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# Marijuana Exposure in Children and Teens – Accidents to Hyperemesis

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# Objectives

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By the end of this presentation, participants will be able to:

- Summarize how marijuana affects an individual
- Recognize current Oklahoma Law regarding legalized marijuana
- Interpret current trends in marijuana exposure in children and teens
- Connect client/patient presentation to potential THC ingestion and determine treatment needs

# Background

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Obj 1.

- Cannabis (Marijuana) refers to the dried leaves, flowers, stems, and seeds of the cannabis plant Tetrahydrocannabinol (THC), one of the many different chemical compounds derived from the cannabis plant, which has intoxicating – mind altering – effects.
- Cannabis comes in MANY different forms
  - Dried forms for smoking (joints, blunts, pipes)
  - Oils/concentrates
  - Edibles\*\*\*
  - Tinctures
  - Lotions/Balms

# Cannabis Formulations

Obj 1.



Flower/Dried Leaves

Pre-Roll, Blunt, Joint, Cigarette



Vaporizers "Vape Pens"



Edibles



Tincture/Oils



Topical Balms/Lotions

# THC – Health Effects

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Obj. 1

- Causes changes in mood, thoughts, and/or perceptions of reality
  - Short term effects: intoxication, anxiety, fear, distrust, panic, hallucinations, and/or increased appetite (“munchies”)
  - Long term effects: respiratory issues, increased HR and BP, increased risk of stroke, heart attack, and arrhythmias, cannabinoid hyperemesis syndrome\*, increased risk of head, neck, and throat cancers
- Are there benefits?

# *Cannabis sativa*

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Obj. 1

- Plant with non-intoxicating compound called cannabidiol (CBD) and very small amounts of Delta-9 THC which is also non-intoxicating
  - Epidiolex – FDA approved CBD medication used to treat seizures associated with Lennox Gastaut Syndrome, Dravet Syndrome, or tuberous sclerosis complex

# Legalization of Marijuana in Oklahoma

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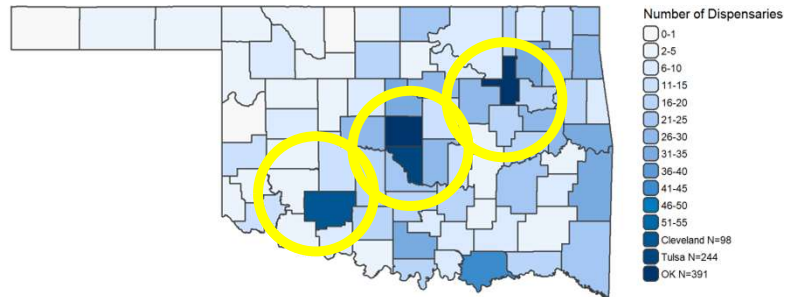
Obj. 2

- State Question 788: Initial Petition Filed in April 2016
  - Oklahomans for Health and Parental Rights, Filers
- June 2018 – State Question 788 passed
  - Legalizing medical marijuana
- September 2018 – SQ 788 went into effect

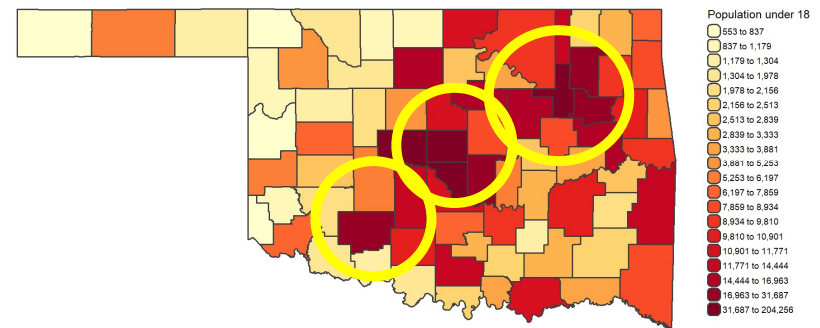
# Why are kids at risk?

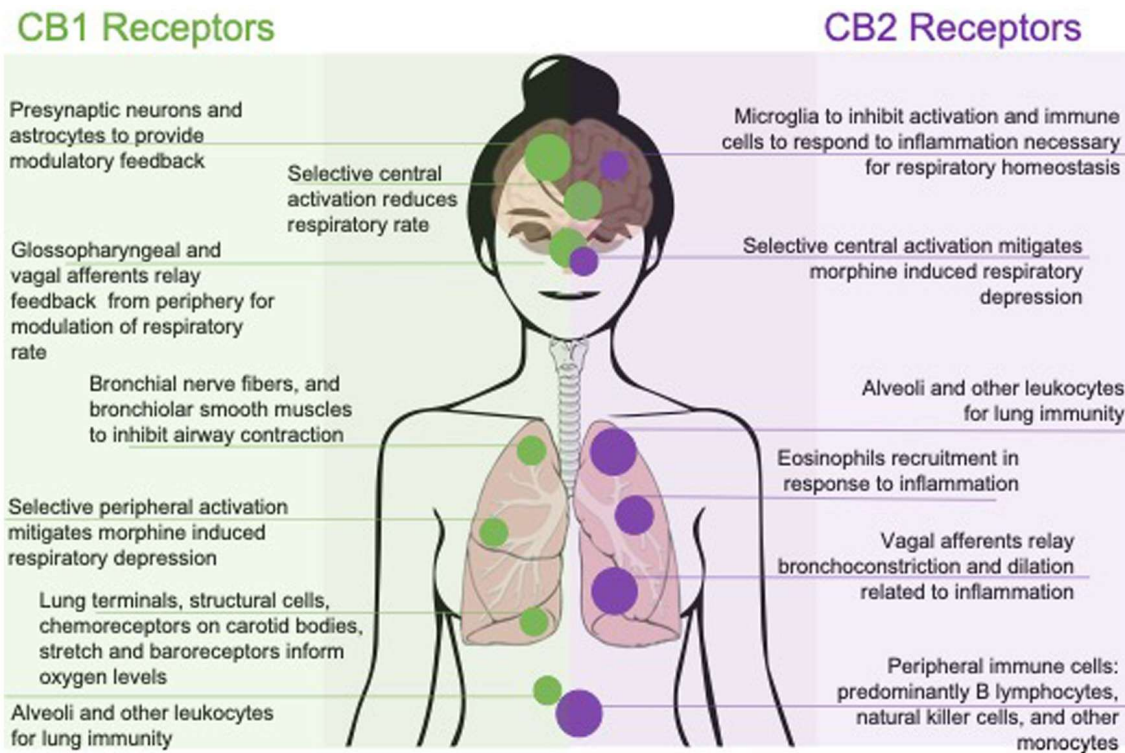
Obj. 2

### Distribution of Cannabis Dispensaries



### Pediatric Population





# Accidental THC Ingestions – A Rising Problem

Obj. 4

## The Pitt: Season 1



# Edible Products

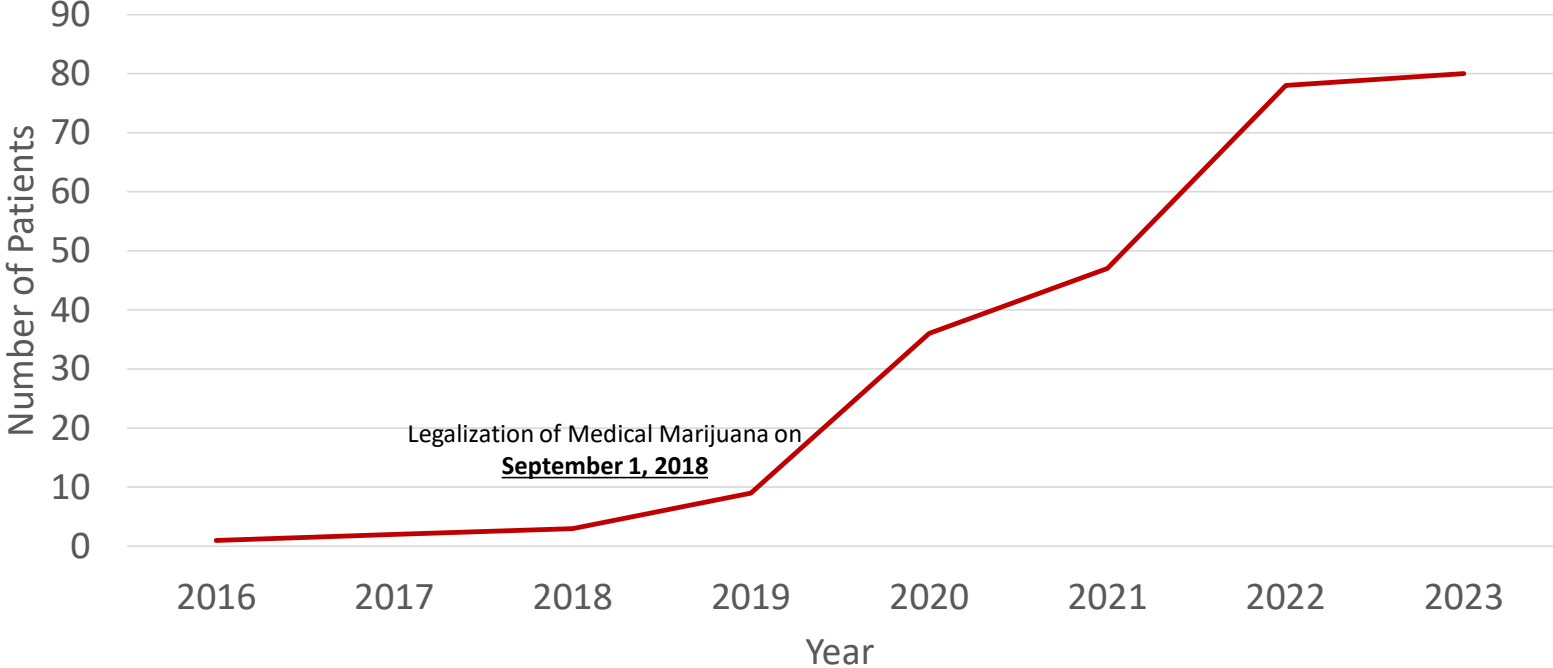
Obj. 4



Image credit: Unsplash

# Accidental Ingestions – 2016-2023

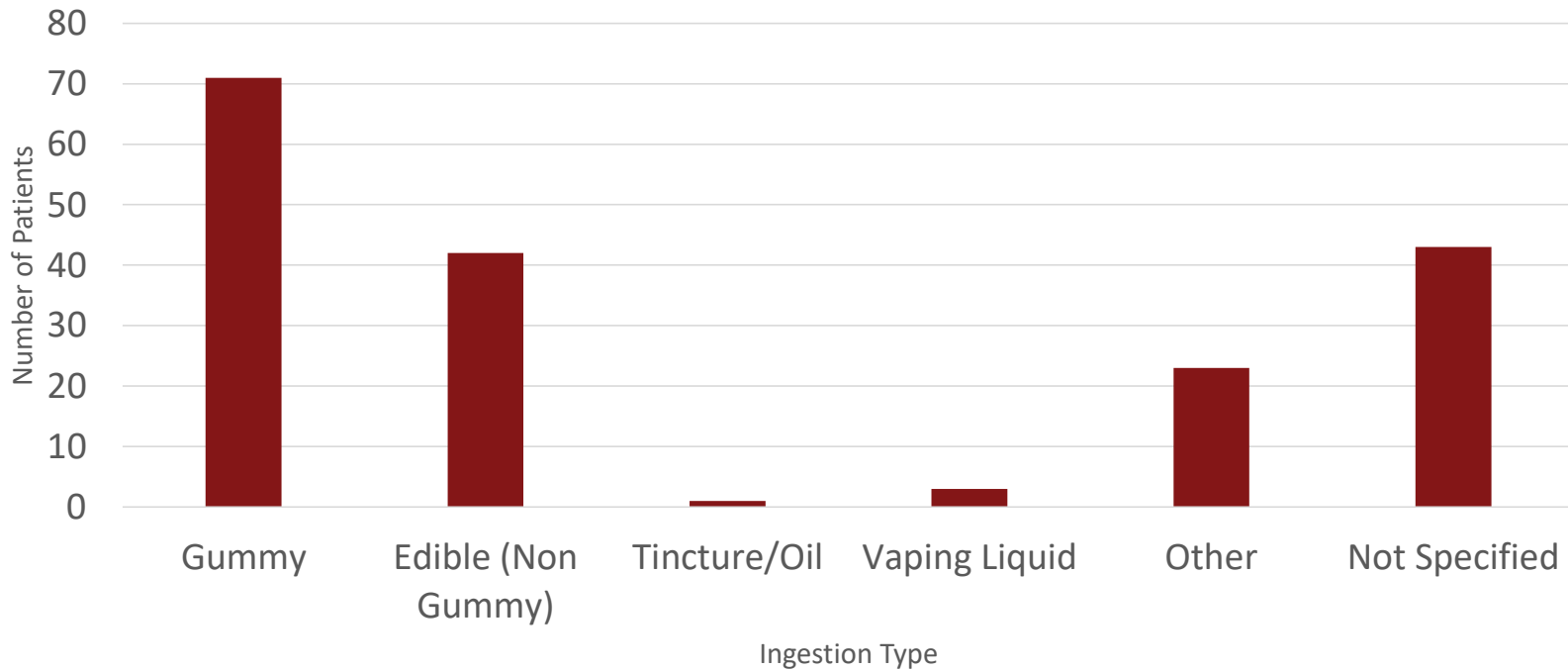
Patient Presentation to OCH for Accidental Ingestion of Cannabis



# Ingestions – By Type

Obj. 4

## Ingestion Type - Post Legalization



# Case Presentation

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2yo F and 4yo F (siblings) present to the ER with Mom and Dad with altered mental status. They had been at a friends house that evening for dinner, children were acting normally until about 2100 when they started to not act like themselves. Increased sleepiness, not walking correctly, walking into walls. Brought to the ER for evaluation.

On exam, both girls were somnolent. They would wake up with significant stimulation but didn't respond as normal with PIV start (barely cried). When they did wake up they were very irritable, almost inconsolable, but would fall back asleep very quickly.

What is included in your initial work-up?

What information do you want from the family?

What clinical information do you want?

# Clinical Presentation

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Obj. 4

- Altered mental status\*\*\*
- Sleepiness
- Euphoria
- Irritability
- Tachycardia/hypertension
- Increased appetite
- Nausea/vomiting
- Nystagmus/ataxia

# Diagnosis - Urine Drug Screen

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Obj. 4

- Diagnosis solely on clinical criteria is difficult
  - What other diseases can present with altered mental status?
- UDS – helps confirm the diagnosis because (+) results in a symptomatic children likely represents an acute exposure
  - Immunoassays that detect THC metabolites
  - Lower limits of detection range from 20–100ng/mL
  - Do not detect SYNTHETIC cannabinoids (aka “spice” or “K2”)
  - False positive are RARE

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# Accidental Ingestion - Treatment

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Obj. 4

- Consult Poison Control
- A, B, Cs
- FSBS (exclude hypoglycemia)
- Maintenance IV fluids, bladder scans
- Dimly lit room, reassurance, decreased stimulation
- Short-acting Benzodiazepines (i.e. Lorazepam)

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# Back to the 2yo and 4yo

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Obj. 4



- UDS (+) for THC
- Admission for supportive care
- Very, very sleepy
  - Mom very concerned about the girls not waking up, not wanting to eat/drink
  - When the girls would wake up – very, very irritable
- Vitals stable throughout admission

# Case presentation

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Obj. 4

17yo F presents to the emergency department with intractable nausea/vomiting that has been ongoing for the last 5 days. Patient complains of intense mid-epigastric abdominal pain and on-going nausea/vomiting despite at home use of topical Phenergan. She has a history of about 1 month of early morning nausea, fear of vomiting, and mild to moderate abdominal pain that would wax/wane.

What is included in your initial work-up?

What other information would you gather from the patient/family?

# Abdominal pain, Nausea, Vomiting – Differential Diagnoses

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Obj. 4

- OVERWHELMINGLY BROAD!!
  - Gastritis
  - Gastrointestinal reflux disease (GERD)
  - Appendicitis
  - Pancreatitis
  - Nephrolithiasis
  - Urinary Tract Infection
  - Ectopic Pregnancy
  - The list goes on and on and on and on....

Cue, et al., 2023

# Cannabinoid (cannabis) Hyperemesis Syndrome

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Obj. 4

- Condition characterized by cyclical nausea, intractable vomiting, and severe abdominal pain often temporarily relieved by hot showers/baths
- Usually occurs in individuals who have chronic heavy cannabis use over the course of 10–12 years... HOWEVER, we are seeing more and more teenage patients present with these symptoms



- Labs:
  - Chemistry – electrolyte derangements
  - CBC – infectious etiology
  - UA – UTI; presence of ketones (dehydration/nutrition status)
  - EKG – QTc interval
  - Urine Hcg – pregnancy (especially ectopic)
  - Urine drug screen – drugs of abuse



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# Treatment/Management

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Obj. 4

- First and foremost – *STOP SMOKING (or eating) MARIJUANA!!!*
- Initial outpatient management: ondansetron and/or metoclopramide
  - CHS – many times it is resistant to these therapies!
- To admit or not to admit?
  - Intractable nausea/vomiting – not responsive to Ondansetron – will often be referred for admission

# Medications/Treatment

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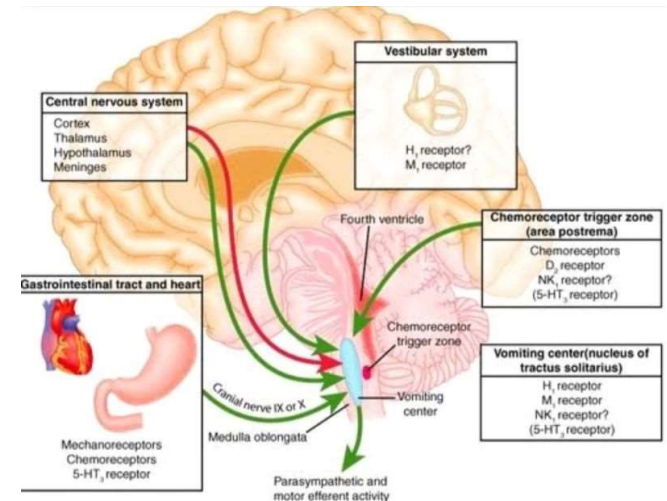
Obj. 4

- Fluid bolus (20mL/kg, sometimes up to 3x – depending on severity of dehydration)
- Maintenance IVFs (D5 NS w/ 20mEq KCl/L or D5 LR)
- Antiemetics:
  - Ondansetron
  - Metoclopramide (not as much)
  - Promethazine
  - Prochlorperazine
  - Diphenhydramine

# When the typical anti-emetics aren't cutting it....

Obj. 4

- Droperidol/Haloperidol
- Lorazepam
- Capsaicin Cream
- Fosaprepitant/Aprepitant



# Patient Follow-up

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Obj. 4

- Received NS bolus x2 in the ER, admitted for further care
  - Placed on maintenance IVFs
  - PRN Antiemetics included: Topical Capsaicin, Ondansetron, Diphenhydramine
- UDS (+) THC
  - During HEADSS exam – patient disclosed consuming marijuana (edibles and smoking) daily, sometimes multiple times per day, for the last 3 months
- Hospital day #3 – despite aggressive rehydration and PRN antiemetics, patient was still unable to tolerate anything by mouth
- Given x1 dose of Fosaprepitant – marked improvement in nausea/vomiting; slowly increased PO intake
- Discharged to home morning of hospital day #5
  - Discharge EDUCATION

# Where do we go from here?

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Obj. 4

Educate, educate, educate!

- Ask about cannabis in the home.
- Storage!
  - Child resistant packaging (Out of Sight, Out of Reach, Locked!)
  - Don't keep near food or in the kitchen
- Poison Control Center: 1-800-222-1222
- No use in front of children

# Sources

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