Cannabis in Pregnancy Outcomes for Mum and Babe

Maureen Shogan, MN, RNC
Professional Neonatal Nursing Consultant
Clinical Dir. National Institute on Drug Abuse, NAS project
Spokane, WA
Maureen.shogan@gmail.com

Laws vary by Province

- Age: 18 or 19
- Amount of home grown plants
- Retail outlets

- Summary of Provincial and Territorial Cannabis Regulation
- Centre on Substance Use and Addiction

Substance Use in Canada

- Substance abuse Canadian economy billion each year,
- In Canada, the top three substances
  -
  -
  -
- Canadians age 15 years and older reported consuming alcohol in the past year.

Mentalhealthcommission.ca Catalyst – April 2017 Problematic substance use in the workplace

- Drinkers exceeded the Low Risk Drinking Guidelines for chronic (long-term) effects (10 drinks per week for women, 15 drinks per week for men).
- 12 per cent of Canadians age 15 years and older used marijuana in the last year; this figure more than doubles for young adults.
- Mental illness

Past Year Use in Canada - Self Reported

Cannabis April 2016 Canadian Centre on Substance Abuse ccsa.ca and ccit.ca CADUMS, CTADS


Maureen Shogan, MN, RNC
Canadian Nurse Cannabis Knowledge

Use in Pregnancy

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Knowledge Level</th>
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<tbody>
<tr>
<td>11%</td>
<td>Significant Lack</td>
</tr>
<tr>
<td>14%</td>
<td>Somewhat Lacking</td>
</tr>
<tr>
<td>27%</td>
<td>Neutral</td>
</tr>
<tr>
<td>22.3%</td>
<td>Knowledgeable</td>
</tr>
<tr>
<td>26%</td>
<td>Very Knowledgeable</td>
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Canadian Nurses Cannabis Knowledge

Developing Brain

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Knowledge Level</th>
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<tbody>
<tr>
<td>14.2%</td>
<td>Significant Lack</td>
</tr>
<tr>
<td>12%</td>
<td>Somewhat Lacking</td>
</tr>
<tr>
<td>5.4%</td>
<td>Neutral</td>
</tr>
<tr>
<td>28.2%</td>
<td>Knowledgeable</td>
</tr>
<tr>
<td>40.2%</td>
<td>Very Knowledgeable</td>
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</tbody>
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Canadian Nurses Assoc. 2017

2017 CNA Survey all provinces and territories n = 849

Excellent Webinar Resource from CNA

- Cannabis in Canada: Implications for nursing in a changing legal and health-care landscape
  Dr. Linda Balneaves, PhD, RN
  Assoc. Prof – University of Manitoba
  27.6.17

- https://www.youtube.com/watch?v=2b7NL0v7Q8&t=4480s 1 hr 23 min

Endocannabinoid System

Cannabis receptor sites

- Marijuana smoked, vaped or eaten active ingredient THC throughout body.
- THC attaches to cannabinoid receptors on nerve cells in the brain.
- Abundant in parts of the brain that regulate

How Cannabis Works

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Cannabis in Pregnancy and Lactation: Outcomes for Mum and Babe
Canadian Association of Neonatal Nurses Calgary, AB 22.4.18
Maureen Shogan, MN, RNC

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Self Report versus Toxicology in a Legal state

- > 24 weeks  n = 116
- Survey use in past 30 days, 30 days to 1 year, more than 1 year, Never
- Reviewed the HCP admission notes in medical record
- Umbilical cord toxicology at birth
- Survey reported use = 6%
- Reported to HCP = 2.6%
- Cord tissue toxicology


Reported versus Toxicology Confirmation in a legal recreation state

Weed, Pot, Marijane
Marijuana - THC

- Tetra Hydra Cannabinol
- Smoked
  - Bowls or Zig Zags
- Eaten
- Hydroponics, BC Bud
- Potency
- Conjunctiva
- Memory

Potency of Seized Marijuana

Clinical Pharmacokinetics of Cannabis

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Endocannabinoid System Development in the Fetus

- Higher level of CB1 receptors in fetal brain
- Specific role for endocannabinoid system in several developmental events
- Metabolic support
- Axonal elongation
- Cell proliferation and migration
- Synaptogenesis
- Neuroprotection for CNS
- Neurotransmitters

Cannabis Exposure During Pregnancy and Fetal Effects

- Potential for supra-physiological stimulation of endogenous cannabinoid system
  - Disrupt endocannabinoid signaling
- Disruption of developing neurotransmitter systems

Cannabis Use in Pregnancy

<table>
<thead>
<tr>
<th>STUDY DESIGN</th>
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<tbody>
<tr>
<td>• 24,874 women giving birth in Australia</td>
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<tr>
<td>• Self-reported cannabis use</td>
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<tr>
<td>• Birth outcomes</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>RESULTS</th>
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</thead>
<tbody>
<tr>
<td>• Ever use: 26.3%</td>
</tr>
<tr>
<td>• Before pregnancy: 9.5%</td>
</tr>
<tr>
<td>• During pregnancy: 2.6%</td>
</tr>
<tr>
<td>• Other illicit drugs: 0.7%</td>
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- USE DURING PREGNANCY:
  - Significant findings (adjusted):
    - Low birth weight [1.7 (1.3-2.2)]**
    - Preterm birth [1.5 (1.1-1.9)]*
    - SGA [2.2 (1.8-2.7)]**
    - NICU admission [2.0 (1.7-2.4)]**
    - *p-value <0.05  **p-value <0.001

Danger: We are on thin ice with data

OB outcomes Cannabis Use in young moms - 2018

- Hypertension
- SGA
- Preterm Delivery
- Stillbirth

Case Report

- 26 yr old female presents to Community Hospital
- 16th week gestation with N/V for past 24 hours
- PMH: hospitalization 4 months ago due to gastritis-like symptoms with N/V
- SH: smokes 5 cigarettes/day
- Hyperemesis gravidarum assumed
- Hospital course:
  - Day 1: Frequent and severe vomiting episodes
  - Day 2: Patient showered 8 times in one day
  - Specific inquiry: regular daily use
  - Symptoms improved
Cannabis Hyperemesis

- Resistant to a wide range of antiemetics
- Caution
- Treatment to alleviate
- Endocannabinoids thermoregulatory role
- Dose dependent hypothermic effects of delta 9 THC.
- Hot bathing


Moms on Buprenorphine = Cannabis 3rd Trimester

- 191 mothers on buprenorphine
- 76 Positive THC 3rd trimester 115 negative
- NAS symptoms requiring pharmacotherapy
- treated + marijuana
- treated no marijuana

- O’Connor, AB et al (2018). Drug and alcohol Dependence

Cannabis and Breastfeeding

- THC excreted into human milk in moderate amounts
- Relative infant Dose:
  - Milk:plasma ratio (chronic, heavy users)
  - Animal studies show MJ could reduce quality and quantity of breast milk

Two studies in women who smoked while breastfeeding
  - No differences were noted in outcomes on growth, mental, and motor development
  - Slight decrease in infant motor (not mental) development at one year

- Infants urine will test positive

“Exposure to alcohol or recreational drugs may impair a mother’s judgment and interfere with her care of the infant and can cause toxicity to the breastfeeding infant”

Clearing the Smoke on Cannabis

Maternal Cannabis Use during Pregnancy

- Amy P. Porath-Waller, Ph.D.
- Director, Research and Policy, CCSA
- Canadian Centre for Substance Abuse – 2015 www.CCSUSCA

Neurocognitive and Behavioral Effects

Clearing the Smoke on Cannabis: Maternal Cannabis Use during Pregnancy

Porath-Waller, A.J. (2015) Canadian Centre on Substance Abuse
Cannabis Effects

• Newborns
  – No major birth defects
  – altered sleep, tremors, increased startle, lethargy
  – Poor weight gain, poor suck
  – Thin ice
  – (This was the Cannabis of the late 1990s)

Marijuana Effects

• 4 years lower memory and verbal
• 9-12 years decreased impulse control and visual skills
  – Normal reading, language, verbal and IQ
• Theorizing that frontal lobe is affected

The First 6 months

• Some studies found that babies exposed to marijuana smoke before birth, are more likely to have:
  • asthma
  • lung infections
  • wheezing.

Psychiatric and Medical Management of Marijuana Intoxication

• Case Report:
  • Erratic disruptive behavior. Broke into neighbor’s home requesting to “go to Heaven.”
  • Paranoid
  • Anxious “something bad” going to happen
  • Insomnia, racing thoughts euphoria past week
  • HR and BP increase
  • Loose disorganized thought blocking, Grandiose, hyper religious, auditory hallucinations. Impaired attention and memory
  • Mild hypokalemia and QT interval prolongation

Do children of moms who use marijuana in pregnancy, use as well?

• First trimester, 3 joints/week. 53% smoked. N=1360
• Assessed offspring 22 years after initial assessment
• Children 21-26 yrs of age.
• Schooling (12.8 years)
• Cannabis use in the past year
• Initiated use by 22 years.
  – ½ began to use
  – Cigarette use in past year
• Cannabis Use disorder in those who reported THC use.

View the problem from multiple perspectives

Ontario Frank Geary architect