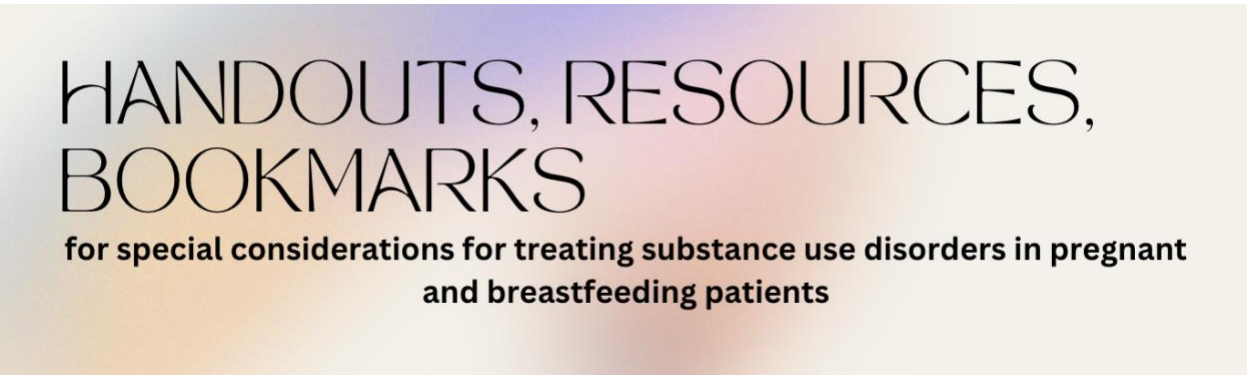

HANDOUT CONTENTS

- Slide Deck Notes Pages
- Shared Decision-Making Tool for the Treatment of Perinatal Opioid Use Disorder
- Medications and drugs in pregnancy and lactation handouts:
  - Alcohol
  - Buprenorphine
  - Cannabis
  - Cigarette smoking
  - Cocaine
  - E-cigarettes
  - Gabapentin
  - Lorazepam
  - Methadone
  - Methamphetamine
  - Naltrexone

RESOURCES TO BOOKMARK

- **To find PLLR information:** DailyMed https://dailymed.nlm.nih.gov/dailymed/
- **To talk to an expert:** Postpartum Support International FREE Perinatal Psychiatric Consult Line 1-877-499-4773 https://www.postpartum.net/professionals/perinatal-psychiatric-consult-line/
- **To peruse the Latest Research:** MGH Center for Women's Mental Health https://womensmentalhealth.org/
- **For Printable Patient Info:** MotherToBaby.org https://mothertobaby.org/
- **For Lactation Info:** LactMed https://www.ncbi.nlm.nih.gov/books/NBK501922/

USEFUL BOOKS

- *Textbook of Women's Reproductive Mental Health*
- Hale's Medications & Mothers' Milk 2023: A Manual of Lactational Pharmacology

Prepared by: Layne A. Gritti DO dr.gritti@sweetgrasspsychiatry.com

Friday, October 13, 2023

Ohio Society for Addiction Medicine Annual Meeting

NEW BEGINNINGS, LASTING RECOVERY

Special considerations for treating substance use disorders in pregnant and breastfeeding patients

Layne A. Gritti DO

Adult, Addiction, & Perinatal Psychiatrist

1

OBJECTIVES

Knowledge to walk away with

- How to conduct a Risk-Risk Analysis
- Know how to find PLLR labeling for medications
- Understand pertinent lactation physiology
- Review evidence for commonly used addiction medications in pregnancy

2

CLINICAL CONSIDERATIONS

- Patient preference
- Severity of illness episodes
- Previous response to treatments
- Degree of recurrence of illness
- Duration of current stability

3

4

5

DYAD

noun. 1. a group of two; couple; pair

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Risks associated with untreated OUD during pregnancy	
Birthing person	Fetus

Risks associated with buprenorphine	
Birthing person	Fetus

9

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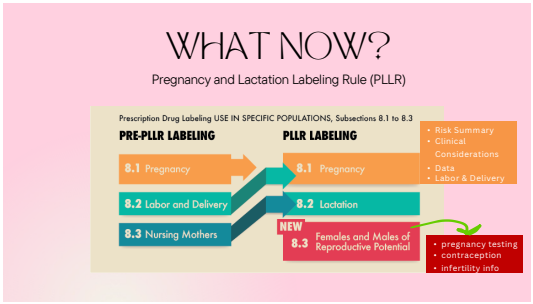

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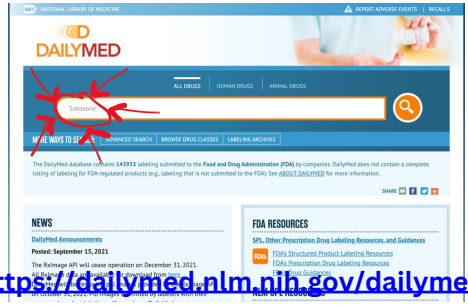

https://dailymed.nlm.nih.gov/dailymed/

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8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Risk Summary

The data on use of buprenorphine, one of the active ingredients in SUBOXONE sublingual film, in pregnancy, are limited; however, these data do not indicate an increased risk of major malformations specifically due to buprenorphine exposure. There are limited data from randomized clinical trials in women maintained on buprenorphine that were not designed appropriately to assess the risk of major malformations *[see Data]*. Observational studies have reported on congenital malformations among buprenorphine-exposed pregnancies, but were also not designed appropriately to assess the risk of congenital malformations specifically due to buprenorphine exposure [*see Data*]. The extremely limited data on sublingual naloxone exposure in pregnancy are not sufficient to evaluate a drug-associated risk.

Reproductive and developmental studies in rats and rabbits identified adverse events at clinically relevant and higher doses. Embryofetal death was observed in both rats and rabbits administered buprenorphine during the period of organogenesis at doses approximately 6 and 0.3 times, respectively, the human sublingual dose of 16 mg/day of buprenorphine. Pre-and postnatal development studies in rats demonstrated increased neonatal deaths at 0.3 times and above and dystocia at approximately 3 times the human sublingual dose of 16 mg/day of buprenorphine. No clear teratogenic effects were seen when buprenorphine was administered during

Reference ID: 4756504

organogenesis with a range of doses equivalent to or greater than the human sublingual dose of 16 mg/day of

14

8.2 Lactation

Risk Summary

Based on two studies in 13 lactating women maintained on buprenorphine treatment, buprenorphine and its metabolite norbuprenorphine were present in low levels in human milk and infant urine. Available data have not shown adverse reactions in breastfed infants. There are no data on the combination product buprenorphine/naloxone in breastfeeding, however oral absorption of naloxone is limited. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for SUBOXONE sublingual film and any potential adverse effects on the breastfed child from the drug or from the underlying maternal condition.

Clinical Considerations

Advise breastfeeding women taking buprenorphine products to monitor the infant for increased drowsiness and breathing difficulties.

Data

Data were consistent from two studies (N=13) of breastfeeding infants whose mothers were maintained on sublingual doses of buprenorphine ranging from 2.4 to 24 mg/day, showing that the infants were exposed to less than 1% of the maternal daily dose.

In a study of six lactating women who were taking a median sublingual buprenorphine dose of 0.29 mg/kg/day 5 to 8 days after delivery, breast milk provided a median infant dose of 0.42 mcg/kg/day of buprenorphine and 0.33 mcg/kg/day of norbuprenorphine, equal to 0.2% and 0.12%, respectively, of the maternal weight-adjusted dose (relative dose/kg (%) of norbuprenorphine was calculated from the assumption that buprenorphine and norbuprenorphine are equipotent).

Data from a study of seven lactating women who were taking a median sublingual buprenorphine dose of 7 mg/day an average of 1.12 months after delivery indicated that the mean milk concentrations (C_{ss}) of buprenorphine and norbuprenorphine were 3.65 mcg/L and 1.94 mcg/L respectively. Based on the study data, and assuming milk consumption of 150 mL/kg/day, an exclusively breastfed infant would receive an estimated mean absolute infant dose (AID) of 0.55 mcg/kg/day of buprenorphine and 0.29 mcg/kg/day of

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8.3 Females and Males of Reproductive Potential

Infertility

Chronic use of opioids may cause reduced fertility in females and males of reproductive potential. It is not known whether these effects on fertility are reversible *[see Adverse Reactions (6.2), Clinical Pharmacology (12.2), Nonclinical Toxicology (13.1)]*.

8.4 Pediatric Use

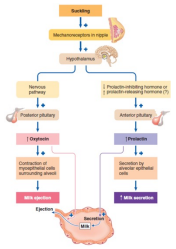
The safety and effectiveness of SUBOXONE sublingual film have not been established in pediatric patients. This product is not appropriate for the treatment of neonatal abstinence syndrome in neonates, because it contains naloxone, an opioid antagonist.

8.5 Geriatric Use

Clinical studies of SUBOXONE sublingual film, SUBOXONE sublingual tablets, or SUBUTEX sublingual tablets did not include sufficient numbers of subjects aged 65 and over to determine whether they responded differently than younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients. Due to possible decreased hepatic, renal, or cardiac function and of concomitant disease or other drug therapy in geriatric patients, the decision to prescribe SUBOXONE sublingual film should be made cautiously in individuals 65 years of age or older and these patients should be monitored for signs and symptoms of toxicity or overdose.

8.6 Hepatic Impairment

The effect of hepatic impairment on the pharmacokinetics of buprenorphine and naloxone has been evaluated in a pharmacokinetic study. Both drugs are extensively metabolized in the liver. While no clinically significant changes have been observed in subjects with mild hepatic impairment; the plasma levels have been shown to be higher and half-life values have been shown to be longer for both buprenorphine and naloxone in subjects with moderate and severe hepatic impairment. The magnitude of the effects on naloxone are greater than that on buprenorphine in both moderately and severely impaired subjects. The difference in magnitude of the



LACTATION PHYSIOLOGY

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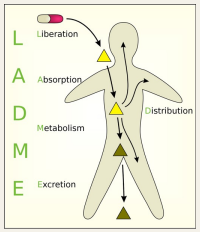

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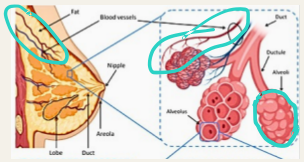

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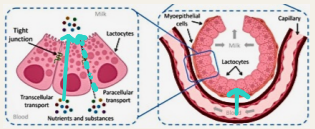

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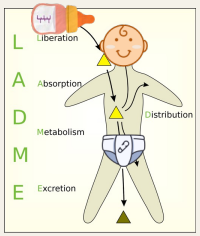

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CALCULATING RELATIVE INFANT DOSE

Infant daily dosage = M/P x maternal serum concentration x milk volume

(Milk to Plasma Ratio; average milk volume = 150 mL/kg/day (fully breastfed))

$$RID = \frac{\text{Infant daily dosage (mg/kg)}}{\text{maternal daily dosage (mg/kg)}} \times 100$$

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HALE'S MEDICATIONS & MOTHERS' MILK™ 2021

In summary, it is unlikely that the breast milk levels of the combination of buprenorphine + naloxone would be significant. Therefore the use of buprenorphine + naloxone is probably compatible with breastfeeding.

T 1/2	Bup/nalox: 26-37 h/64 min	MW	Bup/nalox: 504/399 Da	PB	Bup/nalox: 96%/45%
Tmax	Bup/nalox: day3/	RID	0.13%-2.52%	Vd	Bup/nalox: 97-187/2.6-2.8 L/kg
Oral	Bup/nalox: 15%/nil	M/P	1-2	pKa	Bup/nalox: 8.24,9.92/7.9

Adult Concerns: Headache, sedation, respiratory depression/apnea, hypotension, nausea, vomiting, constipation, weakness, pruritus. Withdrawal symptoms on discontinuation of drug.

Adult Dose: 16 mg buprenorphine/4 mg naloxone daily for maintenance therapy.

Pediatric Concerns: None reported via milk at this time, but data is limited at these doses.

Infant Monitoring: Sedation, slowed breathing rate/apnea, pallor, constipation and not waking to feed/poor feeding.

Alternatives: Methadone(L2)

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COMMONLY USED MEDICATIONS FOR SUD

in Pregnancy & Lactation

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Summary of Perinatal Substance Use Effects on Pregnancy and Infant Outcomes

	Tobacco	Alcohol	Cannabis	Stimulants	Opiates
Pregnancy outcomes					
Preterm birth	✓	✓	✓	✓	✓
Small for gestational age	✓	✓	✓	✓	✓
Low birthweight	✓	✓	✓	✓	✓
Miscarriage/Spontaneous abortion	✓	✓		✓	
Placental abruption	✓			✓	
Premature rupture of membranes	✓			✓	
Ectopic pregnancy	✓				
Infant effects					
Cognitive deficits	✓	✓	✓	✓	✓
Teratogenicity		✓			
Infant mortality/Sudden Infant Death Syndrome	✓				✓
Neonatal Withdrawal/Abstinence Syndrome		✓			✓
Behavioral Problems	✓	✓	✓	✓	✓

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MEDICATION FOR TOBACCO USE DISORDER

- 8 RCTS on NRT
  1 eleven-women study on bupropion + CBT
  0 on varenicline or e-cigs
- Low compliance, similar rates of poor OB outcomes
- NRT appears no more effective than placebo

Should we treat with any of these modalities?

28

ALTHOUGH IT IS NOT ROUTINELY RECOMMENDED...

- Has your patient had a history of successful smoking cessation in the past with medication?
- Risks of continued tobacco use vs NRT

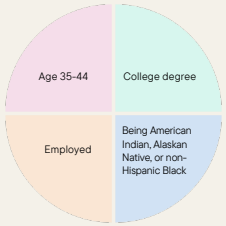
29

TUD BEHAVIORAL INTERVENTIONS:

motivational interviewing (MI), contingency management (CM)
CM + financial incentives appears to be the most effective

30

RISK FACTORS FOR ALCOHOL USE DURING PREGNANCY



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Medication for Alcohol Use Disorder During Pregnancy

NO STUDIES

of FDA-approved medications for AUD

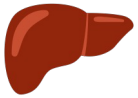
Naltrexone for OUD: reassuring data but limited by small sample sizes, no control, confounders, lack of long-term follow up

32

extended-release injectable naltrexone?

33

Liver disease



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MEDICATION FOR ALCOHOL USE DISORDER

Acute Withdrawal Management During Pregnancy

- Reassuring data on benzodiazepines
- Shorter acting preferred

35

AUD CONSIDER

Behavioral Interventions*

- motivational enhancement therapy
- cognitive behavioral therapy
- psychotherapy
- educational interventions

***unclear if any treatment is superior**

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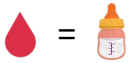
DON'T PUMP AND DUMP!

Alcohol & Breastfeeding



0.5-3.3%

2-2.5h

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MEDICATION FOR OPIOID USE DISORDER

Buprenophine

Standard of care

Methadone

Standard of care

Naltrexone

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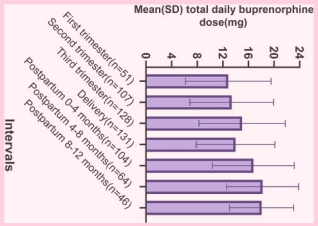

Higher doses may be needed as the pregnancy progresses.

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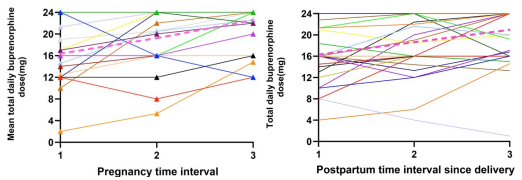

1= First trimester
2=Second trimester
3=Third trimester

Dosing in pregnancy may vary *widely* between individuals.

1=0-4 Months
2=4-8 Months
3=8-12 Months

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WITHDRAWAL MANAGEMENT?

43

What about subcutaneous buprenorphine?

- limited to case reports of *unplanned* pregnancies
  - switched to SL buprenorphine
- Atrigel delivery system made of poly (D, L-lactate-co-glycolide) and NMP (N-methyl-2-pyrrolidone)
- NMP risk?

44

NALOXONE SAVES LIVES

Give it to your pregnant patients too

45

STIMULANTS?

consider: **CM**, MI, CBT

These all have been shown to reduce cocaine use

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USEFUL& FREE RESOURCES

To talk to an expert:

Postpartum Support International FREE Perinatal Psychiatric Consult Line
1-877-499-4773

To peruse the Latest Research:

MGH Center for Women's Mental Health

For Printable Patient Info:

MotherToBaby.org

For Lactation Info:

LactMed

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A Shared Decision-Making Tool for the Treatment of Perinatal Opioid Use Disorder (OUD)

Who is this treatment decision aid for?

This decision aid is for pregnant women who are stable in recovery from their Opioid Use Disorder (OUD). The following information is to help pregnant women decide which medication approach is best for the treatment of OUD. Specifically, the following is to help women decide to either continue or taper Buprenorphine or Methadone during pregnancy.

What are the current treatment recommendations for pregnant women with OUD?

Several professional organizations(1-6) recommend Methadone or Buprenorphine as part of a comprehensive treatment plan for pregnant women with OUD. This recommendation is based on data that demonstrate that pregnant women who taper Methadone or Buprenorphine are at high risk for relapse to drug use and that drug use causes more harm to women, their pregnancy, fetus and newborn compared to treatment with Methadone or Buprenorphine.(1,2)

What do I need to know in order to decide if taking Methadone or Buprenorphine is right for me?

It is important that you understand the risks of taking Methadone or Buprenorphine during pregnancy. It is equally as important that you understand the risk of relapse to drug use if you taper Methadone or Buprenorphine as well as the potential harms associated with drug use during pregnancy.

We encourage you to read the following and talk with your provider about the risks of Methadone and Buprenorphine and the risks of not taking these medications, in general, and for you as an individual, so that you can make an informed decision about the treatment of OUD that is best for you and your family.

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Risks of Methadone or Buprenorphine:

Taking Buprenorphine or Methadone during pregnancy has been associated with: 1) Prematurity; 2) Low birth weight; and 3) Newborn Opioid Withdrawal Syndrome (NOWS).

Prematurity

Prematurity is defined as birth prior to 37 weeks gestation. The rate of preterm birth in the United States is 9.63%.(7) Preterm birth is associated with newborn death, breathing and feeding difficulties as well as cerebral palsy, developmental delays, vision problems and hearing problems.(7) Estimates vary, but approximately 7-19% of women taking Buprenorphine or Methadone during pregnancy have experienced preterm delivery.(8) You can decrease your risk of preterm birth by quitting smoking.

Low Birth Weight

Low birth weight is birth weight less than 2.5kg (2500g). The rate of low birth weight in the United States is 9.47%.(7) Low birth weight is associated with adult chronic medical conditions, such as diabetes, hypertension and heart disease.(9) Estimates vary, but approximately 2.1-9.3% of women taking Buprenorphine or Methadone during pregnancy will have newborns with low birth weight.(10) You can decrease your risk of low birth weight by quitting smoking.

Newborn Opioid Withdrawal Syndrome (NOWS)

Both Methadone and Buprenorphine are associated with Newborn Opioid Withdrawal Syndrome (NOWS) described below. Approximately 60% of newborns exposed to Methadone or Buprenorphine during pregnancy will experience NOWS.(11,12) Symptoms of NOWS often appear within 1-3 days after birth but can take up to 1 week to appear.

The following is a list of the most common symptoms of NOWS:

- High-pitched cry
- Jitteriness
- Tremors
- Generalized convulsions
- Sweating
- Fever
- Mottling of skin
- Excessive sucking or rooting
- Poor feeding
- Vomiting
- Diarrhea

All newborns exposed to Methadone or Buprenorphine or potentially any opioid during pregnancy will be monitored for NOWS following delivery for approximately 4-7 days. Newborns with NOWS will be treated with medication and/or an opioid medication. Opioid medication will be tapered and this process can take 3-6 weeks or longer. It is therefore possible that you will be discharged from the hospital prior to your newborn, even if your newborn is just being monitored for NOWS, unless your hospital is able to make other arrangements for your stay.

You can reduce the risk and/or severity of NOWS by:

- Abstaining from drug use
- Quitting smoking
- Discontinuing or reducing the use of some medications [e.g., benzodiazepines, sedative hypnotics, selective serotonin reuptake inhibitors (SSRIs)] as appropriate during pregnancy

- Breastfeeding
- Skin-to-skin contact with your newborn

The severity of NOWS and the amount of medication and hospital stay needed to treat newborn withdrawal may be less in newborns that have been exposed to Buprenorphine compared to Methadone during pregnancy. It does not appear that reducing your dose or discontinuing your dose of Methadone or Buprenorphine eliminates your risk of NOWS. Studies where women have discontinued Buprenorphine still have newborns with NOWS.(13) The risk of NOWS in these women seems to be higher in women that relapse to drug use [70.1%] compared to women that do not relapse to drug use [17.4%].(13)

Risk of Relapse to Drug Use in Pregnancy:

The risk for relapse to drug use while on Methadone or Buprenorphine and engaged in a comprehensive addiction treatment program is approximately 9-15%.(8)

The risk for relapse to drug use when Methadone is tapered in women prior to the prescription opioid epidemic [and the primary opioid of use included heroin] is 41-96%.(14-18)

The risk for relapse to drug use when Methadone or Buprenorphine is tapered in women during the prescription opioid epidemic [and the primary drug of use was prescription opioids and/or heroin] is 17-74%.(13,19-22) The lower proportion of women that relapsed [17%] occurred in women that underwent longer tapers [e.g., 8-16 weeks] and had more intensive follow-up care [Monday- Friday intensive behavioral health program].(13) The higher proportion of women that relapsed [74%] occurred in women that underwent shorter tapers and had little follow-up care. The risk of NOWS appears to be higher in women that relapse to drug use [70.1%] compared to women that do not [17.4%].(13)

Risks of Drug use in Pregnancy:

Drug use in pregnancy has been associated with a number of poor maternal, fetal, obstetric and newborn outcomes.(23) In comparison to women without opioid abuse or dependence, women with opioid abuse or dependence were more likely to have the following complications at the time of delivery:(23)

- Death
- Cardiac arrest [heart attack]
- Intrauterine growth restriction
- Placental abruption
- Length of stay >7 days
- Preterm birth
- Oligohydramnios
- Transfusion
- Stillbirth
- Premature rupture of membranes
- Cesarean delivery
- Severe preeclampsia or eclampsia
- Anesthesia complications

Some states require that the Department of Child and Family Services be notified if a woman is using drugs during pregnancy. In some states it is illegal to use drugs during pregnancy and doing so can result in arrest or removal of child custody. It is important to know your states reporting requirements and laws related to drug use in pregnancy. A helpful resource is: https://projects.propublica.org/graphics/maternity-drug-policies-by-state

Risk of relapse to drug use for you as an individual:

Some things to consider in evaluating your risk for relapse are if you have relapsed to drug use while not taking Methadone or Buprenorphine in the past and/or in a previous pregnancy. Do you have friends and family that support your recovery? Are you able to attend and engage in addiction treatment services and/or a 12 step facilitated program?

On a scale of 1-10, with 10 being the most likely to relapse to drug use, how likely do you think you would relapse to drug use if you were not taking Methadone or Buprenorphine (circle a number below)?

1 2 3 4 5 6 7 8 9 10

Why is your rating not higher or lower?

Please list your reasons why you are likely or unlikely to relapse to drug use.

Reasons I'm likely to not relapse **(Reasons why your rating is not higher)**	**Reasons I am likely to relapse** **(Reasons why rating is not lower)**

On a scale of 1-10, with 10 being the strongest preference, rate your preference for taking Methadone or Buprenorphine during pregnancy (circle a number below).

1 2 3 4 5 6 7 8 9 10

Please list reasons why you prefer or prefer not to take Methadone or Buprenorphine.

Do not prefer to take Methadone or Buprenorphine (Reasons why your rating is not higher)	**Prefer to take Methadone or Buprenorphine (Reasons why rating is not lower)**

Continuing Methadone or Buprenorphine:

If you prefer to continue taking Methadone or Buprenorphine during pregnancy and/or suspect that your risk for relapse to drug use is high if you were to taper this medication, we

would recommend that you continue Methadone or Buprenorphine. We would also recommend that you work with your provider to find other ways to reduce your risk of NOWS by abstaining from drug use, quitting smoking, and/or discontinuing or minimizing the use of other medications [benzodiazepines, hypnotics, SSRIs] as appropriate. You should work with your provider to find the lowest effective dose of Methadone or Buprenorphine needed to reduce cravings, urge to use drugs and/or use of drugs. It does not appear that reducing your dose of Methadone or Buprenorphine reduces your risk of NOWS. Using a lower dose that is not effective for the treatment of your OUD incurs the risk of both the medication and the risk for relapse and risk associated with drug use.

You may also want to consider breastfeeding and skin-to-skin contact with your newborn as this may reduce the severity of NOWS. You may want to consider visiting the hospital where you will deliver to meet the staff and learn about how they will monitor and, if appropriate, treat NOWS. It will also be important to know about your hospitals drug testing procedures or potential for consultation with the Department of Child and Family Services at the time of delivery.

Discontinuing Methadone or Buprenorphine:

If you have a strong preference for discontinuing Methadone or Buprenorphine and/or suspect that your risk for relapse to drug use is low, we would recommend that you work closely with your provider(s) to taper this medication over weeks to months with frequent follow-up care. Pregnant women that discontinued their Buprenorphine had a lower risk of relapse [17%] if they received intensive behavioral health care.(13)

In an effort to reduce your risk for relapse we recommend that you taper your Buprenorphine slowly and participate in behavioral health treatment including relapse prevention

and/or a 12-step facilitated program. We recommend that if you relapse to drug use, or experience increased cravings and/or a strong desire or urge to use drugs, you should return to the prior effective dose of Buprenorphine or Methadone to reduce drug use and/or cravings. You may also want to consider breastfeeding and skin-to-skin contact with your newborn as this may reduce the severity of NOWS. You may want to consider visiting the hospital where you will deliver to meet the staff and learn about how they will monitor and, if appropriate, treat NOWS. It will also be important to know about your hospitals drug testing procedures or potential for consultation with the Department of Child and Family Services at the time of delivery.

Planning for pain management:

In the event of a cesarean section, you will likely be prescribed an opioid medication consistent with the standard of care for pain management following a cesarean section. For many people with an OUD this can be a 'trigger' for relapse to drug use. Asking trusted family or friends to hold and dispense this medication for you can help reduce pain associated with surgery and prevent you from overusing this medication.

Review decision aid throughout pregnancy:

This decision aid can be reviewed throughout your pregnancy and updated as new information about your treatment and recovery from OUD becomes available.

Planning for after delivery:

It is also important to plan for the postpartum period. If you are taking Methadone and Buprenorphine during pregnancy, will this medication be continued postpartum and, if so, who will prescribe this medication and how will the medication be paid for? If you are not taking Methadone or Buprenorphine during pregnancy, will you restart this medication postpartum and, if so, who will prescribe this medication and how will the medication be paid for?

Alcohol

This sheet is about exposure to alcohol in pregnancy and while breastfeeding. This information is based on available published literature. It should not take the place of medical care and advice from your healthcare provider.

What is alcohol?

Alcohol, ethanol, and ethyl alcohol are all names for the ingredient in beer, malt liquor, wine, and spirits ("hard liquor") that can cause intoxication (including feeling "buzzed" or drunk). Standard servings of beer (12 ounces), malt liquor (8 ounces), wine (5 ounces), and spirits (1.5 ounces) all contain about the same amount of alcohol, although exact amounts can vary. For females, having 8 or more drinks per week is considered heavy drinking (for males, 15 or more drinks per week). Having 4 or more drinks on one occasion (about 2-3 hours) is binge drinking for females (5 or more drinks on one occasion for males).

It is recommended not to drink any amount of alcohol at any time in pregnancy or if you might be pregnant. Alcohol can affect a pregnancy even before a person knows they are pregnant. If a person who is pregnant is using alcohol, it is recommended they stop as soon as possible, no matter how far along they are in their pregnancy. The baby will still benefit from no longer being exposed to alcohol. If you are pregnant or might get pregnant and cannot stop drinking, talk with your healthcare provider as soon as possible. They can go over what resources are available to help you stop.

Is any amount of alcohol okay to drink during pregnancy?

Any amount of alcohol could be harmful to a pregnancy. Alcohol easily crosses the placenta and reaches the developing baby. The chance that a baby will be affected by alcohol can depend on many factors, including genetics, nutrition, and alcohol metabolism (how the body processes alcohol) of both the person who is pregnant and the developing baby. The risks may be different for the same person in different pregnancies.

I drink alcohol. Can it make it harder for me to get pregnant?

Some studies have shown an increase in problems with fertility (ability to get pregnant) with heavy alcohol use.

Does drinking alcohol increase the chance of miscarriage?

Miscarriage is common and can occur in any pregnancy for many different reasons. Studies have reported higher rates of miscarriage among those who drink alcohol during pregnancy.

Does drinking alcohol increase the chance of birth defects?

Every pregnancy starts out with a 3-5% chance of having a birth defect. This is called the background risk. Drinking alcohol in pregnancy can cause Fetal Alcohol Spectrum Disorder (FASD). FASD includes a range of effects related to alcohol exposure in pregnancy, from physical birth defects (including defects of the heart, kidneys, and bones) to changes in brain development. These effects can range from mild to severe. Depending on the specific effects or combination of effects, healthcare providers use different terms to describe different kinds of FASD.

The most severe form of FASD is Fetal Alcohol Syndrome (FAS). Children with FAS have a pattern of birth defects that includes specific facial features, a smaller head and body size, and effects on brain development that can cause significant challenges in learning and behavior.

The chances of a baby having FAS/FASD from heavy drinking and binge drinking in pregnancy have been well established. The risks from occasional use of lower amounts of alcohol are less clear.

Does drinking alcohol in pregnancy increase the chance of other pregnancy-related problems?

Studies have reported higher rates of stillbirth among people who drink alcohol during pregnancy. Drinking alcohol may also increase the chance of preterm delivery (delivery before 37 weeks of pregnancy) and cause the baby to grow smaller than expected.

Does drinking alcohol during pregnancy affect future behavior or learning for the child?

Drinking alcohol in pregnancy affects brain development and is a leading cause of intellectual disability. A baby's brain

develops throughout pregnancy, so drinking alcohol at any time in pregnancy increases the chance for the baby to have intellectual disabilities and learning problems. People with FASD can also have behavioral problems, such as poor judgment, not understanding the consequences of their actions, and trouble with social relationships. These problems can create lifelong challenges for people who are affected and their families.

I just found out I am pregnant and last weekend I had one beer. Will my baby have FASD?

Having a single serving of alcohol one time is much less concerning than heavy or binge drinking and is considered less likely to cause alcohol-related problems for the baby. However, it is recommended that you avoid further use of alcohol during your pregnancy.

Does binge drinking only on some days carry the same risk as drinking lower amounts every day?

Binge drinking exposes the developing baby to the highest amount of alcohol at one time and is known to increase risks to the pregnancy. The effects of other specific patterns of alcohol use in pregnancy are not as well understood because some studies look at weekly averages while others look at daily use.

If I keep drinking alcohol, will it cause withdrawal symptoms in my baby after birth?

The use of alcohol during pregnancy can cause temporary symptoms in newborns soon after birth. These symptoms are sometimes referred to as withdrawal. Babies have a higher chance of going through withdrawal if they have been exposed to alcohol close to delivery. Symptoms of withdrawal can include involuntary shaking movements (tremors), increased muscle tone, restlessness, and excessive crying.

Are there tests that can help me know if alcohol has affected my baby?

Talk with your healthcare provider about your alcohol use and the best ways to monitor your baby's growth and development during pregnancy. Ultrasounds can look for some birth defects and follow the baby's growth. There are no screenings or tests available during pregnancy that can tell if alcohol has caused intellectual disabilities or learning problems, or if it will affect future behavior for the child.

It is suggested that you also talk to your baby's healthcare provider about your alcohol use during pregnancy. They can evaluate your child after being born for any effects from alcohol and continue to monitor for learning and behavioral issues as the child gets older. Although FASD cannot be cured, children can benefit from an early diagnosis. Your child's healthcare provider can talk with you about services and support that are available for families and children with problems related to alcohol exposure in pregnancy.

Breastfeeding while drinking alcohol:

Alcohol easily gets into breast milk. The amount of alcohol in a person's breast milk is about the same as in their blood. Alcohol can pass back and forth between the bloodstream and the breast milk. Only time can lower the amount of alcohol in the blood and breast milk. Pumping and discarding milk, drinking water, taking caffeine, or exercising do not help the body get rid of alcohol faster. It takes about 2 to 2.5 hours for each standard drink to clear from breast milk. For each additional drink, a person must wait another 2-2.5 hours per drink. If needed, the person may pump during this time to stay comfortable and keep up their milk supply. Discarding this pumped milk will help avoid exposing the baby to any alcohol in the milk. Drinking alcohol can also make it harder for the body to make milk.

The infant brain continues to grow after birth. Effects on the baby's development from alcohol in breast milk are not well studied. One study suggested problems with motor development following exposure to alcohol in breast milk, but other studies did not show the same results. Some reports found that babies exposed to alcohol through breast milk may eat less and/or have changes in their sleeping patterns. If you suspect that the baby has any symptoms, contact the child's healthcare provider.

Consuming more than one drink per day is not recommended while breastfeeding. However, since breastfeeding has known benefits for the baby, talk with your baby's healthcare provider about how much and how often you drink so they can help you weigh the risks and benefits of continuing to breastfeed. Be sure to talk to your healthcare provider about all your breastfeeding questions.

If a male drinks alcohol, could it affect fertility or increase the chance of birth defects?

Some studies have shown that drinking alcohol lowers male fertility (ability to get partner pregnant). Male exposure to alcohol is not known to increase the chance for birth defects above the background risk. In general, exposures that

fathers or sperm donors have are unlikely to increase the risks to a pregnancy. For more information, please see the MotherToBaby fact sheet Paternal Exposures at https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/.

Please click here for references.

Buprenorphine

This sheet is about exposure to buprenorphine in pregnancy and while breastfeeding. This information should not take the place of medical care and advice from your healthcare provider.

What is buprenorphine?

Buprenorphine is an opioid medication. Opioids are sometimes called narcotics. Buprenorphine is used to treat addiction to opioid drugs (such as heroin) and narcotic painkillers. It has also been used to treat pain. It is available as an injection (including brand names Buprenex® and Sublocade®), an oral film that dissolves in the mouth (Belbuca®), and a patch worn on the skin (Butrans®). Buprenorphine is also available in different forms combined with the medication naloxone (such as Bunavail®, Suboxone®, and Zubsolv®).

I am taking buprenorphine, but I would like to stop taking it before becoming pregnant. How long does the medication stay in my body?

Sometimes when people find out they are pregnant, they think about changing how they take their medication, or stopping their medication altogether. However, it is important to talk with your healthcare providers before making any changes to how you take this medication. Your healthcare providers can talk with you about the benefits of treating your condition and the risks of untreated illness during pregnancy.

People get rid of medications from their bodies at different rates. In healthy, non-pregnant adults, it takes up to 9 days, on average, for most of the buprenorphine to be gone from the body. It may take a longer time for long-acting (extended-release) medications.

I just found out I am pregnant. Should I stop taking buprenorphine?

No. If you have been taking buprenorphine regularly you should not stop suddenly (also called “cold turkey”). Stopping an opioid medication suddenly could cause you to go into withdrawal. More research is needed to know how going through withdrawal might affect a pregnancy. Talk with your healthcare providers before making any changes to your medications. Changes to your buprenorphine treatment during pregnancy or while breastfeeding should be done only under the care of your healthcare provider.

I take buprenorphine. Can it make it harder for me to get pregnant?

Studies have not been done to see if taking buprenorphine can make it harder to get pregnant.

Does taking buprenorphine increase the chance of miscarriage?

Miscarriage can occur in any pregnancy. Limited studies looking at buprenorphine use in pregnancy have not found higher rates of miscarriage than what is seen in the general population. However, there are no published studies looking specifically at whether buprenorphine increases the chance of miscarriage. Based on the studies reviewed, it is not known if buprenorphine increases the chance for miscarriage.

Does taking buprenorphine increase the chance of birth defects?

Every pregnancy starts out with a 3-5% chance of having a birth defect. This is called the background risk. Limited studies looking at buprenorphine in pregnancy have not reported an increased chance for birth defects. Not every opioid medication has been studied on its own. Some studies that have looked at opioids as a group suggest that opioids in general might be associated with birth defects. However, studies have not found a specific pattern of birth defects caused by opioids. Based on these studies, if there is an increased chance for birth defects with opioid use in pregnancy, it is likely to be small.

Does taking buprenorphine in pregnancy increase the chance of other pregnancy-related problems?

When taken as prescribed, buprenorphine is not expected to increase the chance for pregnancy problems. Studies involving people who often use some opioids during their pregnancy have found an increased chance for poor pregnancy outcomes such as poor growth of the baby, stillbirth, delivery before 37 weeks of pregnancy (preterm delivery), and C-section. This is more commonly reported in those who are taking a drug like heroin or who are using

prescribed pain medications in higher amounts or for longer than recommended by their healthcare provider. Use of an opioid close to the time of delivery can result in withdrawal symptoms in the baby (see the section of this fact sheet on Neonatal Abstinence Syndrome).

Will my baby have withdrawal (Neonatal Abstinence Syndrome) if I continue to take buprenorphine?

Studies have reported that some babies will experience neonatal abstinence syndrome (NAS) when buprenorphine is used up to the time of delivery.

NAS is the term used to describe withdrawal symptoms in newborns from medication(s) that a person takes during pregnancy. For any opioid, symptoms can include difficulty breathing, extreme drowsiness (sleepiness), poor feeding, irritability, sweating, tremors, vomiting and diarrhea. NAS symptoms from buprenorphine may not appear for several days after birth and may last more than two weeks. Most babies can be successfully treated for withdrawal while in the hospital. If you use opioids, it is important that your baby's healthcare providers know, so they cancheck for symptoms of NAS.

Does taking buprenorphine in pregnancy affect future behavior or learning for the child?

Based on the studies reviewed, there is not enough information to know if buprenorphine increases the chance for behavior or learning issues. Some studies on opioids as a general group have found more problems with learning and behavior in children exposed to opioids for a long period of time during pregnancy. It is hard to tell if this is due to the medication exposure or other factors such as use of tobacco, alcohol, and/or other substances that can increase the chances of these problems.

What if I have been taking more buprenorphine than recommended by my healthcare provider?

Studies find that pregnant women who misuse opioids have an increased chance for pregnancy problems. These include poor growth of the baby, stillbirth, premature delivery, and the need for C-section. Some women who misuse opioids also have unhealthy lifestyles that can result in health problems for both the mother and the baby. For example, poor diet choices can lead to mothers not having enough nutrients to support a healthy pregnancy and could increase the chance of miscarriage and premature birth. Sharing needles to inject opioids increases the risk of getting diseases like hepatitis C and/or HIV which can also infect the baby.

Breastfeeding while taking buprenorphine:

Buprenorphine gets into breastmilk in low amounts. Talk with your healthcare provider or a MotherToBaby specialist about your medication, as information on breastfeeding might change based on your specific situation such as the age of your baby, the dose and delivery type of the medication (injection, oral film, patch), and other factors.

Use of some opioids in breastfeeding might cause babies to be very sleepy and have trouble latching on. Some opioids can cause trouble with breathing. Talk to your healthcare provider about how to monitor (watch) your baby for any signs of concern while you are taking buprenorphine. Contact the baby's healthcare provider right away if you suspect the baby has any problems such as increased sleepiness (more than usual), trouble feeding, trouble breathing, or limpness. Be sure to talk to your healthcare provider about all your breastfeeding questions.

If a male takes buprenorphine, could it affect fertility (ability to get partner pregnant) or increase the chance of birth defects?

Studies have not been done to see if buprenorphine could affect male fertility or increase the chance of birth defects. In general, exposures that fathers or sperm donors have are unlikely to increase risks to a pregnancy. For more information, please see the MotherToBaby fact sheet Paternal Exposures at https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/.

Please click here for references.

Marijuana (Cannabis)

This sheet is about exposure to marijuana in pregnancy and while breastfeeding. This information should not take the place of medical care and advice from your healthcare provider.

What is marijuana?

Marijuana is made from a mix of dried flowers from the ***Cannabis sativa*** plant. Some other names for marijuana are pot, weed, or cannabis. There are several ways to use marijuana, including smoking or vaping (inhaling), eating or drinking products infused with marijuana (edibles), or as a preparation applied to the skin (topical). The main active chemical in marijuana is delta-9-tetrahydrocannabinol (THC), which is what gives people that "high" feeling.

Another major component of marijuana is cannabidiol (CBD). CBD can be found in many products such as coffee, chocolate, supplements, tinctures, cosmetics, lotions, suppositories, and bath salts. CBD products labeled as "THC free" might still contain a measurable amount of THC.

Professional organizations such as the American Academy of Pediatrics (AAP) and the American College of Obstetricians and Gynecologists (ACOG) advise that people who are pregnant avoid using marijuana. The U.S. Food and Drug Administration (FDA) advises against the use of CBD, THC, and marijuana in any form during pregnancy or while breastfeeding.

How much is known about the effects of marijuana on a pregnancy?

It is hard to study marijuana use during pregnancy. Marijuana contains about 400 different chemicals. Some marijuana preparations can be contaminated with other drugs, pesticides, and/or fungi.

Most of the older studies focus on people who inhale marijuana, not ingest it or use it topically. Eating or drinking products with marijuana in them might lead to higher levels of marijuana in the body.

The THC in marijuana has become more potent (stronger) over the years. Results from studies done years ago on marijuana with lower THC levels may report different risks than the risks from stronger THC.

It can be hard to collect correct information on how much and how often marijuana is used. As with any exposure, some people who use marijuana during pregnancy may also use other substances such as alcohol, tobacco, or other drugs, may have medical conditions, and/or have a lack of prenatal care which could increase the chance of pregnancy-related problems.

I use marijuana. Can it make it harder for me to get pregnant?

It is not known if marijuana can make it harder to get pregnant. Some studies suggest that long-term use of marijuana might affect the menstrual cycle, which could make it harder to get pregnant.

I am using marijuana, but I would like to stop before getting pregnant. How long could it stay in my body?

People eliminate drugs at different rates. The way marijuana is used (inhalation, ingesting, topically), how often it is used, and how much is used can affect how long its metabolites can stay in the body. For some people, it might take up to 30 days for the THC metabolite to be gone from the body.

Does using marijuana increase the chance for miscarriage?

Miscarriage is common and can occur in any pregnancy for many different reasons. Based on the studies reviewed, it is not known if using marijuana increases the chance for miscarriage. One study found that people who used marijuana were at an increased risk of having a miscarriage. Other studies have not confirmed this finding.

Does using marijuana increase the chance of birth defects?

Every pregnancy starts out with a 3-5% chance of having a birth defect. This is called the background risk. Most studies have not found an increase in the chance for birth defects in pregnancies exposed to "occasional" marijuana use. Some studies have suggested an increase chance for some birth defects, including gastroschisis (a rare birth

defect in which the infants' intestines stick out of an opening in the abdominal wall).

Does using marijuana in pregnancy increase the chance of other pregnancy-related problems?

Based on the studies reviewed, marijuana might increase risks to a pregnancy. Smoking marijuana can increase carbon monoxide levels in the blood. This can lower the amount of oxygen that passes to the developing pregnancy. Some studies have suggested that among people who smoke marijuana regularly, there is an increased chance for pregnancy complications such as preterm delivery (birth before week 37), low birth weight (weighing less than 5 pounds, 8 ounces [2500 grams] at birth), small length, small head size, and stillbirth. It is not known if these complications are caused by the marijuana use itself, or if the people in these studies had other risk factors (such as smoking cigarettes).

If I use marijuana throughout my entire pregnancy, will it cause withdrawal symptoms in my baby after birth?

There are reports of some newborns who were exposed to marijuana during pregnancy with temporary symptoms, such as jitteriness and irritability. There are also reports of babies who did not have these symptoms. It is important that your healthcare providers know you are taking marijuana so that if symptoms occur your baby can get the care that is best for them.

Does using marijuana in pregnancy affect future behavior or learning for the child?

Based on the studies reviewed, it is not known if marijuana increases the chance for behavior or learning issues. Several studies have followed children exposed to marijuana during pregnancy. Some available information suggests these children are at higher risk for problems with the ability to plan, focus, remember, and multi-task (impaired executive functioning). There might also be a higher chance for exposed children to be impulsive, hyperactive, aggressive, and/or to experience depression and anxiety. These children were also more likely to have problems with paying attention, remembering things, and doing well in school. One study found an increased risk for autism spectrum disorder when marijuana was used during the pregnancy. These issues have been reported more often in children of "heavy" marijuana users (users who smoked one or more marijuana cigarettes per day). The evidence is not conclusive and not all studies agree.

Breastfeeding while using marijuana:

THC passes into breastmilk. The amount of time THC remains in the milk can range from 6 days to 6 weeks. Available information on use marijuana in breastfeeding has not proven clear health concerns when a person who is breastfeeding reports smoking marijuana on a daily basis. There may be a possible delay in motor development (learning to crawl and walk on time).

In some people, use of marijuana might affect prolactin (a hormone that helps the body make milk). There is a concern that frequent marijuana users may see a negative effect on the quality and amount of milk they produce.

Most professional organizations such as the American Academy of Pediatrics, the Academy of Breastfeeding Medicine, and the American College of Obstetricians and Gynecologists advise that people who are breastfeeding avoid using marijuana. Be sure to talk to your healthcare provider about all your breastfeeding questions.

If a male uses marijuana, could it affect fertility (ability to get partner pregnant) or increase the chance of birth defects?

Based on the studies reviewed, marijuana may affect male fertility. Marijuana use might impact sperm, including the number of sperm (sperm count), the size and shape of sperm (morphology) and the ability for sperm to reach the egg (motility). These factors could make it harder to conceive a pregnancy. In general, exposures that fathers or sperm donors have are unlikely to increase the risks to a pregnancy. For more information, please see the MotherToBaby fact sheet Paternal Exposures at https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/.

Please click here for references.

Cigarette Smoke

This sheet is about exposure to cigarette smoke in pregnancy and while breastfeeding. This information should not take the place of medical care and advice from your healthcare provider.

What is in cigarette smoke?

Cigarette smoking produces smoke. Cigarette smoke is made of gases and tiny particles that are released when cigarettes are burned. It has over 4,000 compounds including nicotine, tar, arsenic, lead, and carbon monoxide. When you breathe cigarette smoke into your lungs, the gases and particles get into your blood and organs. Some of these chemicals cross the placenta and lower the amount of oxygen and food available for a developing baby. You can be exposed to cigarette smoke or some of the particles by smoking a cigarette and through secondhand smoke. Secondhand smoke is breathing in the cigarette smoke of another person that is smoking near you.

Can cigarette smoke make it harder for me to get pregnant?

Some studies have found that exposure to cigarette smoke can make it harder to get pregnant compared to people who do not have exposure to cigarette smoke. Problems with getting pregnant may be higher for people who smoke more than 10 cigarettes a day. A person's ability to get pregnant might improve once they stop smoking.

Does cigarette smoke increase the chance for miscarriage?

Miscarriage is common and can occur in any pregnancy for many different reasons. The chance of miscarriage is higher for people who are exposed to cigarette smoke. There might also be a higher chance of ectopic pregnancy (where the developing embryo grows outside of the uterus).

Does cigarette smoke increase the chance of birth defects?

Every pregnancy starts out with a 3-5% chance of having a birth defect. This is called the background risk. Some studies suggest that cigarette smoke exposure during pregnancy might increase the chance of certain birth defects, including oral clefts (when the lip or palate [roof of the mouth] does not fully close during development), heart defects, problems with the respiratory system and digestive system.

Does cigarette smoke increase the chance of other pregnancy-related problems?

Cigarette smoke is linked with a higher chance of preterm delivery (birth before week 37) and low birth weight (weighing less than 5 pounds, 8 ounces [about 2500 grams] at birth). The more exposure to cigarette smoke that a person has during pregnancy, the greater the chance for preterm delivery and the earlier the baby could be born. A baby born too early has a higher chance for health problems and may need to stay in the hospital longer. Low birth weight can also make it harder for the baby to recover from serious health problems. Those who stop smoking early in pregnancy can lower their chance of having a baby with low birth weight.

Cigarette smoke is also linked to serious problems with the placenta (the organ that grows in the uterus during pregnancy). The placenta delivers nutrients (food) and oxygen to the growing baby. Placental problems can include placenta previa (placenta blocks the birth canal) and placental abruption (placenta breaks away from the uterine wall early). These conditions can cause vaginal bleeding and can be life threatening to the person who is pregnant and/or result in loss of the pregnancy***.***

Cigarette smoke has also been associated with an increased chance for stillbirth and sudden infant death syndrome (SIDS).

A higher chance of asthma, bronchitis and respiratory infections during childhood has also been found in children exposed to cigarette smoke during pregnancy.

If I smoke cigarettes near the end of my pregnancy, will it cause withdrawal symptoms in my baby after birth?

Smoking cigarettes near the end of pregnancy can cause temporary symptoms in newborns soon after birth. These symptoms are sometimes referred to as withdrawal. Symptoms such as irritability, increased muscle tone (stiff

muscles) and muscle tremors have been seen in newborns exposed to cigarette smoking during the last weeks of pregnancy. These symptoms are usually short-term and can be treated, if needed by the healthcare team. It is not known how often this might happen.

Can exposure to cigarette smoke during pregnancy affect future behavior or learning for the child?

Several studies have found a link between cigarette smoke exposure in pregnancy and learning and behavior problems in the exposed children. For example, there is a possible association with a higher chance of attention deficit hyperactivity disorder (ADHD).

I don't smoke many cigarettes in a day. Is this still a problem?

It is recommended not to smoke cigarettes at all during pregnancy. If you are smoking, it is best to completely stop smoking as early in pregnancy as possible. Even a few cigarettes a day lowers the amount of oxygen and nutrients the baby gets. The less you smoke, and/or the less exposure to secondhand smoke you have, the less you and your baby are at risk of having problems. If you cannot stop smoking, reducing the number of cigarettes a day that you smoke could help.

I am 28 weeks pregnant and I have been smoking cigarettes for all of my pregnancy. Is it too late to quit?

It is never too late to quit smoking. If you stop smoking, you stop the exposure to your pregnancy. Stopping at any time during pregnancy can help to improve the growth and development of your baby. Stopping will also help your newborn by not exposing them to secondhand smoke after they are born. Secondhand smoke can affect the health of children after they are born if people smoke around them or in the home.

Are there any resources or medical treatments available to help me to quit smoking?

Quitting is more successful with professional and family/friend support. For free advice and referrals, call the Smoker's Quitline at 1- 800-QUIT-NOW (1-800-784-8669) from anywhere in the U.S.. There are also online resources to help you quit smoking such as https://www.cdc.gov/tobacco/campaign/tips/quit-smoking/index.html. If it does not seem possible to stop smoking without medical treatment, discuss your options with your healthcare provider.

Breastfeeding and cigarette smoke:

It is recommended to not smoke while breastfeeding and to avoid exposure to second hand smoke. Nicotine can get into breast milk and could affect your baby. Your baby may also be exposed to other unhealthy chemicals from cigarettes that could cross into the breast milk. Despite these risks, the benefits of breastfeeding might outweigh the risks of cigarette smoking for most babies. If you cannot stop smoking completely, reduce the number you smoke as much as possible, and do not smoke in the house or when you are near the baby. Also ask others not to smoke around you or in your home. Be sure to talk to your healthcare provider about all of your breastfeeding questions.

If a male smokes cigarettes, could it affect fertility (ability to get partner pregnant) or increase the chance of birth defects?

Studies have not been done in males to see if cigarette smoke could increase the chance of birth defects above the background risk. Exposure to cigarette smoke might affect a male's ability to have sex (erectile function). It can also affect sperm counts, as well as the shape and movement of sperm. This might make it harder to get a partner pregnant. If your partner is already pregnant, it is recommended to stop smoking or not smoke around the person who is pregnant (including in their house or car) because exposure to second hand smoke can cause pregnancy complications. For more information on paternal exposures, please see the MotherToBaby fact sheet Paternal Exposures at https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/

Please click here for references.

Cocaine

This sheet is about exposure to cocaine in pregnancy and while breastfeeding. This information should not take the place of medical care and advice from your healthcare provider.

What is cocaine?

Cocaine is a powerful stimulant of the central nervous system (brain and spinal cord). Cocaine has been used medically as a local anesthetic (for pain). Cocaine has also been used without a prescription (misused) to get a "high" feeling. Cocaine can be inhaled through the nose, rubbed onto the gums, injected, or smoked. Some nicknames for cocaine are blow, coke, flake, and snow. Crack is powdered cocaine that has been mixed and cooked with baking soda. It is broken into chunks (rocks) and most often smoked.

If you have been using any form of cocaine, talk with your healthcare providers right away. It is important to stop using cocaine. However, reducing / stopping cocaine use needs to be done under the care of a healthcare provider. Stopping suddenly (also called "cold turkey") could cause you to go into withdrawal. It is not known how withdrawal might affect a pregnancy.

I use cocaine. Can it make it harder for me to get pregnant?

It is not known if cocaine can make it harder to get pregnant.

Does using cocaine increase the chance of miscarriage?

Miscarriage is common and can occur in any pregnancy for many different reasons. Using cocaine can increase the chance of miscarriage, especially when tobacco is also used.

Does using cocaine increase the chance of birth defects?

Every pregnancy starts out with a 3-5% chance of having a birth defect. This is called the background risk. It is not known if cocaine can increase the chance of birth defects above the background risk. Birth defects that have been reported with cocaine use in pregnancy include abnormalities of the brain, skull, face, eyes, heart, limbs, intestines, genitals, and urinary tract. However, most babies exposed to cocaine during pregnancy do not have a birth defect.

Does using cocaine in pregnancy increase the chance of other pregnancy-related problems?

Babies exposed to cocaine during pregnancy tend to weigh less, be shorter in length, and have smaller heads than babies who were not exposed to cocaine during pregnancy. Cocaine can also increase the chance for preterm delivery (birth before week 37).

Cocaine use can cause the placenta to pull away from the wall of the uterus before labor starts (placental abruption). This can lead to heavy bleeding and can be fatal for the person who is pregnant and/or for the pregnancy.

If I use cocaine throughout my entire pregnancy, will it cause withdrawal symptoms in my baby after birth?

The use of some drugs during pregnancy can cause temporary symptoms in newborns soon after birth. These symptoms are sometimes referred to as withdrawal. Symptoms reported in newborns with exposure to cocaine late in pregnancy include irritability, tremors, muscle stiffness, poor feeding, trouble with sleeping, and hyperactivity. Less commonly, vomiting, diarrhea, and seizures have also been reported. Symptoms usually start at 1 to 2 days after birth. Some of these problems might last for weeks after birth, and sometimes longer.

Does using cocaine in pregnancy affect future behavior or learning for the child?

Cocaine exposure in pregnancy can cause significant central nervous system problems that may not be seen until the child is older. This can include problems with attention and self-control, delays in learning, trouble processing emotions, language difficulties, and increased need for special education in school.

Breastfeeding while using cocaine:

Breastfeeding while using cocaine is not recommended. Cocaine in any form can pass into breast milk. Exposure to

cocaine is serious and can cause toxicity in the nursing child. Symptoms can include irritability, choking, high blood pressure, vomiting, trouble breathing, and seizures. Never put cocaine on your nipples to treat soreness. This is extremely dangerous for the baby and is known to cause seizures. If you suspect the baby has any symptoms (irritability, choking, high blood pressure, vomiting, trouble breathing, or seizures), contact the child's healthcare provider. Be sure to talk to your healthcare provider about all your breastfeeding questions.

If a male uses cocaine, could it affect fertility (ability to get partner pregnant) or increase the chance of birth defects?

It has been suggested to avoid cocaine and other substance use before conception. Using cocaine may affect sperm shape and movement, which could make it harder to conceive a pregnancy. No birth defects have been reported as a direct result of male exposure to cocaine. For more general information on paternal exposures, please see the MotherToBaby fact sheet at https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/.

Please click here for references.

E-cigarettes (Vaping)

This sheet is about exposure to e-cigarettes in pregnancy and while breastfeeding. This information should not take the place of medical care and advice from your healthcare provider.

What are e-cigarettes?

Electronic cigarettes, or e-cigarettes, are battery operated devices that heat a liquid solution into an aerosol (a fine spray) that you inhale (breath in), like you would inhale tobacco smoke from a traditional cigarette. E-cigarettes are known by many different names. They are sometimes called “e-cigs,” “e-hookahs,” “mods,” “vape pens,” “vapes,” “tank systems,” and “electronic nicotine delivery systems (ENDS).” Using e-cigarettes is sometimes referred to as “vaping.”

The solutions in e-cigarettes can include chemicals such as nicotine, propylene glycol, ethylene glycol, polyethylene glycol, diacetyl, and/or glycerol; and heavy metals such as nickel, tin, and/or lead. Artificial flavorings might also be added. E-cigarettes might also have contaminants that could pose a risk to both the health of the person using the e-cigarette and a pregnancy.

How does the nicotine level in e-cigarettes compare to traditional cigarettes?

It is not clear. E-cigarettes are largely unregulated, so the nicotine dose varies widely and may not match what the label says. Nicotine has been found in e-cigarettes labeled as not having nicotine, and some e-cigarettes reported to have nicotine do not. It is possible that someone could receive a higher nicotine dose with e-cigarettes compared to traditional cigarettes.

E-cigarettes are promoted as a quit smoking-aid, but studies have not shown them to be effective. For this reason, plus uncertainty about the ingredients, the use of e-cigarettes is not recommended during pregnancy. Our fact sheet on tobacco cigarettes can be found at https://mothertobaby.org/fact-sheets/cigarette-smoking-pregnancy/.

I use e-cigarettes. Can they make it harder for me to get pregnant?

It is not known if e-cigarettes can make it harder to get pregnant.

Does using e-cigarettes increase the chance for miscarriage?

Miscarriage can occur in any pregnancy. Studies have not been done to see if e-cigarettes increase the chance for miscarriage. Studies on traditional cigarettes that include nicotine have found an increase in the chance of miscarriage.

Does using e-cigarettes increase the chance of birth defects?

Every pregnancy starts out with a 3-5% chance of having a birth defect. This is called the background risk. Studies have not been done to see if e-cigarettes increase the chance for birth defects. Traditional cigarettes that have nicotine might increase the chance for oral clefts (a split in the lip or roof of the mouth that usually requires surgery).

Does the use of e-cigarettes in pregnancy increase the chance of other pregnancy related problems?

Animal studies have shown that use of e-cigarettes that have nicotine during pregnancy can cause poor growth in the developing baby. These studies also found that that blood flow to the baby was decreased when e-cigarettes that have nicotine were used. The lower blood flow might be the reason for the poor growth in the developing baby.

Studies in humans have also shown that people who used e-cigarettes during their pregnancy had a higher chance of giving birth to babies with poor growth (smaller than expected). This poor growth is sometimes called “small for gestational age”. One study also looked at lung development in the baby and found that e-cigarette use during pregnancy might be associated with a change to the baby’s lungs.

There are only a few studies that look at e-cigarette use while pregnant. The information is limited because not all e-cigarettes are the same and many have different ingredients. While we sometimes have information about individual ingredients, we often do not have information on the effect of those ingredients in combination. It is not clear how

these different ingredients can impact the pregnancy or the baby.

Does using e-cigarettes in pregnancy affect future behavior or learning for the child?

At this time, there is only one study on the behavioral effects in infants of people who used e-cigarettes during pregnancy. During the one month check-up, the study reported more irritability in infants of individuals who used e-cigarettes while pregnant compared to those who did not smoke. Some studies have linked traditional cigarettes with nicotine to higher chances for attention deficit disorder and learning disabilities

Are there any resources or medical treatments available to help me to quit e-cigarettes and tobacco cigarettes during my pregnancy?

Talk with your healthcare provider about your thoughts on quitting. There is also free advice, support and referrals, with the Smoker's Quitline at 1- 800-QUIT-NOW (1-800-784-8669) from anywhere in the U.S. While these resources focus on tobacco cigarettes, nicotine is the addictive chemical in both e-cigarettes and tobacco cigarettes, so they can still provide help regarding e-cigarettes.

Breastfeeding while using e-cigarettes:

E-cigarette use during breastfeeding has not been studied. The best and safest approach is to not use e-cigarettes while breastfeeding. Nicotine does pass into breast milk. Studies have shown that infant heart rate and blood pressure changes have been associated with increased nicotine concentrations in milk. Be sure to talk to your healthcare provider about all of your breastfeeding questions.

If a male uses e-cigarettes, could it affect fertility (ability to get partner pregnant) or increase the chance of birth defects?

Only one study exists to see if the use of e-cigarettes by fathers or sperm donors could increase risks to a pregnancy. Fathers or sperm donors who smoke traditional cigarettes with nicotine can have lower sperm counts, as well as abnormal shape and movement of sperm, which may make becoming pregnant more difficult. It is not yet known if second hand exposure to e-cigarettes poses a risk to your pregnancy or the baby after birth. Studies are unclear about the level of exposure using e-cigarettes provides to a nearby person. For more information, please see the MotherToBaby fact sheet Paternal Exposures at https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/.

Please click here for references.

Gabapentin

This sheet is about exposure to gabapentin in pregnancy and while breastfeeding. This information should not take the place of medical care and advice from your healthcare provider.

What is gabapentin?

Gabapentin is a medication used to prevent and control partial seizures, treat some forms of nerve pain, and treat moderate-to-severe restless legs syndrome. Some brand names are Horizant®, Gralise® and Neurontin®.

Sometimes when people find out they are pregnant, they think about changing how they take their medication, or stopping their medication altogether. However, it is important to talk with your healthcare providers before making any changes to how you take this medication. Your healthcare providers can talk with you about the benefits of treating your condition and the risks of untreated illness during pregnancy.

I take gabapentin. Can it make it harder for me to get pregnant?

It is not known if gabapentin can make it harder to get pregnant. Sexual dysfunction (including loss of desire to have sex and loss of ability to have an orgasm) has been reported among people who take gabapentin.

Does taking gabapentin increase the chance for miscarriage?

Miscarriage can occur in any pregnancy. Based on the studies reviewed, it is not known if gabapentin increases the chance for miscarriage in humans. Animal studies reported an increased chance for miscarriage.

Does taking gabapentin increase the chance of birth defects?

Every pregnancy starts out with a 3-5% chance of having a birth defect. This is called the background risk. Small, controlled studies have not suggested an increased chance for birth defects above the background risk, and there is also no known pattern of birth defects associated with the use of gabapentin in pregnancy.

One study was done looking at the pregnancy outcomes of people who received prescriptions for gabapentin. When looking at the outcomes of all the study participants, gabapentin exposure during early pregnancy does not appear to increase the chance for birth defects above the background risk. When the authors only looked at the data from participants who filled at least two prescriptions for gabapentin in the first trimester, an increased chance of heart defects could not be ruled out. Studies based on prescriptions cannot tell if a person took the medication, so it is hard to know if the outcomes are related to the medication being studied or other factors.

Does taking gabapentin in pregnancy increase the chance of other pregnancy-related problems?

Pregnancy-related problems, such as preterm delivery (birth before week 37) or low birth weight (weighing less than 5 pounds, 8 ounces [2500 grams] at birth) have been reported. However, is hard to know if these problems are from the gabapentin, from the underlying health condition(s) being treated, or other factors.

I need to take gabapentin throughout my entire pregnancy. Will it cause withdrawal symptoms in my baby after birth?

There are reports on the use of gabapentin during pregnancy and temporary symptoms in newborns soon after birth. These symptoms are sometimes referred to as withdrawal. In the cases reported, the infants with symptoms were also exposed to other medications during pregnancy (including opioids). If gabapentin is used during pregnancy, the baby can be watched for withdrawal symptoms such as unusual eye, tongue, and/or muscle movements, restlessness of the arms and legs, and arching of the back after birth.

Does taking gabapentin in pregnancy affect future behavior or learning for the child?

One study that looked at 378 children exposed to gabapentin during pregnancy did not find an increased chance of conditions that affect how the brain works (neurodevelopmental disorders), conditions that cause social and communication skills (pervasive developmental disorders), intellectual disability, or communication-related disorders.

Breastfeeding while taking gabapentin:

Gabapentin enters breastmilk in low levels. Blood tests on breastfed infants found low levels or levels too low to be detected. Reports of 8 infants who were breastfed found no side effects with short term follow-up. If you suspect the baby has any symptoms such as drowsiness or trouble gaining weight gain, contact the child's healthcare provider. Be sure to talk to your healthcare provider about all of your breastfeeding questions.

If a male takes gabapentin, could it affect fertility (ability to get partner pregnant) or increase the chance of birth defects?

Sexual dysfunction, such as loss of desire to have sex and loss of ability to have an erection, ejaculate, and/or have an orgasm, has been reported in people using gabapentin. In general, exposures that fathers or sperm donors have are unlikely to increase the risks to a pregnancy. For more information, please see the MotherToBaby fact sheet Paternal Exposures at https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/.

Please click here to view references.

Lorazepam

This sheet is about exposure to lorazepam in pregnancy and while breastfeeding. This information should not take the place of medical care and advice from your healthcare provider.

What is lorazepam?

Lorazepam is a medication that has been used to treat anxiety and insomnia (trouble falling and/or staying asleep). It has also been used to treat seizures and alcohol withdrawal syndrome. Some brand names for lorazepam are Ativan® and Loreev®. Lorazepam belongs to the class of medication known as benzodiazepines.

Sometimes when people find out they are pregnant, they think about changing how they take their medication, or stopping their medication altogether. However, it is important to talk with your healthcare providers before making any changes to how you take this medication. The product label for lorazepam recommends people who are pregnant not to use this medication in the first trimester. But the benefit of using lorazepam might outweigh possible risks. Your healthcare providers can talk with you about the benefits of treating your condition and the risks of untreated illness during pregnancy. Studies have shown that when anxiety is left untreated during pregnancy, there can be a higher chance for pregnancy complications such as preterm delivery and/or low birth weight. MotherToBaby has a fact sheet on anxiety at https://mothertobaby.org/fact-sheets/anxiety-fact/. Some people have physical symptoms (called withdrawal) when they suddenly stop taking lorazepam.

I take lorazepam. Can it make it harder for me to become pregnant?

It is not known if lorazepam can make it harder to become pregnant.

Does taking lorazepam increase the chance of miscarriage?

Miscarriage is common and can occur in any pregnancy for many different reasons. There is one study looking at the class of benzodiazepine medication, including lorazepam. This study suggested an increased chance for miscarriage between 6 and 20 weeks of pregnancy when a benzodiazepine medication was used in pregnancy. Because the data is limited to this one study, it is not known if lorazepam could increase the chance for miscarriage.

Does taking lorazepam increase the chance of birth defects?

Every pregnancy starts out with a 3-5% chance of having a birth defect. This is called the background risk. Lorazepam has not been well studied for use in pregnancy. Based on the studies reviewed, it is unlikely that lorazepam significantly increases the chance of birth defects. One study found a possible association with anal atresia (bottom of the intestinal tract is closed off), and another study found an increased chance of pulmonary valve stenosis (abnormal development of the baby's heart). There have been 2 studies that did not find an increased chance of birth defects with the use of lorazepam.

Does taking lorazepam in pregnancy increase the chance of other pregnancy related problems?

Some studies have suggested a higher chance of preterm deliveries (birth before week 37) and low birth weight (weighing less than 5 pounds, 8 ounces [2500 grams] at birth) in infants that were exposed to lorazepam in the second half of pregnancy. However, not all studies found a higher chance for these pregnancy complications. It is possible that other factors, not lorazepam, caused these complications.

I need to take lorazepam throughout my entire pregnancy. Will it cause withdrawal symptoms in my baby after birth?

The use of lorazepam near the time of delivery could cause temporary symptoms in newborns soon after birth. These symptoms are sometimes referred to as withdrawal. Symptoms can include irritability, crying, sleep disturbances, tremors, jitteriness, trouble breathing, or muscle weakness. Not all babies exposed to lorazepam will have these symptoms. If symptoms develop, they usually go away within a few weeks as the medication leaves the baby's system. These symptoms are not known to have any long-term effects for the baby. Let your healthcare providers know you are taking lorazepam so that if withdrawal symptoms occur your baby can get the care that is best for them.

Does taking lorazepam in pregnancy affect future behavior or learning for the child?

Methadone

This sheet talks about exposure to methadone in pregnancy and while breastfeeding. This sheet reviews using methadone as directed by a healthcare provider. It also reviews using methadone in greater amounts than recommended by a healthcare provider or using methadone without a prescription. This information should not take the place of medical care and advice from your healthcare provider.

What is methadone?

Methadone is an opioid medication. Opioids are sometimes called narcotics. Methadone has been used to treat opioid use disorder (to help people stop using heroin or other opioid medication). Methadone has also been used to treat pain.

Sometimes when people find out they are pregnant, they think about changing how they take their medication or stopping their medication altogether. However, it is important to talk with your healthcare providers before making any changes to how you take this medication. Your healthcare providers can talk with you about the benefits of treating your condition and the risks of untreated illness during pregnancy.

If you have been taking methadone regularly you should not just stop taking it suddenly. Stopping an opioid medication suddenly could cause you to go into withdrawal. It is not known if or how withdrawal might affect a pregnancy. If you & your healthcare team decide to cut back on methadone, it is suggested that any reduction be done slowly and under the direction of your healthcare provider.

I need to take methadone to treat opioid use disorder during pregnancy. My healthcare provider said untreated opioid use disorder could cause pregnancy complications. Is this true?

Methadone has been used to treat opioid use disorder in pregnancy since the early 1970s. Studies have found that following your treatment plan for opioid use disorder can help increase the chances of a healthy pregnancy and baby. People who stop taking the medication used to treat opioid use disorder often have a relapse into misusing opioids again. Misusing opioids (using in greater amounts than recommended by a healthcare provider or using an opioid without a prescription) could cause pregnancy complications.

Because of how the body changes during pregnancy, your healthcare provider might talk with you about changing your methadone dose during the pregnancy.

I take methadone. Can it make it harder for me to get pregnant?

It is not known if taking methadone can make it harder to get pregnant.

Does taking methadone increase the chance of miscarriage?

Miscarriage is common and can occur in any pregnancy for many different reasons. Based on the studies reviewed, it is not known if methadone increases the chance for miscarriage.

Does taking methadone increase the chance of birth defects?

Every pregnancy starts with a 3-5% chance of having a birth defect. This is called the background risk. Based on the studies reviewed, it is not known if methadone increases the chance of birth defects above the background risk. Most studies on methadone have not reported a higher chance of birth defects. There are studies that have suggested that using methadone in the first trimester of pregnancy increases the chance for birth defects. However, there was no specific pattern of birth defects noted which suggests that other factors besides just the medication could be involved. These pregnancies in the studies also had other exposures.

Does taking methadone in pregnancy increase the chance of other pregnancy-related problems?

Some studies have found higher chances of preterm delivery (birth before 37 weeks of pregnancy) and low birth weight (weighing less than 5 pounds, 8 ounces [2500 grams] at birth) when methadone is used during pregnancy. These outcomes might be more likely if a person takes methadone in greater amounts than recommended by their healthcare provider, or if someone is using methadone but not under the care of a healthcare provider.

People who take opioids in higher doses or for longer than recommended by their healthcare provider also have a higher chance of poor growth of the baby, stillbirth, preterm delivery, and C-section.

Will my baby have withdrawal (neonatal abstinence syndrome) if I continue to take methadone?

Studies have reported neonatal abstinence syndrome (NAS) with methadone use during pregnancy. NAS is the term used to describe withdrawal symptoms in newborns from opioid medication(s) that a person takes during pregnancy. NAS symptoms can include irritability, crying, sneezing, stuffy nose, poor sleep, extreme drowsiness (tired), yawning, poor feeding, sweating, tremors, seizures, vomiting, and diarrhea. Not all babies will develop NAS. Symptoms of NAS may appear after birth and may last more than two weeks. If needed, babies can be treated for withdrawal while in the hospital. Tell your baby's healthcare providers if you took methadone in pregnancy, so that they know to check for symptoms of NAS to help your newborn get the best possible care.

Does taking methadone in pregnancy affect future behavior or learning for the child?

Some studies, including one that followed children up to age 3 years old, did not find differences in development among children who were exposed to methadone during pregnancy compared to those who were not. Other studies on methadone and opioids as a general group have found problems with learning and behavior in children exposed during pregnancy. It is hard to tell if this is due to medication(s), environment, genetics, or other factors that may increase the chance of these problems.

Breastfeeding while taking methadone:

The amount of methadone that gets into breast milk varies from person to person, based on the dose and people's different abilities to metabolize (break down) the medication. Taking up to 100 mg of methadone per day is not expected to cause problems for most healthy, full-term breastfed babies who were already exposed to methadone during pregnancy. Some studies have found that babies who were exposed to methadone during pregnancy and are breastfed have shorter hospital stays, less need for neonatal abstinence syndrome (NAS) treatment, and shorter lengths of NAS treatment than those who are not breastfed. Talk with your healthcare provider or a MotherToBaby specialist about your specific situation, as information on breastfeeding might change based on factors such as the age of your baby and the dose of medication.

If a male takes methadone, could it affect fertility (ability to get partner pregnant) or increase the chance of birth defects?

Based on the studies reviewed, it is not known if methadone could affect male fertility or increase the chance of birth defects above the background risk. In general, exposures that fathers or sperm donors have are unlikely to increase risks to a pregnancy. For more information, please see the MotherToBaby fact sheet Paternal Exposures at https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/.

Please click here for references.

Studies have not been done to see if lorazepam can cause behavior or learning issues for the child.

Breastfeeding while taking lorazepam:

Lorazepam gets into breastmilk in low levels. No negative effects were found in studies of children exposed through breastmilk. Be sure to talk to your healthcare provider about all of your breastfeeding questions.

If a male takes lorazepam, can it affect fertility (ability to get a partner pregnant) or increase the chance for birth defects?

An increased chance of reduced fertility or birth defects is not expected when a male takes lorazepam. In general, exposures that fathers or sperm donors have are unlikely to increase risks to a pregnancy. For more information, please see the MotherToBaby fact sheet on Paternal Exposures at https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/.

Please click here for references.

Methamphetamine

This sheet is about exposure to methamphetamine in pregnancy and while breastfeeding. This information should not take the place of medical care and advice from your healthcare provider.

What is methamphetamine?

Methamphetamine is also known as metamfetamine, methylamphetamine, and desoxyephedrine. Other names for methamphetamine include “meth,” “crystal meth,” “crank,” “speed” or “ice.” Methamphetamine has been smoked, snorted, swallowed, injected, inhaled, taken rectally, or dissolved under the tongue.

Methamphetamine has been used illegally without medical supervision. It has also been prescribed by a healthcare provider for attention deficit hyperactivity disorder (ADHD). This sheet will focus on the use of methamphetamine without medical supervision.

I take methamphetamine. Can it make it harder for me to get pregnant?

Methamphetamine has not been studied to see if using it could make it harder to get pregnant.

I just found out that I am pregnant, should I stop taking methamphetamine?

If you are using methamphetamine without medical supervision (sometimes called recreational use), treatment is available to help you stop. Talk to your healthcare provider as soon as possible so that you can start treatment. If you do not have a healthcare provider, call the national number for drug treatment referral at 800-662-4357. When you call, let them know that you are pregnant so that you can get connected to the best facility to meet your needs.

Does taking methamphetamine increase the chance of miscarriage?

Miscarriage is common and can occur in any pregnancy for many different reasons. Based on the studies reviewed, methamphetamine use might increase the chance for miscarriage.

Does taking methamphetamine increase the chance of birth defects?

Every pregnancy starts out with a 3-5% chance of having a birth defect. This is called the background risk. Based on the studies reviewed, it is not known if methamphetamine increases the chance for birth defects above the background risk. Information on whether methamphetamine increases the chance of birth defects is mixed. This makes it hard to know the actual risks for each person who uses methamphetamine.

What can I do to find out if the baby has a birth defect or other problems?

It is important to talk with your healthcare provider about any exposures you have had during your pregnancy. They can help you find treatment or support and can go over any screening options that are available. A detailed ultrasound can screen for some birth defects. There is no test in pregnancy that can look for learning problems. Once your baby is born, you should also tell your child’s healthcare provider so your baby can get the care that is best for them.

Does taking methamphetamine in pregnancy increase the chance of other pregnancy-related problems?

Methamphetamine use has been linked to a higher chance for preterm delivery (delivery before 37 weeks of pregnancy), poor growth (babies born too small and/or with a small head size), and low birth weight (weighing less than 5 pounds, 8 ounces [2500 grams] at birth). Some studies have suggested that methamphetamine use in pregnancy can increase the chance for high blood pressure, placental abruption (the placenta pulls away from the uterus) and for fetal death or infant death. Some studies also show an association between methamphetamine misuse and a higher chance of postpartum mood disorders. Pregnancy complications are more likely to happen when methamphetamine is used throughout the whole pregnancy or when taken at high doses.

Will my baby have withdrawal if I continue to take methamphetamine?

When people who are pregnant use methamphetamines near the end of their pregnancy, babies could show signs of withdrawal after they are born. Symptoms can include trouble eating, sleeping too little or too much, having floppy (poor) muscle control or tight muscles, being jittery, and / or having a hard time breathing. Withdrawal symptoms

usually go away within a few weeks but can last for a few months. The baby might need to be admitted to the special care nursery (NICU). It is important that your healthcare providers know you are taking methamphetamine so that if symptoms occur your baby can get the care that is best for them.

Does taking methamphetamine in pregnancy affect future behavior or learning for the child?

Studies have suggested that children who were exposed to methamphetamine during pregnancy could have a higher chance for changes in their brain development, as well as learning and behavior problems later in life.

Breastfeeding while taking methamphetamine:

Methamphetamine can pass into breast milk. Methamphetamine should not be used without medical supervision while breastfeeding. If methamphetamine is used, it has been suggested to express and discard breastmilk for 48-100 hours. Be sure to talk to your healthcare provider about all of your breastfeeding questions.

If a male takes methamphetamine, could it affect fertility (ability to get partner pregnant) or increase the chance of birth defects?

Methamphetamine misuse might affect the sperm, making it harder to get someone pregnant. Studies have not been done to see if methamphetamine could increase the chance of birth defects above the background risk. In general, exposures that fathers or sperm donors have are unlikely to increase risks to a pregnancy. For more information, please see the MotherToBaby fact sheet Paternal Exposures at https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/,

Please click here to view references.

Naltrexone (nal TREKS one)

- **Naltrexone**
  - Tablet: 50 mg
- **Vivitrol®**
  - Intramuscular injection: 380mg

If you or someone you know is in crisis, please call 911 and/or the toll-free National Suicide Prevention Lifeline at 800-273-TALK (8255) to speak with a trained crisis counselor 24/7. A help line and other resources are also available through the National Alliance on Mental Illness at nami.org.

Medication Assisted Treatment (MAT)

Medication assisted treatment (MAT) is the use of medications in combination with counseling and behavioral therapies for the treatment of substance use disorders. A combination of medication and behavioral therapies is effective in the treatment of substance use disorders and can help some people to sustain recovery.

What is naltrexone and what does it treat?

Naltrexone is a medication that works in the brain to treat alcohol or opioid use disorders. Naltrexone is an opioid antagonist which means it works by blocking the effect of opioid receptors and decreasing cravings and urges to use alcohol or opioids. This allows people who take the medication to control urges to use and help maintain abstinence from these substances. It is important to combine naltrexone treatment with counseling and other support.

Symptoms of alcohol and/or opioid dependence include:

- Being unable to quit using alcohol or opioids despite problems with health and relationships.
- Requiring more alcohol or opioids to achieve the same effect.
- Presence of withdrawal symptoms (sweating, shaking, nausea, vomiting, diarrhea, confusion, anxiety) when unable to use alcohol or opioids.
- Spending the majority of time using or finding a way to use alcohol or opioids.
- Having a desire but an inability to decrease the amount of alcohol or opioids used.
- Giving up enjoyable activities in order to use alcohol or opioids.

What is the most important information I should know about naltrexone?

Do not stop taking naltrexone, even when you feel better. Only your health care provider can determine the length of treatment that is right for you.

Missing doses of naltrexone may increase your risk for relapse.

You must be free of all opioid-containing substances (such as tramadol, codeine, hydrocodone, oxycodone, morphine, or heroin) for at least 7 to 10 days before beginning naltrexone or you may experience withdrawal symptoms, such as sweating, shaking, nausea or vomiting. If you are on long-acting opioids (such as methadone), you may need to wait even longer for up to 14 days before beginning naltrexone.

After stopping naltrexone, you will respond to lower doses of opioids for pain. Do not begin using opioids at the doses you tolerated prior to starting naltrexone. Doing so puts you at risk for respiratory depression.

Liver injury may occur with naltrexone. This can be monitored through blood tests. Alert your doctor immediately if you experience any yellowing of your skin and/or eyes, severe stomach pain, or severe nausea or vomiting.

All FDA warnings are at the end of this fact sheet. Please consult them before taking this medication.

Patients with substance use disorders are at high risk for depression and suicidal thoughts. If you experience any thoughts of self-harm, call 911 or go to your closest emergency room.

Alert all of your physicians and pharmacists that you are taking naltrexone. Consider keeping a card in your wallet stating you are taking naltrexone to alert caregivers in case of emergency.

While on naltrexone, opioid pain medications will not work. Other types of pain medications (such as ibuprofen, naproxen, or acetaminophen) are not affected.

Are there specific concerns about naltrexone and pregnancy?

If you are planning on becoming pregnant, notify your health care provider to best manage your medications. People living with substance use disorders that wish to become pregnant face important decisions and challenges. Active substance use disorders during pregnancy put the fetus at great risk. It is important to discuss the risks and benefits of continued treatment with your doctor and caregivers.

The effects of naltrexone on the fetus when used in pregnant women are unknown. Naltrexone crosses the placenta and can be transferred to the fetus. Naltrexone did not appear to cause structural abnormalities during animal studies; however, there appeared to be some behavioral alterations as well as early fetal loss. These results cannot be applied to humans; therefore, naltrexone should only be used in pregnancy if the benefits outweigh the risk to the fetus.

Breastfeeding while taking naltrexone is not recommended because naltrexone crosses into the breast milk. The effects of naltrexone on the baby are unknown.

What should I discuss with my health care provider before taking naltrexone?

- Symptoms of your condition that bother you the most
- If you have allergies to any medications
- If you have thoughts of suicide or harming yourself
- Medications you have taken in the past for your condition, whether they were effective or caused any adverse effects
- If you experience side effects from your medications. Some side effects may pass with time, but others may require changes in the medication.
- Any other psychiatric or medical problems you have, including a history of liver or kidney disease
- All other medications you are currently taking (including over the counter products, herbal and nutritional supplements) and any medication allergies you have
- Other non-medication treatments you are receiving, such as talk therapy. Your provider can explain how these different treatments work with the medication
- If you are pregnant, plan to become pregnant, or are breastfeeding
- If you use illegal drugs or narcotics

How should I take naltrexone?

Naltrexone is available as an oral tablet and an intramuscular injection. Only your health care provider can determine the route of administration and correct dose for you.

Naltrexone oral tablets are usually taken once daily with or without food. Taking naltrexone tablets with food may decrease stomach upset. Typically, people are given a test dose of 25 mg daily to ensure they can tolerate the medication. If the low dose is tolerated, the dose is increased to 50 mg daily.

The injection dose is 380 mg given intramuscularly every four weeks or once a month. These injections are given by your doctor, nurse, or pharmacist.

Consider using a calendar, pillbox, alarm clock, or cell phone alert to help you remember to take your medication. You may also ask a family member or friend to remind you or check in with you to be sure you are taking your medication.

What happens if I miss a dose of naltrexone?

If you miss a dose of oral naltrexone, take it as soon as you remember unless it is closer to the time of your next dose. Do not double your next dose or take more than what is prescribed.

What should I avoid while taking naltrexone?

Avoid drinking alcohol, using opioid pain medications (such as codeine, hydrocodone, oxycodone, or morphine), or using illegal drugs while you are taking naltrexone. They may increase adverse effects (e.g., sedation) of the medication.

Keep in mind that some cough syrups may contain opioid pain medication. Discuss all medications with your doctor and pharmacist prior to taking naltrexone.

What happens if I overdose with naltrexone?

If an overdose occurs, call your doctor or 911. You may need urgent medical care. You may also contact the poison control center at 1-800-222-1222.

Naloxone injection or nasal spray can be used to reverse an overdose from opioids. You should always call 911 after giving someone naloxone to treat an overdose. Ask your provider if prescription naloxone is right for you or your family member to have available.

What are the possible side effects of naltrexone?

Common side effects

- Nausea, vomiting, headache, dizziness, muscle cramps, changes in appetite, anxiety, restlessness, or trouble sleeping (insomnia) may occur
- Bruising, itching, tenderness, or swelling at the site of injection may occur with the injectable form of naltrexone

Rare/serious side effects

- Increased blood pressure or heart rate, confusion, depression, nightmares, blurry vision, nasal congestion
- Changes in liver function or liver failure
- Suicidal thoughts have been reported. People experiencing suicidal thoughts while taking naltrexone should contact their provider immediately.
- Severe allergic pneumonia has been reported. Patients should contact their provider if they have symptoms of coughing, wheezing, or difficulty breathing.

Are there any risks for taking naltrexone for long periods of time?

To date, there are no known problems associated with long term use of naltrexone. It is a safe and effective medication when used as directed.

What other medications may interact with naltrexone?

Naltrexone may decrease the effects of opioid medications, cough/cold medications, and certain anti-diarrheal medications. Do not take larger than recommended doses to achieve effects as this could lead to coma or death.

Avoid medications that may harm your liver, such as high doses of Tylenol® (acetaminophen). Talk to your health-care providers about all of the medications you are taking.

How long does it take for naltrexone to work?

Naltrexone will begin working shortly after taking one dose.