



# Marijuana as Medicine Fact or Fiction?

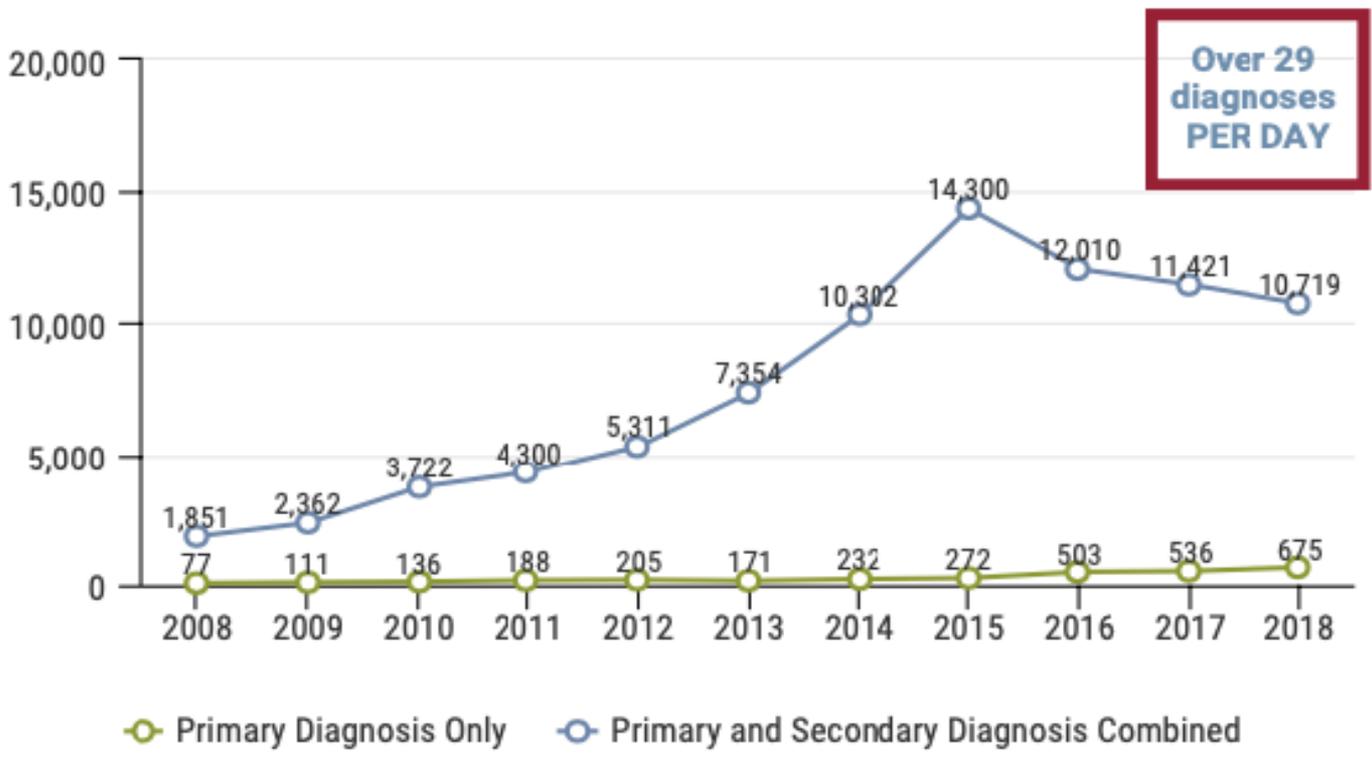
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Emergency and Addiction Physician  
Former White House Chief Medical Officer ONDCP

# Marijuana Fact or Fiction?



## Emergency Department Frontline

- 776% increase in emergency department visits in San Diego with primary diagnosis listing cannabis
- Nearly 30 ED visits per day in San Diego





# International Academy on the Science and Impact of Cannabis



**IASIC1.ORG**

Medical Library has helpful summaries and citations

- Allergies
- Amotivational Syndrome
- Anxiety
- Autism
- Cancer
- Cannabis Hyperemesis Syndrome
- Cannabis Use Disorder
- Cannabis Withdrawal
- Cardiovascular Health
- CBD Effects
- Contamination
- Depression and Suicidality
- Emergency Admissions
- Life Expectancy
- Motor Vehicle Collisions
- Neonatal Exposure
- Neurocognitive Effects
- Pain/Opioids
- Psychosis and Schizophrenia
- PTSD
- Pulmonary Health
- Seizures
- Suicide
- Violence

# Medical Association Position

## Statements

- Association for Addiction Professionals
- American Academy of Neurology
- American Academy of Ophthalmology
- American Academy of Pediatrics
- American Cancer Society
- American College of Medical Toxicology
- American College of Obstetrics and Gynecology -
- American Epilepsy
- American Glaucoma Foundation
- American Heart Association
- American Lung Association
- American Medical Association
- American Academy of Neurology
- Psychiatric Association
- Australian and New Zealand College of Anaesthetists, Faculty of Pain Medicine
- International Association for the Study of Pain
- American Society of Addiction Medicine



**ASAM** American Society of  
Addiction Medicine



American Academy  
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™

# High Truths on Drugs and Addiction Podcast



High Truths on Drugs and  
Addiction

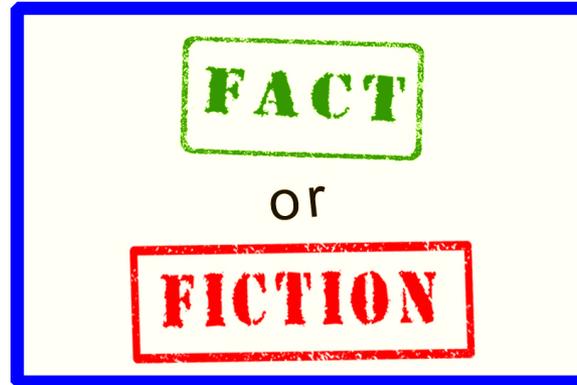
[Hightruths.com](http://Hightruths.com)

Podcast Hosted by Dr. Lev

JOIN SEASON FINAL  
NOVEMBER 19  
BE PART OF CONVERSATION



# Medical Marijuana



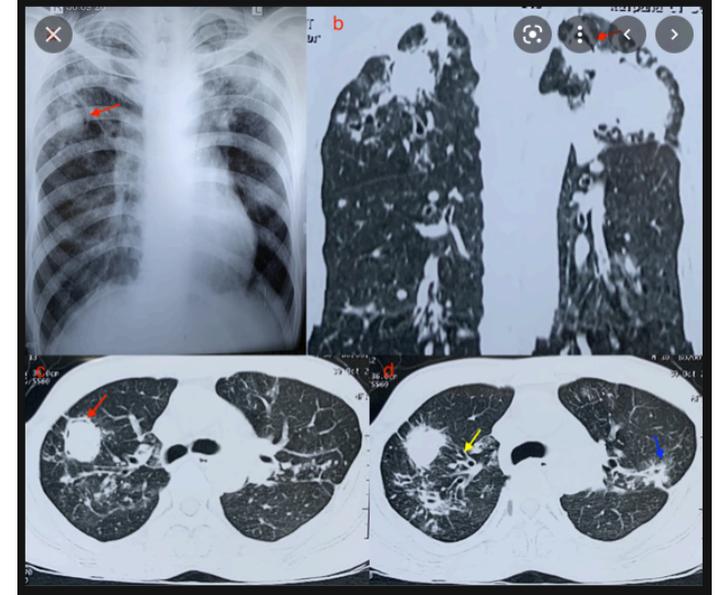
*Medical marijuana is safer than non-medical marijuana.*



## Frontline Case

### Fungal Infection

34-year-old man presented with **pulmonary aspergillosis** on the 75<sup>th</sup> day after bone marrow transplantation for CML leukemia. He was smoking marijuana heavily for several weeks before admission to the hospital. His lung cultures and marijuana stash cultures grew the **same *Aspergillus fumigatus* morphology**. Unfortunately, he did not survive this infection.





## What is “Medical” Marijuana?

- “Medical” is **political** definition not a scientific definition
- **No different** in plant quality
- Not held to international medicinal standards of prescribing
- “Medical” users
  - **Less than 3%** of California users have cancer, HIV, seizures
  - Average age **32**
- Products are not Dietary Supplement Standards Verified





# “Medical” Marijuana



*“Medical” marijuana is **not** safer than non-medical marijuana.*

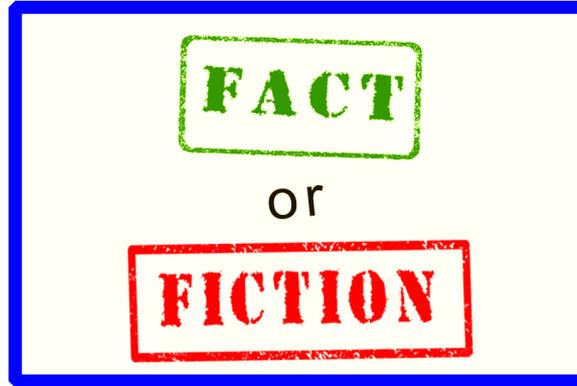
- Medical and recreational marijuana come from the same plant.
- 20 out of 20 licensed dispensaries in California were found to have **contamination** in their marijuana such as fungus and bacteria.
- **CDC Alert: Organ transplant** recipients should avoid smoking cannabis and **immunocompromising conditions** should be aware of the possible link between cannabis smoking and fungal infections.
- Truth in Labeling JAMA study
  - CBD: 84 products studied, 31% accurate labeling
  - THC: 75 products studied, 17% accurate labeling

UC Davis. Clinical Microbiology and Infection, titled, “A microbiome assessment of medical marijuana.” In press. Retrieved from <http://www.ucdmc.ucdavis.edu/publish/news/newsroom/11791>. March 13, 2018

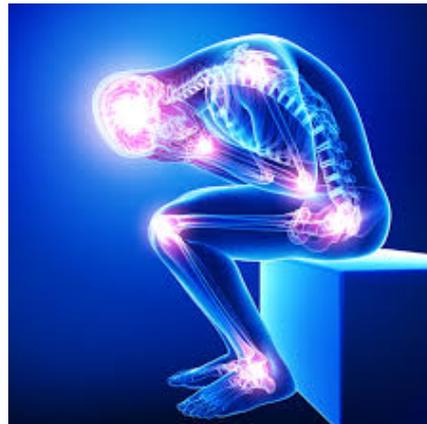
CDC Emerging Infectious Diseases. Volume 26, Number 6 – June 2020. .



# Pain



*Medical marijuana is recommended for pain.*



## Frontline Case

### Back pain and Blood pressure

54-year-old man presented to the emergency department with **back pain**. He was proud of spending \$50 for medical marijuana card and purchased vaping products. He thought it helped him for a while, but now his back pain was worse. His **blood pressure** was **250/120**.





# Types of Pain



## **Nociceptive** (Tissue Damage)

- Tissue Damage
- Broken Bone
- Arthritis
- Cancer Pain
- Surgery pain

## **Neuropathic** (Nerve Dysfunction)

- Diabetic Neuropathy
- Post Herpetic Neuralgia

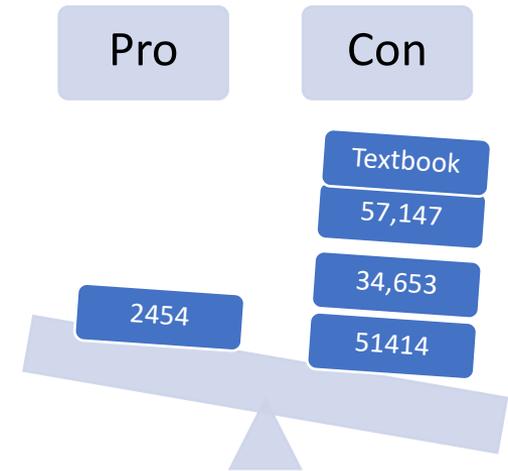
## **Sensory/Hypersensitivity** (No Tissue or Nerve Damage)

- Fibromyalgia
- Irritable Bowel Syndrome
- Chronic Fatigue
- Restless Leg Syndrome

## Science on Pain

### STUDIES SUPPORTING CANNABIS FOR PAIN

- 28 studies with 2454 patients: cannabis vs placebo (Whiting, 2015)
  - 37% vs 31% greater pain reduction
  - Patients had mostly **neuropathic pain**
  - *Example study:*  
4% THC 3x per day for 5 days, 50 patient study



### STUDIES AGAINST CANNABIS FOR PAIN

- Several Large Studies:
  - Goldfrank Toxicology Textbook
  - 1514 participants over 4 years - Campbell, The Lancet Public Health, 2018
    - Users have a **greater pain severity score**, great pain interference score, **lower pain self efficacy** scores, and **great anxiety**.
    - **No** evidence that cannabis resulted in **discontinued opioids**.
  - 34,653 participants - Olfson, Am J of Psychiatry, 2017.
    - Use **increased risk** of developing nonmedical prescription opioids and **opioid use disorder**.
  - 57,147 people- NSDUH data, Caputi. J Addiction Medicine. 2008. 2015
    - Medical" Marijuana Users are **more likely to use prescription drugs medically and non medically**.



# Misleading Science

## “Marijuana Protection Hypothesis”

- Bauchhuber. JAMA. From 1999-2010 states with medical cannabis laws experienced slower increases in opioid overdose mortality.
- Shover. Proceedings National Academy of Science. Extended exact same study from 1999-2017 and found the opposite. States passing medical cannabis laws experienced a 22.7% increase in overdose deaths.
- Hue and Kovacs. Association of county level cannabis dispensary counts and opioid related mortality rates in the United States. The BMJ. 2021. Claim 17% reduction in opioid deaths with increase of 1-2 store fronts. Evaluated 23 states.
- Archie Bleyer. Oregon Science and Health University. Updated the “marijuana protection hypothesis” with opioid mortality trends to 2017 looking at all states and District of Columbia. Of the 23 legalizing states, 78% had statistically significant acceleration of opioid death rates after medical or recreational legalization.

# Marijuana Research

Things to ask:

- How many people in study?
- What was dose of THC / CBD used?
- Who sponsored?



Opioid Epidemic  
based on NEJM  
Letter to the  
Editor and study  
of 38 patients



# International Association for the Study of Pain

- Due to the lack of high-quality clinical evidence, the International Association for the Study of Pain (IASP) does not currently endorse general use of cannabis and cannabinoids for pain relief.



International Association for the Study of Pain

**IASP**<sup>®</sup>

*Working together for pain relief*



## Pain

**FICTION**

“Medical” Marijuana is *not* recommended for pain.

- Lack of Science in pain relief
- Lack of Science as an opioid substitute
- Studies using Cannabis for pain are very small
- Studies using Cannabis for pain do not use high potency product
- Marijuana use **does not reduce opioid** use for people in chronic pain
- Marijuana users **increase opioid use** without obtaining more pain relief

Marijuana is **contraindicated** for opioid use disorder.

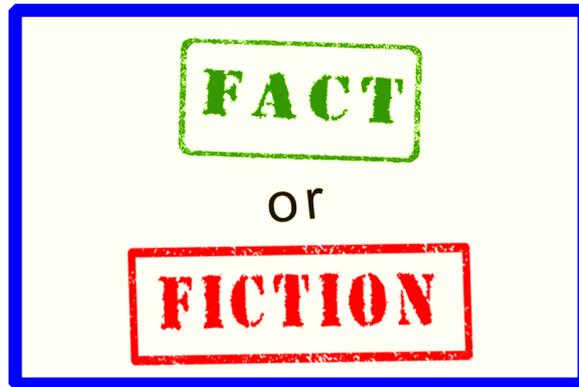
- Concurrent marijuana and opioid use interferes with treatment of opioid use disorder
- **ASAM- American Society of Addiction Medicine:** Cannabis should **not be recommended** for use of **opioid use disorder**.

- Larkin PJ, Madras BK. Opioids, overdoses, and cannabis: is marijuana an effective response to the opioid abuse epidemic? The Georgetown Journal of Law and Public Policy.
- Nugent SM. Et al. Patterns and correlates of medical cannabis use of pain among patients prescribed long term opioid therapy. Gen Hosp Psychiatry 2018.
- Lee DC, et al. Systemic review of outcome domains and measures used in psychological and pharmacological treatment trials for cannabis use disorder. Drug Alcohol Depend. 2018.
- Shover LE, et al. Association between medical cannabis laws and opioid overdose mortality has reversed over time. Proc Nat Acad Sci. 2019.

- Cannabis and Pain: A Clinical Review. Hill et al. Cannabis Cannabinoid Res. 2017  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5549367/>
- Marijuana as Medicine? The Science Beyond the Controversy. Alison Mack, Janet Joy.  
<https://www.ncbi.nlm.nih.gov/books/NBK224394/>
- Cannabis for Chronic Pain: Not Ready for Prime Time. Carr and Schatman. Am J Public Health  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6301389/>



# Bleeding

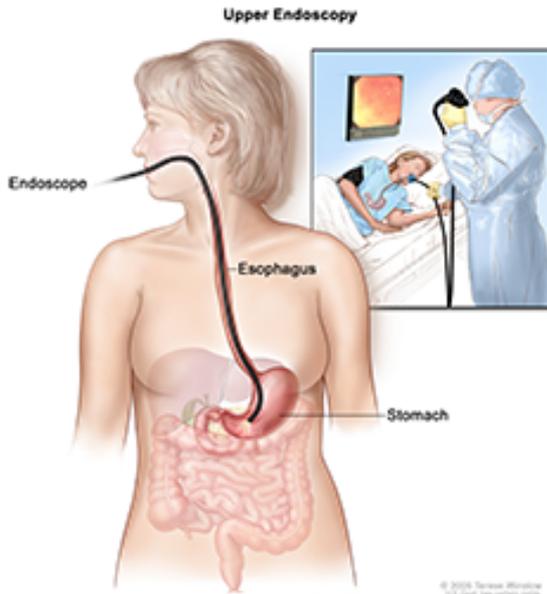


*Marijuana can cause spontaneous bleeding.*



# Marijuana Fact or Fiction?

## Front Line Case



### Internal Bleeding

68-year-old man presented to the emergency department for the third time for **internal bleeding**. Each time he received a blood transfusion and endoscopy to look for bleeding. He was on a **blood thinner** for his prior heart attacks. On the third visit his **marijuana** use was found to cause drug interaction that increased bleeding.

# Marijuana Drug Interactions

Drugs.com



## Cannabis - THC

Do not take  
with Marijuana



- 377 drugs interact with cannabis
- Morphine, Tramadol, Benzodiazepines, Psychiatric meds, Alcohol
- 24 Major reactions
- 353 moderate reactions

## Cannabidiol - CBD

Do not take  
with CBD



- 529 drugs interact with cannabis
- Aspirin, antihistamines, Tylenol, Psychiatric meds, Alcohol
- 9 Major reactions
- 519 moderate reactions

# **Marijuana Drug Interactions**

## **Be in the know!**

**Marijuana may cause drug interactions  
with your medications**

Chemicals found in marijuana such as THC and CBD may interact with medications, with potential serious side effects.

**Common drugs that have interactions include:**

- **Sedatives**
- **Anti-Anxiety medications**
- **Anti-Depressant medications**
- **Pain medications**
- **Seizure medications**
- **Blood Thinners**

It is always recommended to inform your Doctor or health care provider of any substances you may be taking to avoid harmful drug interactions.



# Bleeding

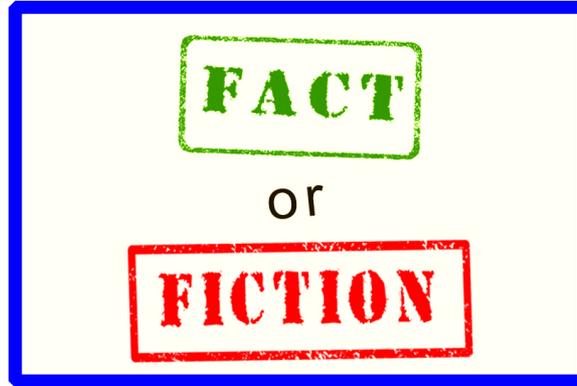


*Marijuana **can** cause spontaneous bleeding.*

- Marijuana can cause spontaneous bleeding in patients who are taking blood thinner medications.
- THC and CBD have many drug interactions.



# Insomnia



*Medical marijuana is recommended for insomnia.*



# Marijuana Fact or Fiction?

## Frontline Case



### Grandpa can't sleep

88-year-old man on vacation with family with history of diabetes, high blood pressure, and cirrhosis. He complained of inability to sleep and taking too many medications. He grandson tried to help by giving him a pot brownie. He was admitted to the hospital with **altered mental status** because he could not wake up.

# Insomnia

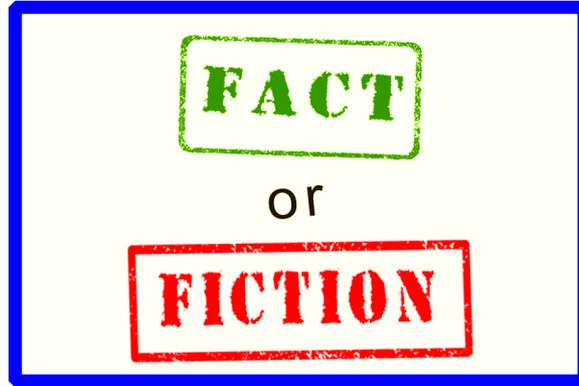


*Marijuana is **not** recommended for insomnia*

- Marijuana, the plant, is not a medical recommendation for insomnia.
- Delta-9 THC may decrease sleep latency but impair sleep quality long term
- Cannabis and sleep is in its infancy and yielded mixed results



# Nausea



*Medical marijuana is  
recommended for nausea*



# Front Line Case



## Cannabis Hyperemesis Syndrome Scromiting

Brian Denny was 17 years old and diagnosed with cannabis hyperemesis syndrome. He died from his disease.

Daily diagnosis in emergency departments.

# Nausea

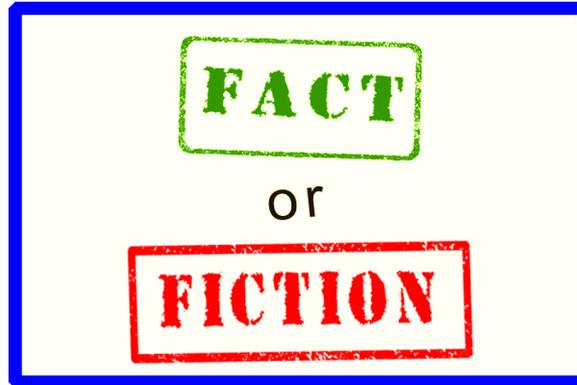


*Marijuana is **not** recommended for nausea.*

- Marijuana, the plant, is not a medical recommendation for nausea.
- Nabilone and Dronabinol (pure THC) can help chemotherapy induced nausea and vomiting
  - THC at low potency
  - No evidence it is better or safer than currently available anti-emetics
- Vomiting can be caused by marijuana. Cannabis Hyperemesis Syndrome (scromiting) is a common condition in chronic marijuana smokers.
- **American College of Obstetrics and Gynecology**
  - Discourage marijuana use preconception, pregnancy, lactation



# Seizures



*Marijuana helps seizures*



Charlotte Figi

# Front Line Case



## Seizure

32-year-old man presents to the emergency because of seizure. This is his 4<sup>th</sup> visit to the ED for the same problem. He has a known seizure disorder and is not taking his seizure medications. He admits to using cannabis to treat his seizures.



## CBD available by prescription

- The only FDA regulated CBD product is Epidiolex
- Indication: Dravet Syndrome or Lennox-Gastaut syndrome
- FDA studies show clinical side effects and adverse reactions

### FDA package insert

#### -----INDICATIONS AND USAGE-----

EPIDIOLEX is indicated for the treatment of seizures associated with Lennox-Gastaut syndrome or Dravet syndrome in patients 2 years of age and older (1)

#### -----WARNINGS AND PRECAUTIONS-----

- Hepatocellular Injury: EPIDIOLEX can cause transaminase elevations. Concomitant use of valproate and higher doses of EPIDIOLEX increase the risk of transaminase elevations. See Full Prescribing Information for serum transaminase and bilirubin monitoring recommendations. (5.1)

#### -----ADVERSE REACTIONS-----

The most common adverse reactions (10% or more for EPIDIOLEX and greater than placebo) are: somnolence; decreased appetite; diarrhea; transaminase elevations; fatigue, malaise, and asthenia; rash; insomnia, sleep disorder, and poor quality sleep; and infections. (6.1).



### Warning:

- Liver damage
- Suicide
- Somnolence
- Sleep Disorder
- Infections

# Seizures

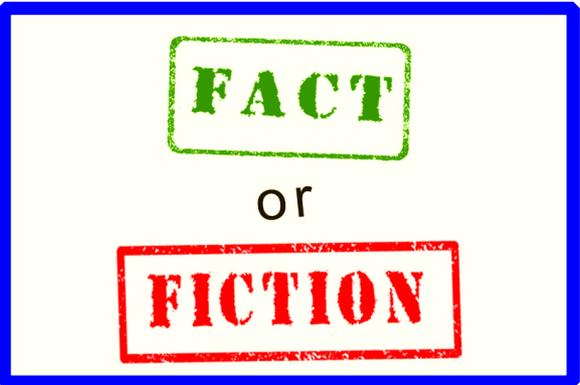


*Marijuana **does not** help seizures.*

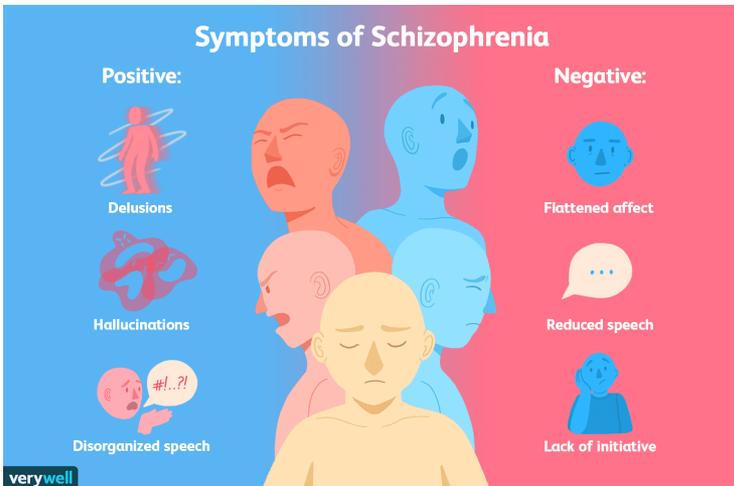
- Marijuana, the plant with 500 chemical does not help seizures.
- **American Epilepsy Society**
  - No recommendation of THC for seizure
  - Epidiolex (CBD) is recommended for specific pediatric seizures
    - - Dravet Syndrome
    - - Lennox-Gastaut Syndrome
  - Caution in buying CBD from dispensaries



# Schizophrenia



*Marijuana can cause permanent schizophrenia.*



# Front Line Case



## Psychosis

31-year-old man called 911 because he believes he is **going to die**. He is visiting California and just smoked marijuana.

**Distracted**

Hearing voices

**Visual**

**hallucinations**

Paranoid **Delusions**

Nonsensical speech

**Bizarre behavior**

“There is substantial evidence of a statistical association between cannabis use and the development of schizophrenia or other psychoses, with the highest risk among the most frequent users.” - National Academies of Sciences, Engineering and Medicine. The Health Effects of Cannabis and Cannabinoids. 2017

# Front Line Case



## Agitated Delirium

26-year-old man brought in by paramedics and law enforcement **kicking, screaming, spitting**, flailing in a **violent** outburst. He was home alone tearing up his apartment when neighbors were concerned. After chemical sedation and 8 hours in the emergency department his toxicology test was positive **just for THC**. He was a nice young man and admitted to using a single marijuana gummy bear.

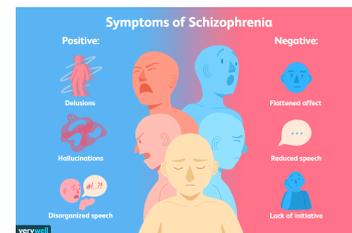
# Schizophrenia



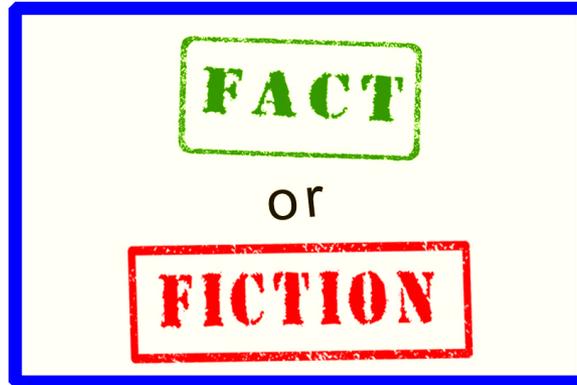
Marijuana *can* cause permanent schizophrenia.

FDA Label for Marinol (2.5 mg bid): “ Avoid use in patients with a psychiatric history”

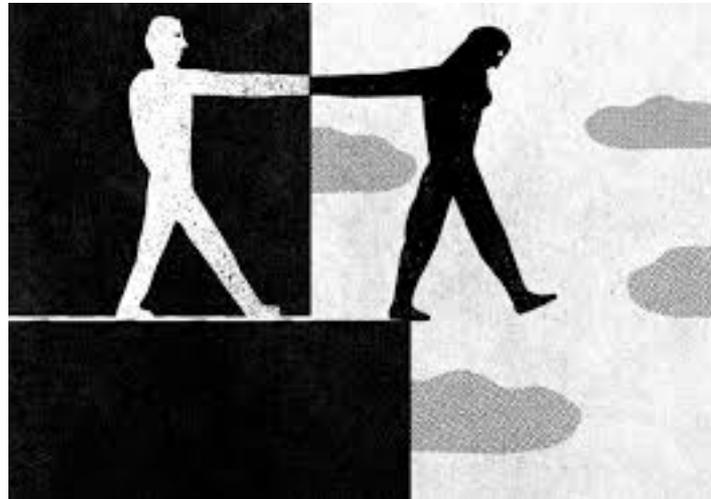
- Marijuana causing psychosis meets all 7 Bradford-Hill criteria for epidemiological causation vs association.
- **5x** risk chronic psychotic disorder for heavy marijuana users.
- **7 x** increased risk suicide attempt in Caucasians who begin using in teens.
- **Recovery** of a psychotic break from marijuana occurs **50%** of the time compared to recovery from other drugs 70% - 95% recovery.



# Depression and Suicide



*Marijuana can lead to depression and suicide*



# Marijuana Fact or Fiction?



# Front Line

ED Track Board (ME ED)

Sign Out | Edit Shifts | Team | Refresh | Add'l Tools | Comments | First Provider Evaluation

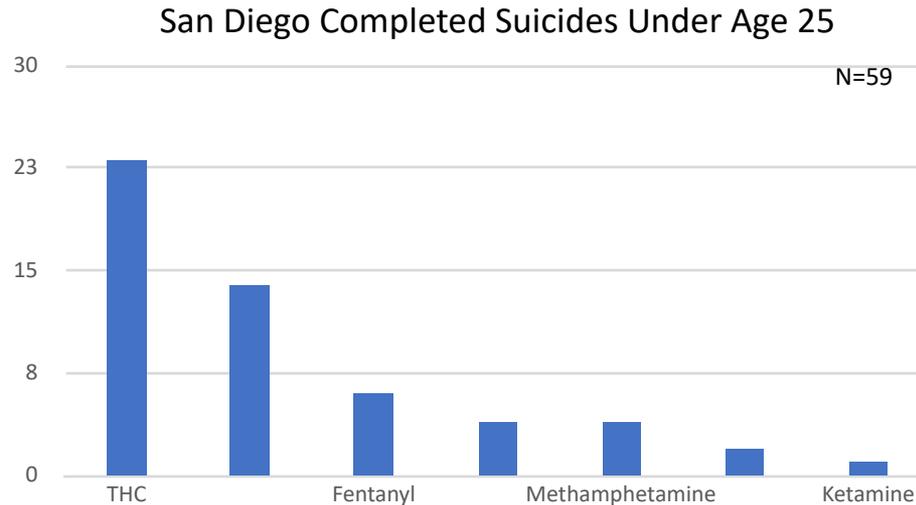
My Pts (1) | My + Unassigned (11) | Gold (24) | Suite A (9) | Trauma (0) | All Pts (52) | More Views

Bed	Priv	Pat	Age/Gende	Complaint	A	TT	Current Sta	RN	AHP
B04	—	H...	34 y.o. / F	Abdominal Pain	3	04:00	00:29	—	—
E06	—	P...	25 y.o. / M	Head Injury; Assault Victim	3	04:15	03:58	V...	—
E02	—	W...	26 y.o. / M	Dental Pain; Hip Pain	3	04:35	02:37	L...	—
E08	—	C...	24 y.o. / F	Head Injury	3	04:38	02:27	—	—
E11	—	S...	23 y.o. / M	Head Injury	4	04:51	00:31	—	—
B09	🔒	🔒	53 y.o. / F	Anxiety	4	05:21	00:33	—	—
B02	🔒	🔒	32 y.o. / M	Altered Mental Status	2	05:32	02:03	—	—
B10	—	C...	91 y.o. / F	Syncope	3	06:37	00:11	—	—
B05	—	M...	32 y.o. / F	Headache	3	07:39	04:32	M...	—
A09	—	C...	25 y.o. / M	Alcohol Intoxication	5	07:41	01:33	J...	—
A11	🔒	🔒	16 y.o. / M	Alcohol Intoxication	3	08:11	04:13	—	—
A10	—	H...	27 y.o. / M	Suicidal	2	08:19	07:58	—	—
OTF	—	L...	52 y.o. / F	Drug Overdose	5	08:48	04:05	—	—
⚠️B08	—	A...	88 y.o. / M	Shortness of Breath	3	09:15	01:11	M...	—
B03	—	S...	24 y.o. / F	Motor Vehicle Crash	4	09:42	00:21	—	—
OTF	—	N...	50 y.o. / F	Chest Pain	2	09:55	04:30	A...	—
🟡B06	—	L...	36 y.o. / F	Psychiatric Evaluation	2	10:01	03:31	M...	—
🟢OTF	—	M...	32 y.o. / M	Rash; Abscess	4	10:29	04:16	—	—
⚠️A02	—	G...	75 y.o. / F	COVID-19	3	10:56	01:39	S...	—
OTF	—	L...	19 y.o. / F	Cough; Fever	3	11:53	08:38	—	—
E04	—	S...	60 y.o. / M	Suicidal	2	14:08	08:23	V...	—
E07	—	G...	50 y.o. / F	Alcohol Problem	3	15:19	09:58	V...	—
⚠️A06	—	V...	74 y.o. / F	Weakness	3	23:06	14:21	—	—
B01	—	C...	46 y.o. / M	Withdrawal; Suicidal	2	24:59	18:00	—	—
E01	—	T...	34 y.o. / M	Assault Victim	4	28:29	08:23	L...	—
E05	—	A...	51 y.o. / F	Suicidal; Homicidal; Psyc...	2	38:37	08:23	V...	—
B07	—	B...	66 y.o. / M	Psychiatric Evaluation	2	45:58	08:23	M...	—
E09	—	D...	54 y.o. / M	Suicidal	2	69:17	08:23	—	—
F03	—	S...	36 y.o. / F	Bipolar	3	76:07	08:23	—	—
🟢OTF	—	V...	37 y.o. / F	Headache	3	92:09	85:47	—	—
🟡F01	—	P...	20 y.o. / M	Psychiatric Evaluation	2	127:18	08:23	—	—
F04	—	S...	29 y.o. / F	Suicidal	2	131:56	08:23	—	—
E10	—	A...	48 y.o. / F	Psychiatric Evaluation	2	132:53	08:23	—	—
F02	—	D...	38 y.o. / F	Manic Behavior	3	136:57	08:23	—	—
🟡B12	—	Y...	23 y.o. / M	Psychiatric Evaluation	2	232:35	08:23	—	—

## Psychiatric Boarding

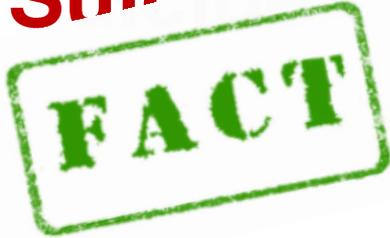
- Anxiety
- Altered Mental Status
- Syncope
- Alcohol
- Alcohol
- Suicidal
- Drug Overdose
- Psychiatric Evaluation
- Suicidal Alcohol
- Withdrawal Suicidal
- Psychiatric Evaluation
- Suicidal
- Psychiatric Evaluation
- Manic Behavior
- Psychiatric Evaluation >400 hours

# Front Line



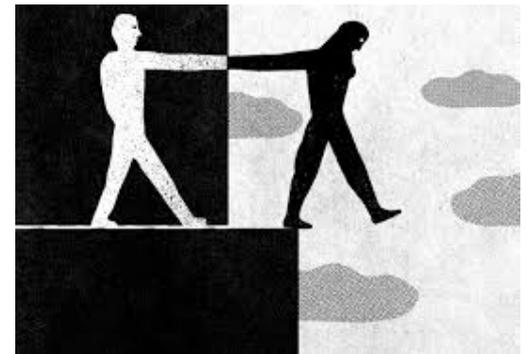
- THC is #1 Drug found in completed suicides in age < 25
- Nearly 50% of Age Development(< 25) completed suicides included THC
- Nearly 50% of THC positive completed suicide have THC alone and no other drug

# Depression and Suicide

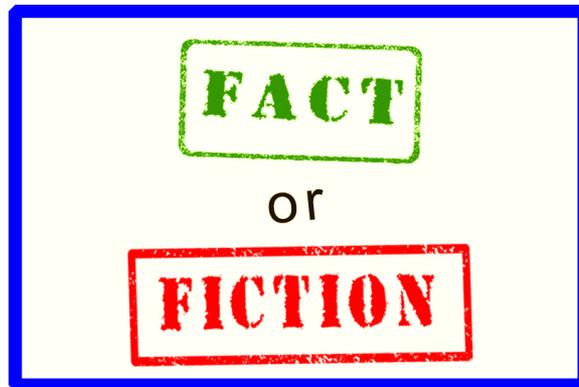


*Marijuana **can** lead to suicide*

- Adolescents who use cannabis have a significant increased risk of depression and suicidality in study of 23,217 individuals
- Marijuana use is associated with increased risk of suicide
- THC is #1 drug found in completed teen suicide in Colorado
- Self harm increases 46% in young men in states with commercialized cannabis



# Heart Health



*Marijuana is associated with heart attacks and stroke.*





## Front Line Case



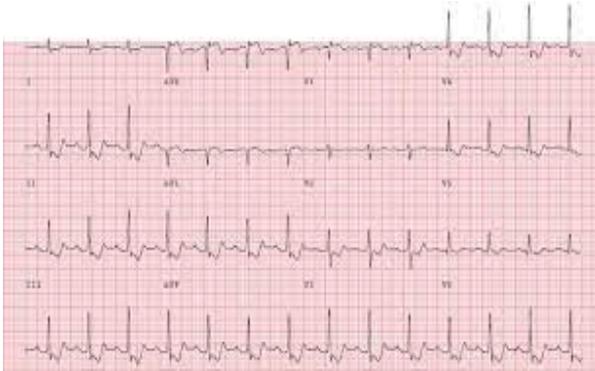
### Passed out

54-year-old woman with history of fibromyalgia has been taking marijuana gummy bears for 2 years without any problems for her chronic headaches. She came to the ED after **passing out**, hitting her head, and sustaining a **head injury**.

She just took a single dose of a new batch of gummy bears.



# Front Line Case



## Heart Attack and Cannabis Hyperemesis

46-year-old woman with known CHS requested Haldol to help her symptoms. She felt anxious when trying to quit marijuana and has not been able to. She noted chest pain due to wretching. Her heart enzymes showed she had a **heart attack**.



# Heart Health



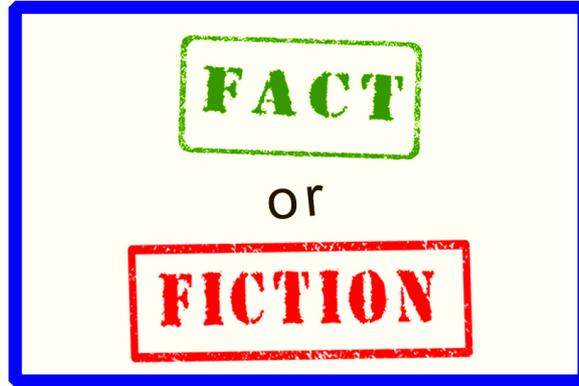
Marijuana *is* associated with heart attacks and stroke.

American Heart Association Scientific Statement  
“Cannabis use shows substantial risks, no benefits for cardiovascular health; more research is critical”

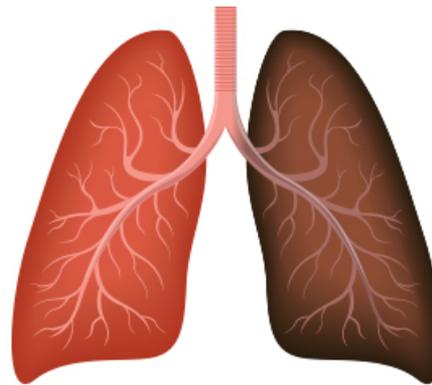
- Cardiac **death rates** increased 2.3% in men and 1.3% in women since legalization of medical cannabis – *US National Vital Statistics 1990-2014*
- Cannabis use is associated with increased **systolic** but not diastolic blood pressure – *US National Health and Nutritional Examination*
- 3-year incidence of **Acute Myocardial Infarction** was higher in cannabis abuse group – *Explorays 2011-2016*
- Increasing trend of **arrhythmias** with cannabis users – *National Inpatient Sample 2010-2014*
- 3.3 x increase **stroke** rate in cannabis users – *1999-2002*



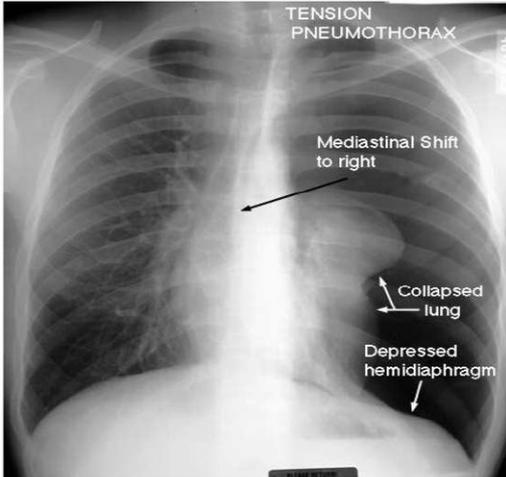
# Lung Health



*Smoking marijuana is bad for the lungs.*



# Front Line Case



## Pneumothorax

27-year-old man presented with severe chest pain and shortness of breath. A chest x-ray showed a **pneumothorax** – **collapsed lung**.

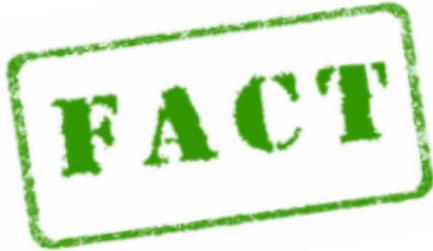
# Lung Health

For every **1** adult who quits cigarettes using e-cigarettes, **80** adolescents who never smoked will eventually become daily smokers through e-cigarette use

- The **American Lung Association** cautions the public against smoking marijuana as well as tobacco products
- The CDC/ FDA investigated **2807** cases, **68** fatalities, associated with **EVALI** (peak Sept 2019)

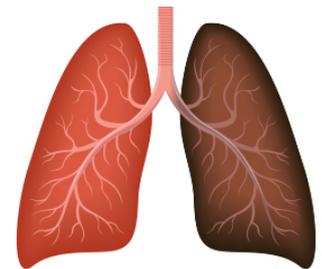


# Lung Health



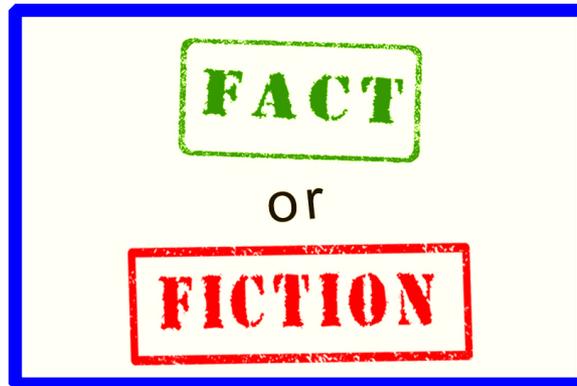
Smoking marijuana *is* bad for the lungs.

- Smoke from marijuana combustion contain many of the **same toxins**, irritants and carcinogens as tobacco.
- Marijuana smokers tend to inhale more deeply and hold their breath longer than cigarette smoking which leads to **greater exposure per breath to tar**.
- Marijuana smoking is associated with a **2-fold increased** risk of lung cancer.
- Marijuana **joint** procedures **3.5 times** as much secondhand smoke as a Marlboro cigarette



# Marijuana Fact or Fiction?

# Cancer



*Marijuana can cause cancer.*



**TESTICULAR CANCER**

# Front Line Case



Block of enlarged lymph node filling almost the entire right retroperitoneal space infiltrating the psoas muscle.

## Testicular cancer

32-year-old Caucasian male presented with right sided scrotal swelling for 6 months. A CT scan showed metastatic cancer. He was treated with orchiectomy and chemotherapy. Unfortunately, he died of his disease.

# Cancer



*Marijuana **can** cause cancer.*

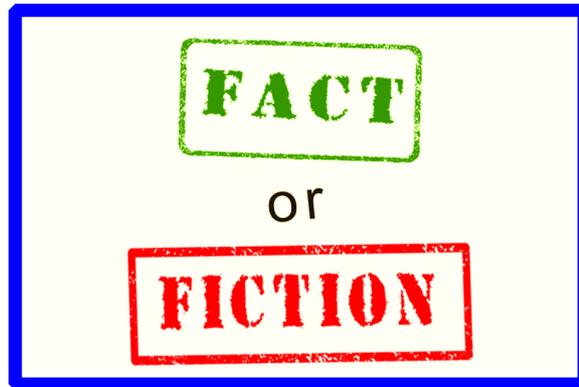
- **Testicular germ cell cancer** has a **2-fold** increase in marijuana users.
- **American Cancer Association** cautions against relying on marijuana alone while avoiding or delaying medical care for cancer
- ACA notes helpful in nausea for cancer chemotherapy, neuropathic pain, HIV wasting syndrome, slow growth of some cancer cells in a lab.
- New Zealand cancer association associated marijuana use with **lung cancer**

- Daling JR et al. Association of marijuana use and the incidence of testicular germ cell tumors. *Cancer*. 2009;115(6):1215-1223. doi: 10.1002/cncr.24159
- Lackson JC, Carroll JD, Tuazon E, Castelao EJ, Bernstein L, Cortessis VK. Population-based case control study of recreational drug use and testis cancer risk confirms an association between marijuana use and nonseminoma risk. *Cancer*. 2012;118(21):5374-83. doi: 10.1002/cncr.27554
- Traber B, Sigurdson AJ, Sweeney AM, Strom SS, McGlynn KA. Marijuana use and testicular germ cell tumors. *Cancer*. 2011;117(4):848-53. doi: 10.1002/cncr.25499.
- Aldington, et. Al. Cannabis use and risk of lung cancer: A case control study. *Eur Resp J*. Feb 2008.



TESTICULAR CANCER

# Neonatal Health



*Marijuana can cause still birth.*





# Frontline



## Pediatric Poisoning

4-year-old ate a gummy bear from her mother's purse. She became unconscious with eyes vibrating back and forth. She was admitted to the ICU.



# Neonatal Health

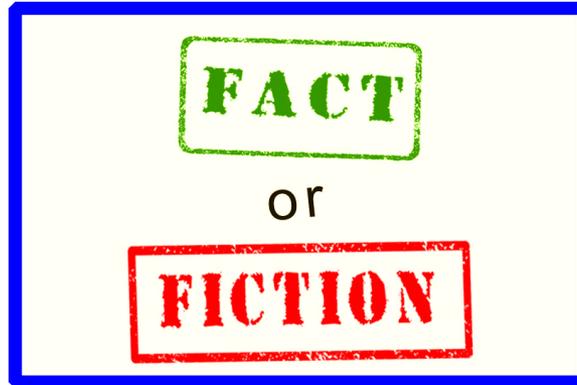


*Marijuana **can** cause still birth.*

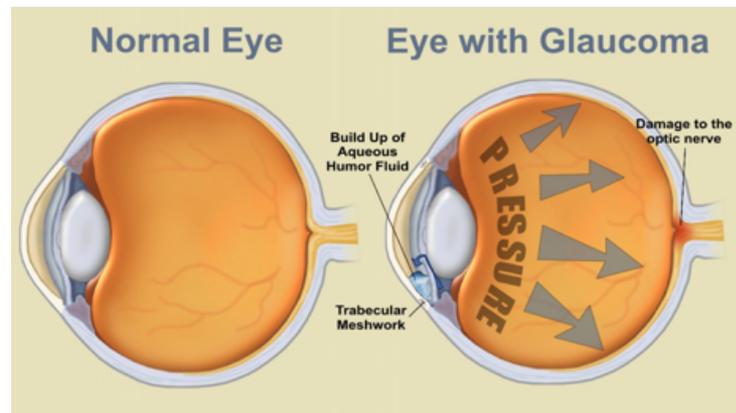
- Neonatal Exposure: **2.3** × increased risk of stillbirths
- A child's development is impaired by other's marijuana use during pregnancy
- Cannabis has been linked as a teratogen, an agent causing congenital abnormalities to a fetus



# Glaucoma



*Marijuana is a treatment for glaucoma.*



# Frontline

## No Cases

Not aware of any patients who use cannabis for glaucoma. Health and Safety code laws are written by non clinicians.

### HEALTH AND SAFETY CODE - HSC

**DIVISION 10. UNIFORM CONTROLLED SUBSTANCES ACT [11000 - 11651]** (*Division 10 repealed and added by Stats. 1972, Ch. 1407.*)

**CHAPTER 6. Offenses and Penalties [11350 - 11392]** (*Chapter 6 added by Stats. 1972, Ch. 1407.*)

**ARTICLE 2. Cannabis [11357 - 11362.9]** (*Heading of Article 2 amended by Stats. 2017, Ch. 27, Sec. 121.*)

**11362.5.** (a) This section shall be known and may be cited as the Compassionate Use Act of 1996.

(b) (1) The people of the State of California hereby find and declare that the purposes of the Compassionate Use Act of 1996 are as follows:

(A) To ensure that seriously ill Californians have the right to obtain and use marijuana for medical purposes where that medical use is deemed appropriate and has been recommended by a physician who has determined that the person's health would benefit from the use of marijuana in the treatment of cancer, anorexia, AIDS, chronic pain, spasticity, **glaucoma**, arthritis, migraine, or any other illness for which marijuana provides relief.

# Glaucoma



*Marijuana is **not** a treatment for glaucoma.*

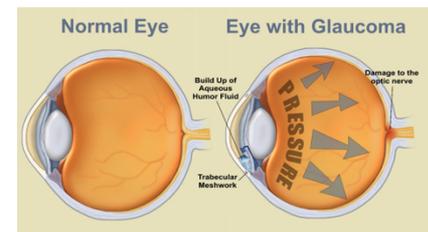
- Marijuana can reduce intraocular pressure
- American Academy of Ophthalmology
- American Glaucoma Society
  - Do **not** recommend marijuana for glaucoma treatment



AMERICAN ACADEMY™  
OF OPHTHALMOLOGY

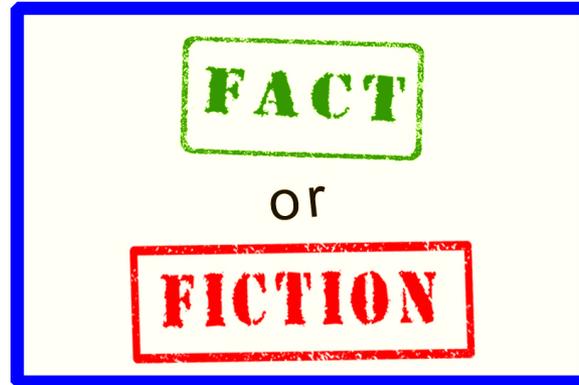


AMERICAN  
GLAUCOMA  
SOCIETY



# Marijuana Fact or Fiction?

## Death



*No one dies from marijuana*



# Marijuana Fact or Fiction?

## Front Line Case



### Almost died

39-year-old man was smoking wax (90% THC) when he collapsed. His blood pressure was critically low, and he was unresponsive. He was placed on **life support** and admitted to the ICU.



# Front Line Case



## Trauma

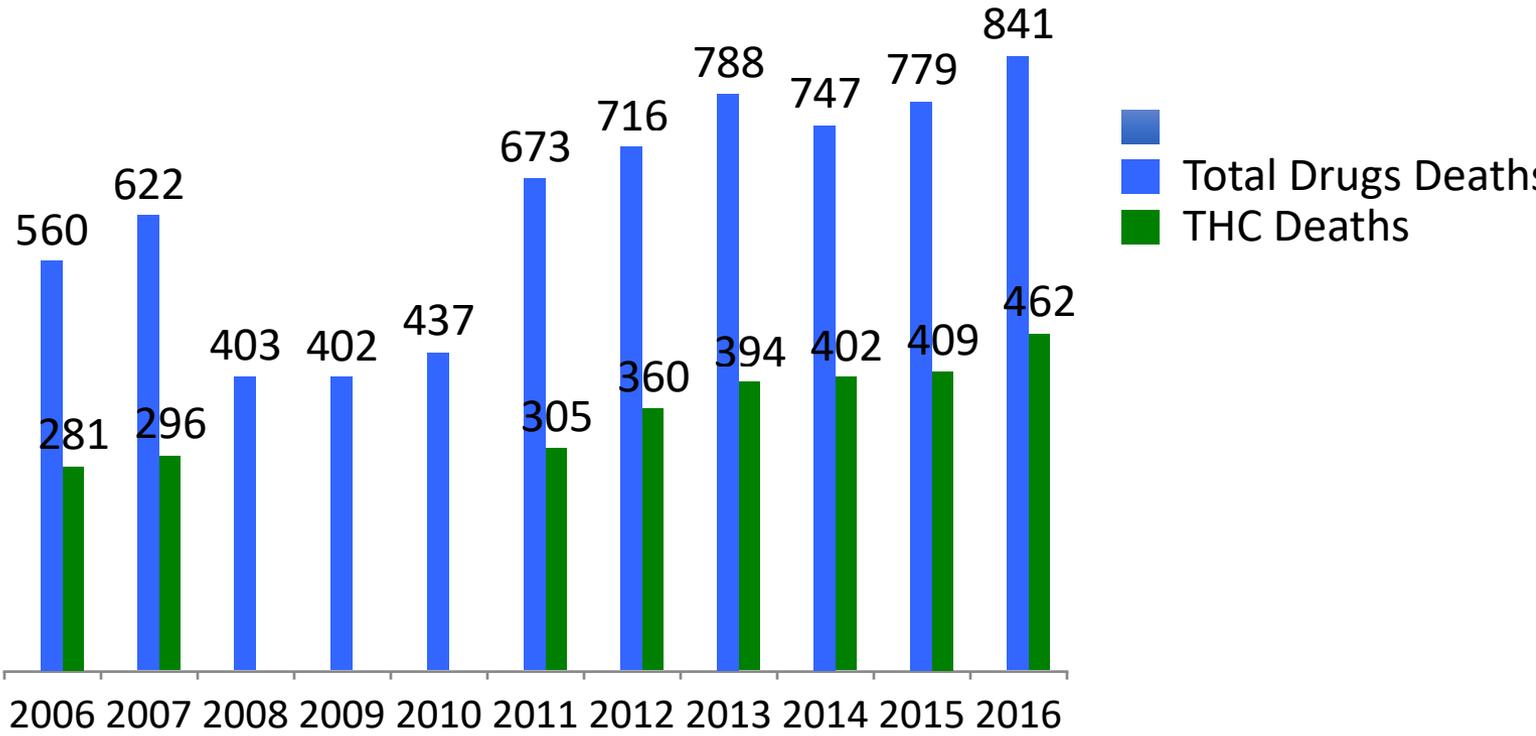
- 36-year-old Hyun Choi convicted vehicular manslaughter while high on marijuana, March 2016.
- 22-year-old Jennifer Gasper died by driver going 82 mph through red light and high on marijuana

Since 2009, more high school seniors reported driving after smoking marijuana than driving after drinking alcohol. Monitoring the Future.

# San Diego Drugs Deaths



Number of Patients with Drug Related Deaths



# Marijuana Death Diaries

1 year old “undetermined”

15 year old “undetermined”

19 year old lost control of vehicle, struck tree (32 Drivers)

21 year old jump off bridge in suicide – “suicide” (76 suicides)

34 year old fall while hiking – “accident”

55 year motorcycle driver struck embankment, (9 MCA)

23 year old with pneumonia – “natural”

50 year old struck by car (pedestrians) – “accident”

69 year old with heart disease – “natural”

24 year old with seizure – “natural”

38 year old electrocuted – “accident”

54 year old with hypertension – “natural”

34 year old stabbed to death – “homicide” (23 homicides)

52 year old with COPD/emphysema ‘ “natural”

33 year old sudden cardiac death, history of diabetes, “natural”

42 year old riding bicycle, hit a car, “accident”

47 year old with diabetic ketoacidosis, “natural”

22 year old skateboard into car, “accident”

61 year old hemopericardium, “natural”



# Death



*No dies from marijuana*

- Drugged Driving 2 x risk of responsible for deadly crash or be killed if THC in blood
- Death associated with cannabis hyperemesis syndrome
- Death associated with psychosis
- Death associated with homicide/ violence
- Death associated with blood clot in arteries



# You Protect our Future

One Person Can Make a Difference



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# Q & A