

Substance Use in Pregnancy

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General Disclosures

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Speaker Disclosures

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Learning Objectives

- Describe the epidemiology of substance use in pregnancy and trends over time
- Name at least one validated screening tool for substance use in pregnancy
- Summarize risks associated with use of opioids, alcohol, cannabis, stimulants, and tobacco in pregnancy
- Discuss treatment options and considerations for substance use disorders in pregnancy

Epidemiology

- 2012 survey conducted by HHS of pregnant people in the US:
 - 15.9% smoked cigarettes
 - 8.5% consumed alcohol
 - 5.9% used illicit drugs
- Rates of opioid use and opioid use disorder in pregnancy are increasing
- Most common illicit (federally) substance used by pregnant people is cannabis, followed by cocaine
- Reflecting a national trend, methamphetamine use in pregnancy is increasing

Risk factors for substance use in pregnancy

- Unplanned pregnancy
- Younger age (<25)
- Living in a household at or below poverty level
- Comorbid psychiatric disorders
- Trauma history
- Family history of substance use disorders

Outcomes

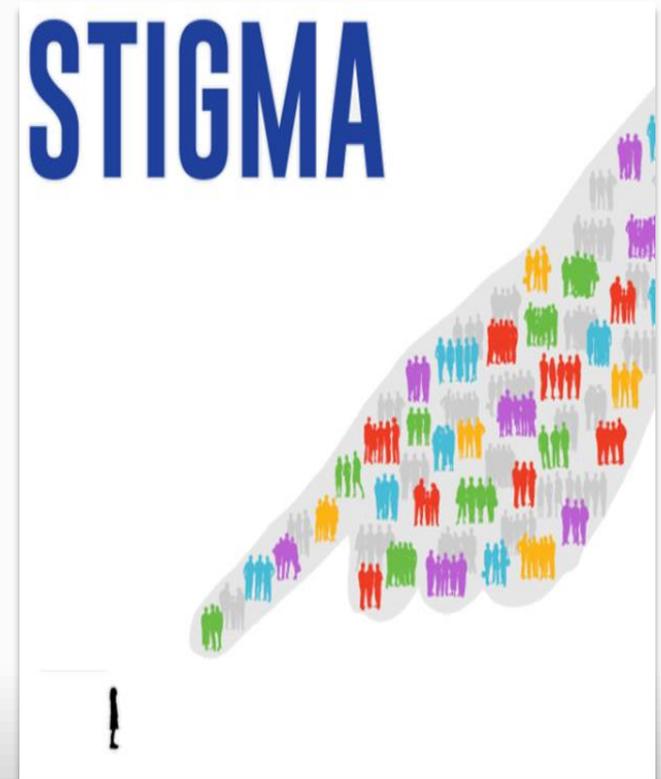
- Most people able to achieve abstinence but most do relapse postpartum
 - Rates of abstinence in pregnancy:
 - 96% for heavy alcohol use
 - 78% for marijuana use
 - 73% for cocaine use
 - 32% for cigarette use
 - Rates of relapse at 3 months postpartum:
 - 58% for cigarette use
 - 51% for alcohol
 - 41% for marijuana
 - 27% for cocaine

Screening

- SBIRT model
 - Screen everyone at first prenatal or preconception counseling visit
- Ask about substance use currently and substance use pre-pregnancy to understand risks
- Ask specific questions, clarify amounts, modes of use
- Screening tools:
 - 4P's – Use during Pregnancy, Past use, Partner use, Parents use
 - T-ACE – Tolerance, Annoyed, Cut down, Eye opener
 - NIDA quick screen – frequency of alcohol, tobacco, Rx drugs, Illegal drugs in the past year

Stigma

- Crack cocaine epidemic of 1980's and "crack babies"
- Gender discrimination, systemic racism in medicine
- Experiences of guilt and shame
- Trauma and SUD – a bidirectional relationship





Original Investigation | Pediatrics

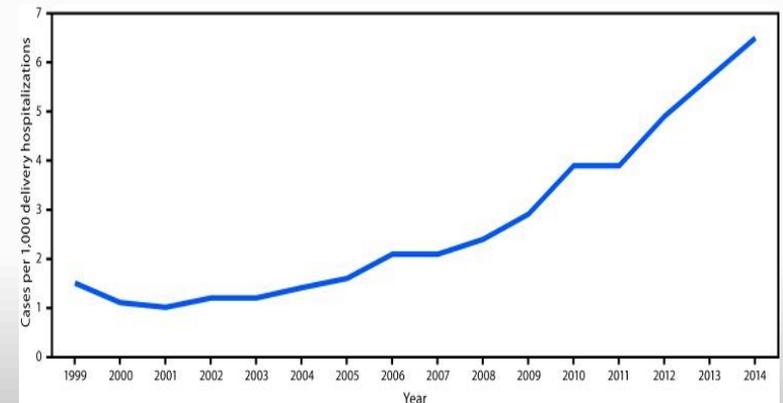
Association of Punitive and Reporting State Policies Related to Substance Use in Pregnancy With Rates of Neonatal Abstinence Syndrome

Laura J. Faherty, MD, MPH, MS; Ashley M. Kranz, PhD; Joshua Russell-Fritch, MS; Stephen W. Patrick, MD, MPH, MS; Jonathan Cantor, PhD; Bradley D. Stein, MD, PhD

“In adjusted analyses among neonates in **states with punitive policies, odds of NAS were significantly greater during the first full calendar year after enactment (adjusted odds ratio, 1.25; 95% CI, 1.06-1.46; $P = .007$)** and more than 1 full year after enactment (adjusted odds ratio, 1.33; 95% CI, 1.17-1.51; $P < .001$)”

OPIOID USE IN PREGNANCY

- Prevalence of OUD in pregnancy is increasing
 - OUD diagnosis at delivery hospitalization increased from 1.5 per 1,000 in 1999 to 6.5 per 1,000 in 2014
- In line with national trend



Ko et al 2016
Haight et al 2018

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Risks of Opioid Use in Pregnancy

To Mom

- Overdose
- Less likely to receive appropriate prenatal care
- Infection
- Mood and psychotic symptoms (substance-induced or worsening of comorbid underlying illness)
- Unintended pregnancies
- Abuse/other trauma
- Legal consequences

To Baby

- Intrauterine fetal demise/stillbirth
- Preterm labor
- Low birth weight
- NAS/NOWS
- Neonatal respiratory depression and meconium aspiration
- Longer hospitalization after birth
- Higher chance of rehospitalization within 30 days of birth

Detox During Pregnancy?

- Data on risks of opioid detox in pregnancy is mixed
 - Prior concerns about PTL and IUFD but risk is small in more recent studies in controlled environment
 - Very few people complete detox protocols
- Rates of relapse are higher than with MAT
- No decrease in risk of NAS compared to those maintained on MAT
- Detox not generally recommended in pregnancy
 - *“Because of superior outcomes associated with MAT compared with withdrawal, ACOG continues to recommend use of MAT as the standard of care during pregnancy for women with opioid use disorders.”*

MAT in pregnancy

- Methadone – improved treatment retention
- Buprenorphine – decreased NOWS severity
- Naltrexone (Vivitrol®) – increasingly reassuring data but medically supervised detox **NOT** recommended for initiation
- MOST EFFECTIVE MEDICATION IS THE ONE MOM IS WILLING TO TAKE

Methadone Metabolism

- Methadone is primarily metabolized by CYP 3A4, 2B6 – induced by pregnancy
 - Inactive metabolite (EDDP)
 - Usual half life of methadone is ~24 hours, in pregnancy ~12 hours or as short as 4-6
 - Split dosing often needed! Possible but can be difficult
 - Split dosing may decrease risk of NOWS



Considerations

Methadone

- Methadone clinic barriers for dosing but more case management/support
- Switching to buprenorphine is difficult
- Titration/stabilization is slow
- More drug interactions
- Higher overdose risk
- No risk of precipitated withdrawal, do not need to be in withdrawal to start

Buprenorphine

- Office-based treatment, fewer barriers
- Switching to methadone is easy
- Titration/stabilization is rapid
- Few drug interactions
- Overdose risk exceedingly low if used properly
- Risk of precipitated withdrawal, must be in withdrawal to start
- Lower NOWS severity

Alcohol

- Difficult to measure and underreported
- 10-15% of women use any alcohol during pregnancy
- ~3% of women report binge drinking at any point during pregnancy
- The 2002-2009 Pregnancy Risk Assessment Monitoring System
 - 49.4% of women reported drinking alcohol before pregnancy
 - ~87% quit during pregnancy
 - 6.6% of women reduced their intake
 - 6.4% did not change their intake

Risks

- Most well established adverse fetal health effects
- Pregnancy risks
 - miscarriage/stillbirth/infant mortality
 - congenital anomalies and abnormal facial features
 - low birthweight
 - reduced gestational age
- Fetal alcohol spectrum disorders – range of presentations ranging in severity
 - adverse neurodevelopmental outcomes
 - cognitive and behavioral challenges
 - adverse speech and language outcomes
 - executive functioning deficits
 - psychosocial consequences in adulthood

Is mild to moderate alcohol use ok?

- Is there a dose-response relationship?
 - Yes, difficult to assess
 - Heavy chronic consumption associated with greatest risk
 - Variability in maternal alcohol clearance rates, genetic susceptibility, timing, duration of consumption
 - Fetal BAC's reach levels nearly equivalent to mother's and elimination is slow and variable
- Some studies suggest little difference between children of mothers who consumed low amounts of alcohol (<7-8 drinks per week) and those who abstained
 - Rates of miscarriage still higher in mild-moderate consumption groups
 - There is no established "safe" threshold
 - Consuming any alcohol in pregnancy is a personal choice

Alcohol Withdrawal in Pregnancy

- Pregnant people are at higher risk for complicated alcohol withdrawal due to alterations in HPA axis from both pregnancy and long-term alcohol use
- Hypertension is risky during pregnancy
- Pregnancy is a contraindication to outpatient detox per SAMHSA
- Benzo taper is treatment of choice
 - Short acting agents preferred (Lorazepam)

Maintenance Treatment

- Non-medication treatment is key
 - MI/MET, CBT, self-help groups such as AA
 - No data suggesting one mode of treatment is more effective
 - Most effective treatment is the one patient is willing to engage in
 - Pregnant women may feel particularly stigmatized and judged for engaging in SUD treatment
- Medications
 - Naltrexone – increasingly reassuring data
 - Acamprosate and Disulfiram – very little data, mostly from animal studies, generally not recommended
 - Disulfiram – small studies suggesting risk of malformations with first semester exposure
 - Gabapentin off label – generally considered compatible with pregnancy
 - Careful risk/risk discussion

Cannabis

- Generally perceived as being “safe” by the public, including often in pregnancy
- Cannabis crosses the placenta and is found in breastmilk
- Prevalence of use in pregnancy varies in studies, up to 20%
- Appears to be rising over time
 - Volkow et al - 3.4% in 2002–2003 to 7.0% in 2016–2017

Risks

- Data is mixed and inconclusive
 - 2003 study (Fergusson et al) showed no increased risk of perinatal morbidity and mortality associated with cannabis use in sample of British mothers
 - 2011 study (Hayatbakhsh et al) showed cannabis use in pregnancy was associated with low birth weight, preterm labor, SGA, admission to the NICU
 - Developmental outcomes – reduced attention and executive functioning skills, poorer academic achievement, behavioral problems, psychotic symptoms, in children exposed to cannabis
 - Exposure only prior to knowledge of pregnancy not associated with these outcomes

Treatment of CUD

- No approved medications
- Treat comorbid conditions (anxiety, mood disorders, insomnia, nausea) appropriately with input from OB as needed
- Discuss use carefully
 - Cannabis helps with anxiety or using cannabis to manage withdrawal symptoms?
 - Anxiety, low appetite, insomnia, and irritability are most common withdrawal symptoms

Stimulants

- Prevalence of cocaine use in pregnancy about 2-4%, most studies showed decrease since 1980s
- Prevalence of meth use in pregnancy about 1-5%, increasing over time
 - Often used with opioids
 - Fentanyl and its analogues increasingly common in opioid supply and stimulant supply

Risks

- Cocaine

- Perinatal risks - premature rupture of membranes, placental abruption, preterm delivery, low birth weight, SGA infants
- Long term outcomes – data is mixed
 - Some studies suggest negative effects on cognitive, motor, and language development
 - Review of 36 studies (Frank et al) – no compelling evidence that prenatal cocaine exposure is associated with adverse outcomes that cannot be attributed to gestational age at delivery, caregiver psychiatric comorbidities, other prenatal exposures, or quality of postnatal environment

Risks

- Methamphetamines
 - Perinatal risks
 - shorter gestational ages, lower birthweight, preeclampsia, gestational hypertension, and IUFD
 - ?congenital anomalies, most consistent evidence is for risk of cleft palate
 - newborns may develop jitteriness, drowsiness and respiratory distress
 - Increased rate of NICU admission

Risks

- Methamphetamines
 - Long term outcomes
 - IDEAL study – 412 maternal-child pairs from US and NZ
 - Methamphetamines exposed vs unexposed children
 - Controlled for exposure to alcohol, tobacco, marijuana and maternal depression
 - At age 3 - cognitive, behavioral, language and emotional outcomes correlated with adverse social environments and not prenatal methamphetamine exposure
 - Heavy methamphetamine exposure (≥ 3 days per week) was associated with anxiety/depression and attention problems by age 3 and 5 years after controlling for other substances and caregiver/environmental risk factors

Treatment

- No approved medications
 - Mirtazapine, Bupropion sometimes used in clinical practice, but evidence is poor
- Treat withdrawal, co-morbid conditions
- Best evidence is for behavioral treatments
 - Contingency management appears to be the most effective treatment for stimulant use disorders, but few places offer it

Tobacco

- Declining over time
 - 2018 – 6.5% of surveyed participants smoked tobacco at some point during pregnancy
- Risks
 - ectopic pregnancy
 - IUGR and low birthweight
 - preterm birth
 - increased infant mortality
 - higher rates of respiratory and ear infections, SIDS
 - Increased risk of ADHD (?) in children
 - Increased risk nicotine addiction in children

Treatment

- Psychosocial treatment
 - Counseling throughout pregnancy associated with a 44% increased likelihood of abstinence from tobacco in late pregnancy
 - Brief counseling (<5 min) was found to be ineffective
- NRT is an option
 - No known negative or positive effect on birth outcomes
 - Increases smoking cessation rates in late pregnancy by approximately 40%
 - ACOG committee opinion in 2017 - NRT should only be undertaken with close clinical supervision and after consideration and discussion of the known risks of continued smoking and the possible risks of NRT
- Very little data for Varenicline
- Bupropion may be used in pregnancy but little data for tobacco cessation in pregnant population

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