A Retrospective Analysis of Access to Medicinal Cannabis: Elucidating the Relationship between Cannabis and the 'Harm Reduction' Approach to Chronic Conditions

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The United States is currently experiencing a resurgent crisis of opioid use and abuse, which directly correlates with an unprecedented number of deaths due to opioid-related incidents. The number of opioid prescriptions has nearly quadrupled over the last two decades [1].

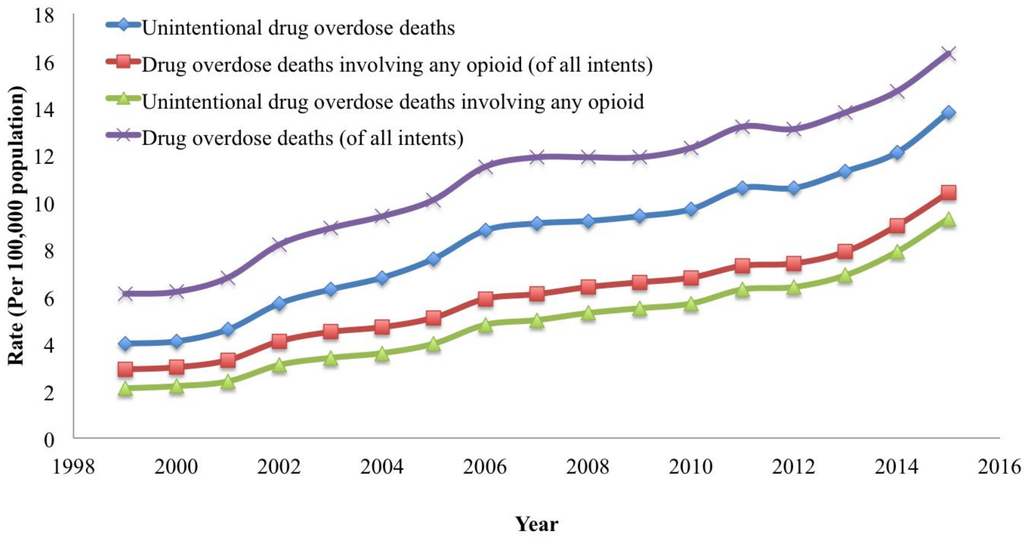


Fig. 1: Age-adjusted rates of drug overdose death and drug overdose deaths involving any opioid, for all intents and for unintentional intent, by year — United States, 1999–2015 (CDC 2017)

Emerging data suggests that access to Medicinal Cannabis (MC) is highly correlated with an overall reduction in the number of opioid prescriptions, overdoses and deaths; both statewide and on a per-patient basis in locales where access has been permitted. In fact, states with established MC programs saw opioid related overdoses reduced by up to 33%, with each state seeing decreases of at least 25% [2-4].

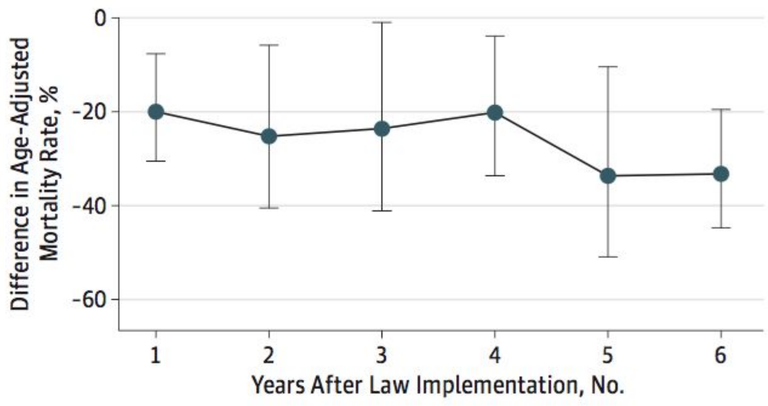
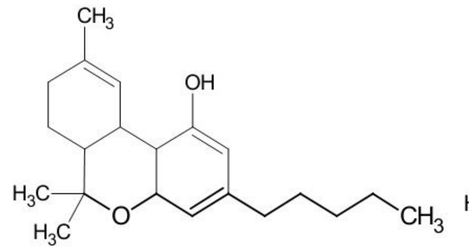
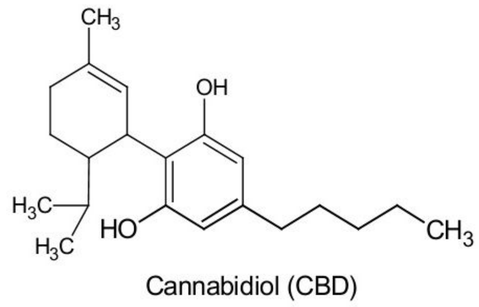


Fig. 2: Association Between Medical Cannabis Laws and Opioid Analgesic Overdose Mortality in Each Year After Implementation of Laws in the United States, 1999-2010 (Bachhuber, M.A., et al., 2014)

This novel study aims to empirically clarify certain causal relationships, which may exist in the presence of access to MC. We analyzed de-identified data, recorded under standard practice, for patients who had been on long-term opioid treatment for at least six months prior to MC. Current patients listed on their respective states MC registry, whose records are maintained by their authorizing physician, were also given the opportunity to complete a retrospective, de-identified, online survey regarding their experience with MC, prescription medications, mental health, and their qualifying chronic condition(s).



Tetrahydrocannabinol (THC)



Cannabidiol (CBD)

<u>Information collected, and analyzed, includes:</u>

- The use of: cigarettes, alcohol, Cannabidiol (CBD), and Tetrahydrocannabinol (THC).
- Demographic information specialized for the state in which the patients resides and/or is receiving care.
- Medications including: opioids, benzodiazepines, depression medications, sedatives, and non-sedative hypnotics.
- Medication dosages: this includes prior to MC access, as well as current dosages.
- The survey asks the same questions at different time points, such as prior to starting MC and currently.

<u>Standardized tests included in the survey:</u>

- Short Form - McGill Pain Questionnaire-2 (SF-MPQ-2)
- Generalized Anxiety Disorder-2 and 7 (GAD-2 and 7)
- Pittsburg Sleep Quality Index (PSQI)
- Patient Health Questionnaire-2 and 9 (PHQ-2 and 9)
- Primary Care - Post Traumatic Stress Disorder-5 (PC-PTSD-5)

<u>GAD-2:</u> Over the **<u>last two weeks</u>**, how often have you been bothered by the following problems?

1. Feeling nervous, anxious, or on edge
2. Not being able to stop or controll worrying

<u>PHQ-2:</u> Over the **<u>last two weeks</u>**, how often have you been bothered by the following problems?

1. Little interest or pleasure in doing things
2. Feeling down, depressed, or hopeless

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