

Medicinal Cannabis

Kenneth Finn, MD

Terminology

- Cannabis-based medication
 - Registered medicinal cannabis extracts with defined and standardized THC and THC/CBD content should be classified as ‘cannabis-derived’ or ‘cannabis-based’ medicines.
 - Examples: Epidiolex, Sativex (natural); dronabinol (semi-synthetic); nabilone (synthetic)
- Medical cannabis
 - Cannabis plants and plant material, for example flowers, marijuana, hashish, buds, leaves or full plant extracts used for medical reasons.
 - Poorly regulated and poorly tested for contaminants

National Ambulatory Care Survey, 2016

- National Survey
- Why people see their doctor
- **Knee pain** the only pain diagnosis in top 20 reasons
- Others **not** in top 20: Back pain, Shoulder pain, Neck pain, Neuropathy, Headache, Fibromyalgia, Cancer, Seizure, other
- https://www.cdc.gov/nchs/data/ahcd/namcs_summary/2016_namcs_web_tables.pdf

Evidence

- 2014, Bachhuber: Medical cannabis laws are associated with **lower state-level opioid overdose** mortality rates
- 2016, Bradford: Medical Marijuana State Laws Associated With **Reduced Medicare Prescriptions**
- 2017, Livingston: Recreational Cannabis Legalization and **Opioid-Related Deaths** in Colorado, 2000–2015
- 2017, Bradford: Association Between US State Medical Cannabis Laws and **Opioid Prescribing** in the Medicare Part D Population

Evidence

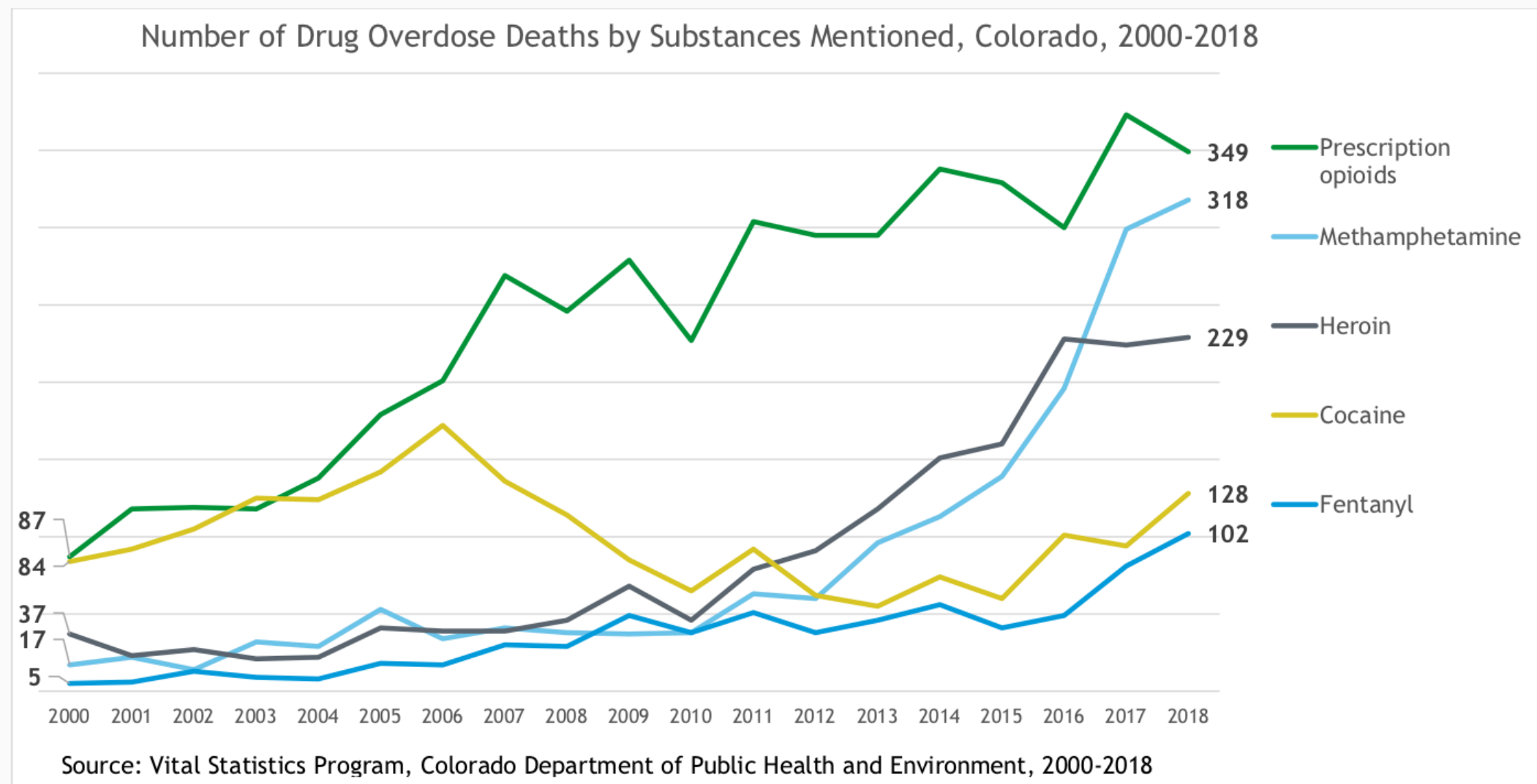
- National Academies, January 2017: uncommon pain conditions, nabiximols, synthetics
- Journal of Addiction Medicine, April 2018: MMJ users are more likely to use prescription drugs medically and non-medically
- European Pain Federation, June 2018: Do not prescribe cannabis-based medicines to patients taking high doses of opioids or benzodiazepines and no products > 12.5%
- Lancet, Australian Study, July 2018: No evidence that cannabis use reduced pain severity or exerted opioid sparing effect
- Journal of Pain, October 2018: Unlikely that cannabinoids are highly effective medicines for chronic non-cancer pain

Evidence

- American Journal of Psychiatry, January 2018: Cannabis use **increases** risk of opioid use disorder and non-medical opioid use
- Columbia University, July 2019: People **do not** substitute marijuana for prescription opioids
- Stanford University, July 2019: States with medical marijuana laws have seen a 23% **INCREASE** in opioid overdose deaths
- University of Houston, August 2019: Adults who mix cannabis with opioids for pain report **higher levels** of anxiety and depression
- University of Oregon, September 2019: Legalizing marijuana has contributed to the national opioid mortality epidemic

Evidence

- Oregon Secretary of State, 2019: “Oregon’s marijuana testing program cannot ensure that test results are reliable, and products are safe”
- California has an 18% fail rate and “unacceptable levels of pesticides, solvents, and bacteria, including E. coli and Salmonella”
- Colorado does not test or recall contaminated products on a regular basis

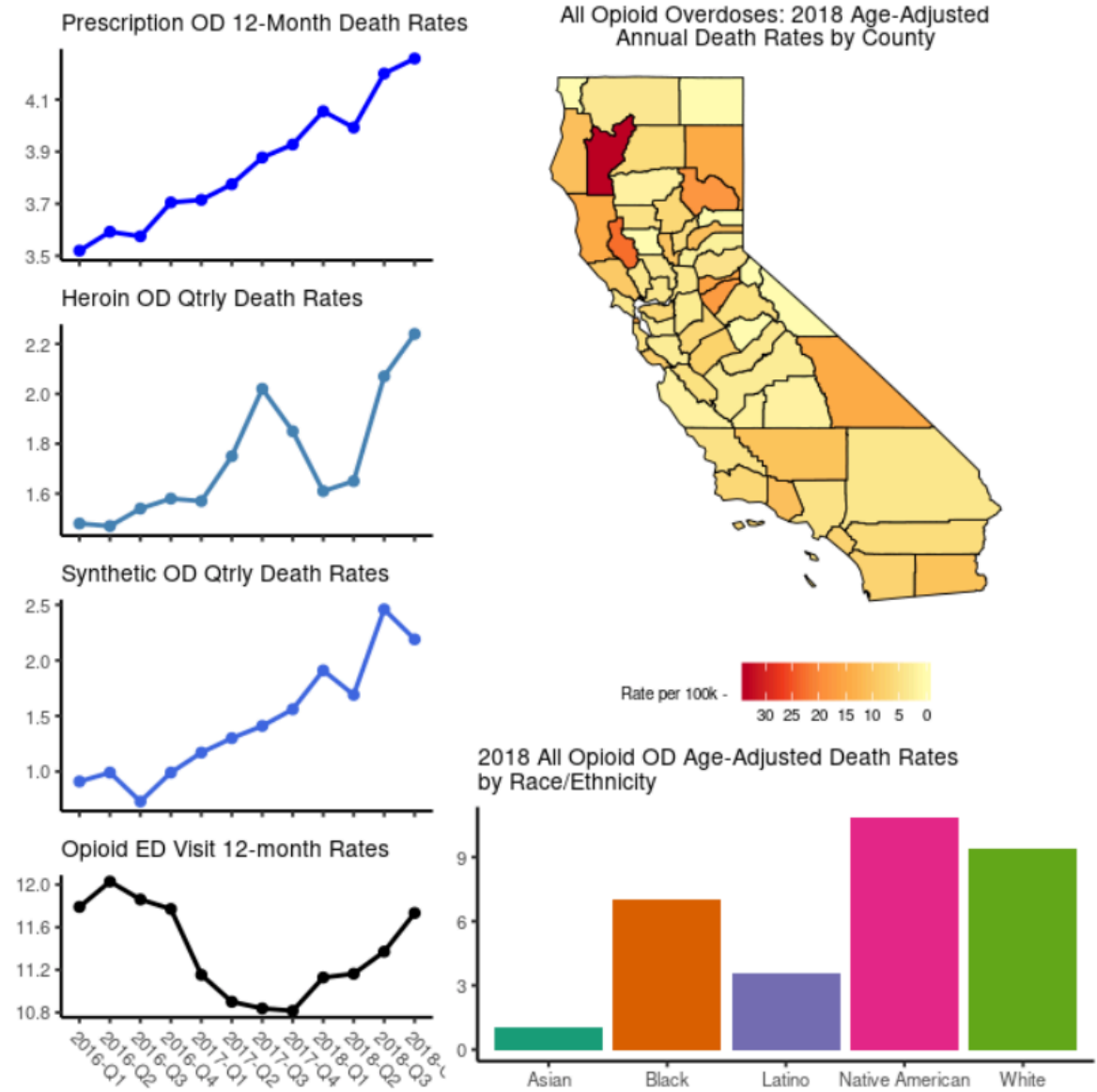


2018: **16 Marijuana Mentions**

https://cohealthviz.dphe.state.co.us/t/PSDVIP-MHPPUBLIC/views/DrugPoisoningDashboard-StoryFormat/DrugsinColoradoStory?iframeSizedToWindow=true&:embed=y&:showAppBanner=false&:display_count=no&:showVizHome=no

Report downloaded 10-13-2019

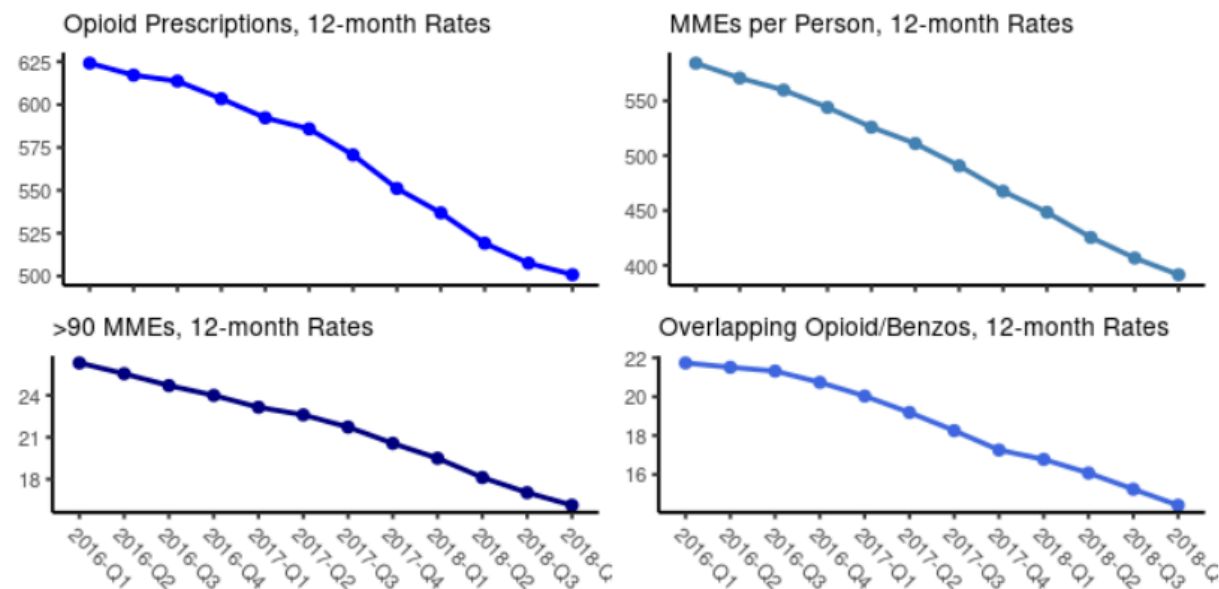
California experienced 2311 deaths due to all opioid-related overdoses in 2018, the most recent calendar year of data available. The annual crude mortality rate during that period was 5.8 per 100k residents. This represents a 16% increase from 2016. The following charts present 12-month moving averages and annualized quarterly rates for selected opioid indicators. The map displays the annual county level rates for all opioid-related overdoses. Synthetic overdose deaths may be largely represented by fentanyl.



Footnotes: 12-month rates are based on moving averages; OD = Overdose; Qtrly = Annualized Quarter
Report produced by the California Opioid Overdose Surveillance Dashboard - <https://cdph.ca.gov/opioiddashboard/>

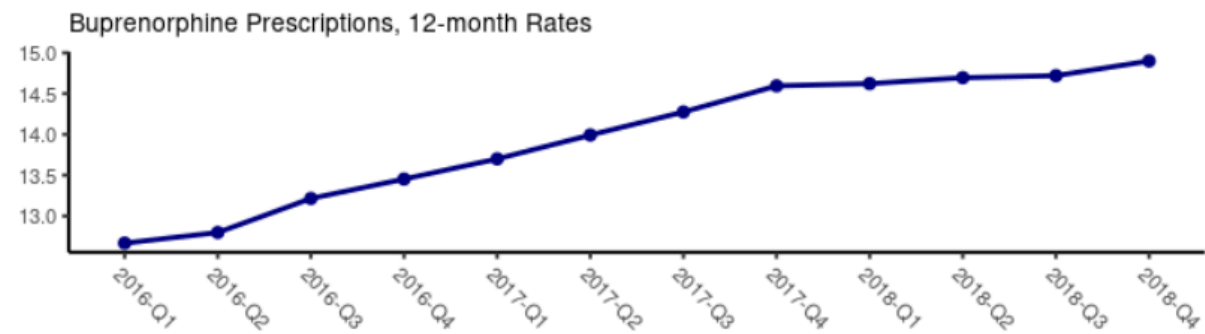
Prescribing

There were 19,808,224 prescriptions for opioids in California in 2018, excluding buprenorphine. The annual prescribing rate during that period was 500.8 per 1,000 residents. This represents a 18% decrease in prescribing from 2016. The following charts present the annualized quarterly prescribing rates, MMEs (morphine milligram equivalents) per person per year, high dosage rate (i.e. greater than 90 Daily MMEs in the quarter), and the opioid/benzodiazepine overlap rate during 2018.



Treatment

Buprenorphine prescriptions in the state are used to gauge the expansion of medication-assisted treatment (MAT). The annual buprenorphine prescribing rate in 2018 was 14.9 per 1,000 residents. This represents a 13% increase in buprenorphine prescribing from 2016.



Footnotes: 12-month rates are based on moving averages; OD = Overdose; Qtrly = Annualized Quarter
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Average Days' Supply	Total patients
101	2,102,727

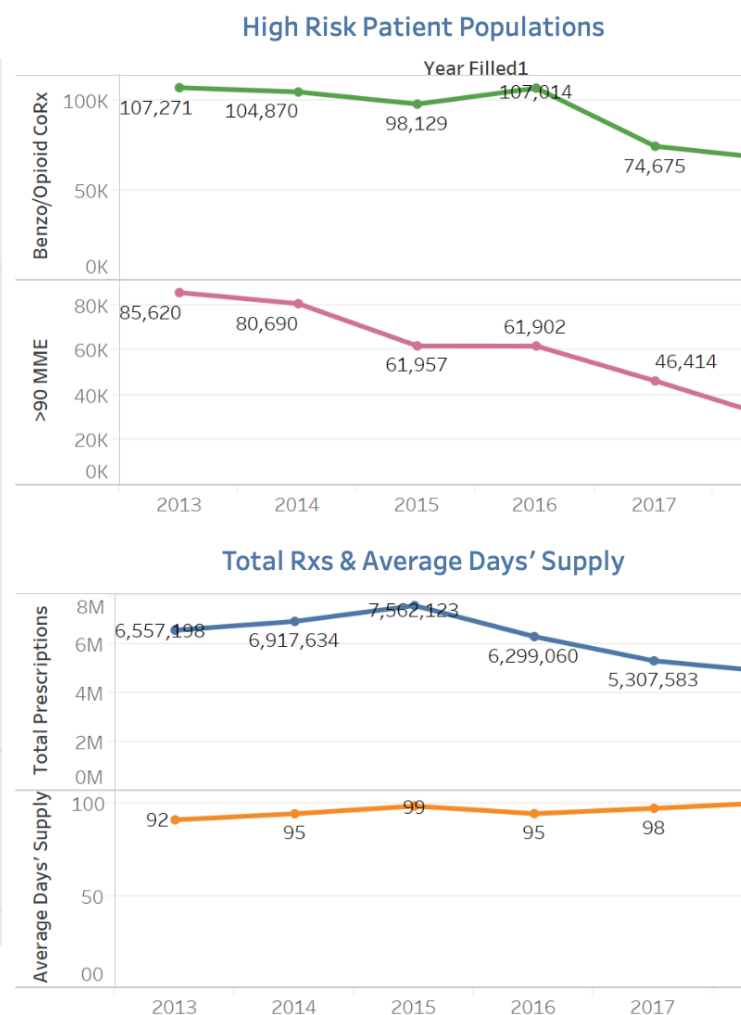
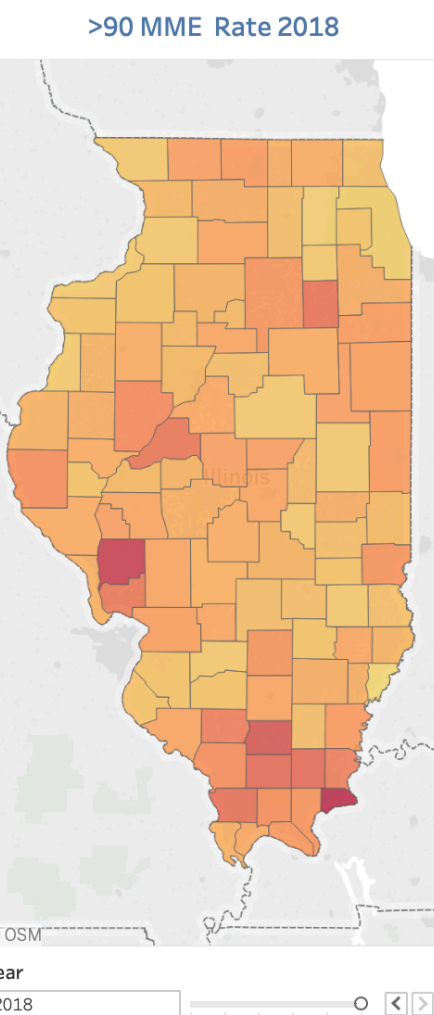
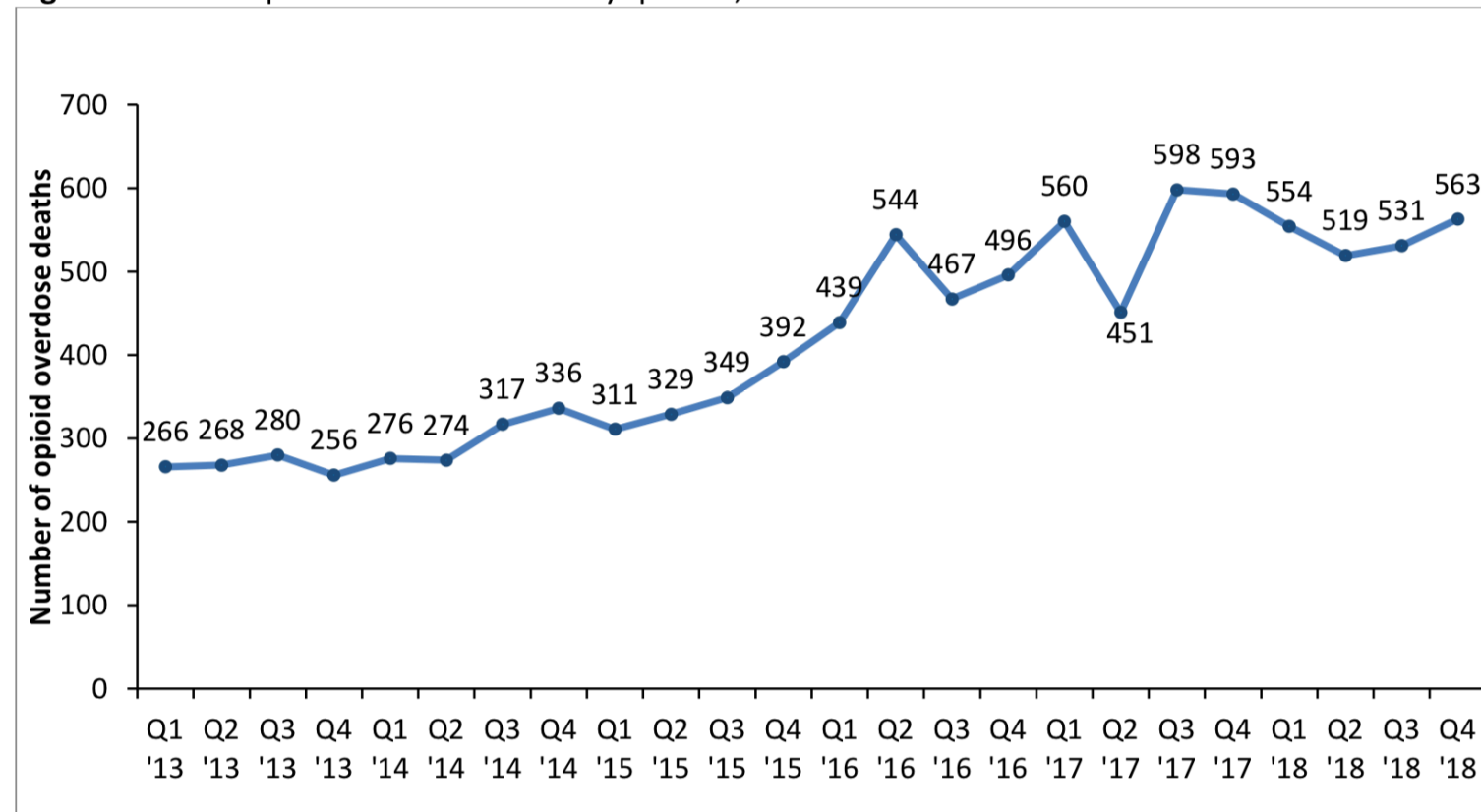


Figure 1. Illinois opioid overdose deaths by quarter, 2013-2018



Source: Illinois Vital Records System, Illinois Department of Public Health

Figure 1 illustrates the growing epidemic of opioid overdoses in Illinois. Generally, due to the time it takes to finalize and code death records, the numbers for any quarter may change substantially until approximately six months after the end of the quarter. Because determining if and when the numbers will change is difficult until the entire year's data are finalized, the data are subject to change and may be difficult to interpret.

Texas Opioid Overdose Data Through 2017

Drug Poisoning (All Intent) Deaths Involving Certain Drugs Occurring in Texas, 2010-2017^									
by Specified Drug Type and Year									
ICD-10 Codes for Underlying Causes-of-Death**: X40-X44 Accidental Poisonings, X60-X64 Suicides by Poisoning, X85 Homicidal Poisoning, Y10-Y14 Undetermined Intent									
ICD-10 Codes for Specified Drugs***: T40.0 Opium, T40.1 Heroin, T40.2 Other opioids (Codeine, Morphine), T40.3 Methadone, T40.4 Other synthetic narcotics (Pethidine), T40.5 Other synthetic narcotics (Fentanyl), T40.6 Other synthetic narcotics (Buprenorphine), T40.7 Cannabis (Derivatives)									
Specified Drug Type+	2010	2011	2012	2013	2014	2015	2016^	2017	Total:
Opium	*	0	0	0	0	0	0	0	*
Heroin	259	368	371	380	429	522	525	552	3406
Other opioids	550	506	492	452	466	464	489	522	3941
Methadone	193	176	147	129	116	142	138	130	1171
Other synthetic narcotics	157	114	122	113	158	181	228	309	1073
Other and unspecified narcotics	112	124	124	112	99	108	122	93	801
Cannabis	*	*	*	*	10	21	30	62	76
Notes:									
* Counts of 1-9 are suppressed to prevent the identification of individuals in confidential data.									

The counts presented in this table for cannabis include all poisoning deaths where the ICD-10 code, T40.7 cannabis (derivatives), was listed in the causes of death. Poisoning deaths involving synthetic cannabinoids are included in this category along with deaths involving cannabis and/or other derivatives of cannabis. A literal text analysis of the death is required to determine if the death was attributed to a synthetic cannabinoid if the medical certifier entered information

Source: Texas Department of State Health Services, Center for Health Statistics, 2019

Vaping Epidemic

- September 27, 2019, Centers for Disease Control: THC Products May Play a Role in Outbreak of Lung Injury Associated with E-cigarette Use, or Vaping
- Two of which was associated with marijuana oil purchased at a legal dispensary in Oregon, and one purchased legally in California
- 77% of the cases of illness and at least 2 of the 12 deaths have been connected to THC oils (9/2019)
- October 17, 2019: 33 deaths (including 13 yo), 1,479 EVALI

Vaping Epidemic

- October 11, 2019
- EVALI: E-cigarette, vaping associated lung illness
- Forty-nine states, the District of Columbia, and one U.S. territory have reported 1,299 cases of lung injury associated with the use of electronic cigarette (e-cigarette), or vaping, products. Twenty-six deaths have been reported from 21 states.
- “CDC recommends that persons should not use e-cigarette, or vaping, products that contain tetrahydrocannabinol (THC).”

Vaping Epidemic

- October 25, 2019, CDC Report
- Utah: 79 patients, **almost all** used THC vaping devices
 - 89% hospitalized, 49% required breathing assistance
- Persons should not use e-cigarettes, or vaping, products **containing THC**
- Persons consider refraining from use use of **all** e-cigarette, or vaping devices

Spiked vapes and emergency room visits reveal dark side of CBD craze

September 2019

Jay Jenkins said he hesitated when a buddy suggested they vape CBD

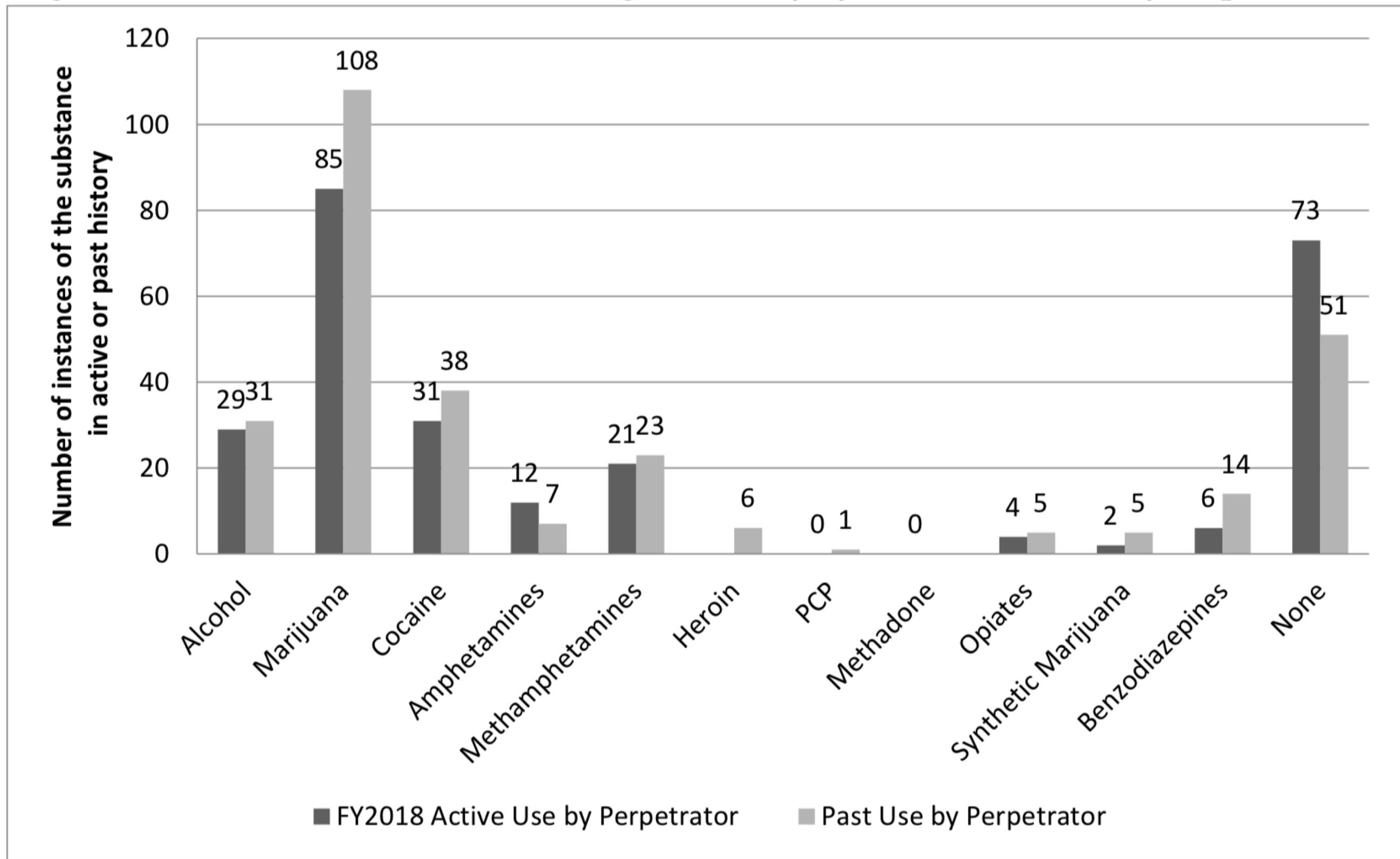
What he vaped didn't have any CBD. Instead, the oil was spiked with a powerful street drug

AP commissioned lab testing found that 10 of the 30 products tested contained types of synthetic marijuana while others had no CBD at all.



<https://www.usatoday.com/story/news/health/2019/09/16/vaping-lung-illness-cbd-cheap-synthetic-marijuana-used-sub/2339545001/>

Figure 11. Confirmed Child Abuse or Neglect Fatality by Substance Abuse by Perpetrator



Sutherland Springs Church Shooting



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J. KEITH PINCKARD, MD, PhD
D-ABP, F-ABMDI
CHIEF MEDICAL EXAMINER

Toxicology Report

PA 17-05087

Kelley, Devin Patrick

Pathologist : Dr. Vickie Willoughby

Date Completed : 12/21/2017

Assay/Specimen	Substance	Result	Units	Method
ACID/NEUTRAL DRUGS				
Blood, femoral	Ibuprofen	Detected		GC/MS
Blood, femoral	Butalbital	<3.0	mg/L	GC/MS
ALKALINE DRUGS				
Blood, femoral	Cyclobenzaprine	0.011	mg/L	LC/MS/MS
BENZODIAZEPINES				
Blood, femoral	Alprazolam	<0.020	mg/L	LC/MS/MS
Blood, femoral	Clonazepam	<0.020	mg/L	LC/MS/MS
Blood, femoral	7-Aminoclonazepam	0.088	mg/L	LC/MS/MS
CANNABINOIDS				
Blood, femoral	Tetrahydrocannabinol	3.7	ng/mL	LC/MS/MS
Blood, femoral	9-Carboxy-THC	<2.0	ng/mL	LC/MS/MS
Urine	9-Carboxy-THC	Detected		GC/MS
ETHANOL/VOLATILES				
Blood, femoral		ND		Headspace GC/FID
IMMUNOASSAY				
Blood, femoral	Amphetamine	ND		ELISA
Blood, femoral	Barbiturate	Detected		ELISA
Blood, femoral	Benzodiazepine	Indicated		ELISA
Blood, femoral	Cocaine Metabolite	ND		ELISA
Blood, femoral	Fentanyl	ND		ELISA
Blood, femoral	Opiate	ND		ELISA
Blood, femoral	Oxycodone	ND		ELISA
Blood, femoral	Cannabinoid	Indicated		ELISA
NOVEL PSYCHOACTIVE SUBSTANCES				
Blood, femoral		ND		LC/MS/MS
OPIOID PANEL				
Blood, femoral		ND		LC/MS/MS
SYNTHETIC CANNABINOIDS				
Blood, femoral		ND		LC/MS/MS

ND = None Detected UFA = Unsuitable for Analysis

Comment:


Brad J. Hall, Ph.D., F-ABFT, Chief Forensic Toxicologist


Medical Examiner 12/30/17

Sutherland Springs Church Shooting



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ACID/NEUTRAL DRUGS				
Blood, femoral	Ibuprofen	Detected		GC/MS
Blood, femoral	Butalbital	<3.0	mg/L	GC/MS
ALKALINE DRUGS				
Blood, femoral	Cyclobenzaprine	0.011	mg/L	LC/MS/MS
BENZODIAZEPINES				
Blood, femoral	Alprazolam	<0.020	mg/L	LC/MS/MS
Blood, femoral	Clonazepam	<0.020	mg/L	LC/MS/MS
Blood, femoral	7-Aminoclonazepam	0.088	mg/L	LC/MS/MS
CANNABINOIDS				
Blood, femoral	Tetrahydrocannabinol	3.7	ng/mL	LC/MS/MS
Blood, femoral	9-Carboxy-THC	<2.0	ng/mL	LC/MS/MS
Urine	9-Carboxy-THC	Detected		GC/MS
ETHANOL/VOLATILES				

McKinney 15 year old Fatally Shot in Fight Over Marijuana, March 2019

Christopher Sterkes, 18, has been charged with murder in connection with Alejandro Camacho's death. "They began arguing over a marijuana deal."

Camacho was left in the parking lot of Medical City McKinney and died of his wounds



https://www.dallasnews.com/news/crime/2019/03/10/15-year-old-mckinney-fatally-shot-fight-marijuana-police-say?fbclid=IwAR2ihLu7QpD1ISE3D9zjmfZXOGS7mkc39QRBHPF_UbycGNQHXJhuHHBoa5c

Texas Man Kills Son, 2018

Blair Ness kills
son Ashton, 16
months old



<https://www.wfaa.com/article/news/lewisville-man-charged-in-toddlers-stabbing-i-know-everyones-mad-im-mad-i-killed-my-son/287-586392900?fbclid=IwAR3xkkhfBmmNKMWWAl89PIs9rlCMqYvrpXUU4ZoTJg9FiYw7JpFCjeKQtgs>

Texas Man Kills Son, 2018

- “I know everyone’s mad, I’m mad. I killed my son.”
- “They are stabbing their baby right now in the middle of the complex.”
- Police say they found “fresh burnt marijuana as well as a haze of smoke in the apartment”, blood in multiple locations in the apartment, and “several skull fragments....near the bedroom door against the wall.”

APD: Most Austin murders happen during drug deals, especially marijuana sales

July, 2019

Sergeant Eric De Los Santos says of the city's 35 murders in 2018, 20 of them happened while someone was selling drugs.

So far in 2019, he says seven of the city's 18 murders have involved drug deals. He says almost all drug-related murders involve marijuana.

Summary

- Cannabis-based medications may be helpful in neuropathic or cancer pain
- Cannabis-based medications and medical (dispensary) cannabis has not been proven to be an opioid substitute or beneficial for acute pain
- Cannabis-based medications and medical (dispensary) cannabis has not been proven to help in common pain conditions
- Medical (dispensary) cannabis is commonly contaminated, poorly regulated and puts public safety at risk
- Do not support use of cannabinoids in conjunction opioids or benzodiazepines until safety data established

Summary

- Support FDA drug-development protocols
- Support adequate safety studies
- Support development of educational resources for providers
- Cannabis-based medications should be more available for study

Thank You

