Substance Use Disorder in Perinatal Patients
An Overview

Polina Teslyar, MD
Medical Director of Women's Mental Health and Reproductive Psychiatry,
Brigham and Women's Hospital
Associate Medical Director of SUD, MCPAP for Moms

Objectives:

- Understand Gender based differences in SUD
- Review best practice guidelines for SUD screening in perinatal patients
- Review how to select medication for treatment of SUD in perinatal patients

Disclosures:

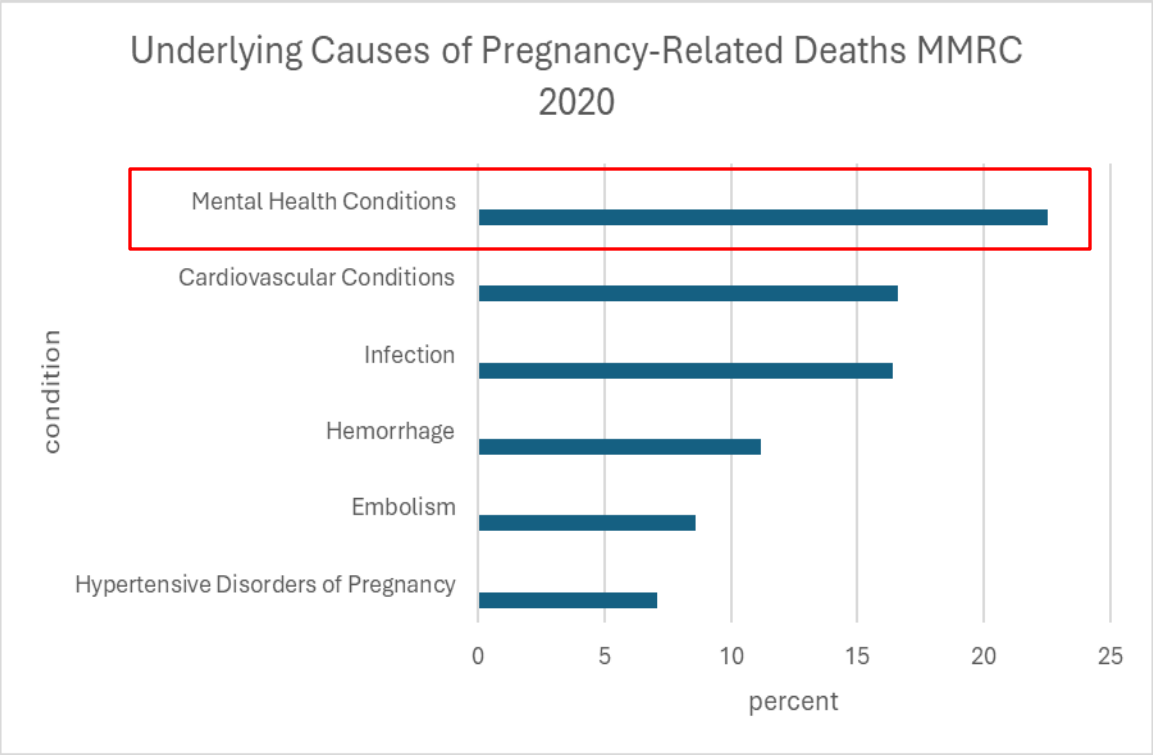
- All meds used in pregnancy are off label
- No financial disclosures

Gender Differences in SUD

- Gender-based differences exist in:
  - timing of SUD development
  - illness trajectory
  - treatment outcomes
  - health and social outcomes
- Men have historically been more studied and treatments tailored to their needs due to higher rates of use
- Women have historically been less likely to use substances but have a more telescopic rate of use
- Sex differences in use have narrowed in past century

McHugh RK, et al Clni Psychol Rev. 2018; Pinkham S, et al Reprod Health Matters. 2008;

Mental health conditions are a leading cause of pregnancy-related deaths



Mental health conditions include deaths of suicide, overdose/poisoning related to substance use disorder, and other deaths determined by the MMRC to be related to a mental health condition, including substance use disorder.

Trost SL, Busacker A, Leonard M, et al. Pregnancy-Related Deaths: Data from Maternal Mortality Review Committees in 38 U.S. States, 2020. Centers for Disease Control and Prevention, U.S. Department of Health and Human Services; 2024 *U.S.*

Dec. 06 2022

Record High Drug Overdose Deaths Reported Among Pregnant and Postpartum Women

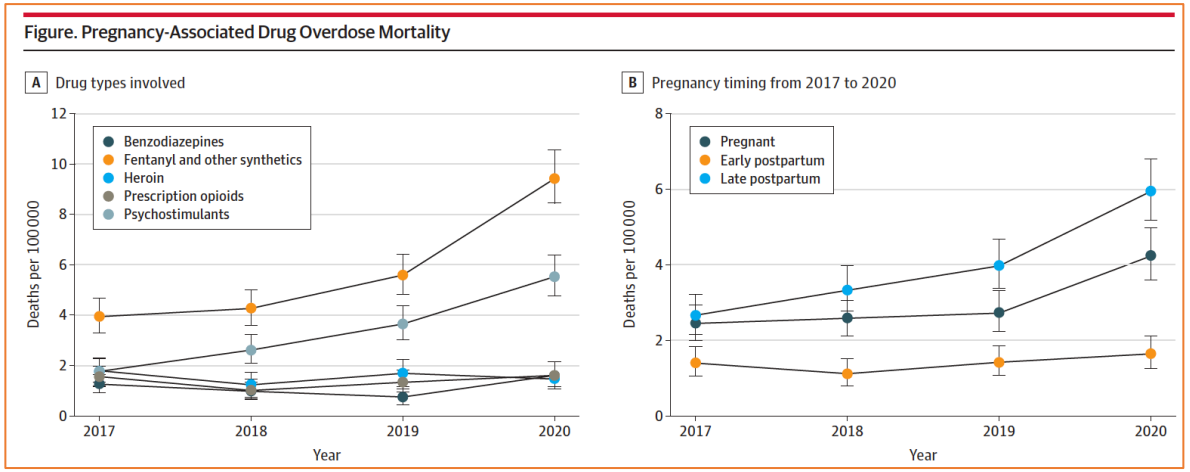
Research Letter

December 6, 2022

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

Emilie Bruzelius, MPH[1]; Silvia S. Martins, MD, PHD[1]

Figure. Pregnancy-Associated Drug Overdose Mortality



Overdose deaths rose from 6.56 to 11.85 per 100,000
An 81% increase

Largest increase seen in 2020

Medication for OUD (MOUD) was the only identified factor associated with a decreased risk of postpartum overdose[2]

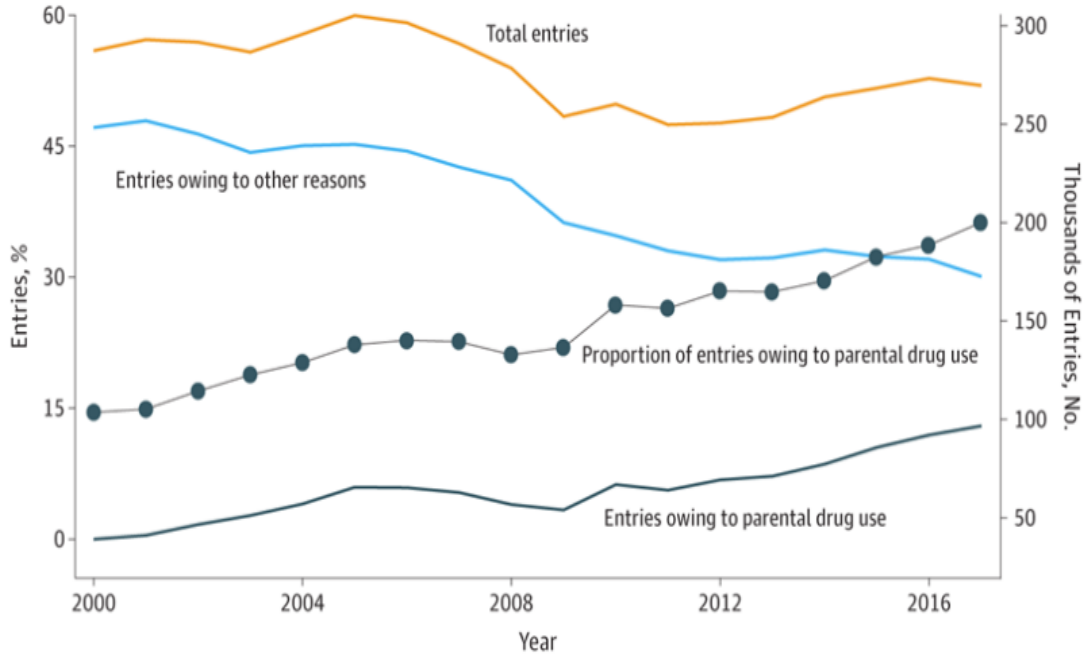
[2]Frankebereger, Maternal and Child Health Journal (2023)

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

Massachusetts Consultation Service MCSTAP for Treatment of Addiction and Pain

Parental substance use is the number cause of foster care placement in the USA

Figure. National Trends in Foster Care Entries Attributable to Parental Drug Use, 2000 to 2017



Between 2000 and 2017 the proportion of removals from home and placement into foster care rose from 14.53% to 36.26% attributed to parental substance use

Children entering because of parental substance use were more likely to be 5 years or younger

Meinfofer A. Anglero-Diaz Y. JAMA Pediatr Published Online: July 15, 2019 2019;173;(9):881-883.

Co-occurring SUD and Mental Health Disorder in Pregnancy

40-73% of pregnant people with SUD have MDD

50% develop postpartum depression

34% of pregnant people with SUD experience IPV

Opioid-Use Disorders in Pregnancy. Wrigth. 2018

Trauma and Opioid Use Disorder intersect in the perinatal population

Adverse Childhood Experiences (ACEs) were associated with:

- Rates of recent injection drug use and lifetime overdose

  earlier age of initiating opioids

In perinatal individuals:

- 65% of perinatal individuals with OUD had an ACE score of 4 or more (average ACE score 4.3 vs 1.4 in a survey sample)
- 16-26% of pregnant women with OUD are diagnosed with PTSD

Inadequate access to MH services is:

- Associated with hospital admissions in perinatal individuals
- Seen as a barrier to care

Stein, Michael D et al." *Drug and alcohol dependence* vol. 179 (2017): 325-329.; Gannon et al *Comm Mental Health* 2020; Saia et al. Curr Obstet Gynecol Rep 5, 257–263 (2016;) Patrick et al 2020; Titus Glover et al 2020

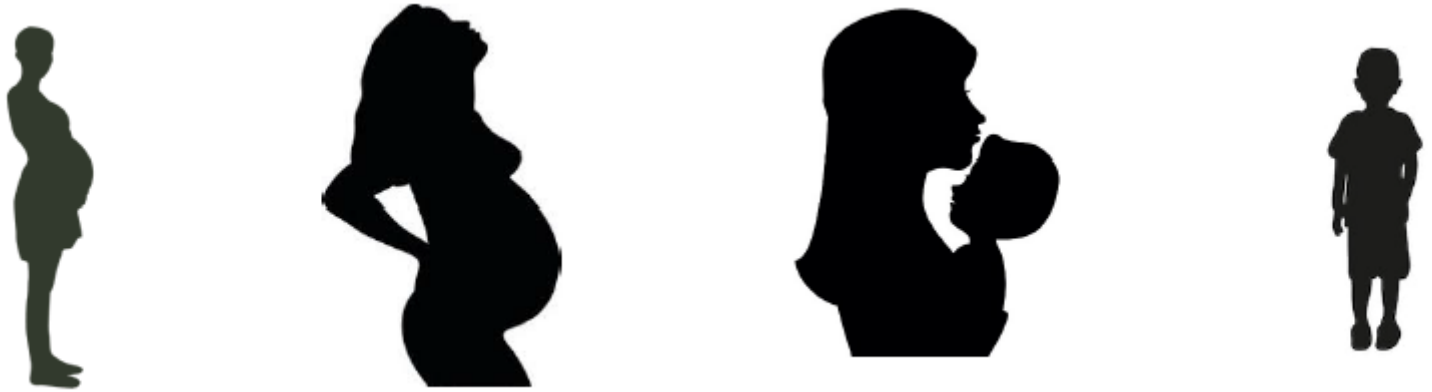
Substance use during pregnancy poses risk to the patient, fetus, and family

Exposure to Teratogens

Poor nutrition

Difficulties with labor management

Overdose



Limited access to prenatal care

Placental insufficiency

Withdrawal

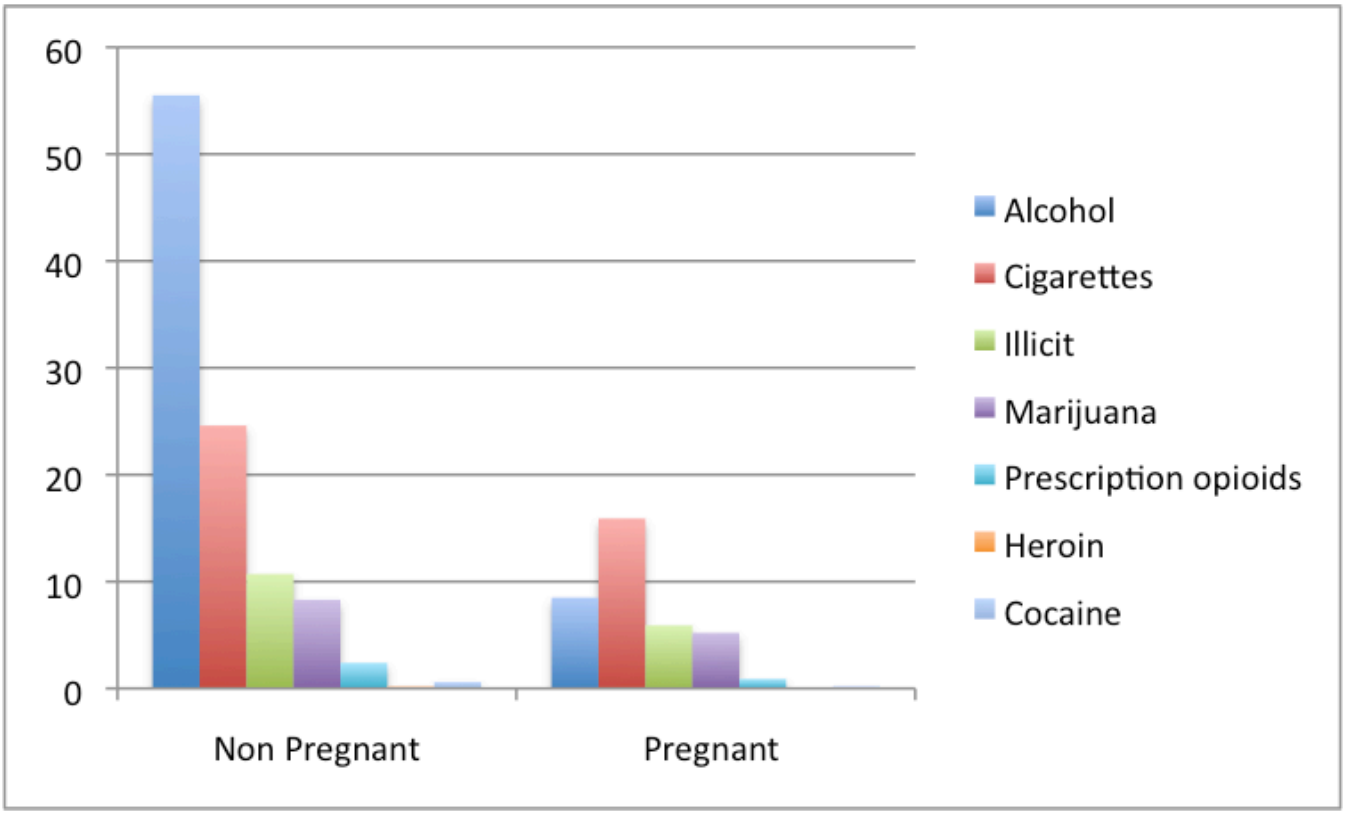
Infectious risk (eg HIV, HCV)

Preventable cause of maternal & infant mortality

Massachusetts Child Psychiatry Access Program MCPAP For Moms

Keegan J et al. J Addictive Diseases. 2010. 29 (2) 175-91

Pregnancy is a window of opportunity during which women stop using substances



Drug use in the past month, females 15-44

Havens JR et al. Drug and Alcohol Dependence 99 (2009) 89–95; NSDUH 2012 National Survey on Drug Use and Health (2012); Harrison et al Maternal Child Health J (2009) 13:386–394

Universal screening for substance use in pregnancy is recommended by many organizations

ACOG

The American College of Obstetricians and Gynecologists

CDC

Centers for Disease Control and Prevention

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

AMA

AMERICAN MEDICAL ASSOCIATION

Massachusetts Child Psychiatry Access Program

MCPAP For Moms

Screening Guidelines Set Forth by ACOG and ASAM

- All pregnant patients should be screed for SUD with validated instrument
  - 1st prenatal visit and as clinically indicated
  - Recommend verbal screener like AUDIT-C, DAST-10, 5 Ps
- Goal to:
  - ID individuals who need further assessment, referral to treatment
  - Improve maternal/fetal outcomes not to punish or prosecute patients
- While DCF may ask for certain testing results, they cannot require toxicology testing without a court order.

Toxicology Testing ≠ Screening

Has limits and is only part of an assessment of substance use

Maternal vs Neonatal testing

Clarify the characteristics of your institution's test

Massachusetts Child Psychiatry Access Program
MCPAP For Moms

Validated screening tools

AUDIT-C

Questions	Scoring Table					Score
	0	1	2	3	4	
How often do you have a drink containing alcohol?	Never	Monthly or less	2 - 4 times per month	2-3 times per week	4+ times per week	
How many units of alcohol do you drink on a typical day when you are drinking?	1 - 2	3 – 4	5 – 6	7 – 9	10+	
How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?	Never	Less than Monthly	Monthly	Weekly	Daily or almost Daily	

NIAA

DAST-10

These questions refer to drug use in the past 12 months. Please answer No or Yes.

	No	Yes
1. Have you used drugs other than those required for medical reasons?	☐	☐
2. Do you use more than one drug at a time?	☐	☐
3. Are you always able to stop using drugs when you want to?	☐	☐
4. Have you had 'blackouts' or 'flashbacks' as a result of drug use?	☐	☐
5. Do you ever feel bad or guilty about your drug use?	☐	☐
6. Does your spouse (or parents) ever complain about your involvement with drugs?	☐	☐
7. Have you neglected your family because of your use of drugs?	☐	☐
8. Have you engaged in illegal activities in order to obtain drugs?	☐	☐
9. Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?	☐	☐
10. Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsions, bleeding, etc.)?	☐	☐

Source: Skinner, H. A. (1982). The Drug Abuse Screening Test. *Addictive Behavior*, 7(4), 363-371.

5 P's	Yes	No
Did any of your **Parents** have problems with alcohol or drug use?		
Do any of your friends (**Peers**) have problems with alcohol or drug use?		
Does your **Partner** have a problem with alcohol or drug use?		
Before you were pregnant did you have problems with alcohol or drug use? (**Past**)		
In the past month, did you drink beer, wine or liquor, or use other drugs? (**Pregnancy**)		

The 5Ps was adapted by the Massachusetts Institute for Health and Recovery in 1999 from Dr. Hope Ewing's 4Ps (1990).

Validated Screening Tools

T-ACE Screening Tool

T-ACE is a measurement tool of four questions that are significant identifiers of risk drinking (i.e., alcohol intake sufficient to potentially damage the embryo/fetus).

The T-ACE is completed at intake. The T-ACE score has a range of 0-5. The value of each answer to the four questions is totaled to determine the final T-ACE score.

Note:
1 Drink
= 12 oz beer
= 12 oz cooler
= 5 oz wine
= 1 mixed drink (1.5 oz. hard liquor)

Binge (drinking) = consuming 5 or more alcoholic drinks on an occasion

A total score of 2 or greater indicates potential risk for the purposes of Pregnancy Outreach Program identification of prenatal risk.

1. How many drinks does it take to make you feel high? 0. less than or equal to 2 drinks 1. more than 2 drinks	**Tolerance**
2. Have people annoyed you by criticizing your drinking? 0. No 1. Yes	**Annoyance**
3. Have you felt you ought to cut down on your drinking? 0. No 1. Yes	**Cut Down**
4. Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover? 0. No 1. Yes	**Eye Opener**
Total Score = _____	

Sokol, Robert J., "Finding the Risk Drinker in Your Clinical Practice" in G. Robinson and R. Armstrong (eds). Alcohol and Child/Family Health: Proceedings of a Conference with Particular Reference to the Prevention of Alcohol-Related Birth Defects. Vancouver, BC., December, 1988.

Substance Use Risk Profile-Pregnancy (SURP-P)

Items:

- In the month before you knew you were pregnant, how many beers, how much wine, or how much liquor did you drink?
- Have you ever felt that you needed to cut down on your drug or alcohol use?

Scoring:

- Classify the number of alcoholic drinks before pregnancy as none compared with any.
- Count the number of affirmative items.
- 0=low risk 1=moderate risk 2–3=high risk
- In low-risk populations, one or more affirmative items indicate a positive screen, whereas, in high-risk populations, two or more affirmative items indicate a positive screen.

Yonker MD et al. Screening for Prenatal Substance Use Development of the Substance Use Risk Profile-Pregnancy Scale. Obstet Gynecol. 2010 Oct; 116(4): 827–833

Screening

- In most cases, pregnant patients who screen positive for drug or alcohol use do not need toxicology testing as the screening provides the clinician with the information needed to inform care plans.
- Need for toxicology testing determined by clinical presentation
  - Needs to be part of clear treatment plan
  - Only done if will change clinical management
  - Necessary to clarify diagnosis (example altered mental status)
- Not indicated for evaluation of PPROM or preterm labor
- Toxicology screen requires clear written **consent** and discussion of possible repercussions, record sharing, etc

Reporting

Child Abuse Prevention and Treatment Act (CAPTA) is federal legislation addressing child abuse and neglect across the United States enacted in 1974 and amended in 2016, by the Comprehensive Addiction and Recovery Act (CARA) of 2016. Under funding requirements of CAPTA, states must have: "policies and procedures to address the needs of infants born with and identified as being affected by substance abuse or withdrawal symptoms resulting from prenatal drug exposure, or a Fetal Alcohol Spectrum Disorder [FASD]." CAPTA is a notification requirement for the state, not for healthcare institutions. CAPTA does not require filing abuse or neglect reports to DCF, CAPTA only requires states to have policies in place for a notification of a substance exposed newborn for the purpose of identifying whether a family is in need of care or services. CARA also requires states ensure that a Plan of Safe Care is in place for families when there is a substance exposed newborn born.

Family Care Plan/Plan of Safe Care

- Should be completed prior to delivery
- Completed with patient's participation
- Belongs to the patient and their tool to help their treatment

Which Treatment to Choose

The risk of untreated symptoms must be balanced against the risk of treatment.

CANNABIS

Cannabis is the most commonly used illicit substance in pregnancy in the U.S. and recreational use is legal in Massachusetts

48-60% of users continue during pregnancy

There are limited human data available for CBD use in pregnancy

THC in marijuana ↑ 25x since 1970s

NSDUH 2018; Ryan et al Pediatrics 2018

The US Surgeon General, FDA, ACOG and AAP advise women to abstain from cannabis use in pregnancy and lactation

Developmental Risks

Visual processing/cognition
Neural Development

Intrauterine Growth Restriction

Low birth weight
Head circumference

Lactation

Concentrates in breastmilk
May inhibit milk supply

Marijuana use during pregnancy and lactation. Committee Opinion No. 637. American College of Obstetricians and Gynecologists. Obstet Gynecol 2015;126:234–8; Marroun et al (2009) JAACAP; Jacques Journal of Perinatology (2014)

STIMULANTS & COCAINE

The primary risks associated with cocaine use in pregnancy are due to vasoconstriction, not structural teratogenicity or withdrawal

Intoxication can mimic preeclampsia

Vasoconstriction

- Spontaneous abortion
- Placental abruption
- Placental insufficiency

Effects on child growth and neurodevelopment

- Increased risk of ADHD or ODD
- Poor language development
- Reduced executive functioning

Cressman et al JOGC 2014; Cain et al Clin OG 2013

Cannabis
Cocaine/Amphetamines

Pharmacologic management not shown to be effective in general population

Behavioral Management 1st line

- Psychotherapy (CBT) and 12 step programs very effective
- Contingency Management
- Network Therapy

Harm Reduction

ALCOHOL

Alcohol Use during Pregnancy is common and is associated with obstetric and neurodevelopmental consequences

Epidemiology

- 12.2% of pregnant women reported alcohol use during the prior month
- NO safe amount defined
- DSM5: Neurobehavioral DO associated with Prenatal Alcohol Exposure (ND-PAE)

Fetal effects

- Spontaneous AB, PTL, stillbirth, IUGR
- Ethnic variation, polymorphisms change risk for fetal effects

Neonatal effects

- 1st tri use – 12x risk of FASD
- Intoxication and Withdrawal
- SIDS

Childhood effects

- Learning DO, ADHD, executive dysfunction, anxiety DO, mood DO, SUD

Prenatal Alcohol Exposure

Leading preventable cause of birth defects and neurodevelopmental deficits in the United States

Out of all substances used, alcohol has the greatest neurobehavioral effects on the fetus

It can cause a range of intellectual and behavioral problems, which appear at any time during childhood and last a lifetime

Impacts of Alcohol Use in Pregnancy

Effect on perinatal person

- Acute intoxication
- Risks of chronic use
- Withdrawal syndromes

Effect on fetus/neonate

- Alcohol related birth defects
- Acute neonatal intoxication, hypotonia
- Neonatal withdrawal

Effect on child/family

- Neurobehavioral Disorder associated with prenatal alcohol exposure (DSM-5)
- Impact on parenting/custody

Fetal Alcohol Spectrum Disorder (FASD)

- FASD is not a clinical diagnosis and is used as an umbrella term for a range of physical, cognitive, and behavioral disorders caused by prenatal alcohol exposure

- Prevalence rates are estimated to be 1 in 20 in the U.S.

- It is highly misdiagnosed and underdiagnosed due to stigma, normalization of alcohol use and legislation, and most people with FASD lacking physical identifiers

- For centralized support in MA, visit https://massfasd.org/

FASD (2022)
May et al. (2018)

Brief Interventions can impact alcohol use in pregnancy

Providers can:

1. Screen, assess and provide clear recommendations to abstain

2. Relay education regarding potential harms

3. Set goals and evaluate strategies to avoid triggers

Floyd 2007; Bhat 2015

Medicated withdrawal/detox

Risks of:

- Seizures
- Death
- Premature labor
- Pregnancy loss

Medical wean/detox

- Pregnancy is indication for in hospital detoxification with fetal monitoring
- taper vs CIWA triggered
- lorazepam

Medication assisted management for abstinence

Naltrexone

No known malformations
Neurobehavioral effects not well known
No adverse birth outcomes
Pain management considerations

Disulfiram

Possible fetal malformations
Danger of adverse reaction with alcohol
NOT recommended

Acamprosate

Human safety data too sparse to know
Animal date shows interference embryofetal development

Gabapentin

Animal data concerning for fetal growth impairment and developmental delay but this has not been shown in human data
Case reports of premature delivery in patients with epilepsy
Helpful for hyperemesis
Concern for withdrawal seizure in neonate

Clonidine

No increase in malformations
No significant adverse effects on pregnancy
Monitor BP
Possible apnea in newborn with breastfeeding

Topiramate

Oral cleft in some human studies
Developmental toxicity in animal studies

Alcohol can negatively impact lactation

Alcohol can *decrease* breastmilk volume and milk ejection reflex

HIGH EXPOSURE RISK

Alcohol equilibrates across membranes within 30-60 minutes

Giglia 2006

OPIOIDS

Opioid use disorders in pregnancy are treated pharmacologically with methadone and buprenorphine

No FDA approved treatment

Mainstays of treatment:

- **Methadone**
- **Buprenorphine (single or combination)**
- **Naltrexone (emerging)**

High risk of relapse after discontinuation of opioids

Rementeria et al. *AJOG.* 1973; 2. Zuspan *AJOG*.. 3. Fricker *Arch of Pedi & Adol Med.* 1978 4 Luty *J of Sub Abuse Treat.* 2003 5.Towers et al AJOG 2015 6 Jones et al. *The American Journal on Addictions.* 2008

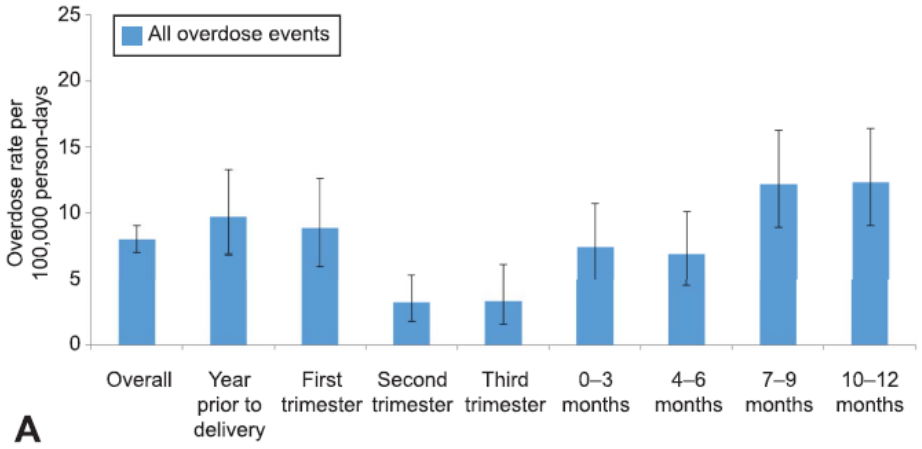
Maintenance treatment is preferred, but medication assisted withdrawal can be considered

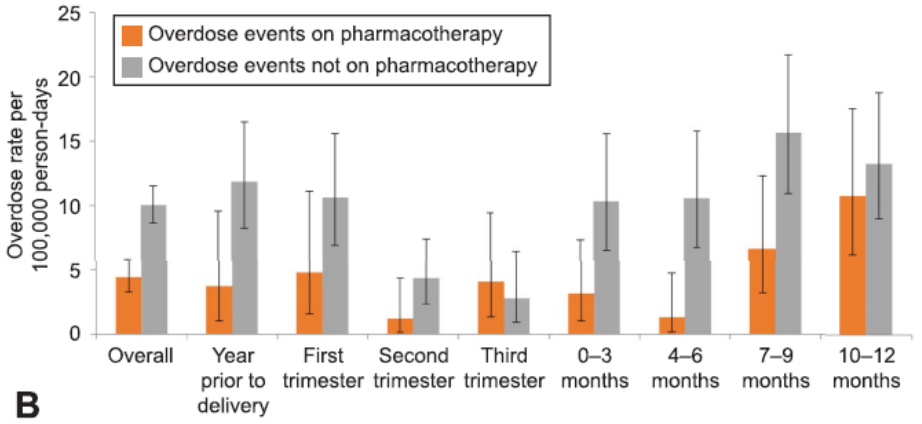
Some increasing literature supporting medication assisted withdrawal (aka Detox)

Absence MOUD provider
Pt preference
Risks for relapse remains high

Freeman et al. *Annals of Clinical Psychiatry* 2013

Opioid overdose is a leading cause of maternal mortality





Methadone and Buprenorphine save lives

Mortality is greatest after delivery

Metz 2016, Schiff et al 2018

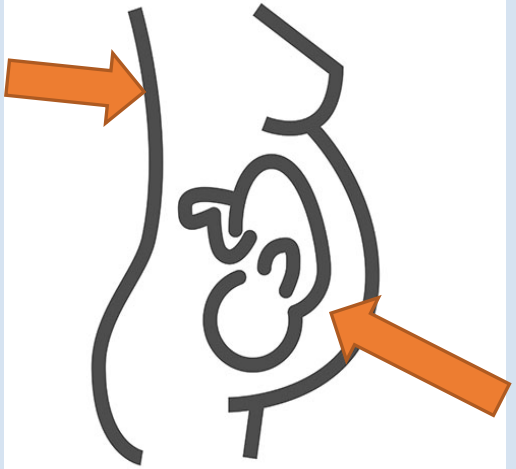
For women with opioid use disorders, there are maternal and fetal benefits to medication during pregnancy

Maternal Benefits:

70% reduction in overdose related deaths

Decrease in risk of HIV, HBV, HCV

Increased engagement in prenatal care and recovery treatment



Fetal Benefits:

Reduces fluctuations in maternal opioid levels; reducing fetal stress

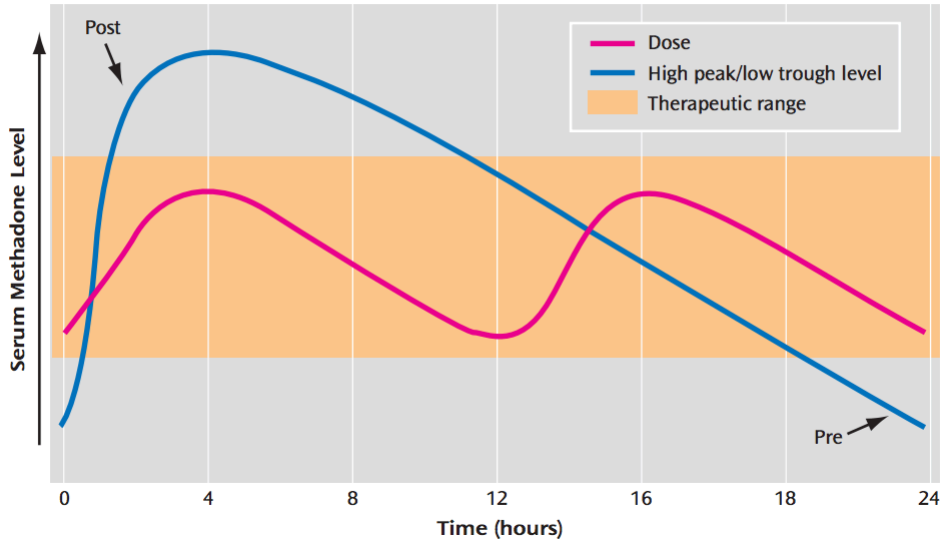
Decrease in intrauterine fetal demise

Decrease in intrauterine growth restriction

Decrease in preterm delivery

Pregnancy is known state of rapid metabolism

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



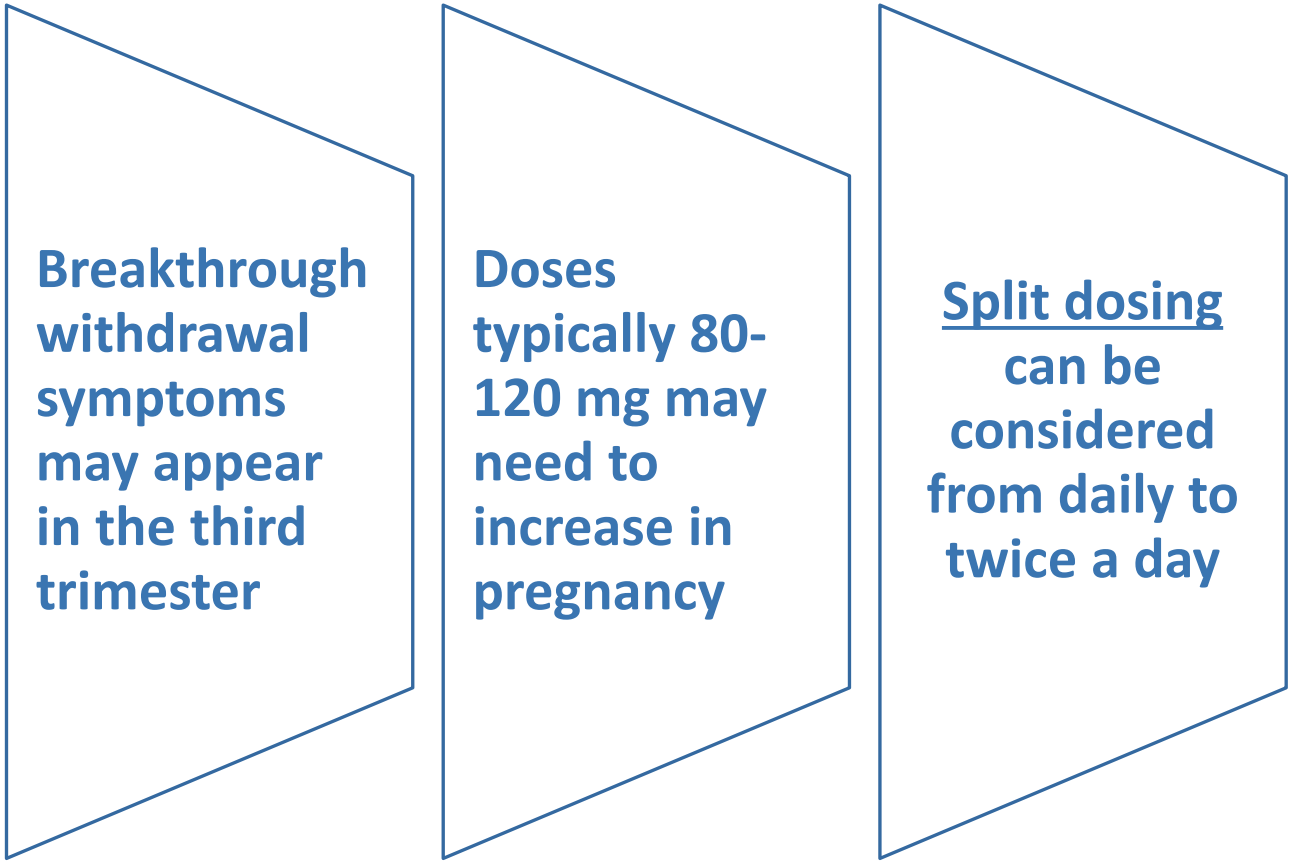
Payte 2002

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**

Bogen 2013; Tracy 2005; Jarvis 1999 Shiu Can J Hosp Pharm 2012; McCarthy J Addict Med. 2015, 2018

Dose adjustments for methadone are often needed in the third trimester due to the physiology of pregnancy



Park 2012

Buprenorphine is as effective as methadone for the treatment of opioid use disorder in pregnancy

No apparent difference between buprenorphine and methadone for:

- Medical complications at delivery
- Illicit drug use/relapse risk
- Abnormal presentation
- Use of analgesia
- Maternal weight gain
- Cesarean section
- Positive drug screen

Jones 2012

Buprenorphine is now a first line treatment for opioid use disorder during pregnancy with distinct features

Fewer drug interactions

Office based treatment

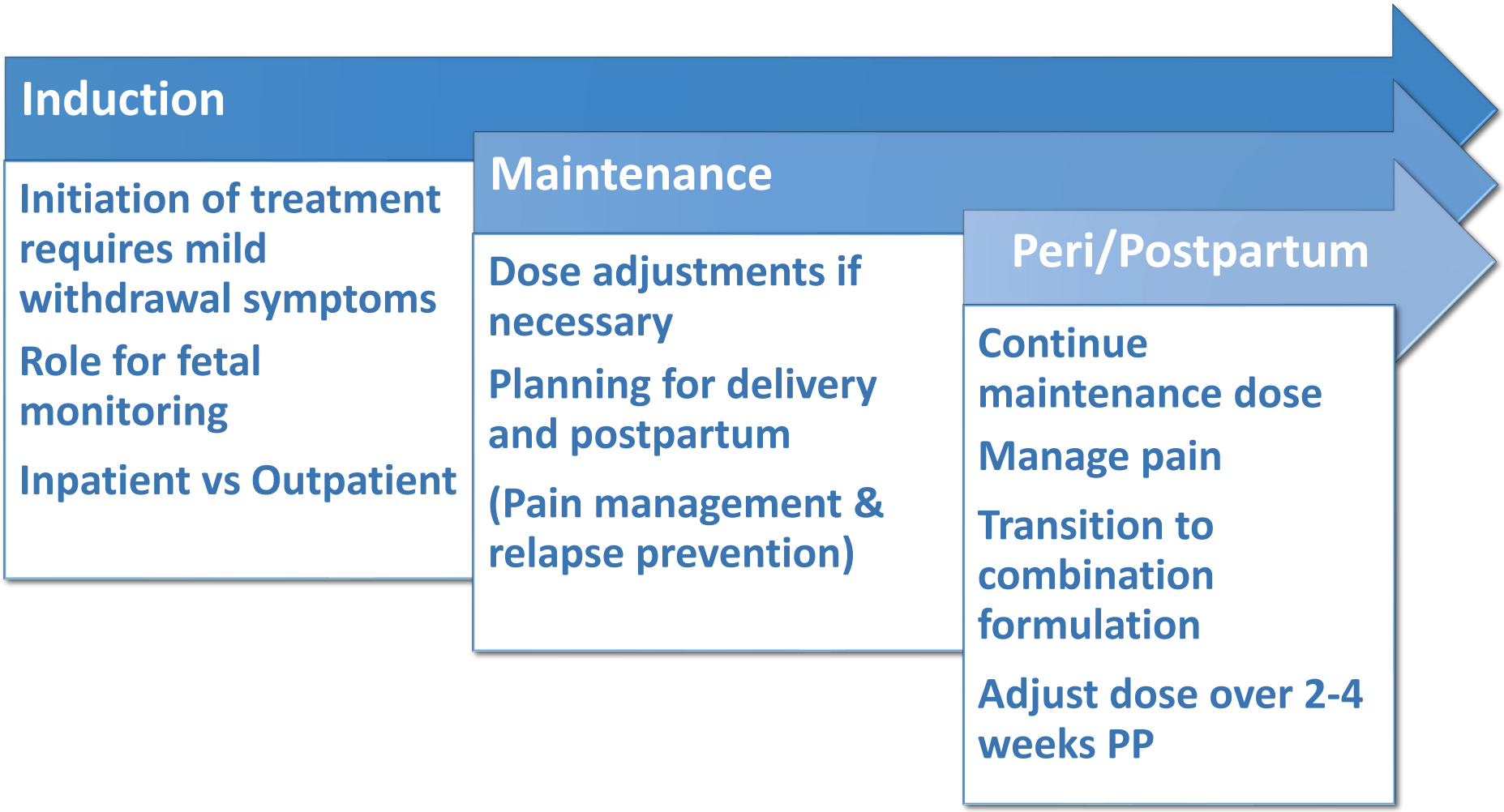
Babies exposed have less severe withdrawal

Lower risk of overdose and sedation

Single formulation (Subutex) is preferred

Combination formulation (Suboxone) may be more accessible

Treatment with buprenorphine during pregnancy consists of three distinct phases of management and monitoring



Peripartum pain management for women on buprenorphine and methadone patients requires a few special considerations

- ☑ Maintenance doses of methadone or buprenorphine are not sufficient analgesia
- ☑ Patients on agonist therapy report elevated pain scores and may have higher medication requirements
- ☑ Non narcotic pain treatment should always be offered such as regional (epidural or spinal anesthesia) or NSAIDs (postpartum)
- ☑ Avoid high affinity partial agonists (eg nalbuphine)

Alford 2006, Meyer 2010, Park 2012

Breastfeeding for newborns with NOWS can benefit the newborn and Mom

30% decrease in the development of NOWS

50% decrease in neonatal hospital stay

Breastfeeding should be encouraged for women on medication for opioid use disorder (MOUD)

Pritham UA et al. *J Obstet Gynecol Neonatal Nurs.* 2012., Welle-Strand GK et al. *Acta Paediatr*. 2013.,Wachman EM et al. *JAMA.* 2013., Abdel-Latif ME et al. *Pediatrics*

Buprenorphine induction

Traditional:

allow for start of withdrawal then give buprenorphine

in some cases, misjudged and caused precipitated withdrawal, especially with fentanyl use

Low dose induction:

does not require waiting for and tolerating withdrawal

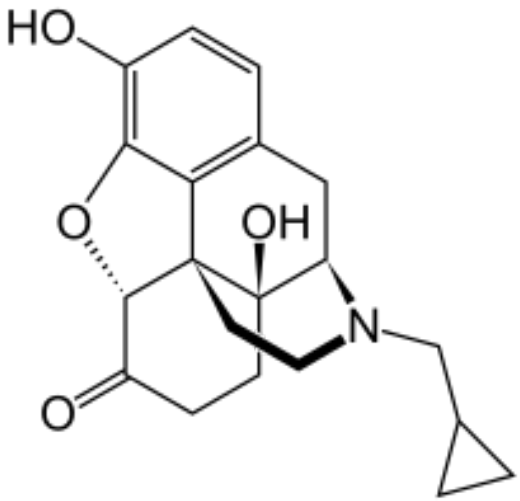
can be safely done in outpatient setting or at home

Data regarding the use of naltrexone during pregnancy is emerging

Limited human data

If the patient is stable on naltrexone may be reasonable to continue

Available as daily oral treatment or monthly injectable



Saia 2016

In summary MOUD shown to save lives

Buprenorphine

- Office based
- Lower risk of overdose
- Fewer drug-drug interactions
- Less risk of NOWS
- Can be long acting
- Patient preference

Methadone

- Daily dosing means daily contact
- Easier induction
- Patient preference

TOBACCO

Tobacco

7.2% of people who gave birth, smoked during pregnancy

46% of smokers were able to quit before or during pregnancy

Tobacco

- Inverse relationship between number of cigarettes smoked and birth weight
- Associated with IUGR, placental previa, placental abruption, PPROM, low birth weight, perinatal mortality, and ectopic pregnancy
- 23%-34% cases of SIDS attributed to prenatal maternal smoking

Tobacco

- **Behavioral Management 1st line**
  - 1-800-QUIT-NOW

- Medication
  - **Bupropion**
    - Effective
    - more pregnancy safety data
    - stronger evidence that it's effective
  - **Varenicline**
    - less pregnancy safety data
  - Can be used together

- Nicotine Replacement
  - patch, gum, lozenge, inhaler
  - not enough pregnancy safety data to know if it's safe
  - not recommended first line

Mental Health Resources for Perinatal Individuals

National Maternal Mental Health Hotline

Text or call 24/7
1-833-TLC-MAMA
https://mchb.hrsa.gov/programs-impact/national-maternal-mental-health-hotline
https://mchb.hrsa.gov/es/programas-impacto/linea-nacional-asistencia-salud-mental-materna
Available in English and Spanish, Interpreters available in 60 languages

Postpartum Support International-PSI

1-800-944-4773, # 1 En Español , #2 English
Text in English: 800-944-4773
Text en Español: 971-203-7773
Resources include free online support meetings
https://postpartum.net/
https://postpartum.net/en-espanol/