



# Methamphetamine and Opioid Use in Pregnancy

Ngoc Pham, MD

Addiction Medicine Fellow

Swedish Medical Center, Seattle,  
Washington

# Objectives

- To assess methamphetamine use in pregnancy including number of pregnancies affected and prenatal outcomes of methamphetamine use.
- To assess opioid use in pregnancy including prevalence and maternal/fetal effects of use and withdrawal.
- To discuss options for medications for opioid use disorder.
- To evaluate increase in rise of co-occurring methamphetamine and opioid use.

# Disclosures

- None



# Methamphetamine Use

- Most widely used illicit drug in the world after cannabis with up to 27 million users globally (UNODC 2020)
- In 2016, 7,542 people died from stimulant overdose – 12-fold increase from 1999 to 2016
- Becoming more prevalent and widely used:
  - Easy to produce and is relatively inexpensive
  - Can be synthesized in a one-step process by reduction of ephedrine or pseudoephedrine
  - Slow to metabolize resulting in a high that can last 8-24 hours

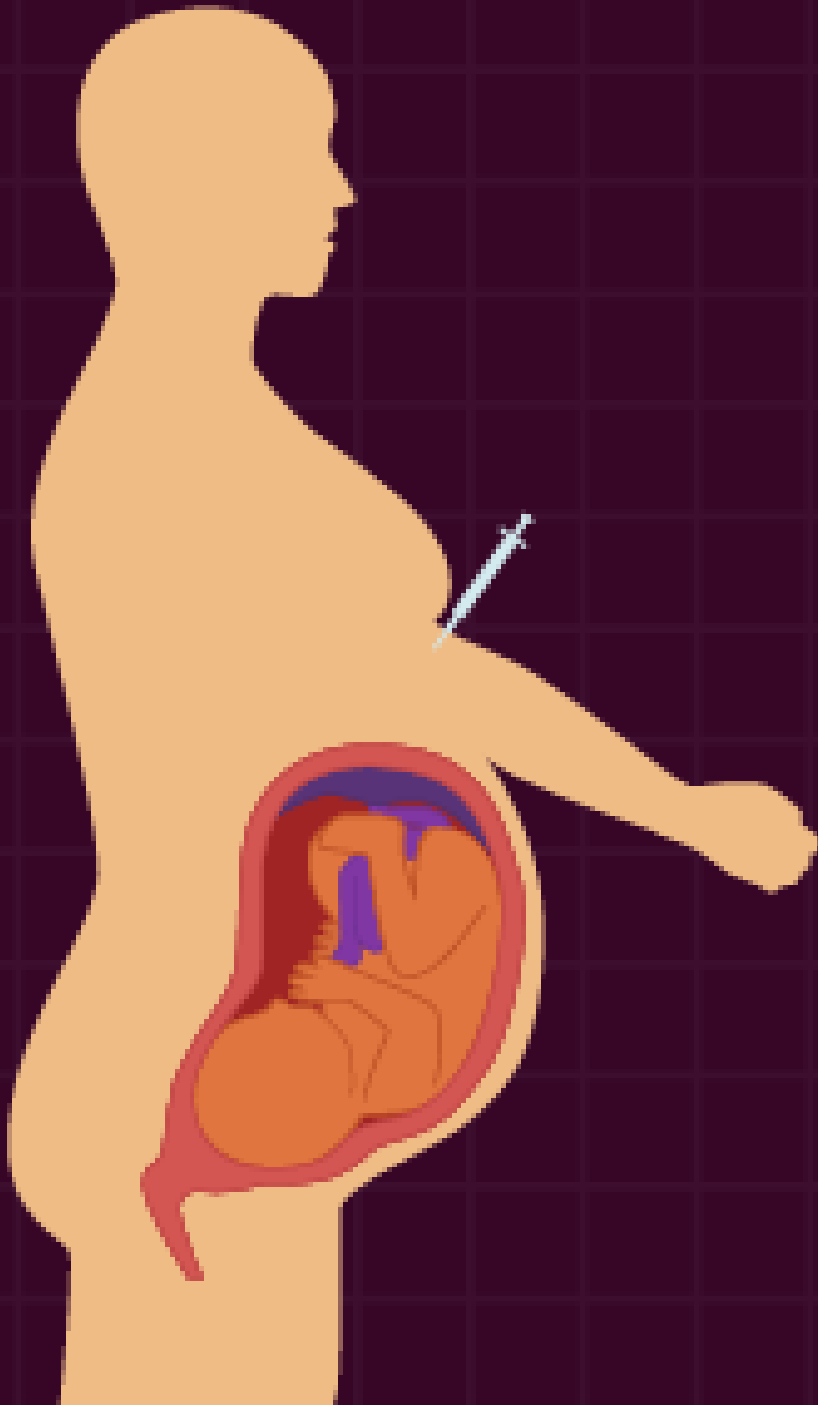
UNODC. World Drug Report 2020. United Nations Office on Drugs and Crime; [https://wdr.unodc.org/wdr2020/field/WDR20\\_Booklet\\_2.pdf](https://wdr.unodc.org/wdr2020/field/WDR20_Booklet_2.pdf), 18- 25 (2020).

Artigiani EE, Hsu MH, McCandlish D, and Wish ED. Methamphetamine: a Regional Drug Crisis. National Drug Early Warning System 2018 <https://cesar.umd.edu/sites/cesar.umd.edu/files/pubs/ndews-scs-methamphetamine-report-september-2018-final.pdf>, 2–6 (2018).

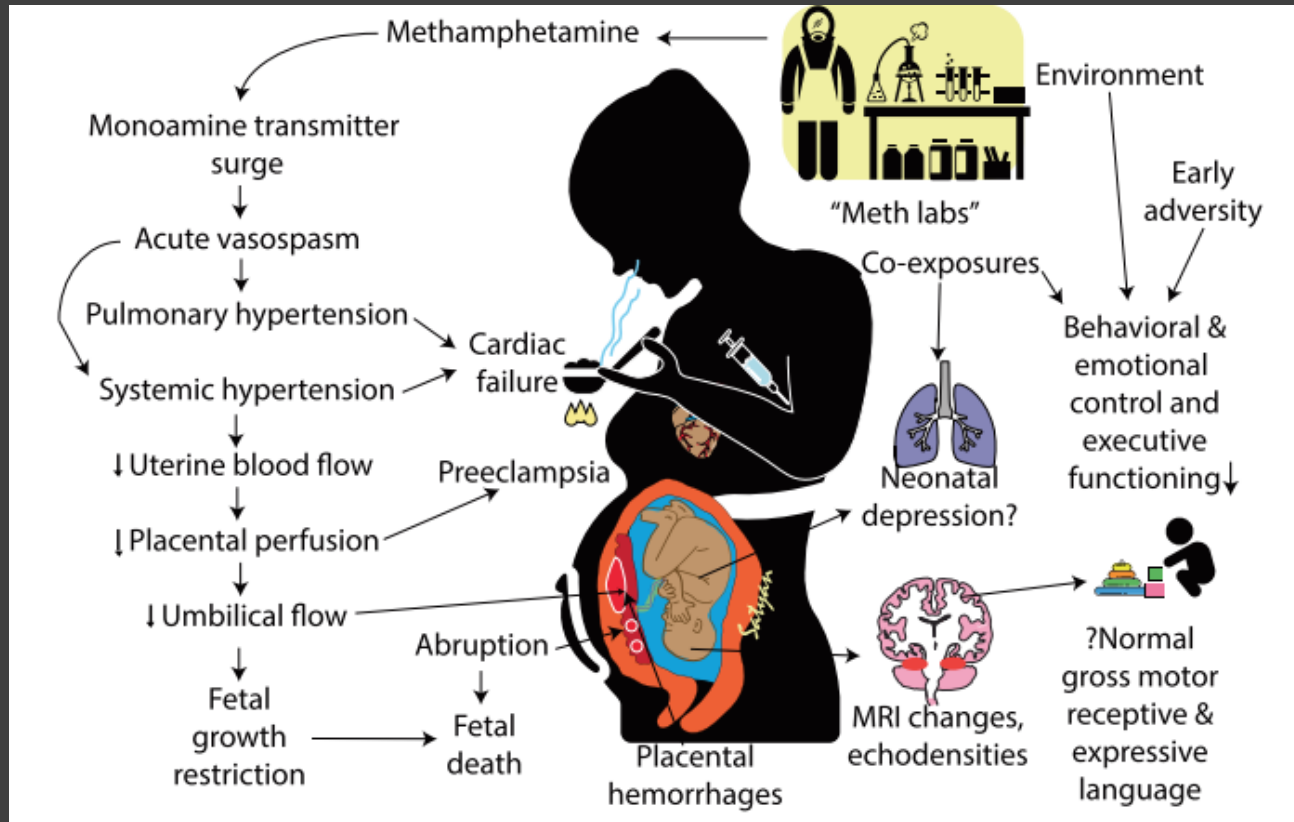
# Methamphetamine Use in Pregnancy

---

- In 2018, 0.3% or 6000 pregnancies affected by methamphetamine use of 2,347 pregnant women surveyed by NSDUH.
- Prevalence estimates 0.7% to 5% in highly endemic areas
  - Retrospective cohort study in 2015
    - Infants with positive methamphetamine toxicology at birth were smaller than infants who were only exposed in the first trimester.
    - Gestational age was significantly shorter among methamphetamine-exposed infants compared to nonexposed infants (38.5 vs 39.1 weeks,  $P=0.045$ ) and those with no drug exposure (38.5 vs 39.5 weeks;  $P=0.0011$ ).
- 2021 Review in Journal of Perinatology
  - Prenatal methamphetamine use is associated with fetal growth restriction and low birth weight
  - Animal studies show reduction in uterine and umbilical blood flow following methamphetamine use



# Maternal/fetal effects of methamphetamine use



# Methamphetamine withdrawal and pregnancy

- 2019 Review of withdrawal management and treatment:
  - Total of 469 articles identified.
  - “No relevant literature was identified regarding clinical effectiveness of interventions for the withdrawal management or treatment of persons who are pregnant and addicted to crystal methamphetamine. Additionally, no evidence-based guidelines were identified regarding withdrawal management or long-term treatment for persons who are pregnant and addicted...”





# Opioid Use Disorder and Pregnancy

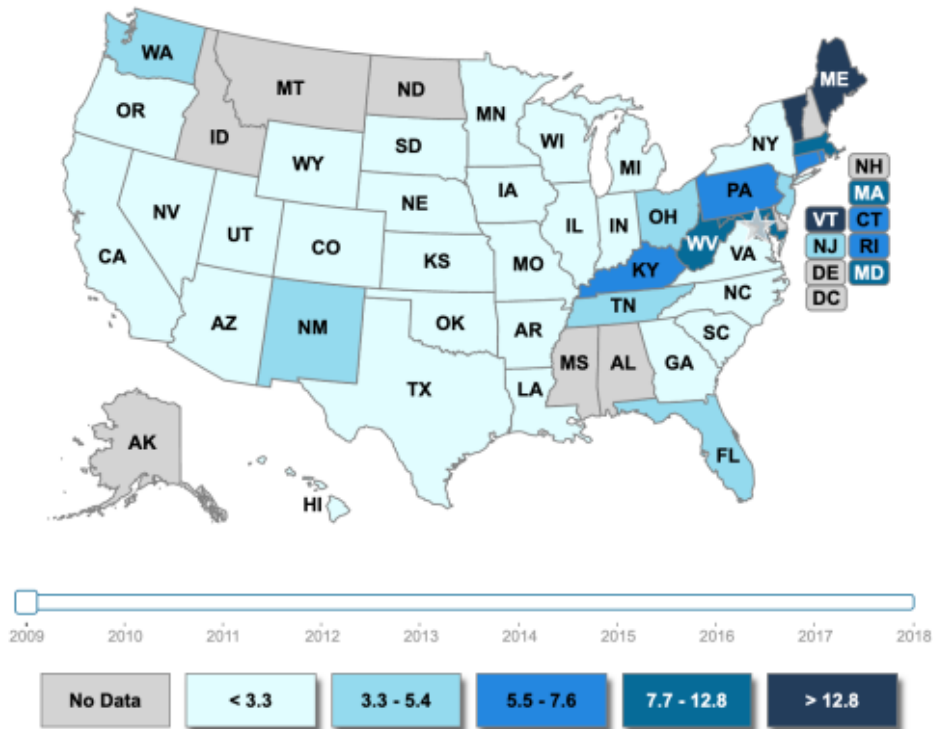
- In 2018, 0.9% or 22,000 pregnancies affected by opioid use of 2,347 surveyed by NSDUH.



# Increasing Prevalence of OUD in Pregnancy

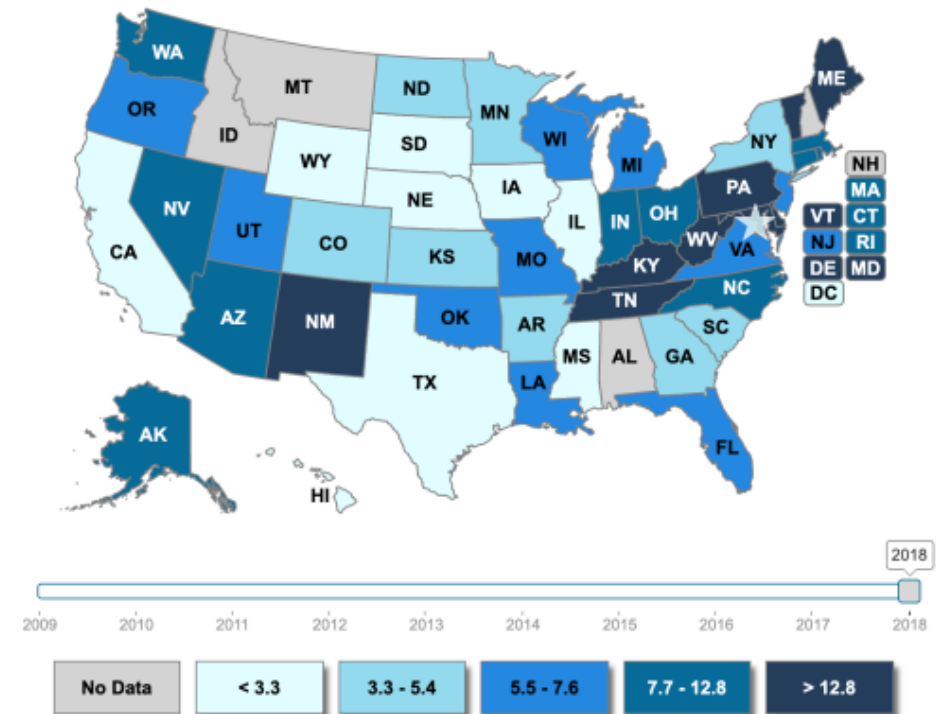
Rate of NAS per 1,000 Newborn Hospitalizations

2009 National rate: 2.9



Rate of NAS per 1,000 Newborn Hospitalizations

2018 National rate: 6.8

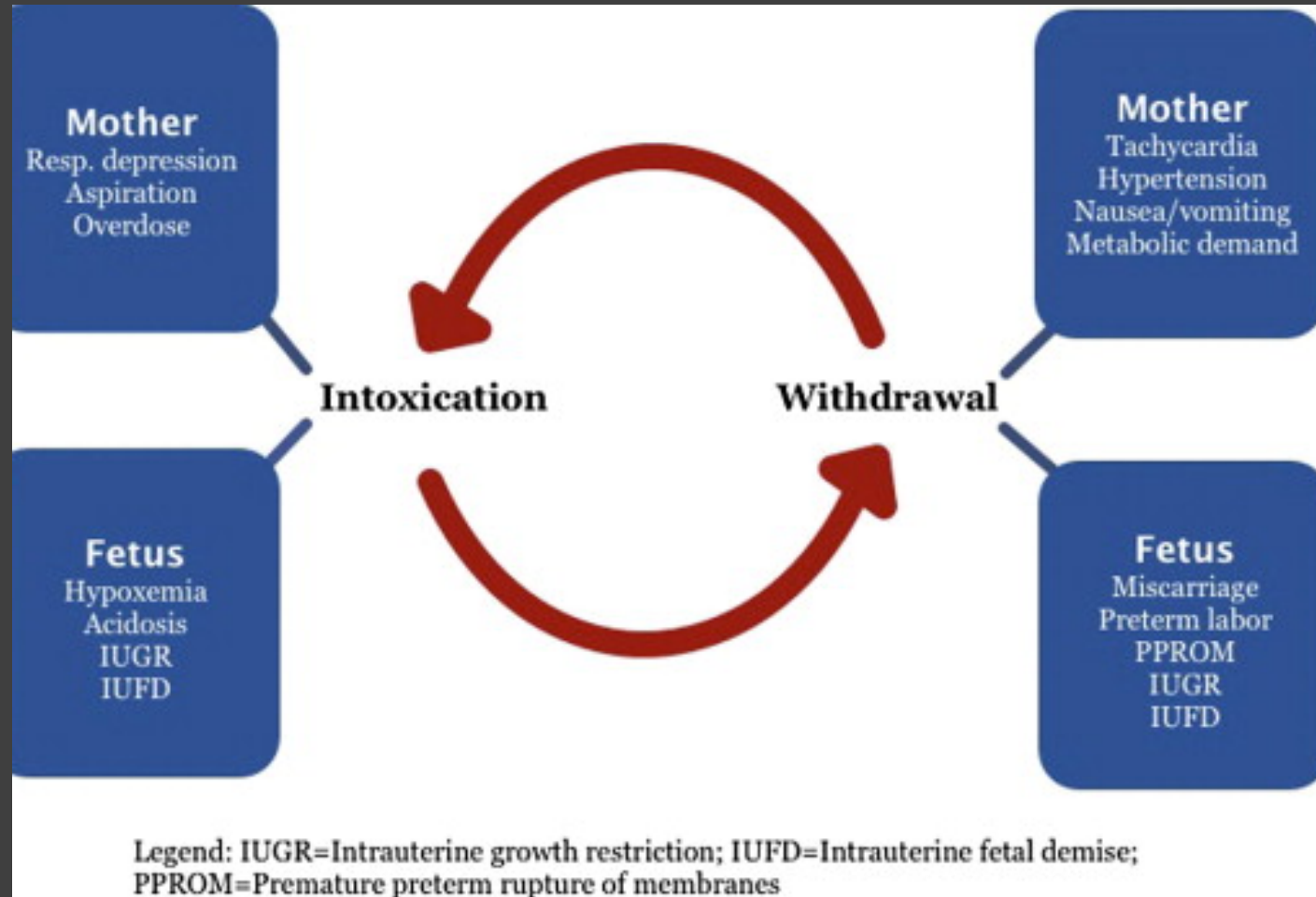


# OXYCODONE

## Fentanyl

- While short term use of fentanyl (i.e. post-op) can be considered short-acting, chronic use of fentanyl (i.e. illicit) should be treated as long-acting.
  - Chronic use allows for accumulation in adipose tissue that extends the serum half-life.
- “Percocet 30’s,” “Mexican Percocet,” and “blues” are all fentanyl. Almost no legitimate Percocet (oxycodone-paracetamol) is being sold illicitly

# Maternal/fetal effects of opiate intoxication and withdrawal



# Medication for Opioid Use Disorder (MOUD)

**ACOG STATEMENT 2017:** *“For pregnant women with an opioid use disorder, opioid agonist pharmacotherapy is the recommended therapy and is preferable to medically supervised withdrawal because withdrawal is associated with high relapse rates, ranging from 59% to more than 90%, and poorer outcomes. Relapse poses grave risks, including communicable disease transmission, accidental overdose because of loss of tolerance, obstetric complications, and lack of prenatal care.”*

**ACOG STATEMENT 2019:** *“Because of superior outcomes associated with MAT compared with withdrawal, ACOG continues to recommend use of MAT as the standard of care during pregnancy for women with opioid use disorders.”*

- Options: Methadone, Buprenorphine



# MOUD in pregnancy

Stable serum levels → More stable mom → Healthier pregnancy

Engagement in MOUD:

- Increased prenatal care
- Decreased rates of HIV and blood borne pathogen transmission
- More stable social environment
- Decreased overdose



# Treatment: selecting MOUD agents

## Buprenorphine:

- Buprenorphine 24mg = ~ methadone 60mg
- Often ideal for individuals using lower level of substances
- Office based – not daily dosing
- Transport not necessary
- Widespread availability
- Does not maintain tolerance
- May be best option for patients with concurrent benzodiazepine use, history of methadone overdose, prolonged QTc
- Decreased NOWS severity
- May be difficult to initiate at later GA

## Methadone:

- Buprenorphine 24mg = ~ methadone 60mg
- Often subjectively superior for individuals using higher level of substances
- Opioid treatment program (OTP) - daily dosing
- Transport necessary
- Only available in certain geographic regions
- May be best option for patients who have struggled with buprenorphine
- Improved treatment retention

The most effective treatment is one the mother is willing to engage in.

# MOTHER Trial

- Randomized, double-blind controlled trial
- Compared to methadone-exposed infants, buprenorphine-exposed infants:
  - Required 89% less morphine to treat NAS
  - Spent 43% less time in the hospital
  - Spent 58% less time in the hospital being medicated for NAS
- However, NAS rate did not differ significantly between groups
- *Women on buprenorphine were twice as likely to discontinue treatment and more likely to use another illicit drug*







# To detox or not to detox?

- Mixed data!
- Concern for PTL, IUFD but data is not clear
  - “If you are in withdrawal, the fetus is in withdrawal”
- Associated with increased risk of return to use/relapse
- No change in NAS rate

**Evidence does not support detoxification as a recommended treatment intervention as a result of low detoxification completion rates, high rates of relapse, and limited data regarding the effect of detoxification on maternal and neonatal outcomes beyond delivery.**



# Co-Occurring Methamphetamine and Opioid Use in Pregnancy

- In 2019, 18.4% of pregnancy reported combination of illicit drugs, tobacco products, or alcohol use in combination.
- Recent trend in increase of opioid and methamphetamine co-use (referred to the “fourth wave of the opioid crisis”)
  - 66% increase in methamphetamine use from 2015 to 2018 in past year in people who use heroin and a 49.2% increase in those with prescription opioid misuse.
  - Past year use of both heroin and methamphetamine increased from 22.5% in 2015 to 46.7% in 2019
- In pregnancy, data is lacking but a 2021 study in Seattle: higher proportion of women co-using heroin and amphetamine instead of using these substances alone.
- At our CUPW unit in Seattle, since 3/20 (data still in progress): out of 60 patients being treated for OUD, 50 patients had co-occurring use with methamphetamines (83%)
  - 24 patients were treated with mirtazapine and at delivery, 5 patients were still positive for methamphetamine in urine tox screens



2019 National Survey on Drug Use and Health (NSDUH)  
Ellis MS, Kasper ZA, Cicero TJ. Twin epidemics: the surging rise of methamphetamine use in chronic opioid users. *Drug Alcohol Depend.* (2018) 193:14–20. doi: 10.1016/j.drugalcdep.2018.08.029  
Palamar JJ, Han BH, Keyes KM. Trends in characteristics of individuals who use methamphetamine in the United States, 2015–2018. *Drug Alcohol Depend.* (2020) 213:108089. doi: 10.1016/j.drugalcdep.2020.108089  
Strickland JC, Stoops WW, Dunn KE, Smith KE, Havens JR. The continued rise of methamphetamine use among people who use heroin in the United States. *Drug Alcohol Depend.* (2021) 225:108750. doi: 10.1016/j.drugalcdep.2021.108750  
Glick SN, Klein KS, Tinsley J, Golden MR. Increasing heroin-methamphetamine (goofball) use and related morbidity among seattle area people who inject drugs. *Am J Addict.* (2021) 30:183–91. doi: 10.1111/ajad.13115