Weed to Know: Need to Know
Cannabis (Marijuana) Use in Pregnancy & Breastfeeding

Maureen Shogan, MN, RNC
Clinical Director for National Institute on Drug Abuse Project
and National Institute on Drug Abuse (NIH) Project

Aug 2020

Hemp Farming Act 7/18
CBD <0.3% THC Legal

Objectives

• Participants should be able to:
  • Relate the US Surgeon General, FDA, AAP, ACOG, AWHONN Breastfeeding Medicine, and AHA recommendations regarding marijuana/cannabis use in pregnancy and breastfeeding.
  • Describe usage and prevalence of TetraHydroCannabinol (THC).
  • Describe potential outcomes for children exposed prenatally to cannabis.

• Disclosure statement:
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Cannabis (Marijuana) Use in Pregnancy and Breast Feeding

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Reasons for marijuana use during pregnancy 8 states - PRAMS

What do the experts say?

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Pregnant Women and Teenagers Not to Smoke or Vape Marijuana

Dr. Jerome Adams, the surgeon general, said they may be unaware that modern crops pose greater health risks because of their potency.

No amount of marijuana use during pregnancy or adolescence is known to be safe. ....the safest choice for pregnant women and adolescents is not to use marijuana. /Surgeon General Jerome Adams Advisory: Marijuana Use and the Developing Brain/

Cannabis in Pregnancy
Professional Organization Statements

AWHONN
Association of Women's Health, Obstetric, and Neonatal Nursing 9.2018

“Support of implementation legislation, policies, and public health initiatives that help raise awareness, remove stigma, discourage use, and facilitate access to prenatal and maternity care of women who use marijuana during pregnancy

FDA
10.2019

FDA strongly advises against the use of CBD and THC and marijuana in any form during pregnancy or while breastfeeding.

American Heart Association 8.2020

“Doubling down on the AHA commitment to limiting the smoking and vaping of any products and banning cannabis use for youth. All clinicians need greater exposure to and education on the various cannabis products and their health implications”

Women who are pregnant or contemplating pregnancy should be encouraged to discontinue marijuana use. Marijuana use during lactation and breast feeding is discouraged."

Cannabis should not be used during pregnancy. Maternal marijuana use while breastfeeding is discouraged. Because of potential risks unknown to the infant and potential risk during lactation, „encouraged to abstain from using any marijuana while breast feeding

Avoid further use or reduce their use as much as possible while breast feeding, advise them as to its possible long-term neurobehavioral effects. Instruct them to avoid direct exposure of the infant to marijuana and its smoke

Health Care Providers
Key Educators

• Know as much AND more than those who receive your counsel

Dr. Linda Balneaves, PhD, RN
Assoc. Prof – University of Manitoba 27.6.17

• https://www.youtube.com/watch?v=2b7NLa0V7Q8&t=4480s
What about Dads who use?

- Dads ≥ 1 times/week before conception
- No use in 83% male partner
- 8% 1 or more times/week
- Female partner more likely to use marij
- Use 1 or more times/week = poor semen quality
- Cannabinoid receptors testicular tissue and sperm


Prenatal Cannabis exposure Potential FETAL

- Higher level of CB1 receptors in fetal brain
  Specific role for endocannabinoid system (axonal elongation + synaptogenesis)
  NeuroProtector

- Nerve cell proliferation and migration
  Synaptogenesis
  Disruption: Neurotransmitter development


Amygdala –regulation of mood and emotional development
Potential propensity towards inattention and impulsivity

50% size of control
Drug Molecular Weight

<table>
<thead>
<tr>
<th></th>
<th>Hydrocodone</th>
<th>THC</th>
<th>CBD</th>
<th>Oxycodone</th>
<th>Insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Weight</td>
<td>299</td>
<td>314</td>
<td></td>
<td>315</td>
<td>6,000</td>
</tr>
</tbody>
</table>

Drug Molecular Weight


Cannabis in Pregnancy

Pos UA at Delivery Newborn Outcomes - 2019

<table>
<thead>
<tr>
<th></th>
<th>Non Marijuana N=330</th>
<th>Marijuana Exposed N=330</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBW</td>
<td>6.8%</td>
<td>14.7%</td>
<td>0.002</td>
</tr>
<tr>
<td>GA</td>
<td>39.0</td>
<td>38.7</td>
<td>0.007</td>
</tr>
<tr>
<td>Preterm delivery &lt;37 wks</td>
<td>6.0%</td>
<td>11.3%</td>
<td>0.17</td>
</tr>
<tr>
<td>NICU admit</td>
<td>4.1%</td>
<td>7.3%</td>
<td>0.86</td>
</tr>
</tbody>
</table>


Cannabis exposure in Pregnancy

- 3435  8.2% positive UA
- SGA  70% increased risk
- Ages Stages (ASQ-SE) screens 12mos
  - Self report by mom
  - 
- Score >50 = abnormal screen

Case Report

- 26 yr old female presents to Community Hospital
- 16th week gestation with N/V for past 24 hours
- PMH: hospitalization 4 months gastritis
- Hyperemesis gravidarum assumed
- Hospital course:
  - Day 1: Frequent and severe vomiting episodes (12 X/day)
  - Day 2: patient showered multiple times- mood seemed to considerably improve
  - Specific inquiry:
- Symptoms improved with hot bathing

Cannabinoid Hyperemesis

- Resistant to anti emetics
- Treatment to alleviate
- Thermoregulatory role
- Hot bathing may be result of CB1 receptor activation

Newborn Effects

- Increased irritability
- Jittery
- Tremors and startles
- Decreased stability scores

Thinking about using cannabis before or during pregnancy?

<table>
<thead>
<tr>
<th>Age 0 - 3 years</th>
<th>Age 3 - 6 years</th>
<th>Age 4 - 10 years</th>
<th>Age 11 - 18 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty calming down</td>
<td>Poorer memory</td>
<td>More hyperactive and impulsive</td>
<td>Poorer school performance</td>
</tr>
<tr>
<td>Frazzled startles</td>
<td>More impulsive</td>
<td>More difficulty making decisions</td>
<td>More hyperactive and impulsive problems</td>
</tr>
<tr>
<td>Sleep problems</td>
<td>Less attentive</td>
<td>Less attention</td>
<td>More difficulty learning</td>
</tr>
<tr>
<td>OPPS 1978 m=400 (Ottawa) FU m=500 Prospective</td>
<td>More able to understand and follow instructions</td>
<td>Symptoms of depression and anxiety</td>
<td>May try and/or use cannabis earlier</td>
</tr>
</tbody>
</table>

Thinking about using cannabis before or during pregnancy?


BestStart.ca 2018
Cannabis exposure and Association or higher risk for ASD, ADHD, Preterm

<table>
<thead>
<tr>
<th>April 2007 to March 2012</th>
<th>Non exposed 499,917</th>
<th>Marijuana only exposed 7,148</th>
<th>Adjusted Hazard Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASD</td>
<td>1.4% dx</td>
<td>2.2% dx</td>
<td>1.53</td>
</tr>
<tr>
<td>Intellectual disability/learning disorders</td>
<td>1.7%</td>
<td>2.0</td>
<td>1.23 ns</td>
</tr>
<tr>
<td>ADHD</td>
<td>5.7%</td>
<td>6.7%</td>
<td>1.11 ns</td>
</tr>
<tr>
<td>Preterm &lt;37</td>
<td>6.1%</td>
<td>12.4%</td>
<td>1.97</td>
</tr>
</tbody>
</table>

“Interpretation of the associations should be cautious.”


Cannabis in Human Breast Milk

- Anonymous Exclusively breast feeding 3-5mos
- One retailer – Prezedential Kush
- Standardized dose and concentration
- Pump, freeze and send overnight


Mean THC in Br Milk


THC in Br Milk
Metabolites

Ng/mL

0 1 2 3 4

0 10 20 30 40 50 60 70 80 90 100

0.33 1 2 3 4

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Cannabis and Breastfeeding

- THC excreted into human milk in moderate amounts
- **Relative Infant Dose:**
  - Milk:plasma ratio
  - Animal studies show MJ could reduce quality and quantity of breast milk
  - Two studies in women who smoked while breastfeeding
  - **Infants will test positive in urine screens for 2-3 weeks**

How to Counsel  “it must be safe since it is”

- Legal
- Natural
- Used as a medicine
- Used for nausea in pregnancy
- Good for your baby
- Naturally occurring in the body and breast milk

Cannot counsel to Pump and Dump

- Lipophilic
- Friday night joint – into next week

Bertrand, KA et al (2018) Pediatrics, 142 (1),

https://srhd.org/media/documents/W2K-Baby-RackCards-3up-Pregnancy.pdf

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Whole blood THC, ng/ml Smoked v Vaped at 10 minutes

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Inhaled versus Edible

Maureen Shogan, MN, RNC

How many milligrams in one bite?
Chocolate Covered blueberries infused with THC
San Jose Bay Area News Group Patrick Tehan

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Since retail cannabis stores opened in 2014, unintentional cannabis exposure calls for children 0-5 years have almost tripled.

Of all routes of exposure, WAPC reports an 82% increase in ingestions (in all ages) in 2018 compared to 2016.

Potency of Cannabis

Honey hash = 70-80%

Percentage THC

ElSohly MA, Church JC, (2016) Biol Psychiatry
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*THC concentration in Human milk hours after Use*

- Median 9.4 ng/mL
- Range 1 – 323 ng/mL

Cannabinoids highly lipophilic. Human milk 3%-5% fat. Hind milk 2-3X that.  

88% daily use - Inhalation 65%

Bertrand, KA et al (2018) Pediatrics, 142 (3), e20181076, UCSD