction

DIGNITY + SUPPORT

Safety Seeking pregnancy care shouldn't be dangerous. Talking openly about substance use should be part of everyone's routine care.



Autonomy We should respect each other's ability to make informed healthcare decisions that reflect our priorities + preferences.



Shared Decision-Making

Providers should work with patients to explore all their options - then they should support their goals.



Informed Consent If we're going to give informed consent we need to talk about what we're being asked to do and why. If we don't have the power to say no, it's not consent.



Do No Harm Parents and babies need each other. It's unethical to drug test without consent or to collect evidence that can be used to cause harm. ASK: Is the test medically necessary?



Academy of Perinatal
Harm Reduction

perinatalharmreduction.org

WE BELIEVE:

- All people should be treated with dignity.
- Support - not punishment - leads to meaningful change.
- Seeking pregnancy care shouldn't be dangerous.
- Everyone has a right to make their own healthcare decisions.
- The best providers work with patients to help them reach their goals.
- Consent is an ongoing conversation.
- We need to advocate for and protect parents, babies, and families.

Take homes in supporting pregnant people with SUD

- Abrupt discontinuation of psychiatric and opioid use disorder treatment is dangerous and worsens pregnancy outcomes
- Share with patients the benefits and unique aspects of MOUD to monitor for in pregnancy
- Be aware that emerging adulterants in drug supply may impact pregnant/neonatal outcomes
- Apply harm reduction principles to cannabis use and to all substance use pregnancy

Thank you!

PREGNANCY AND SUBSTANCE USE

A HARM REDUCTION TOOLKIT



DOWNLOAD
THIS TOOLKIT



PUBLISHED SEPTEMBER 2020

UPDATED OCTOBER 2022

TRY THIS

Instead of saying...

Now that you're pregnant you need to stop smoking.

Say... What do you think about your smoking now that you're pregnant?

Instead of saying...

If you loved your children you'd stop using.

Say... I know you love your children. What can we do to help you parent them the way you want to?



See 
SAMHSA's
resources
and guide.

Instead of saying...

You'll probably lose custody of this baby too.

Say... What was it like when you lost your child?

www.perinatalharmreduction.org

www.harmreduction.org

Additional Resources



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Welcome!
My name is Journey, and I will be your tour guide through the slideshows on each journey stop.

JOURNEY

Your guide through recovery, pregnancy, and early parenting.

<https://journeyrecoveryproject.com>

ENTER

The Journey Project is an interactive Web resource for pregnant and parenting women who have questions or concerns about opioid and other substance use. The Journey focuses on the stories of women with lived experience, offering information, hope, encouragement, and resources for every step of their perinatal journey. With videos, informational slideshows, resource links, and worksheets, the Journey Project seeks to empower and inform women about opioid and other substance use and pregnancy.

PREGNANCY
AND
SUBSTANCE USE
A HARM REDUCTION
TOOLKIT



**Substance Use and Mental Health Disorders in Perinatal Individuals:
A Toolkit for Substance Use Disorder Treatment Providers**

Massachusetts Child Psychiatry Access Program
MCPAP
For Moms

Substance Abuse and Mental Health Services Administration
SAMHSA
www.samhsa.gov • 1-877-SAMHSA-7 (1-877-726-4727)



Practice and Policy Considerations for Child Welfare, Collaborating Medical, and Service Providers



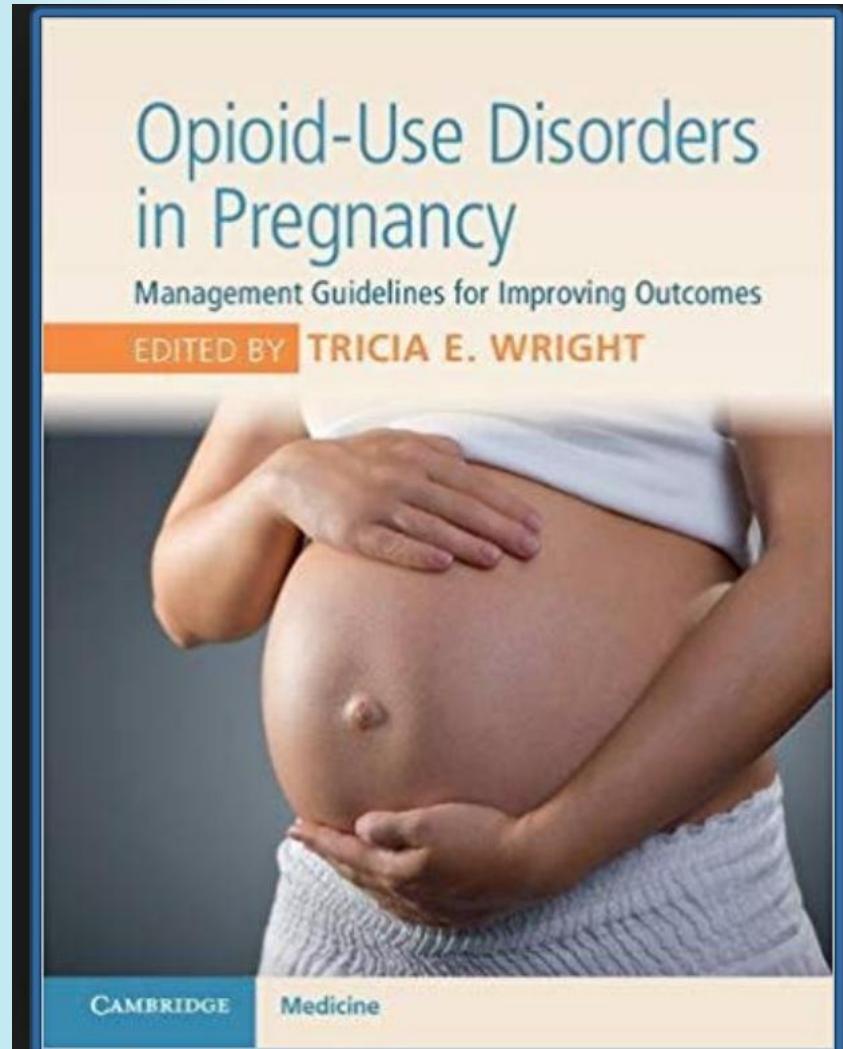
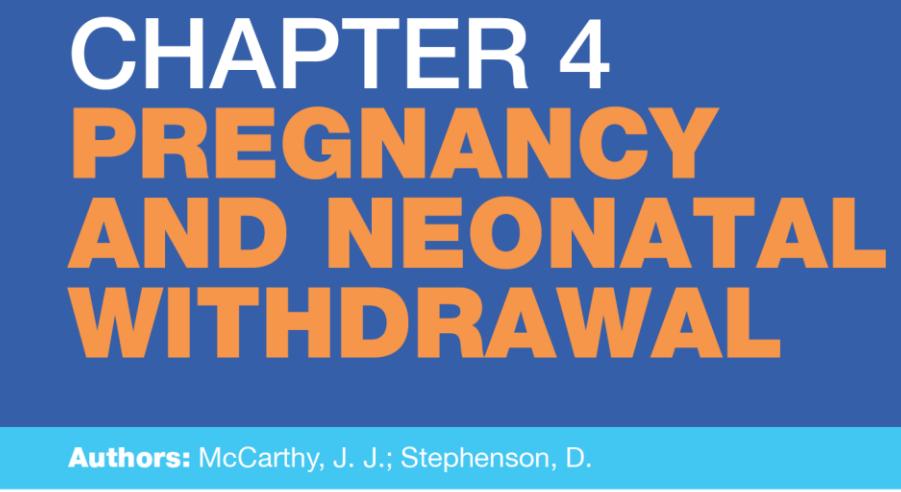


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Books

CSAM guidelines





Breastfeeding and SUD

- Breastfeeding should be **encouraged** in women who are stable on methadone and buprenorphine unless other medical contraindications exist
- New guidance from Academy of Breastfeeding Medicine 2023
 - **Individualized care plans** should be created in partnership with the patient and multidisciplinary team with appropriate clinical support and follow-up
 - Breastfeeding is **recommended among mothers who stop nonprescribed substance use by the time of delivery**

TABLE 4. SUMMARY OF BREASTFEEDING RECOMMENDATIONS FOR NONPRESCRIBED SUBSTANCE USE

Recommendations	Infant monitoring/potential harms	Maternal monitoring/potential harms	Additional considerations
Opioids Breastfeeding should be avoided during the use of nonprescribed opioids. <i>Level of Evidence: 2</i> <i>Strength of Recommendation: B</i>	Sedation, respiratory depression, withdrawal, and associated feeding difficulties	Sedation, decreased responsiveness to infant, rare reports of delayed lactogenesis	Pumping/expressing milk should be recommended in cases of recent use if future abstinence is supported. Consider a relapse plan and other supportive measures.
Sedative hypnotics Breastfeeding should be avoided during the use of nonprescribed sedative-hypnotics <i>Level of Evidence: 3</i> <i>Strength of Recommendation: C</i>	Sedation, respiratory depression, withdrawal, inadequate weight gain	Sedation, decreased responsiveness to infant	Individuals prescribed benzodiazepines for the treatment of benzodiazepine use disorder or for anxiety disorders may safely breastfeed.
Stimulants Breastfeeding should be avoided during the use of nonprescribed stimulants. <i>Level of Evidence: 3</i> <i>Strength of Recommendation: B</i>	Gastrointestinal and cardiorespiratory symptoms, hypothermia, irritability, tremors, sleep disturbance, and seizures	Reduced breast milk production	May accumulate in greater quantities in breast milk than maternal serum. Individuals prescribed stimulants for the treatment of ADHD may safely breastfeed.
Alcohol Breastfeeding should be avoided after moderate-to-high alcohol consumption. Occasional intake of more modest amounts of alcohol during lactation and waiting 2 hours per drink consumed to resume breastfeeding is likely safe. <i>Level of Evidence: 1</i> <i>Strength of Recommendation: A</i>	Drowsiness, changes in sleep and eating behaviors, possible impact on long-term neurodevelopment	Decreased breast milk production	There is no accumulation of alcohol in breast milk due to alcohol's zero-order pharmacokinetic profile.
Nicotine Breastfeeding is recommended, but individuals should be counseled and supported to reduce or stop the use of nicotine products while breastfeeding. <i>Level of Evidence: 1</i> <i>Strength of Recommendation: A</i>	Altered feeding and sleep	Breast milk is less nutritional, decreased milk production	Second-hand smoke exposure is associated with an increased risk for upper respiratory infections, allergies, and SUID in the infants. Little data are available for vaping products.
Cannabis We encourage cessation and/or reduction of cannabis use during lactation. <i>Level of Evidence: 2</i> <i>Strength of Recommendation: B</i>	Possible neurodevelopmental effects	Changes in breast milk composition and decrease in duration of breastfeeding	For individuals who continue to use cannabis and wish to breastfeed, we recommend a shared decision-making process to discuss the risks and benefits.

ADHD, attention deficit hyperactivity disorder; SUID, sudden unexpected infant death.