

# Marijuana Legalization and Pregnancy



Torri Metz, MD  
Maternal-Fetal Medicine  
December 15, 2017



# Disclosure Statements

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- I have no relevant financial relationships to disclose or conflicts of interest to resolve.

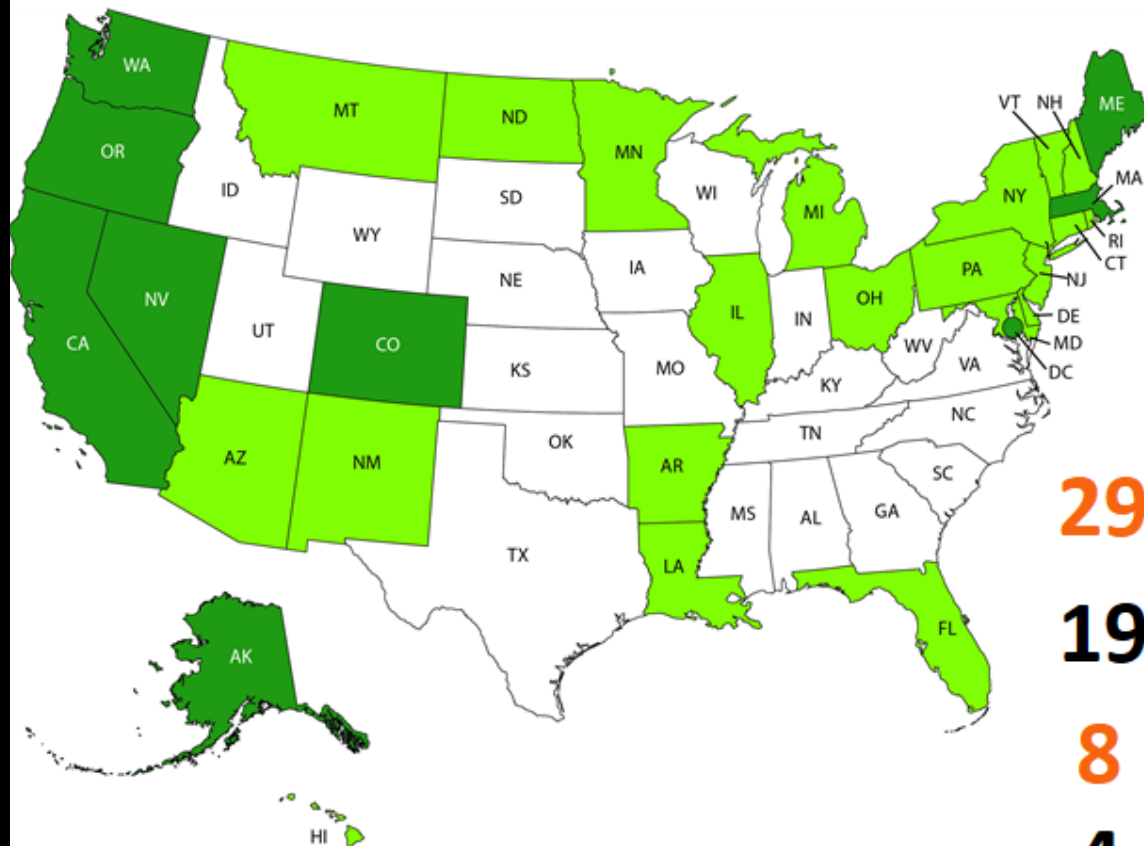
# Objectives

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- Describe public health impact of expanding marijuana legalization.
- Describe state of current evidence regarding risks of marijuana use during pregnancy to the mother and fetus.
- Describe available resources for practitioners from CDPHE to assist with counseling women regarding marijuana use in pregnancy.

## Marijuana Legalization by State

 States with Recreational Marijuana Laws     States with Medical Marijuana Laws



### Key Statistics

**59.3%**

of the U.S. population now lives in a state where marijuana has been legalized

**29** states plus Washington DC have medical marijuana laws ...

**19** plus Washington DC have operating dispensaries

**8** states plus Washington DC have recreational marijuana laws ...

**4** with operating retail stores

Source: Marijuana Business Daily, U.S. Census Bureau

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# Natural Experiment

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- Huge observational study
- Important to evaluate observed epidemiologic changes
- Partnership with public health entities

# Marijuana in Colorado

- Medical Marijuana in Colorado
  - Amendment 20 in November 2000
  - Ogden Memorandum October 2009
  - Commercial Production and Distribution 2010
  - HB 10-1284 & SB 10-109
- Recreational Marijuana in Colorado
  - Amendment 64 in November 2012
  - CO Dept of Revenue adopts CO Retail Marijuana Code (HB 13-1317)
  - Retail sales begin January 2014

# Marijuana Tourism Slide

- Study commissioned by the Colorado Tourism Office
- 33-question survey of 3,254 tourists
- 22% of respondents said marijuana was “extremely influential” in decision to visit Colorado
- However, only 8% visited a dispensary

# Unintended Consequences

## Snacks Laced With Marijuana Raise Concerns

By [JACK HEALY](#) JAN. 31, 2014



Edibles in the medical side of LoDo Wellness Center in Denver. Marijuana-infused snacks have become a booming business. Credit Matthew Staver for The New York Times



# Pediatric Exposures

- Retrospective cohort study hospital admissions and regional poison center reports for single-substance MJ exposure
- Median age exposure 2 years (IQR 1.3-4.0)
- Mean rate of admission increased after legalization
  - 1.2 per 100,000 in 2 years before legalization
  - 2.3 per 100,000 in 2 years after legalization
- Poison center peds MJ increased 5-fold

# New Regulations

- Cannot use words “candy” or “candies”
- Child-proof packaging
- Warning labels
- Dosing size restrictions of 10mg per serving
- Education delayed effects of edibles
- Edibles can no longer be shaped like humans, animals, fruits, or cartoons

# Pediatric Overdose Death?

- Two emergency medicine physicians report possible overdose death of 11-month-old from myocarditis (2017)
- MJ metabolites identified in the blood
- Critics suggest that cause of death may be unrelated to marijuana exposure
- First reported death from overdose

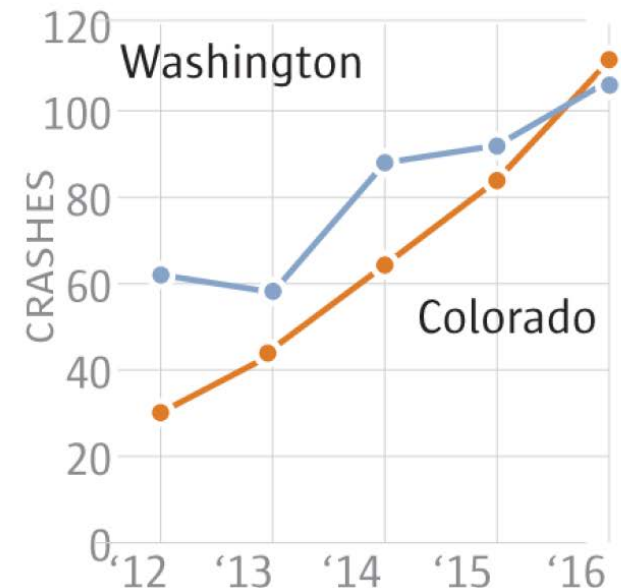
# Traffic Fatalities

- Increasing number of traffic fatalities with driver positive for THC
- Only approx 50% evaluation rate
- Relationship between THC use and accidents poorly elucidated

<http://www.denverpost.com/2017/08/25/colorado-marijuana-traffic-fatalities/>

## Similar trends

Colorado and Washington were the first states to legalize recreational marijuana. The states have seen a similar trend in the number of traffic fatalities in which a driver tests positive for marijuana.



Source: National Highway Traffic Safety Administration

Kayla Robertson, *The Denver Post*

# Decrease in Opioid Deaths?

AJPH RESEARCH

## Recreational Cannabis Legalization and Opioid-Related Deaths in Colorado, 2000–2015

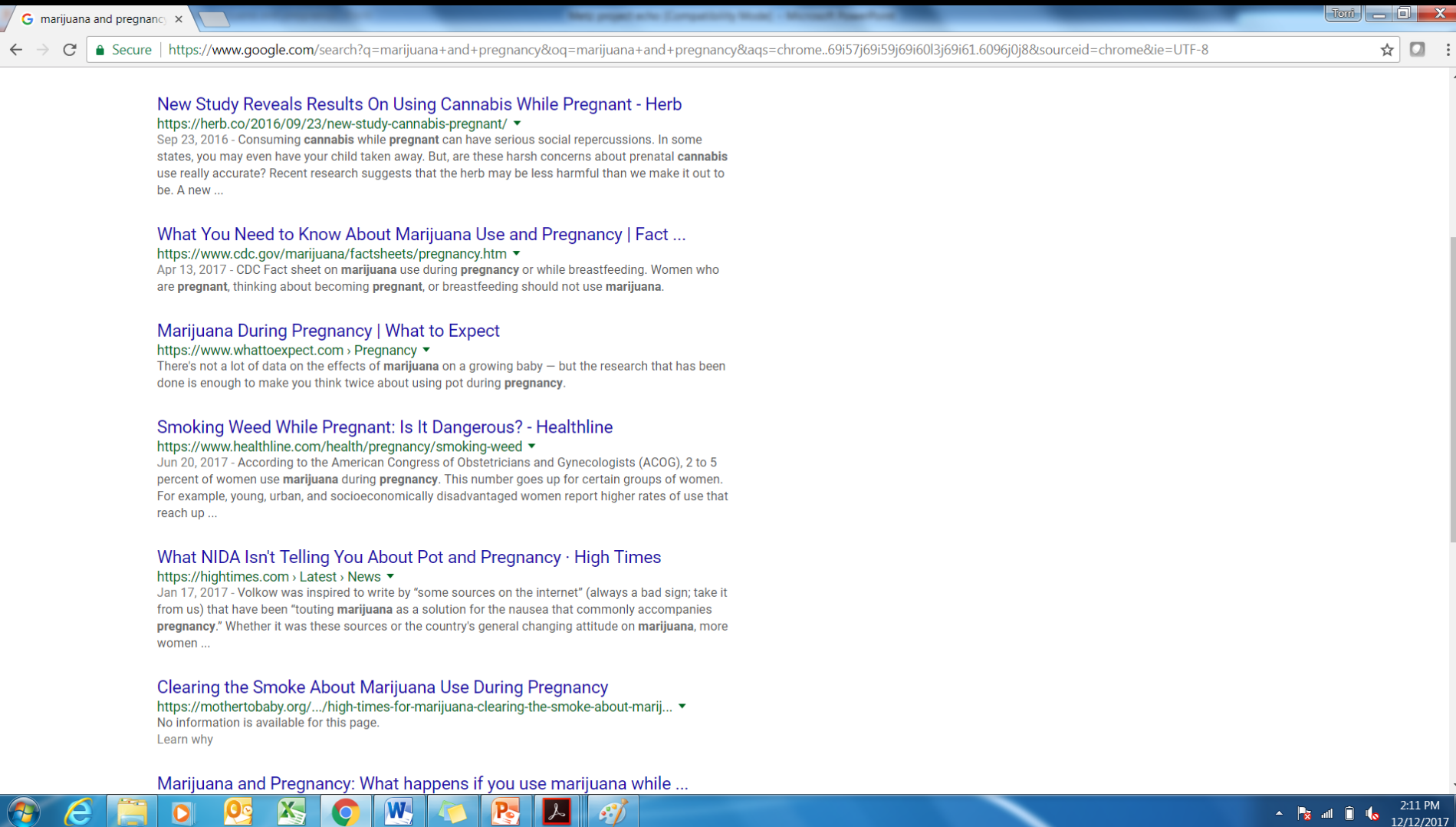
Melvin D. Livingston, PhD, Tracey E. Barnett, PhD, Chris Delcher, PhD, and Alexander C. Wagenaar, PhD

*Objectives.* To examine the association between Colorado's legalization of recreational cannabis use and opioid-related deaths.

*Methods.* We used an interrupted time-series design (2000–2015) to compare changes in level and slope of monthly opioid-related deaths before and after Colorado stores began selling recreational cannabis. We also describe the percent change in opioid-related deaths by comparing the unadjusted model-smoothed number of deaths at the end of follow-up with the number of deaths just prior to legalization.

changes in opioid-related deaths in a state that substantially increased cannabis availability by legalizing sales of cannabis for recreational use.

# Google Search (Marijuana and Pregnancy)



The screenshot shows a Google search results page for the query "marijuana and pregnancy". The browser's address bar shows the URL: <https://www.google.com/search?q=marijuana+and+pregnancy&oeq=marijuana+and+pregnancy&aqs=chrome..69i57j69i59j69i60l3j69i61.6096j0j8&sourceid=chrome&ie=UTF-8>. The search results are listed below the browser window.

**New Study Reveals Results On Using Cannabis While Pregnant - Herb**  
<https://herb.co/2016/09/23/new-study-cannabis-pregnant/> ▼  
Sep 23, 2016 - Consuming **cannabis** while **pregnant** can have serious social repercussions. In some states, you may even have your child taken away. But, are these harsh concerns about prenatal **cannabis** use really accurate? Recent research suggests that the herb may be less harmful than we make it out to be. A new ...

**What You Need to Know About Marijuana Use and Pregnancy | Fact ...**  
<https://www.cdc.gov/marijuana/factsheets/pregnancy.htm> ▼  
Apr 13, 2017 - CDC Fact sheet on **marijuana** use during **pregnancy** or while breastfeeding. Women who are **pregnant**, thinking about becoming **pregnant**, or breastfeeding should not use **marijuana**.

**Marijuana During Pregnancy | What to Expect**  
<https://www.whattoexpect.com/pregnancy> ▼  
There's not a lot of data on the effects of **marijuana** on a growing baby — but the research that has been done is enough to make you think twice about using pot during **pregnancy**.

**Smoking Weed While Pregnant: Is It Dangerous? - Healthline**  
<https://www.healthline.com/health/pregnancy/smoking-weed> ▼  
Jun 20, 2017 - According to the American Congress of Obstetricians and Gynecologists (ACOG), 2 to 5 percent of women use **marijuana** during **pregnancy**. This number goes up for certain groups of women. For example, young, urban, and socioeconomically disadvantaged women report higher rates of use that reach up ...

**What NIDA Isn't Telling You About Pot and Pregnancy · High Times**  
<https://hightimes.com/Latest/News> ▼  
Jan 17, 2017 - Volkow was inspired to write by "some sources on the internet" (always a bad sign; take it from us) that have been "touting **marijuana** as a solution for the nausea that commonly accompanies **pregnancy**." Whether it was these sources or the country's general changing attitude on **marijuana**, more women ...

**Clearing the Smoke About Marijuana Use During Pregnancy**  
<https://mothertobaby.org/.../high-times-for-marijuana-clearing-the-smoke-about-marij...> ▼  
No information is available for this page.  
Learn why

**Marijuana and Pregnancy: What happens if you use marijuana while ...**

The bottom of the screenshot shows a Windows taskbar with various application icons (Windows Start button, Internet Explorer, File Explorer, Google Chrome, Word, PowerPoint, etc.) and a system tray on the right showing the date and time as 2:11 PM on 12/12/2017.

# Google Search (MJ and Pregnancy)

[What You Need to Know About Marijuana Use and Pregnancy | Fact .](https://www.cdc.gov/marijuana/factsheets/pregnancy.htm)

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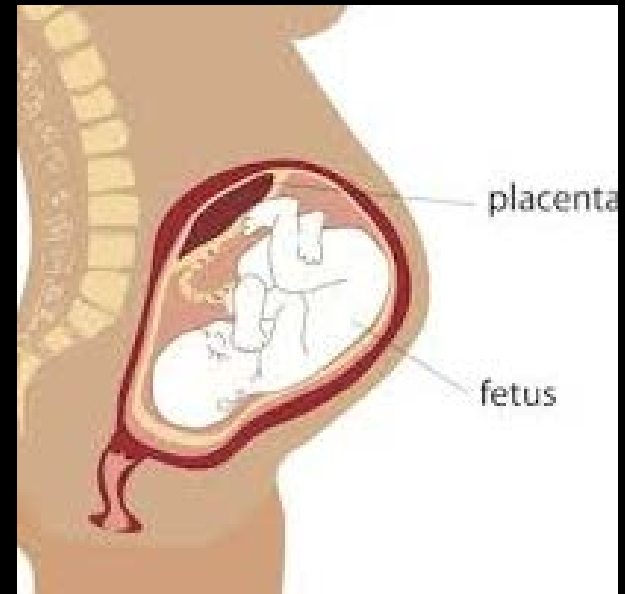
[What NIDA Isn't Telling You About Pot and Pregnancy · High Times](https://hightimes.com)

<https://hightimes.com> › Latest › News

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# Marijuana in Pregnancy

- Marijuana is the most common illicit drug used in pregnancy
- Crosses the placenta
- Anticipate increased use with increasing legalization of recreational marijuana



[www.babymed.com](http://www.babymed.com)



# Prevalence of Marijuana Use

- Data from National Surveys on Drug Use and Health
  - Cross sectional, nationally representative survey
- 3.9% of pregnant women used in last month in 2014
- Increase from 2.4% in 2002

# Prevalence of Use Colorado

- N=116 paired samples (cord & survey)
- 2.6% reported to healthcare provider
- 6.0% reported use in last 30 days on anonymous survey
- 10.3% THC-A above LOQ (200 pg/g) in the umbilical cord homogenate
- 22.4% THC-A above LOD (100 pg/g)

# Increasing Perceived Safety

- National Survey on Drug Use and Health data

	No past 30 day use, pregnant	No past 30 day use, non-pregnant	Past 30 day use, pregnant	Past 30 day use, non-pregnant
2005	3.5%	3.1%	25.8%	23.7%
2015	16.5%	14.8%	65.4%	62.6

# Where are women getting info?

- Qualitative study pregnant women who disclosed MJ use or had pos utox (N=26)
- Commonly reported sources
  - Internet searching
  - Anecdotal evidence from family and friends
- Few reported helpful info from provider
- Women not sure if research demonstrates risks

# Dispensary Project

- Mystery shopper study (400 randomly selected dispensaries)
- Caller was 8 weeks pregnant with nausea
- Nearly 70% had product recommendations
  - Predominantly recommended edibles
  - 65% based recommendation on personal opinion
  - Only 32% recommended discussion with healthcare provider without prompting

# Warning Labels

- Colorado: “There may be additional health risks associated with the consumption of this product for women who are pregnant, breastfeeding, or planning on becoming pregnant.”
- Washington: “Should not be used by women that are pregnant or breastfeeding.”

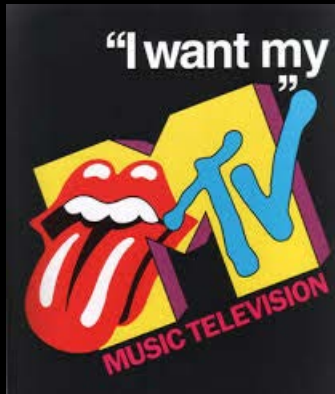
# How are providers doing now?

- Holland et al recorded patient encounters and evaluated obstetric provider response to disclosure of marijuana use
- 90/460 (19%) reported MJ use at OB intake
- 47 different health care providers
- 48% of the time provider did not respond to MJ disclosure
- When discussed, response non-specific and focused on tox screens and social services

# Problems with Existing Studies

- Lack of quantification/timing of exposure
- Difficulty adjusting for tobacco, other drugs, sociodemographic factors
- Reliance on self-report
  - Shiono et al (1995) completed a prospective cohort study with structured interviews and maternal serum toxicology screens
  - 70% of women with positive THC on serum tox screen denied use in structured interview





# Retail Marijuana Public Health Advisory Committee

- 13 members representing public health, multiple medical specialties, epidemiology, toxicology
- Review the scientific literature currently available on health effects of marijuana
  - Developed a literature review process including rating quality of each study
  - Translate science into public health messages
  - Recommend public health related policies, surveillance activities and research gaps
- Monitoring Health Concerns Related to Marijuana in Colorado: 2014

# Summary of Findings

Moderate evidence	Limited evidence	Insufficient evidence	Mixed evidence
Decreased growth	Stillbirth	Psychosis symptoms	Preterm delivery
Decreased IQ scores in young children	SIDS (evidence of no association)	Initiation of future marijuana use	Low birth weight
Decreased cognitive function	Increased depression symptoms		Decreased birth weight
Decreased academic ability	Delinquent behavior		Newborn behavior issues
Attention problems	Isolated simple ventricular septal defects		Breastfeeding and infant motor development
			Birth defects, including NTD, gastroschisis

# Review Article

ajog.org

Obstetrics EXPERT REVIEWS

## Marijuana use in pregnancy and lactation: a review of the evidence

Torri D. Metz, MD, MS; Elaine H. Stickrath, MD

**M**arijuana is the most frequently used illicit drug in Western countries.<sup>1</sup> In 2013, 19.8 million, or 7.5% of the US population, reported its use within the last month, an increase from 2007 when only 5.8% of the population had used marijuana within the past month.<sup>2,3</sup>

Reported prevalence rates of marijuana use in pregnancy vary from as low as 3% to as high as 34%.<sup>4,5</sup> We anticipate an increase in marijuana use in pregnancy as legalization of marijuana in-

With the legalization of recreational marijuana in many states, we anticipate more women will be using and self-reporting marijuana use in pregnancy. Marijuana is the most common illicit drug used in pregnancy, with a prevalence of use ranging from 3% to 30% in various populations. Marijuana freely crosses the placenta and is found in breast milk. It may have adverse effects on both perinatal outcomes and fetal neurodevelopment. Specifically, marijuana may be associated with fetal growth restriction, stillbirth, and preterm birth. However, data are far from uniform regarding adverse perinatal outcomes. Existing studies are plagued by confounding by tobacco and other drug exposures as well as sociodemographic factors. In addition, there is a lack of quantification of marijuana exposure by the trimester of use and a lack of corroboration of maternal self-report with biological sampling, which contributes to the heterogeneity of study results. There is an emerging body of evidence indicating that marijuana may cause problems with neuro-

# ACOG Committee Opinion

- Women should not use marijuana during pregnancy or while lactating
  - Ob-gyns should not prescribe for medicinal purposes to pregnant or lactating women
  - Insufficient evidence for effects on nursing infant

*ACOG, Committee Opinion No. 637, Marijuana Use During Pregnancy and Lactation, Obstet Gynecol 2015*

# What do we tell patients?

- No known benefits of marijuana use in pregnancy
- Possible risks of marijuana use in pregnancy
- Advise patients not to use marijuana during pregnancy
- No known “safe” amount of marijuana in pregnancy

# Guidelines for Providers

- [colorado.gov/cdphe/marijuana-clinical-guidelines](https://colorado.gov/cdphe/marijuana-clinical-guidelines)



**GOOD *to* KNOW**

[www.GoodToKnowColorado.com](http://www.GoodToKnowColorado.com)



# CDPHE: Talking about Marijuana with Patients

## Marijuana Pregnancy and Breastfeeding Clinical Guidance

### MARIJUANA PREGNANCY AND BREASTFEEDING GUIDANCE

#### FOR COLORADO HEALTH CARE PROVIDERS



#### SCREENING QUESTIONS

In addition to asking about alcohol, tobacco, and other drug use (including prescription drugs), now that marijuana is legal in Colorado, we recommend asking all teens and women who could become pregnant about marijuana use.

##### 1. Have you used marijuana in the last year?

**If yes:** Go to question 2.

**If yes:** When was the last time you used marijuana? How do you use marijuana? What form of marijuana do you use? How often do you use and how much?

**If pregnant:** How has your use of marijuana changed since finding out you are pregnant?

**If concerned about substance abuse:** Use the Cannabis Use Disorder Identification Test (CUDIT) and referral recommendations found in the resource section.

##### 2. Does anyone use marijuana in your home?

**If yes or no:** It is important to ensure that your home is safe for your child. Make sure that any potentially harmful substances are out of reach of your child, including marijuana, alcohol, prescription drugs or household substances.

**If yes:** Provide additional education on avoidance of secondhand smoke and safe storage; more information below.

#### TIPS FOR USING THIS GUIDANCE:

All information in *Talking about Marijuana with Patients* is scripted talking points to share with your patients, written at about a middle school reading level.

#### PRENATAL VISITS

It is important for newborns to experience use of each child, because many women continue using substances throughout the pregnancy or may begin or resume using substances during pregnancy.

Discuss importance of cessation of marijuana and other potentially harmful substances during pregnancy and breastfeeding and offer support if needed, found in the resource section.

Discuss patient's plan for marijuana use after pregnancy. Ask her about whether you intend to use marijuana after delivering your baby.

Discuss breastfeeding and marijuana. Are you planning to breastfeed your child? If yes, see breastfeeding section for more information.

Please inform your patient: Marijuana is not legal for adults over 21. But this doesn't mean it is safe for pregnant women or babies. Some hospitals test babies after birth for drugs. If your baby tests positive for THC at birth, Colorado law says child protective services must be notified.

As a prenatal care provider, if you are concerned about a patient's substance use, you can recommend testing of mother during prenatal care and/or at delivery or testing of the newborn at birth.

Newborn testing information:

- Meconium testing generally identifies maternal marijuana use after 24 weeks gestation.
- Urine testing generally identifies maternal marijuana use after 32 weeks gestation.
- Umbilical cord testing generally identifies maternal marijuana use after 24 weeks gestation.

#### WELL WOMAN VISITS:

Discuss contraception options if patient wants to continue recreational or medical marijuana, alcohol or other substance use and/or does not desire pregnancy.

If patient desires a pregnancy, discuss importance of cessation of marijuana and other potentially harmful substances. Consider use of contraception while the patient is working towards cessation of substances.

## Marijuana and Your Baby Factsheet

### MARIJUANA AND YOUR BABY



March 2, 2015

Marijuana is now legal for adults over 21. But this doesn't mean it is safe for pregnant or breastfeeding moms and babies.

**There is no known safe amount of marijuana use during pregnancy.**

You should not use marijuana while you are pregnant, just like you should

not use alcohol and tobacco.

Tetrahydrocannabinol (THC) is the chemical in marijuana that makes you feel "high."

**Using marijuana while you are pregnant passes THC to your baby.**

#### KNOW THE FACTS

##### MARIJUANA AND PREGNANCY

Using marijuana while pregnant may harm your baby. Marijuana that passes to your baby during pregnancy may make it hard for your child to pay attention and learn, especially as your child grows older. This would make it harder for your child to do well in school.

Some hospitals test babies after birth for drugs. If your baby tests positive for THC at birth, Colorado law says child protective services must be notified. Talk to your doctor early in your pregnancy about any marijuana use.

##### MARIJUANA AND BREASTFEEDING

The American Academy of Pediatrics says that mothers who are breastfeeding their babies should not use marijuana.

Breastfeeding has many health benefits for both the baby and the mother. But THC in marijuana gets into breast milk and may affect your baby.

Because THC is stored in body fat, it stays in your body for a long time. A baby's brain and body are made with a lot of fat. Since your baby's brain and body may store THC for a long time, you should not use marijuana while you are pregnant or breastfeeding.

Breast milk also contains a lot of fat. This means that "pumping and dumping" your breast milk may not work the same way it does with alcohol. Alcohol is not stored in fat, so it leaves your body faster.

Talk to your doctor if you are pregnant or breastfeeding and need help to stop using marijuana. Or call 1-800-CHILDREN for help.

#### IS SMOKING MARIJUANA BAD FOR MY BABY?

Yes. Breathing marijuana smoke is bad for you and your baby. Marijuana smoke has many of the same chemicals as tobacco smoke. Some of these chemicals can cause cancer. Do not allow anyone to smoke in your home or around your baby.

#### WHAT IF I USE MARIJUANA WITHOUT SMOKING IT?

THC in any form of marijuana may be bad for your baby. Some people think that using a vape pen or eating marijuana (like cookies or brownies) is safer than smoking marijuana. Even though these forms do not have harmful smoke, they still contain THC.



# Example of Guideline Language

- Use of marijuana during pregnancy is associated with adverse effects in offspring:
  - decreased academic ability
  - decreased cognitive function
  - decreased attention
- Language for patients:
  - *"Using marijuana while pregnant may harm your baby. It may make it hard for your child to pay attention and learn. This also may make it harder for your child to do well in school."*

# Responding to Myths about MJ

- **Myth: Marijuana is safe to use while pregnant or breastfeeding.** You cannot eat or use some foods and medicines while pregnant or breastfeeding. This is because they might harm the baby. This includes marijuana.
- **Myth: Since marijuana is natural, it must be safe.** Not all natural substances or plants are safe. Tobacco and poisonous berries are great examples. Marijuana contains THC, which may harm a baby.

# Public Health Representatives



Women

Scientists

Policy  
Makers

Legal  
System

Cannabis Industry

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# Thank you!

