

Understanding Fetal, Neonatal and Infant Impacts of Parental Cannabis Use

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#ASAMAnnual2022

Disclosure Information (Required)

Cannabis Use in Pregnancy: Person-Centered Perspectives

Friday, April 1, 2022 10:30 AM – 11:30 AM

David Schiff

- ☀ Receives funding from the American Academy of Pediatrics for participation in the Maternal Infant Health and Opioid Use team
- ☀ Receives research funding and programmatic support from NIDA, SAMHSA, DOJ

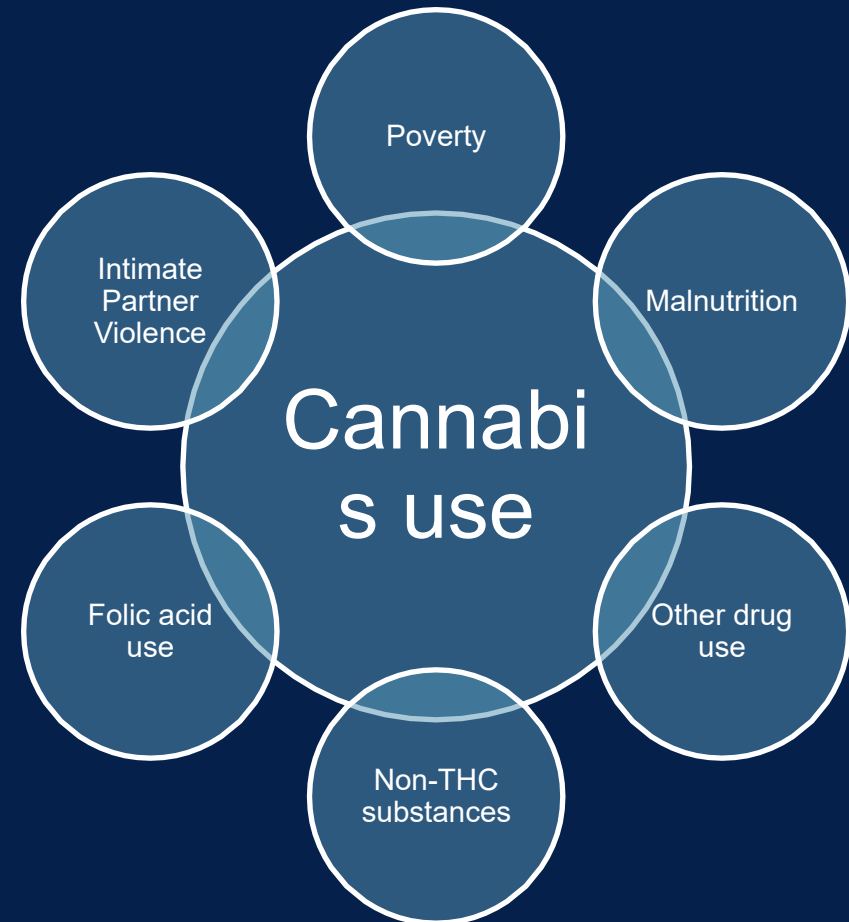


Outline

- ☀ Understanding data (and limitations to existing data) on fetal and neonatal impacts of cannabis exposure in utero
- ☀ Lactation and cannabis
- ☀ Postpartum exposures and safety of use while parenting

Cannabis use in pregnancy rarely occurs in isolation

- ☀ The data surrounding cannabis use and pregnancy is littered with confounders
- ☀ Cannabis has similar substances to tobacco smoke
- ☀ It is difficult to know the specific effects of cannabis on pregnancy and the fetus



BMJ Open Prenatal exposure to cannabis and maternal and child health outcomes: a systematic review and meta-analysis

J K L Gunn,¹ C B Rosales,² K E Center,³ A Nuñez,⁴ S J Gibson,⁵ C Christ,⁶ J E Ehiri⁵

Review

Maternal Marijuana Use and Adverse Neonatal Outcomes

A Systematic Review and Meta-analysis

Shayna N. Conner, MD, MSCI, Victoria Bedell, MD, Kim Lipsey, MLIS, George A. Macones, MD, MSCE, Alison G. Cahill, MD, MSCI, and Methodius G. Tuuli, MD, MPH

DOI: 10.1111/1471-0528.15946
www.bjog.org

Systematic review

Prevalence and outcomes of prenatal recreational cannabis use in high-income countries: a scoping review

S Singh,^a KB Filion,^{a,b,c} HA Abenhaim,^{a,d} MJ Eisenberg^{a,c,e} 

Systematic reviews and meta-analyses assessing neonatal outcomes following prenatal cannabis exposure

- ☀ Major confounders
 - ☀ Alcohol, tobacco, other substances
- ☀ Methodological issues
 - ☀ Freq and dose of exposures uncertain

Gunn, 2016; Singh, 2020; Conner 2016.

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Recent observational studies from Canada

JAMA | **Original Investigation**

JAMA. 2019;322(2):145-152. doi:10.1001/jama.2019.8734
Published online June 18, 2019.

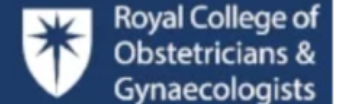
Association Between Self-reported Prenatal Cannabis Use and Maternal, Perinatal, and Neonatal Outcomes

Daniel J. Corsi, PhD; Laura Walsh, MSc; Deborah Weiss, PhD; Helen Hsu, MD; Darine El-Chaar, MD;
Steven Hawken, PhD; Deshayne B. Fell, PhD; Mark Walker, MD

☀ Corsi: Inc preterm birth

☀ Koto: Lower BW

BJOG An International Journal of
Obstetrics and Gynaecology



RESEARCH ARTICLE | [Full Access](#)

Maternal cannabis use during pregnancy and maternal and neonatal outcomes: A retrospective cohort study

Prosper Koto, Victoria M. Allen, John Fahey, Stefan Kuhle ✉

First published: 04 February 2022 |
<https://doi-org.ezp-prod1.hul.harvard.edu/10.1111/1471-0528.17114>

Risks of exposure to cannabis



Pregnancy

- Increased risk of preterm birth
 - Most studies are confounded by concurrent tobacco use
- Maternal anemia



Perinatal/Neonatal

- Structural anomalies- mixed
- Small for gestational age – mixed
- No increased risk of perinatal death
- Possible increased risk of stillbirth



Childhood

- Childhood behavior association
- Conflicting data on school performance
- Key Confounders
 - Neonatal/childhood Prenatal vs. postnatal exposure
 - Nutrition
 - SES/social determinants
 - Secondhand smoke exposure

Putting prenatal cannabis findings into historical context

Commentary

The Problem of Prenatal Cocaine Exposure

A Rush to Judgment

EDITORIAL

Cannabis Use in Pregnancy A Tale of 2 Concerns

Michael Silverstein, MD, MPH; Elizabeth A. Howell, MD, MPH; Barry Zuckerman, MD

Linda C. Mayes, MD
Richard H. Granger, MD
Marc H. Bornstein, PhD
Barry Zuckerman, MD

Silverstein JAMA,
2019

Mayes JAMA, 1992 #ASAMAnnual2022

Silverstein et al, 2019

- ☀ “It is impossible to separate data from the values that individuals bring to those data, no group is immune to the judgment of others ,and women and minority groups (particularly pregnant women of color) tend to bear the greatest burden of many of these judgments.”
- ☀ “More epidemiology is unlikely to completely resolve the complex issue of potentially safe moderate use or to completely remove the tendency to imbue data interpretation with implicit biases about groups of people.”
- ☀ “Furthermore, the dialogue on cocaine was defined by exaggeration; so far, the dialogue on cannabis has largely been defined by a false perception of safety”

CLINICAL REPORT Guidance for the Clinician in Rendering Pediatric Care

American Academy
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™

Marijuana Use During Pregnancy and Breastfeeding: Implications for Neonatal and Childhood Outcomes

Sheryl A. Ryan, MD, FAAP,^a Seth D. Ammerman, MD, FAAP, FSAHM, DABAM,^b Mary E. O'Connor, MD, MPH, FAAP,^{c,d}
COMMITTEE ON SUBSTANCE USE AND PREVENTION, SECTION ON BREASTFEEDING

- ☀️ “In summary, the evidence for independent, adverse effects of marijuana on human neonatal outcomes and prenatal development is limited, and inconsistency in findings may be the result of the potential confounding caused by the high correlation between marijuana use and use of other substances such as cigarettes and alcohol, as well as sociodemographic risk factors.
- ☀️ However, the evidence from the available research studies indicate reason for concern, particularly in fetal growth and early neonatal behaviors.

Neonatal withdrawal syndrome?

substance	symptoms	duration
cannabis	CNS symptoms (tone, startle, cry), decreased sleep, less regulated, altered NNNS scales	Self-resolve within 1 week (Ryan SA 2018)
tobacco	CNS (tone, excitability, asymmetrical reflexes, irritability, tremor) Altered GI/visual NNNS subscales	Begin at ~12 hours of life, last <48 hours (Law 2003, Garcia-Algar 2004)
SSRI/SNRIs	CNS symptoms, restlessness, feeding difficulties, fever, respiratory distress (rare: seizure, cyanosis)	Generally mild, self-resolve by 2 weeks (Leibovitch 2013, Moses-Kolko 2005)

Is cannabis use a contraindication to breastfeeding?

- ✶ Just how much cannabis is transferred in breastmilk?
- ✶ What are the effects of ingested cannabis on newborns?
- ✶ Do risks outweigh benefits?



Official Recommendations

- ☀️ “There are insufficient data to evaluate the effects of marijuana use on infant data,

- ☀️ “Presen mater mariju

- ☀️ “Infor breast comp on the scientific evidence at this time ...

- ☀️ [data] should prompt extremely careful consideration of the risks versus benefits of breastfeeding in the setting of **moderate or chronic marijuana use.**”

abstain from cannabis
≠ abstain from breastfeeding



AAP 2018 statement

regarding the infant's long-term neurobehavioral development and thus are contraindicated."⁸⁵ Although this has been interpreted by some professional organizations to indicate that in the parent using marijuana, the choice to breastfeed is "contraindicated," this was not the intent of that statement. It is suggested instead that the mother be encouraged to breastfeed while, at the same time, it is strongly encouraged that she abstain completely from using marijuana as well as other drugs, alcohol, and tobacco. This position has been supported by several other professional organizations and resources. For example, LactMed (a free

Risks vs. well established benefits of breastfeeding

TABLE 2 Dose-Response Benefits of Breastfeeding^a

Condition	% Lower Risk ^b	Breastfeeding	Comments	OR ^c	95% CI
Otitis media ¹³	23	Any			
Otitis media ¹³	50	≥3 or 6 mo			
Recurrent otitis media ¹⁵	77	Exclusive BF ≥6 mo ^d	RSV bronchiolitis ¹⁶	74	>4 mo
Upper respiratory tract infection ¹⁷	63	>6 mo	NEC ¹⁹	77	NICU stay
Lower respiratory tract infection ¹³	72	≥4 mo	Atopic dermatitis ²⁷	27	>3 mo
Lower respiratory tract infection ¹⁵	77	Exclusive BF ≥6 mo ^d	Atopic dermatitis ²⁷	42	>3 mo
Asthma ¹³	40	≥3 mo	Gastroenteritis ¹³⁻¹⁴	64	Any
Asthma ¹³	26	≥3 mo	Inflammatory bowel disease ³²	31	Any
			Obesity ¹³	24	Any
			Celiac disease ³¹	52	>2 mo
			Type 1 diabetes ¹³⁻⁴²	30	>3 mo
			Type 2 diabetes ¹³⁻⁴³	40	Any
			Leukemia (ALL) ¹³⁻⁴⁶	20	>6 mo
			Leukemia (AML) ¹³⁻⁴⁵	15	>6 mo
			SIDS ¹³	36	Any >1 mo

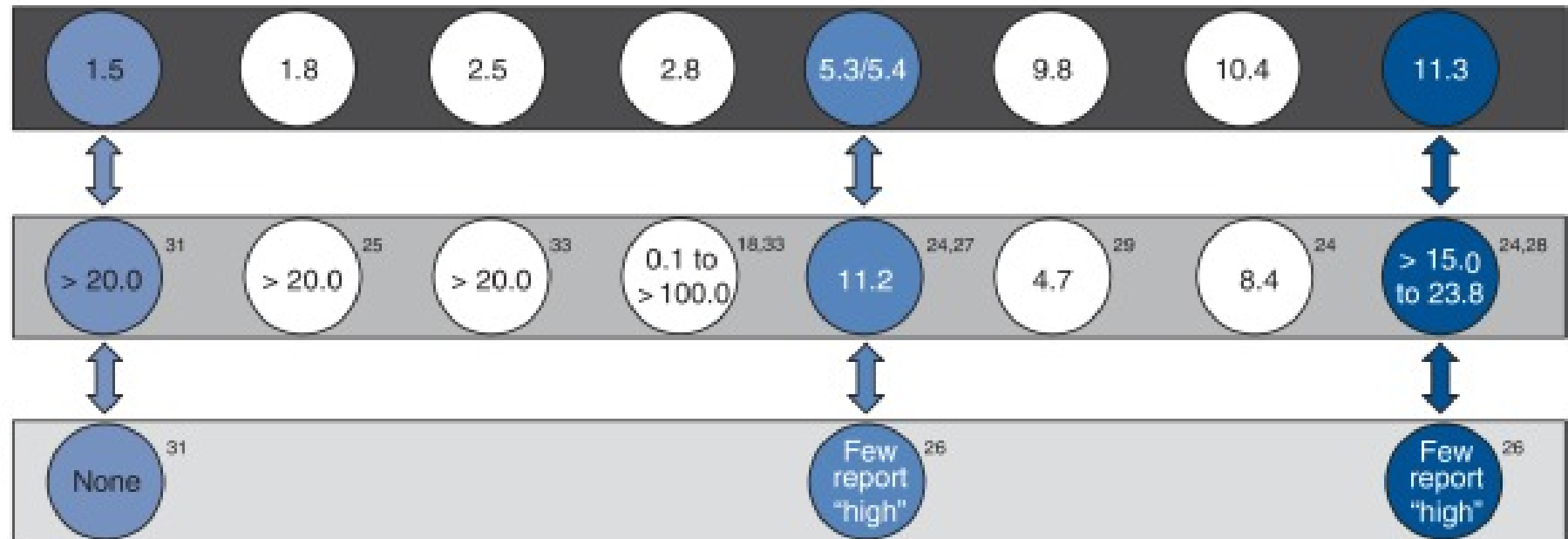
Condition	% Lower Risk ^b	Breastfeeding	Comments	OR ^c	95% CI
			history		
			—	0.26	0.074–0.9
			Preterm infants	0.23	0.51–0.94
			Exclusive HM		
			Exclusive BFnegative family history	0.84	0.59–1.19
			Exclusive BFpositive family history	0.58	0.41–0.92
			—	0.36	0.32–0.40
			—	0.69	0.51–0.94
			—	0.76	0.67–0.86
			Gluten exposure when BF	0.48	0.40–0.89
			Exclusive BF	0.71	0.54–0.93
			—	0.61	0.44–0.85
			—	0.80	0.71–0.91
			—	0.85	0.73–0.98
			—	0.64	0.57–0.81

Toxicology testing of non-white individuals disproportionately due to cannabis use at five Massachusetts hospitals

	Nativ Am	Asian	Black NH	Hisp/ LatinX	Other	Unavailable	White NH
Any SUD related indication, (excluding cannabis)	30.0%	16.3%	12.9%	17.7%	25.0%	16.9%	45.8%
Cannabis	60.0%	34.9%	42.7%	40.2%	33.3%	28.2%	29.2%
Other indication (late PNC, maternal or infant clinical indication, rx monitoring, unknown)	10.0%	48.8%	44.4%	42.1%	41.7%	54.9%	25.0%

Secondhand exposure

☀️ Ventilation, number of smokers, cannabis potency, air volume



Other considerations

- ☀ Safety/caregiver impairment
- ☀ Toxicology testing for cannabis

What we know (and what we don't)

- ☀ Cannabis use in pregnancy is not uncommon
 - ☀ Legalization, conflicting messages
- ☀ Cannabis can be harmful to the fetus
 - ☀ But many confounders
- ☀ Cannabis is excreted in breastmilk and may confer harms to the infant/newborn
 - ☀ But how much, for how long, and what harms are still unclear
- ☀ Equity concerns
 - ☀ Who uses cannabis? Who is being reported to DCF? Should cannabis use raise our suspicion for child abuse/neglect?

Acknowledgements

- ☀ Slides adapted from presentation prepared by Dr. Megan Miller and Dr. Leela Sarathy for MA PNQIN Spring Summit in 2021.

References

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