Legalized Cannabis in Colorado Emergency Departments

A Cautionary Review of the Negative Health and Safety Effects

Brad Roberts, MD FACEP FAAEM

Introduction

Pueblo, CO- A wonderful community

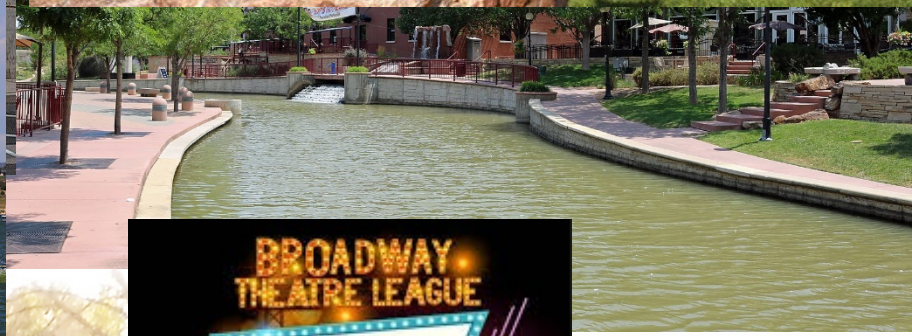
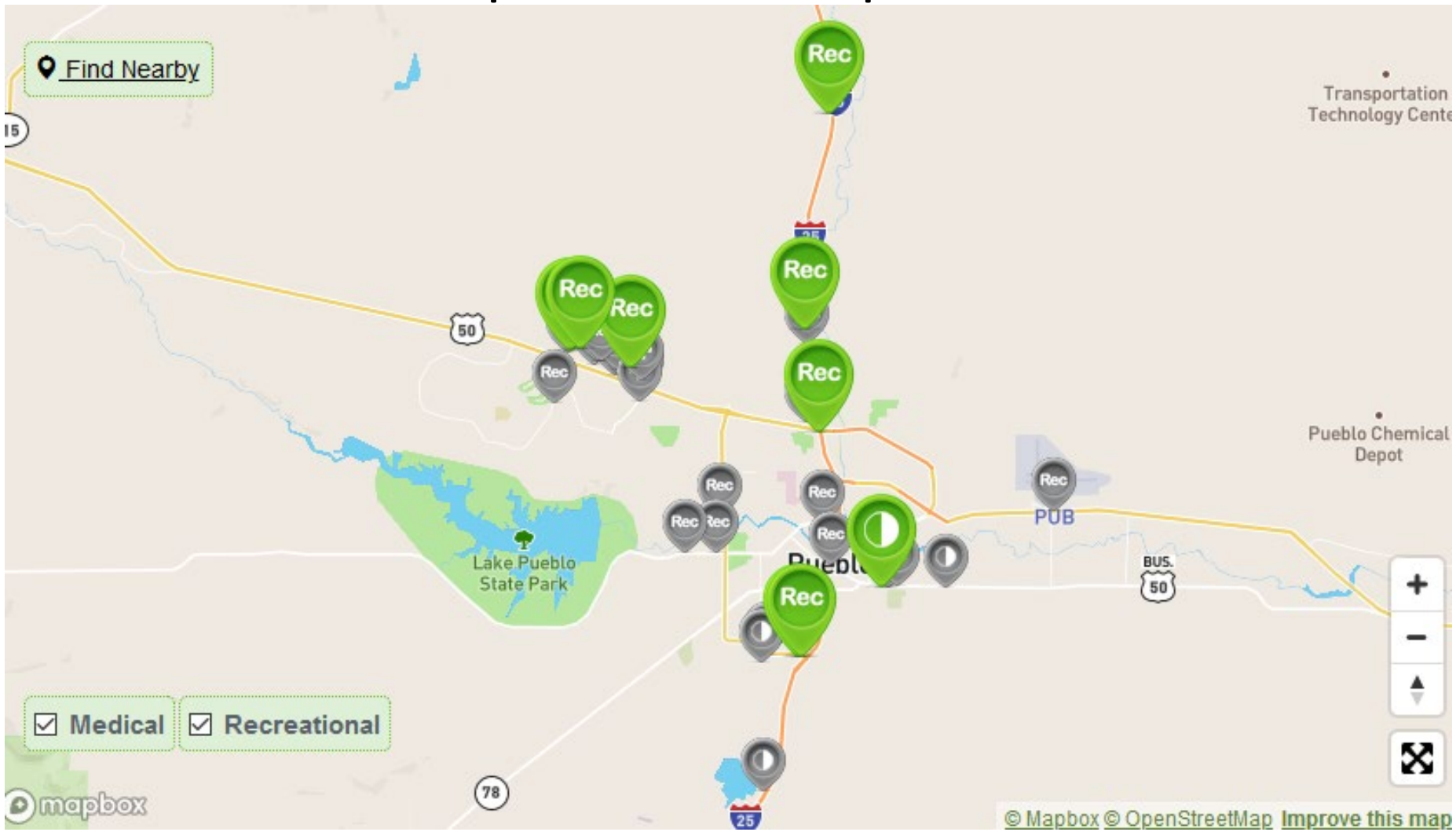


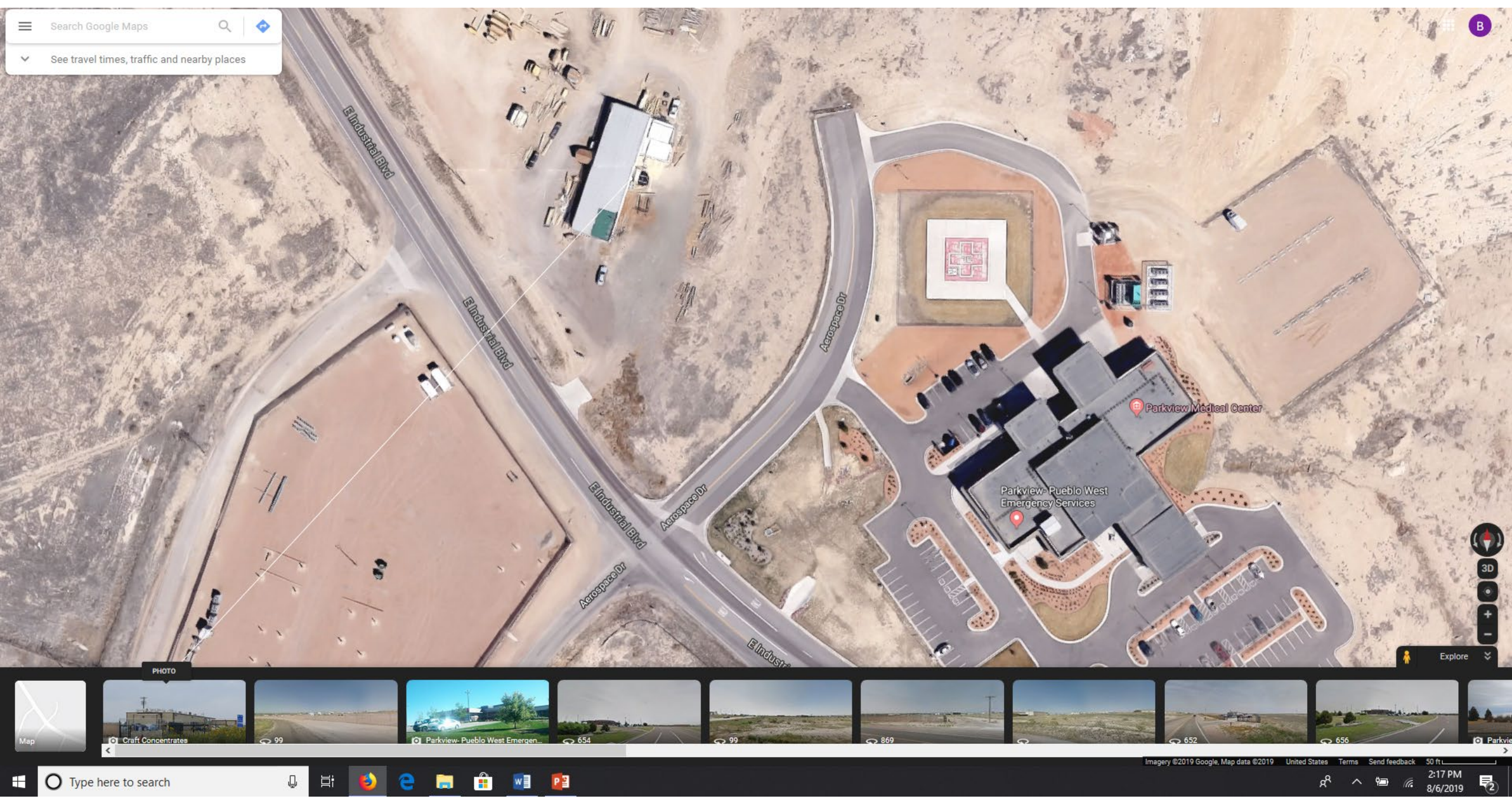
Table 1

U.S. States with Medical or Recreational Cannabis Laws (May 2016)

State	Has MCL	MCL duration (years)	Has RCL	Permit home cultivation	Permit dispensary	# de jure operating dispensaries	U.S. Census Population (2015)	Dispensary per 100,000 people
AK	Yes	18	Yes	Yes	No	0	738,432	0.00
AZ	Yes	6	No	Yes	Yes	93	6,828,065	1.36
CA	Yes	20	No	Yes	Yes	1000–2000 *	39,144,818	2.55–5.11
CO	Yes	16	Yes	Yes	Yes	949	5,456,574	17.39
CT	Yes	4	No	No	Yes	6	3,590,886	0.17
DC	Yes	6	Yes	Yes	Yes	5	945,934	0.53
DE	Yes	5	No	No	Yes	1	672,228	0.15
HI	Yes	16	No	Yes	Yes	0	1,431,603	0.00
IL	Yes	3	No	No	Yes	36	12,859,995	0.28
ME	Yes	17	No	Yes	Yes	8	1,329,328	0.60
MD	Yes	2	No	No	Yes	0	6,006,401	0.00
MA	Yes	4	No	Yes	Yes	6	6,794,422	0.09
MI	Yes	8	No	Yes	No	0	9,922,576	0.00
MN	Yes	2	No	No	Yes	3	5,489,594	0.05
MT	Yes	12	No	Yes	No	0	1,032,949	0.00
NV	Yes	16	No	Yes	Yes	26	2,890,845	0.90
NH	Yes	3	No	No	Yes	0	1,330,608	0.00
NJ	Yes	6	No	No	Yes	6	8,958,013	0.07
NM	Yes	9	No	Yes	Yes	23	2,085,109	1.10
NY	Yes	2	No	No	Yes	17	19,795,791	0.09
OR	Yes	18	Yes	Yes	Yes	423	4,028,977	10.50
PA	Yes	0.1	No	No	Yes	0	12,802,503	0.00
RI	Yes	10	No	Yes	Yes	3	1,056,298	0.28
VT	Yes	12	No	Yes	Yes	4	626,042	0.64
WA	Yes	18	Yes	Yes	Yes	237	7,170,351	3.31

There are 37 dispensaries in Pueblo County
21.16 dispensaries per 100,000

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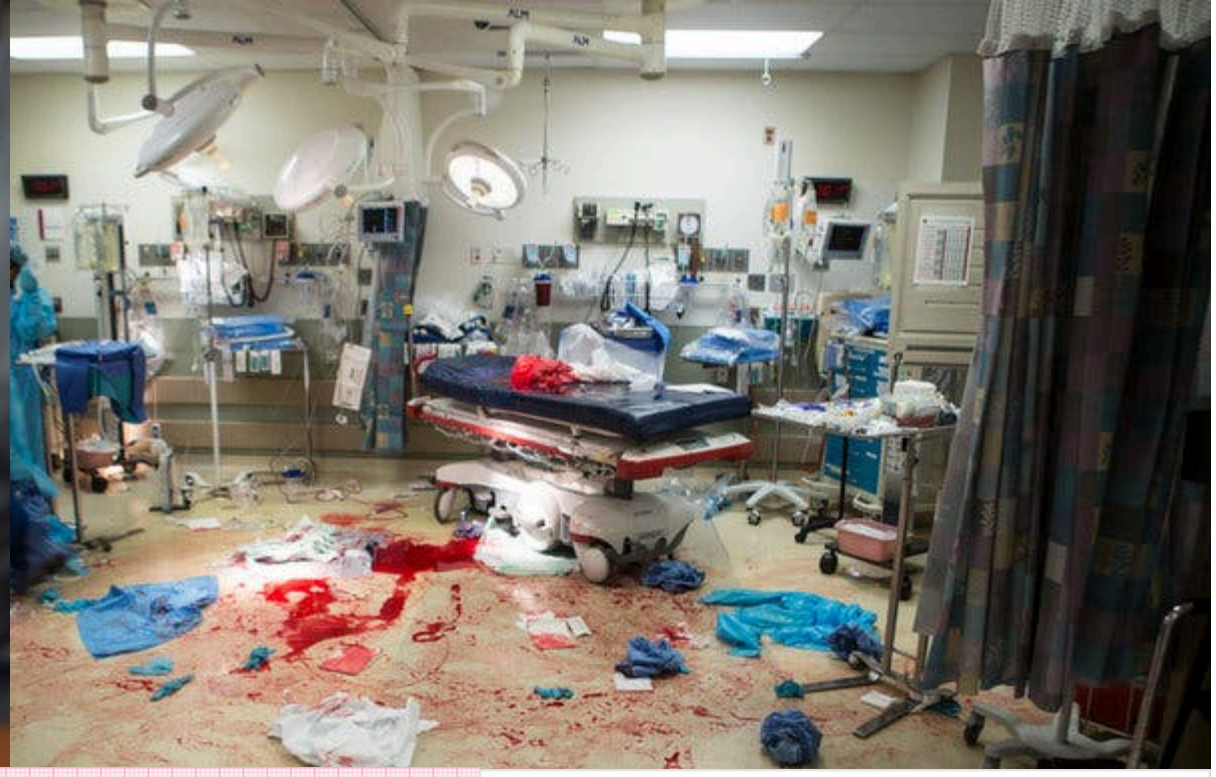

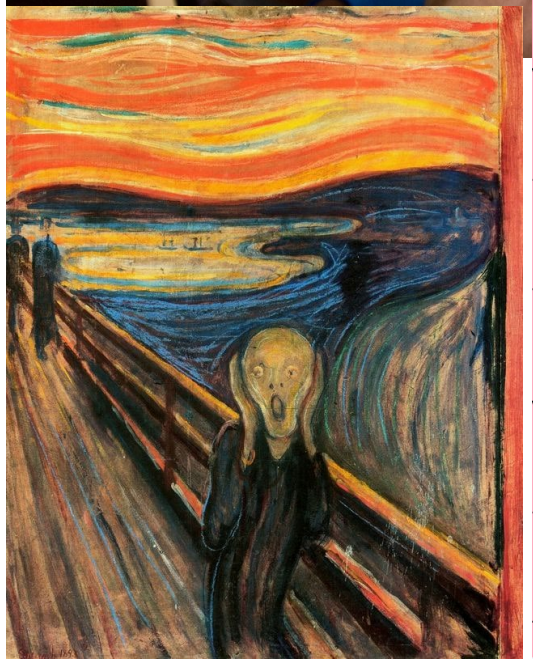

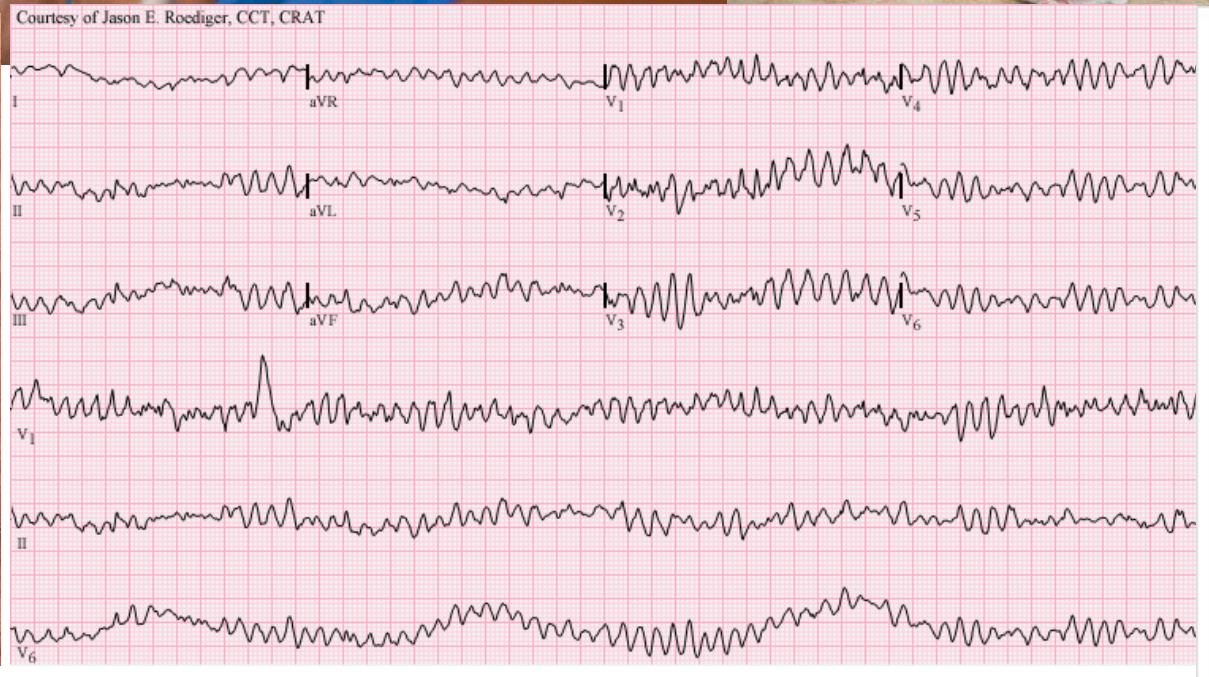
Courtesy of Jason E. Roediger, CCT, CRAT
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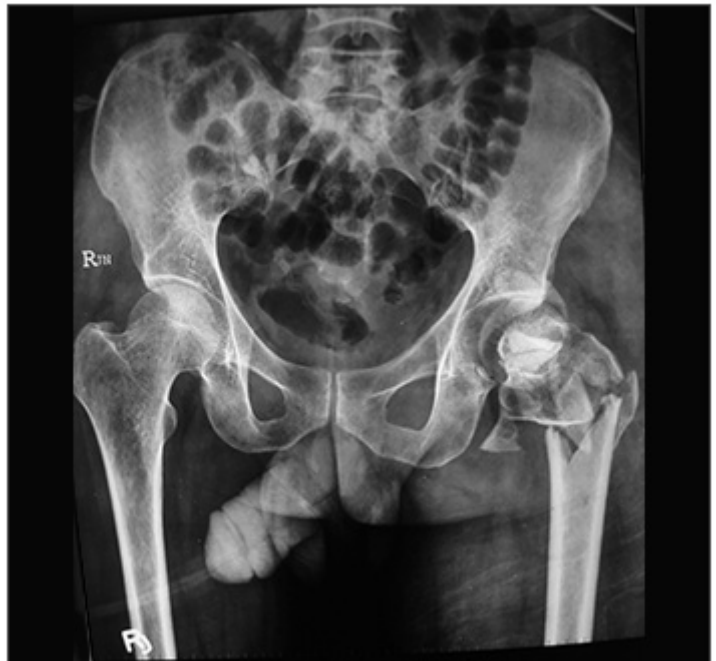


FROM THE CREATOR OF THE NEW YORK TIMES BESTSELLER,
PRESS HERE

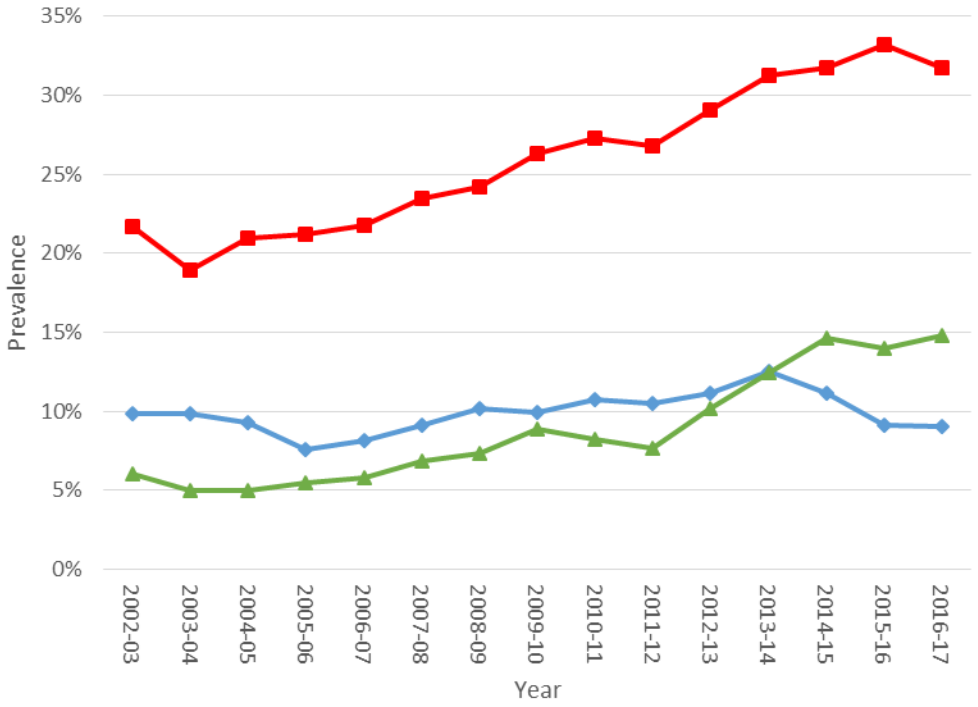
Hervé Tullet

Review of Colorado Timeline

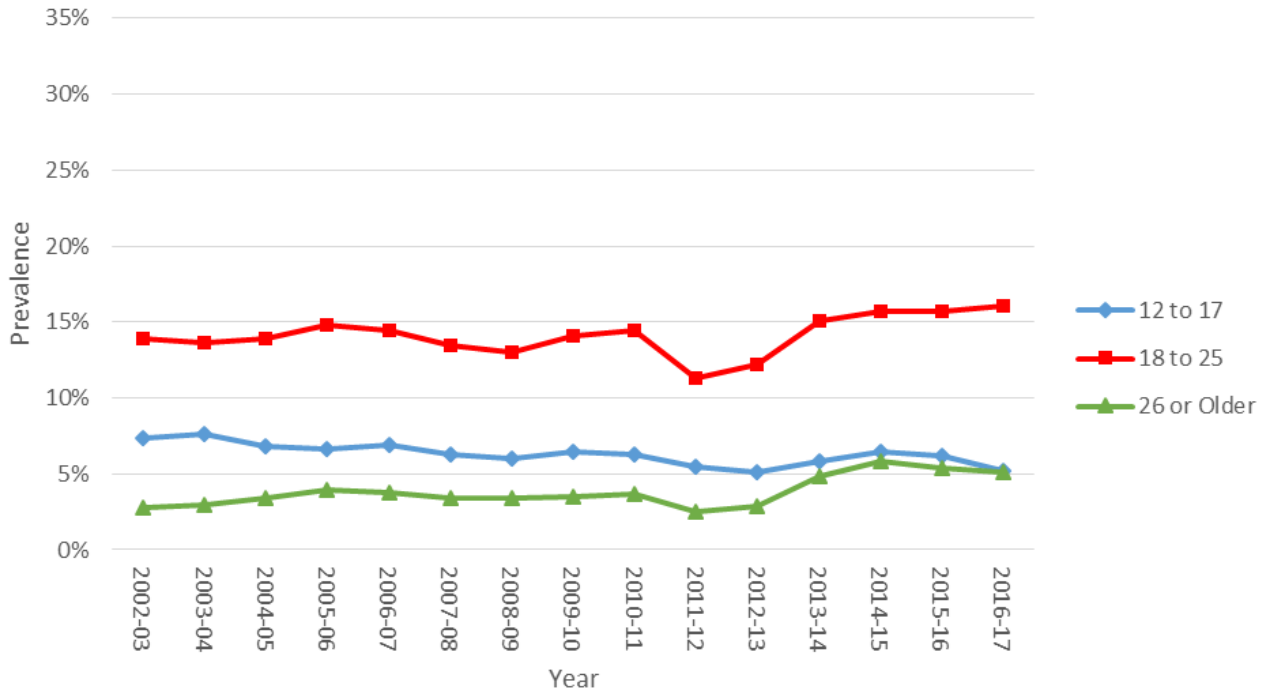
- Prior to 2000- illegal to possess or grow marijuana
- 2000-2009: Amendment 20 approved and medical marijuana is legalized, no regulated market
- 2010-2012: Medical marijuana is commercialized and regulated with licensed dispensaries, grow operations, and product manufacturers open in jurisdictions allowing these types of businesses. This corresponded with the Ogden Memorandum. The number of patients registered with CDPHE increased dramatically, from about 5,000 in 2009 to almost 119,000 in 2011.
- 2013: Amendment 64 takes effect
- 2014 to present: Recreational and medical marijuana fully regulated and commercialized. Licensed retail stores open January 1, 2014.

Following legalization use rates went up

Marijuana Use in the Past Month in Colorado, by Age Group



Marijuana Use in the Past Month in Kansas, by Age Group



Source: SAMHSA National Survey on Drug Use and Health: State Estimates

Cannabis potency has dramatically increased

- Current commercialized cannabis is near 20% Tetrahydrocannabinol
- In the 1980's concentration was <2%. This 10-fold increase in potency does not include other formulations such as oils, waxes, and dabs which can reach 80-90% THC

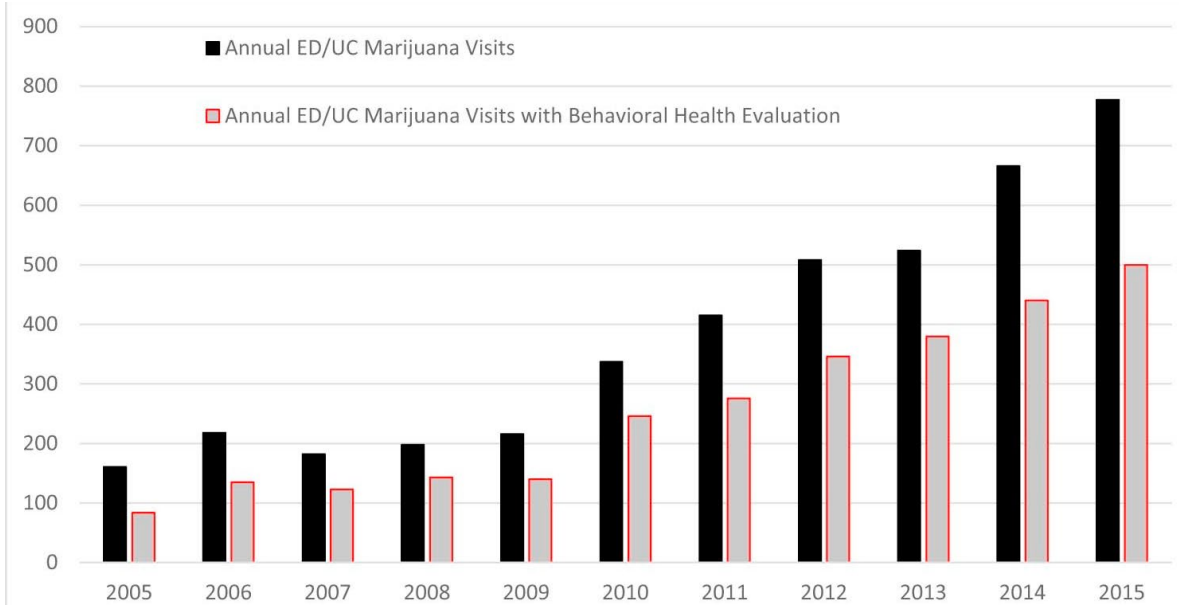
2-3%-> 20% in plant growth THC
Decreasing amounts of CBD

Well established adverse health effects of cannabis use

- Psychosis
- Suicide
- Adverse effects on brain structure/function
  - Decreased decision making capacity, learning, memory, social interaction, IQ, increases in impulsivity, anxiety, depression, abnormalities in habits/routines
- Links to other substance abuse
- Dependence/Withdrawal
- Cannabinoid hyperemesis syndrome
- Poor respiratory and Cardiovascular outcomes
- Low birth weight/growth restriction, preterm labor, developmental problems in baby if used during pregnancy
- Decreased ability to operate a motor vehicle
- Burn injuries in preparation of concentrates
- Still others… (pediatric exposures, contaminants/pesticides, epigenomics, …)

Majority of visits with cannabis get a behavioral health evaluation

Number ED/UC visits with cannabis associated ICD codes or positive urine drug screens by adolescents aged ≥13 and < 21 by year to a tertiary care children's hospital system in Colorado by year



Wang GS, Davies SD, Halmo LS, Sass A, Mistry RD. Impact of marijuana legalization in Colorado on adolescent emergency and urgent care visits. Journal of Adolescent Health 2018 Available online 30 March 2018.

Table 1

Percentage and prevalence of the top ten primary diagnoses of emergency department (ED) visits with marijuana-related billing codes[a] compared to ED visits without marijuana-related billing codes in Colorado from 2011 through September 2015 (N = 7,432,254).[c]

	Prevalence of primary diagnoses of ED visits, N (%)					
Primary diagnosis categories	**With marijuana-related codes[a]**		**Without marijuana-related codes**		**Prevalence ratio (95% CI)**	
Mental illness	17,802	(29.1)	432,161	(5.8)	5.03	(4.96–5.09)
Symptoms, signs, and ill-defined conditions and factors influencing health status	8472	(13.9)	1,083,907	(14.5)	0.95	(0.93–0.97)
Injury and poisoning	7032	(11.5)	1,473,427	(19.8)	0.58	(0.57–0.59)
Marijuana-associated codes[b]	5087	(8.3)	0	(0.00)	–	–
Diseases of the nervous system and sense organs	4251	(7.0)	739,970	(9.9)	0.70	(0.68–0.72)
Diseases of the respiratory system	3508	(5.7)	1,003,357	(13.5)	0.43	(0.41–0.44)
Diseases of the digestive system	3533	(5.8)	459,355	(6.2)	0.94	(0.90–0.96)
Diseases of the circulatory system	2914	(4.8)	426,082	(5.7)	0.84	(0.80–0.86)
Diseases of the musculoskeletal system and connective tissue	2612	(4.3)	496,555	(6.7)	0.64	(0.61–0.66)
Diseases of the genitourinary system	1995	(3.3)	436,173	(5.8)	0.56	(0.53–0.58)
Unclassified codes and E codes	1075	(1.8)	62,688	(0.8)	2.09	(1.97–2.22)

[a]Marijuana-related ICD-9-CM codes included 304.3, 305.2, 969.6, and E854.1 in any of the listed 30 diagnosis codes.
[b]Marijuana-related ICD-9-CM codes included 304.3, 305.2, 969.6, and E854.1 in the primary diagnosis. These ED visits were excluded prevalence ratio calculations.
[c]Data details: Colorado Hospital Association (CHA), 2015 data is January 1, 2015 through September 30, 2015. NA = data not available. An individual can be represented more than once in the data; therefore, the rate is hospitalizations or ED visits with marijuana-related billing codes per 100,000 hospitalizations or ED visits.

After better labeling, packaging (updated Wang graph)

My personal psychosis cases…

- 22 yo M, no previous past medical/psychiatric history presents after reportedly trying to hang himself by a ceiling fan with his bedsheet at a motel
- Manager found him, called 911, police/EMS brought him in
- Stated was smoking weed ‘all day every day’ in his motel room and that he was seeing ghosts that told him to kill himself
- No prior psychiatric history, no other medical problems, only relevant finding on urine drug screen (UDS) was positive for cannabis only

My personal psychosis cases

- 18 yo M who was smoking marijuana was at an inspirational camp prior to getting ready to play college football on scholarship
- No other past medical/psychiatric history
- Rapidly left the conference in his car driving over 100 mph until relative caught up to him after car had a mechanical issue
- Brought in to PW ED speaking nonsensical, could not answer questions. After a week of inpatient psychiatric treatment, staff could still not get him to keep his clothes on
- Only positive on lab work was UDS positive for cannabis. (Family stated was also previously using magic mushrooms and dealing with anxiety issues)

My personal psychosis cases

- 33 yo F brought in by EMS on stretcher covered in blood. Found at Loaf and Jug naked except for a bath robe open in front (no underwear or bra). She had broken glass and was bleeding from a scalp laceration, severed a tendon to her great toe that was bleeding profusely
- Repeating the Lords Prayer, not responding to any external stimuli
- UDS positive for amphetamines and cannabis
- Previously had been seen in ED after police brought her in after she was throwing furniture off an overpass into oncoming traffic several months ago
- At that visit, UDS only positive for cannabis

My personal psychosis cases

- 16 yo M smoking marijuana brought in after he reportedly tried to sexually assault sibling, had then taken a utility knife and made numerous cuts up and down his arm. Took 48 stitches and well over another 50 steri strips to close the number of cuts
- Did not respond to any external stimuli, stared blankly ahead throughout the entirety of the repair
- No prior medical problems, no psychiatric history
- UDS only positive for cannabis

Numerous more…

- I had never seen cases like this before. Urine drug screens only positive for marijuana. No previous psychiatric history. Seems to span age ranges, gender, ethnicity, socioeconomic circumstances, other medical history. Unifying theme is that they all use marijuana.

“Am I just paranoid or am I just stoned?”- Greenday

- Large reviews including reviews by National Academies of Sciences, Engineering, and Medicine, World Health Organization, and Colorado Department of Public Health and Environment have all independently come to the same conclusion
- “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.” (NASEM report)

Junior high students walk the hallways of Simla Junior High at Big Sandy School Monday, February 25, 2019. (Mark Reis, Special to The Colorado Sun)

Colorado kids and teens are dying at a rate higher than the U.S. average — and suicide is to blame

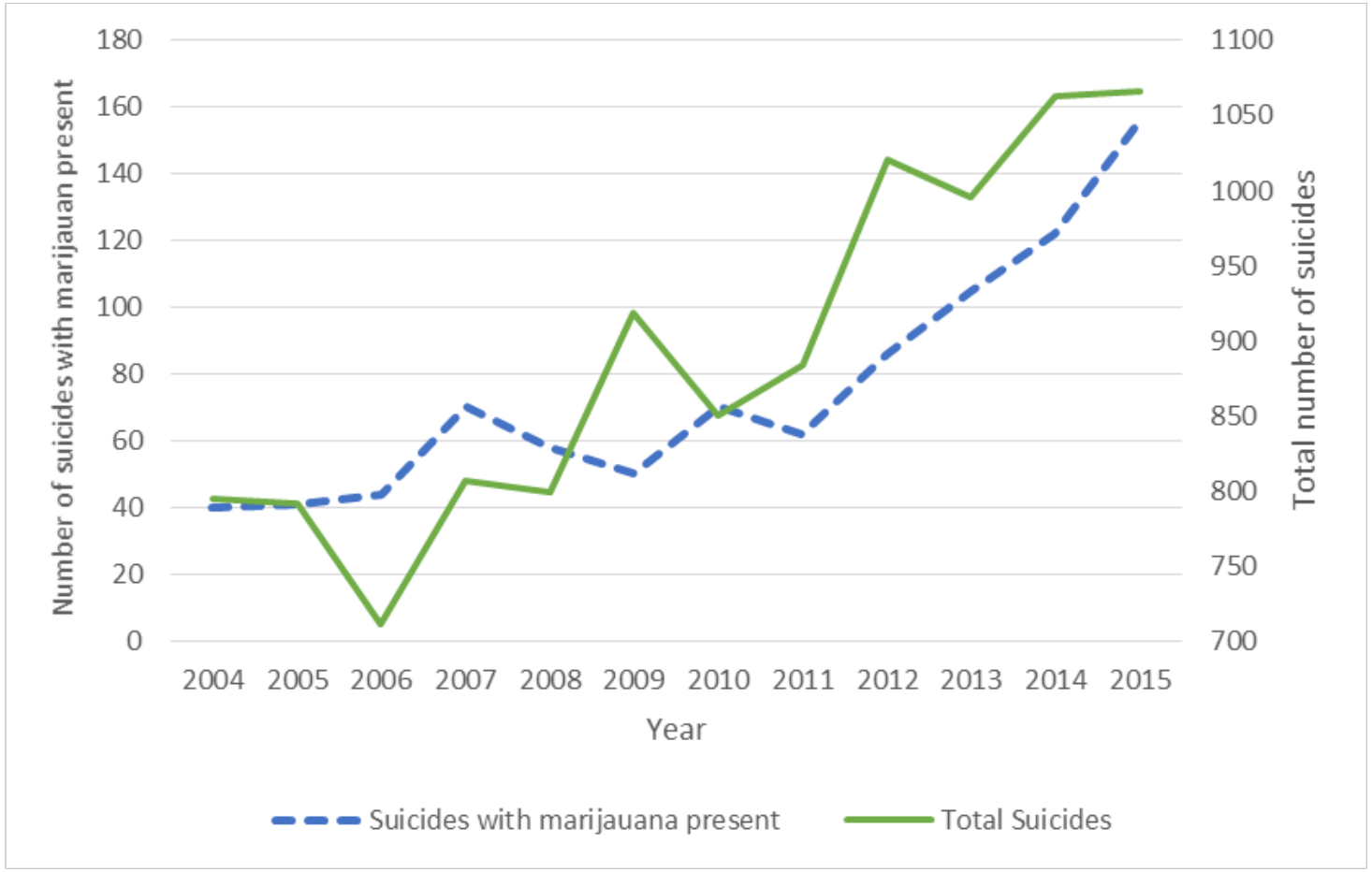
The state ranked poorly in health outcomes and mediocre overall in the latest national report on child well-being by the Annie E. Casey Foundation

JUN 17, 2019 5:05AM MDT | **HEALTH**

Suicide is the number one cause of death in Colorado for individuals between the ages of 10 and 24

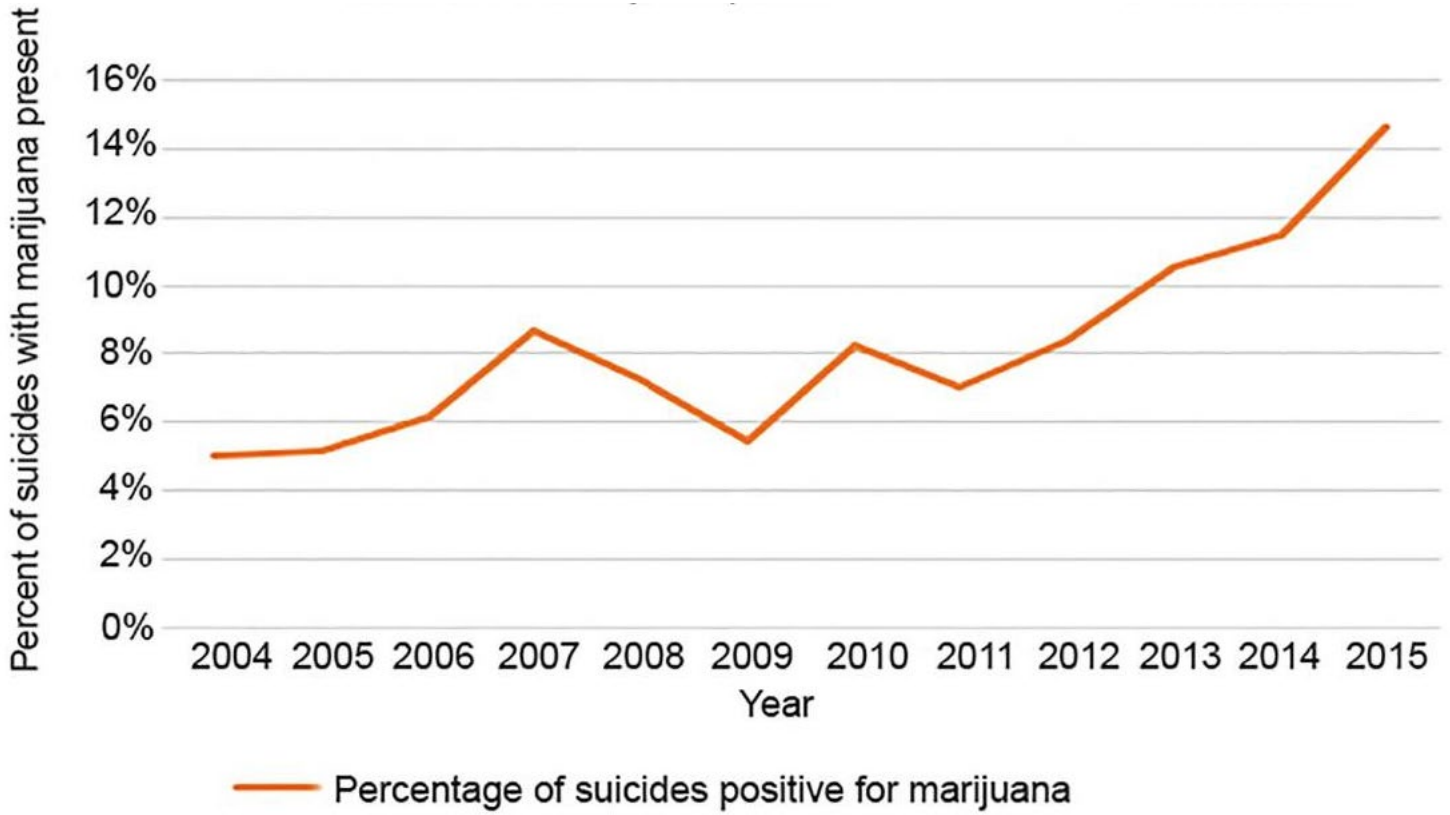
Children’s Hospital Colorado has seen the number of patients who have attempted suicide soar 600 percent since 2009.

Suicides with marijuana toxicology by year and total suicides by year in Colorado



Statistically significant 77.5% increase in the proportion of suicide victims with toxicology positive for marijuana (an absolute difference of 5.5%) for which toxicology data was reported (Chi square 77.2884, $p<0.0001$). 2004-2009 compared with 2010-2015

Suicides with marijuana by year as percentage



Suicide and Cannabis Data

- Suicidal ideation OR of 1.43 for any cannabis use, OR of 2.53 for heavy cannabis use
- Suicide Attempts OR of 2.23 for any cannabis use, OR 3.20 for heavy cannabis use
- Suicide Completion OR of 2.56 for any cannabis use

Borges et. al. A literature review and meta-analyses of cannabis use and suicidality. J Affect Disord. 2016 May; 195():63-74. Main paper cited by the NASEM.

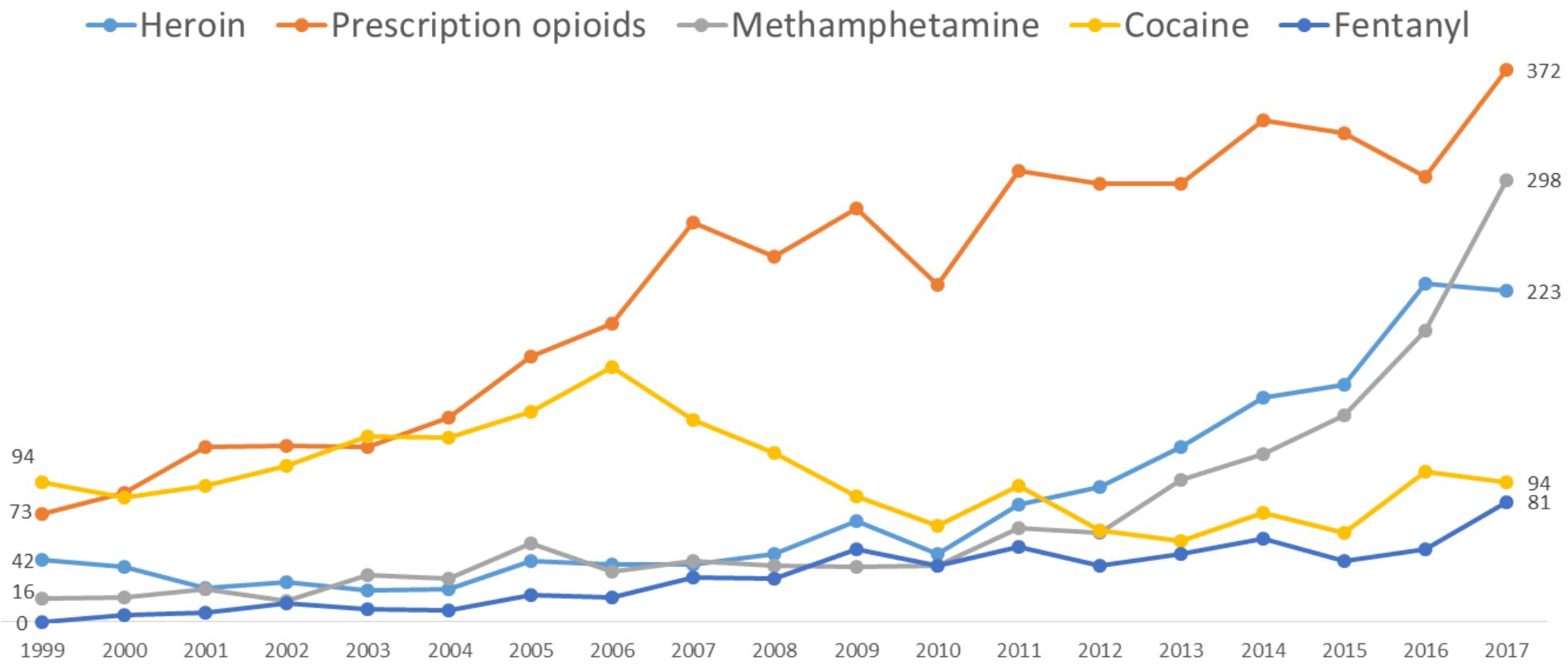
Links to other substance abuse

- NASEM, WHO, and CDPHE report all found evidence of a statistical association between cannabis use and the development of substance dependence and/or substance abuse disorder for substances including alcohol, tobacco, and other illicit drugs.
- Four separate discordant twin studies have found that the twin who used marijuana was more likely to use other substances even after controlling for environmental and genetic influences

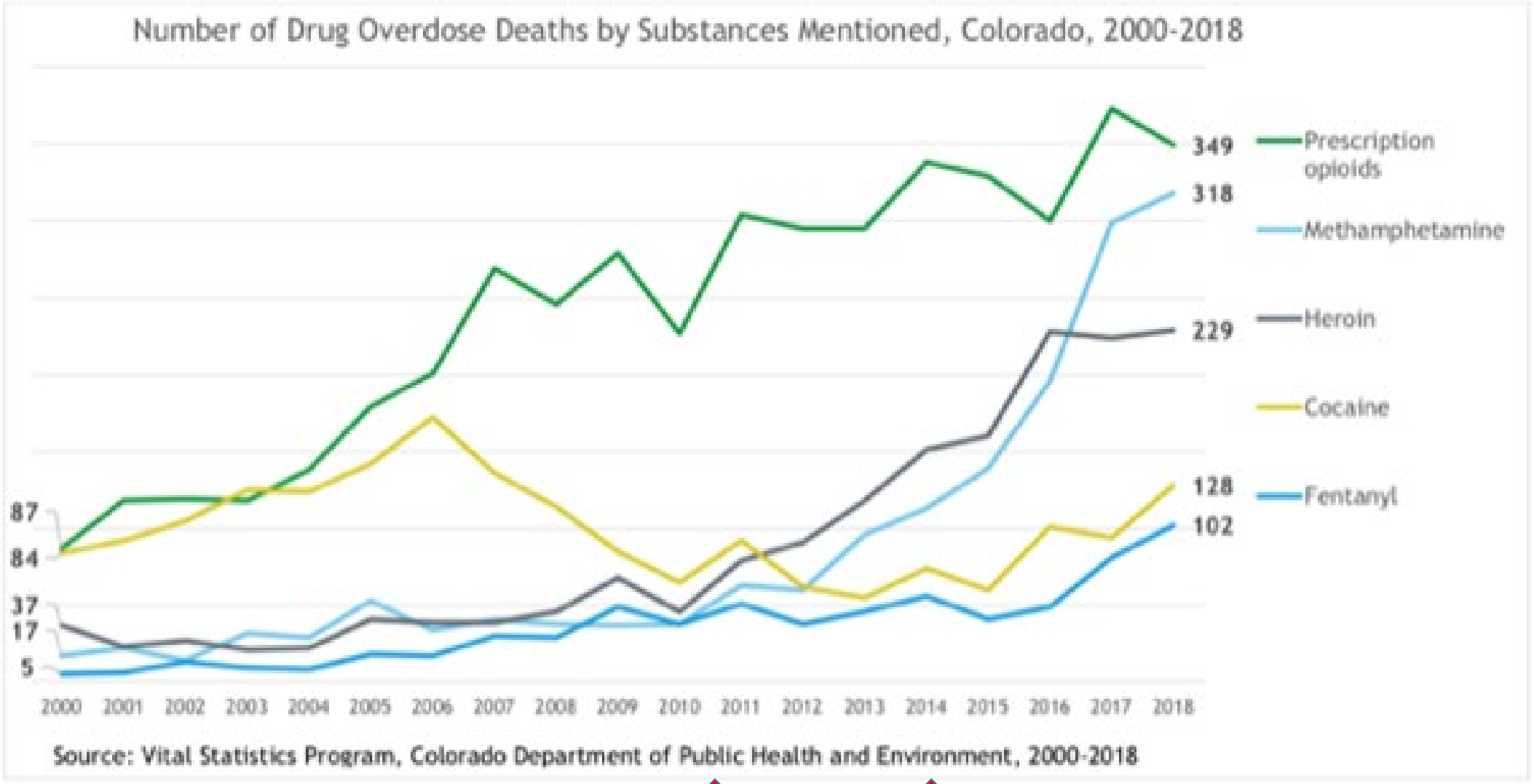
Links to other substance abuse

- After exposure to THC rats have an increased behavioral sensitization response to not only THC but also opiates and nicotine.
- These behavioral changes in rats correspond to neuronal activity changes in mesolimbic dopamine neurons in the ventral tegmental area and nucleus accumbens and that cross tolerance results with exposure to morphine, amphetamines, and cocaine.
- Repeat morphine self-administration has been shown to be significantly lower in CB_1 knockout mice (CB_1 receptors are among the most predominant G protein-coupled receptors in the brain and mediate most of the psychotropic effects of THC) and opiate withdrawal symptoms significantly less when the knockout mice are administered naloxone.

Drug poisoning/overdose deaths in Colorado by involvement of specific drug type: Colorado residents, 1999-2017



Source: Vital Statistics Program, Colorado Department of Public Health and Environment
Note: Drug categories are not mutually exclusive; a death involving more than one type of specific drug will be counted in each applicable category. “Fentanyl” is a subset of ‘prescription opioid’.



Medical Marijuana Commercialized
(Medical Dispensaries)

Recreational Marijuana Commercialized

COLORADO
Department of Public Health & Environment

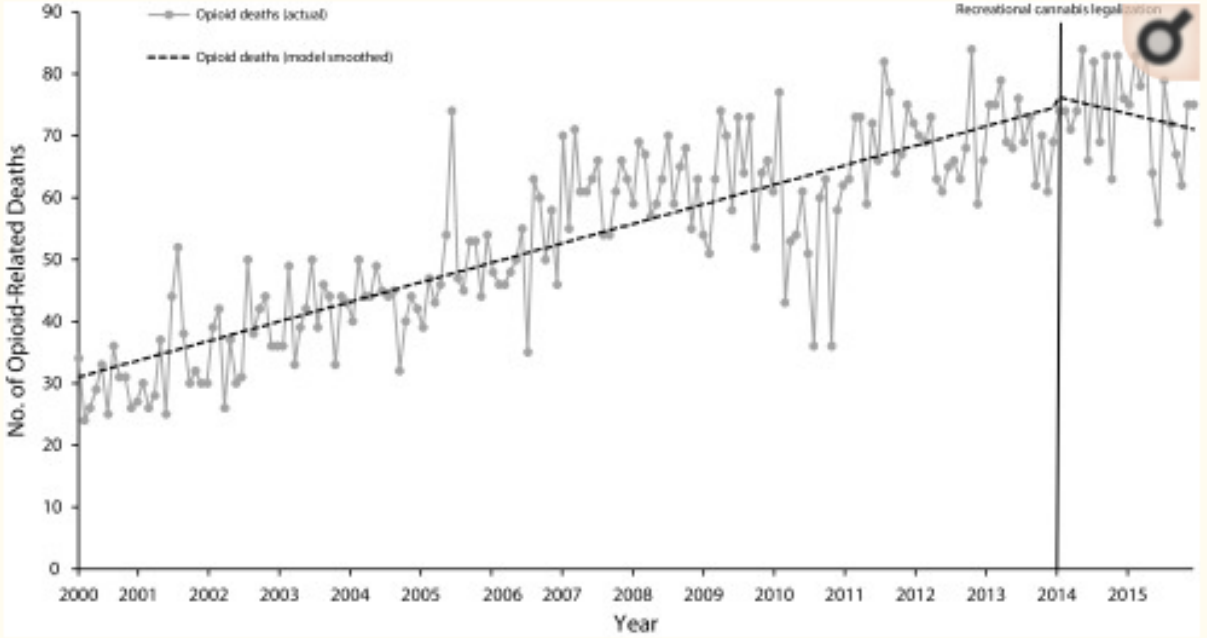


FIGURE 1—

Changes in Monthly Opioid-Related Deaths Following Recreational Cannabis Legalization in Colorado, 2000–2015

Note. Change in opioid-related deaths per month following legalization = −0.68 (95% confidence interval = −1.34, −0.03; $P = .043$). Change in model-estimated opioid-related deaths was robust to covariate control of opioid-related deaths in all comparison states. Change in model-estimated opioid-related deaths was robust to whether the prescription drug monitoring program (PDMP) covariate was modeled at the beginning of implementation or at full implementation of the 2014 PDMP change.

Livingston MD, Barnett TE, Delcher C, Wagenaar AC. Recreational cannabis legalization and opioid-related deaths in colorado, 2000–2015. Am J Public Health 2017 11/01; 2018/08;107(11):1827-9.

Medical Cannabis Laws and Opioid Analgesic Overdose Mortality in the United States, 1999-2010

Marcus A. Bachhuber, MD; Brendan Saloner, PhD; Chinazo O. Cunningham, MD, MS; Colleen L. Barry, PhD, MPP

Invited Commentar
page 1673

IMPORTANCE Opioid analgesic overdose mortality continues to rise in the United States, driven by increases in prescribing for chronic pain. Because chronic pain is a major indication for medical cannabis, laws that establish access to medical cannabis may change overdose mortality related to opioid analgesics in states that have enacted them.

OBJECTIVE To determine the association between the presence of state medical cannabis laws and opioid analgesic overdose mortality.

CONCLUSIONS AND RELEVANCE Medical cannabis laws are associated with significantly lower state-level opioid overdose mortality rates. Further investigation is required to determine how medical cannabis laws may interact with policies aimed at preventing opioid analgesic overdose.

PNAS

Association between medical cannabis laws and opioid overdose mortality has reversed over time

Chelsea L. Shover[a,1], Corey S. Davis[b], Sanford C. Gordon[c], and Keith Humphreys[a,d]

[a]Department of Psychiatry and Behavioral Sciences, Stanford University, Stanford, CA 94305; [b]The Network for Public Health Law, Carrboro, NC 27516; [c]Wilf Family Department of Politics, New York University, New York, NY 10012; and [d]Center for Innovation to Implementation, Veterans Affairs Health Care System, Palo Alto, CA 94304

Edited by Kenneth W. Wachter, University of California, Berkeley, CA, and approved May 16, 2019 (received for review February 27, 2019)

pharmacists to request patient identification) were significantly associated with opioid overdose mortality (Table 1). Using the full 1999–2017 dataset, we found that the sign reversed for medical cannabis laws, such that states passing a medical cannabis law experienced a 22.7% increase, 95% CI (2.0, 47.6) in overdose deaths. As an additional robustness test, we estimated models

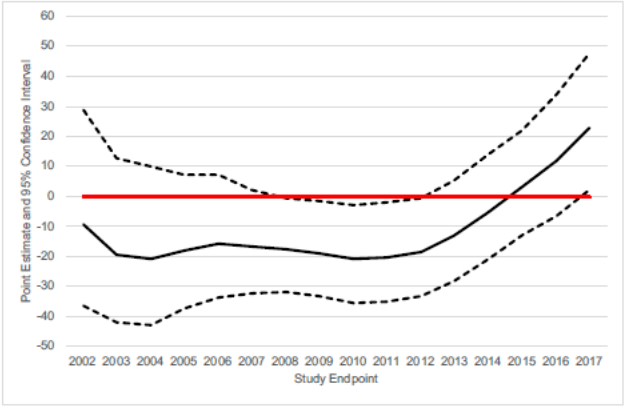


Fig. 1. Changes in point estimate and 95% CI of association between medical cannabis law and age-adjusted opioid overdose death rate by the last year included in the analysis since 1999. Fixed (year and state) and time-varying effects (prescription drug monitoring program, state unemployment, pain management clinic oversight laws, and prescription drug identification laws) were also adjusted for.

Increasing drug culture increases drug use

Emergency Department Drug Screens By Year, Parkview Medical Center

2013 (Census 80,185 patients)	2018 (Census 82,025 patients)	Percentage Increase
570 tests/month (11.7 patients per test)	636 tests/month (10.7 patients per test)	
273/month positive (47%)	389/month positive (61%)	42.5% increase
129/month positive for cannabis	202/month positive for cannabis	56.6% increase
133/month positive for opiates	147/month positive for opiates	10.5% increase
53/month positive for amphetamines	129/month positive for amphetamines	143% increase

Cannabinoid Hyperemesis Syndrome (CHS)

- Symptoms of CHS include significant nausea, violent vomiting, and abdominal pain in the setting of chronic cannabis use. Cardinal diagnostic characteristics include regular cannabis use, cyclic nausea and vomiting, and compulsive hot baths or showers with resolution of symptoms after cessation of cannabis use
- Following legalization, the prevalence of cyclic vomiting presentations to Denver Health and the University of Colorado Hospital increased 1.92 fold
- These patients often are evaluated with multiple imaging studies, lab work, endoscopies, and admissions to the hospital as well as antiemetic treatment. These studies are often non-diagnostic and treatment often ineffective.
- This may also influence ED overcrowding.

Super-strong weed is making people vomit every morning and some are 'scromiting'

Rob Waugh Monday 11 Mar 2019 9:49 am

Weed smokers are waking up in the morning feeling nauseated and having violent fits of vomiting, a doctor has warned.

Some of the attacks of vomiting are so violent that users around the world are 'scromiting' – screaming while vomiting – and having to go to hospital.

It could be linked to super-strong weed, a Canadian doctor has warned.

MUST READ

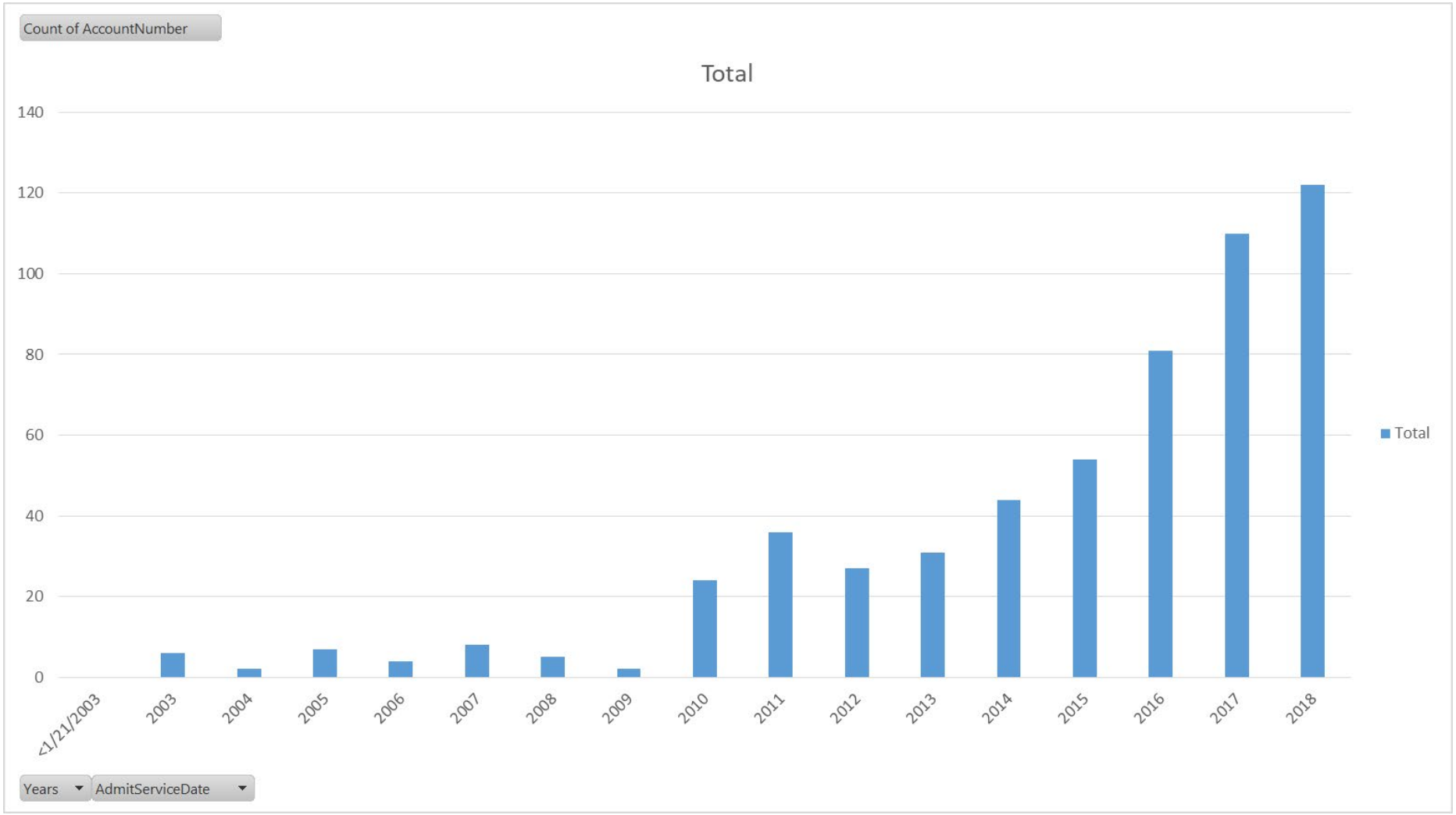
Hunt for Tommy Robinson yobs who dragged police medic to the ground

The police medic was pulled to the ground and kicked in the head. »

Donald Trump blames immigration for racist mass-shooting that killed 22

President Trump set out his ideas for preventing future mass-shootings in a tweet posted Monday morning »

Cannabinoid Hyperemesis Syndrome Patients by Year at Parkview Medical Center



Research Article

Emergency Department and Radiological Cost of Delayed Diagnosis of Cannabinoid Hyperemesis

David I. Zimmer,[1] **Ross McCauley**,[1] **Varun Konanki**,[2] **Joseph Dynako**,[1] **Nuha Zackariya**,[3] **Faadil Shariff**,[3] **Joseph Miller**,[4] **Sophia Binz**,[4] **and Mark Walsh**[5]

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[2]*Beth Israel Deaconess Medical Center, Boston, MA 02215, USA*
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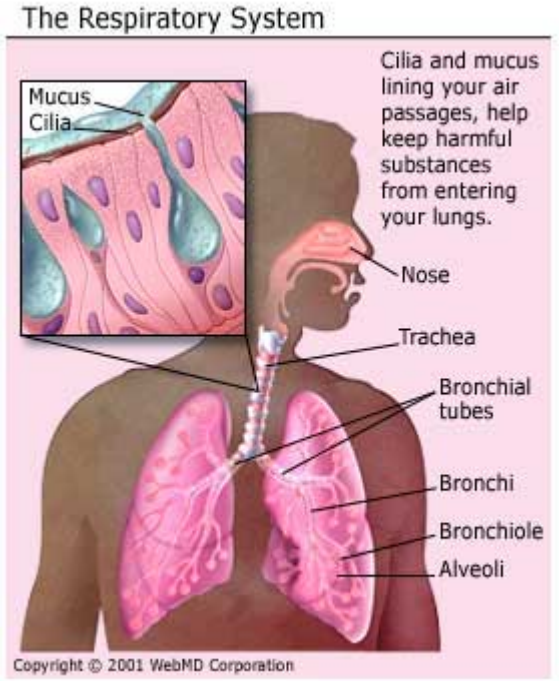
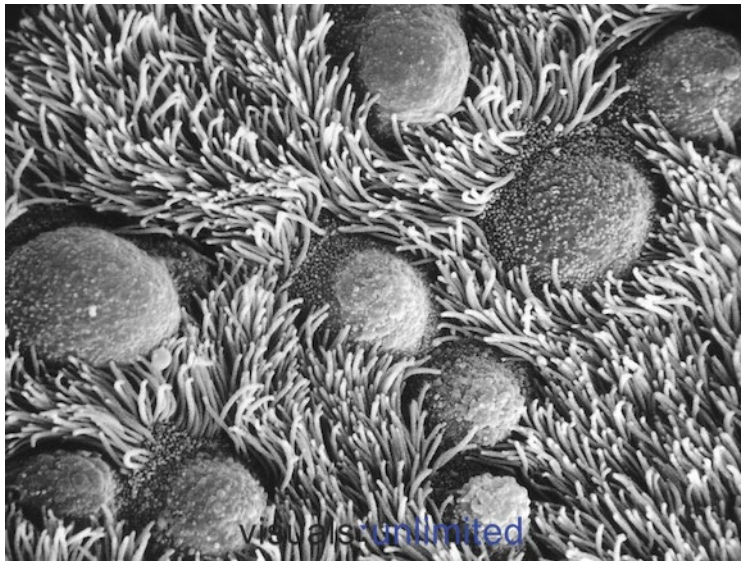
Background. Chronic cannabis use has become prevalent with decriminalization, medical prescription, and recreational legalization in numerous US states. With this increasing incidence of chronic cannabis use a new clinical syndrome has become apparent in emergency departments and hospitals across the country, termed Cannabinoid Hyperemesis (CH). CH has been described as cyclical vomiting and abdominal pain in the setting of chronic cannabis use, which is often temporarily relieved by hot showers. CH presents a diagnostic challenge to clinicians who do not have a high clinical suspicion for the syndrome and can result in high costs and resource utilization for hospitals and patients. This study investigates the expenditures associated with delayed CH evaluation and delayed diagnosis. *Methods.* This is a retrospective observational study of 17 patients diagnosed with CH at three medical centers in the United States from 2010 to 2015, consisting of two academic centers and a community hospital. Emergency department (ED) costs were calculated and analyzed for patients eventually diagnosed with CH. *Results.* For the 17 patients treated, the total cost for combined ED visits and radiologic evaluations was an average of $76,920.92 per patient. On average these patients had 17.9 ED visits before the diagnosis of CH was made. *Conclusion.* CH provides a diagnostic challenge to clinicians without a high suspicion of the syndrome and may become increasingly prevalent with current trends toward cannabis legalization. The diagnosis of CH can be made primarily through a thorough history and physical examination. Awareness of this syndrome can save institutions money, prevent inappropriate utilization of healthcare resources, and save patients from unnecessary diagnostic tests.

Cardiopulmonary Effects



- Marijuana smoking leads to chronic bronchitis, increased rates of pneumonia and upper respiratory infections. On histology, this is associated with a reduction in ciliated cells, and subsequent increased mucus secretion from the larger number of mucus-secreting cells.
- Second-hand cannabis smoke has been shown to impair vascular endothelial function greater than second hand tobacco smoke.



Motor Vehicle Collisions (get updated data)

Traffic Deaths Related to Marijuana*			
Crash Year	**Total Statewide Fatalities**	**Fatalities with Operators Testing Positive for Marijuana**	**Percentage Total Fatalities (Marijuana)**
2006	535	37	6.92%
2007	554	39	7.04%
2008	548	43	7.85%
2009	465	47	10.10%
2010	450	49	10.89%
2011	447	63	14.09%
2012	472	78	16.53%
2013	481	71	14.76%
2014	488	94	19.26%
2015	547	115	21.02%

***Fatalities Involving Operators Testing Positive for Marijuana**

SOURCE: **National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS)**

The progression…

- Colorado HB 19-1230
- “the act authorizes marijuana hospitality spaces in which medical and retail marijuana may be consumed on site and retail marijuana hospitality and sales establishments in which retail marijuana, retail marijuana concentrate, and retail marijuana products may be sold and consumed on site. Subject to local approval, the act authorizes a retail food establishment to apply for a marijuana hospitality establishment license for a specified portion of the retail food establishment”
- “The act makes smoking marijuana in the hospitality spaces an exception to the "Colorado Clean Indoor Air Act”

“Show them this…”

One recent shift…

- Teenage pt running in middle of street through traffic reportedly waving metal rod at cars. Had reportedly assaulted other teenage male. Apprehended by police, extremely combative. Tackled, tazed. Being held down by 3 police officers, EMS arrives and gives 5 mg Haldol, 2 mg Versed, and 50 mg Benedryl IM. No response. They think he tells them he did "acid, chlamydia, and meth". Pt states he was using MJ waxes to me. Punched police officer, spit on police officers and EMS personal. Arrives with 3 police officers, 5 EMS personnel, and 3 security staff to hold him down yelling incoherently. Given 10 mg IM Versed and finally calms down. UDS only positive for MJ. C-spine CT with pneumomediastinum. Hx hemophilia A. During hospital stay develops rhabdomyolysis. Very nice good family in waiting room unaware.
- Pt apprehended by police, pseudoseizure to escape arrest after shoplifting. UDS positive for opiate, meth, cannabis. Returned second time after trying to flee, tackled to the ground by police and brought back
- Pt w/laceration to L leg, dropped wine glass that broke and cut leg- drinks 10 beers daily and smokes cannabis daily
- Pt in bar fight, reported part of Arian brotherhood. Presented with odd episodes of unresponsiveness. Eventually intubated for airway protection. Positive for EtOH (relatively low level) and cannabis
- Pt w/ hx PTSD, OD on trazodone/Seroquel, trying to self treat PTSD from fireworks. UDS positive for amphetamines, cannabis
- Pt drank EtOH to unresponsive, only grunted to painful stimuli. Children taken in custody of police as nowhere else to go. Daily cannabis user.
- Pt w/ SI, life not worth living, plan to OD on pills. Hx cocaine use, snorting heroin, and cannabis use. UDS positive for amphetamines/opiates (neg cannabinoids)

Continued…

- Pt at lake. States person approached her to sell her MJ products while she was at the lake. She states she refused and was punched multiple times in the face and kicked on the ground. Large eyebrow/forehead lac repaired. CT head/facial bones neg. Pt with hx of daily cannabis use.
- Pt presents with L knee pain. Crashed on motorcycle 2 days prior, no helmet/pads. Tried treating pain at home by smoking large amounts of marijuana without relief. X-rays with midline patella fracture. No UDS drawn, smokes 2 PPD cigarettes, smokes MJ multiple times per day
- Pt with undifferentiated abdominal pain, vomiting, diarrhea (labs normal, CT neg, stool studies neg). Hx diabetic ulcers not healing for last 7-8 months. Hx daily MJ use, states quit 3 months ago
- Pt w/ L scapular pain, chest pain, and chronic back pain. Smokes MJ daily, states for pain. Never had PT for back/shoulder.
- Teenage pt, R testicular pain, dx epididymitis. Smokes cigarettes, uses MJ 2-3 times per week, drinks EtOH occasionally.
- Pt punched through glass window, cut radial artery. Hypotensive, O- blood transfusion. Taken to OR for repair. EtOH- negative cannabis.

Next day…

- Pt presents after ‘bad trip’ seeing demons that he felt were going to kill him after wanting to try psychedelic mushrooms. “I saw they legalized them in Denver so I wanted to try them”. Daily cannabis user.
- Pt assaulted in park. Hit numerous times by fists and kicked. Odd historian, did not want police involved. Daily cannabis user. Numerous anterior and posterior scalp lacerations needing suture/staple repair.
- Pt went to state hospital yelling on grounds he was ‘going to blow his brains out’. During eval, pt with blanket over head, will not interact. Later states uses meth and cannabis daily. UDS positive for amphetamines, cannabinoids. DC’d to detox.
- Pt presents for SI after argument with son. Homeless. Uses cannabis, EtOH, and methamphetamine daily. Denied SI later, DC’d. Returned less than 12 hours later after yelling at gas station. DC’d to detox.
- Pt involved in argument with friends. Punched in jaw, lip laceration. Running in traffic trying to get hit by cars for SI. UDS positive for cannabis, cocaine, EtOH.
- Pt with intractable N/V. Hx Hep C, IVDA. Multiple attempts at peripheral IV unsuccessful. Ultimately central line placed. No improvement. CT with antral wall thickening, EGD with gastroparesis findings, ulcer. Daily cannabis user.

Next day…

- Pt presents with sudden onset dizziness, headache. Dx BPPV. Smokes MJ daily
- Pt hx COPD, CHF called complaining of SOB. Seen at beginning of night and refused admission, left AMA. Returned early morning after staying in the waiting room. Hit nurses hand as she tried to place IV. Uses cannabis, methamphetamine, and heroin daily. Homeless. Accepted for admission but again left AMA again.
- Pt presents after threatening to use gun to kill himself to roommates. Intoxicated by alcohol, endorses daily cannabis use. Charging up to nurses and myself, ?to intimidate?

Next day…

- Pt presents for medical clearance for detox for meth dependence. UDS positive for amphetamines, cocaine, and cannabinoids
- Pt found sitting on side of curb with erratic uncoordinated movements by bystanders, not able to provide history. Blanket over head not responding. When blanket removed, pt flails widely around room, then lies back down and curls up in ball, does not respond further. UDS positive for amphetamines, cannabinoids. After 10 hours observation in ED patient wakes up and leaves, refuses case management assistance, refuses detox.
- Pt presents following intentional overdose on metformin, Abilify, benztropine, and lamotrigine in SI attempt. States uses cannabis occasionally on social history, UDS negative.
- Pt presents for auditory hallucinations, voices telling him to stab self and others with knives. States having visual hallucinations of ‘tiny trolls’ eating his legs. UDS only positive for cannabis, states daily cannabis use
- Pt with low back pain, R sided chest pain concerned lung collapsed, and concern poke from trash bag may have been a needle. Smokes 2 PPD cigarettes, smokes cannabis multiple times daily
- Pt with asthma exacerbation. Ran out of inhaler, not refilled. Smokes cigarettes and cannabis daily.
- Pt states picked up by car, raped, then forced to call boyfriend in other state who called police and then was brought for SANE evaluation. UDS positive only for cannabinoids.

A few things ‘extras’ noticed

- All or nearly all cannabis presentation patients have Medicaid or are uninsured
- Cannabis often co-occurring with other substance abuse
- Noted nearly 2/3 of patients seen drug related (including alcohol). Cannabis most common overall drug (more than alcohol, meth, and opiates). Last shift 10 of 15 patients drug related (including alcohol).
- Estimated ED average cost around $5,000 (with labs, CT). Cost **per night, single shift** of substance use to primarily Medicaid/uncompensated care well over $50,000 (not even including inpatient and ICU stays, endoscopies, EMS/police cost, etc.)

Balance is important- as much as possible let's work together on the same team to make our families, our communities, and our country a better place to live

Things I think all can mostly agree on:

1. We want to treat hard to treat diseases (chronic pain, mental illness, multiple sclerosis, cancer, etc.) We need to research and implement the best medical therapies to alleviate suffering
2. We want fewer people suffering from substance dependence
3. Racism is deplorable and we should do everything possible to eliminate it
4. Low level drug offenses probably need a different way to be handled in the legal system
5. We need more money for schools, roads, public health, and lower health care costs

In Colorado, a for profit marijuana industry has not helped most of those categories and has worsened many of them. The harm reduction model of 'regulating to make it safer' has not worked for marijuana in any state that has tried it.

What Questions Do You Have?

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