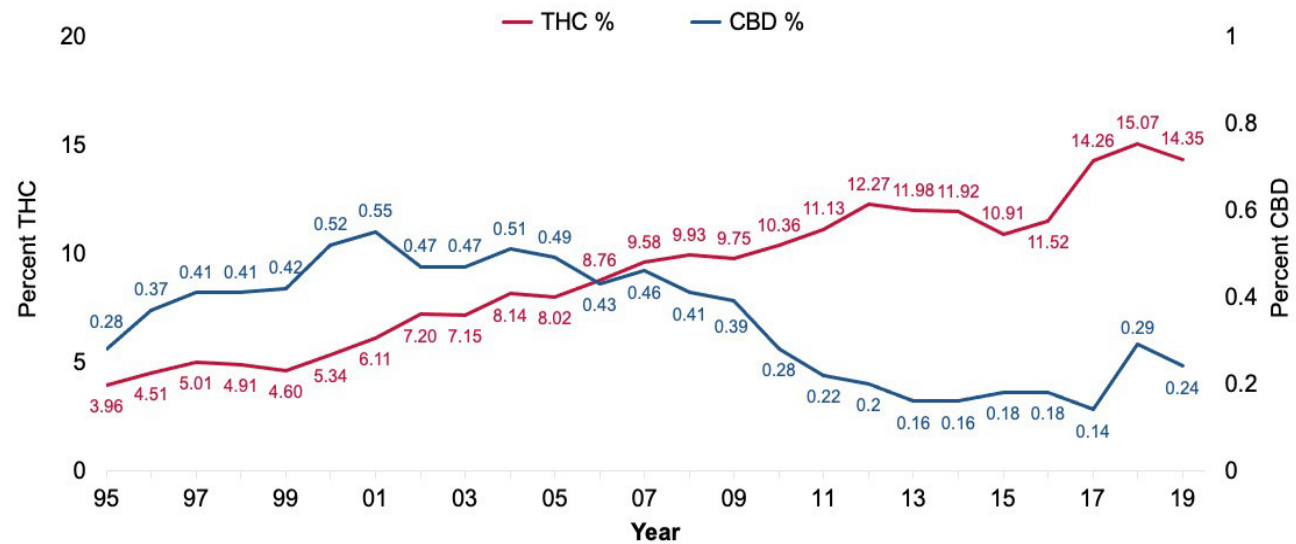


Cannabis complications and Potency

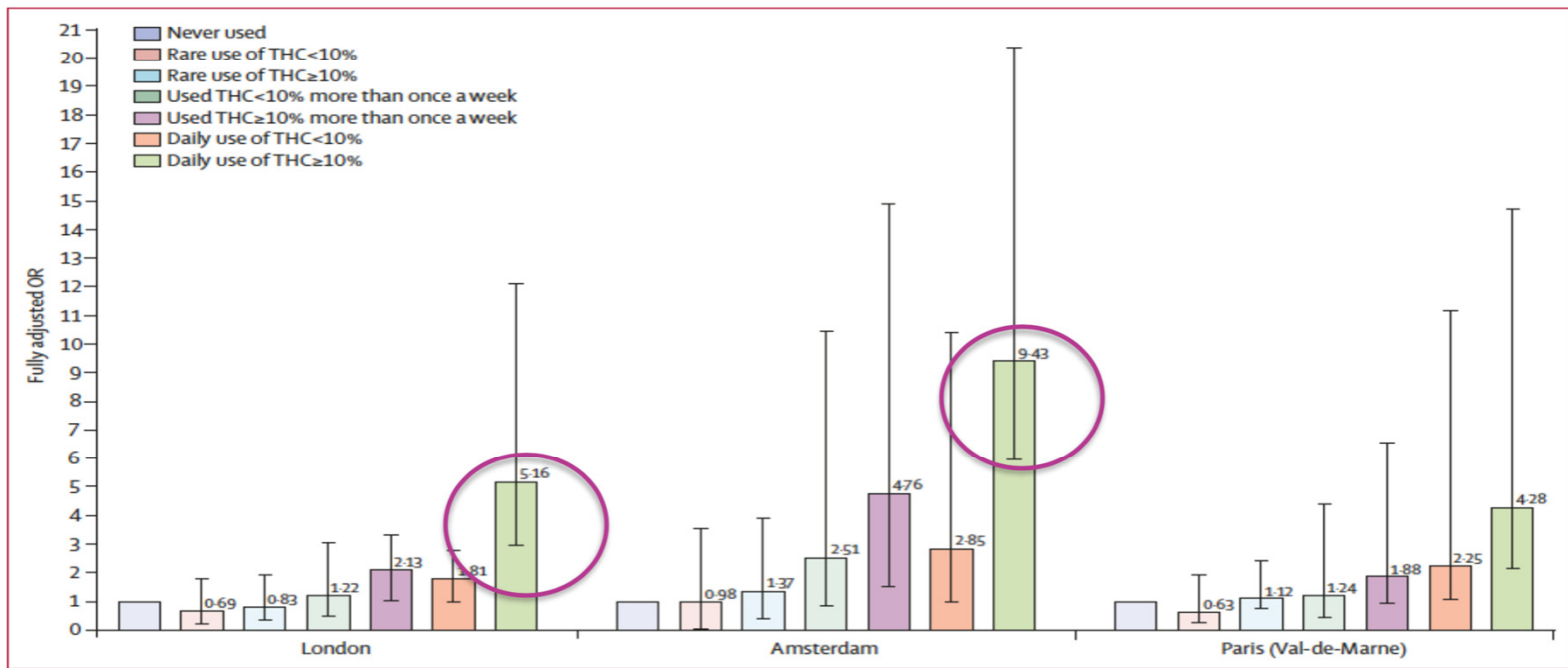
Eric A. Voth, M.D., F.A.C.P-Internal
Medicine, Pain, and Addiction Med
President and Chairman of the Board
The International Academy on the
Science and Impact of Cannabis

Marijuana Potency

Percentage of THC and CBD in cannabis samples seized by the DEA from 1995-2019



The effect of daily use of high-potency cannabis on the odds for psychotic was particularly visible in London and Amsterdam



*Adjusted for age, gender, ethnicity, level of Ed, employment status and other drugs (tobacco, alcohol, stimulants, Ketamine, Legal highs, Hallucinogenics).



Di Forti et al, Lancet Psych, On Line March 23 2019

Psychiatric and Behavioral Disorders

Psych and Behavioral Risk

- Cannabis use disorder is a common comorbidity and risk marker for **self-harm, all-cause mortality, and death by unintentional overdose and homicide among youths with mood disorders.** These findings should be considered as states contemplate legalizing medical and recreational marijuana, both of which are associated with increased CUD.

Cynthia A. Fontanella, PhD

JAMA Pediatr. doi:10.1001/jamapediatrics.2020.5494

Persistence of Psychosis

- Risk of psychosis -no prior psychosis who used pot, 1.9 times greater than non-users in ave 3.5 years.
- Continued pot use risk of future psychosis was 31% vs **20% in those who did not continue use** out to approx 8.5 years.

• BMJ 2011;342: d738

Psychosis Related to Delta-9-THC

- Presence of psychosis related to percentage of THC
- Threshold appears about 10% THC concentration
- Daily use increased risk

***Lancet Psychiatry* 2019; 6: 427–36**

Published **Online**
March 19, 2019

American Psychiatric Association review of Cannabis 2021

- Need to follow FDA processes
- Underlying Psych disorders present risk
- **Can trigger anxiety, depression, suicidal ideation, psychosis, dependence.**
- Not approved for any medicinal uses
- Use for Opiate use disorder no approved
- Recreational use and medicinal use should be considered separately.

Suicidal Ideation and Attempts

- 281650 adults aged 18 to 34 years who participated in the National Surveys on Drug Use and Health.
- Cannabis use was associated with higher prevalence of suicidal ideation, plan, and attempt

JAMA Han et al

June 22, 2021 1/15

Marijuana and Bipolar Illness

- 166 first-episode bipolar I disorder patients.
- Cannabis and alcohol associated with the first episode of mania

Bipolar Disorder 2008;10:738-741

Depression

- Depressive responses measured
- Lower doses= Serotonin agonist
- Higher doses= Serotonin suppressant
- Effect was the Medial Prefrontal Cortex

J Neuroscience 2007;27:11700-11711

PTSD and Marijuana Use

- 2000 participants in VA treatment programs
- Non-users had significantly less symptoms
- Prior users who quit had less symptoms
- Users had higher levels of violence,
- New users had higher levels of violence and also turned more to other drugs
- Commented: “Most people assume things based on their own experience... People assume that there aren’t a lot of risks.....there really are”

Wilkinson

Yale University December 2014

Presented to the AAAP

Complications of Marijuana Use

Cognitive Changes

- Attention
- Concentration
- Decision-making
- Disinhibition
- Impulsivity
- Working memory
- Verbal fluency
- Concept formation and planning

Structural Change on MRI

- 48 marijuana users
- Abnormal Gray Matter volume
- Abnormal Orbitofrontal Cortex
- Part of the reward network of the brain
- Cumulative deleterious effect on OFC

Filbey et al

Proceedings of the National Academy of Sciences,

2014;111:16913-16918

Neuropsychological Decline

- 1037 individuals
- Pot use at 18,21,26,32,38 y/o
- Neuropsych testing at 13 before pot and 38
- Broad Neuropsychological decline across all domains even controlling for education
- 10% (101-91) IQ difference between never and persistent user.
- 6-point IQ decline age 13-38 w/ persistent use

Proc Natl Acad Sci U S A. 2012 Aug 27

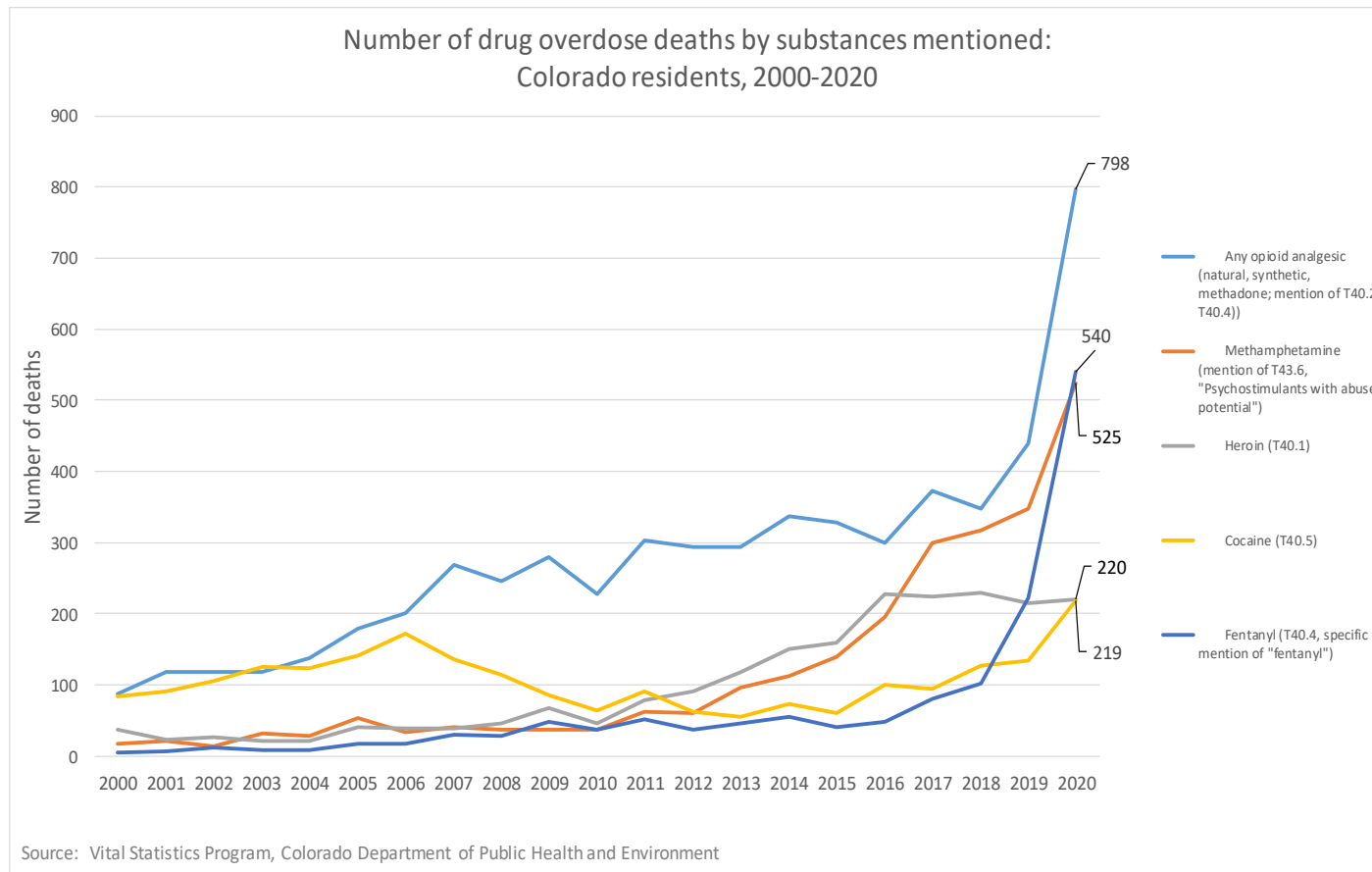
Sexual Assault/ Victimization

- **Alcohol and Marijuana predict violence.** Kraanen Journal of Substance Abuse Treatment 46 (2014) 532–539
- **Marijuana-associated partner aggression** Moore Clinical Psych Review 28 (2008) 247-274
- **College Drug Use and Partner Violence**
Nabors Journal of Interpersonal Violence 25(6) 1043–1063
- **Dating Aggression by Adolescents**
Reyes Journal of Adolescence 37 (2014) 281–289

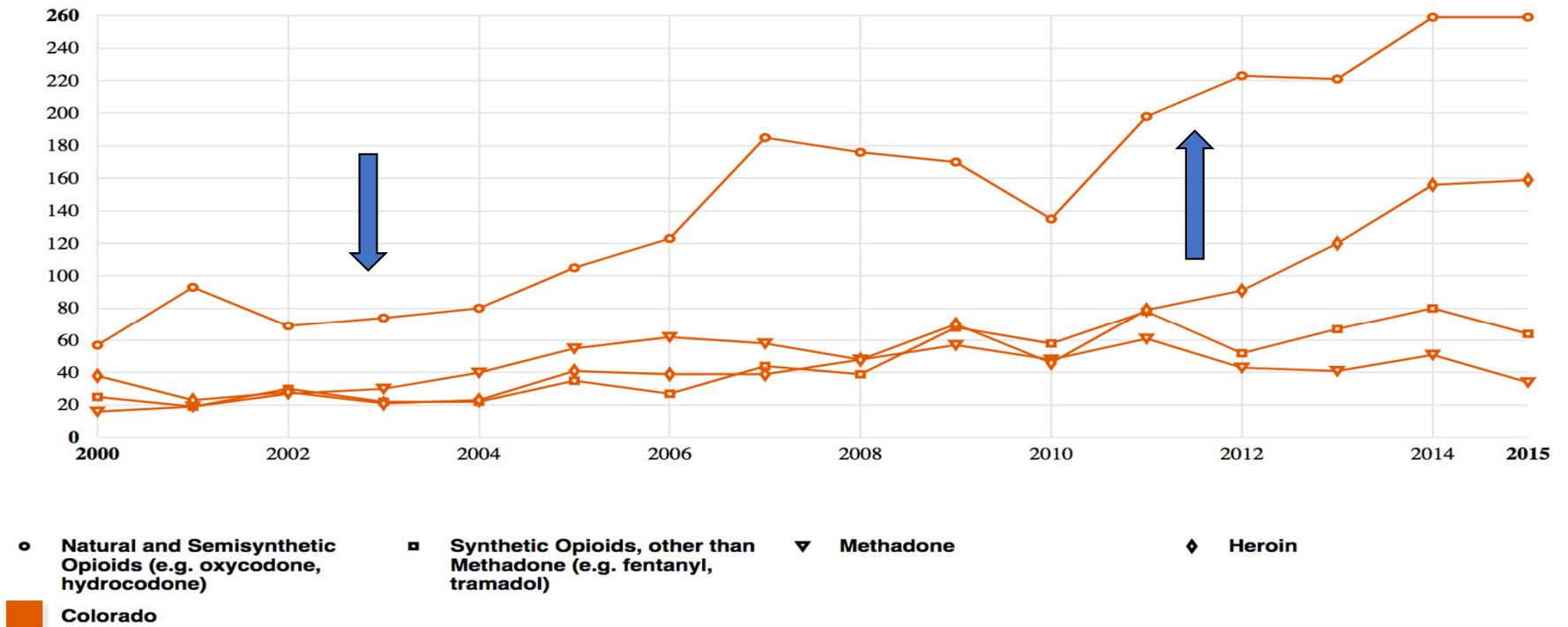
Unusual Side Effect: Hyperemesis

- Identified as rare in past
- Becoming common
- Miserable
- Must be cannabis-free

Colorado Opiate Fatalities



Colorado



Colorado Overdoses

3rd Quarter 2020

- Rx Opioid deaths up 8.5%
- Fentanyl Deaths up 47% compared to 2019
- Cocaine up 16%

Colorado DPHE
2020