



University of California
San Francisco

School of
Medicine

Medical Student
Education

Marijuana and Medical Trainees: Complex . . .

Lee Jones, M.D.
Associate Dean for Students

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Session

- Disclaimer
- Marijuana Metabolism and Effects
- Marijuana Laws
- Marijuana Use in Medical Trainees
- Questions & Comments

Session

Not Covered, but important: Treatment

Disclaimer

- I am not a substance use disorder expert .
 - I am not a legal expert.
- Seek both at your own institution.

Marijuana Facts

Poll

According to an end of the year CBS News Poll, support for legal pot hit a new high in 2019, with 65% of U.S. adults saying marijuana should be legal. And, for the first time in CBS News polling, a majority of Republicans (56%) favored legal marijuana. While people ages 65 and over continued to be the least likely age group to support marijuana legalization, slightly more of them favored it (49%) than opposed it (45%) in the 2019 poll.

<https://www.cbsnews.com/news/where-is-marijuana-legal-in-2020-illinois-joins-10-other-states-legalizing-recreational-pot-2020-01-01/>

NIH National Institute on Drug Abuse

“Marijuana is the most commonly used psychotropic drug in the United States, after alcohol. In 2018, more than 11.8 million young adults reported marijuana use in the past year.³” (SAMHSA)

National Institute on Drug Abuse; National Institutes of Health; U.S. Department of Health and Human Services.

<https://www.drugabuse.gov/publications/drugfacts/marijuana>

NIH National Institute on Drug Abuse

Marijuana:

- Onset & Duration:
 - Smoking: effects almost immediately & lasts 1-3 hours
 - GI: effects in 30 – 60 minutes & lasts “many hours”

NIH National Institute on Drug Abuse

Marijuana Effects:

- Euphoria
- Sense of relaxation
- altered senses (for example, seeing brighter colors)
- altered sense of time
- changes in mood
- impaired body movement
- difficulty with thinking and problem-solving
- impaired memory
- hallucinations (when taken in high doses)
- delusions (when taken in high doses)
- psychosis (risk is highest with regular use of high potency marijuana) *

Effects & Detection

“Smoking cannabis produces levels of THC in blood plasma that can be detected almost immediately and which reach peak concentrations within minutes ([Grotenhermen, 2003](#)). THC is fat soluble and, therefore, easily stored and released into the bloodstream ([Grotenhermen, 2003](#)). Because it is fat soluble, THC has a long half-life and can be detected in urine anywhere from one day to more than a month after ingestion ([Huestis et al., 1996](#)). The psychoactive effects of cannabis are experienced immediately after smoking, with peak levels of intoxication occurring after approximately 30 minutes and lasting several hours ([Grotenhermen, 2003](#)).”

Crean RD, Crane NA, Mason BJ. An evidence based review of acute and long-term effects of cannabis use on executive cognitive functions. *J Addict Med.* 2011 Mar;5(1):1-8. doi: 10.1097/ADM.0b 013e31820c23fa.

Approximate Drug Detection Time in Urine

Marjuana

Single use	3 d
Moderate use (4 times/wk)	5-7 d
Chronic use (daily)	10-15 d
Chronic heavy smoker	>30 d

Moeller, KE, Kissack JC, Atayee RS, Lee KC. Clinical Interpretation of Urine Drug Tests: What Clinicians Need to Know About Urine Drug Screens *Mayo Clinic Proc.* 2017 May;92(5):774-796. doi: 10.1016/j.mayocp.2016.12.007. Epub 2017 Mar 18.

FDA Approved THC

“There are 2 **FDA-approved** prescription medication forms of THC. Dronabinol, a synthetic version of THC, and nabilone, a synthetic cannabinoid similar to THC, are indicated for chemotherapy-induced emesis and anorexia in patients with AIDS (dronabinol only).^{60, 61} **Dronabinol will test positive for THC on UDTs**, whereas nabilone tests negative for THC due to its distinct metabolites.⁶⁵”

Moeller, KE, Kissack JC, Atayee RS, Lee KC. Clinical Interpretation of Urine Drug Tests: What Clinicians Need to Know About Urine Drug Screens *Mayo Clinic Proc.* 2017 May;92(5):774-796. doi: 10.1016/j.mayocp.2016.12.007. Epub 2017 Mar 18.

FDA Approved THC

60 Marinol [Package insert]. AbbVie Inc, Chicago, IL; 2016

61 Cesamet [Package insert]. Meda Pharmaceuticals Inc, Somerset, NJ; 2013

65 Fraser, A.D. and Meatherall, R. Lack of interference by nabilone in the EMIT d.a.u. cannabinoid assay, Abbott TDx cannabinoid assay, and a sensitive TLC assay for delta 9-THC-carboxylic acid. *J Anal Toxicol.* 1989; 13: 240

NIH National Institute on Drug Abuse

“Several meta-analyses of multiple studies found that the risk of being involved in a crash significantly increased after marijuana use¹ — in a few cases, the risk doubled or more than doubled.²⁻⁴ However, a large case-control study conducted by the National Highway Traffic Safety Administration found no significant increased crash risk attributable to cannabis after controlling for drivers’ age, gender, race, and presence of alcohol.⁵”

NIH National Institute on Drug Abuse

- 1) Elvik R. Risk of road accident associated with the use of drugs: a systematic review and meta-analysis of evidence from epidemiological studies. *Accid Anal Prev.* 2013;60:254-267. doi:10.1016/j.aap.2012.06.017
- 2) Ramaekers JG, Berghaus G, van Laar M, Drummer OH. Dose related risk of motor vehicle crashes after cannabis use. *Drug Alcohol Depend.* 2004;73(2):109-119.
- 3) Li M-C, Brady JE, DiMaggio CJ, Lusardi AR, Tzong KY, Li G. Marijuana Use and Motor Vehicle Crashes. *Epidemiol Rev.* 2012;34(1):65-72. doi:10.1093/epirev/mxr017
- 4) Asbridge M, Hayden JA, Cartwright JL. Acute cannabis consumption and motor vehicle collision risk: systematic review of observational studies and meta-analysis. *BMJ.* 2012;344:e536. doi:10.1136/bmj.e536
- 5) Compton RP, Berning A. *Drug and Alcohol Crash Risk.* Washington, DC: National Highway Traffic Safety Administration; 2015. DOT HA 812 117.

Executive Function

“Cannabis use has been shown to impair cognitive functions on a number of levels—from basic motor coordination to more complex executive function tasks, such as the ability to plan, organize, solve problems, make decisions, remember, and control emotions and behavior. These deficits differ in severity depending on the quantity, recency, age of onset and duration of marijuana use.”

Crean RD, Crane NA, Mason BJ. An evidence based review of acute and long-term effects of cannabis use on executive cognitive functions. *J Addict Med.* 2011 Mar;5(1):1-8. doi: 10.1097/ADM.0b 013e31820c23fa.

Executive Functioning

A Summary of Research Findings on the Effects of Cannabis on Executive Functions

Executive Function Measured	Acute Effects	Residual Effects	Long-Term Effects
Attention/Concentration	Impaired (light users) Normal (heavy users)	Mixed findings	Largely normal
Decision Making & Risk Taking	Mixed findings	Impaired	Impaired
Inhibition/Impulsivity	Impaired	Mixed findings	Mixed findings
Working Memory	Impaired	Normal	Normal
Verbal Fluency	Normal	Mixed findings	Mixed findings

Note: Acute Effects denotes 0–6 hours after last cannabis use; Residual Effects denotes 7 hours to 20 days after last cannabis use; Long-Term Effects denotes 3 weeks or longer after last cannabis use.

Crean et al

Cannabis Use Disorder DSM-5

A problematic pattern of cannabis use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period:

1. Substance is often taken in larger amounts and/or over a longer period than the patient intended.
2. Persistent attempts or one or more unsuccessful efforts made to cut down or control substance use.
3. A great deal of time is spent in activities necessary to obtain the substance, use the substance, or recover from effects.
4. Craving or strong desire or urge to use the substance
5. Recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home.

Cannabis Use Disorder DSM-5

6. Continued substance use despite having persistent or recurrent social or interpersonal problem caused or exacerbated by the effects of the substance.

7. Important social, occupational or recreational activities given up or reduced because of substance use.

8. Recurrent substance use in situations in which it is physically hazardous.

9. Substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.

Cannabis Use Disorder DSM-5

10. Tolerance, as defined by either of the following:

- a. Markedly increased amounts of the substance in order to achieve intoxication or desired effect;
- b. Markedly diminished effect with continued use of the same amount;

11. Withdrawal, as manifested by either of the following:

- a. The characteristic withdrawal syndrome for the substance;
- b. The same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms;

Cannabis Withdrawal DSM-5

Three of more signs and symptoms appear within one week after the individual stops smoking marijuana (usually daily or almost daily over at least a few months):

- Irritability, anger, or aggression.
- Nervousness or anxiety
- Sleep difficulty (e.g. insomnia, disturbing dreams)
- Decreased appetite or weight loss
- Restlessness
- Depressed mood
- At least one physical symptom that causes significant discomfort: abdominal pain, shakiness/tremors, sweating, fever, chills, or headache.

Prevalence of CUD

The prevalence of marijuana use more than doubled between 2001-2002 and 2012-2013, and there was a large increase in marijuana use disorders during that time. While not all marijuana users experience problems, **nearly 3 of 10** marijuana users manifested a marijuana use disorder in 2012-2013.

Hasin DS, et al. Prevalence of Marijuana Use Disorders in the United States Between 2001-2002 and 2012-2013. *JAMA Psychiatry*. 2015 Dec;72(12):1235-42. doi: 10.1001/jamapsychiatry.2015.1858.

Marijuana Legislation

Any institution that receives federal research or financial aid funding must have policies that are in line with federal drug laws that still consider marijuana illegal.

National Conference of State Legislatures

NCSL, founded in 1975, represents the legislatures in the states, territories and commonwealths of the U.S. Its mission is to advance the effectiveness, independence and integrity of legislatures and to foster interstate cooperation and facilitate the exchange of information among legislatures.

<https://www.ncsl.org>

Marijuana Decriminalization

- Twenty-six states and the District of Columbia have decriminalized small amounts of marijuana. This generally means certain small, personal-consumption amounts are **a civil or local infraction**, not a state crime (or are a lowest misdemeanor with no possibility of jail time).
- In 2014 and preceding the successful legalization ballot measure, the District of Columbia enacted legislation, which passed congressional review, and made possession or transfer without remuneration of one ounce or less of marijuana a civil violation.

Marijuana Decriminalization

Alaska

Michigan

North Dakota

California

Minnesota

Ohio

Colorado

Mississippi

Oregon

Connecticut

Missouri

Rhode Island

Delaware

Nebraska

Vermont

Hawaii

Nevada

Washington

Illinois

New Hampshire

District of Columbia

Maine

New Mexico

Maryland

New York

Massachusetts

North Carolina

Legalized Recreational Marijuana

Eleven states and the District of Columbia have legalized marijuana:

Alaska

Washington

California

District of Columbia

Colorado

On January, 1, 2020, Illinois became the 11th state to legalize recreational marijuana.

Massachusetts

Maine

Michigan

Nevada

Oregon

Vermont

State Comprehensive Medical Marijuana Programs

- Protection from criminal penalties for using marijuana for a medical purpose.
- Access to marijuana through home cultivation, dispensaries or some other system that is likely to be implemented.
- It allows a variety of strains or products, including those with more than "low THC."
- It allows either smoking or vaporization of some kind of marijuana products, plant material or extract.
- Is not a limited trial program. (South Dakota and Nebraska have limited, trial programs that are not open to the public.)

Medical Cannabis Anti-Discrimination Employee Protection

“The following states that have some kind of statutory language requiring employers to not refuse employment or otherwise discriminate against a qualifying **medical** cannabis patient (or medical cannabis “cardholder” in some states).”

<https://www.ncsl.org/research/labor-and-employment/cannabis-employment-laws.aspx>

Iris Hentze

Medical Cannabis Anti-Discrimination Employee Protection

Arizona

Arkansas

Connecticut

Delaware

District of Columbia

Illinois

Maine

Minnesota

Nevada *

New York

Oklahoma

Pennsylvania

Rhode Island

*Accommodations for Medical & Antidiscrimination for Recreational 2019

<https://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx>

Table 1. State Medical Marijuana/Cannabis Program Laws

State (click state name to jump to program information)	Statutory Language (year)	Patient Registry or ID cards	Allows Dispensaries	Specifies Conditions	Recognizes Patients from other states	State Allows for Retail Sales/Adult Use
Alaska	Measure 8 (1998) SB 94 (1999) Statute Title 17, Chapter 37	Yes	Yes	Yes	No, but adults over 21 may purchase at retail adult dispensaries.	Ballot Measure 2 (2014) Marijuana Regulations
Arizona	Proposition 203 (2010)	Yes	Yes	Yes	Yes, for AZ-approved conditions, but not for dispensary purchases.	

Federation of State Medical Boards

Medical Marijuana State-by-State Overview

<http://www.fsmb.org/siteassets/advocacy/key-issues/medical-marijuana-requirements-by-state.pdf>

Marijuana is a DEA Schedule I Substance

- Schedule I drugs, substances, or chemicals are defined as drugs with no currently accepted medical use and a high potential for abuse. Some examples of Schedule I drugs are:

heroin, lysergic acid diethylamide (LSD), **marijuana (cannabis)**, 3,4-methylenedioxymethamphetamine (ecstasy), methaqualone, and peyote

- The Controlled Substances Act: physicians cannot legally prescribe a Schedule I controlled substance
- “Recommendations”, “Authorization”, or “Referrals”

Marijuana Physician Training Issues

Federation of State Medical Boards

“That, given the lack of data supporting clinical efficacy and difficulty evaluating impairment, state medical and osteopathic boards advise their licensees to abstain from the use of marijuana, for medical or recreational purposes, while actively engaged in the practice of medicine; and be it further

That the FSMB model policy, Essentials of a State Medical and Osteopathic Practice Act, Section IX, Disciplinary Action Against Licensees, D(19) be amended to include “marijuana” in the list of substances that impair ability.”

Resolution 16-3

House of Delegates Meeting

April 30, 2016

Medical Board of California

Medical Board of California: “ A physician cannot be **impaired** when practicing medicine whether they are using cannabis for medical purposes or for recreational use. If the physician is impaired from cannabis and/or any other controlled substance or alcohol, the doctor puts their patient at risk and the Board would **look into any physician who is practicing medicine while impaired.** The discipline that the Board can impose if it can prove that a physician has violated the Medical Practice Act can be as severe as license revocation.”

Naveed Saleh, MD, MS, for MDLinx | December 20, 2018

Medical Board of California

Medical Board of California: “In Fiscal Year 2017-2018, the Board took 59 actions against doctors for self-abuse of drugs and alcohol (9 license revocations, 17 surrendered licenses, 1 licensee placed on probation with suspension, 29 licensees placed on probation, and 3 public reprimands were issued).”

Naveed Saleh, MD, MS, for MDLinx | December 20, 2018

California Medical License

A “yes” response to question 26-28 requires a signed and dated written explanation. Use the Explanation For Application Question (Form EXP) to provide your explanation.

- Are you currently enrolled in, or participating in any drug, alcohol, or substance abuse recovery program or impaired practitioner program?
- Do you currently have any condition (including, but not limited to emotional, mental, neurological or other physical, addictive, or behavioral disorder) that impairs your ability to practice medicine safely?
- Do you currently have any other condition that impairs or limits your ability to practice medicine safely?

California

- California has both adult and medical use regulated marijuana program.
- Increasing number of clinical rotation partners requiring substance screening.
- Residency Match Issues

Issues: Medical Marijuana

- Medical school graduates match positions revoked: positive for marijuana on required employment drug screen
- Valid prescriptions from a licensed physician for medical marijuana for an ICD 10 medical diagnosis
- **ADA protections for protected disabilities do not extend to the use of non-FDA approved medications.**
- Graduates may request and have been granted ADA protections if pre-employment drug screens were positive for an FDA approved medications (Dronabinol / Marinol).
- Institutions that employ residents are within their rights to deny employment because of the positive cannabinoid screen for marijuana use.

Issues: Medical Marijuana

- The residency program may apply to the National Residency Match Program (NRMP) for a waiver in order to revoke the match.
- If the waiver is approved, the graduate is no longer in the residency program.
- Matching in a state that has legalized marijuana does not protect graduates from adverse consequences related to the use of legalized and / or medical marijuana.

Issues: Medical Marijuana

In addition, it must be noted that several **medical student clinical sites** require drug screening.

If one is on marijuana for a medical diagnosis, it may be worthwhile exploring treatment with an FDA approved medication with your treating clinician. Keep in mind that, depending on the length and frequency of use, marijuana has variable rates of clearance.

Issues: Recreational Marijuana

The same . . .

Physicians who use marijuana, for medical or recreational use, must remember that, although their state may approve of use, other institutions in the state may still require a negative test for marijuana.

Discussion, Thoughts & Questions



UCSF