

ILLICIT AND PRESCRIPTION DRUG USE AND THE IMPACT ON BREASTFEEDING PRACTICES

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LESLIE SOUTHARD, PHARMD, BCACP, CBS

- Board-certified ambulatory care pharmacist
- Certified breastfeeding specialist
- Labor and postpartum doula
- Married to my high school sweetheart
- One daughter – Carmen – cancer survivor
- Two geriatric Jack Russell terriers
- Reading + coffee = love

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DISCLOSURES

- Financial disclosures
 - Consulting business: The Lactation Pharmacist, LLC
- Work experience
 - Inpatient, outpatient, home healthcare, consulting

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LEARNING OUTCOMES

- Describe the limitations of available data on illicit and prescription drug use during lactation and consequences of such limitations
- Describe the pharmacology for specific illicit and prescription drugs
- Examine prescription drug alternatives for patients with opioid dependence
- Describe counseling strategies for discussing prescription or illicit drug use with lactating patients

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REFLECTION QUESTION:

What experiences have you had with patients who use illicit and/or prescription drugs while lactating?

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**DATA LIMITATIONS
AND CONSEQUENCES OF
DATA LIMITATIONS**

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LIMITATIONS

- Drug use during lactation not a research priority
- Small number of studies
- Small number of study participants
- Short time frames for follow up
- Studies not robust, open to bias and limitations

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CONSEQUENCES

- Providers
 - Lack of confidence in available data
 - Available recommendations and protocols are not strong
 - Questions regarding legalities when recommending to provide human milk while using illicit or prescription drugs
- Patients
 - Frustration with no clear answers
 - Lack of confidence in data and recommendations
 - Consulting other sources such as the Internet for answers

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PHARMACOLOGY

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PROPERTIES IMPORTANT TO TRANSFER

- Molecular weight (MW)
 - <800 Daltons likely to transfer
- Protein binding (PB)
 - Low PB likely to transfer
- Half-life ($t_{1/2}$)
 - Short half-lives preferred
- Time to peak concentration (t_{max})
 - Short t_{max} preferred

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PROPERTIES IMPORTANT TO TRANSFER

- Volume of distribution (Vd)
 - Higher Vd generally preferred
- Oral bioavailability
 - Must be orally bioavailable to transfer to baby's bloodstream
- Relative infant dose (RID)
 - Best estimation available for amount of drug the milk consumer receives via human milk
 - Will range depending on who calculated
 - <10% generally compatible depending on drug taken

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OPIOIDS CONT.

- Hydrocodone
 - $t_{1/2}$ = ~4 hours
 - Time to peak conc = ~1 hour
 - PB= 8% to 19%
 - RID = 2% to 4%
- Oxycodone
 - $t_{1/2}$ = 2-4 hours
 - Time to peak conc = 1-2 hours
 - Vd= 2.6 L/kg
 - PB = 45%
 - RID = 1% to 4.5%

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OPIOIDS CONT.

- Morphine
 - $t_{1/2}$ = ~2 hours
 - Time to peak conc = ~1 hour
 - PB = 35%
 - RID = 9% to 35%
 - Not the preferred opioid in lactation but can be used
- Hydromorphone
 - $t_{1/2}$ = 2-3 hours
 - Time to peak conc = <1 hour
 - Vd = 4 L/kg
 - PB = ~8% to 19%
 - RID = 0.7%

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OPIOIDS CONT.

- Codeine
 - $t_{1/2}$ = ~3 hours
 - Time to peak conc = ~1 hour
 - PB = ~7%
 - RID = <1% to 8%
 - Not recommended in lactation
 - Metabolizes to morphine
- Tramadol
 - $t_{1/2}$ = 7 hours
 - Time to peak conc = ~2 hours
 - Vd = ~3 L/kg
 - PB = 20%
 - RID = ~3%
 - Not recommended in lactation
 - Similar to codeine

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RECOMMENDATIONS

- Opioids are generally compatible with lactation if:
 - Lactation going well
 - Short-term
 - Lowest dose needed to treat pain
- Not compatible if:
 - Not under provider supervision
 - Used for reasons other than pain
 - In combination with other substances

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DEXTROAMPHETAMINE

- Pharmacokinetics
 - $t_{1/2}$ = 9.77-11 hours
 - Time to peak conc = 1-2 hours
 - V_d = 3.2-5.6 L/kg
 - Oral bioavailability = complete
 - PB = 16% to 20%
 - RID = 2.46% to 7.25%

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RECOMMENDATIONS

- Dextroamphetamine and mixed amphetamine salts are generally compatible with lactation
 - Under provider supervision
 - Normal therapeutic doses
- Not recommended when used outside of these parameters
 - Unknown doses
 - Unknown if used alone or with other substances
 - Withhold providing human milk for 24 hours in these situations

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CANNABIS

- Scheduling
 - Federal: Schedule I
 - State: varies
- Delta-9-tetrahydrocannabinol (THC)
 - Main psychoactive compound
 - CB1 and CB2 receptors

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CANNABIS CONT.

- Pharmacokinetics
 - Inhaled
 - Onset of action: 15-30 minutes up to 4 hours
 - Pulmonary bioavailability: 10%-35%
 - Ingested
 - Onset of action: 30 minutes-3 hours up to 12 hours
 - Oral bioavailability: 5% to 20%

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CANNABIS CONT.

- Pharmacokinetics
 - Lipid soluble
 - Highly protein bound (95% to 99%)
 - Vd: 2.5 to 3.5 L/kg
 - Acute elimination half-life: 25 hours to 26 hours

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CANNABIS CONT.

- Pharmacokinetics
 - RID
 - Hard to estimate
 - One estimate: 2.5%

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RECOMMENDATIONS

- Current recommendations
 - Do not use cannabis while lactating
 - Long-term effects unknown
 - Short-term effects show no delays in development
 - Acute effects concerning for postpartum
- Considerations
 - Prioritize milk if possible
 - Decrease use as much as possible
 - Limit exposure
 - Time milk around cannabis use

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TREATMENTS FOR OPIOID DEPENDENCE

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BUPRENORPHINE

- Pharmacokinetics (sublingual)
 - $t_{1/2}$ = ~37 hours
 - Time to peak conc = ~15-30 minutes
 - V_d = 97-187 L/kg
 - Oral bioavailability = 15%
 - PB= 96%
 - RID = 0.09% to 2.52%

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BUPRENORPHINE/NALOXONE

- Pharmacokinetics (sublingual)
 - $t_{1/2}$ = ~37 hours (b), 64 minutes (n)
 - Time to peak conc = ~15-30 minutes
 - Vd = 97-187 L/kg (b), 2.6-2.8 L/kg (n)
 - Oral bioavailability = 15% (b), ? (n)
 - PB= 96% (b), 45% (n)
 - RID = 0.09% to 2.52%

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METHADONE

- Pharmacokinetics
 - $t_{1/2}$ = 13-15 hours
 - Time to peak conc = 30-60 minutes
 - Vd = 4.5 L/kg
 - Oral bioavailability = 50%
 - PB= 89%
 - RID = 1.9% to 6.5%

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RECOMMENDATIONS

- Lactating individuals receiving treatment for opioid use disorder should be encouraged to provide human milk
- Methadone is generally treatment of choice for opioid use disorder for lactating individuals
- Buprenorphine alone or in combination with naloxone are likely compatible as well

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COUNSELING STRATEGIES

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CONSIDERATIONS

- Drug use
- Treatment histories
- Medical and psychiatric status
- Other medications
- Infant health status
- Family and community support
- Plan for postpartum care

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PRIORITIZE MILK IF POSSIBLE

- Ideally in treatment before/during pregnancy
- Work with substance use treatment provider if possible
- Loop in lactation consultants
- Prioritize milk if:
 - Engaged in treatment
 - Plans to continue treatment postnatally
 - Abstinence from drug use for 3 months prior to delivery
 - Engaged in care for both themselves and baby

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MINIMIZE EXPOSURE

- Counsel on sedating medications
- Counsel on safe sleep practices
- Discuss strategies for minimizing exposure to secondhand smoke (if warranted)
- Counsel on pharmacokinetics like time to peak concentration

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ALTERNATIVES

- Discuss options if milk should not be provided
 - Donor milk
 - Alternative milk sources
- Discuss pumping and maintaining supply if needing to withhold milk for a period of time

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IN SUMMARY

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SUMMARY

- Remember the pharmacologic properties that determine transfer into human milk
- Most opioids are compatible with lactation if used under provider supervision and for short courses
- Buprenorphine with or without naloxone and methadone are compatible treatment options for opioid use disorder
- Cannabis is generally not recommended during lactation, but new data is coming out and this recommendation may change
- Dextroamphetamine is compatible with lactation if used under provider supervision

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