



Cannabis and youth – what are the effects on your health?

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Disclaimer

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Agenda

- Ice breaker
- Why should we care? Doesn't cannabis have beneficial effects?
- How did legalization effect youth?
- What are the adverse effects of cannabis on health?
- What are strategies to reduce adverse health effects on youth?
- Tools and resources



Ice breaker:

- Why should we care about cannabis policy?



Raise your hand if you
know someone who
thinks they benefit
from cannabis use?



Raise your hand if you know someone who has cannabis use disorder or uses it every day?



EMERGENCY

Raise your hand if you know someone who has had serious adverse effects from cannabis?

Why should we care?
Doesn't cannabis have beneficial effects?



Does cannabis have beneficial medical effects?

Yes, cannabis does have some beneficial medical effects.

- Treating nausea and vomiting from chemotherapy.
- Multiple sclerosis associated spasticity and pain.
- Certain forms of chronic pain – but not generally recommended by pain experts.
- Certain rare and severe forms of seizure disorders.



Beneficial effects have all been demonstrated with <10% THC cannabis

Research supporting the use of smoked cannabis for medical conditions is limited to **less than 10% THC**

- All studies of smoked medicinal cannabis showing benefit – done with less than 10% THC
Whiting PF, Wolff RF, Deshpande S et al. Cannabinoids for medical use a systematic review and meta-analysis. JAMA 2015;313:2456-2473
- No legitimate science exists to validate medicinal cannabis greater than 10% THC
- A study in healthy volunteers on cannabis effects in capsaicin-induced pain found a window of modest analgesia for smoked cannabis. Wallace M et al. Anesthesiology 2007;107:785-796
 - 2% THC provided no benefit
 - 4% THC provided significant pain decrease
 - 8% THC caused increased pain or hyperalgesia



Courtesy: Dr. Libby Stuyt

Many have claimed medical effects are either proven ineffective or just unproven

- Cannabis does not help fight cancer.
- In people with psychosis, studies suggest that earlier onset of use, higher potency of THC, and increased frequency are associated with more psychosis, relapse, hospital days, and poorer treatment outcomes. Cannabidiol (CBD) may have promise.
- Cannabis generally does not fix depression – it may make it worse. CBD needs more study.
- Cannabis does not fix glaucoma.
- Evidence for cannabis use for Post Traumatic Stress Disorder (PTSD) is very mixed.
- Most medical consumers do not receive real medical guidance.

Source: [some data] Sagar SA and Gruber SA CNS
Drugs, 2025.



How did legalization effect youth?



Good news on criminal injustice

- 98% decline in marijuana possession arrests in California, 2009-2020.
- 93% of over 200,000 eligible criminal records for minor marijuana offenses expunged by 2023 in California.
- But this can be achieved without creating a for profit sales system.

Sources: FBI Crime Data Explorer, CA DOJ



Teens and young adults are most vulnerable to harms

- Teens and young adults below age 26, whose brains are still maturing, are generally considered to be at the highest risk for adverse effects of cannabis.
- While overall cannabis use by teens has declined at the national level, frequency of use amongst teens who use cannabis rose by 26% nationally with onset of adult use retail sales.

Sources: Coley, JAMA Ped, 2024



California teens using cannabis daily rose post-legalization

- California rates highest in newly permissive jurisdictions.
- Was declining until 2017.

Source: Simard, et al, 2025 (in press), not for citation



California teens with any use in past 30 days bumped up in 2018 then declined slightly.

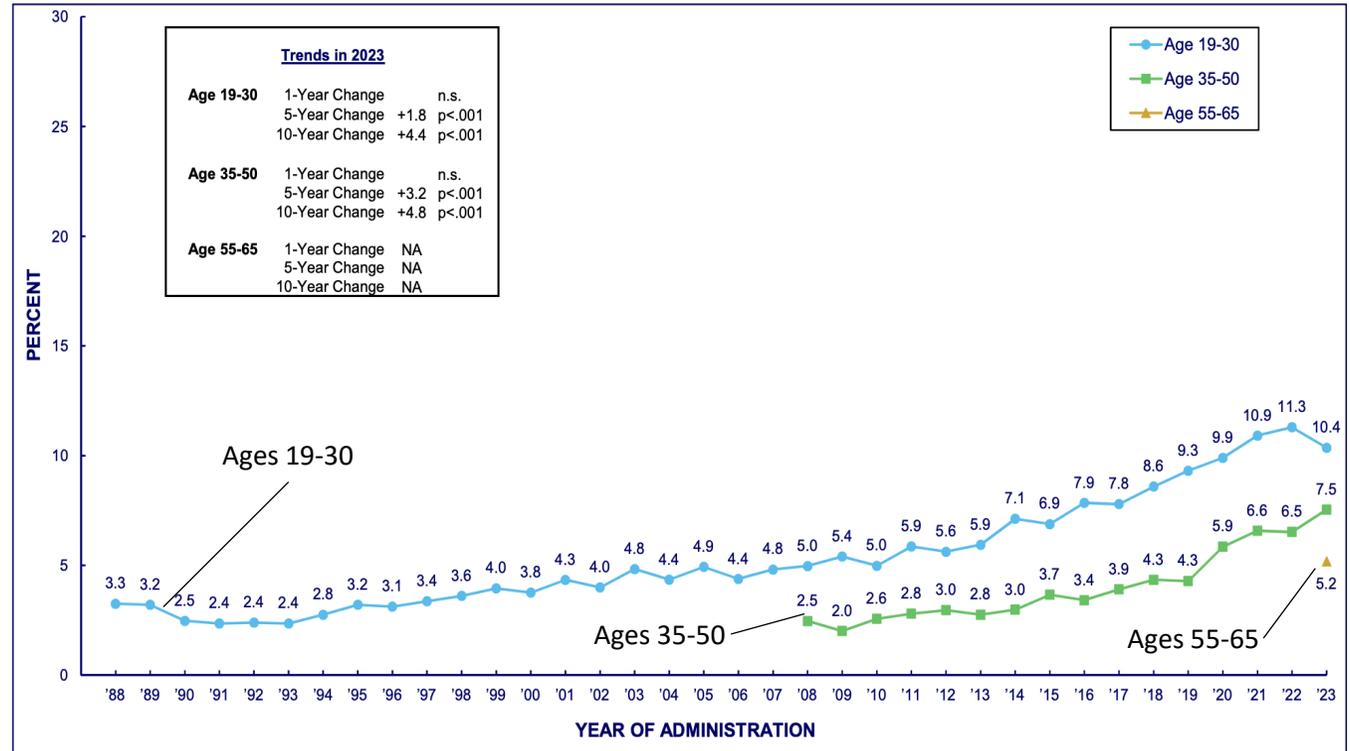
- Rates highest in kids living in communities newly allowing delivery-only and newly permissive of storefronts. Were also higher there before.
- Other studies are seeing a rise in CA teens, any use through 2020 and fall with pandemic.
- Rates were declining slowly before legalization.



Young Adults: Nationally Quadrupling of daily use in 19-30 year olds and tripling ages 35-50.

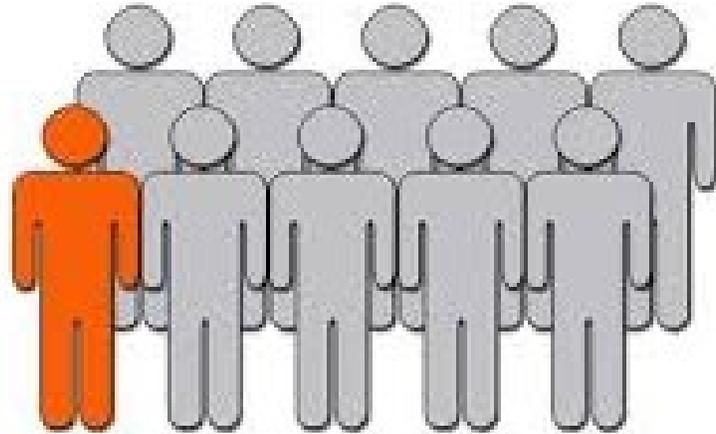
TABLE/FIGURE 7
CANNABIS

Trends in 30-Day Prevalence of Daily Use among Respondents of Modal Ages 19 through 65, by Age Group



(Age-specific data provided in the following table.)

Nationally, that's one in ten young adults using daily.



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Source: Monitoring the Future, 2024



Declining perceptions of harm after legalization – perspectives from clinicians caring for teens

*"I'm like, 'Well, how do you, how do you know it's safe?'
'Well, I get it from the cannabis store...'*

*Somebody gets it and they pay them so they're like, 'It's safe
because it's coming from the store!'"
(Addiction specialist comment)*

Increasing daily use after legalization – perspectives from clinicians caring for teens

“I do think we have seen an increase in the numbers of kids that are just smoking pretty much all day long....[pre-legalization] we didn't have as many of those kids in the past that really, truly have become addicted to marijuana.”

(Addiction specialist)



What are the adverse effects of cannabis on health?



Many. Like tobacco, cannabis has been associated with adverse effects on many conditions and organ systems.



Addiction – starting young and potency are drivers

- Cannabis is addictive.
- Cannabis use disorder develops in roughly:
 - 20-25% of people who use.
 - 45% of those who started using before age 16.
- This transition rate from use to addiction has doubled from two decades ago.
- Higher potency flower and industrialized concentrates (vapes, wax, shatter, etc.) is likely a key driver.
- Far more people use cannabis every day today than alcohol.

Sources: Feingold D, et al, Drug and Alcohol Rev, 2020;
Hall W, Pacula R, Cambridge U Press 2002

Cannabis Use Disorder - what does it mean?



Education: Frequency of Cannabis Use Before Age 17 and Adverse Outcomes at 30 years (n=2500-3700).

- Youth are less than half as likely to graduate high school or college with daily use.

Mental health - Psychosis

- Cannabis use is associated with increased risk of psychosis and schizophrenia - diseases which typically start in late adolescence or early adulthood.
- Psychosis increases threefold with daily cannabis use.
- Higher potency increases risk: Psychosis increases fivefold with daily use above 10 percent THC.
- Cannabis induced psychosis ranges from transient to permanent.
- Probably interacts with genetic predisposition – but most people don't know if they have it.

Sources: Di Forti M, et al, Lancet Psychiatry 2019;
Silver LD et al, Subst use and Misuse, 2025

Cannabis psychosis post legalization in teens – clinician perspective

“Well, I would say prior to 2018, we saw a number of kids who would smoke weed and get psychotic, but they were predisposed. I would actually say it’s probably about twice as common [post legalization]. I think the higher dosage on these brains that are predisposed and more vulnerable. I don’t know how to say this exactly, but kids who smoked a joint daily or a couple times daily, they could lose motivation and look depressed and all those kinds of things. Kids who vape or use cartridges or edibles daily they get psychotic. I’d say I have three or four kids...the last five months who actually were psychotic. I was trying to talk to them and they were, yeah, they were psychotic. Drug-induced psychosis and that we didn’t use to see so much.”

Source: Young-Wolff et al Addictive Behaviors 2024



Mental health: depression and anxiety

- Data on cannabis use and depression, bipolar disorder, and anxiety is less extensive than for psychosis, but a growing number of large studies confirm risk.
- Symptoms can be acute (like anxiety with use) or longer term.
- Use is associated with increased suicidal ideation, attempts, especially with frequent use.
- Cannabis use disorder associated with tripling of risk of suicidal ideation, greater in women.

Sources: HAN, B et al JAMA Netw Open 2020; Hjorthoj et al JAMA Psychiatry 2023

Mental health: depression and anxiety, clinician perspectives

"It's a whole different world now. Now, this is played out – I mean, five years now, and it's going to get worse. Anxiety's up, depression's, ADHD's up, bipolar's up. About five-eight times a week, I say the same line cause....They have this mental health issue; they go smoke weed; and weed helps in the beginning. There's no doubt about it. They smoke cannabis, weed and it helps in the beginning, but two months, six months, eight months later, the mental health issue comes back doubly as hard, and now they have a substance abuse problem that they are addicted to."

Source: Young-Wolff et al Addictive Behaviors 2024



Mental health – age at first use

- Starting young (generally <15 or 16) is associated with poorer cognitive performance and alterations in brain structure and function in recreational users.
- Starting recreational use young is related to higher prevalence of psychosis, anxiety, and depression.
- Mental health effects appear to vary over the lifespan and product type and use patterns are important, but much remains to be learned.

Source: Sagar SA and Gruber SA CNS Drugs, 2025





Prenatal Use

Increases harms to baby and mother in Northern California 2011-2020 n=364,924 (Avalos, 2023 – our research)

Low birth weight +20%

Small for gestational age +24%

Preterm birth +6%

NICU Admission +6 %

High blood pressure in pregnancy +17%

Preeclampsia +8%

Sources: Young Wolff et al JAMA Int Med 2024;
Avalos et al Amer J of Obstet Gynecol 2024)

**Prenatal use has more
than doubled.**



**Harms to exposed infants
may be long-lasting.**



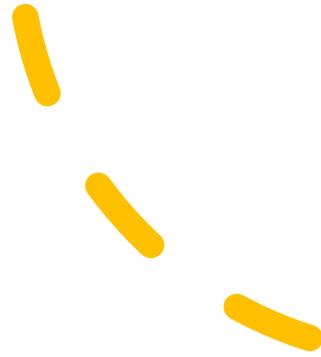
National ABCD study: Babies exposed during pregnancy show higher rates of psychopathology at age 9, 10, 11.

- 11,489 children mean age 9.9, now followed till 11.
- 655 (5.7%) were exposed to cannabis prenatally.
- Cannabis exposure, associated with greater psychopathology in the child.
 - Psychotic like episodes
 - Sluggish cognitive tempo
 - Rule breaking
 - Aggressive behavior
 - Social problems
 - Obsessive compulsive problems
 - ADHD
 - Low birth weight
- Not all studies agree.



Source: Paul, JAMA Psychiatry. 2021, Baranger 2022

Heart Disease



Cannabis use by adults associated with:

- Doubling of cardiovascular death risk.
- +29% for heart attacks.
- +20% for stroke.
- Some unexpected events in younger adults.
- Cardiovascular disease is the leading cause of death in the US and globally.

Sources: Storck W et al, Heart, 2025; Glantz S & Silver LD, Heart 2025

Car crashes

- Co-use with alcohol further increases risk.
- Substantial evidence of increased motor vehicle crashes.
- Impairment outlast intoxication and can occur with medical use as well.
- Tools for law enforcement ascertainment of impairment still imperfect and mostly based on field assessment.
- Can interact with psychosis and paranoia.

Sources: National Academies of Science, 2017



Cannabis hyperemesis syndrome

- Severe cyclical vomiting associated with heavy cannabis use usually >1 year.
- More in males and those who start <16 years.
- Often confused with other gastrointestinal illnesses.
- Frequent cause of emergency room visits.
- Estimated to affect 2.75 million people in the US.
- CHS ER visits doubled between 2017 to 2021.
- Strange fact: Alleviated by hot showers.



2.75 Million
Americans are
estimated to suffer
from Cannabinoid
Hyperemesis Syndrome
(CHS) each year

Angulo M. Cannabinoid Hyperemesis Syndrome. JAMA. Published
online October 10, 2024. doi:10.1001/jama.2024.9716

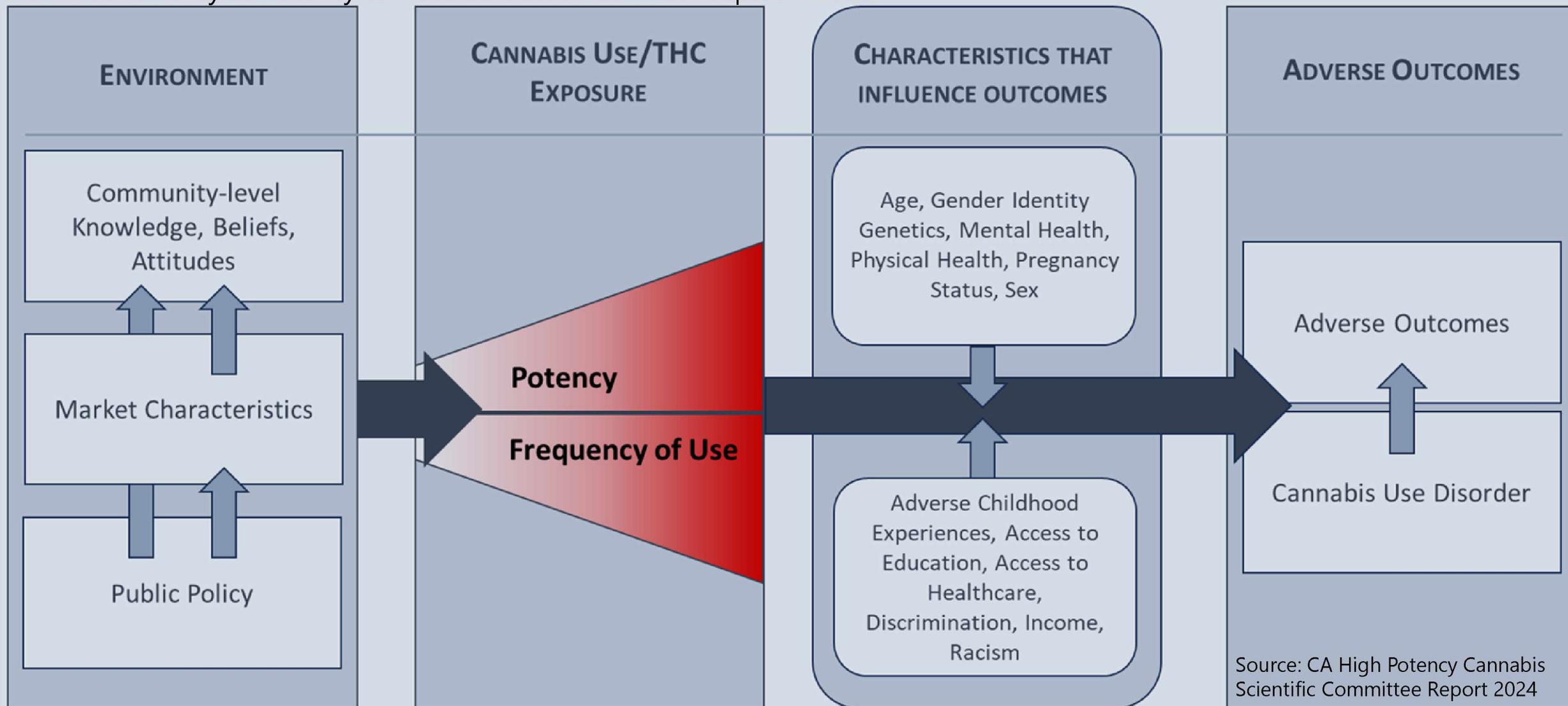
More issues under study

- Chronic lung disease with smoking (substantial evidence).
- Testicular cancer risk.
- Brain development.
- Intelligence quotient (IQ).
- Fertility.

Sources: National Academies of Science, 2017



From Public Policy to Potency to Adverse Outcomes: A Conceptual Model



THC content (potency) and frequency of use are crucial determinants of cannabis's impact on public health. Potency and frequency of use are influenced by **environmental factors**, such as the availability of high-potency products, marketing, and regulatory policies, and community knowledge and attitudes. **Individual characteristics** of people who use cannabis, including age and mental health status and **social determinants of health**, such as access to healthcare, adverse childhood experiences, and racism influence how potency and frequency of use affect adverse outcomes. and can also influence patterns of use. Cannabis use disorder, itself an adverse outcome, promotes a cycle of heavy use despite

What are strategies to reduce adverse health effects on youth?



What are strategies to reduce adverse health effects on youth?

Group #1 - Change the drivers: policy, systems, and environmental change

Group #2 – Support for the individual youth or family

- Treatment
- Prevention

Please note that EYC does not fund SUD treatment, therapy, or counseling services.



Change the drivers

Address social determinants of health that drive substance use:

- Poverty.
- Housing.
- Education.
- Violence.
- Racism.



Change the drivers

Address commercial determinants of health that drive cannabis use:

- Footprint of and rules for cannabis retailing.
 - Marketing.
 - Product types (especially potency/flavors).
 - Price.
 - Taxation.
 - Smokefree air.
 - Accurate Information.
- 

Change the drivers

Support the individual:

- Mentoring adults.
- Supportive community environment.
- Peer programs/support.
- Building life skills and engagement.
- Educating about substance use.



Change the drivers

Support the individual – health care:

- Assure access to healthcare.
- Universal screening for cannabis use.
- Brief interventions.
- Referral for more complex treatment where needed.
- Need to address mental health care and substance use care barriers.



Tools and Resources



Principles for Cannabis Policy

PRINCIPLES FOR PROTECTING YOUTH, PUBLIC HEALTH & EQUITY IN CANNABIS REGULATION

The war on drugs has resulted in large scale unjust incarceration and other harmful social impacts. At the same time, legalizing cannabis without robust regulation and promoting the growth of an unfettered for-profit industry threatens our developing youth and public health, and risks further exacerbating social, economic, and health disparities. As a society, we have a collective responsibility to prevent or mitigate such harms. Where legalization is occurring, we can better accomplish this by putting in place strong guardrails and policies that protect youth, promote public health, and advance social equity. These should include:

PROTECT CHILDREN & YOUTH



- Eliminate the Cannabis Kids Menu. Prohibit any products, packaging or marketing that is attractive to children or youth, such as cannabis-infused beverages, flavored products intended for inhalation, flavored wrappers, and products that resemble candy.
- Limit the number of retail outlets to fewer than 1 per 15,000 people.
- Require buffer zones between retail outlets and schools (including colleges), public libraries, other youth serving facilities and residential areas.

PROMOTE EQUITY & MITIGATE HARMS FROM THE WAR ON DRUGS



- Decriminalize cannabis possession, reduce cannabis-related incarceration and automatically expunge past criminal convictions for non-violent cannabis-related crimes (e.g. CA, IL).
- Capture most or all tax revenue for substance abuse prevention and treatment, mitigating negative social impacts of the war on drugs, and public education campaigns.
- Prioritize equity in licensing applicants and hiring requirements (e.g. residents of communities impacted by high drug incarceration rates, people with past cannabis convictions).

AVERT THE EMERGENCE OF A NEW TOBACCO-LIKE INDUSTRY



- Favor public or nonprofit monopoly models to allow legal access without creating a profit-driven market (Quebec cannabis model or state alcohol monopoly models).
- Preserve local control so communities can innovate and learn.
- Prohibit conflicts of interest in regulatory bodies, advisory commissions, and for regulators and prescribers.

PROTECT PUBLIC HEALTH



- Assure that not driving increased consumption is a system goal.
- Place public health authorities in leadership roles.
- Require prominent health warnings in stores and provide safer use information to consumers.
- Inform vulnerable groups of the risks of use, such as low birth weight when used during pregnancy, psychosis and schizophrenia and other mental health effects, traffic incidents and immigration risks.
- Extend smoke-free air restrictions to consistently prohibit smoking and vaping cannabis indoors in workplaces, multi-unit housing and in public outdoors spaces.

LIMIT DANGEROUS PRODUCT DIVERSIFICATION & MARKETING



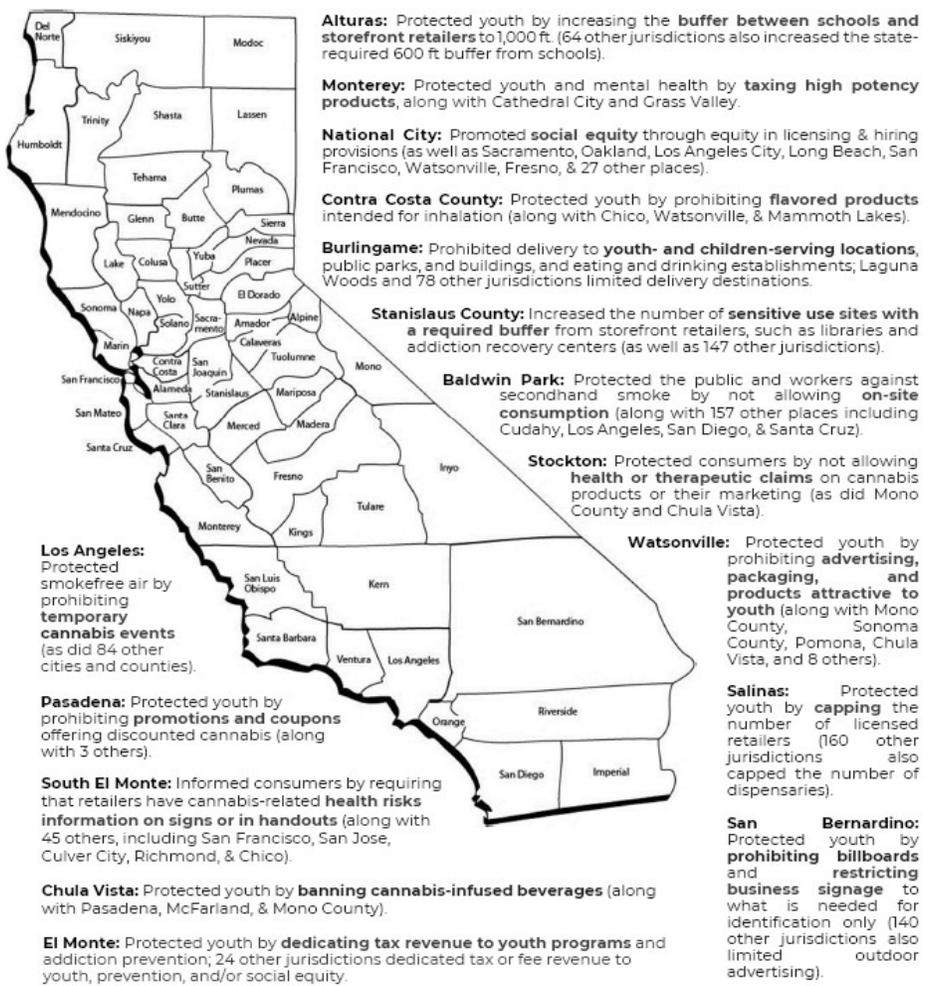
- Limit THC content, require stocking of lower THC products, and standardized 5 mg THC doses of concentrates.
- Prohibit the use of flavor additives and limit marketing of flavor names known to attract kids.
- Limit aggressive cannabis marketing, especially when visible to youth and children.
- Require warning labels on any advertising, prominent pictorial warnings on packages, and use of plain packaging of products.
- Prohibit therapeutic or health claims for cannabis products.
- Use a specialized business model for retailers (no food or other product sales).
- Prohibit sale of intoxicating hemp products.

Download complete model ordinances for retailing, marketing and taxation at www.gettingitrightfromthestart.org.

For more information, email gettingitright@phi.org.

Examples of what your neighbors are doing to protect youth, public health, and social equity.

Best Practices in Action Map



Model Retailing, Marketing and Taxation Laws



**Model Ordinance Regulating Local Cannabis
Retail Sale & Marketing in California.
February, 2021
2nd Edition.**



Toolkit for Youth Program Engagement



BEYOND THE HAZE: YOUTH-LED CANNABIS PREVENTION TOOLKIT FOR FRIDAY NIGHT LIVE CHAPTERS



SAMHSA Guide: Preventing Marijuana Use Among Youth

EVIDENCE-BASED RESOURCE GUIDE SERIES

Preventing Marijuana Use Among Youth



Technical Assistance

- Focused on policy, systems, and environmental design issues, not individual support.
- Monthly office hours.
- Hands-on coaching.



In short

- Cannabis does have some legitimate medical uses, and we are still learning, but use is widespread and mostly recreational.
- Self-medication using cannabis for conditions for which it is not safe/effective for is common.
- Adverse effects are widespread and some can be very serious or even fatal (psychosis, accidents, suicide).
- Cannabis is addictive.
- Potency, age of starting use, and frequency of use interact to create greater risk .
- We need to both change the context and support the individual to reduce harms from cannabis.





Questions?
What are you seeing?





Thank You!



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