



Marijuana: Hidden Risks, Trends and Harm Reduction Strategies

Objectives

- ❑ Introduction to the poison control center
- ❑ Overview of cannabinoids
- ❑ Description of available THC products
- ❑ THC edibles toxicity
- ❑ THC edibles epidemiology
- ❑ Harm reduction strategies

Ohio Poison Control Centers

- ❑ 24/7 poison control helpline supporting Ohioans
 - ❑ Drug and Poison Information Center
 - ❑ Central Ohio Poison Center
- ❑ Committed to reducing the incidence and severity of poisoning injury through early intervention, education, advocacy, and research
- ❑ Respond to poisoning exposures
 - ❑ Public
 - ❑ Healthcare Providers
- ❑ Drug information and other toxicology related questions

Pre-presentation survey!



But first some definitions....

- Cannabis
- Cannabinoid
- Cannabidiol
- Cannabinol
- Tetrahydrocannabinol
- Endocannabinoid

CANNABIS STRAINS

SATIVA



HIGH THC LEVEL

INDICA

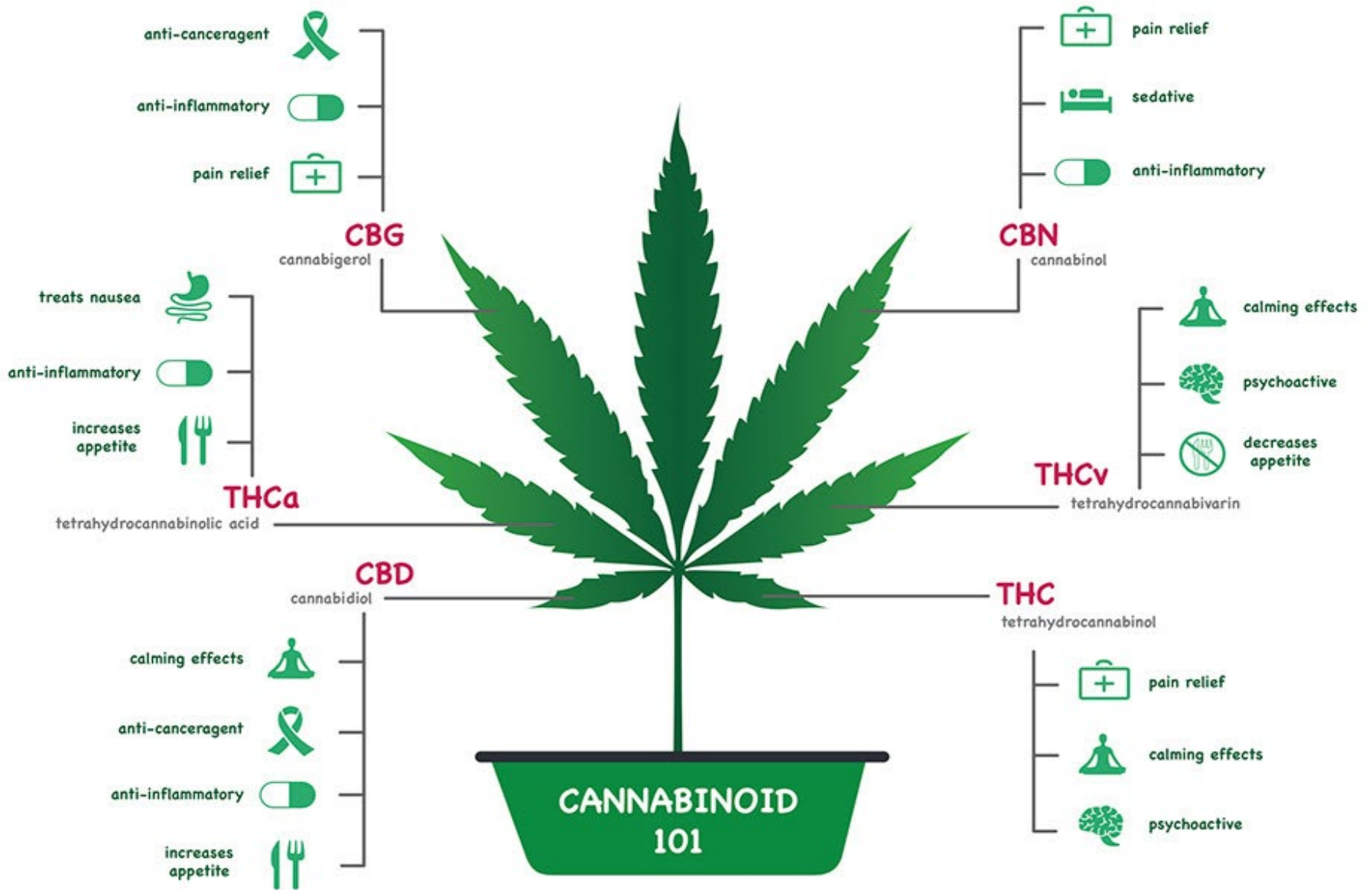


HIGH CBD LEVEL

RUDERALIS

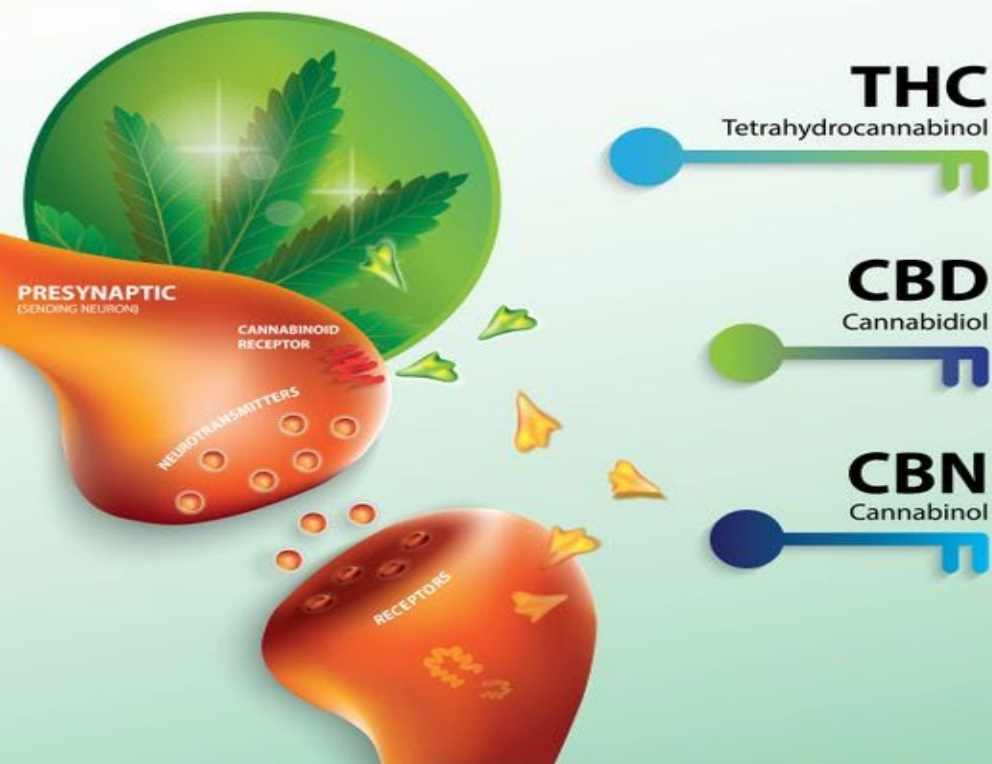


Low THC and CBD



The Human Endocannabinoid System

CBD, CBN and THC fit like a lock and key into existing human receptors. These receptors are part of the endocannabinoid system which impact physiological processes affecting pain modulation, memory, and appetite plus anti-inflammatory effects and other immune system responses. The endocannabinoid system comprises two types of receptors, CB1 and CB2, which serve distinct functions in human health and well-being.



CB1 receptors are primarily found in the brain and central nervous system, and to a lesser extent in other tissues.

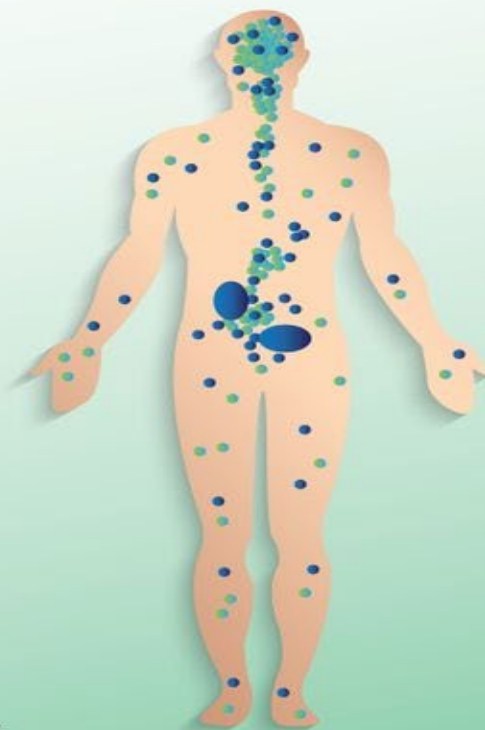


CBD does not directly "fit" CB1 or CB2 receptors but has powerful indirect effects still being studied.



CB2 receptors are mostly in the peripheral organs especially cells associated with the immune system.

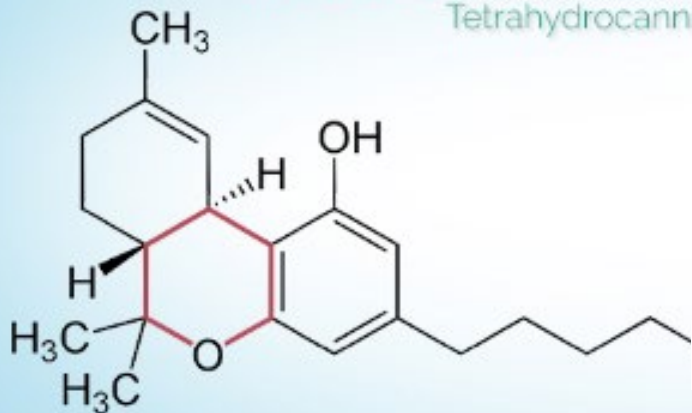
Receptors are found on cell surfaces



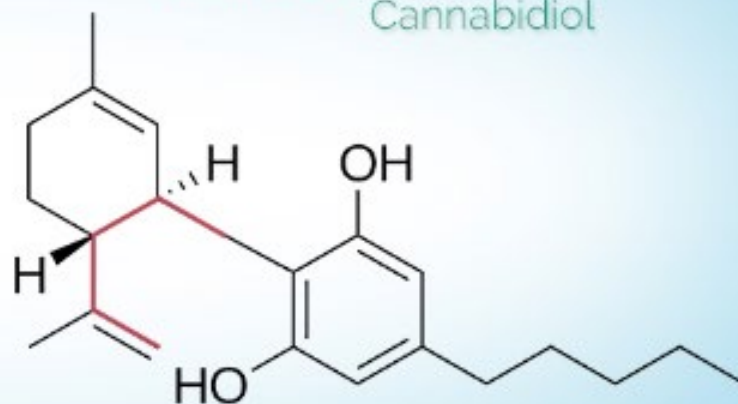
THC vs CBD



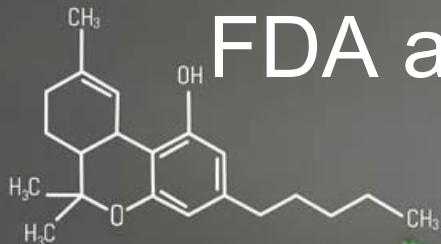
THC 
Tetrahydrocannabinol



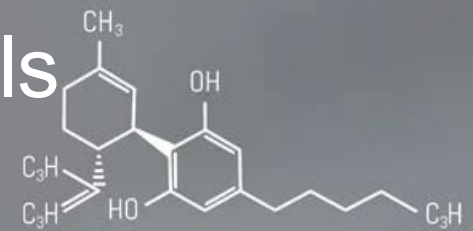
CBD 
Cannabidiol



FDA approved pharmaceuticals



THC

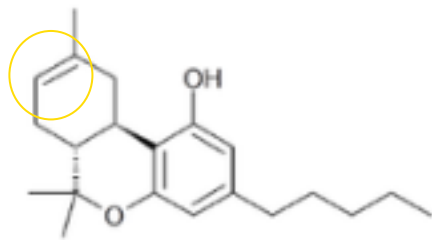


CBD

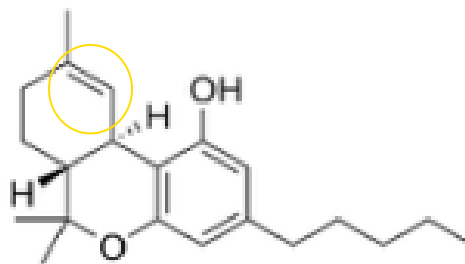
- Dronabinol (Marinol®) 1985
- Anorexia & chemotherapy-induced nausea and vomiting
- Directly binds CB1 and CB2 receptors in Endocannabinoid system

- Cannabidiol (Epidiolex®) 2018
- Lennox Gastaut, Davet and Tuberos sclerosis syndrome
- Indirectly interacts with Endocannabinoid system

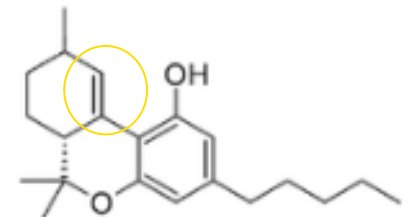
Δ8 vs Δ9 vs Δ10



Delta 8 THC



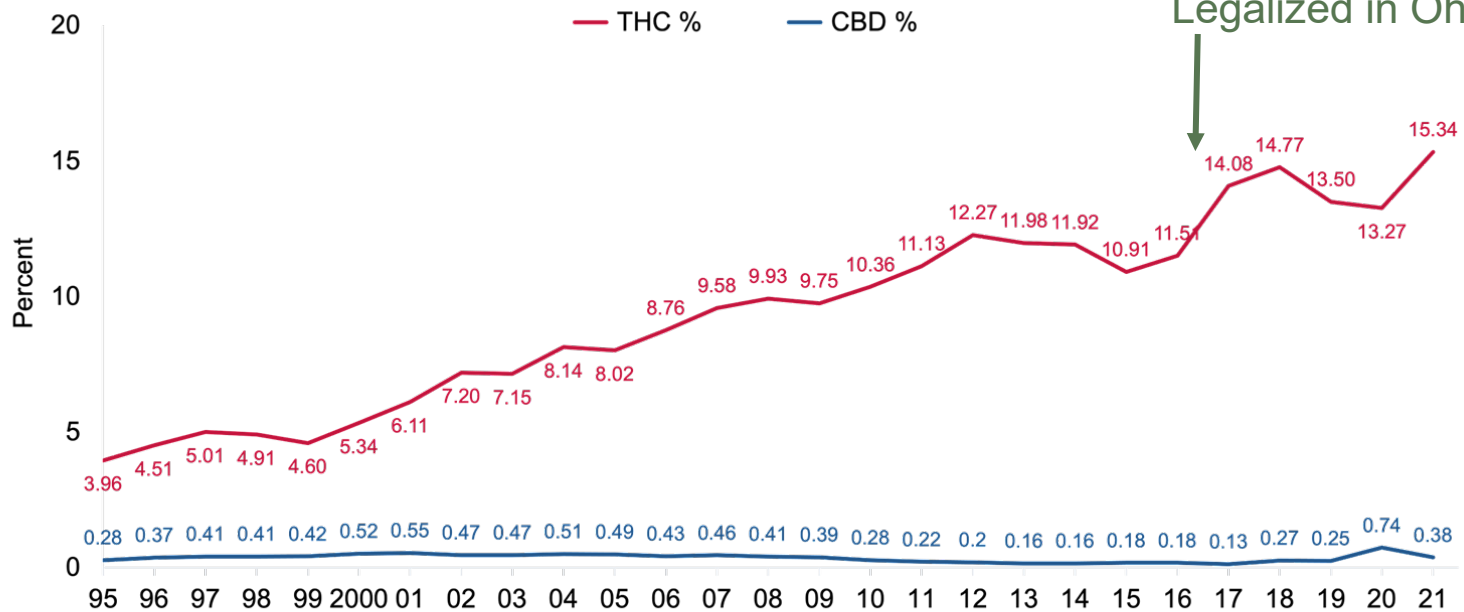
Delta 9 THC



Delta 10 THC

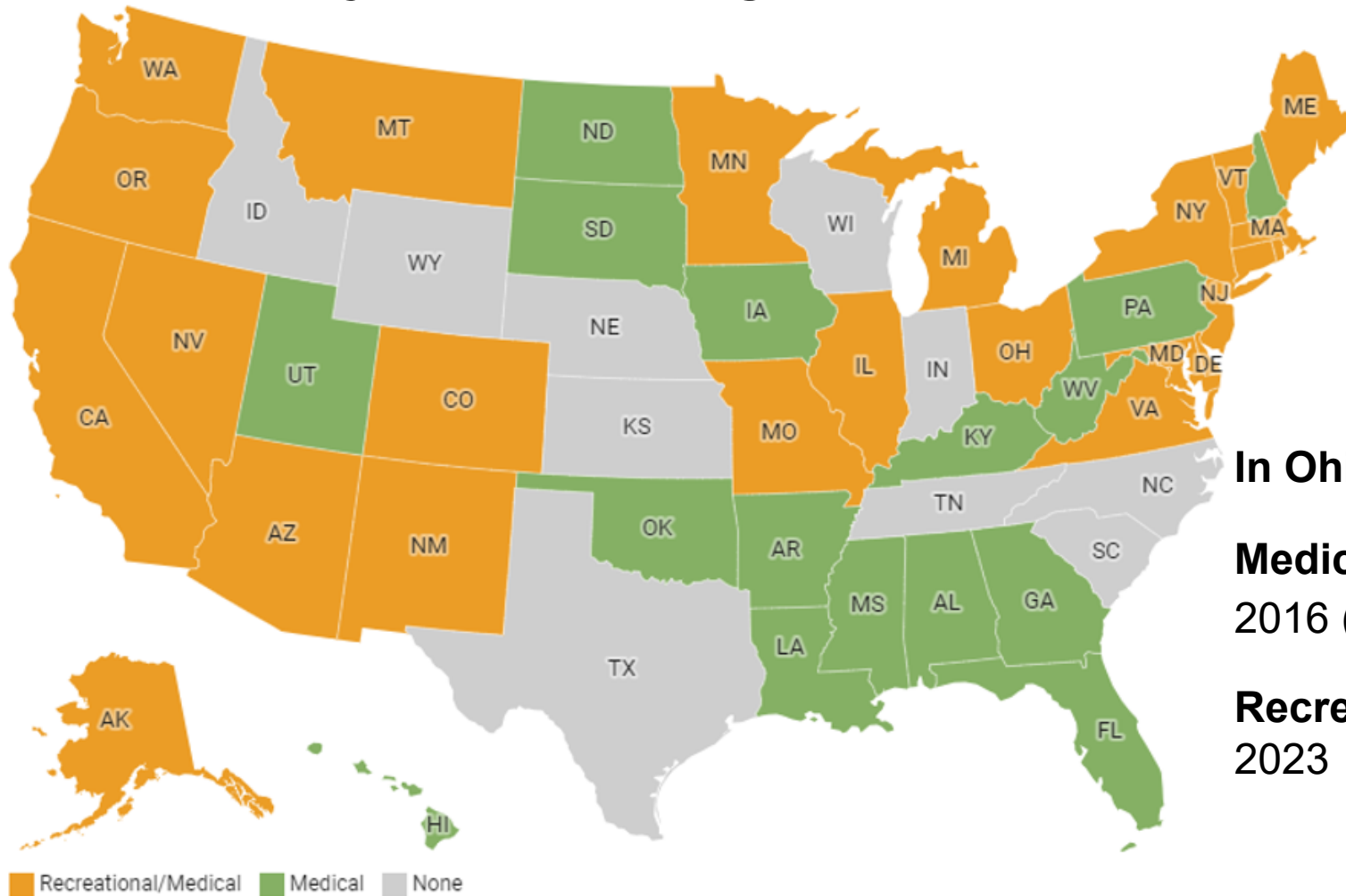
Today's THC (non-edible) potency 287% ↑

Percentage of THC and CBD in Cannabis Samples Seized by the DEA, 1995-2021



Marijuana Legalization

Marijuana is Legal in 40 States



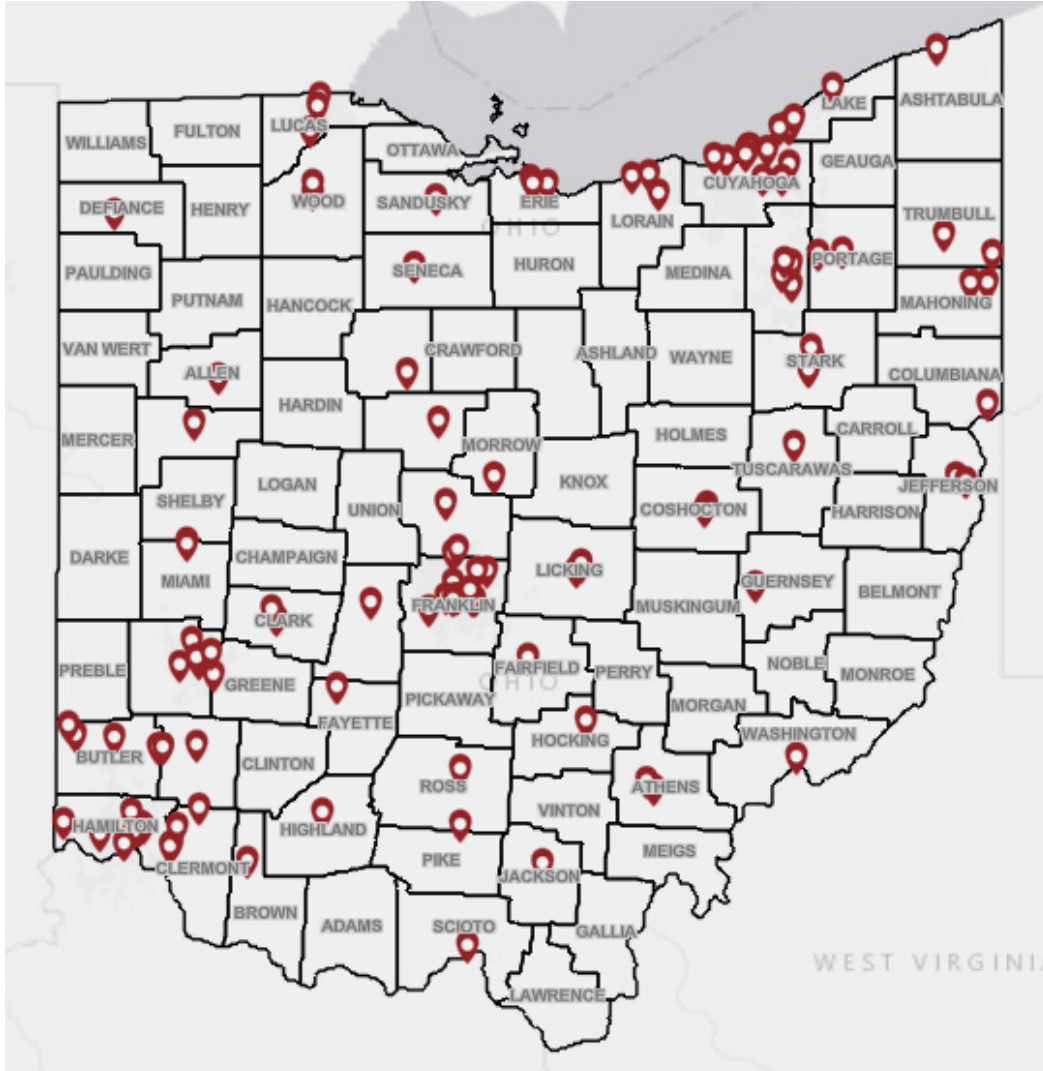
In Ohio...

Medical:
2016 (2019)

Recreational:
2023

<https://mjbizdaily.com/map-of-us-marijuana-legalization-by-state/>

Ohio Medical Marijuana Dispensaries



>83 Medical MJ
Dispensaries in
Ohio as of
Jan 2024

<https://com.ohio.gov/divisions-and-programs/cannabis-control/about-dcc/licenses/what-we-do/medical-marijuana-dispensary-map>

(Ohio Department of Commerce, 2024)

THC Edibles

Introducing THC Edibles

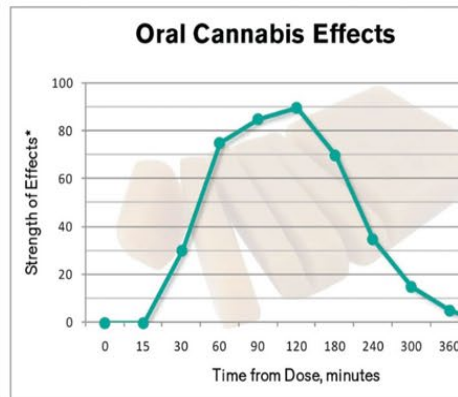
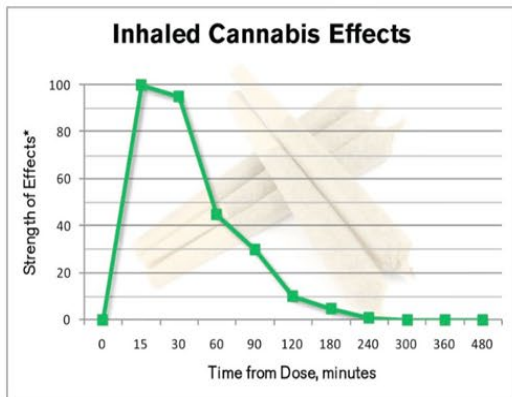
(Note: Info is specifically related to THC, Not CBD)

- ❑ Common forms: Gummies, chocolates, baked goods, and beverages
- ❑ Often resemble regular food items, making them appealing and may be easily accessible



Introducing THC Edibles

- ❑ THC edibles are metabolized differently in the body compared to smoking
- ❑ Onset of effects are delayed with ingestion vs smoking
- ❑ May lead to unintentional overconsumption and stronger effects



*Strength of effects is rated subjectively based on research review (see below), 100 = peak strength of inhaled cannabis effects

Inhalation

Smoking, Vaporizing

- Fast Onset
- Strong Effects Peak
- Rapid Decline in Effects Strength
- Short Duration of Experience

Oral Consumption

Edibles, Beverages

- Delayed Onset
- Drawn-out Effects Peak
- Gradual Decline in Effects Strength
- Long Duration of Experience

Sources:

Spindle T. et al. Acute Effects of Smoked and Vaporized Cannabis in Healthy Adults Who Infrequently Use Cannabis. *JAMA Network Open*. 2018;1(7):e184841. doi:10.1001/jamanetworkopen.2018.4841

Vandrey R. et al. Pharmacokinetic Profile of Oral Cannabis in Humans. *Journal of Analytical Toxicology*, 2017;41:83-99 doi: 10.1093/jat/bkx012

Lee D. et al. Can oral fluid cannabinoid testing monitor medication compliance and/or cannabis smoking during oral THC and oromucosal Sativex administration? *Drug Alcohol Depend*. 2013 June 1; 130(0): 68-76. doi:10.1016/j.drugalcdep.2012.10.011.

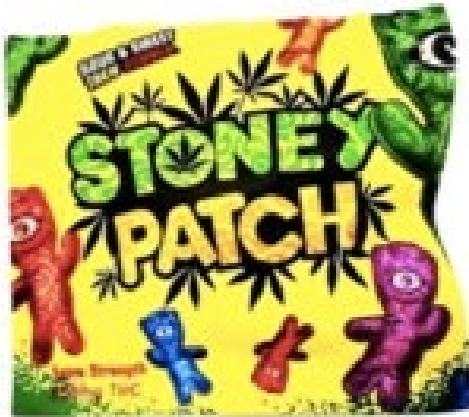
No Limit, No Oversight, Readily Available

- Up to 90% strength THC concentrates (highly potent)
- Look-alikes
- Multi-dose packages

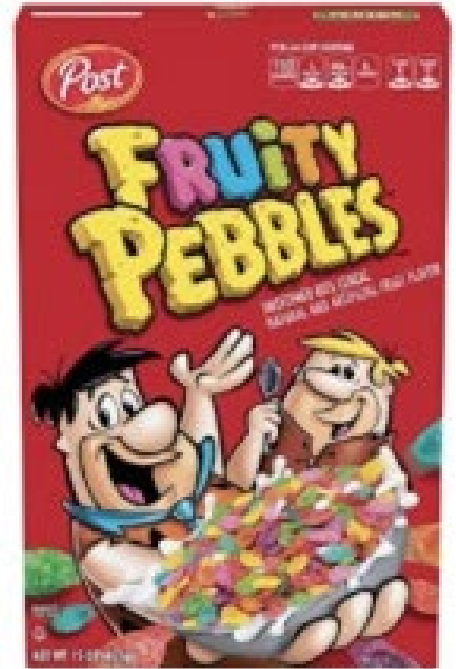


Spotting the difference

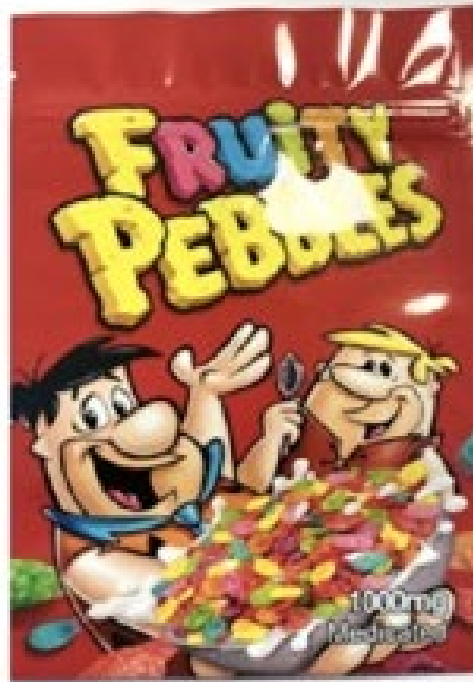
A



D



C



B



Spotting the difference

A



B



C



D



Spotting the difference

A



C



D



B



RECOGNIZING THC PRODUCTS



*Ohio requires universal Board of Pharmacy symbol

Spotting the difference



Added Risk....How can you tell outside of the packaging?



Pediatric THC edibles toxicity

Impact of Legislative Changes on edibles

↑ Access = ↑ Exposures



THC vs CBD edible

Criteria for evaluation in a health care facility

THC edible

- Acute ingestions greater than or equal to 10mg in children less than 7 years old
- Acute symptomatic ingestions in children less than 7 years old
- All intentional self-harm ingestions
- Adults with minimal to moderate symptoms can be managed at home
- Individual patient factors such as, but not limited to, co-ingestions and co-morbidities may affect criteria for evaluation

CBD edible (pure CBD with <0.3% THC)

- Can be managed at home if asymptomatic
- All intentional ingestions
- Individual patient factors such as, but not limited to, co-ingestions and co-morbidities may affect criteria for evaluation



Case Report

S: Mom is calling because 2-year-old got a hold of Delta 8 THC gummies with 40 mg THC gummy 2 hours ago. He called it candy and ate ~ 10-40 of them. He vomited once right after and is now getting very sleepy and stumbling around. Mom is wondering what she should do?



Ohio Poison Center THC Edible Exposures 2015-2023

- ❑ 82% of children 0-5 years with THC exposures required care in a healthcare facility
 - ❑ 60% **admitted** to the hospital
 - ❑ 16% of those were admitted to a **critical care unit**
- ❑ 93% of children 13-19 years with THC exposures required care in a healthcare facility
 - ❑ 46% were **admitted** to the hospital
 - ❑ 11% of those were admitted to a **critical care unit**

Pediatric Edible Cannabis Exposures and Acute Toxicity: 2017–2021

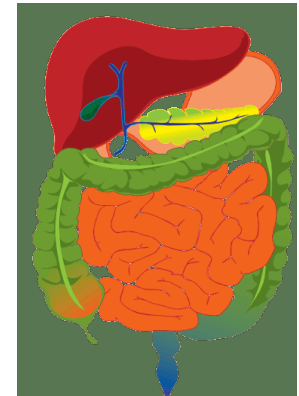
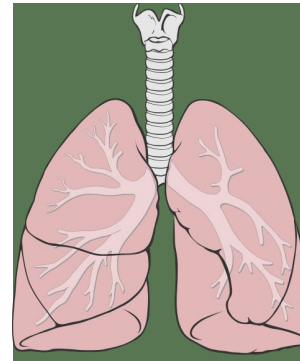
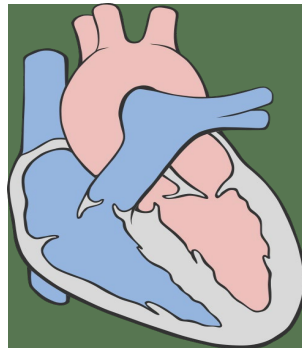
Marit S. Tweet, MD,^{a,b} Antonia Nemanich, MD,^{b,c} Michael Wahl, MD^{b,d}

abstract

OBJECTIVES: This study evaluates trends in pediatric cannabis edible ingestions in children younger than age 6 years with regard to toxicity, medical outcome, and health care utilization for the years 2017–2021.

METHODS: We performed retrospective analysis of the National Poison Data System data for pediatric exposures to edible cannabis products in children <6 years from 2017 to 2021. Data were analyzed quantitatively with a focus on incidence, common clinical effects, medical outcomes, health care utilization, and changes in acute toxicity between the pre-COVID years (2017–2019) to the COVID years (2020–2021).

RESULTS: There were 7043 exposures reported during 2017–2021. In 2017, there were 207 reported cases, and in 2021 there were 3054 cases, an increase of 1375.0%. Most exposures



Trends

Trends: THC (all forms)

Reports to **US Poison Control Centers** of intentional use and misuse ingestions of marijuana in school-aged children and adolescents (6-18 years) have increased by 245% from 2000-2020, surpassing alcohol exposures to become the most common intentionally ingested substance for this age group.

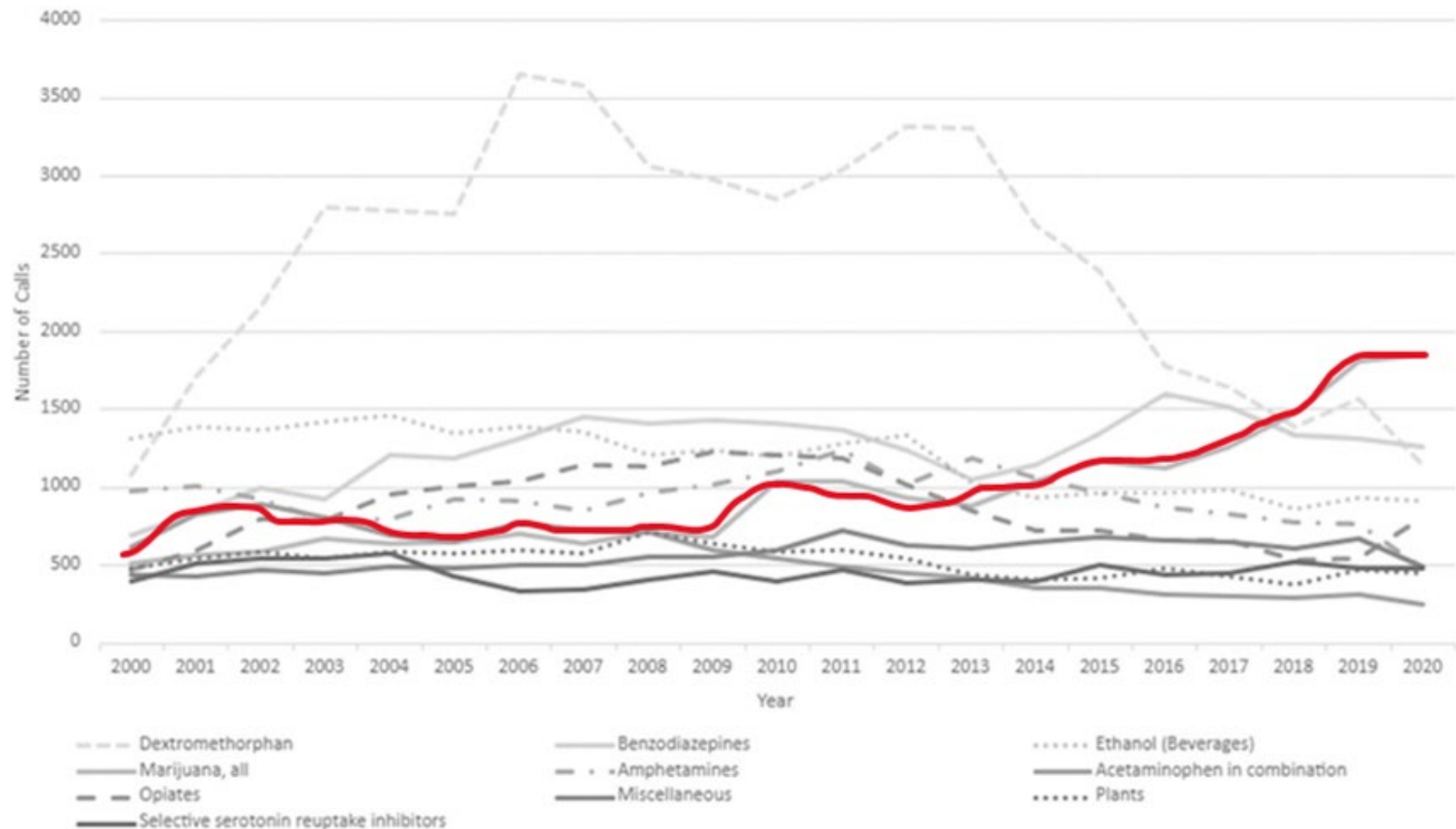


Figure 2. Top 10 substances ingested in misuse/abuse ingestions 2000-2020, by year.

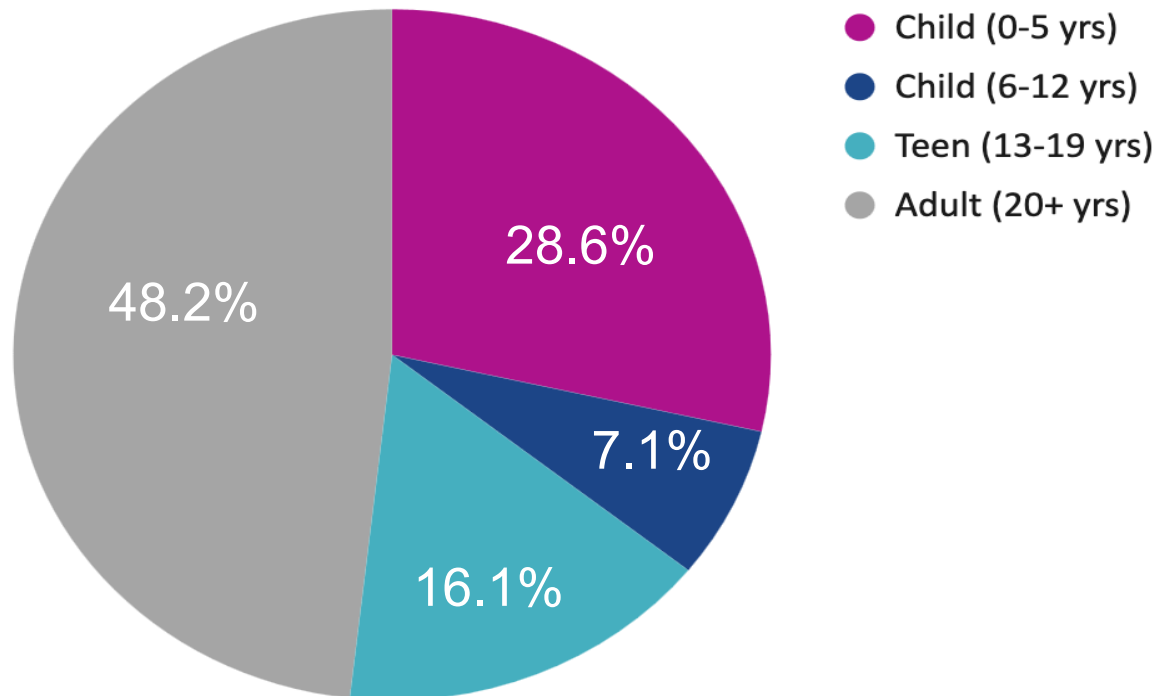
(Hughes, et al., 2022)

Trends: THC Edibles

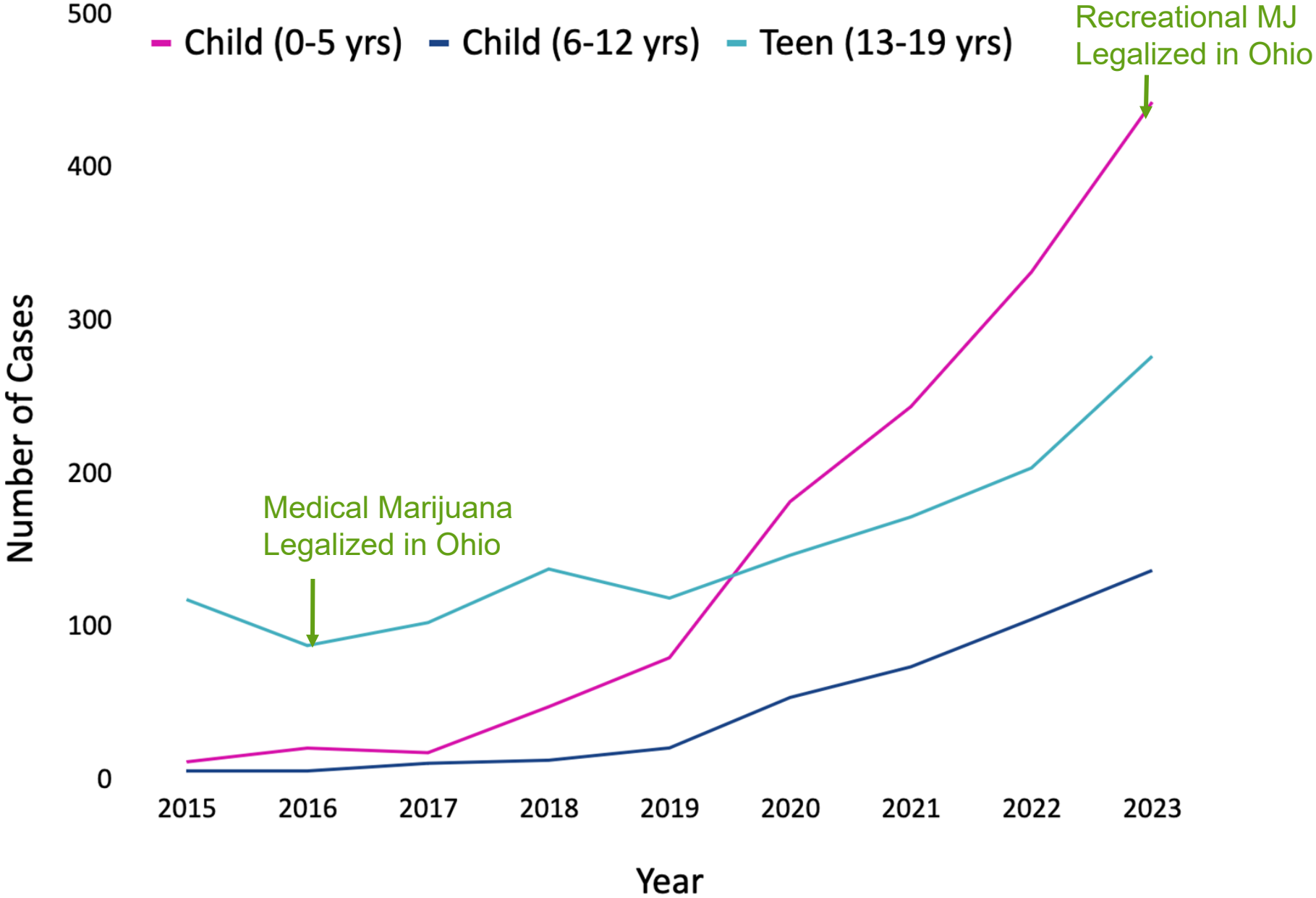


- In **Ohio** between 2015-2023, **edible THC** exposures in teens and children accounted for over half of all reported THC exposures in the population.

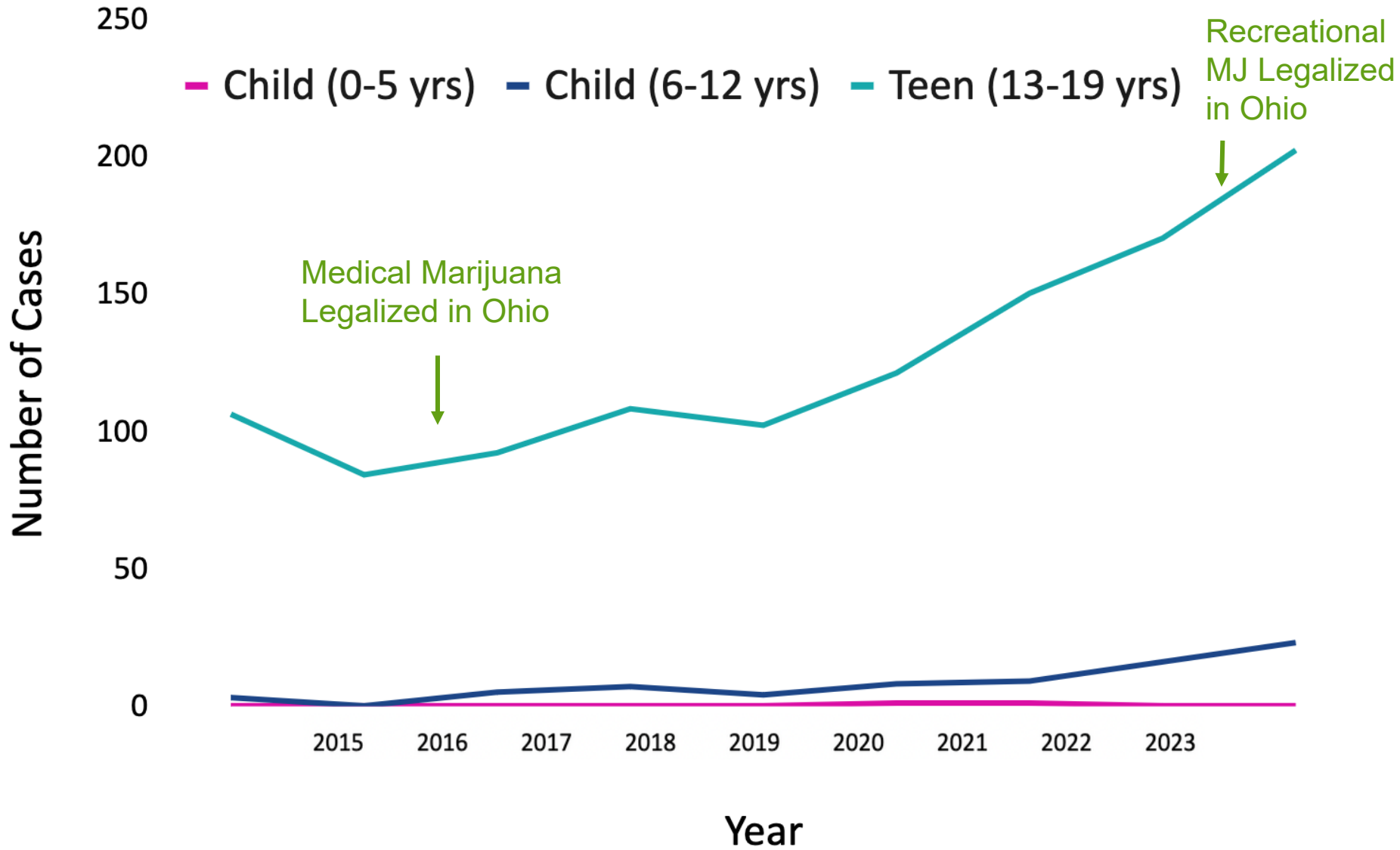
Total Edible Marijuana Exposures reported to Ohio Poison Centers by Age Group



Accidental THC Edible Exposures in Ohio (2015-2023)



Intentional THC Edible Exposures in Ohio (2015-2023)



Prevention and Harm Reduction Strategies

Vulnerable Populations

Need for increased awareness of risk for these populations...

Children and adolescents

- THC affects the developing brain
 - Impairs how our brains build connections between areas needed for thinking, memory and learning
 - Long term effects still unknown

Women who are pregnant or breastfeeding

- Increases risk of pregnancy complications and affects an unborn baby's developing brain

People with certain psychiatric conditions

- Any type of psychosis or those with family history of schizophrenia
- THC use can worsen these conditions

Anyone operating a motor vehicle

- “If you feel different, you drive different”
- Legal Implications



Need to Know Terms

- ❑ **Potency:** The concentration or strength of THC in a cannabis product, typically expressed as a percentage. Ex. If the product has 20% potency, then 20% of the product weight is THC
- ❑ **Dose:** the amount of THC consumed at a given time. Typically measured in milligrams (mg) of THC. Varies based on method of use and potency.
- ❑ **Serving Size:** Amount of a cannabis product consumed in a single serving. One cookie vs 1/8 of a cookie. Varies widely and source of confusion for users.

THC Edibles

- ❑ The amount of THC in edibles can vary across a single product and across batches formulated at different times, making it difficult for users to estimate how much THC they consume.
- ❑ Users are often unaware of the serving size for one dose of THC



The screenshot shows a web browser displaying a HuffPost article. At the top, the HuffPost logo is visible on the left, and 'Log In' and 'Support Us' links are on the right. Below the navigation bar is a green header with the text 'Track Sales For A Living — Here's What's Truly Worth Buying From Amazon's Spring Sale'. The main content area features the article title 'Colorado Unsure How To Explain You Shouldn't Eat The Entire Weed Chocolate Bar' in large, bold black font. Above the title are the categories 'BUSINESS BUSINESS COLORADO WEED COLORADO MARIJUANA'. Below the title is the subtitle 'This Little Ball of Chocolate Will Get You Seriously High' and the author 'By Hunter Stuart'. At the bottom of the article preview, the date 'Jun 5, 2014, 02:27 PM EDT | Updated Dec 6, 2017' is displayed.

Tolerance

Very Low

Low

Medium

High

Very High

THC per dose

1-2.5 mg

2.5-15 mg

15-30 mg

30-50 mg

50-100 mg

What to expect

Mild relief of pain, stress, anxiety, and other symptoms

Improved focus and creativity

Stronger symptom relief

Euphoria

May impair coordination and alter perception

Strong euphoria

Unaccustomed consumers may experience negative effects

May impair coordination and alter perception

Very strong euphoria in unaccustomed consumers

Likely to impair coordination and alter perception

Highly likely to impair coordination and alter perception

Can cause negative side effects such as rapid heart rate, nausea, and pain

Who's it for?

First-time consumers
Microdosers

Patients with persistent problems

Restless sleepers

Social butterflies

Well-seasoned consumers

Medical patients with developed tolerances

Experienced consumers seeking to sustain sleep

Consumers who have poor GI absorption of cannabinoids

People with significant tolerance to THC

For experienced THC individuals only

Patients with cancer, inflammatory disorders, or conditions that necessitate high doses

Please note everybody processes cannabis differently and could have a different edibles experience. Always start low and slow and follow packaging guidance. Visit Leafly.com for more resources



Potency, Dosing and Serving Size



* The intoxicating effects of this product may be delayed by two or more hours.
Learn more at DixieElixirs.com

Ingredients:

Powdered sugar, corn syrup (light corn syrup, high fructose corn syrup), skim milk powder, semisweet chocolate [(chocolate liquor, sugar, cocoa butter), soy lecithin, pure vanilla, vanillin], butter, cocoa (processed with potassium carbonate,) vanilla extract (alcohol, sugar), salt, THC (Tetrahydrocannabinol) CO₂ oil

The standardized serving size for this product is 10 milligrams of active THC. This container includes 10 servings.

Warning: There may be health risks associated with the consumption of this product. This product is unlawful outside the State of Colorado. This product is infused with marijuana. This product was produced without regulatory oversight for health, safety or efficacy. There may be additional health risks associated with the consumption of this product for women who are pregnant, breastfeeding, or planning on becoming pregnant. Do not drive a motor vehicle or operate heavy machinery while using marijuana. This product was tested for molds, mildews, fillth, microbial, herbicides, pesticides, fungicides and harmful chemicals. KEEP OUT OF REACH OF CHILDREN. This package is child

Nutrition Facts

Serving Size: 0,125 oz (4 grams)

Servings Per Container: 10

Amount Per Serving

Calories: 15 Calories from Fat: 0

% Daily Value*

Total Fat 0g 0%

Saturated Fat 0g 0%

Trans Fat 0g

Cholesterol 0mg 0%

Sodium 5mg 0%

Total Carbohydrate 3g 1%

Dietary Fiber 0g 0%

Sugars 2g

Protein 0g

Vitamin A 0% Vitamin C 0%

Calcium 0% Iron 0%

*Percent Daily Values are based on a 2,000 calorie diet.

This item is perishable. Keep refrigerated.
Please recycle.

Prevention and Harm Reduction

1-800-222-1222

What Adults See

What Kids See

Lock Up

think Before touch

ask an Adult

Stop that is Dangerous

Do Not touch

Lock UP ALL MEDICINE

POISON HELP 1-800-222-1222

National Poison Prevention week
Date: March 17-23, 2024

Toddlers & THC

Did you know . . .

- ❑ Early exposure to THC can lead to increased risk of substance use later in life
- ❑ Prenatal exposure to THC may result in low birth weight and developmental issues including fetal brain development and behavior
- ❑ Children exposed to THC in the home may be at higher risk of accidental ingestion and poisoning
- ❑ Long-term effects of THC exposure on toddlers are still not fully understood

PREVENTION & SAFETY:

TODDLERS



Vigilance and proactive measures are key in preventing accidental THC ingestion among young children. Stay informed, communicate effectively, and prioritize safety at all times!



Store Safely

Keep all THC-infused products securely locked away and out of reach of children. Consider using child-resistant packaging and storing products in a high-up or locked cabinet.



Educate Yourself

Take the time to learn about the signs of THC ingestion in young children and familiarize yourself with emergency procedures. Knowing what to do in case of accidental ingestion can save valuable time in an emergency.



Label Awareness

Always read product labels carefully and be mindful of any THC-infused products that may resemble common food items. Teach children from a young age to avoid consuming unfamiliar or unapproved items.



Communication

Maintain open communication with other caregivers, babysitters, and family members about the importance of keeping THC-infused products away from children. Establish clear guidelines for handling and storing such products in shared spaces.



Seek Professional Help

In the event of accidental ingestion or suspicion of THC exposure, seek immediate medical attention. Contact poison control at 800-222-1222, or visit the nearest emergency room for prompt evaluation and treatment.

Teens & THC:

Edible cannabis products are increasingly perceived as less harmful than smoking marijuana among teens.

Did you know . . .

- ❑ Cannabis use can affect brain development, including impairing how the brain builds connections between the areas necessary for thinking, memory and learning
- ❑ Regular cannabis use can impede development of other coping skills and is linked to higher risk for depression and suicide
- ❑ Teens using THC are 4-7x more likely to develop cannabis use disorder than those who did not use under age 18. They are also more likely to develop a substance use disorder later in life
- ❑ Regular cannabis consumption between 14-21 years of age is linked to poorer school performance and a decreased likelihood of completing high school and obtaining a college degree
- ❑ Detrimental long-term effects of use on teens is still not fully known

PREVENTION & SAFETY:

ADOLESCENTS

THC cannabis-infused products like gummies, candies, and cookies can have serious effects on your mind and body if misused.



Know the Risks

Understand that THC edibles can be much stronger than smoking marijuana. The effects can take a long time to kick in, leading you to eat more than you should. This can result in intense highs, anxiety, paranoia, and even hallucinations or complications of medical conditions. Using THC can also affect your brain development.



Educate Yourself

Take the time to learn about the potential dangers of THC edibles. Talk to trusted adults, read and ask questions if you're unsure about something. Knowledge is your best defense against making harmful choices.



Set Boundaries

Decide on your personal limits when it comes to using marijuana or THC edibles. Remember that it's okay to say no, even if your friends are using them. Your health and well-being are more important than fitting in.



Seek Help

If you or someone you know experiences negative effects from THC edibles, don't hesitate to seek help. Talk to a trusted adult, call your poison control center at 800-222-1222, or seek medical attention if necessary. It's important to get support when you need it.



Practice Health Coping Skills

Instead of turning to marijuana or THC edibles to cope with stress or difficult emotions, try healthier alternatives like exercising, talking to a friend, or practicing relaxation techniques. Building healthy habits now will benefit you in the long run.

Community Awareness

- **Advocate** for regulations mandating child resistant packaging
- **Support** community education campaigns about THC edible safety and reducing risk factors in susceptible populations
- **Encourage** retailers to prioritize child safety in packaging design and products that are easily distinguishable and understandable to consumers
- **Promote** dialogue among vulnerable populations, parents, caregivers, and healthcare providers

Need Help or Have Questions?

Call the Poison Center at 1-800-222-1222

www.ohiopoisoncenters.org

OHIO
POISON
CENTER

Drug & Poison Information Center

- Ohio's regional poison centers recognize the value of prevention on reducing poisoning injury, substance misuse and abuse, and the mental health crisis and are jointly accredited by the American Association of Poison Control Centers, the Ohio Department of Mental Health and Addiction Services (OMHAS) and the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA).
- **Staffed by specially trained nurses, pharmacists, paramedics and physicians.**
- **Free to call, anytime 24/7/365**
- **All services are provided confidentially and without judgement.**

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