

Marijuana & Breastmilk

Hosted by the Maternal Substance Exposure (MatEx) Database

4/20/21

bit.ly/THCandBreastmilk

Overview

- Welcome and brief explanation of the Maternal Substance Exposure (MatEx) database (5 minutes)
- Presentation (30 minutes)
- Survey Results and Q&A (20 minutes)
- Wrap Up (5 minutes)

bit.ly/THCandBreastmilk

MatEx Snapshot

MatEx Snapshot - Create New MATEX Record

* Item required for the Collaborative for the Mom & Baby Substance Exposure Initiative (MBSEI).

Demographics Maternal History Maternal Screen Infant Screen Infant Non-RX Treatment Infant RX Treatment Disposition

Was a structured non-pharmacologic approach, such as 'Eat, Sleep, Console', used for treatment of this substance exposed newborn? * No Yes Unknown

Which Type(s) of Non-Pharmacologic Support Did Infant Receive at Your Hospital at any Time?

- None
- Cuddlers
- Higher Calorie Formula
- Kangaroo Care or Clothed Cuddling
- Low Lactose Formula
- Low Stimulation
- Pacifiers
- Rooming In
- Swaddling
- Other (DESCRIBE)
- Not Applicable (not NAS)
- Unknown

Description of Other

How was the Infant Fed at Your hospital at any Time?

- Formula
- Mother's Breast Milk
- Donor Breast Milk
- Other (DESCRIBE)
- Unknown

Reason(s) why Infant was Not Breastfed by Mother

- Mother not available
- Mother medically unstable
- Mother HIV positive
- Mother positive for illicit drugs
- Other (DESCRIBE)
- Unknown

Pending? Cancel Create

# Items Pnd (MBSEI)	Updated
0	08-11-20 11:25
1	08-11-20 11:25
1	08-06-20 22:35
1	08-06-20 22:42
0	08-06-20 22:42
0	08-07-20 19:03

bit.ly/THCandBreastmilk

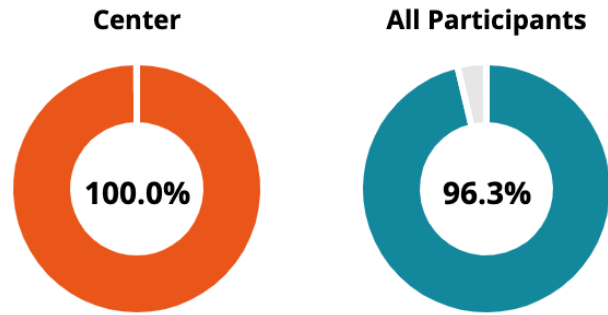
Hide Demo Center in charts

Hide All MATEX Participants in charts

Hide data labels in bar charts

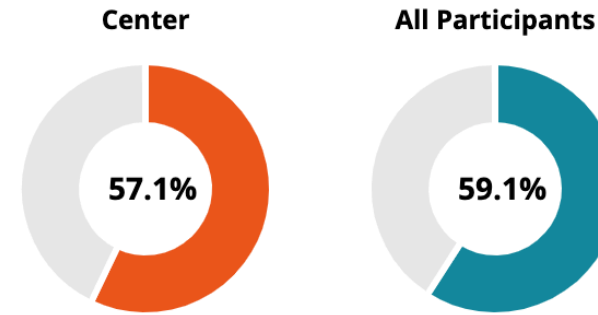
Show tables instead of charts

% of Infants for with Non-Pharmacologic Treatment



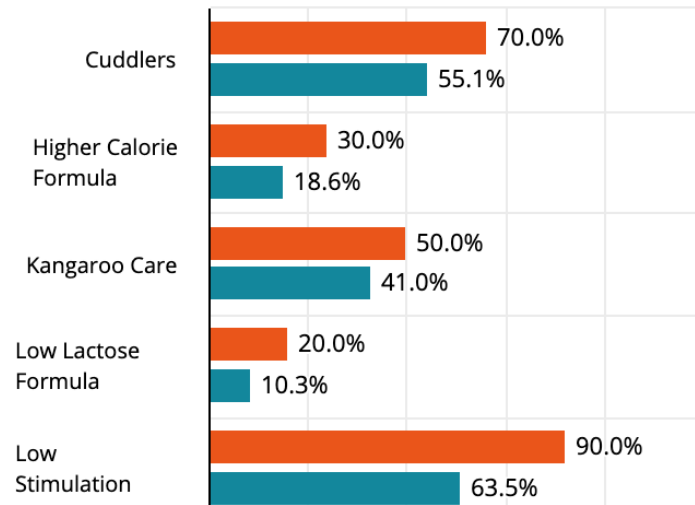
No missing or unknown responses for Demo Center.

% of Infants for whom a Structured Non-Pharmacologic Treatment Approach was Used

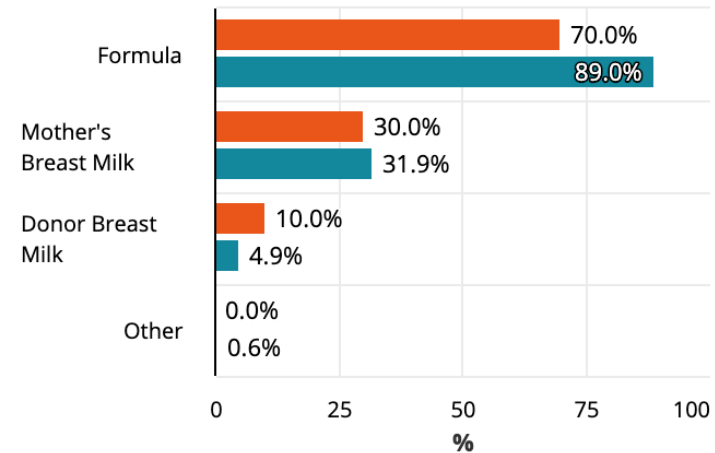


3 (30.0%) records for Demo Center with a missing or unknown response excluded.

Types of Non-Pharmaceutical Support Provided



Infant Feed Types while Hospitalized



Multiple responses possible.
No missing or unknown responses for Demo Center

bit.ly/THCandBreastmilk

Please submit your questions in the Q&A box.

Please take 1 minute to answer the following survey:

bit.ly/THCandBreastmilk

Speaker



Christine Bixby, MD, FAAP, IBCLC

Medical Director, CHOC Lactation

bit.ly/THCandBreastmilk

Cannabis and Breastmilk...

Let's Hash it out!



Christine Bixby, MD, FAAP, IBCLC
Neonatologist, CHOC Children's Specialists
Medical Director, Lactation Services, CHOC Children's Hospital

Disclosures

- Faculty for the Small Baby Care Specialist Program from Engage Grow Thrive.
- Consultant for Willow Breast Pumps.



Is It Okay For A Mom Who Tested Positive For THC To Breastfeed or Express Milk For Her Baby In The NICU?



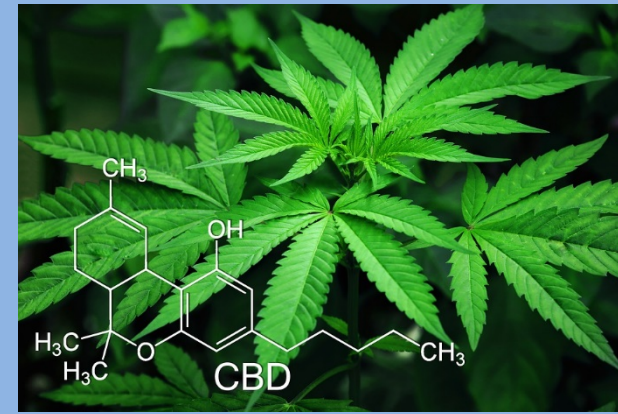


Two Questions:

1) Does THC cross from the mother into the breastmilk?

2) If it does cross, is there harm to the infant?

What Is Cannabis?



- Cannabis sativa
- Increasing potency over decades & by location
 - 3.96% to 11.84% from 1995-2014
 - Some products in Washington with flower products >20% THC and extract products >60% THC
- Various forms of consumption
- Cannabis smoke contains >150 known compounds
- Additional unknowns such as lead, mold, pesticides, rodenticides, herbicides, and fertilizers

What Is Cannabis?



- Cannabidiol (CBD)
 - Phytocannabinoid, extracted from cannabis plant then diluted with a carrier oil (coconut)
- Delta-9-tetrahydrocannabinol (THC)
 - Most psychoactive component
 - Large volume of distribution
 - Enters plasma compartment almost instantly from lungs then redistributes to highly vascularized tissues (Brain, liver, etc.)
 - Highly lipophilic, stored in adipose for weeks to months
 - T $\frac{1}{2}$ 20-36h (infrequent users) and T $\frac{1}{2}$ 4 days (chronic users)
 - Present in exhaled breath for 2-4h after one cigarette

THC & the Endocannabinoid System

- THC is an agonist to cannabinoid(CB) receptors
 - Neuronal cell proliferation, migration, and differentiation.
 - Attention, cognition, memory, emotion, movement and the peripheral immune system.
- THC also functions within the dopamine, opioid, GABA, glutamate and serotonin-associated systems.
- THC promotes corticotropin secretion and prevents secretion of gonadotropin, TSH, prolactin and growth hormone.

Uses for Cannabis?



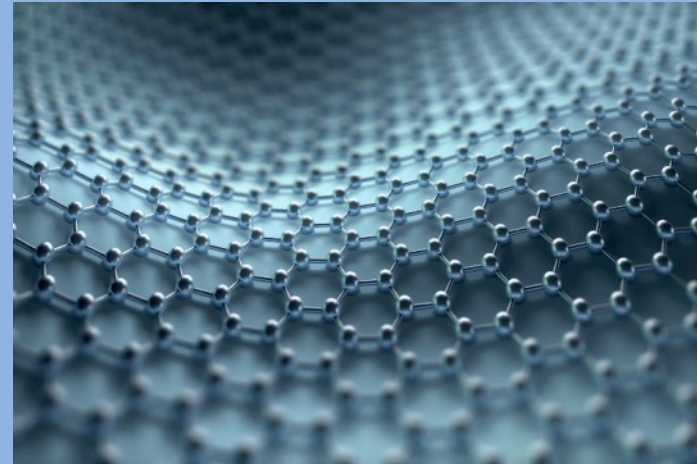
- Medicinal
 - Relative endocannabinoid deficiency (migraines, fibromyalgia, IBS)
 - Alleviate chemotherapy induced nausea and vomiting
 - Increase appetite in acquired immune deficiency and chemoTx
 - Lower intraocular pressure in glaucoma
 - Decrease spasticity and pain (particularly in MS)
 - Seizure control
 - Anti-tumor effects (glioma, melanoma, pancreatic, hepatic)
 - Post-Traumatic Stress Disorder
 - In Pregnancy and Breastfeeding generally are alternatives
- Recreationally



THC and Breastmilk

What Factors Increase Likelihood of Passage into Breastmilk??

- Low Molecular weight (<300Da)
- Low Protein Binding
- Weak Base
- Lipid Solubility
- High Oral Bioavailability
- High Maternal blood level
- Long Half-life of plasma levels



Transfer of THC into Breastmilk and the Offspring

TABLE 2. TRANSFER OF DELTA-9-TETRAHYDROCANNABINOL INTO BREAST MILK AND THE OFFSPRING

Author(s)	Study type	Population	Intervention	Results
Human studies Perez-Reyes and Wall ⁴¹	Observational study	Breastfeeding mothers (total $n=2$) and their infants Mother 1 Mother 2	Smoked marijuana once per day for 7 months (one milk sample obtained) Smoked marijuana 7 times per day for 8 months (2 milk samples obtained)	Mother 1: Had 105 ng THC/mL milk No 9-carboxy-THC or 11-OH-THC in milk Mother 2: (Sample 1): Had 340 ng THC/mL milk, 4 ng 11-OH-THC/mL milk. No presence of 9-carboxy-THC in milk (Sample 2): Had 60.3 ng THC/mL milk, 1.6 ng 9-carboxy-THC/mL milk, and 1.1 ng 11-OH-THC/mL milk. Had 7.2 ng THC/mL plasma, 19 ng 9-carboxy-THC/mL plasma, and 2.5 ng 11-OH-THC/mL plasma. Overall, had eight times more THC in breast milk than blood plasma. Fecal sample of infant contained 347 ng THC, 611 ng 9-carboxy-THC, and 67 ng 11-OH-THC. Infant feces contained a greater metabolite: parent compound ratio compared with breast milk
Ahmad and Ahmad ⁴²	Observational study	Buffalo (diet 5–10% marijuana) and human children (6 months to 3 years old) who drank buffalo milk Buffalo: n (milk samples) = 10, n (urine samples) = 10 Human children: n (urine samples) = 7	Determined the concentration of a THC metabolite in buffalo milk and urine samples Determined the concentration of a THC metabolite in child urine samples	50% of buffalo milk samples contained THC or its metabolites (mean concentration of THC-COOH was 51 ± 20 ng/mL milk) 60% of buffalo urine samples had the metabolite THC-COOH (mean concentration of THC-COOH was 67 ± 30 ng/mL urine) 29% of child urine samples contained THC-COOH (in low concentrations)
Marchei et al. ⁴³	Observational study	Breast milk samples obtained (total $n=400$) from a milk bank; mothers self-reported drug use n (Smokes cannabis) = 1 (unknown dose, frequency, and time of use to milk sample)	Determined concentrations of substances and their metabolites in breast milk samples to test a quantification technique	Breast milk from the mother who smoked cannabis: Contained 5 ng OH-THC/mL milk and 86 ng THC/mL milk No pediatric outcome data

(continued)

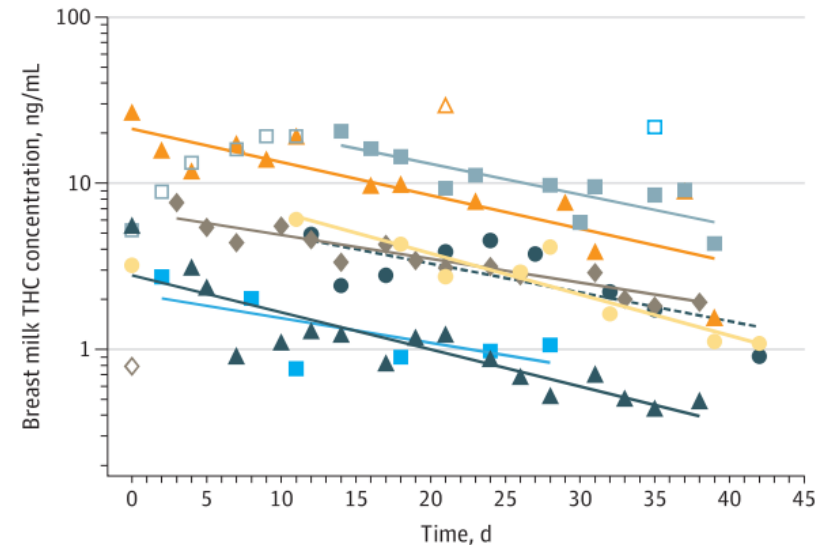
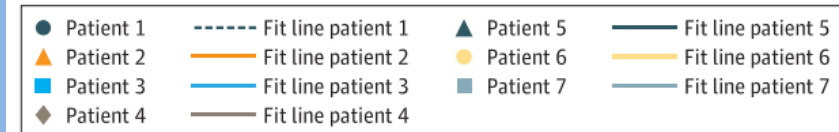
THC Milk Transfer

- Hale Study (Colorado)
 - RID 2.5% (based on 150mg intake of breastmilk)
 - No serum data
 - Peaked at 1h and slowly decreased to end of collection
- Mommy's Milk Study (UCSD)
 - Exposures recalled for 14days prior to milk collection
 - THC detectable up to 6 days after last reported
- Moss Study (Oregon)
 - All but one with at least one cannabinoid.
 - CBD present without report of use
 - Increased use between 2wk and 2mo Pediatric visits

THC Milk Transfer-Abstain Postpartum

- 7 women using >2x/wk prior to delivery
- Documented abstinence from cannabis postpartum
- Donated milk and blood 2-5x/wk for 6-7wks
- Maximum milk THC levels 2.8-26.2mcg/L
- Elimination half-life from milk averaged 17 days (12.2-21)

Figure. Pharmacokinetic Modeling for the Estimated Time to Elimination of Δ -9-Tetrahydrocannabinol (THC) in Breast Milk Following Delivery



Values represented with open shapes were omitted from the time-to-elimination analysis of THC in breast milk. The initial values for patient 7 were omitted until a peak THC level in breast milk was measured, and subsequent declining values were included in the time-to-elimination analysis.



Two Questions:

1) Does THC cross from the mother into the breastmilk? **YES**

2) If it does cross, is there harm to the infant?

Cannabis Exposure Outcomes

- In Teens
- In Pregnancy/In Utero
- Breastfeeding and Cannabis
 - Outcome Data
 - Recommendations
 - What About the NICU Patient?
 - One Approach



THC Data

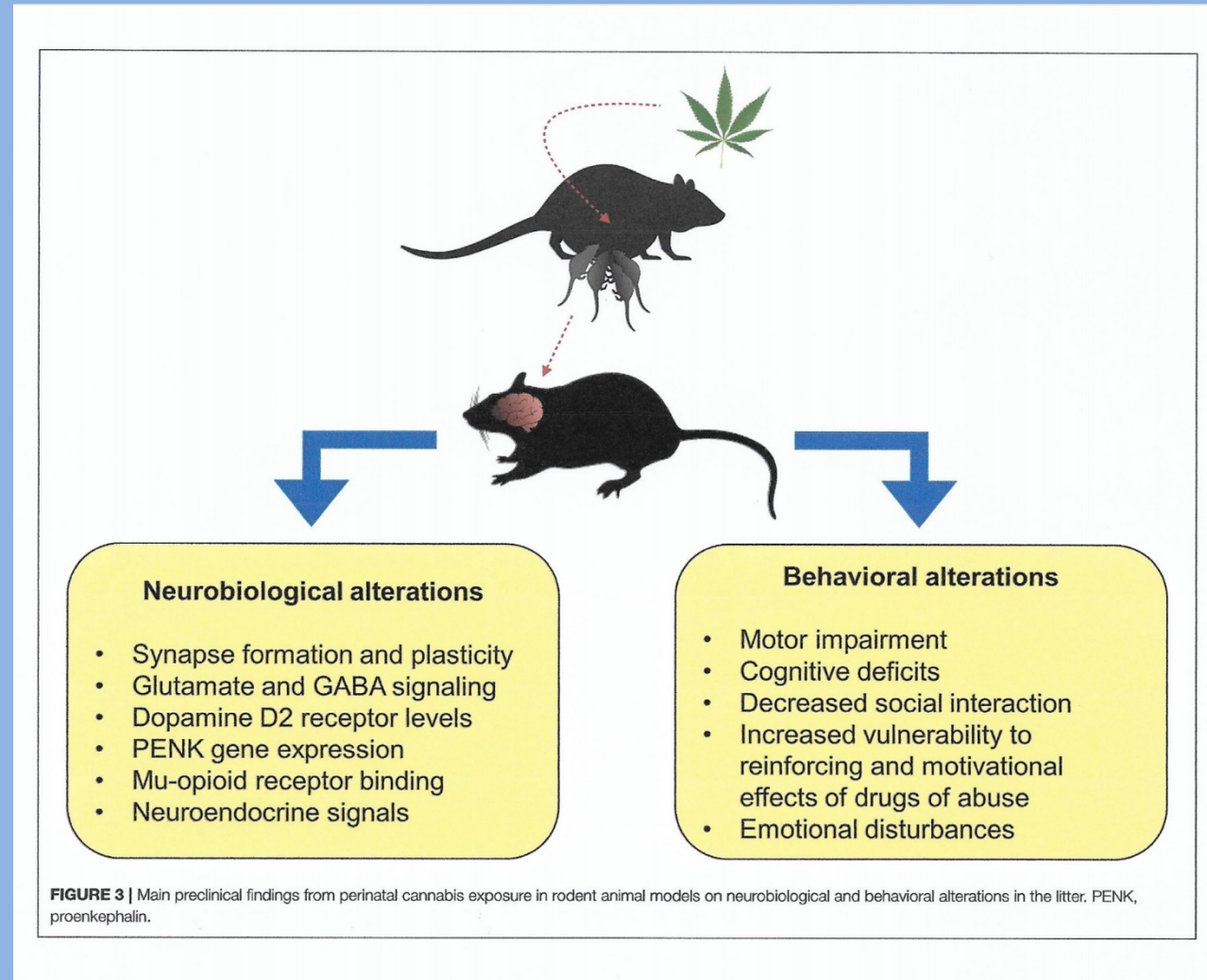
- Marijuana Screening
 - No reliable method to quantify the amount of marijuana use through biological sampling
 - Must rely on self-report
- Confounders
 - Polysubstance Abuse with Tobacco, Alcohol and other illicit drugs

What Is Known In Teens?



- Short term declines in attention, executive function and memory.
- Regular use associated with an 8 point decline in IQ at 38yrs of age (Persists with cessation of use).
- Chronic users may exhibit reduced brain volume in memory centers (hippocampus, amygdala).
- Chronic users with white matter functional imaging studies showing impaired axonal connectivity which is worsened by earlier age of onset of use.

What Is Known In Pregnancy/In Utero?



What Is Known In Pregnancy?



- 36% use at some point in pregnancy
 - Use declines over gestation...if using at term likely chronic or dependent users.
- 48-60% of users continue through entire pregnancy as felt to be safer than tobacco.
- Of past-year users between 2007-2012 in US study
 - Pregnant respondents had 16.2% nearly daily use and 18.1% abuse/dependent

The Big Three...Prospective Trials

- Ottawa Prenatal Prospective Study (OPPS)
- Maternal Health Practices and Child Development Project (MHPCD)
- Generation R Study



Table 1. Comparison of characteristics of 3 important prospective longitudinal studies

CHARACTERISTIC	OPPS ⁹	MHPCD ^{2,10}	GENERATION R ^{1,11}
Year study began	1978	1982	2001
Population	Caucasian, primarily middle class	Largely African American (57%) and single (71%), with low SES	Multiethnic cohort; slightly higher SES compared with nonresponders or incomplete responders
Recruitment	Self-referral for study participation based on posters in prenatal clinics and information from prenatal providers	Actively recruited from an inner-city prenatal clinic in the 4th or 5th mo of pregnancy	Enrolled based on residence in the study area with a due date during recruitment. Recruited from early pregnancy until birth
Cannabis-exposed population and total sample size, n/N	78/698	307/763	220/7531
Polysubstance use	Yes: tobacco (21%) and alcohol (76%)	Yes: alcohol (65%), tobacco (53%), cocaine (3.6%), and other illicit drugs (8.6%)	Yes: alcohol (31%), tobacco (39%), and other substances (4.5%)
Method of data collection to determine cannabis use	Repeated interviews largely within each woman's home by the same trained, female interviewer for each interview	Standardized interviews	Self-reported questionnaires
Categorization of cannabis exposure	Nonuser, light user (≤ 1 joints/wk), moderate user (2-5 joints/wk), or heavy user (> 5 joints/wk)	Based on ADJ: light (0-0.4 ADJ), moderate (0.5-1 ADJ), or heavy (> 1 ADJ) use	Nonuse, occasional (monthly), moderate (weekly), or heavy (daily) use
Cannabis use measured	Each trimester	First, second, and third trimester, and 8 mo, 18 mo, and 36 mo postpartum	Prepregnancy, early pregnancy, and late pregnancy
Retention rate	At 22 y only 49 (63%) of the group exposed to cannabis remained	Of the total sample, 636 (83%) followed up at 10 y, 580 (76%) at 14 y, and 608 (80%) at 22 y	Follow-up rates for the total sample at 6 y exceed 80% for most measures
Limitations	<ul style="list-style-type: none"> • Small sample with small number of heavy (n = 25) and moderate (n = 37) users • Low-risk sample • Self-reported use, although used the same interviewer for all interviews in an effort to build rapport 	<ul style="list-style-type: none"> • Large, high-risk sample with potential for multiple confounding variables • Substantial polysubstance use with alcohol, tobacco, cocaine, and other illicit substances • Self-reported use of cannabis 	<ul style="list-style-type: none"> • Likely highest-potency THC products owing to increasing potency over time and increased potency of Dutch cannabis products • Self-reported use of cannabis • Use of self-report questionnaires skewed the sample to a higher SES and more educated sample compared with nonresponders or incomplete responders

ADJ—average daily joints, MHPCD—Maternal Health Practices and Child Development, OPSS—Ottawa Prenatal Prospective Study, SES—socioeconomic status, THC—tetrahydrocannabinol.



Table 2. Summary of findings of 3 important longitudinal prospective studies

CATEGORY	OPPS ⁹	MHPCD ^{2,10}	GENERATION R ¹¹
Gestational age and birth weight	<ul style="list-style-type: none"> • Delivery at earlier gestational age in exposure group • No differences in birth weight 	<ul style="list-style-type: none"> • Shorter gestation for exposure after first trimester only • Increased birth weight after third trimester exposure 	<ul style="list-style-type: none"> • Fetal growth reduced from second trimester onward • Lower birth weight in exposed group
Neonatal	<ul style="list-style-type: none"> • Increased startle response 	<ul style="list-style-type: none"> • No differences in neonatal behaviour 	<ul style="list-style-type: none"> • Not examined
Infant	<ul style="list-style-type: none"> • 6 mo to 3 y: no neurobehavioural defects 	<ul style="list-style-type: none"> • Not examined 	<ul style="list-style-type: none"> • 18 mo: increased aggression and inattention problems in exposed girls only
Preschool	<ul style="list-style-type: none"> • 4 y: poorer performance on verbal and memory subscales • No effect on global intelligence 	<ul style="list-style-type: none"> • 3 y: lower short-term memory and verbal reasoning scores 	<ul style="list-style-type: none"> • 3 y: no significant deficits in cannabis-exposed group
School age	<ul style="list-style-type: none"> • 6 y: poorer sustained attention. No effect on impulse control • Higher parental ratings of inattention and misconduct • 6 to 9 y: impaired visual perception, visual memory, and language comprehension • Increased distractibility 	<ul style="list-style-type: none"> • 6 y: more impulsivity, hyperactivity, and delinquency • 9 y: impaired abstract and visual reasoning • Impaired executive functioning • Poorer reading, spelling, and academic achievement • Depressive and anxious symptoms 	<ul style="list-style-type: none"> • 6 to 8 y: altered brain morphology in the frontal cortex
Teens and young adults	<ul style="list-style-type: none"> • 14 to 16 y: deficits in visual-cognitive functioning • 17 to 22 y: deficits in executive functioning, response inhibition, and visual-spatial working memory • Increased smoking and early substance use 	<ul style="list-style-type: none"> • 14 to 16 y: deficits in academic achievement (especially reading), information processing speed, and visual motor coordination • Increased rates of delinquency • 17 to 22 y: increased rates of smoking and early initiation of substance use 	<ul style="list-style-type: none"> • Not yet examined

MHPCD—Maternal Health Practices and Child Development, OPSS—Ottawa Prenatal Prospective Study.

Cannabis and Breastfeeding

- Maternal use increases in the first 6 months postpartum
- Effects on Lactation
 - Decreased prolactin levels
 - Lower Oxytocin levels resulting in delay of milk ejection reflex
 - Cannabis has no effect on breastfeeding initiation
 - There is a statistical decrease in breastfeeding for ≥ 9 wks post partum (64% vs. 78%, $p=0.02$) with marijuana use.

Breastfeeding and THC:

- Second-hand marijuana smoke associated with an independent two-fold increased risk for SIDS.
- No Isolated studies without in utero exposure.
- Evidence regarding the effects of THC on infant development is sparse and conflicting...

Effect on Infant:

- **Tennes et. Al (1985)**

- Control: 35, Exposed: 27 with marijuana use while breastfeeding
- Assessed at 1 year with Bayley Scales of Infant Development
- No difference in motor and mental development
- No specific comment on maternal use of marijuana during pregnancy.

- **Astley and Little (1990)**

- 68 babies in each group, both use in pregnancy
- Exposed: Marijuana use in pregnancy and 1st & 3rd month
- Assessment at 1 year of age
- Higher exposure resulted in lower PDI on Bayley
- Decreased MDI on Bayley

Breastfeeding and Cannabis...Data

- Long Term Effects on Infant
- ABM Review:
 - “The number of studies that have found concerning evidence (human and animal) outnumber the studies that have concluded no effect...a conservative approach is suggested until evidence can strongly support otherwise.”
- AAP Clinical Report:
 - “Our current understanding of the ECS and its role in the development of neural circuitry early in fetal life also provides “theoretical justification” for the potential of marijuana substances, particularly THC, to affect neurodevelopment.”

Current Recommendations



Cannabis and Breastmilk



- Hale/Infant Risk Center:

- L4 – Limited Data – Possibly Hazardous
- Sedation, fatigue, hallucinations, increased sensory perception, poor memory, seizures, tachycardia, dry mouth, constipation, inhibition of platelet aggregation, weakness, changes in motor coordination, Possible decreased milk production, poor suck,
- RID ?, MW 314, Oral Bioavailability 4-12%
- Both human and animal studies suggest that early exposure to cannabis may not be benign, and that cannabis exposure in the perinatal period may produce long-term changes in mental and motor development. While this data poses numerous limitations, and does not directly examine the benefits of breastmilk versus risk of exposure to marijuana in milk, cannabis use in breastfeeding mothers should be discouraged at this time.

Cannabis and Breastmilk – Recommendations

- ABM Recommendation:
 - ...avoid further use or reduce their use as much as possible and educate about long term neurobehavioral effects,
 - ...we urge caution.
- AAP Recommendation:
 - ...encouraged to abstain from using any marijuana products...
- CDC Recommendation:
 - Data are insufficient to say yes or no
 - ...encouraged to abstain...
- ACOG Recommendation:
 - ...marijuana use is discouraged



ABM Clinical Protocol #21: Guideline For Breastfeeding and Substance Use or Substance Use Disorder, Revised 2015.

AAP: The Transfer of Drugs and Therapeutics into Human Breast Milk, 2013. InfantRisk.com, Thomas Hale, PhD, R.Ph

AAP Use of Human Milk, 2012.

Ryan, et al., Pediatrics. 2018; 142(3).

CDC.Gov

ACOG: Marijuana Use During Pregnancy and Lactation. 2017;130(4)

Summary...

- THC crosses into breastmilk.
- There is concern for marijuana exposure in all ages particularly in developing brains, but the data are imperfect.
- Excellent data sets are not likely coming in at least the near future.
- Recommendations from multiple organizations do not give specific guidance.

Is It Okay For A Mom Who Tested Positive For THC To Breastfeed or Express Milk For Her Baby In The NICU?



What About the NICU Patient?

- Preterm or NICU patient not addressed in regards to marijuana exposure in breastmilk
- Many infants who are admitted to the NICU have an inherent risk of neurodevelopmental delay due to their underlying diagnosis and subsequent need for NICU care.
- AAP Clinical Report comments on known benefits of human milk in the preterm and NICU population but makes no statement on how to address the marijuana using mother in the NICU.

What About the NICU Patient?

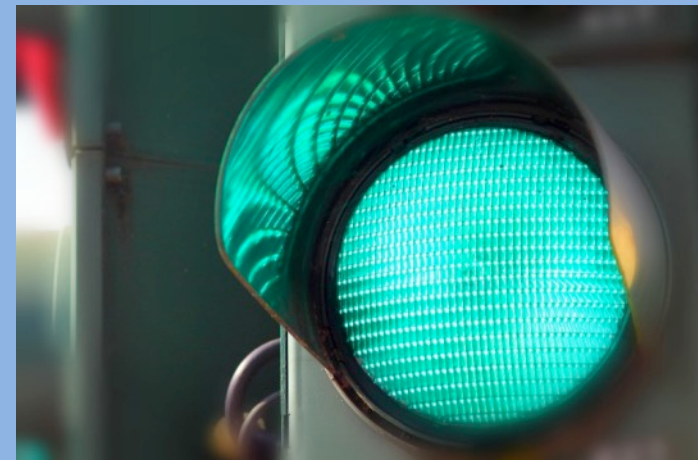
- Considerations in developing recommendations in NICU population:
 - Frequency of use
 - Last use
 - Polysubstance abuse
 - Maternal willingness to discontinue use
 - Ability to develop a trusting therapeutic relationship
 - Availability/reliability of donor human milk
 - NEC Risk?

What About the NICU Patient?

- Possible approaches:
 - Use breastmilk for all marijuana users
 - Pump to establish supply while mother abstains and utilize donor milk until some time that THC level in milk may theoretically be low to zero.
 - Use donor milk for all marijuana users regardless of whether mothers choose to abstain.

One Approach to Substance Use and Breastfeeding in the NICU

THE CHOC STOPLIGHT APPROACH



The CHOC Approach...One Option

- CHOC is a 334-bed tertiary, free-standing children's hospital with a 104 bed-NICU located in Orange, California.
- Donor milk policy
- Support for lactation



The CHOC Approach...One Option

- Multi-disciplinary approach (RN, MD, LC, RD, SW)
- THC positive mother identified and evaluated by LC.
- Interaction is respectful and without judgement.
- Mother educated on concerns surrounding marijuana exposure and possible risks to infant particular in NICU pt.
- Lactation goal identified.
- Last use < or >2-3 wks prior to delivery
- Maternal plans to continue or stop defined.

The CHOC Approach...One Option





- If plans to continue use:
 - Donor milk use exclusively until ready to transition to formula.
- If use <2-3wks prior to delivery and plans to stop use:
 - 2-3 wks of donor milk...pump and fertilize. No maternal milk collected in the nutrition lab, diet order donor milk only with date to reassess and possibly start using mother's milk
 - Mother educated by LC on how to establish milk supply using pump, frequent skin to skin, regular pumping, etc.
 - At 2-3wks, LC checks in with mother and if has continued to abstain, transition made to use her milk. Diet order changed and nutrition lab begins to accept maternal milk.
- If use >2-3wks prior to delivery and plans to stop use:
 - Maternal milk used immediately

The CHOC Approach...challenges and successes

- Challenges:
 - Team Member Buy In.
 - Defining Roles
 - Communicating the plan.
 - The exceptions.

- Successes:
 - Consistent message.
 - Changing the Order to use Breastmilk!
 - The exceptions.

Use of Maternal Breastmilk for Suspected or Confirmed ISAM or Infant of Mother on Prescription Medications

Methadone	Rx Narcotics	Cannabis	Other Illicit Drugs
			
OK to use current milk	Depends on med & dosage		
<p>Soc Services:</p> <ul style="list-style-type: none"> Obtain signed Disclosure of PHI form from mother Verify participation in program via phone Request program contact CHOC if mother becomes non-compliant 	<p>Provider:</p> <ul style="list-style-type: none"> Contact mother's provider to review meds including eval of post C-section pain meds beyond 2-3 weeks (frequency/ duration) Refer to Meds & Mother's Milk (CHOCport → weblinks) or consult with LC 	<p><small>*2 vs. 3 weeks is based on provider assessment of frequency of use</small></p> <ul style="list-style-type: none"> Last use <2-3 weeks ago Continuing cannabis use DO NOT USE <ul style="list-style-type: none"> Last use <2-3 weeks ago Discontinuing cannabis use DO NOT USE <u>until</u> 2-3 weeks after cannabis discontinued <ul style="list-style-type: none"> Last use >2-3 weeks ago Abstaining from cannabis Ok to use current milk 	<p><small>Provider to identify based on assessment, maternal report, or maternal/infant + drug screen</small></p> <ul style="list-style-type: none"> Last use ≤30 days before delivery DO NOT USE milk, allow BF, or encourage for future <ul style="list-style-type: none"> Last use 31-89 days before delivery Carefully evaluate all factors (see factors below) Soc Services to f/u with county for any restrictions <ul style="list-style-type: none"> Last use ≥90 days before delivery Encourage using milk after evaluating all factors: <ul style="list-style-type: none"> ✓ Drug, frequency, & duration ✓ Hx w/other pregnancies; custody of children ✓ Treatment program, OP f/u, support system Soc Services to f/u with county for any restrictions

Steps:

If in doubt, have mother pump, label, and store at home until determination can be made.



Provider:

- CERNER:** Order BREASTMILK. Write "OK to use breastmilk" in Special Instructions so that there is no confusion among team members.
- INFORM:** Inform parents that breastmilk will be used.

LC:

- EDUCATE:** Provide mom with appropriate education (including importance of abstaining).



Provider:

- DOCUMENT:** Advise team of the date to re-evaluate by charting in Neodata under "Nutritional Support"
- CERNER:** Do NOT order BREASTMILK. Order BBM (or formula if appropriate). Write "Do NOT use maternal breastmilk; do NOT allow BF" in Special Instructions.
- INFORM:** Inform parents that breastmilk will not be used at this time but will be considered in the future.
- REVIEW:** At the re-eval date, determine appropriateness of using breastmilk.
 - ✓ Update the mom & team of decision.
 - ✓ Change order to Breastmilk if the decision is made to proceed.

LC:

- MONITOR:** Date to re-eval if breastmilk could be used. F/U with provider and team at that time for further discussion and for provider decision.
- EDUCATE:** Provide mom with appropriate education (including importance of abstaining). Teach the mom to pump & dump milk until designated date.

Nutrition Lab:

- Red sign** will be placed in patient's breastmilk bin. Milk will not be accepted until after the designated date and cleared with LC or medical team.



Provider:

- CERNER:** Do NOT order BREASTMILK. Order BBM (or formula if appropriate). Write "DO NOT use maternal breastmilk; DO NOT allow BF" in Special Instructions.
- INFORM:** Inform parents that breastmilk will not be used.

Nutrition Lab:

- RN will place **red sign** in patient's breastmilk bin. **Milk will not be accepted into CHOC storage. Ask mother to discard; provide cooler to take home if insistent.**

Updated 5/7/19

References

- AAP: The Transfer of Drugs and Therapeutics into Human Breast Milk, 2013.
- ABM Clinical Protocol #21: Guideline For Breastfeeding and Substance Use or Substance Use Disorder, Revised 2015.
- ACOG: Marijuana Use During Pregnancy and Lactation. 2017;130(4), e205-e209.
- Badowski, et al., Cannabis Use During Pregnancy and Postpartum. Can Fam Physcian. 2020 Feb; 66(2):98-103.
- Baker, et al., Transfer of Inhaled Cannabis Into Human Breast Milk. Obstetrics & Gynecology, 2018, vol. 131, No. 5, 783-788.
- Battistella, et al., Long term Effects of Cannabis on Brain Structure. Neuropsychopharmacology (2014) 39, 2041-2048.
- Bertrand, Et. Al, Marijuana Use by Breastfeeding Mothers and Cannabinoid Concentrations in Breast Milk. Pediatrics. 2018; 142(3):e20181076.
- Cdc.gov
- Crume, Et al., Cannabis use during the perinatal period in a state with legalized recreational and medical marijuana; the association between maternal characteristics, breastfeeding patterns and Neonatal outcomes. J Pediatr. 2018; 197:90-96.

References

- Davis, et al., Cannabis Use in Pregnancy and Breastfeeding: The pharmacist's role. *Can Pharm J (Ott)*. 2020 Jan 8; 153(2):95-100.
- Drugs and Lactation Database (LactMed) [Internet]. Bethesda (MD). National Library of Medicine (US); 2006-. Cannabis. [Updated 2021 Mar 17].
- Gunn, et al., Prenatal exposure to cannabis and maternal child health outcomes: a systematic review and meta-analysis. *BMJ Open* 2016; 6:e009986.
- Hadland, et. al, *Curr Opin Pediatr*, 2014 August; 26(4):420-427
- InfantRisk.com, Thomas Hale, PhD, R.Ph
- Jansson, et al., Lactation and the Marijuana Using Mother. *Breastfeeding Medicine*, 2015, vol. 10, No. 6, 342-343.
- Ko, et al., *Am J Obstet Gynecol* 2015; 213:201.e1-10.
- LactationTraining.org
- Matin, G. Marijuana: the effects on pregnancy the fetus, and the newborn. *J. Perinatol.*, (2020) 40:1470-1476.
- Metz, et al., Marijuana use in pregnancy and lactation: a review of the evidence. *American Journal of Obstetrics*, 2015, December (761-778).

References

- Metz, et al., Marijuana Use in Pregnancy and While Breastfeeding. *Obstet Gynecol.* 2018 November; 132(5) 1198-1210.
- Mourh, et al., Marijuana and Breastfeeding: Applicability of the Current Literature to Clinical Practice. *Breastfeeding Medicine*, 2017, vol. 12, No. 19, 582-596.
- Polcaro, et al., Cannabis in Pregnancy and Lactation – A Review. *Missouri Medicine.* Sept/Oct 2020; 117(5): 400-405.
- Navarrete, et al. Cannabis Use in Pregnant and Breastfeeding Women: Behavioral and Neurobiological Consequences. *Front. Psychiatry.* 2020; 11:586447
- Ryan, et al., Marijuana Use During Pregnancy and Breastfeeding: Implications for Neonatal and Childhood Outcomes. *Pediatrics.* 2018; 142(3):e20181889.
- Ryan, S., A Modern Conundrum for the Pediatrician: The Safety of Breast Milk and the Cannabis-Using Mother. *Pediatrics.* 2018;142(3):e20181921.
- Thompson, et al., Marijuana Use in Pregnancy: A Review. *Obstet Gynecol Surv.* 2019 July; 74(7):415-428.
- Wymore. et al., Persistence of Δ -9-Tetrahydrocannabinol in Human Breast Milk. 2020 March; *jamapediatrics.*2020.6098



Thank You

Survey Results

bit.ly/THCandBreastmilk

Q&A

To download today's slides, visit:
bit.ly/



If your NICU is interested in learning more about
the MatEx database,
email Caroline Toney-Noland at:
ctn@stanford.edu