

## Weed to Know: Need to Know Cannabis (Marijuana) Pregnancy & Lactation



Voters Legalized Recreational  
2012 \$395M  
2019 tax  
revenue

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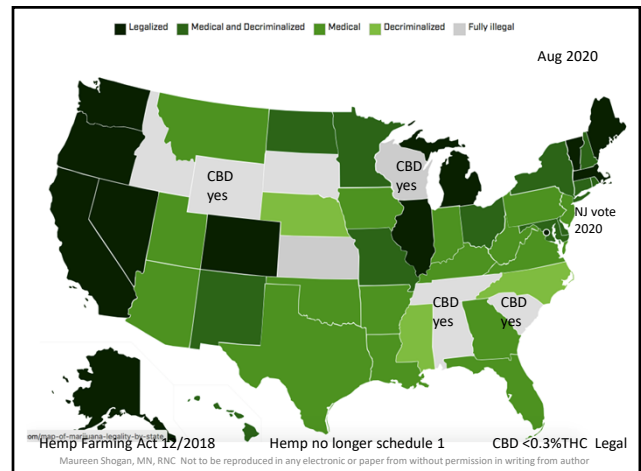
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## Objectives

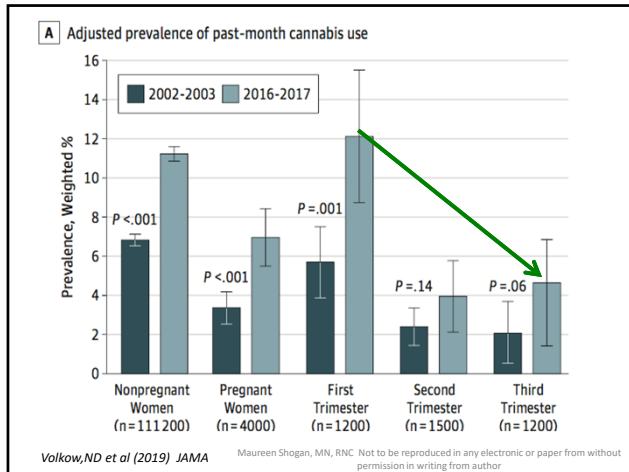
- Participants should be able to:
- Relate the US Surgeon General, FDA, AAP, ACOG, AWHONN Breast Feeding Medicine, and AHA recommendations regarding marijuana/cannabis use in pregnancy and breastfeeding.
- Describe usage and prevalence of TetraHydroCannabinol (THC).
- Describe potential outcomes for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

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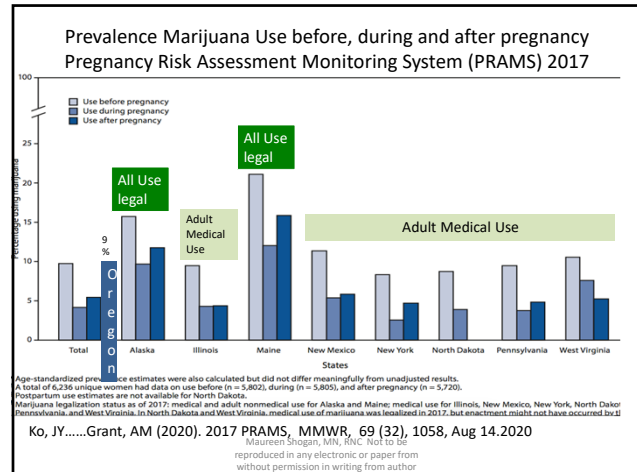
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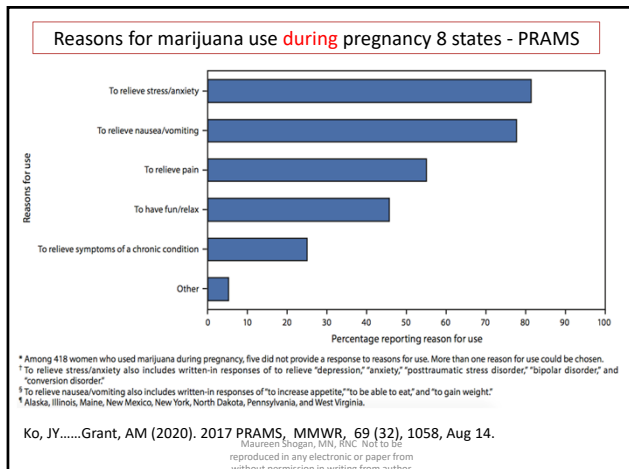
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**Pregnant Women and Teenagers Not to Smoke or Vape Marijuana**

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

August 28, 2019



**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.

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<b>ACOG</b> American College of Obstetrics and Gynecology 10.2017	<b>Women who are pregnant or contemplating pregnancy should be encouraged to <i>discontinue marijuana use</i>. Marijuana use during lactation and breast feeding is discouraged."</b>
<b>AAP</b> American Academy of Pediatrics 9.2018	<b>Marijuana should <i>not be used during pregnancy</i>. 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</b>
<b>Academy of Breastfeeding Medicine</b> 2015	<b>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</b>

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Cannabis in Pregnancy  
Professional Organization Statements


<b>AWHONN</b> Association of Women's Health, Obstetric, and Neonatal Nursing 9.2018	<b>"Support of implementation legislation, policies, and public health initiatives that help raise awareness, remove stigma, <i>discourage use</i>, and facilitate access to prenatal and maternity care of women who use marijuana during pregnancy</b>
<b>FDA</b> 10.2019	<b>FDA strongly <i>advises against</i> the use of <i>CBD and THC</i> and marijuana in any form during pregnancy or while breastfeeding.</b>
<b>American Heart Association</b> 8.2020	<b>"Doubling down on the AHA commitment to limiting the smoking and vaping of any products and <i>banning cannabis use for youth</i>. All clinicians need greater exposure to and <i>education on the various cannabis products</i> and their health implications"</b>

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<https://www.ahajournals.org/doi/pdf/10.1161/CIR.0000000000000000>

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**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>

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## What about Dads who use?

- Dads  $\geq 1$  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
- Harlow, A et al. (2019). Male marijuana use and spontaneous abortion, presented ASRM, 10.14.19. Abstract O-4

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## Prenatal Cannabis exposure Potential FETAL

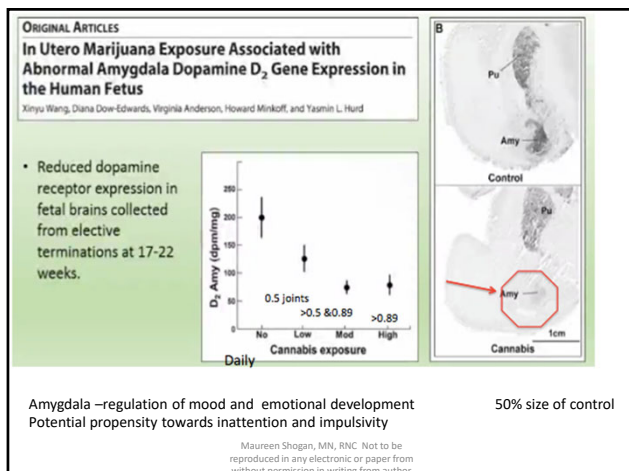
- ★ Higher level of CB1 receptors in fetal brain
- Specific role for endocannabinoid system (axonal elongation + synaptogenesis)
- NeuroProtector

- ★ Nerve cell proliferation and migration
- Synaptogenesis
- ★ Disruption: Neurotransmitter development

Eur J Neurosci. 2003;17:1747-54. Neurotox Res. 2000;23:14-20.41 Psychopharmacology. 2011;214:5-15 J Perinatol. 2014;34(6):417-24. EMBO J. 2014;33(7):668-85. Prog Neuropsychopharmacol Biol Psychiatry. 2014;52:45-52

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## Drug Molecular Weight

Hydrocodone	299
THC	314
CBD	
Oxycodone	315
Insulin	6,000

O'Neill, MJ. (2018). *The Merck Index*, An Encyclopedia of chemicals, drugs, and biologicals. 16<sup>th</sup> Ed.

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Cannabis in Pregnancy  
Pos UA at Delivery Newborn Outcomes - 2019

	Non Marijuana N=330	Marijuana Exposed N=330	p
LBW	6.8%	14.7%	0.002
GA	39.0	38.7	0.007
Preterm delivery <37 wks	6.0 %	11.3%	0.17
NICU admit	4.1%	7.3%	0.86

Bailey, Wood, & Shah (2020). *J. Perinatology*,

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Cannabis in Pregnancy Retrospective Report (BORN - Ontario)  
Newborn Outcomes – 2019

	Non Marijuana N=652190	Marijuana ONLY Exposed N=9427
SGA ( 3 <sup>rd</sup> percentile)	2.4%	6.3%
SGA (10 <sup>th</sup> percentile)	9.3%	18.2%
Preterm delivery <37 wks	5.9 %	9.1%
No effect on <28 wks	0.5%	1.0%
Greatest effect 34-36 6/7	4.7%	8.7
Transfer to NICU	11.9%	25.1 %

Prematurity (2007-2012) 499,917 3148  
(Corsi, 2020) *Nature Medicine* 6.1% 12.4%

Corsi, DJ et al (7/2019) *JAMA* doi:10.1001/jama.2019.8734  
Canada Better Outcomes Registry and Network (BORN)

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## 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

– Kharbanda, EO et al (2020). *J. Perinatology*, doi:10.1038/s41372-019-0576-6

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### Case Report

- 26 yr old female presents to Community Hospital
- 16<sup>th</sup> 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

Maureen Shogan, MN, RNC Arch Gynecol Obstet (2011) 284:1095–1097

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### Cannabinoid Hyperemesis

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

- Ishaq, S, Ismail, S., Ghaus, S. Roop-e-Zahra, Rostami, K. (2014). Cannabinoid hyperemesis should be recognised as an effect of chronic cannabis abuse, *Gastroenterology Hepatology from Bed to Bench*, 7 (3): 173-6.

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### Newborn Effects

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

- Gunn, JK, Rosales, CB, Center, KE et al (2016). *BMJ Open*, 6:e009986

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Beststart.ca 2018  
Thinking about using cannabis before or during pregnancy?

Age 0 - 3 years:	Age 3 - 6 years:	Age 6 - 10 years:	Age 14 - 18 years:
<ul style="list-style-type: none"> <li>❖ Difficulty calming down</li> <li>❖ Exaggerated startles</li> <li>❖ Sleep problems</li> </ul>	<ul style="list-style-type: none"> <li>❖ Poorer memory</li> <li>❖ More impulsive</li> <li>❖ Less attentive</li> <li>❖ Less able to understand and follow instructions</li> </ul>	<ul style="list-style-type: none"> <li>❖ More hyperactive and impulsive</li> <li>❖ More difficulty learning</li> <li>❖ Symptoms of depression and anxiety</li> <li>❖ More difficulty making decisions</li> <li>❖ Less attentive</li> </ul>	<ul style="list-style-type: none"> <li>❖ Poorer school performance</li> <li>❖ Delinquency problems</li> <li>❖ May try and/or use cannabis earlier</li> <li>❖ Continue to be hyperactive, impulsive and less attentive</li> </ul>

OPPS 1978  
n=400 (Ottawa)  
FU n=150  
Prospective  
White, mid class, low risk THC before/during  
Neurotoxicol Teratol 1988;10:305-13. J Dev Behav Pediatr 1990;11:49-58. Neurotoxicol Teratol 1995;17:479-87. Neurotoxicol Teratol 1994;16:169-75. Drug Alcohol Depend 2011;118:470-4.

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### Cannabis exposure and Association or higher risk for ASD, ADHD, Preterm

April 2007 to March 2012	Non exposed 499,917	Marijuana only exposed 3148	Adjusted Hazard Ratio
ASD	1.4% dx	2.2% dx	1.53
Intellectual disability/learning disorders	1.7%	2.0	1.23 ns
ADHD	5.7%	6.7%	1.11 ns
Preterm <37	6.1%	12.4%	1.97

**"Interpretation of the associations should be cautious."**

Corsi, DJ.....Walker, M (2020). Maternal cannabis use in pregnancy and child neurodevelopmental outcomes, *Nature Medicine*, doi.org/10.1038/s41591-020-1002-5  
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Aug 10, 2020

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### Cannabis in Human Breast Milk

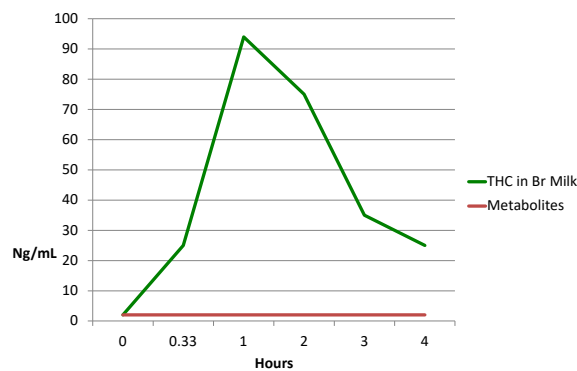
- Anonymous Exclusively breast feeding 3-5mos
- One retailer – Prezidential Kush
- Standardized dose and concentration
- Pump, freeze and send overnight

- Baker,T .....Hale, T. (2018). *Ob Gyn*, 131 (5), 783-8.

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### Mean THC in Br Milk

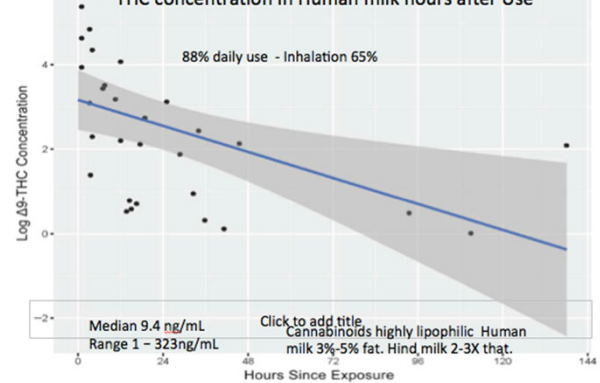


Baker,T.....Hale,T (2018). *Ob/Gyn*

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### THC concentration in Human milk hours after Use



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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**

N Engl J Med 1982;307(13):819-820. Hale TW. Medications and Mother's Milk. 15<sup>th</sup> ed. Clin Obstet Gynecol 2013;56:202-11. NIDA Res Monogr 1985;59:48-60. Neurotoxicol Teratol 1990;12:161-8. Neurobiol Dis 1998; 5(6 Pt 1B): 432-446. Neurotoxicol Teratol 1999;21:513-25. J Toxicol 2009;Article 596149.

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### Cannot counsel to Pump and Dump

- Lipophilic
- Friday night joint – into next week

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

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### 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

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### Spokane Regional Health District – Spokane, WA



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

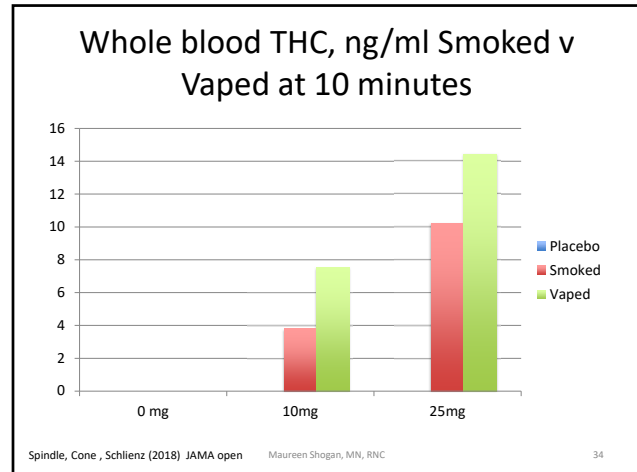
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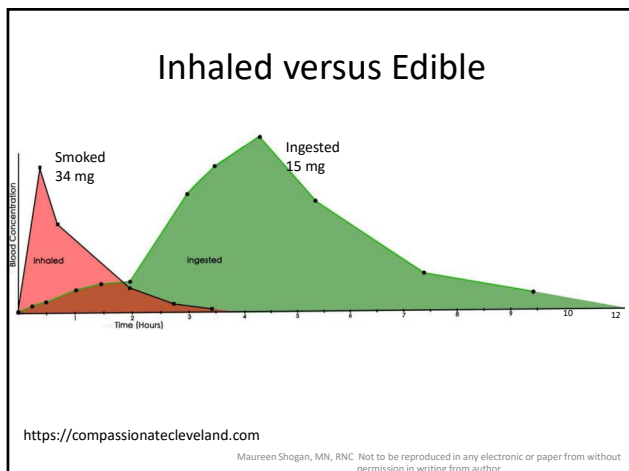




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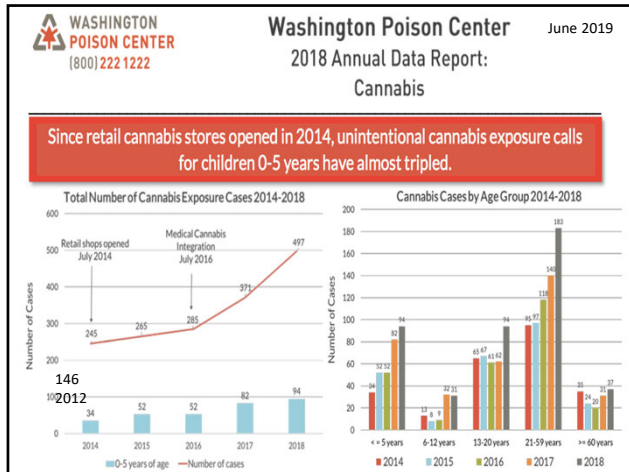
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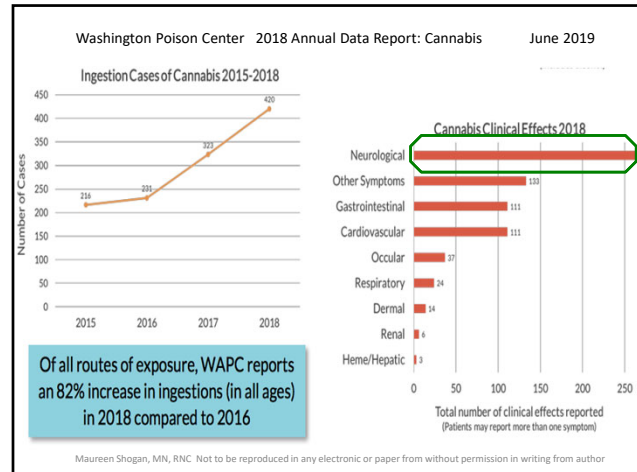
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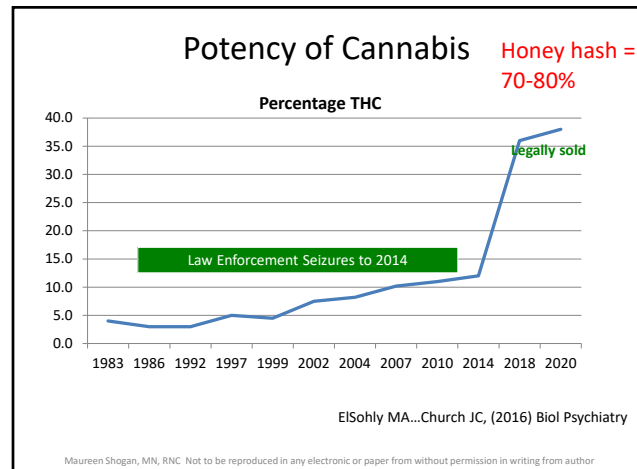
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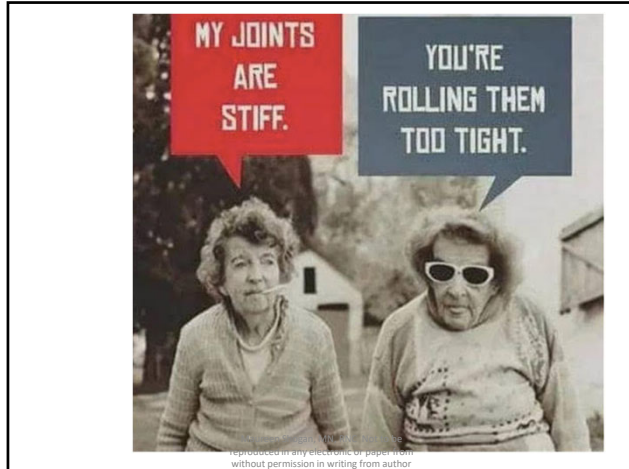
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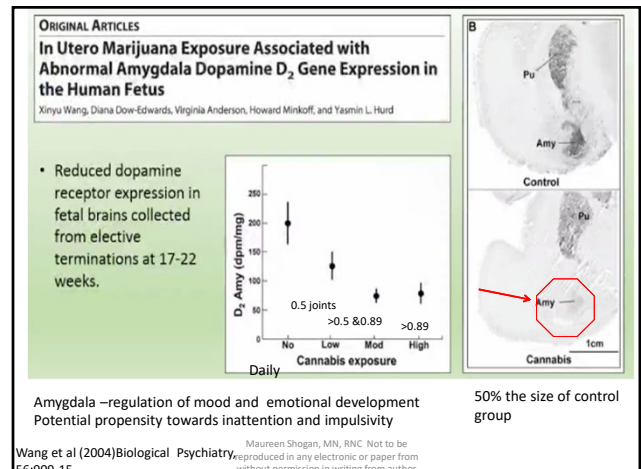


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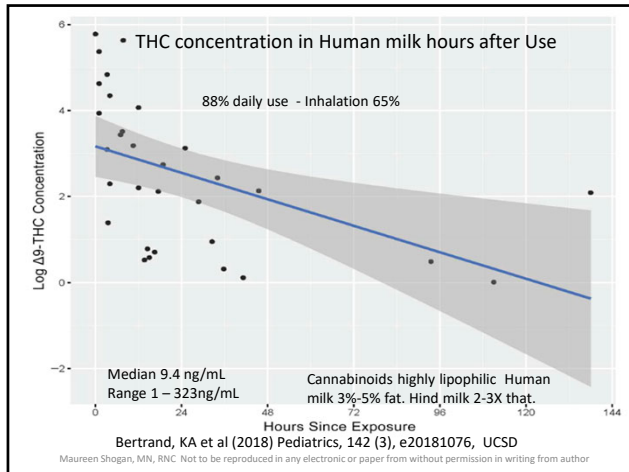
- 8.17.20
- Bailey, MA, Wood, DL & Shah, D. (2020). Impact of pregnancy marijuana use on birth outcomes: results from two matched population-based cohorts, *J Perinatology*, doi.org/10.1038/s41372-020-0643-z.
- Bertrand, KA, Hanan, N., Honerkamp-Smith, Best, BM., & Chambers, CD. (2018.) Marijuana use by breastfeeding mothers and cannabinoid concentrations in breast milk, *Pediatrics*, 142 (3), e20181076
- Corsi, DJ et al (7/2019) JAMA doi:10.1001/jama.2019.8734 Canada Better Outcomes Registry and Network (BORN)
- Corsi, DJ.....Walker, M (2020). Maternal cannabis use in pregnancy and child neurodevelopmental outcomes, *Nature Medicine*, doi.org/10.1038/s41591-020-1002-5
- ElSohly, M, Mehmedic, Z, Foster, S., Gon, C., Suman, C & Church JC (2016). Changes in cannabis
- Gunn, JK, Rosales, CB, Center, KE et al (2016). Prenatal exposures to cannabis potency over the last two decades (1995-2014) - Analysis of current data in the US, *Biol Psychiatry*, 79, (7),
- Harlow, A et al. (2019). Male marijuana use and spontaneous abortion, presented ASRM, 10.14.19. Abstract O-4
- Ko, JY.....Grant, AM (2020). 2017 PRAMS, *MMWR*, 69 (32), 1058, Aug 14.
- Sharapova, SR., Phillips, E., Sirocco, K. Kaminski, JW., Leeb, RT & Rolle, I, (2018) Effects of prenatal marijuana exposure on neuropsychological outcomes in children aged 1-11 years: A systematic review, *Paediatr Perinatol Epidemiology*, 32:512-32.
- Thompson, R., DeJong, K & Lo, J (2019). Marijuana use in pregnancy: A review, *Obst Gynecol Survey*, 74 (7), 415-28.
- Volkow, ND et al (2019) JAMA
- Wang, X, Dow-Edwards, D, Anderson, V, Minkoff, H & Hurd, YL (2004). In utero marijuana exposure associated with abnormal
- <https://www.ohsu.edu/sites/default/files/2018-11/Cannabis-report-FINAL%20november%2018%20PDF.pdf>

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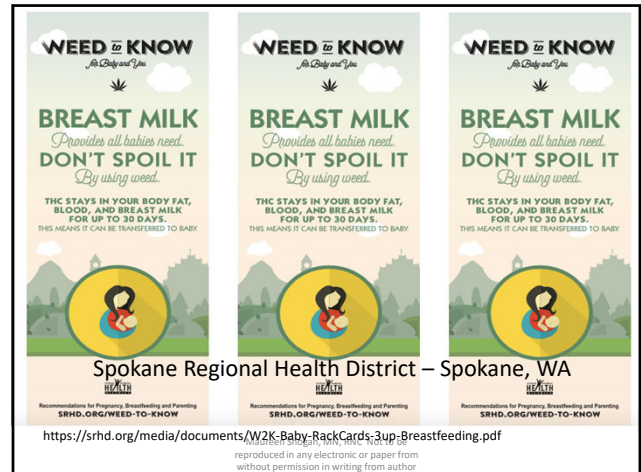
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