

Appendix A: Comment Cards and Electronic Comments



Community Advisory Group (CAG) Nevada County Cannabis Regulation Community Planning Process



COMMENT CARD

Date:

Sept 12, 2017

Name:

[Redacted]

Address:

[Redacted]

Comments:

I strongly advocate for a transition period of 3-5 yrs.

- I strongly advocate for type 1 and 2 licenses per sq ft least if not up to 20-30,000 sq ft.

- I strongly advocate for the state to be looked to.

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Cannabis Conversation Website
<https://www.mynevadacounty.com/nc/cda/Pages/CannabisConversation.aspx>



Community Advisory Group (CAG)
Nevada County Cannabis Regulation
Community Planning Process



COMMENT CARD

Date: 9/12/2017
Name: [Redacted]
Address: SMARTSVILLE, NEVADA COUNTY

Comments: R1: Personal only (0 plants (prop 04)
AG, FR, RA

- 2.5+ acre: 2500 sqft (cottage state permit)
5+ acre: 5000 sqft (small state permit)
10+ acre: 10,000 sqft (small state permit)

Each parcel should also be allowed to have a non-profit charity garden for low income people with life threatening medical conditions

There is a separate license for outdoor, mixed light, and indoor. The county needs to allow for both outdoor or mixed light per parcel.

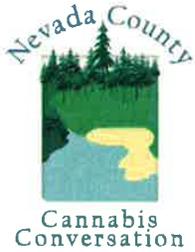
Handwritten note: = 1/3 2% of the parcel

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Community Advisory Group (CAG)

Nevada County Cannabis Regulation
Community Planning Process



COMMENT CARD

Date: 9/12

Name: [REDACTED]

Address: [REDACTED]

SMARTSVILLE, NEVADA COUNTY

Comments: ALLOWED USES IN RA:

- AG. STRUCTURES, STORAGE, ~~PACKING~~ PACKING
- FOR PRODUCTS GROWN, PLANT NURSERIES
- FIELD OR FARM STAND
- CROP & TREE FARMING
- WINERIES

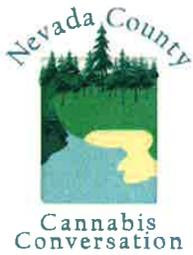
- THIS IS IN THE CURRENT COUNTY CODE

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COMMENT CARD

Date: 9/12

Name: [REDACTED]

Address: [REDACTED]

SMARTSVILLE, NEVADA COUNTY

Comments: THE BOS AGREED THAT THE
REGULATIONS NEED TO BE "AS LIBERAL
AS POSSIBLE" TO ENCOURAGE COMPLIANCE.

WE NEED A BLUE RIBBON COMMITTEE
TO MOVE THIS AGENDA FORWARD.

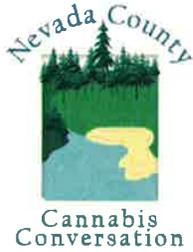
NO MORE CAG MEETINGS, BOS
WANTS TO FOLLOW THE STATE LAWS

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Community Advisory Group (CAG)
 Nevada County Cannabis Regulation
 Community Planning Process



COMMENT CARD

Date: 9/12/17
 Name: [REDACTED]
 Address: [REDACTED]
Smearsville, Nevada County

Comments: State Licences For Cultivation

	OUTDOOR	MIXED LIGHT	INDOOR
COTTAGE	2500 SQFT	2500 SQFT	500 SQFT
SPECIALTY	5000 SQFT	5000 SQFT	5000 SQFT
SMALL	10,000 SQFT	10,000 SQFT	10,000 SQFT
MEDIUM	1 acre	22,000 SQFT	22,000 SQFT

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Nevada County Clean + Green CANNABIS Vision + Goals FRAMEWORK

Vision

Robust, Sustainable
CANNABIS MARKET -
PLACE that delivers
Multiple benefits to
Nevada County
folks + govt

= = = =>

Resulting in:
TRANSFORMING AN
Underground Economy
to a legal operation
of a Nevada City Economy

Guiding
Principles

MARKET
CENTERED

USER
FOCUSED

PERFORMANCE
DRIVEN

scalable

Policy
coordination

Partners
+
LEVERAGE

GOALS
1-5 yrs

Local
govt
+
Business
Leadership

Best
Practices
decision
making

incentives
innovation
performance
+
Compliance

STREAMLINE
CANNABIS
ECONOMY

MARKET
outreach
+
Education

MARKET
Accessibility
Economic
Growth

PRIMARY
Strategies

• Substrategies

⋮

⋮

⋮

⋮

⋮

⋮

Implementation
Timeline

2018

2019

2020

2021

2022



Community Advisory Group (CAG)
Nevada County Cannabis Regulation
Community Planning Process



COMMENT CARD

Date: 09-12-17
Name: [Redacted]
Address: Nevada City, CA 95959

Comments: ?/Concerns:

- We voted against prohibiting outdoor growing why is this still part of the discussion?
- Transition period - assumes people can afford to build a residence "Now" - it may take time to save \$, get loans to build (banks give 1 year for "average home" - but financing may take longer to obtain)
- Set backs from schools, childcare etc... - what if a child care center moves in after grow is permitted church, etc.
- Concerns about "success" of any of this industry is not a county concern it is a "endeavor" of the capitalist nature. We all get a chance to start a business - there are no guarantees of success
- How can we be assured of safety under this ordinance? Consider DACA participants who were flushed out of the shadows into "compliance" much like cannabis growers are.

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COMMENT CARD

Date: Sept 12, 2017
Name: [REDACTED]
Address: Nevada City, Ca. 95959

Comments: Supervisors seemed to clearly communicate that the permit process should be inclusive not restrictive.

Daniel (MIG) takes too much time and space in discussion. item #1 on agenda took 20 minutes. He sets a good tone but needs to let CAG members to come forward.

Questions are still phrased about "prohibit" or "restrict" Recommendations must be inclusive. R-1, R-2, R-3 took 20 mins.

Question 2a ^{was} is self-contradictory. CAG members had to point this out. the unclassified question had high support. ~~this~~ Results of CAG vote are questionable because of ambiguity of the questions

Why are all these questions multiple questions?
Q10: what is current state law on setbacks? why is it that MIG is uninformed on such basic questions?

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COMMENT CARD

Date:

Sept 12, 2017

Name:

[Redacted Name]

Address:

Nevada City, Ca. 95959

Comments:

The whole purpose of new state law is to bring an existing industry into a regulatory framework. If we make that regulation at the local level hard or difficult we force most of current cannabis farmers to stay in the "Black Market." Keep it simple to come into the regulated legal market. Or they will go into the woods...

[Empty lines for additional comments]

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COMMENT CARD

Date: 9-12-2017
Name: [Redacted]
Address: [Redacted]
G.V., Ca

Comments: ONE quality of life consideration is the
state of Nevada County economically thriving
we need affordable housing
" " mental health facilities
I just read where retail is closing on Mill St
in G.V.

The specialty cannabis market will provide
jobs in our community - also a quality
of life issue.

Something of a trade off - a little order
vs. jobs, house, economic prosperity

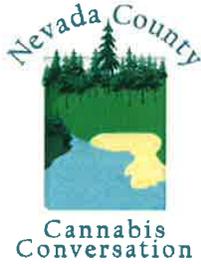
* I agree w/ [Redacted] grows on a
vacant lot next door to residence
the " " Doesn't need a resident

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COMMENT CARD

Date:

Name:

Address:



Nevada City, CA

Comments:

The statement that there are no business in residential designation is false. While ~~residential~~ commercial businesses are not common .. county code DOES allow for certain businesses.

According to SEC L-II 3.24 : Wineries & wine tasting rooms
Allowed on RA acres 3 or more.
Can't exceed 3K sq ft.

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The following comments were submitted by email to cagcomments@migcom.com:

Comment 1:

Attached please find a position paper for the CAG members' review.

(See Attachment A1, beginning Page A-17.)

Comment 2:

<https://mobile.nytimes.com/2017/09/09/us/california-marijuana-growers.html>

David Eyster, the Mendocino district attorney, said the surge in the marijuana business had brought with it violent crime, which did not appear to be going away anytime soon.

Among the cases he is handling are a robbery and slashing death of a grower; the murder of a man at a marijuana farm by a co-worker wielding a baseball bat; an armed heist in a remote area by men who posed as law enforcement officers; and a robbery by two men and a juvenile who were invited to a barbecue and then drew guns on their hosts and fled with nine pounds of marijuana.

"The folks in the big cities, they don't realize that out in the rural areas where the marijuana is being grown, there are people being robbed, kidnapped and in some cases murdered," Mr. Eyster said

<http://www.sfchronicle.com/news/article/>

Thank you

Comment 3:

When applying for a commercial permit I would want to be able to get a permit for 5k sqft mixed light ... processing, and Non Volatile Hash, potentially also a nursery for my indoor or a combined (Micro License alternative) ... I use a low heat press to press flower and kief (thc knocked off the bud separated over a 120lpi screen) into organic solventless oil ... Very Safe storage in a Secured detached garage ... all buildings permuted ... My Green House is currently 40Ft from a neighbors property who also cultivates, and far from his house, placed to avoid grading in compliance with 2013 ordinance ... I have 10 acres+ AG but only so many flat non cleared areas close to the house in Pen valley / Smartsville area with mostly poison oak and little trees, remote area ... large lots ... friendly neighbors who all grow, half are for personal, half commercial ... I would use a max of 40,000 gallons of water for a 5ksqft garden july - oct and would capture all my of my water from rain capture if permitted ... I currently use about 25,000 gallons of water from my well (its 600ft deep doesn't go dry) for vegetable or cannabis crops in 2500 sqft area ... they are similar in usage to ... aka tomatoes ... I live on a private gravel rd that each individuals are responsible for maintaining ... multiple business also are on the road and use their tractors to help maintain ...

By being able to grow more efficiently by removing plant counts and be able to plan crops accordingly by increasing the efficiency it should cover the increased taxes and fees, and \$\$\$ to improve roads / property for fire control.

California is the largest legal cannabis market ... plenty of room for Nevada County Growers ... we want to be legal ...

With Prop 64 it will makes it even harder to get warrants for greenhouse or indoor grows ... better to encourage compliance for as many citizens as possible.

My neighbor below me on 2 acres has no house, clear cut more this year, will probbaly have no path ... but he also has never been cited / talked to ... these properties should be rehabilitated ...

Patients use more cannabis than rec users the law should reflect this ...

<https://grannystormcrowlist.wordpress.com/the-list/>

Growing Medical cannabis Indoors stinks keep in small and outdoor ... Even in apt complexes sometimes the patio is better than the closet ... a few plants smell allot less .. limit with sqft 5x5 or 10x10 depending on lot size ...

Davis Example <http://cityofdavis.org/home/showdocument?id=7871>

Outdoor Personal Cultivation. Outdoor Cultivation.

Outdoor personal cultivation of cannabis is permitted in all residential districts, all residential uses within planned development districts of a similar nature, and residential uses within mixed-use districts, subject to all of the following minimum performance standards:

(a) Outdoor personal cultivation of cannabis is only permitted in a rear or side yard that is entirely enclosed by a solid, opaque fence that is associated with a dwelling or secondary dwelling unit. Page 6 of 7 Ordinance No. 2497

(b) The height of the cannabis plants shall not exceed the standard fence height applicable to the parcel, or six (6) feet, whichever is lesser.

(c) The cannabis plants shall be placed at a minimum setback of five (5) feet from the edge of canopy to the property line.

(d) No exterior evidence of cannabis cultivation occurring at the property shall be visible from the public right-of-way

(e) For persons other than qualified patients or primary caregivers, all outdoor personal cultivation shall be conducted by persons 21 years of age or older, and the cumulative total of cannabis plants on the property, indoor and outdoor, shall not exceed six (6) cannabis plants, regardless of number of persons residing on the property.

(f) For qualified patients and primary caregivers, the cumulative total of cannabis plants outside shall not exceed six (6) cannabis plants, regardless of the number of qualified patients and primary caregivers residing on the property. (g)

Nothing in this section is intended, nor shall it be construed, to preclude any landlord from limiting or prohibiting cannabis cultivation by tenants.

(h) Nothing in this section is intended, nor shall it be construed, to authorize commercial cultivation of cannabis. (i)

Nothing in this section is intended, nor shall it be construed, to authorize any public or private nuisance as specified in Chapter 23 of this code.

(See Attachment A2, beginning Page A-26).

Comment 4:

Hi.

I wanted to share this presentation from the National Cannabis Summit on Cannabis: State of the Science. I think it is well done and informative and expands on some of the points I was able to briefly discuss with the CAG. Thanks for all your work and consideration.

(See Attachment A3, beginning Page A-33.)

Comment 5:

I am disheartened and disgusted that so many reefer madness, archaic thinkers are choosing to say (note I did not say "believe") that the smell of cannabis is a nuisance. This is one of the main reasons why they are saying no outdoor cannabis cultivation period and it has been effective.

I've lived in countries where they burn garbage daily, have open air meat markets, I've lived for many years in West Marin and West Sonoma County before moving the NC. I know what agriculture smells like. Wineries, those farmers are able to grow their vines right up to the road with all the chicken manure they want to dump, no problem. Spray with

their poisons, no problem. The smelly oyster farms in Point Reyes, the crabbers in Bodega Bay, all right there where we all walk, Fisherman's Warf, that's pretty smelly.

To disallow cannabis farmers to cultivate in this day and age (any time really) is punitive. It is punitive to cannabis farmers ****specifically****

The scent of flowering cannabis is not a bad smell, it can be a strong smell, an apparent smell. Not like livestock farms. I would like ask those who say they cannot go outside and enjoy their yard or land due to the scent, is it really so offensive that you must stay indoors, look away? Or is it this, that the scent of cannabis flowers invokes a belief (perhaps not even a belief but an effective reason to ban farmers) in you that says, "morally wrong, criminals, contraband". Those who claim that the scent of cannabis is a nuisance, so great that they choose to disallow cultivation, I say outright to you that it is an association, a belief that you refuse to change even if it is untrue an unwillingness to surrender the old paradigm that says, cannabis farmers are morally wrong.

To disallow cannabis cultivation claiming that it is a scent nuisance is selfish and entitled. Preventing farmers from growing medicine that keeps patients alive and gives many a better quality of life is much more of a "nuisance" than those triggered by the scent of cannabis flowers. I don't believe for a minute that cannabis flowers are offensive or troubling you, it is a scent that troubles your belief, your brain, your idea of what right and wrong is.

<https://www.leafly.com/news/cannabis-101/terpenes-the-flavors-of-cannabis-aromatherapy>

There's something about the aroma of cannabis that soothes the mind and body. Whether it's the sweet fruity taste of [Pineapple Trainwreck](#) or that skunky smell that bursts from a cracked bud of [Sour Diesel](#), we know there's something going on under their complex and flavorful bouquets.

Terpenes are what you smell, and knowing what they are will deepen your appreciation of cannabis whether you're a medical patient or recreational consumer.

Secreted in the same glands that produce [cannabinoids](#) like THC and [CBD](#), terpenes are the pungent oils that color cannabis varieties with distinctive flavors like [citrus](#), [berry](#), [mint](#), and [pine](#).

Not unlike other strong-smelling plants and flowers, the development of terpenes in cannabis began for adaptive purposes: to repel predators and lure pollinators. There are many factors that influence a plant's development of terpenes, including climate, weather, age and maturation, fertilizers, soil type, and even the time of day.

Over 100 different terpenes have been identified in the cannabis plant, and every strain tends toward a unique terpene type and composition. In other words, a strain like [Cheese](#) and its descendants will likely have a discernible [cheese-like smell](#), and [Blueberry](#) offspring often inherit the smell of [berries](#).

The diverse palate of cannabis flavors is impressive enough, but arguably the most fascinating characteristic of terpenes is their ability to interact synergistically with other compounds in the plant, like cannabinoids. In the past few decades, most cannabis varieties have been bred to contain high levels of THC, and as a result, other cannabinoids like [CBD](#) have fallen to just trace amounts. This has led many to believe that terpenes may play a key role in differentiating the effects of various cannabis strains.

THC binds to [cannabinoid receptors](#) concentrated heavily in the brain where psychoactive effects are produced. Some terpenes also bind to these receptor sites and affect their chemical output. Others can modify how much THC passes through the blood-brain barrier. Their hand of influence even reaches to neurotransmitters like dopamine and serotonin by altering their rate of production and destruction, their movement, and availability of receptors.

The effects these mechanisms produce vary from terpene to terpene; some are especially successful in relieving stress, while others promote focus and acuity. *Myrcene*, for example, induces sleep whereas *limonene* elevates mood. There are also effects that are imperceptible, like the gastroprotective properties of *caryophyllene*.

Their differences can be subtle, but terpenes can add great depth to the horticultural art and connoisseurship of cannabis. Most importantly, terpenes may offer additional medical value as they mediate our body's interaction with therapeutic cannabinoids. Many [cannabis analysis labs](#) now test terpene content, so any consumer can have a better idea of what effects their strain might produce. With their unlimited combinations of synergistic effects, terpenes will likely open up new scientific and medical terrains for cannabis research.

Most Common Cannabis Terpenes

Alpha-Pinene, Beta-Pinene

Aroma: [Pine](#)

Effects: [Alertness](#), memory retention, counteracts some THC effects

Medical Value: [Asthma](#), antiseptic

Also Found In: Pine needles, rosemary, basil, parsley, dill

***High Pinene Cannabis Strains:** [Jack Herer](#), [Chemdawg](#), [Bubba Kush](#), [Trainwreck](#), [Super Silver Haze](#)

[RELATED STORY](#)

[What Is Pinene and What Are the Benefits of This Cannabis Terpene?](#)

Myrcene

Aroma: Musky, cloves, [earthy](#), [herbal](#) with notes of [citrus](#) and [tropical](#) fruit

Effects: [Sedating](#) "couchlock" effect, [relaxing](#)

Medical Value: Antioxidant, anti-carcinogenic; good for [muscle tension](#), [sleeplessness](#), [pain](#), [inflammation](#), [depression](#)

Also Found In: Mango, lemongrass, thyme, hops

***High Myrcene Cannabis Strains:** [Pure Kush](#), [El Nino](#), [Himalayan Gold](#), [Skunk #1](#), [White Widow](#)

[RELATED STORY](#)

[Myrcene, Linalool, and Bisabolol: What Are the Benefits of These Cannabis Terpenes?](#)

Limonene

Aroma: [Citrus](#)

Effects: [Elevated mood](#), [stress relief](#)

Medical Value: Antifungal, anti-bacterial, [anti-carcinogenic](#), dissolves gallstones, [mood-enhancer](#); may treat [gastrointestinal complications](#), heartburn, [depression](#)

Also Found In: Fruit rinds, rosemary, juniper, peppermint

***High Limonene Cannabis Strains:** [OG Kush](#), [Super Lemon Haze](#), [Jack the Ripper](#), [Lemon Skunk](#)

[RELATED STORY](#)

[What Is Limonene and What Are the Benefits of This Cannabis Terpene?](#)

Caryophyllene

Aroma: [Pepper](#), [spicy](#), [woody](#), cloves

Effects: No detectable physical effects

Medical Value: [Gastroprotective](#), [anti-inflammatory](#); good for [arthritis](#), [ulcers](#), [autoimmune disorders](#), and other gastrointestinal complications

Also Found In: Black pepper, cloves, cotton

***High Caryophyllene Cannabis Strains:** [Hash Plant](#)

[RELATED STORY](#)

[Cannabis Terpenes: The Benefits of Humulene, Caryophyllene, and Trans-Nerolidol](#)

Linalool

Aroma: [Floral](#), [citrus](#), [candy](#)

Effects: [Anxiety relief](#) and [sedation](#)

Medical Value: [Anti-anxiety](#), [anti-convulsant](#), [anti-depressant](#), anti-acne

Also Found In: Lavender

***High Linalool Cannabis Strains:** [G-13](#), [Amnesia Haze](#), [Lavender](#), [LA Confidential](#)

**Note: Not every batch of any given strain will have high levels of these terpenes as they are subjected to variable growing conditions. The only way to be sure is through a lab's terpene analysis.*

[RELATED STORY](#)

[Myrcene, Linalool, and Bisabolol: What Are the Benefits of These Cannabis Terpenes?](#)

Check out our [cannabis terpenes infographic](#) for a visual guide to some common terpenes, their effects, and which strains contain them.

(For accompanying image, see Attachment A-4 on page A-56.)

Comment 6:

Hello CAG,

First off, I'd like to thank each and every one of you for taking the time out of your busy lives to help us create a regulated cannabis industry here in Nevada County. This has proven to be a delicate and overly sensitive situation but with your help I believe we can create a robust industry here at home that will greatly benefit our amazing community.

I am a long time resident of Nevada County and plan to stay here much, much longer if given the opportunity to grow my business. I currently co own a 10 acre, agriculturally zoned parcel where we cultivate cannabis for a long list of California cooperatives and dispensaries. Our cultivation practices are centered around organic, sustainable and regenerative ideals and we implement best management practices on every aspect of the farm.

Our cultivation site could easily accommodate 5-10,000 square feet of greenhouse. We are asking that you consider Type B (medium sized/10,000 sq.ft.) licenses for 10 acre ag parcels. Please allow us the opportunity to become legitimate Nevada County business owners.

Thank you all again for your handwork and dedication to this issue.

Much Respect



IMPACTS OF MARIJUANA EXPOSURE ON CHILDREN 0-5 THE URGENCY TO ACT

EXECUTIVE SUMMARY

The passage of Proposition 64 in California, legalizing recreational marijuana, is set to drastically change the relationship of Californians to marijuana. As a voice for children 0-5, the First 5 Association is concerned that with anticipated greater use and acceptance of recreational marijuana, more young children may experience unintended health effects. Research shows legitimate health concerns in other states that have legalized marijuana, including increased unintentional exposures in young children leading to hospitalization. In addition, the public health research is beginning to reveal short term and long term health and development impacts for children of women who smoke marijuana during pregnancy.

Because of these potential health impacts on young children, First 5 urges careful attention by state leaders, state agencies, and other policy makers to the opportunities for enacting regulatory safeguards and allocating available resources to prevention and intervention services that can address potential impacts to this critical group of children. With an anticipated \$1 billion dollars in revenue from marijuana taxation at the state level alone, California has a prime opportunity to allocate funding for initiatives that would inform young parents about these impacts and support prevention and intervention programs aimed to support young children and families at the most critical stage of brain development.

First 5 Commissions have been incorporating information about marijuana exposure into their work for some time, developing marijuana prevention and intervention services targeting pregnant mothers who use marijuana. As a statewide network of public agencies with existing infrastructure and partnerships, First 5 is uniquely positioned to scale up these efforts and implement the necessary prevention and intervention activities that will benefit young children across the state. However, additional revenue and regulatory support are needed to ensure that this work is consistent, scaled, and coordinated with broader marijuana education and harm reduction programs.

INTRODUCTION

The legalization of recreational marijuana in California, set in motion by the passing of Proposition 64, is anticipated to change the use and acceptance of the drug among Californians. The increased availability along with the changing perceptions of marijuana will necessitate that California look at the unintended effects these changes may have on young children aged 0-5. Past and emerging research on maternal marijuana use shows that there may be both short-term and long-term health effects for children whose mothers use marijuana during pregnancy. There has also been a notable increase in unintentional exposures in young children leading to hospitalization in states where marijuana has been legalized.

The emerging research shows health impacts to young children and policy makers must work to dedicate funding for investments in early childhood development. First 5 Commissions across the state have begun to address this issue by championing targeted educational campaigns for pregnant mothers

and young families. In addition, First 5 has programs in place across California's 58 counties that provide the existing infrastructure to implement services and campaigns to reach young parents and health practitioners. This policy paper details the existing research on health impacts of marijuana on young children; evidenced-based interventions and preventative efforts, the potential for Proposition 64 tax revenues to implement many of these programs across the state.

HEALTH IMPACTS OF MARIJUANA ON CHILDREN (Ages 0-5)

There is growing scientific research related to marijuana-related health impacts on young children. The legalization of recreational marijuana in Colorado has prompted more research in recent years from the Colorado Department of Public Health and Environment, in accordance with a mandate from the State after legalizing recreational marijuana in 2012.

Marijuana exposure and proximity for young children

States that have legalized recreational marijuana have found an increased number of unintentional exposures for children leading to hospitalization. A 2016 article published in *JAMA Pediatrics* found that the average marijuana-related visits to the Children's Hospital of Colorado nearly doubled, increasing from 1.2 per 100,000 population to 2.3 per 100,000 two years after legalization.ⁱ While these incidents of marijuana exposure have primarily been unintentional and accidental, the research indicates that California is likely to see an increase in incidence of exposures of young children, as recreational marijuana is legalized.

Marijuana exposures in children commonly involve edible marijuana products, such as cookies and candies, that are desirable to children who are developmentally inclined to put items in their mouths. The Colorado Department of Health has found that most pediatric exposures to marijuana involve infused edible products, made by adding concentrated Tetrahydrocannabinol (THC) into foods, that are not in child resistant containers. Moreover, the Department estimates that approximately 14,000 families in Colorado have children under the age of 15 in the home with potentially unsafe marijuana storage. Children in California may be similarly at risk, as California marijuana retailers have no requirements for selling products in child resistant packaging.

Legislative efforts are already underway to address these health concerns: AB 175 (Chau) would regulate the packaging on marijuana edible products and AB 350 (Salas) would limit the shape of marijuana edible products to ensure they are not attractive to small children.ⁱⁱ The First 5 Association strongly supports both efforts to help rein the unintended consequences of increased access and exposure to marijuana. However, while both bills will help address these public health concerns, we anticipate that packaging restrictions will not completely eradicate the potential for poisoning, point to the need for further parent education.

The symptoms and effects of marijuana intoxication in children vary. The Children's Hospital of Colorado reports that symptoms of marijuana intoxication in kids include being unbalanced, sleepiness, poor respiratory effort, and less commonly, induced coma.ⁱⁱⁱ As the legalization of marijuana will potentially increase the availability of marijuana in more California households, the extent of unintentional marijuana exposures in young children is an area that requires greater research, outreach and education, and potentially further regulations beyond the current legislative efforts.

Known effects of marijuana use during pregnancy on children

In addition to increased pediatric exposures and hospital visits, there is scientific evidence that THC passes from the mother to the unborn child through the placenta, potentially affecting the baby. The Colorado Department of Health's guidance to health providers on talking to pregnant mothers recommends saying "there is no known safe amount of marijuana for your baby."^{iv} Although studies about birth outcomes are limited, research has found that marijuana use during pregnancy may be associated with increased risk of still birth and heart defects, and decreased birth weight in exposed offspring. A study of fetal growth among over 7,000 pregnant mothers found that maternal marijuana use during pregnancy was associated with growth restriction in mid and late pregnancy and with lower birth weight of the infant.^v Indicators of restricted growth in the uterus, such as decreased birth weight, can increase chances of adverse long-term development outcomes.

Emerging studies also link maternal cannabis use to developmental delays later in life that may not appear until adolescence. For example, there is evidence that marijuana use during pregnancy is associated with increased attention problems. Two studies found that prenatal marijuana exposure had a negative effect on the attentiveness of children at 6 years and 10 years, respectively.^{vi,vii} There is also evidence that maternal marijuana use resulted in decreased IQ scores and decreased cognitive function in offspring.^{viii}

Less is known about the effects of breastfeeding on babies of mothers who use marijuana, although there is biological evidence that THC is present in the breast milk of mothers who use marijuana. Infants who drink this breast milk absorb and metabolize the THC. The American College of Obstetricians and Gynecologists recommends that due to insufficient data on the effects of marijuana use on infants during lactation, marijuana use should be discouraged.^{ix}

Still, proposition 64 aptly recognized the importance of public awareness about the adverse effects of marijuana use during pregnancy and while breastfeeding. In fact, the proposition spells out the health advisory label that must be placed on marijuana products:

*GOVERNMENT WARNING: THIS PACKAGE CONTAINS MARIJUANA,
A SCHEDULE I CONTROLLED SUBSTANCE. KEEP OUT OF REACH OF CHILDREN AND
ANIMALS. MARIJUANA MAY ONLY BE POSSESSED OR CONSUMED BY PERSONS 21
YEARS OF AGE OR OLDER UNLESS THE PERSON IS A QUALIFIED PATIENT
MARIJUANA USE WHILE PREGNANT OR BREASTFEEDING MAY BE HARMFUL.
CONSUMPTION OF MARIJUANA IMPAIRS YOUR ABILITY TO DRIVE AND OPERATE
MACHINERY PLEASE USE EXTREME CAUTION^x*

As society's relationship with marijuana will inevitably change due to legalization, further research is needed regarding the public health impact on children of marijuana use by their pregnant and breastfeeding mothers. Several issues make it difficult to quantify the effect of maternal marijuana use on children. One, mothers using marijuana during pregnancy are more likely to be using tobacco and alcohol also, which makes it harder to discern the fetal outcomes from individual substances. In addition, research is often based on reports by pregnant women who are proven to under-report. And finally, over the last 4 decades the percentage of THC in marijuana has shown to have increased, with one study indicating that between 1993 and 2008, THC concentration rose from an average of 3.4% to 8.8%.^{xi} This shows that the impacts of children's exposure to cannabis –both prenatally and during early development- could be more severe given the higher concentrations of THC.

Future longitudinal studies that measure the impact of prenatal marijuana use as offspring reach adolescence will more fully reflect the impact of marijuana potency and could identify further regulatory needs to mitigate potential harmful effects.

Teen births and marijuana

The potential impacts of marijuana use during pregnancy may be an even higher risk for adolescents, who are more likely to use marijuana during pregnancy. Colorado Department of Health notes that of any age group, those from 15-19 years of age reported the highest use of marijuana during pregnancy. In fact, 14% of pregnant women aged 15-19 reported using marijuana during their pregnancy, compared to just 4.3% of women aged 25-34.^{xii} The statistically higher rate of marijuana use for pregnant teens increases exposure to the potential effects of marijuana on the children of this age group.

For California, these numbers are alarming as we consider the female teen pregnancy rate in California, with some counties as high as 45 teen births per 1,000 young women ages 15-19^{xiii}, compared the national average of 20.3 for the same age group.^{xiv} Adolescents may be especially hard hit, as the legalization of recreational marijuana has shown to significantly increase use among adolescents. A study of students in Washington found that among eighth and tenth graders, marijuana use significantly increased while perception of harmfulness decreased after legalization. In California, teen drug use, especially during pregnancy, may increase as legalization decreases the stigma and risk associated with use.

The approach to marijuana legalization in California has been closely tied to broad conversations about the need to ensure careful regulation with a special focus on the likely impacts of legalization on youth. The Blue Ribbon Commission on Marijuana, whose final report clearly stated that “youth are ... in need of the best protection and assistance the state can provide.”^{xv} While this report frames many of the reasons a focus on youth is important in the legalization environment, the report does not consider the higher risk posed to youth who may be pregnant or parenting. First 5 seeks to work with youth-serving organizations to explore opportunities for collaboration, building on evidence that the earliest intervention efforts are the most successful and on the complementary capacities across the early childhood and youth development fields.

Developing a Public Health Framework for Marijuana

Continuing to cultivate research on the marijuana-related health impacts on young children is imperative, particularly as the marijuana industry in California continues to emerge. Evidence from past decades of tobacco and alcohol control reveal that without a strong public health framework around the potential health impacts of marijuana could limit the effectiveness of drug prevention and intervention efforts. Dr. Stanton Glantz, who has researched the tobacco industry’s attacks on tobacco control, advocates for a comprehensive public health education and regulatory framework modeled on the California Tobacco Control Program, before the marijuana industry fully develops in California.^{xvi}

FIRST 5 EDUCATION AND PREVENTION SERVICES

First 5 Educational Campaigns

First 5 Mendocino was the first commission to address the health impacts of marijuana, with an education campaign specifically addressing the harmful effects of marijuana use during pregnancy on child development. The primary audience is expectant and recent mothers, particularly those with

average and high marijuana use. First 5 San Joaquin has developed updated materials with more recent research aimed at the same audiences. A statewide public awareness and education campaign could extend the reach and potentially change health outcomes for young children and their parents.

As directed under Proposition 64, the Department of Health Care Services is charged with creating a public information program about the harms of marijuana during pregnancy and while breastfeeding. First 5 encourages their role in doing so and would welcome the opportunity to share these materials with the nearly 800,000 children and their families served by First 5 last year. The First 5 Association is currently exploring ways to build on these campaigns to ensure that most vulnerable families are reached and served.

First 5 Prevention Services

While there is an important role for targeted marijuana education for at-risk communities and families, the most likely and important vehicle for reaching families is and will continue to be the broader child development services and supports. Most notably these services include: home visiting for parents with newborns, developmental screenings with connections to community supports, and mental health services with an emphasis on trauma intervention and prevention.

First, home visiting is arguably the most evidenced-based practice for child neglect and abuse prevention, which is too often spurred by addiction and drug use. Offered a voluntary program (meaning a parent has invite a home visitor into their residence to receive services), home visiting focuses on helping parents where they feel concerned or have questions about their parenting styles/ skills, connecting families to resources, and helping parents understand and cope with toxic stress.

One nationally published study of the Nurse Family Partnership (NFP) documented children whose mothers did receive the intervention were less likely to report using cigarettes, alcohol, and marijuana, and were less likely to report having internalizing disorders such as anxiety and depression at 12 years of age. In addition to these specific effects on drug use in later life, NFP has documented cost-savings impacts including: increased employment for mothers, reductions in welfare and food stamps, and improved school readiness for children.

First 5 is California's largest funder of home visiting programs, investing nearly \$88 million and serving nearly 37,000 families across 44 counties in 2016 alone. Currently, state does not dedicate General Fund dollars towards home visitation programs, although they do administer a \$22 million federal program, Maternal, Infant, Early Childhood Home Visitation (MIECHV) program. MIECHV is currently up for reauthorization in Congress of September 2017.

Second, First 5s efforts to build comprehensive systems to identify and treat children with developmental delays can play a critical role in community-based education and outreach efforts that include information about marijuana use and health impacts on young children. The Help Me Grow system, funded by First 5, provides the necessary resources and referrals to address common developmental delays (e.g.: speech delays, behavioral problems, hearing and vision problems, and even autism) that often go undiagnosed until a child reaches elementary school. When caught early, developmental delays, caused by exposure to marijuana or otherwise, are easier to treat and more cost-effective than later interventions. Currently in 17 counties across the state, Help Me Grow is expanding thanks to local First 5 commissions' investments and provides the support to parents that will reduce the health impacts of marijuana on their young children.

Lastly, First 5 commissions have also invested deeply across California in evidence-based early childhood mental health services, which focus on the social-emotional needs of young children in the context of the critical role of parents and caregivers in a child's well-being. Maternal mental health is particularly critical, as maternal depression can impact a mother's ability to meet their infant's needs. Investments in early childhood mental health capacity expertise in child care and preschool programs, screening for maternal depression, child-parent play groups which focus on supporting healthy attachment, and ensuring that all professionals working with children can identify and support social-emotional learning are critical components of a robust early childhood system of care.

ADDITIONAL QUESTIONS

As First 5 Commissions begin to engage local partners – nurses, home visitors, preschool directors, family resource staff, and others – on the likely impacts of marijuana legalization on their work in communities, we are learning that there are many unanswered questions about the many ways young families will be impacted by the legalization of recreational marijuana, including:

- **Second-Hand Smoke Exposure:** How are infants and young children affected by second hand exposure to marijuana smoke?
- **Working with Intoxicated Parents:** How should preschool programs and other providers respond when parents appear to be marijuana intoxicated when they come to participate in programs or pick up their children? Can they send children home in cars with parents who may be intoxicated? What kinds of policies should they have in place?
- **What other programs – in addition to home visitation and direct parent education about prenatal exposure – might be effective interventions for families where drug use has been identified?**

A TIME FOR ACTION

A fully effective prevention approach to marijuana use by vulnerable populations, as outlined as a key goal in Proposition 64, requires an assessment of the critical role that *early* prevention plays. Decades of research shows that funding programs and services during the first years of life and during pregnancy have the greater potential to change one's trajectory and delivers the largest return on investment. Simply put, prevention of any nature cannot be fully accomplished without an early prevention component that focuses on our youngest children and their families.

Furthermore, emerging research shows the health impacts of marijuana on young children and pregnant women. Through the legalization, and thus the normalization, of marijuana, we anticipate that such health impacts will only increase unless otherwise addressed.

First 5 looks to support the public and community sectors in developing comprehensive, culturally competent, and locally-reinforced approaches to ensure that marijuana legalization unfolds in California without unintentionally creating new barriers to the healthy development of our state's most important resource, its children.

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ORDINANCE NO. 2497

AN ORDINANCE REPEALING SECTION 40.26.276, AND ADDING ARTICLE 40.26A OF THE ZONING CODE RELATED TO PERSONAL CULTIVATION OF CANNABIS AND RELATED DEFINITIONS

WHEREAS, the City of Davis Municipal Code currently prohibits medical marijuana dispensaries, commercial cultivation of medical marijuana, and personal outdoor cultivation of medical marijuana in all zoning districts in the City; and

WHEREAS, the City Council of the City of Davis adopted Urgency Ordinance No. 2488 to establish an interim moratorium in all zoning districts on the establishment, creation or expansion of any and all commercial marijuana uses and all outdoor marijuana cultivation; and

WHEREAS, the City Council, by Ordinance No. 2492 extended the moratorium until July 4, 2017 so as to allow City staff to conduct public outreach and develop recommendations regarding commercial marijuana businesses and appropriate regulations; and

WHEREAS, the City Council has determined that certain revisions to the City's Zoning Code regarding indoor and outdoor personal cultivation of marijuana are necessary in light of the Adult Use of Marijuana Act, approved and enacted by the voters at the November 8, 2016 General Election; and

WHEREAS, the City Council has determined that the reasonable regulations regarding personal cultivation contained in this Ordinance balance individuals' rights to cultivate marijuana with the public health and safety concerns of the City posed by cultivation of marijuana; and

WHEREAS, State law uses both the terms "marijuana" and "cannabis" with identical or nearly identical meaning, and therefore the City Council has decided that consistently using the word "cannabis" in the Ordinance is an appropriate revision to the City's Municipal Code in light of social stigma or negative public perception that may be tied to use of the word "marijuana," but that "cannabis" shall mean and include "marijuana" as used and defined in State law; and

WHEREAS, it is the City Council's intent that the moratorium on all commercial marijuana uses, as set forth in Ordinances Nos. 2488 and 2492 shall stay in effect as set forth in the Ordinances, unless or until amended by future action of the City Council.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF DAVIS DOES HEREBY ORDAIN AS FOLLOWS:

SECTION 1. Recitals. The above recitals are hereby incorporated as though set forth in this section.

SECTION 2. Findings. Pursuant to Article 40.36 of the Davis Municipal Code, the City Council hereby makes the following findings in support of this Ordinance:

- a. A proposed ordinance amending the zoning code regarding personal cultivation of marijuana was brought before a duly noticed public meeting of the Planning Commission on March 8, 2017. The Planning Commission unanimously recommended City Council approval.
- b. The City Council hereby finds, pursuant to Davis Municipal Code section 40.36.070 and based on Planning Commission recommendation, that this Ordinance is in general conformance with the City General Plan. The City Council further finds that the public necessity, convenience and general welfare require the adoption of this Ordinance in order to balance the interests of existing medical cannabis patients and caregivers with the health and safety concerns associated with certain personal cannabis cultivation authorized by State law.
- c. The City Council finds that adoption of this Ordinance preserves and clarifies the City's intended zoning regulations regarding cannabis uses, and is therefore also intended to retain and maintain local land use authority over those uses in light of State law.

SECTION 3. Amendment. Section 40.26.276 of the Davis Municipal Code, titled "Marijuana Cultivation," is hereby repealed in its entirety.

SECTION 4. Amendment. Article 40.26A is hereby added to the Davis Municipal Code to read in full as set forth in Exhibit A, attached hereto, and incorporated herein by this reference.

SECTION 5. Moratorium. On Commercial Marijuana Uses. Except as amended by this Ordinance regarding the personal cultivation of cannabis, all other provisions of Urgency Ordinance No. 2488, as extended by City Council by Ordinance No. 2492, remain in effect. Nothing in this Ordinance shall be construed to amend or repeal the existing moratorium on the establishment, creation or expansion of any and all commercial marijuana uses.

SECTION 6. Severability. If any provision, clause, sentence or paragraph of this chapter or the application thereof to any person or circumstances shall be held invalid, such invalidity shall not affect the other provisions of this chapter which can be given effect without the invalid provision or application, and to this end the provisions of this chapter are declared to be severable.

SECTION 7. CEQA. The City Council hereby finds that the amendments contained in this Ordinance authorize only minor private alterations in the condition of land, water, and/or vegetation akin to new gardening or landscaping of private residential property, and that this Ordinance does not involve or approve the removal of healthy, mature, scenic trees or other significant alterations to land. The City Council finds that this Ordinance merely imposes reasonable regulations on the ability of individuals to cultivate marijuana for personal use on residential properties otherwise authorized by State law, and that this Ordinance further limits individuals' personal outdoor cultivation by total number of plants in order which, based on the limited number of plants will not allow any significant changes to the character or use of the side and rear yards of private residential properties in the City. Accordingly, the City Council finds that this Ordinance is categorically exempt from any California Environmental Quality Act (CEQA) review pursuant to Section 15304 of Title 14 of the California Code of Regulations.

SECTION 8. Effective Date. This Ordinance shall take effect thirty (30) days after its adoption and, within fifteen (15) days after its passage, shall be published at least once in a newspaper of general circulation published and circulated within the City.

INTRODUCED on the 4th day of April, 2017, and PASSED AND ADOPTED by the City Council of the City of Davis on this 18th day of April, 2017, by the following vote:

AYES: Arnold, Frerichs, Lee, Swanson, Davis

NOES: None



Robb Davis
Mayor

ATTEST:



Zoe S. Mirabile, CMC
City Clerk

EXHIBIT A

**ARTICLE 40.26A
PERSONAL CULTIVATION OF CANNABIS**

- 40.26A.010 – Purpose**
- 40.26A.020 – Applicability**
- 40.26A.030 – Definitions**
- 40.26A.040 – Indoor Personal Cultivation**
- 40.26A.050 – Outdoor Personal Cultivation**
- 40.26A.060 – Enforcement**

40.26A.010 Purpose.

The purpose of this Article is to impose zoning restrictions on the personal cultivation of cannabis pursuant to State law. This Article is not intended to interfere with a patient’s right to use medical cannabis pursuant to the Compassionate Use Act, as may be amended, nor does it criminalize cannabis possession or cultivation otherwise authorized by State law. This Article is not intended to give any person or entity independent legal authority to operate a cannabis business, it is intended simply to impose zoning restrictions regarding personal cultivation of cannabis in the City pursuant to this Code and State law.

40.26A.020 Applicability.

No part of this Article shall be deemed to conflict with federal law as contained in the Controlled Substances Act, 21 U.S.C. § 800 et seq., nor to otherwise permit any activity that is prohibited under that Act or any other local, state or federal law, statute, rule or regulation. Nothing in this Article shall be construed to allow any conduct or activity relating to the cultivation, distribution, dispensing, sale, or consumption of cannabis that is otherwise illegal under local or state law. No provision of this Article shall be deemed a defense or immunity to any action brought against any person by the Yolo County District Attorney’s office, the Attorney General of the State of California or the United States of America.

40.26A.030 Definitions.

The following words and phrases shall have the following meanings when used in this Article:

“Cannabis” means all parts of the plant *Cannabis sativa* L., whether growing or not; the seeds thereof; the resin extracted from any part of the plant; and every compound, manufacture, salt, derivative, mixture, or preparation of the plant, its seeds or resin, including cannabis products derived therefrom. “Cannabis” shall also mean “marijuana” and “marijuana products” as used and defined in State law. For purposes of this Article, “cannabis” shall mean and include both cannabis for medical purposes and non-medical cannabis, unless otherwise specified. Cannabis shall not include industrial hemp.

“Cultivation” means any activity involving the planting, growing, harvesting, drying, curing, grading, or trimming of cannabis.

“Personal cultivation” means cultivation of cannabis conducted by an individual strictly for that individual’s personal use, possession, processing, transporting, or giving away without any compensation whatsoever in accordance with this Code and State law, including but not limited to Health and Safety Code sections 11362.1 and 11362.2, as may be amended. Personal cultivation also means and includes cultivation of medical cannabis conducted by a qualified patient exclusively for his or her personal medical use, and cultivation conducted by a primary caregiver for the personal medical purposes of no more than five specified qualified patients for whom he or she is the primary caregiver, in accordance with State law, including Health and Safety Code sections 11362.7 and 11362.765, as may be amended. Except as herein defined, personal cultivation does not include, and shall not authorize, any cultivation conducted as part of a business or commercial activity, including cultivation for compensation or retail or wholesale sales of cannabis.

“Primary caregiver” shall have the same definition as set forth in California Health and Safety Code Section 11362.7(d), as may be amended.

“Qualified patient” shall mean a person identified in California Health and Safety Code Section 11362.7(c) or (f), as may be amended.

40.26A.040 Indoor Personal Cultivation.

Indoor Cultivation. Indoor personal cultivation of cannabis is permitted in all residential districts, all residential uses within planned development districts of a similar nature, and residential uses within mixed-use districts, subject to all of the following minimum performance standards:

- (a) All indoor personal cultivation, including by a qualified patient or primary caregiver, shall occur in a dwelling or fully-enclosed accessory building or structure, as those terms are defined in Section 40.01.010 of this chapter.
- (b) Medical cannabis shall be cultivated by:
 - (1) A qualified patient exclusively for his or her own personal medical use but who does not provide, donate, sell, or distribute medical cannabis to any other person; or
 - (2) A primary caregiver who cultivates, possesses, stores, manufactures, transports, donates, or provides medical cannabis exclusively for the personal medical purposes of no more than five specified qualified patients for whom he or she is the primary caregiver, but who does not receive remuneration for these activities except for compensation in full compliance with California Health and Safety Code Section 11362.765(c).
- (c) Structures and equipment used for indoor cultivation, such as indoor grow lights, shall comply with all applicable building, electrical and fire code regulations as adopted by the city.

- (d) All accessory buildings and structures used for indoor cultivation shall comply with the locational and other requirements set forth in Section 40.26.010 of this chapter.
- (e) Indoor personal cultivation of cannabis may occur inside a dwelling and/or an accessory building or structure on the same parcel, subject to the following restrictions:
 - (1) The cumulative cultivation area for medical cannabis shall total no more than fifty contiguous square feet per qualified patient, and no more than two hundred fifty contiguous square feet for primary caregivers, but in no event shall the total cumulative cultivation area for medical cannabis exceed two hundred fifty contiguous square feet regardless of how many qualified patients or primary caregivers reside at the premises. Either a qualified patient or primary caregiver shall reside full-time on the premises where the medical cannabis cultivation occurs.
 - (2) For persons other than qualified patients or primary caregivers, all personal cultivation shall be conducted by persons 21 years of age or older. For persons other than qualified patients or primary caregivers, the cumulative total of cannabis plants on the property, indoor and outdoor, shall not exceed six (6) cannabis plants, regardless of the number of persons residing on the property.
- (f) Personal cultivation of cannabis shall not interfere with the primary occupancy of the building or structure, including regular use of kitchen(s) or bathroom(s).
- (g) No exterior evidence of cannabis cultivation occurring at the property shall be discernable from the public right-of-way.
- (h) Nothing in this section is intended, nor shall it be construed, to preclude any landlord from limiting or prohibiting personal cultivation of cannabis by tenants.
- (i) Nothing in this section is intended, nor shall it be construed, to authorize commercial cultivation of cannabis.
- (j) Nothing in this section is intended, nor shall it be construed, to authorize any public or private nuisance as specified in Chapter 23 of this code.

40.26A.050 Outdoor Personal Cultivation.

Outdoor Cultivation. Outdoor personal cultivation of cannabis is permitted in all residential districts, all residential uses within planned development districts of a similar nature, and residential uses within mixed-use districts, subject to all of the following minimum performance standards:

- (a) Outdoor personal cultivation of cannabis is only permitted in a rear or side yard that is entirely enclosed by a solid, opaque fence that is associated with a dwelling or secondary dwelling unit.

- (b) The height of the cannabis plants shall not exceed the standard fence height applicable to the parcel, or six (6) feet, whichever is lesser.
- (c) The cannabis plants shall be placed at a minimum setback of five (5) feet from the edge of canopy to the property line.
- (d) No exterior evidence of cannabis cultivation occurring at the property shall be visible from the public right-of-way.
- (e) For persons other than qualified patients or primary caregivers, all outdoor personal cultivation shall be conducted by persons 21 years of age or older, and the cumulative total of cannabis plants on the property, indoor and outdoor, shall not exceed six (6) cannabis plants, regardless of number of persons residing on the property.
- (f) For qualified patients and primary caregivers, the cumulative total of cannabis plants outside shall not exceed six (6) cannabis plants, regardless of the number of qualified patients and primary caregivers residing on the property.
- (g) Nothing in this section is intended, nor shall it be construed, to preclude any landlord from limiting or prohibiting cannabis cultivation by tenants.
- (h) Nothing in this section is intended, nor shall it be construed, to authorize commercial cultivation of cannabis.
- (i) Nothing in this section is intended, nor shall it be construed, to authorize any public or private nuisance as specified in Chapter 23 of this code.

40.26A.060 Enforcement.

- (a) **Nuisance.** Any violation of this Article is declared to be a public nuisance and may be abated by the city pursuant to Chapter 23 of this code.
- (b) **Penalty.** A violation of this section shall either be a misdemeanor or an infraction at the discretion of the prosecuting attorney. However, notwithstanding anything in this code to the contrary, persons violating this section shall not be subject to criminal liability under this Code solely to the extent such conduct or condition is immune from criminal liability pursuant to State law, including the Compassionate Use Act of 1996 (Health and Safety Code Section 11362.5), the Medical Marijuana Program (Health and Safety Code Section 11362.7 et seq.), or the Adult Use of Marijuana Act, as they may be amended. This section does not prohibit the city from abating violations of this section by any administrative, civil or other non-criminal means. In such cases, a violation of this section may be considered the civil or administrative equivalent of an infraction or misdemeanor as applicable.



CANNABIS: STATE OF THE SCIENCE

National Cannabis Summit

August 29, 2017

Susan R.B. Weiss, Ph.D.

Director

Division of Extramural Research

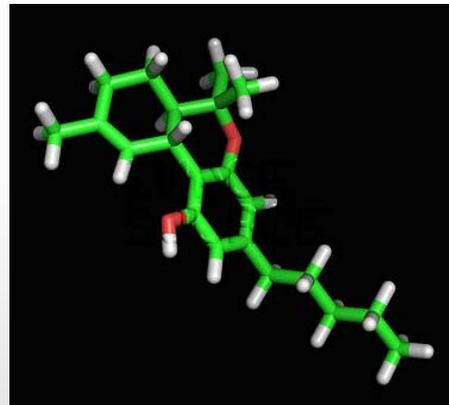


PREVALENCE AND TRENDS



CANNABIS: MOST COMMONLY USED "ILLICIT" DRUG IN THE U.S.

- Over **22 million** Americans 12 and older were past month marijuana users.
- Approximately **4.0 million** Americans met criteria for cannabis use disorders in 2015.
- An estimated **2.6 million** Americans used it for the first time; **1.2 million** were between the ages of 12 and 17.

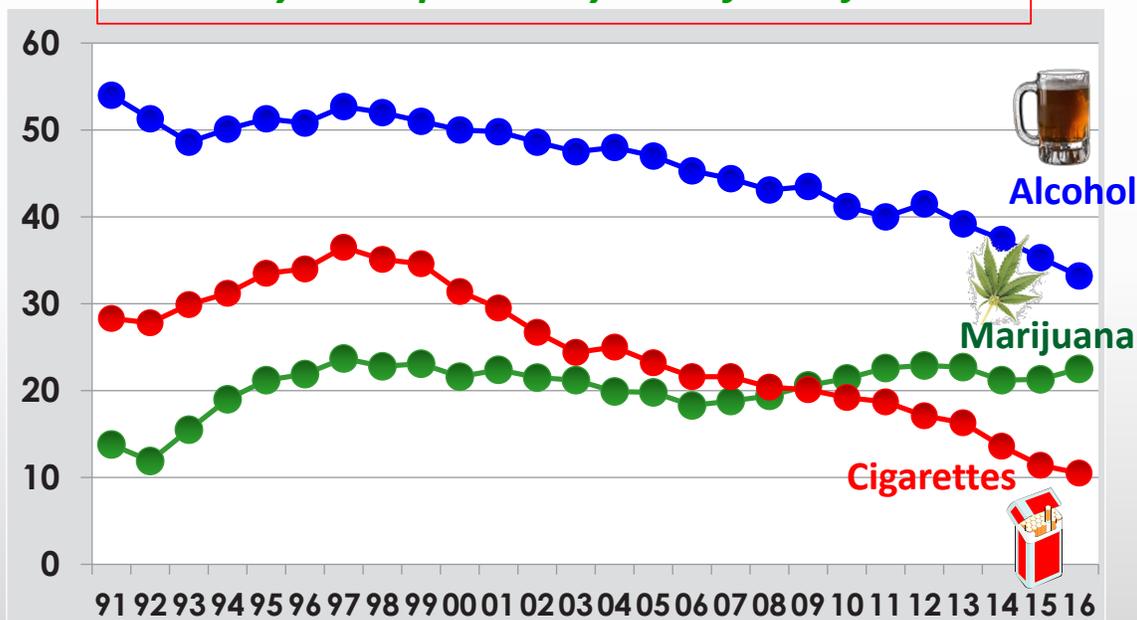


Tetrahydrocannabinol (THC)
Psychoactive Ingredient in Marijuana

Source: 2016 National Survey on Drug Use and Health, SAMHSA

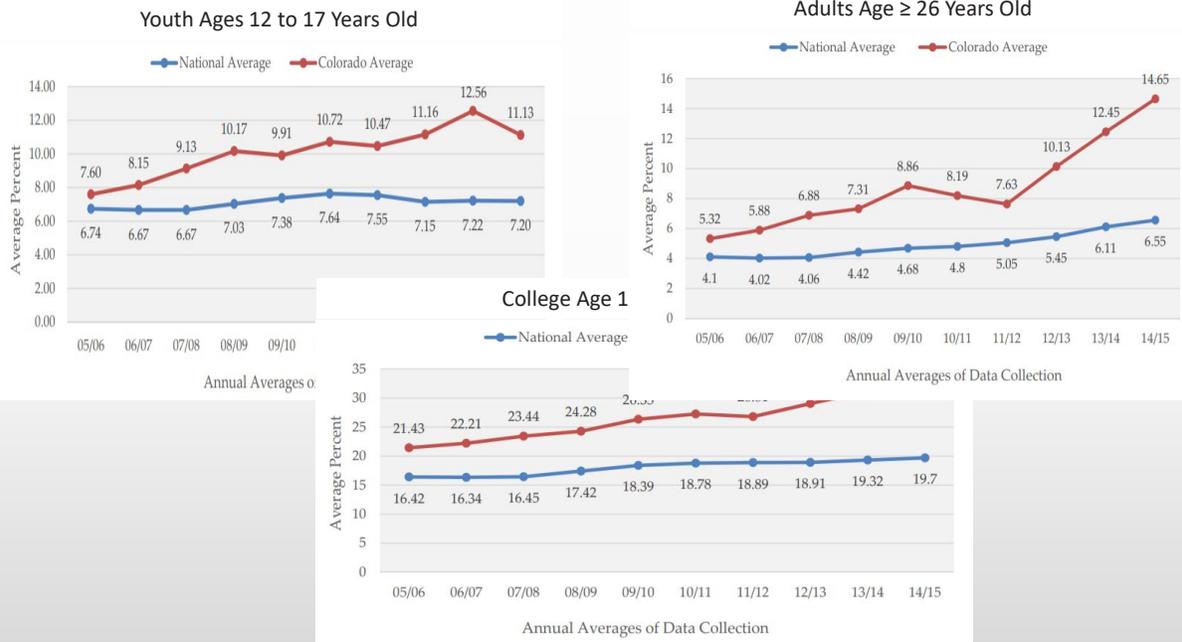
Past Month Use of Cigarettes, **Marijuana**, and Alcohol in 12th Graders

nearly 6% report daily use of marijuana



Source: University of Michigan, 2016 Monitoring the Future Study

PAST MONTH MARIJUANA USE

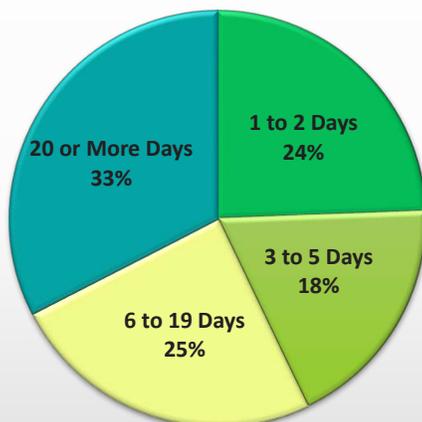


Rocky Mountain HIDTA Report www.rmhidta.org
 Supplement: The Legalization of Marijuana in Colorado:
 The Impact, Volume 4 (March 2017)

SOURCE: SAMHSA.gov, National Survey on Drug Use and Health 2014 and 2015

AMONG CURRENT MARIJUANA USERS, MORE THAN TWO IN FIVE ARE **DAILY OR ALMOST DAILY USERS**

Number of Days Used Marijuana in the Past Month



2002

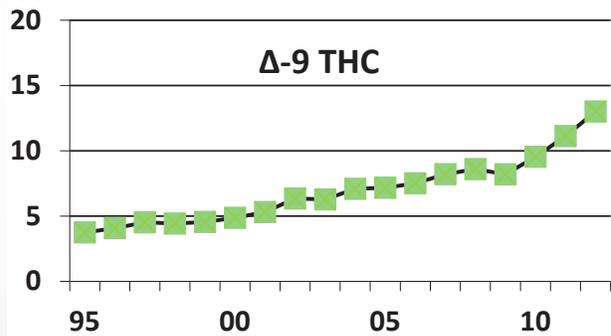


2015

22.2 Million Past Month Users of Cannabis in 2015
14.6 Million Past Month Users of Cannabis in 2002

Source: SAMHSA, 2015 National Survey on Drug Use and Health (September 2016).

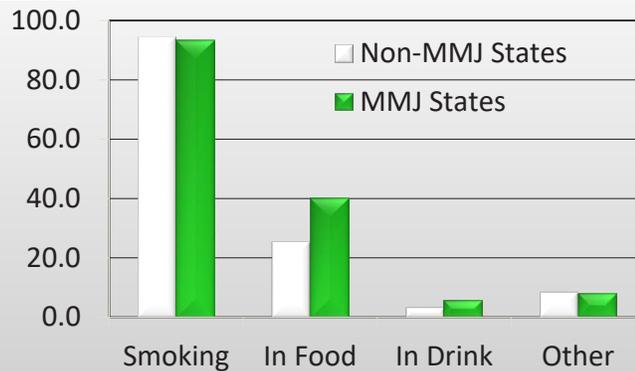
CHANGING LANDSCAPE: INCREASING POTENCY & NEW ROUTES OF ADMINISTRATION



**12th grade
Past Year Users**



SOURCE: University of Mississippi;
University of Michigan, 2014
Monitoring the Future Study



PATTERNS AND GAPS

What We Know:

- Use among youth (12-17) has not increased in recent years despite decreased perception of risk
- Current users use more often (daily, nearly daily) than in 2002
- Potency is increasing; plant components are changing
- Cannabis is being administered through different routes

What We Need to Know:

- Need improved measures of frequency, dosage, patterns of use
- Persuasive Messaging (especially for youth) to counter the trend of decreasing harm perception
- Greater knowledge of the impact of changing potency (user titration?), constituents, and alternative routes of administration
- Regional differences based on changing laws, policies, and social norms
- Use of other substances: complementarity vs. substitution



ADVERSE HEALTH AND SOCIAL CONSEQUENCES OF CANNABIS USE

CANNABIS' ACUTE EFFECTS (INTOXICATION PHASE)

- Euphoria
- Calmness
- Appetite stimulation
- Altered perception of time
- Heightened sensation
- Impairs coordination and balance
- Increased heart rate: 20 - 100%
 - Some evidence for increased risk of heart attack, may be exacerbated in vulnerable individuals (e.g., baby boomers?)
- Orthostatic (postural) hypotension
- **Increased risk of accidents (~2 fold), higher when combined with alcohol**



CANNABIS' ACUTE EFFECTS (INTOXICATION PHASE)

- **Cognition**
 - Impaired short-term memory
 - Difficulty with complex tasks
 - Difficulty learning
- **Executive Function**
 - Impaired decision-making
 - Increased risky behavior – STDs, HIV?
- **Mood** (especially after high doses or Edibles)
 - **Anxiety – panic attacks**
 - **Psychosis – paranoia**



LONG TERM OUTCOMES:

WE KNOW LESS ABOUT THE LONG TERM HEALTH IMPACT FOLLOWING CHRONIC CANNABIS USE, PARTICULARLY WITH RESPECT TO **CAUSALITY.**

CANNABIS AND BRAIN DEVELOPMENT: MOST VULNERABLE POPULATIONS

Prenatal

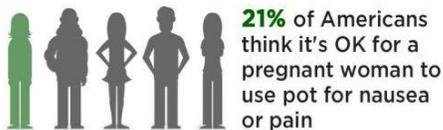


Adolescent



Adolescent Brain Cognitive Development®
Teen Brains. Today's Science. Brighter Future.

PERCEPTION OF HARM DURING PREGNANCY



Among Americans who use marijuana regularly, **40%** think it's OK for a pregnant woman to use pot for nausea or pain



Graphic: Yahoo News/Getty Images

Source: Yahoo News/Marist Poll April 2017



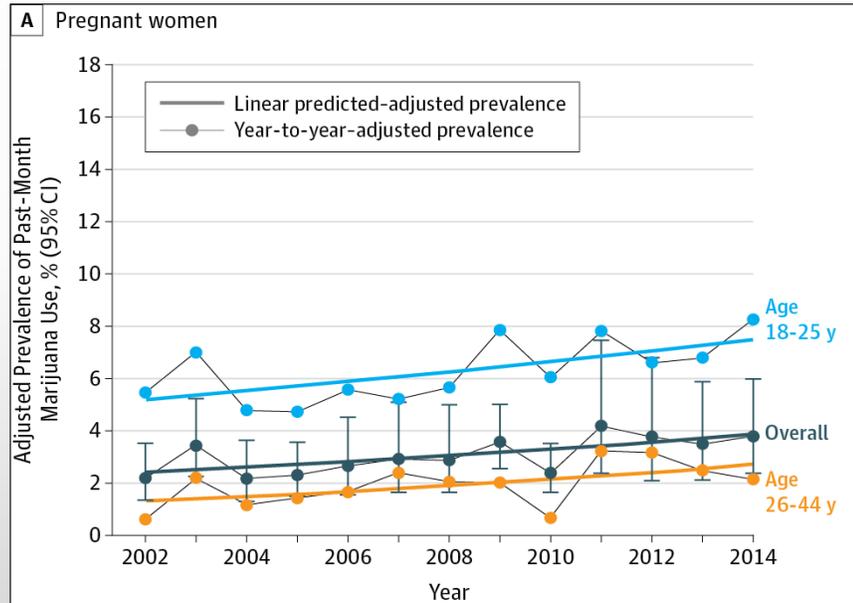
Marijuana Use By Maternal Characteristics: Hawai'i PRAMS, 2009–2011

Compared to those who did not report severe nausea during pregnancy, women who did experience severe nausea were **more likely to report marijuana use** during pregnancy (3.7% vs 2.3%; $P = .034$).

Source: Roberson et al. Hawaii J Med Public Health. 2014

CANNABIS USE DURING PREGNANCY IS INCREASING

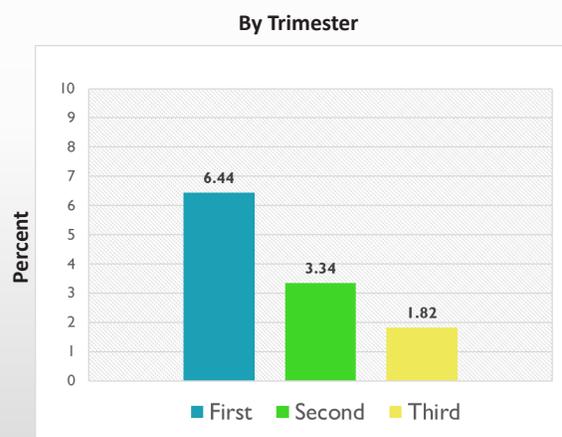
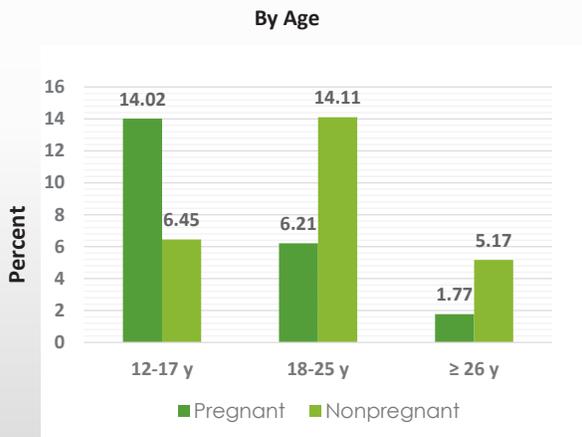
Trends in Prevalence of Cannabis Use in Pregnant Women, 2002-2014-NSDUH



Source: Brown et al., 2017

PREGNANT TEENS REPORT HIGH PAST MONTH USE OF MARIJUANA HIGHEST RATES OF USE IN FIRST TRIMESTER

2002 to 2015 National Survey on Drug Use and Health (NSDUH)



Volkow et al., Ann Intern Med. 2017; 166(10):763-764.



WHAT WE KNOW ABOUT PRENATAL CANNABIS EXPOSURE

- Cannabinoids → lipid soluble, cross the placenta and accumulate in fetal tissues, especially, the brain.
- Components of the endocannabinoid system are present during embryonic development as early as 16-22 days' gestation in humans.
 - Time of neural plate and neural tube development, the basic scaffold for the forebrain, midbrain, and hindbrain establishment.
- Several cohort studies have documented modest neurodevelopmental deficits in children, adolescents, and young adults who were prenatally exposed to cannabis (multiple caveats).
- Recent meta-analysis → infants exposed to cannabis in utero have lower birth weight and are more likely to be admitted to the neonatal intensive care unit (NICU) compared to infants without such exposure.
- Preclinical studies show multiple effects of THC exposure on adult drug seeking behavior, reward and other brain systems, and epigenetic mechanisms.

WHAT WE NEED TO KNOW ABOUT CANNABIS AND NEURODEVELOPMENT

The precise nature of the association between cannabis use and neurodevelopment including who is at risk.



- What are the factors that moderate the impact of cannabis exposure?
- How should we quantify cannabis use: frequency, strain, potency, route of administration?
- Are there permanent effects; compensatory developmental responses; or reversible changes in structure/function?
- How much do other variables contribute to cannabis effects (alcohol, tobacco, prenatal care, BMI, physical activity...)?
- What are the effects of second- or third-hand smoke exposure from cannabis?

The Brain Continues to Mature into Early Adulthood.

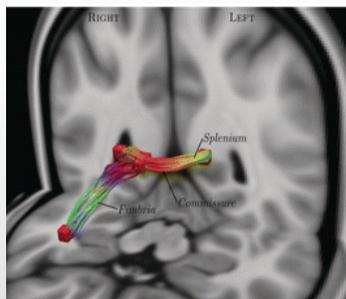


Does **Cannabis** (and other substances) affect the developing brain and an individual's trajectory into adulthood?

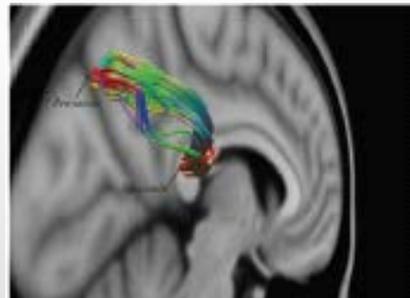
MULTIPLE STUDIES SHOW ALTERED BRAIN STRUCTURE AND FUNCTION IN YOUTH WHO REGULARLY USE CANNABIS

Early (<18y) Cannabis Use Decreases Axonal Fiber Connectivity

Precuneus to splenium



Fimbria of hippocampus, hippocampal Commissure, and splenium



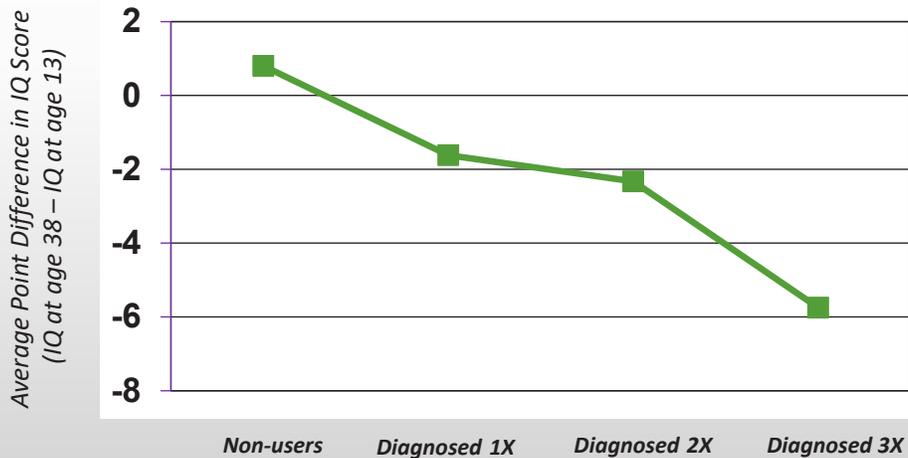
Axonal paths with reduced connectivity (measured with diffusion-weighted MRI) in cannabis users (n=59) than in controls (N=33).

Source: Zalesky et al Brain 2012

COGNITION:

PERSISTENT CANNABIS USE DISORDER LINKED TO SIGNIFICANT IQ DROP BETWEEN CHILDHOOD AND MIDLIFE

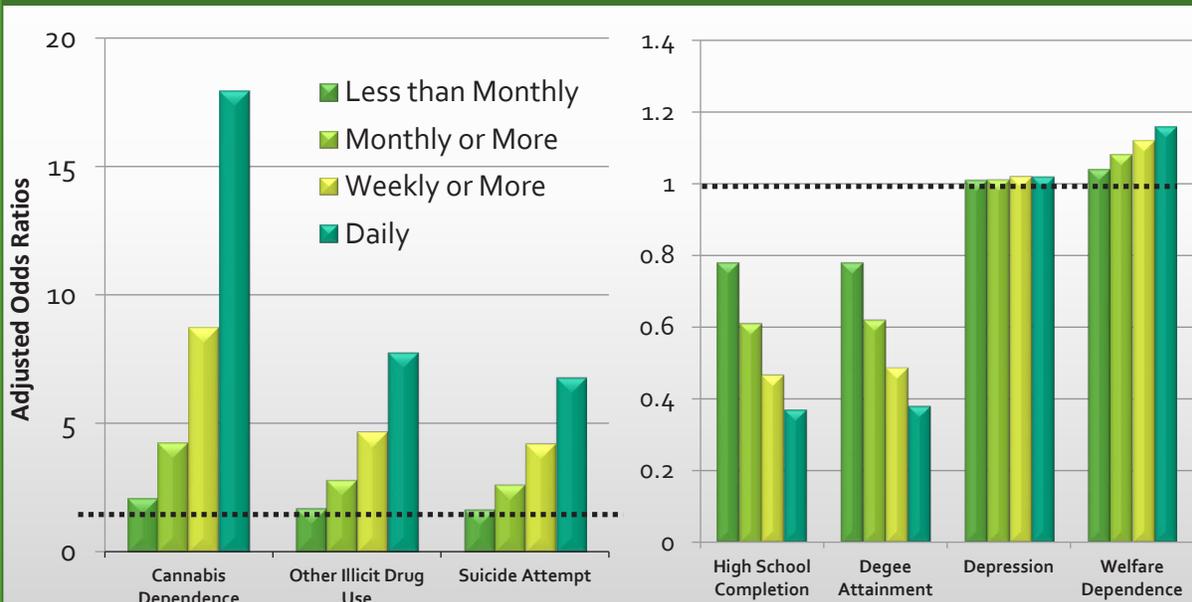
- Followed 1,037 individuals from birth to age 38.
- Tested marijuana use and disorders at 18, 21, 26, 32 and 38.
- Tested for IQ at ages 13 and 38



Source: Meier MH et al., PNAS Early Edition 2012

FREQUENCY OF CANNABIS USE BEFORE AGE 17 YEARS AND ADVERSE OUTCOMES (30 YEARS AGE) (N=2500-3700)

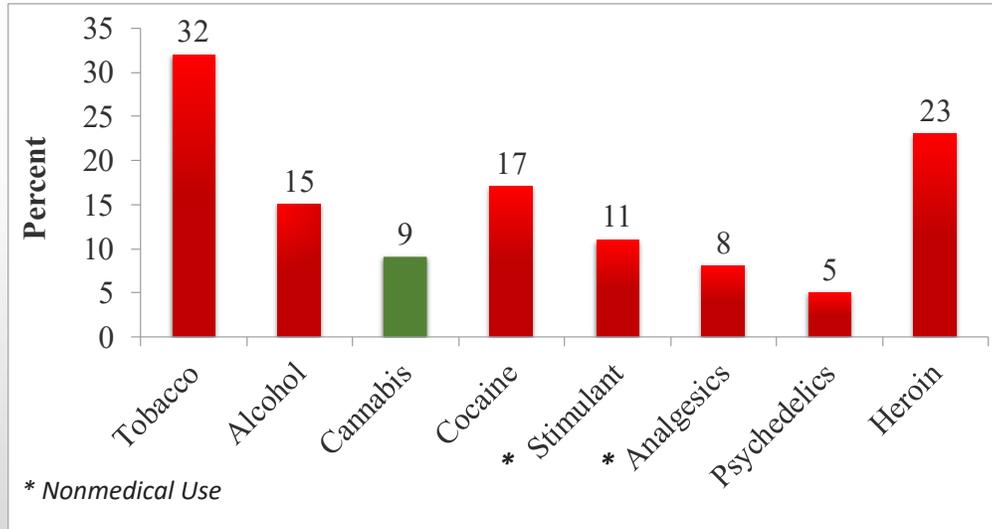
Consistent and dose-response association were found between frequency of adolescent cannabis use and adverse outcomes



Source: Silins E et al., The Lancet September 2014

ADDICTION: ABOUT 9% OF USERS BECOME DEPENDENT,
1 IN 6 WHO START USE IN ADOLESCENCE,
25-50% OF DAILY USERS

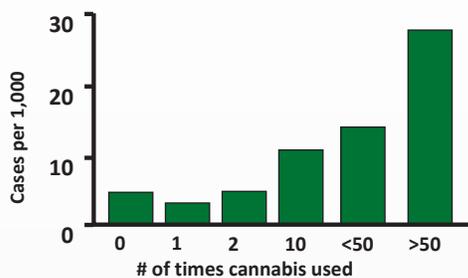
Estimated Prevalence of Dependence Among Users



Source: Anthony JC et al., 1994

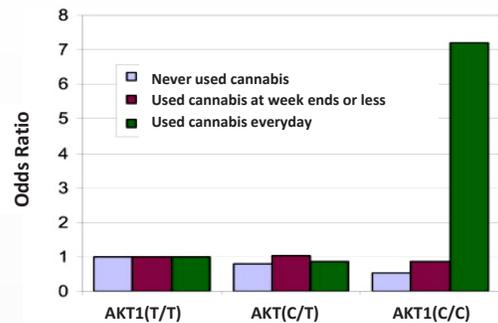
Cannabis-Associated Psychosis

Study of Swedish Conscripts (n=45570)



Andréasson et al Lancet, 1987

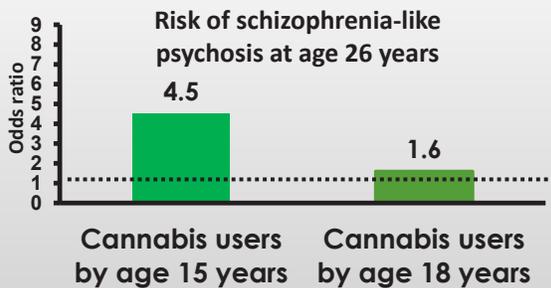
Regular Cannabis Use Increases Schizophrenia Risk in those with AKT1 rs2494732 genotype



GXE model: p*=0.014

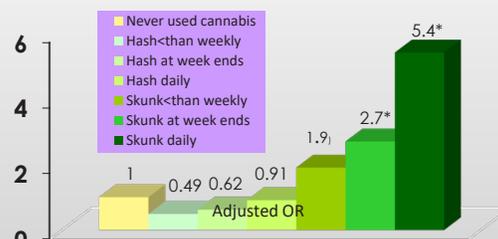
Di Forti et al., Biological Psychiatry, 2012

Prospective Dunedin study (n=1037)



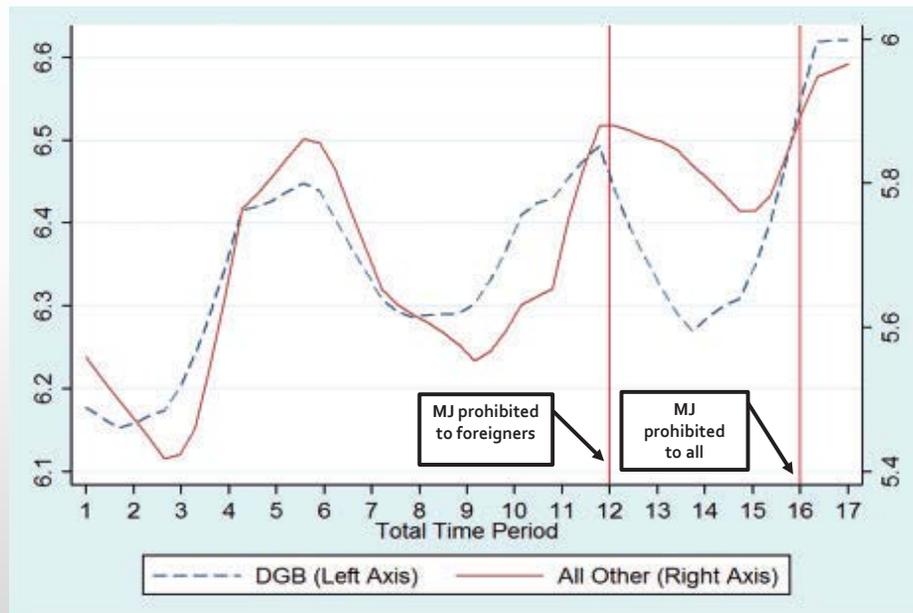
Arseneault et al BMJ 2002

Effect of High Potency Cannabis on Risk of Psychosis



Di Forti M et al., The Lancet, 2015

When MJ Sales Were Restricted in the Netherlands, University Grades Improved



Marie O, Zolitz U, Review of Economic Studies, 2017

WHAT WE KNOW ABOUT ADOLESCENT CANNABIS EXPOSURE

- Adversely influences learning
- Effects on memory and attention outlast intoxication
- Appear worse with earlier age of onset, more chronic use
- Some neuroimaging data support these effects
- Increased risk of addiction (compared to adults)
- Worse educational outcomes, career achievement, life satisfaction
- Linked with suicidal ideation or behavior
- Earlier onset/worse course of psychotic illness *in vulnerable individuals*



Adolescent Brain Cognitive Development (**ABCD**) Study

A Federal Collaboration: NIDA, NIAAA, NCI, NIMH, NIMHD, NICHD, NINDS, OBSSR, ORWH, CDC-DASH, DOJ

Ten year longitudinal study of 10,000 children from age 10 to 20 years to assess effects of childhood experiences, including use of cannabis and other substances on individual brain development trajectories

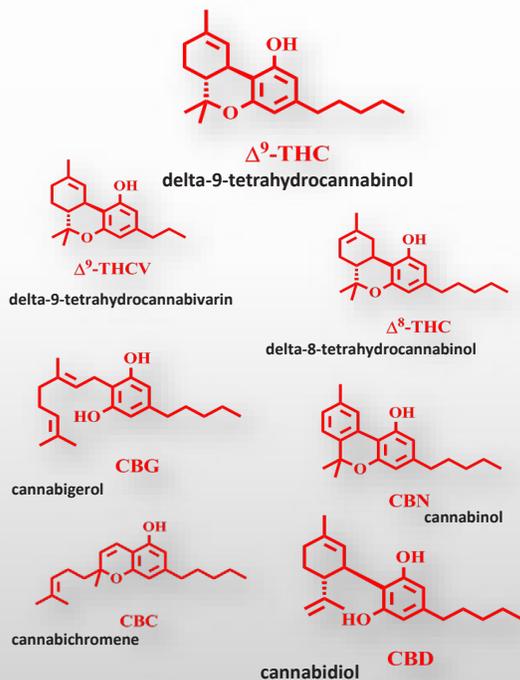


Adolescent Brain Cognitive Development®
Teen Brains. Today's Science. Brighter Future.

THERAPEUTICS: PROMISE OF CANNABIS AND THE ENDOCANNABINOID SYSTEM



CANNABIS CONTAINS ~100 CANNABINOIDS PLUS OTHER CHEMICALS IN VARYING CONCENTRATIONS



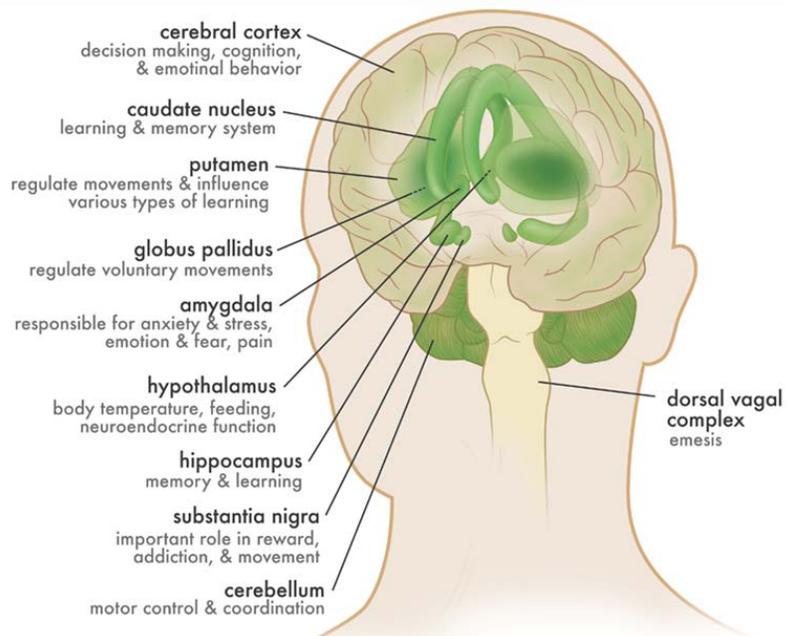
- Plant with long history of use worldwide
- Illegal under Federal law (Schedule I substance—not FDA approved)
- Legal for medical use in 29 States + D.C.
- High CBD variety (or extracts) legal in 16 states for medical use
- Versions of active ingredients approved (*or in clinical trials*) for medical indications in U.S. and other countries
 - Synthetic - Marinol, Syndros, Cesamet
 - Plant Derived- Sativex (THC/CBD)
 - *Plant Derived-Epidiolex (CBD: Phase III trials)*



CANNABINOID RECEPTORS ARE LOCATED THROUGHOUT THE BRAIN

Regulation of:

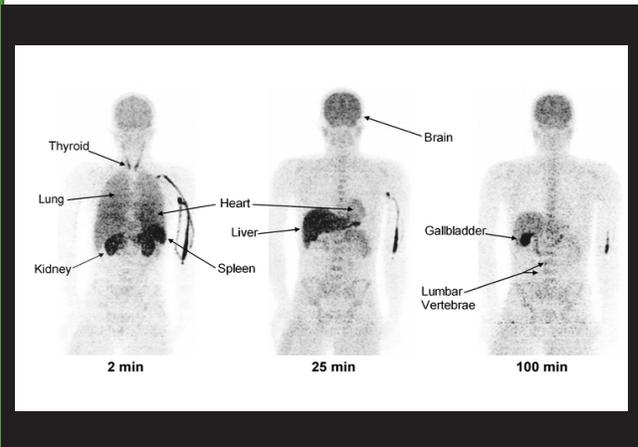
- Brain Development
- Memory and Cognition
- Movement Coordination
- Pain Regulation & Analgesia
- Immunological Function
- Appetite
- Motivational Systems & Reward



Source: Canadian Consortium for the Investigation of Cannabinoids, <http://www.ccic.net/>

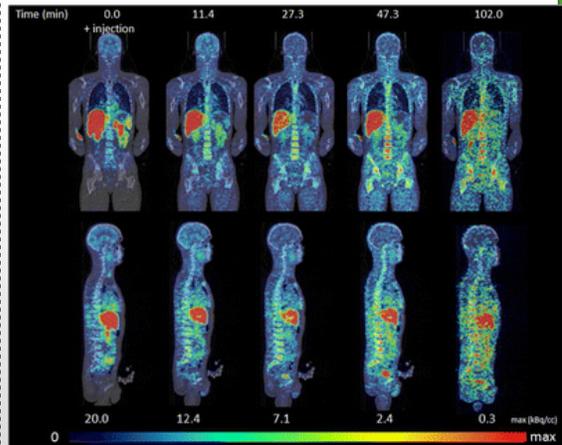
Cannabinoid Receptors Are Also Located Throughout the Body

Whole Body Distribution of **CB1** Receptors (11C-MePPEP)



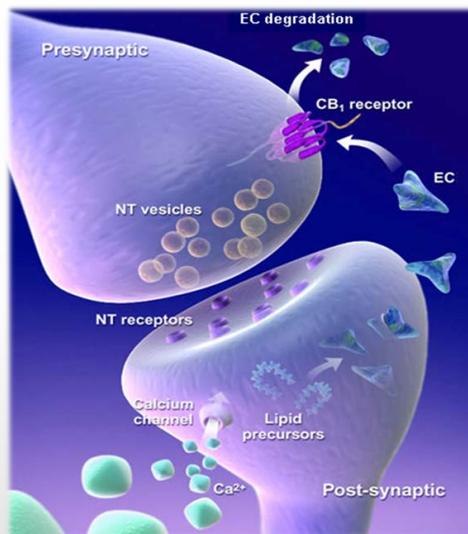
Terry et al., Eur J Nucl Med Mol Imaging. 2010

Distribution of **CB2** Receptors [11C]-NE40



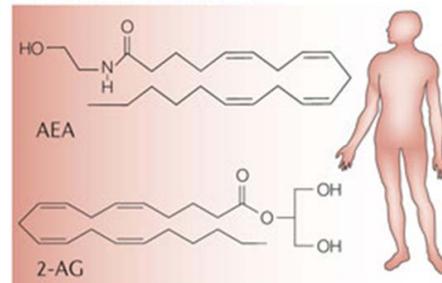
Ahmad et al., Mol Imaging Biol. 2013 A

MECHANISM OF ACTION OF CANNABINOIDS

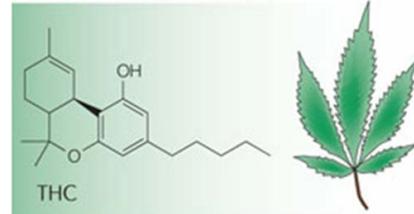


Endocannabinoids are produced *on demand*. They travel back to the transmitting neuron to dampen further activity.

Endogenous cannabinoids



Plant-derived cannabinoid



Source: Mackie K. Ann Rev Pharmacol Toxicol., 2006



DELTA-9-THC VS. CBD

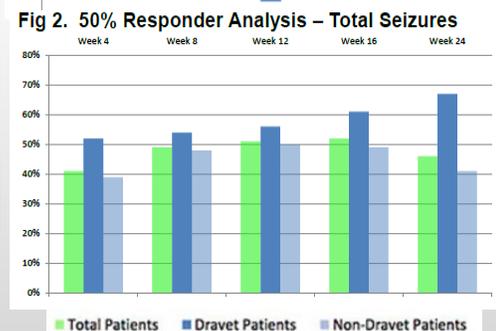
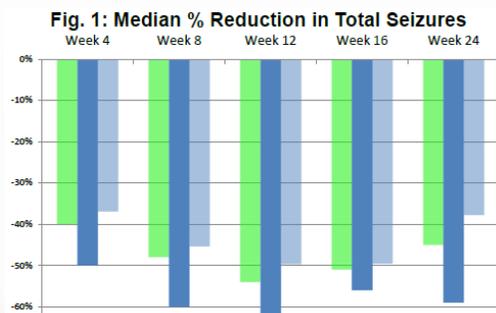
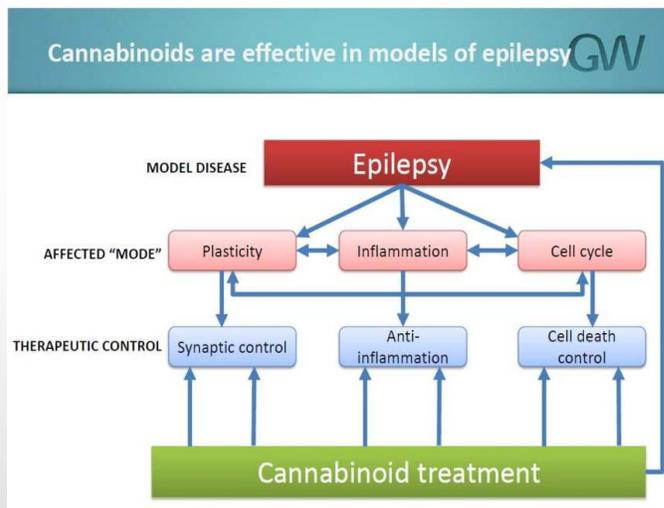


What is Cannabidiol (CBD)?

- Schedule 1 controlled substance
- It *doesn't* act through CB1 or CB2 receptors
- Potential mechanisms of action: 5HT1a receptors; glycine receptors; orphan G-protein coupled receptors; FAAH inhibition; more...
- Does not have rewarding effects
- May counteract some effects of THC
 - Bred out of "high potency" cannabis
- May have a wide range of medical uses
- Promising effects in childhood epilepsy (Epidiolex)



Epidiolex (Cannabidiol) in Tx Resistant Epilepsy



Devinsky O et al., Poster presented at the 2015 Annual Meeting of the American Epilepsy Society. Funded by GW Pharmaceuticals, the company developing Epidiolex

Enzyme Inhibitors (e.g., AEA degradation)

Indirect enhancers of CB activity—more selective, less side effects
What have we learned?

FAAH inhibitors

ECB

Reduce anxiety-like behaviors

Reduce depression-like behaviors

Enhance social behavior in ASD models

Reduce nicotine addiction

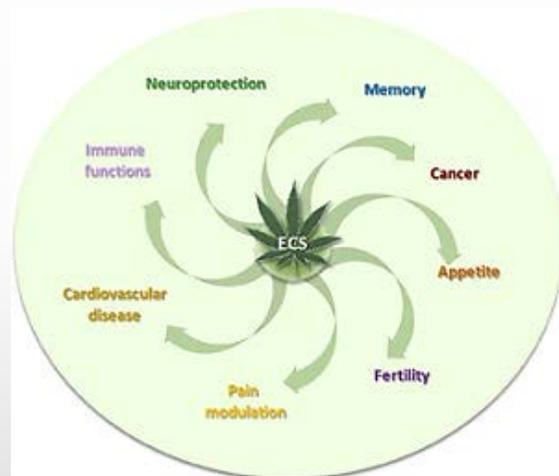
May be effective for cannabis use disorder

Very mild side effect profile
in animals and humans

Piomelli, 2016

EXPLOITING THE CANNABINOID SYSTEM FOR THERAPEUTIC PURPOSES

- Exogenous compounds
 - Phytocannabinoids
 - THC, CBD, combinations
 - Synthetic cannabinoids
 - Dronabinol
- Endogenous manipulation
 - FAAH inhibitors
 - MAGL inhibitors
 - Allosteric modulators
- Receptor targets
 - CB1, CB2, TRPV1, PPAR, 5-HT, peripheral, others...



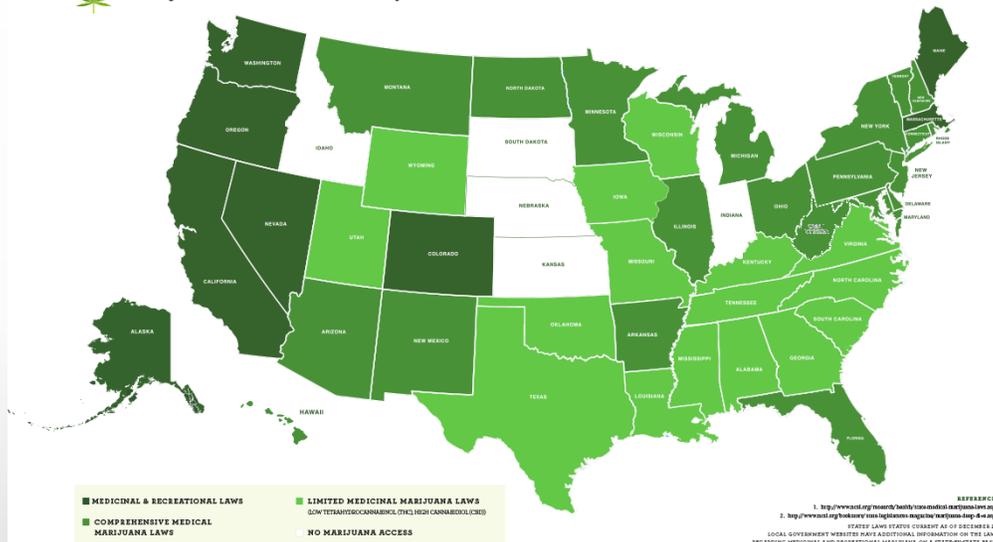
Source: Canadian Consortium for the Investigation of Cannabinoids, <http://www.ccic.net/>

POLICY: CANNABIS POLICY IS INFLUENCED BY A VARIETY OF FACTORS

Complicated and Moving Fast

CANNABIS LAWS IN THE U.S.

 Marijuana Laws Differ State by State



States with MML vary on:

- Allowable conditions and routes of administration.
- Dispensaries/home growth and registries.
- Testing, regulatory requirements.

States with Recreational Laws vary on:

- Marketing, product labeling, distribution (home growth).
- Taxation.

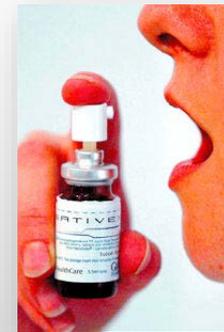
51 Medical Conditions For Which **Marijuana** Is Approved by a State

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Alzheimer's Disease 2. Anorexia 3. Arnold-Chiari malformation 4. Arthritis 5. Ataxia 6. Cachexia 7. Cancer 8. Cardiopulmonary respiratory syndrome 9. Causalgia 10. Cervical dystonia 11. Crohn's disease 12. Decompensated cirrhosis 13. Dystonia 14. Epilepsy 15. Fibromyalgia 16. Glaucoma 17. Hepatitis C 18. HIV/AIDS 19. Huntington's disease 20. Hydrocephalus 21. Inflammatory autoimmune-mediated arthritis 22. Inflammatory bowel disease (IBS) 23. Inflammatory demyelinating polyneuropathy 24. Interstitial cystitis 25. Lou Gehrig's disease (amyotrophic lateral sclerosis, ALS) 26. Lupus | <ol style="list-style-type: none"> 26. Migraines 27. Multiple Sclerosis 28. Muscle spasms 29. Muscular dystrophy 30. Myasthenia gravis 31. Myoclonus 32. Nail-patella syndrome 33. Nausea or vomiting 34. Neurofibromatosis 35. Neuropathy <li style="background-color: #d9ead3;">36. Pain 37. Pancreatitis 38. Parkinson's disease 39. Peripheral neuropathy 40. Post-traumatic stress disorder (PTSD) 41. Reflex sympathetic dystrophy 42. Residual limb pain from amputation 43. Seizure disorders 44. Sjogren's syndrome 45. Spasticity 46. Spinal cord damage with intractable spasticity 47. Syringomyelia 48. Terminal illness 49. Tourette's syndrome 50. Traumatic brain injury |
|---|--|

Sources: Marijuana Policy Project, 2014. Key Aspects of State and D.C. Medical Marijuana Laws; National Conference of State Legislatures, "State Medical Marijuana Laws," www.ncsl.org; Rahn, B., 2014. Qualifying Conditions for Medical Marijuana by State, www.leafly.com

Strength of the Evidence For **Marijuana/Cannabinoid** Medical Applications

Strongest Evidence	Modest Evidence	Weakest Evidence
<ul style="list-style-type: none"> • Nausea (Cancer chemotherapy) • Spasticity and Pain (MS) • Appetite Stimulant (AIDS-associated wasting) <li style="border: 2px solid red; padding: 2px;">• Pain esp. neuropathic • Glaucoma (decreases intraocular pressure; no evidence it slows disease progression; and short acting) 	<ul style="list-style-type: none"> • Anticonvulsant (CBD) • Anti-inflammatory (CBD) • Antitumor (THC/CBD) (animal models/cell cultures: glioblastoma; breast cancer cells; others (mechanisms: apoptosis; inhibition of tumor angiogenesis)) 	<ul style="list-style-type: none"> • PTSD • ADHD • Alzheimer's • Depression



RECENT META-ANALYSES SUPPORT THE USE OF CANNABINOIDS FOR CHRONIC NEUROPATHIC NON-CANCER PAIN, BUT.....

➤ Studies generally short, small, with modest effect sizes.

Research

Cannabinoids for the Treatment of Chronic Pain: An Updated Systematic Review of Randomized Controlled Trials

M. E. Lynch^{1,2}, Mark A. Ware²

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Abstract An updated systematic review of randomized controlled trials examining cannabinoids in the treatment of chronic non-cancer pain was conducted according to PRISMA guidelines for systematic reviews reporting on health care outcomes. Eleven trials published since our last review met inclusion criteria. The quality of the trials was excellent. Seven trials also demonstrated improvement in secondary outcomes. Several trials also demonstrated a significant analgesic effect on the trials (e.g., sleep, muscle stiffness and spasticity). Adverse effects most frequently reported such as fatigue and dizziness were mild to moderate in severity and generally well tolerated. This review adds further support that currently available cannabinoids are safe, modestly effective analgesics that provide a reasonable therapeutic option in the management of chronic non-cancer pain.

Keywords Cannabinoids · Chronic non-cancer pain · Neuropathic pain · Systematic review · Marijuana

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Annals of Internal Medicine

The Effects of Cannabis Among Adults With Chronic Pain and an Overview of General Harms

A Systematic Review

Shannon M. Nugent, PhD; Benjamin J. Morasco, PhD; Maya E. O'Neill, PhD; Michele Freeman, MPH; Allison Low-Karl, Kondo, PhD; Camille Elven, MD; Bernadette Zakher, MBBS; Makalupa Motu'apaka, BA; Robin Paynter, PhD; Devon Knappaga, MD, MCR

Background: Cannabis is increasingly available for the treatment of chronic pain, yet its efficacy remains uncertain.

Purpose: To review the benefits of plant-based cannabis preparations for treating chronic pain in adults and the harms of cannabis use in chronic pain and general adult populations.

Data Sources: MEDLINE, Cochrane Database of Systematic Reviews, and several other sources from database inception to March 2017.

Study Selection: Intervention trials and observational studies.

Abstract

Objective: To determine if medical marijuana provides pain relief for patients with chronic pain, and to determine the therapeutic dose, adverse effects, and specific indications for use.

Data sources: In April 2014, MEDLINE and EMBASE searches were conducted for randomized controlled trials, observational studies, and case reports of smoked marijuana or cannabinoids, placebo and pain relief, or side effects.

Study selection: An article was selected for inclusion if it evaluated the use of medical marijuana in neuropathic pain as an adjunct to other concomitant analgesics including opioids and nonopioids. The 5 trials were considered to be of high quality, however, all of them had challenges with masking. Data could not be pooled owing to heterogeneity in delta-9-tetrahydrocannabinol (THC) dose, potency, and duration of treatment, and variability in assessing outcomes. All experimental sessions in the studies were of short duration (maximum of 10 minutes).

Synthesis: A total of 6 randomized controlled trials (N=226 patients) assessed the use of medical marijuana in neuropathic pain as an adjunct to other concomitant analgesics including opioids and nonopioids. The 5 trials were considered to be of high quality, however, all of them had challenges with masking. Data could not be pooled owing to heterogeneity in delta-9-tetrahydrocannabinol (THC) dose, potency, and duration of treatment, and variability in assessing outcomes. All experimental sessions in the studies were of short duration (maximum of 10 minutes).

Conclusion: Limited evidence suggests that cannabis may alleviate neuropathic pain in some patients, but insufficient evidence exists for other types of chronic pain.

- S. Nugent et al; Annals of Internal Medicine 2017

Original Investigation

Cannabinoids for Medical Use: A Systematic Review and Meta-analysis

Penny F. Whiting, PhD; Robert F. Wolff, MD; Sohan Deshpande, MSc; Marcella Di Nisio, PhD; Allison V. Hernandez, MD; PhD; J. Christian Koenigsmeyer, MEd, PhD; Shona Ling, PhD; Kate M. Steve Archer, MSc; Simone Schneider, MSc; Marie Warewood, PhD; Jos Kleijnen, MD, PhD

Importance: Cannabinoids and cannabinoid drugs are widely used to treat disease symptoms, but their efficacy for specific indications is not clear.

Objective: To conduct a systematic review of the benefits and adverse events (AE) of cannabinoids.

Data Sources: Twenty-eight databases from inception to April 2015.

Selection: Randomized clinical trials of cannabinoids for the following indications: pain, nausea and vomiting due to chemotherapy, spasticity, strabismus in HIV/AIDS, chronic glaucoma, or Tourette syndrome.

Action and Synthesis: Study quality was assessed using the Cochrane risk of bias tool. Review stages were conducted independently by 2 reviewers. Where possible, data were pooled using random-effects meta-analysis.

Results and Measures: Patient-relevant/disease-specific outcomes, activities of daily living, quality of life, global impression of change, and AEs.

Results: A total of 79 trials (6462 participants) were included; 4 were judged at low risk of bias. Most trials showed improvement in symptoms associated with cannabinoids but these associations did not reach statistical significance in all trials. Compared with placebo, cannabinoids were associated with a greater average number of patients showing a complete response (47% vs 20%; odds ratio [OR], 3.82 [95% CI, 1.55-9.42]), a greater average reduction in numerical rating scale pain assessment (on a 0-10-point scale) (mean difference [MD], -0.46 [95% CI, -0.80 to -0.11]; 6 trials), a greater increase in risk of short-term AEs with pain assessment (on a 0-10-point scale) (MD, 0.12 [95% CI, 0.07-0.17]; 6 trials), and a greater increase in risk of short-term AEs with pain assessment (on a 0-10-point scale) (MD, 0.12 [95% CI, 0.07-0.17]; 6 trials).

Conclusion: There was moderate-quality evidence to support the use of cannabinoids for the treatment of chronic pain and spasticity.

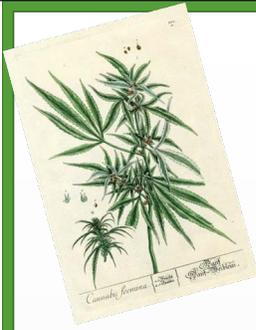
- P.F. Whiting et al; JAMA 2015

Urgent Need for Alternative Pain Management, but The Medical Cannabis "Store" ...



States with MML/Dispensaries report:

- Decreasing rates OD deaths
- Fewer opioid treatment admissions
- Fewer opioid Rx's
- Savings in Medicare spending
- Patient – reported decreases in opioid and other pain medication use



CANNABIS RESEARCH BARRIERS



ADMINISTRATIVE

- Schedule I: Complex and lengthy registration process.
- Single Source: NIDA supply has diversified, but costly and time consuming to grow new products, doesn't represent diversity of products/formulation currently available.
- Schedule I status of non-intoxicating components of cannabis (e.g. CBD).

SCIENTIFIC

- Complexity of plant (100 cannabinoids + other components), entourage effect?
- Route of administration.
- Need proper controls, sufficient study duration (blinding, driving...)
- Should be taking advantage of what is already happening in the states (patient registries).

POLICY CONUNDRUMS:



- Although some form of cannabis legalization is occurring in most states, uncertainties exist because it remains illegal under Federal law.
- Science is lagging behind policy, and policymakers are looking for data to guide their decisions.
- Health messaging must be nuanced and accurate; discussions about cannabis rarely are.
- Scientists are more conservative in their messaging than advocates.
- Hard to control messaging even if marketing of products is restricted.

OTHER POLICY CONSIDERATIONS:

- Substance use is affected by availability, cost, perception of harm (including risk of criminal penalties).
- Perceptions of harm are decreasing across all age groups.
- The 2 currently legal drugs (tobacco and alcohol) are the most costly to society—*because* they are widely used--not because they are the most dangerous.
- Societal norms influence use (tobacco use is dropping).
- Big money has been influencing state legalization efforts. Lobbying will increase if these efforts succeed.
- With no Federal oversight or guidance, state are implementing diverse policies.

CHALLENGE:

HOW DO WE MINIMIZE HARM IN AN ENVIRONMENT WHERE POLICY DECISIONS ARE OUTPACING RESEARCH AND KNOWLEDGE?

- Identify what we know and what we don't
- Prioritize Research Needs
 - Health: brain, heart, lungs, reproductive system, medical use, others
 - Policy: different implementation models, regulations, taxation, marketing
 - Surveillance: Problematic use, ER visits, Accidents, Academic Achievement
- Communication: Develop credible, persuasive, simple messages for the public, the medical community, policymakers

Attachment A-4: Email Comment 5

Terpenes

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3X Crazy .25ml Grade A

\$150.00

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ACDC .25ml - Grade A

\$145.00

★★★★☆

COMPARE

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Black Lime Reserve .25ml - Grade A

\$150.00

★★★★★

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ADD TO CART

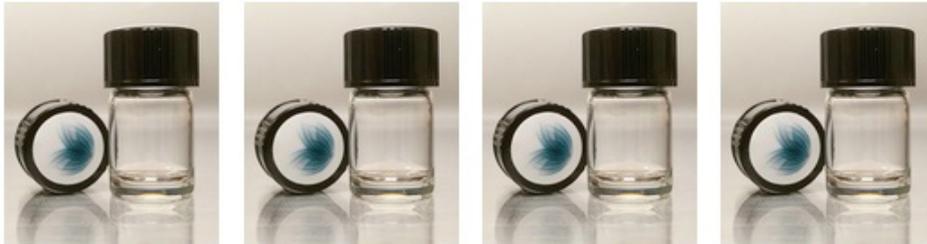
Block Cleaner .25ml - Grade A

\$150.00

★★★★★

COMPARE

ADD TO CART



Blue Dream .25ml - Grade A

\$150.00

COMPARE

Blue Dream .25ml - Grade B / C

\$90.00

★★★★☆

COMPARE

Bruce Banner .25ml - Grade A

\$150.00

COMPARE

ADD TO CART

Cheese Bomb MTG .25ml - Grade A

\$145.00

★★★★☆

COMPARE

ADD TO CART

