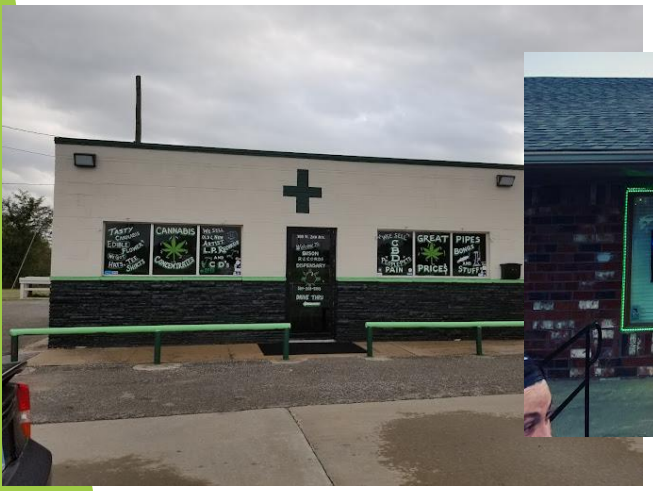
Taking Care of Children in the Age of Legalized Marijuana

A Dispensary on Every Corner!
What's a Kid to Do?



Educational Objectives

- At the end of this activity, participants should be able to:
  - 1. Outline the history and changing landscape of marijuana laws and use in the US
  - 2. Have a better understanding of the risks of prenatal cannabis exposure.
  - 3. Increase their knowledge of the risks and treatment for the accidental ingestion of marijuana
  - 4. Recognize the changes in cannabis use patterns and understand the potential health and social consequences
  - 5. Develop a strategy to provide patient education about the risks of marijuana use.

Disclosure Statement

- No one in a position to control content has any relationships with commercial interests.

CDC's Current Use Statistics

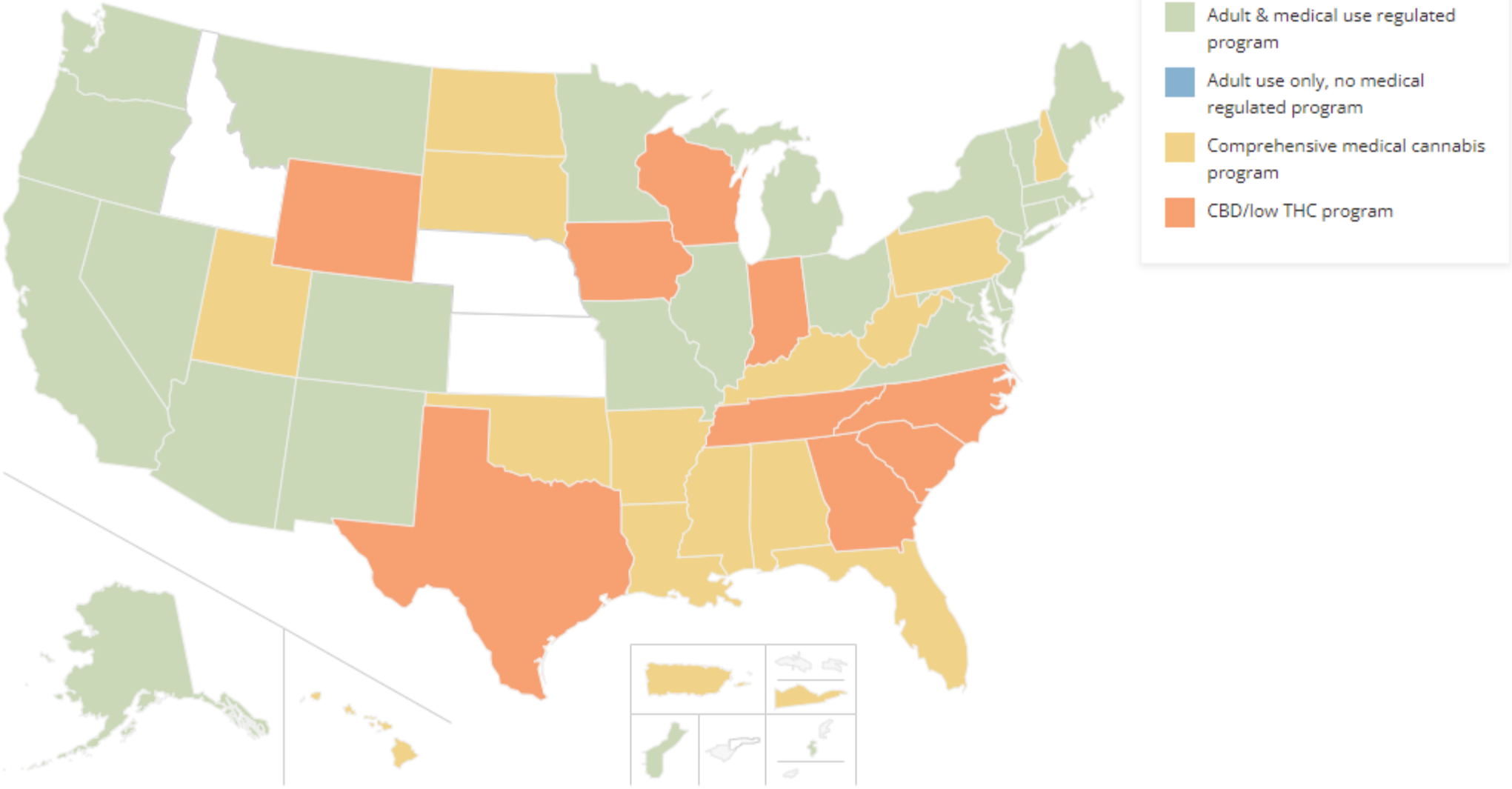
- Marijuana is the most commonly used federally illegal drug in the US
- 3 in 10 people who regularly use marijuana have marijuana use disorder (CUD).
- Adolescents are at 4 to 7 times greater risk of CUD.

Timeline of Cannabis Laws

- In 1937,the Marihuana Tax Act is enacted, effectively prohibiting cannabis at the federal level.
- In 1973, Texas law is amended to declare possession of four ounces or less a misdemeanor.
- In 1996, California became the first US state to legalize cannabis for medical purposes.
- In 1998, Colorado and Washington approved ballot measures to legalize medical use and sale of cannabis.
- In 2012, Colorado and Washington become the first two states to legalize the recreational use of cannabis.
- In 2022, the federal Medical Marijuana and Cannabidiol Research Expansion Act was passed

State Regulated Cannabis Programs

Switch View



A Little Oklahoma History

- In December 2014, OK and NE asked the US Supreme Court to CO's legalization of marijuana.
- In June 2018, Oklahoma voters approved Question 788 – the Medical Marijuana Legalization Initiative
- By the beginning of 2019, state regulators had issued almost 7,000 licenses to cannabis businesses and registered over 200,000 patients.
- By 2020, Oklahoma had more businesses licensed to sell marijuana than any other state.
- By January 2023, Oklahoma Marijuana Authority had over 373,000 medical marijuana patients.

Current Oklahoma Statistics

Licensing and Tax Data - Oklahoma.gov

REPORTING DATE	PATIENTS	CAREGIVER	GROWERS	DISPENSARIES
Jan. 2, 2024	332,223	1,269	4,617	2,388
Jan. 11, 2023	373,525	1,602	7,066	2,759
Jan. 6, 2022	386,561	1,971	8,306	2,238
Jan. 5, 2021	367,053	2,550	6,564	2,057
Jan. 8, 2020	235,786	1,787	5,443	2,242

Marijuana (Cannabis)

- > 500 active chemical compounds
- > 100 are psycho-active
- 2 most known
  - Tetrahydrocannabinol (THC) – the high
    - Paranoia, dissociative thoughts, impaired memory
  - Cannabidiol (CBD) – the low
    - Anxiolytic, anti-psychotic, anti-convulsant

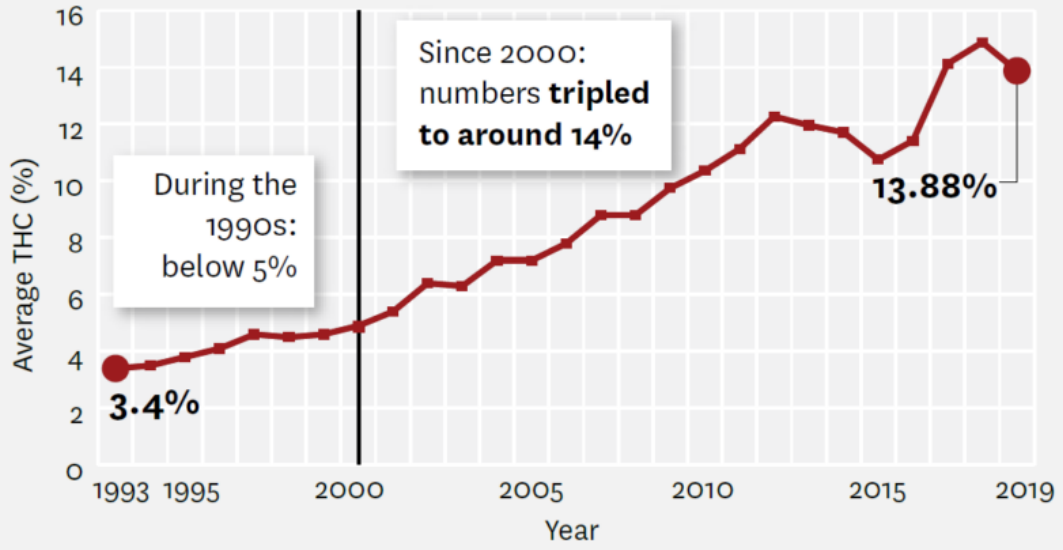
Marijuana (Cannabis)

- Cannabigerol (CBG)
- Cannabinol (CBN)
- Cannabichromene (CBC)
- Cannabinodiol (CBND)
- Terpenoids
- Polyphenols
- Flavonoids

Higher and Higher: THC Concentration

THC Percentage in DEA Confiscations: 1993 - 2019

Figure 1. Average Δ^9-THC Concentration of Raw Plant Material Seized by the DEA, 1993 to 2019



Sources: ElSohly, M. A., S. Chandra, M. Radwan, C. G. Majumdar and J. C. Church. (2021). A Comprehensive Review of Cannabis Potency in the United States in the Last Decade. Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, 6 (6): 603-6; Mehmedic, Z., S. Chandra, D. Slade et al. (2010). Potency Trends of Δ9-THC and Other Cannabinoids in Confiscated Cannabis Preparations from 1993 to 2008. Journal of Forensic Science, 55 (5): 1209-17.

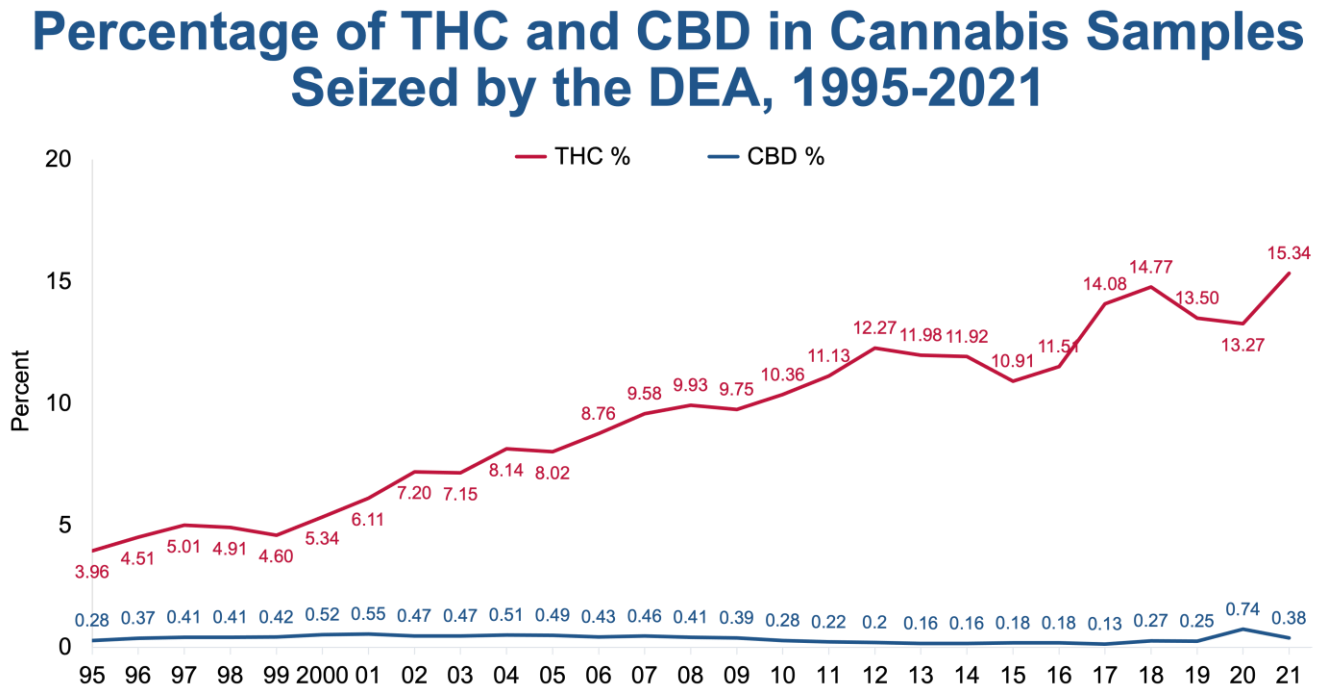
Cannabidiol Counteracts the Psychotropic Side-Effects of Δ-9-Tetrahydrocannabinol

JNEUROSCI 2019

- THC stimulates extracellular-signal-regulated kinase pathway (ERK)
- ERK triggers the neuropsychiatric effects and side effects of THC
- CBD down regulates ERK

Higher and Lower

Delta-9-tetrahydrocannabinol (THC) and Cannabidiol (CBD) Potency of Cannabis Samples Seized by the Drug Enforcement Administration (DEA), Percent Averages from 1995-2021



SOURCE: U Miss, Potency Monitoring Project

Taking Care of Children in the Age of Legalized Marijuana

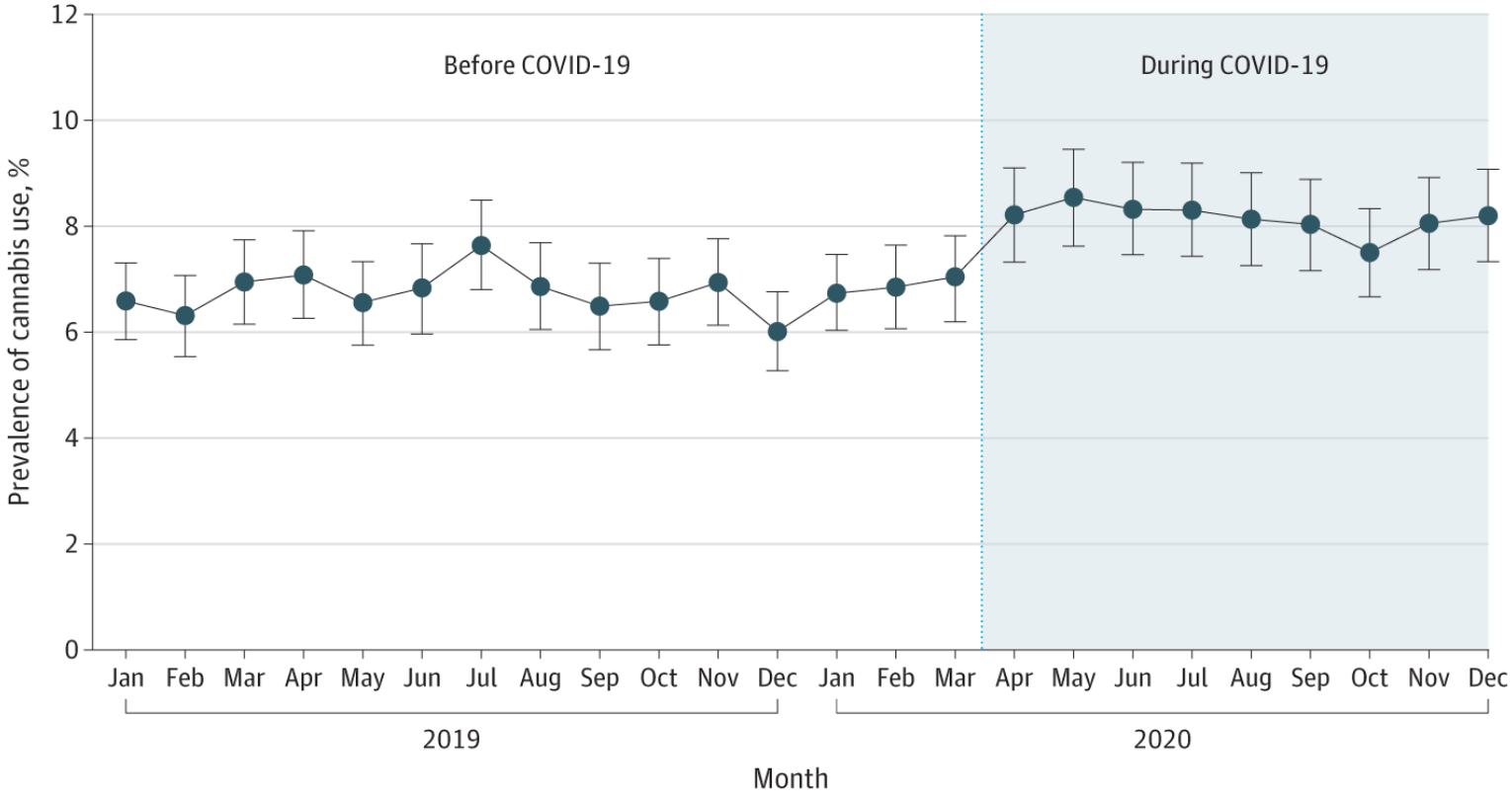
Marijuana Use in Pregnancy

- Cannabis (marijuana) is one of the most commonly used substances during pregnancy
- Rate of use during pregnancy
  - 2005 – 3%
  - 2019 – 7%
- Higher rates of use in woman 18 to 25 year-old age range, urban, and socioeconomically disadvantaged
- Reasons for use: nausea and vomiting, insomnia, pain

Rates of Prenatal Cannabis Use Among Pregnant Women Before and During the COVID-19 Pandemic

Kelly C. Young-Wolff, PhD, MPH1; G. Thomas Ray, MBA1; Stacey E. Alexeeff, PhD1; et al

JAMA. 2021;326(17):1745-1747.



Maternal-Fetal Distribution

- THC readily crosses the placenta
- Limited by active transport in the placenta
- Concentrations 9 to 28 % of maternal concentrations
- The duration, magnitude and route of administration affect fetal toxicity
- Broad distribution to fetal tissues

Maternal-Fetal Distribution

- Most of the studies are limited to single time points and further detailed studies are needed
- Real life impact is confounded by polysubstance use, socioeconomic factors, and the multiple chemicals present in cannabis smoke

Breast Milk and Marijuana
NIH Drugs and Lactation Database

- Studies even more limited
- Levels in breast milk averaged 2.5% of the weight-adjusted maternal dosage
- Infant doses ranged from 0.52 to 123 mcg/kg daily
- Elimination half-life from milk averaged 17 days (range 12.2 to 21 days)

Human Endocannabinoid System and Fetal Neural Development

Cannabis Use in Pregnant and Breastfeeding Women: Behavioral and Neurobiological Consequences. Front Psychiatry 2020

- Human endocannabinoid receptors (EC) activation responsible for
  - Neuron migration
  - Neuronal differentiation
  - Synapse development

- Receptors also found
  - Peripheral nervous system
  - Immune system
  - Reproductive system

Endocannabinoid System Changes

- Primary Receptors Fetal Brain
  - Limbic System
    - Basal Ganglia
    - Hippocampus
- Primary Receptors Adult Brain
  - Frontal Cortex
  - Cerebellum
  - Basal Ganglia
  - Hippocampus

Epigenetic Changes with Exogenous THC

Dopamine D2 receptor

- Decreased expression in nucleus accumbens
  - Reward
  - Motivation

Opioid Neurotransmitter

- Mu-opioid receptors changes in the limbic system
  - Emotional regulation
  - Goal-directed behavior

Fetal Risks of Marijuana Exposure

- Maternal Marijuana Use and Adverse Neonatal Outcomes: A Systematic Review and Meta-analysis. Obstet Gynecol. 2016
  - A meta-analysis of 31 studies using a search of the data through August 2015
    - Showed no increased risk for low birth weight, preterm birth
    - Limitations - relatively few individuals in the risk-adjusted group and focus on only two birth outcomes

Fetal Risks of Marijuana Exposure

- **Cannabis Use in Pregnancy in British Columbia and Selected Birth** OutcomesJ Obstet Gynaecol Can 2019.

- Abstracted obstetrical and neonatal medical records for deliveries in British Columbia from April 1, 2008 to March 31, 2016
  - 47% increased risk of SGA aOR 1.47
  - 27% increased risk of spontaneous preterm birth aOR1.27
  - 184% increased risk of intrapartum stillbirth aOR 2.84.

Fetal Risks of Marijuana Exposure

- **The associations between prenatal cannabis use disorder and neonatal outcomes**. Addiction. 2021
- US mothers with CUD (cannabis use disorder) and singleton infant pairs associated with
  - Small for gestational age OR 1.13
  - Low birth weight OR 1.13
  - Preterm birth OR 1.06
  - Death within 1 year of birth OR 1.35
  - Increased effect with concomitant tobacco use

Fetal Risks of Marijuana Exposure

- **Birth Outcomes of Neonates Exposed to Marijuana in Utero: A Systematic Review and Meta-analysis**. JAMA Netw Open. 2022
  - Meta-analysis of 16 studies including 59 138 patients
    - small-for-gestational age RR 1.61
    - low birth weight RR 2.06
    - preterm birth (<37 weeks gestation) RR 1.28,
    - NICU admissions RR 1.38
    - Reduced head circumference mean diff -0.34

Fetal Risks of Marijuana Exposure

- **Prenatal Cannabis Use and Infant Birth Outcomes in the Pregnancy Risk Assessment Monitoring System**. J Pediatr. 2022;240:87
  - A retrospective cohort study from 2017 to 2019 showed increased risk
    - low birth weight aOR 2.07
    - small for gestational age infants aOR 2.14
    - dose effect was noted
  - Combined marijuana and cigarette use
    - Low birth weight aOR 2.27
    - Small for gestational age aOR 3.29
    - Preterm birth aOR 1.61

Fetal Risks of Marijuana Exposure

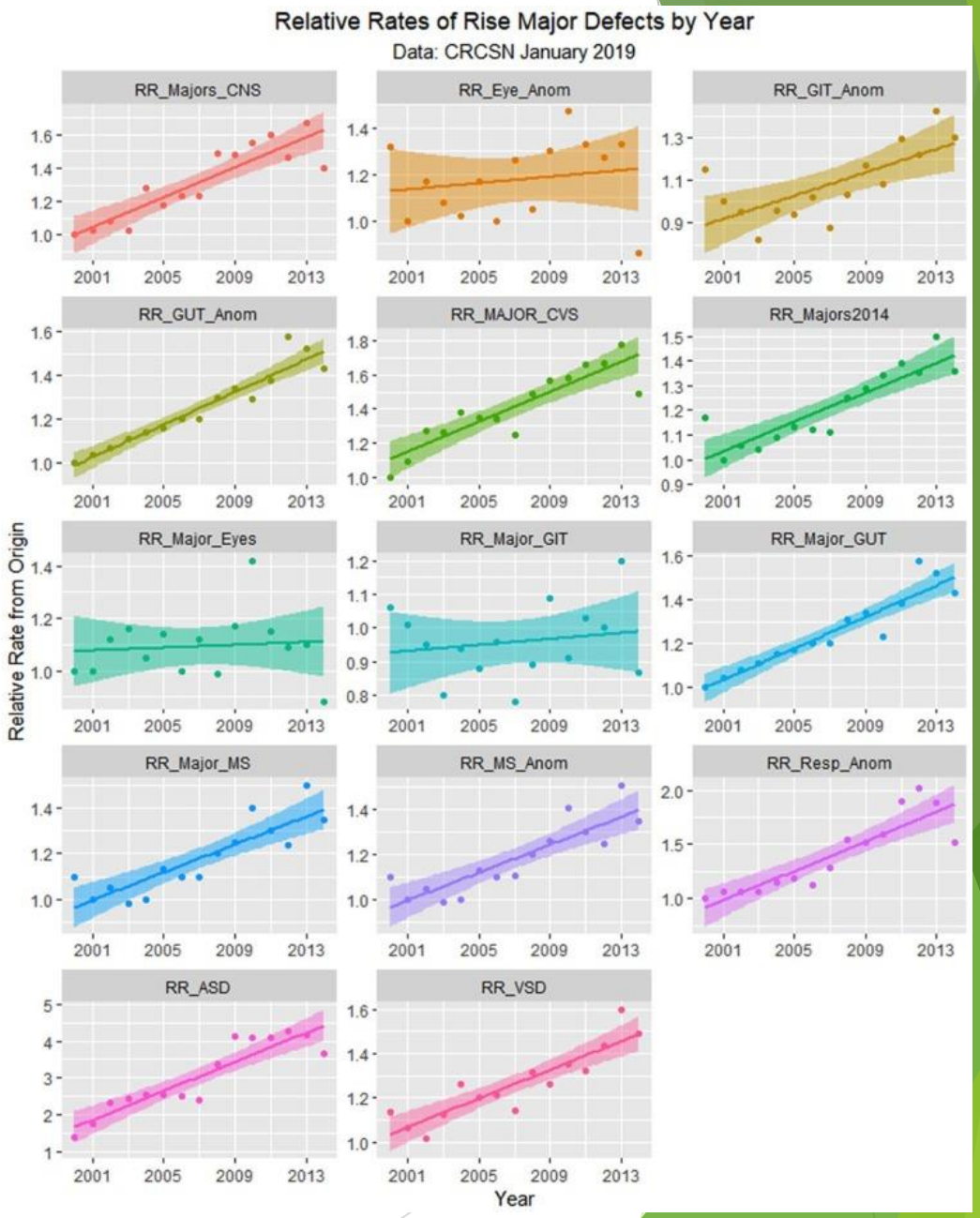
- **Cannabis use in pregnancy and maternal and infant outcomes: A Canadian cross-jurisdictional population-based cohort study** . PLoS One. 2022
- A Canadian cohort study including over 1.2 million pregnant persons between 2012 and 2019
  - Prenatal cannabis use is associated with increased risks of
    - spontaneous and medically indicated preterm birth RR 1.8 and 1.94
    - very preterm birth RR1.73
    - low birth weight RR 1.90
    - small-for-gestational age RR
    - caesarean section RR 1.13
    - gestational diabetes RR 1.32
    - any major congenital anomaly RR 1.71

Fetal Risks of Marijuana Exposure

- **Cannabis Teratology Explains Current Patterns of Coloradan Congenital Defects: The Contribution of Increased Cannabinoid Exposure to Rising Teratological Trends**. Clin Pediatr (Phila). 2019
- Analyzed data from Colorado Responds to Children with Special Needs, National Survey of Drug Use and Health, and Drug Enforcement Agency from 2000 to 2014
  - Cannabis was the only drug whose use grew.
  - Pain relievers, cocaine, alcohol, and tobacco use remained stable.
  - A 6.7- to 9.4-fold excess of growth in congenital defects compared with growth in births.

Common Major Defects

- Atrial septal defect
- Ventricular septal defect
- Patent ductus arteriosus
- Spina bifida
- Microcephalus
- Anencephalus
- Choanal atresia
- Down's syndrome
- Chromosomal anomalies



Fetal Risks of Marijuana Exposure

- SGA and LBW potentially caused by increased placental vascular resistance and fetal hypoxia from increased carbon monoxide and carboxyhemoglobin levels
- All effects were noted to be dose dependent – increased in daily users
- Increased effect when combined with cigarette use
- Most studies done prior to the increase in THC / CBD ratios
- Most of these risk increases were not large, but they have an impact when applied over millions of births

Neonatal Outcomes

- **Prenatal cannabis use disorder and infant hospitalization and death in the first year of life. Drug Alcohol Depend. 2023**
- An analysis of California birth registry
  - 40 % increase of risk of death in first year of life
  - Incidence of death 1.0 % maternal CUD vs 0.4 % without CUD
  - Majority related to prematurity and SUID

Neonatal Outcomes

- **Exposure to marijuana during pregnancy alters neurobehavior in the early neonatal period. J Pediatr 2006**
  - Neurobehavioral dysregulation in the neonate
  - Problems noted with tremors, stimulation habituation, and excitability
  - Increased night time arousal
  - Behavioral findings are consistent with a mild narcotic withdrawal syndrome

Fetal Risks of Marijuana Exposure

- The relative risks and odds ratio for all problems associated prenatal marijuana use are small.
- When applied over millions of births could have a significant impact

Pediatric Outcomes

The Ottawa Prenatal Prospective Study, the Maternal Health Practices and Child Development Project and the Generation R Study

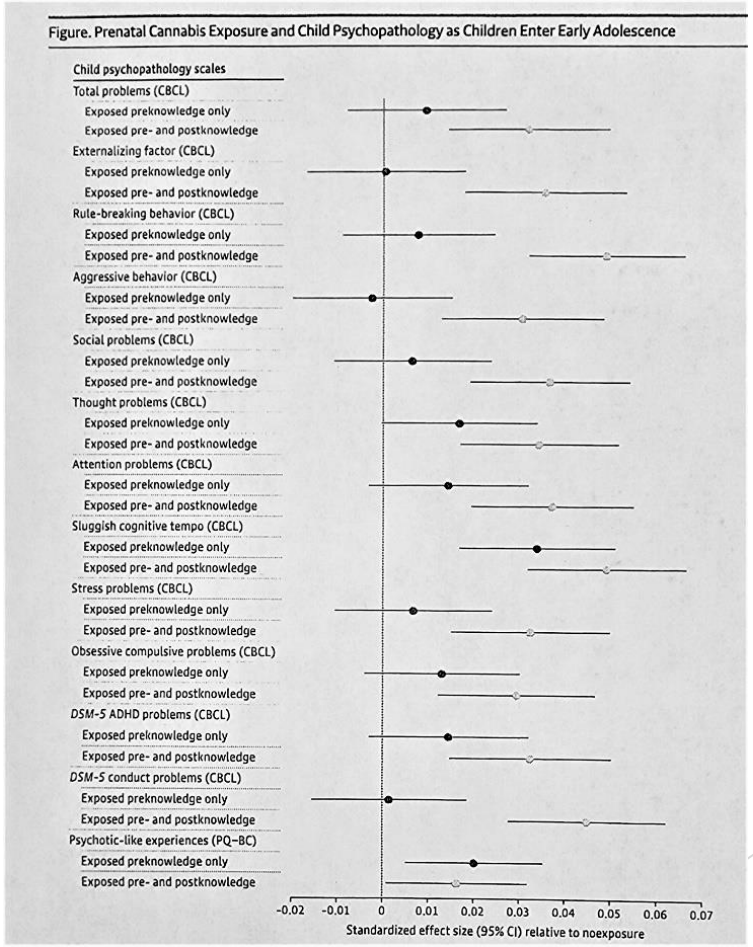
- Behavioral Impairment
  - Decrease in
    - Attention
    - Impulse control
  - Increase in
    - Hyperactivity
    - Aggression
    - Delinquent behavior
    - Anxiety
    - Depression
    - Autism

Pediatric Outcomes

- Cognitive impairment
  - Decrease in working/ learning memory
  - Lower performance scores for reading and spelling
  - Decrease in verbal reasoning
  - Slower processing speeds
  - Lower IQ scores in early years

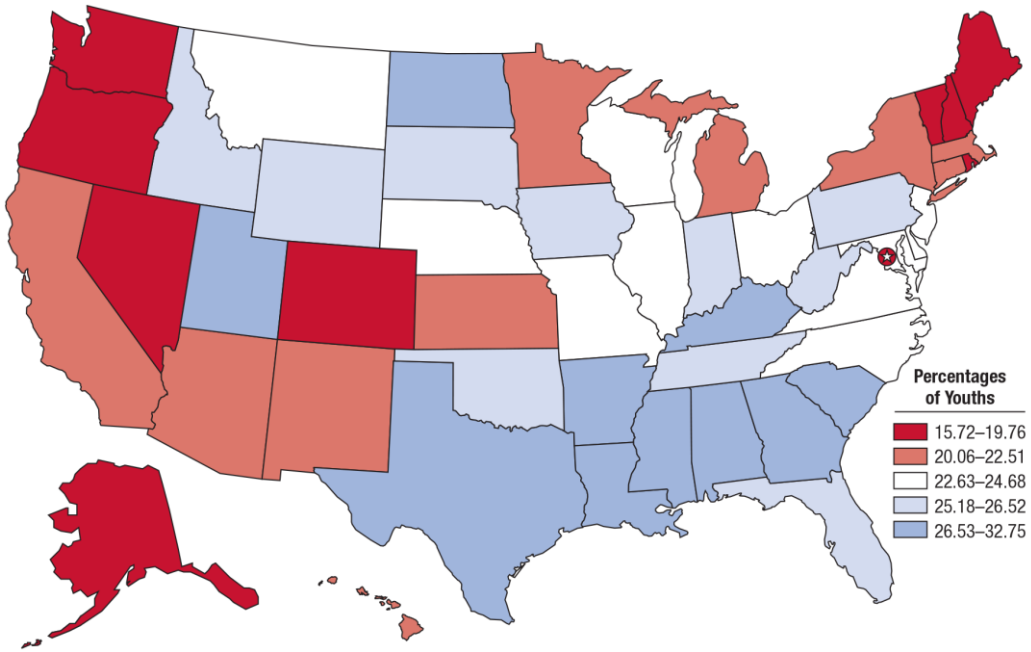
Adolescent Outcomes

- **Association of Mental Health Burden With Prenatal Cannabis Exposure From Childhood to Early Adolescence**
- **Longitudinal Findings From the Adolescent Brain Cognitive Development (ABCD) Study**
- JAMA Pediatrics December 2022



Marijuana Use in Adolescents

Marijuana use in the past month among youths aged 12 to 17, by state: percentages, annual averages, 2013-2014



SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health (NSDUHs), 2013 and 2014.

Marijuana Use in Adolescents

- CDC Statistics for 2022
  - 30.7% of US high school students reported lifetime use of marijuana
  - 6.3 % reported use in the past 30 days
- Vaping of marijuana is increasing
  - Lifetime use – 10.8% of 8th graders, 22% of 10th graders, 38.6% of 12th graders
  - Use in the last 30 days - 2.9% 8th graders, 8.4% of 10th graders, 12.4% of 12th graders

Marijuana Use in Adolescents

- Short-term use of marijuana can lead to:
  - School difficulties
  - Problems with memory and concentration
  - Increased aggression
  - Car accidents
  - Risky sexual behaviors

Marijuana Use in Adolescents

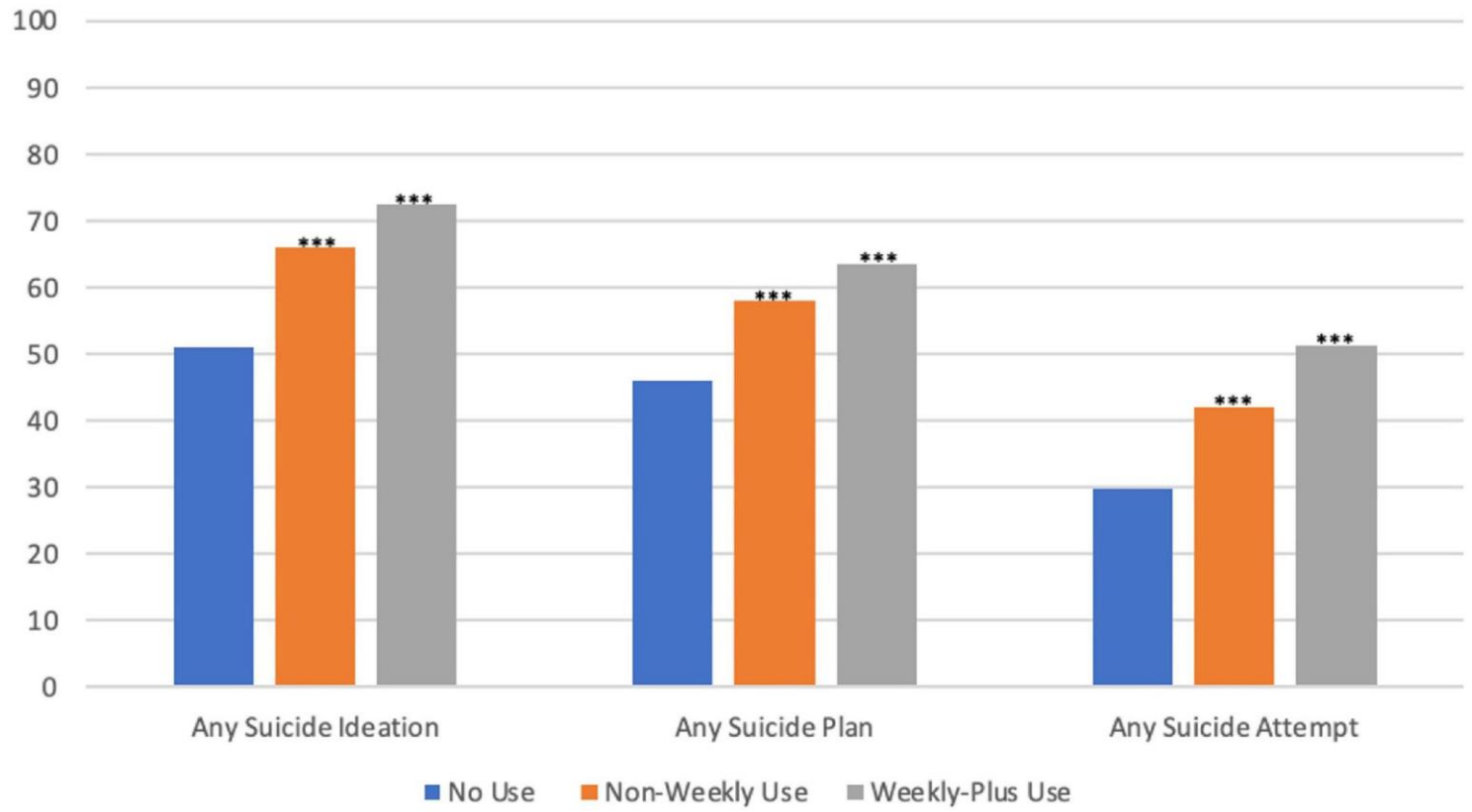
Cannabis use and risk of psychotic or affective mental health outcomes: a systematic review. Lancet. 2007
Adolescent cannabis use, baseline prodromal symptoms and the risk of psychosis. Br J Psychiatry. 2018

- **Cannabis-associated psychosis**
  - Two-fold increase in risk among those who used cannabis most frequently
  - Individuals who used cannabis at least five times by age 15 to 16 years of age were found to have an increased risk of psychosis in adulthood

- **Risk factor for schizophrenia**
  - Two- to threefold increased prevalence of schizophrenia and schizophrenia spectrum disorders
  - Association is stronger with earlier age of onset of use, more intense cannabis use, and use of cannabis with high THC content and THC/CBD ratio

Marijuana Use in Adolescents

US trends in the association of suicide ideation/behaviors with marijuana use among adolescents ages 12–17 and differences by gender and race/ethnicity. Michael William Flores, Saul Granados, Benjamin Lê Cook. Front. Psychiatry, 05 January 2023



Marijuana Use in Adolescents

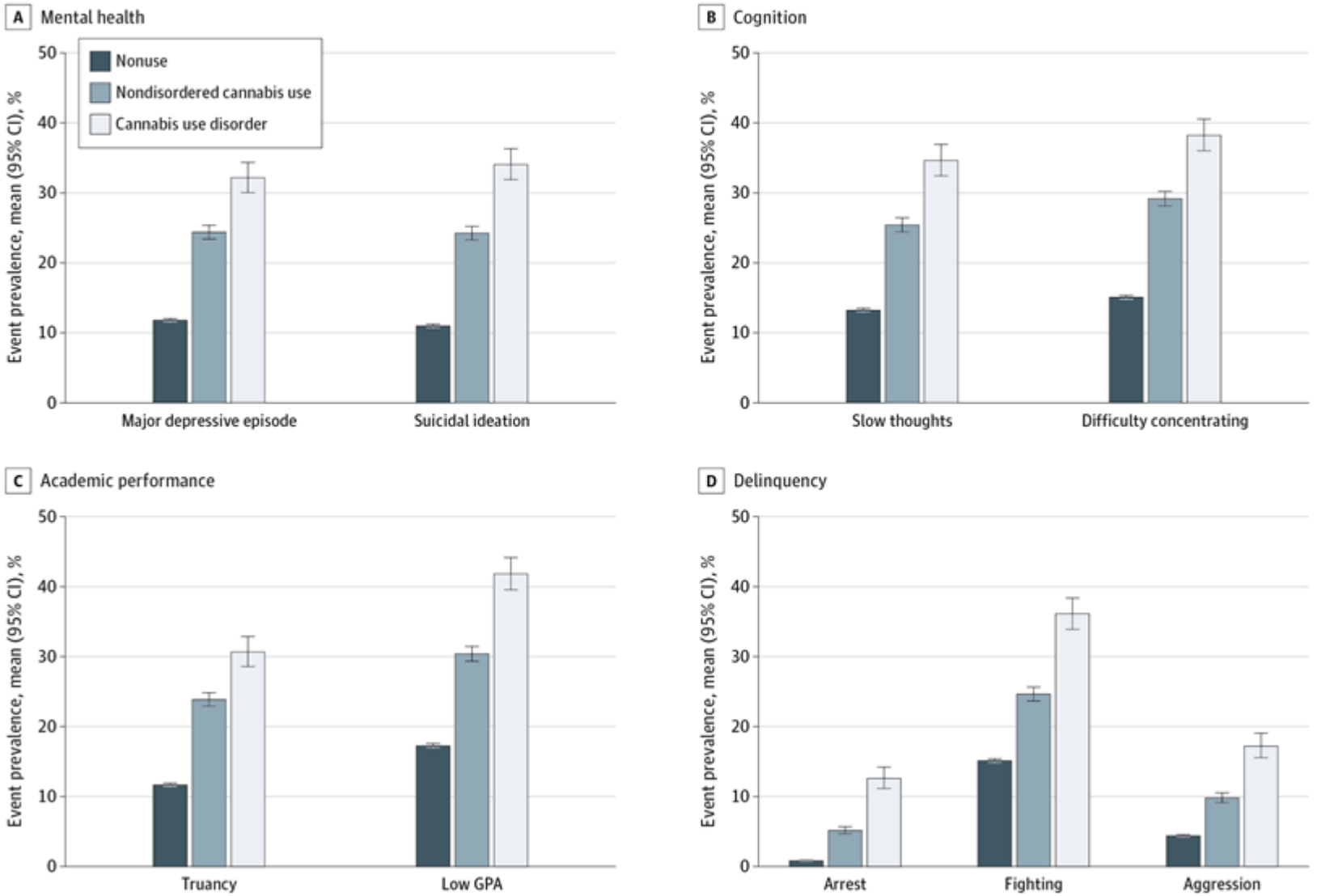
Nondisordered Cannabis Use Among US Adolescents

JAMA Netw Open 2023

- Cross-sectional study analyzed survey responses from adolescents aged 12 to 17 years from the 2015 to 2019 NSDUH

- Cannabis use was classified into 3 mutually exclusive categories
  - Nonuse – no use at all or none > 12 months
  - Nondisordered cannabis use
  - Cannabis use disorder

Figure 1. Prevalence of Adverse Adolescent Psychosocial Events Among Nonuse, Nondisordered Cannabis Use, and Cannabis Use Disorder Groups



Cannabis Use Disorder
DSM-5 diagnostic criteria

- **A problematic pattern of cannabis**
- **Occurring within a 12-month period**
- **Clinically significant impairment manifested by at least two of the following:**
  - Use of larger amounts or over a longer period
  - Persistent desire or unsuccessful efforts to cut down or control cannabis use
  - Excessive time spent in activities necessary to obtain cannabis, use cannabis, or recover from its effects.
  - Craving, strong desire or urge to use cannabis

Cannabis Use Disorder
DSM-5 diagnostic criteria

- **Clinically significant impairment manifested by at least two of the following:**
  - Failure to fulfill role obligations at work, school, or home
  - Continued use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of cannabis
  - Important social, occupational, or recreational activities are given up or reduced
  - Recurrent use in situations in which it is physically hazardous
  - Continued use despite knowledge of persistent or recurrent physical or psychological problem caused or exacerbated by cannabis
  - Tolerance
  - Withdrawal

Varying Effects of Cannabis

- Cannabis hyperemesis syndrome – Rome IV criteria
  - Minimum three months
  - Stereotypical episodic vomiting resembling cyclical vomiting syndrome in onset, duration, and frequency
  - Presentation after prolonged, excessive cannabis use
  - May be associated with “pathologic” bathing behavior, e.g., prolonged hot baths and showers.
  - Relief of vomiting by a sustained cessation of cannabis use

Varying Effects of Cannabis
DSM-5 diagnostic criteria

- **Cannabis Intoxication**
  - **Recent use of cannabis**
  - **Clinically significant - impaired motor coordination, euphoria, anxiety, a sensation of slowed time, impaired judgment, social withdrawal**
  - **At least two of the following signs - conjunctival injection, increased appetite, dry mouth, tachycardia.**
  - **Symptoms not due to a general medical condition and are not better accounted for by another mental disorder.**
  - **Perceptual disturbances may also be present: hallucinations with intact reality testing or auditory, visual, or tactile illusions occur in the absence of delirium.**

Varying Effects of Cannabis DSM-5 diagnostic criteria

- **Cannabis Withdrawal** – cessation after heavy and prolonged use
- Three or more of the following signs and symptoms within 1 week :
  - Irritability, anger, or aggression
  - Nervousness or anxiety
  - Sleep difficulty (i.e., insomnia, disturbing dreams)
  - Decreased appetite or weight loss
  - Restlessness
  - Depressed mood

Varying Effects of Cannabis DSM-5 diagnostic criteria

- **Cannabis Withdrawal**
  - **One or more of the following physical symptoms:**
    - **abdominal pain**
    - **shakiness/tremors**
    - **Sweating**
    - **Fever**
    - **Chills**
    - **headache.**
  - **Clinically significant distress or impairment in social, occupational, or other important areas of functioning.**
  - **Not attributable to another medical condition, mental disorder, or other substance withdrawal**

Varying Effects of Cannabis DSM-5 diagnostic criteria

- **Cannabis Intoxication Delirium**
  - **Disturbance in attention and awareness**
    - **Reduced ability to direct focus, sustain, and shift attention**
    - **Reduced orientation to the environment**
  - **Disturbance in cognition**
    - **Memory deficit**
    - **Disorientation**
    - **Disruptions in language, visual -spatial ability, or perception**

Varying Effects of Cannabis DSM-5 diagnostic criteria

- **Cannabis-Induced Psychotic Disorder**
  - **Presence of delusions or hallucinations**
- **Cannabis-induced Anxiety Disorder**
  - **Predominately anxiety and panic attacks**
- **Cannabis-induced Sleep Disorder**
  - **A prominent and severe disturbance in sleep.**

Varying Effects of Cannabis DSM-5 diagnostic criteria

- The symptoms in the first criterion developed during or soon after cannabis intoxication or after withdrawal from or exposure to it.
- The disturbance is not better accounted for by a diagnosis that is not substance-induced
  - Symptoms precede the onset of substance use
  - Symptoms persist for a more than a month after cessation of acute withdrawal or severe intoxication
  - Symptoms are more than what would be expected for type, amount, or duration of use
  - History of recurrent non-substance related episodes

Second Hand Marijuana Smoke Exposure

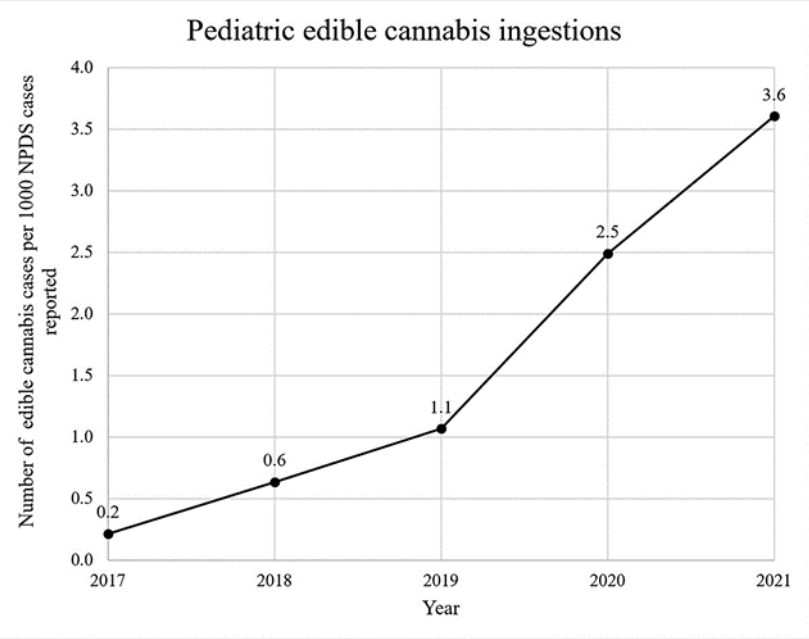
- **A comparison of mainstream and sidestream marijuana and tobacco cigarette smoke produced under two machine smoking conditions**. Chem Res Toxicol. 2008
  - Ammonia
  - Hydrogen cyanide
  - Nitrous oxides
  - Aromatic amines
  - Polycyclic aromatic hydrocarbons

Increase in Accidental Ingestions


APPLE TRAPS
CEREAL BARS
DELTA 8
DELTA 3
500MG
CEREAL BARS
Reese's Puffs
400mg
Cheetos
Crunchy
CHERRY
NET WT. 78 OZ (22G)
STONER PATCH
1500MG
DELTA
10 THC
1500 MG
GUMMI EDIBLES
SOUR TERP
Crawlers
VERY BERRY
600 mg
Gummies
Sour Berries
500 mg
SNACK PACK
100mg D8
Treats
Peaches
FRIES
$19.99
$ 35.99
60 MINUTE

Pediatric Edible Cannabis Exposures and Acute Toxicity: 2017-2021 Pediatrics (2023)

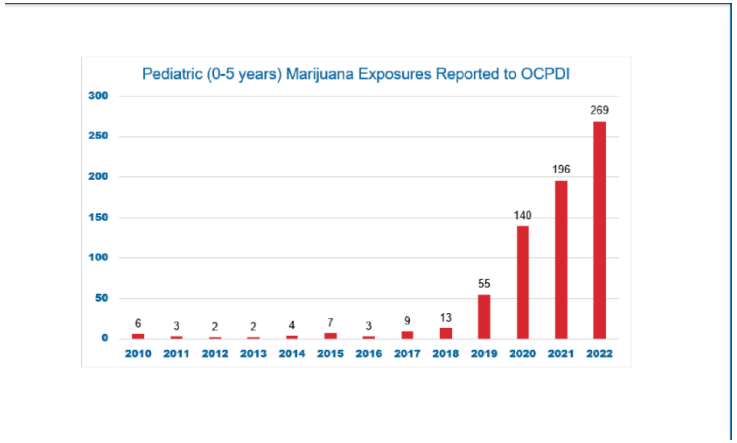
- 7043 cases of pediatric edible cannabis exposures
- Number of cases rose from 207 cases in 2017 to 3054 cases in 2021
- An increase of 1375.0%



Pediatric edible cannabis product ingestions per 1000 pediatric calls to the National Poison Data System by year.

Marijuana Ingestion Reports to Oklahoma Poison Center 2010 - 2022

- Increase since legalization –
  - 14 in 2018 and 269 in 2022
- This represents a 1920% increase in pediatric marijuana exposures over 5 years



General Characteristics

- The most common site of exposure was a residential setting
  - 90.7% occurring in their own home
- Most prevalent in toddler age group
  - 27.7 % two-year-old
  - 24.6% three-year-old

Top Clinical Effects Followed to a Known Outcome

- **Neurologic**
  - CNS depression 70.0%
  - Ataxia 7.4%
  - Agitation 7.1%
  - Confusion 6.1%
  - Tremor 2.0%
  - Dizziness/vertigo 1.9%
  - Seizure (any amount) 1.6 %
  - Hallucinations 1.0%
  - Slurred speech 0.9%
  - Headache 0.4%

Top Clinical Effects Followed to a Known Outcome

- **Cardiovascular**
  - Tachycardia 11.4%
  - Hypotension 2.5%
  - Bradycardia 1.4%
  - Hypertension 0.9%

Top Clinical Effects Followed to a Known Outcome

- **Gastrointestinal**
  - Vomiting 9.5%
  - Nausea 1.6%
  - Abdominal pain 1%

Top Clinical Effects Followed to a Known Outcome

- **Ocular**
  - Mydriasis 5.9%
  - Red eye/conjunctivitis 2.3%
  - Nystagmus 1.1%
  - Miosis 0.5%

Top Clinical Effects Followed to a Known Outcome

- **Other**
  - Pallor 1.3%
  - Fever/hyperthermia 1%
  - Acidosis 0.8%
  - Muscle weakness 0.8%
  - Hypothermia 0.8%
  - Urinary retention 0.7%
  - Electrolyte abnormality 0.7%

Top Clinical Effects Followed to a Known Outcome

- **Respiratory**
- Respiratory depression 3.1%
- Hyperventilation/tachypnea 0.6%

Most Common Therapies

Intravenous fluids	20.7%
Dilution/irrigation/washing	10.9%
Food/snack	10.3%
Oxygen	4.0%
Charcoal (single dose)	2.1%
Naloxone	1.4%
Intubation	0.7%
Flumazenil	0.2%

Management of Acute Cannabis Intoxication in Children

- Treatment is supportive and consists of the following measures:
- Maintain airway, breathing, and circulation.
- Measure rapid blood glucose to exclude hypoglycemia.
- Administer naloxone to patients presenting with features of opioid intoxication.
- The duration of coma is typically one to two days. Full recovery is expected with supportive care.

Management of Acute Cannabis Intoxication in Children

- Seizures — Seizures have rarely been described after cannabis intoxication in children and may be associated with co-ingestants (eg, cocaine)
  - Initial treatment of toxin-associated seizures consists of benzodiazepines.

- Agitation — Dysphoria with agitation is not common,
  - If symptoms of marked anxiety or agitation develop, benzodiazepines are frequently effective and have a low adverse effect profile.

Management of Acute Cannabis Intoxication in Children

- Activated charcoal is not recommended
  - Little efficacy in patients with symptomatic cannabis intoxication
  - Children generally present three hours or longer after the time of ingestion
  - Children may present with altered mental status or vomiting, which may raise the risk of aspiration

Pediatric Edible Cannabis Exposures and Acute Toxicity: 2017–2021 Pediatrics (2023)

Medical Outcome

- 7043 cases
  - 573 admitted to ICU
  - 1027 admitted to noncritical care unit
  - 2550 treated and released from ER
- Outcome divided into pre and post- COVID years
  - Increase in severity in post COVID years
  - CNS depression 61.6% vs 72.9%
  - Critical care admissions 6.6% vs 8.6%
- No deaths were reported during the 5 years included in the study period

Marijuana Overdose in Adolescents

- **Acute intoxication**
  - Tachycardia
  - Increased blood pressure
  - Increased respiratory rate
  - Conjunctival injection (red eye)
  - Dry mouth
  - Increased appetite
  - Nystagmus
  - Ataxia
  - Slurred speech

Marijuana Overdose in Adolescents

- **Complications**
  - Asthma exacerbations, bronchitis
  - Pneumomediastinum/ pneumothorax
  - Angina, myocardial infarction, cardiac dysrhythmias, and ischemic stroke

What's a Doc to Do?

Education

Dispel the Myths

- Marijuana is natural so it is completely safe. **FALSE**
- You cannot overdose on marijuana. **FALSE**
- Marijuana is not addictive. **FALSE**
- Marijuana is safe in pregnancy and breastfeeding. **FALSE**
- Holding it in your lungs makes the effects better. **FALSE**
- It’s okay to drive when using cannabis. **FALSE**

WARNINGS: It may be dangerous to drive or operate machinery while under the influence of medical marijuana. Do not use medical marijuana if you are pregnant or breastfeeding. The use of medical marijuana could lead to cannabis dependence and addiction. Firsthand and secondhand medical marijuana smoke contains many of the same cancer-causing chemicals as tobacco smoke.

For poisoning questions and concerns, contact the Oklahoma Center for Poison and Drug Information at: (800) 222-1222

Oklahoma Center for Poison & Drug Information

KEEP MEDICAL MARIJUANA SECURE AND OUT OF REACH OF CHILDREN AND PETS

The Oklahoma Medical Marijuana Authority is a program of the Oklahoma State Department of Health. Per Title 63 O.S. § 420A, license holders are legally authorized to:

1. Possess up to three (3) ounces of marijuana on their person;
2. Possess six (6) mature marijuana plants;
3. Possess six (6) seedling plants;
4. Possess one (1) ounce of concentrated marijuana;
5. Possess seventy-two (72) ounces of edible marijuana; and
6. Possess up to eight (8) ounces of marijuana in their residence.

PLEASE CARRY THIS CARD AT ALL TIMES WHEN POSSESSING MEDICAL MARIJUANA.

Notify OMMA within 30 days of a change of address. To verify this license, visit OMMAverify.ok.gov
If found, please return to OMMA at PO BOX 262266, Oklahoma City, OK 73126-2266

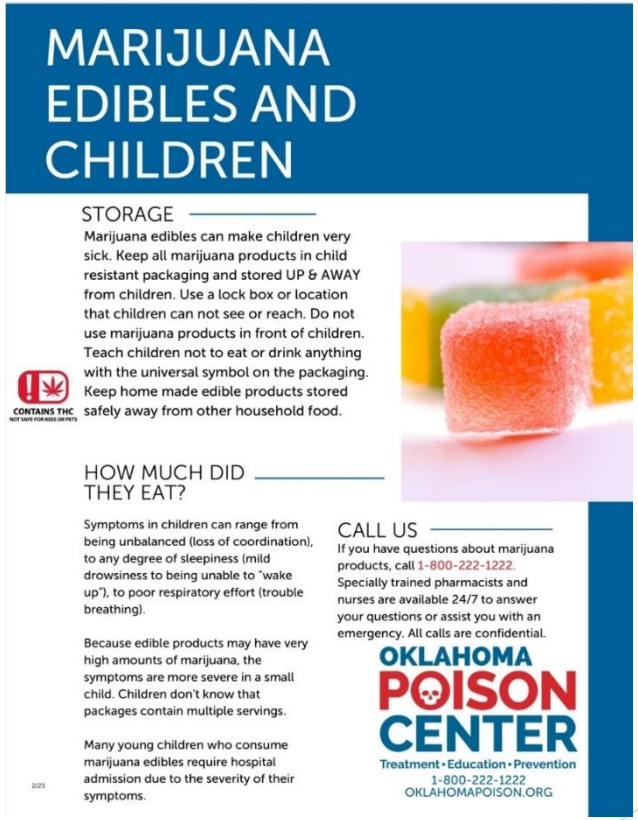
Prenatal Education

- Women of child bearing age need to know marijuana, like alcohol and tobacco, should be avoided during pregnancy

- MARIJUANA AND YOUR BABY - Oklahoma.gov

Parent Education

- Store all edibles in plain, child resistant packaging
- Do not keep edibles near food or in the kitchen
- Do not consume edibles in front of children
- Poison Control 800 222-1222



Parent Education

- Teach children not to eat or drink anything with this symbol on the packaging.

Parent Education

- Recommend parents discuss marijuana at an early age since the developing brain is more susceptible to detrimental effects of marijuana

- Encourage open communication and active listening, especially with teens

MARIJUANA USE AND TEENS

What you need to know

The teen years are a time of growth, exploration, and risk-taking. Some risk-taking may foster identity development and independence (e.g., running for student council, asking someone out on a date). However, some risk behaviors—such as using marijuana—can have adverse effects on a teen's health and well-being.

How many teens use marijuana?

In 2019, 37% of US high school students reported lifetime use of marijuana and 22% reported use in the past 30 days.[1] Past-year vaping (e-cigarette use) of marijuana also remained steady in 2020 following large increases in 2018 and 2019. However, large percentages of middle and high school students reported past-year marijuana vaping—8% of eighth graders, 19% of 10th graders, and 22% of 12th graders.[2]

How marijuana can impact a teen's life

Increased risk of mental health issues. Marijuana use has been linked to a range of mental health problems, such as depression and social anxiety.[3] People who use marijuana are more likely to develop temporary psychosis (not knowing what is real, hallucinations, and paranoia) and long-lasting mental disorders, including schizophrenia (a type of mental illness where

Marijuana and the teen brain:

The teen brain is actively developing and continues to develop until around age 25. Marijuana use during adolescence and young adulthood may harm the developing brain.[3,4]

Negative effects of teen marijuana use include[3]:

- Difficulty thinking and problem-solving
- Problems with memory and learning
- Reduced coordination
- Difficulty maintaining attention
- Problems with school and social life

1-800-CDC-INFO (232-4636)
www.cdc.gov

October 2021

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

1

Common Questions

- Is cannabidiol (CBD) the same thing as marijuana?
  - Marijuana is the whole plant. CBD is one compound
- Is CBD legal in the US?
  - CBD obtained from hemp is federally legal
- Is CBD medicine?
  - There is only one FDA-approved drug derived from a pure form of CBD oil for treatment of some severe types of epilepsy

Common Questions

- **Is CBD safe?**
  - Side effects
    - Nausea
    - Vomiting
    - Fatigue
    - Irritability
    - Appetite suppression
    - Elevated liver enzymes

Common Questions

- **Is CBD safe?**
  - There is little regulation of CBD products
  - Johns Hopkins researchers tested more than 100 topical CBD products
    - 18% less CBD than labeled
    - 58% more CBD than labeled
    - 24% accurately labeled
    - THC detected in 35 % at legal limits of 0.3%
      - 11% were labeled THC free
      - 38% were labeled < 0.3%
      - 51% did not reference THC on the label

Common Questions

- How can different forms of marijuana use affect me?
  - Inhalation – fastest onset, slowest duration
  - Edible – longest onset, longest duration
  - Sublingual – in between
- Can marijuana interact with prescribed medications?
  - Data is scarce
  - Potential to moderately inhibit CYP2C19
  - Potential to weakly inhibit CYPs 2C9, 3A4, and 1A2

Thank You

Any Questions?