

Emerging Trends in Medical Marijuana

A Workers' Compensation Perspective



Hassan Moinzadeh

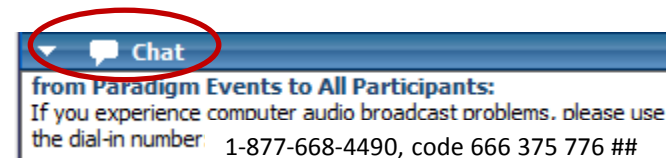
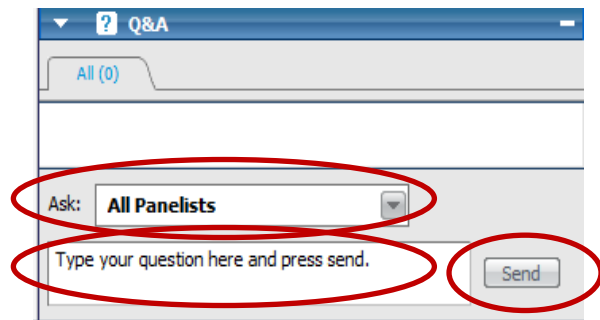
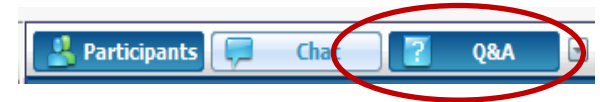
Physician at Long Beach Memorial Medical Center

Steve Moskowitz

Senior Medical Director, Paradigm Outcomes

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Our Presenters

Dr. Steven Moskowitz



- Senior medical director for Paradigm's pain program
- Physiatrist with 30 year experience
- 26 years experience in managed care and program development

Dr. Hassan Moinzadeh



- Pain specialist at Long Beach Memorial Medical Center and psychologist in private practice
- MD with specialty in physical medicine and rehabilitation
- PhD in clinical psychology



Context and Evidence

Dr. Steven Moskowitz

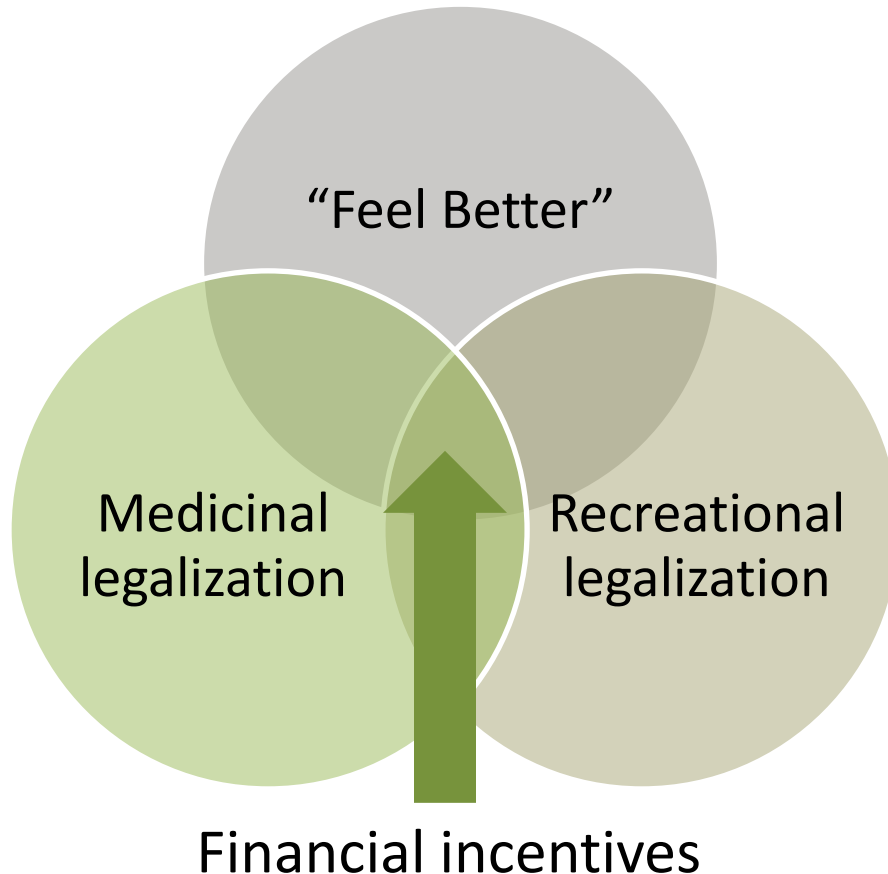
“Very few drugs, if any, have such a **tangled history as a medicine**. In fact, prejudice, superstition, emotionalism, and even ideology have managed to lead cannabis to ups and downs concerning both its therapeutic properties and its toxicological and dependence-inducing effects.”

- E. A. Carlini



The Politics of Marijuana

Is this medicine by popular vote?



■ Recreational

- Political ideology
- Gamesmanship
- 4 states and DC legal for recreational use; 23 states legalized cannabis for medical use
- State laws contradict federal laws

■ Medical criteria

- Scientific evidence
- Legal in ~ 23 states, + DC; CA 1996
- Interesting user data
- Federal laws limit research

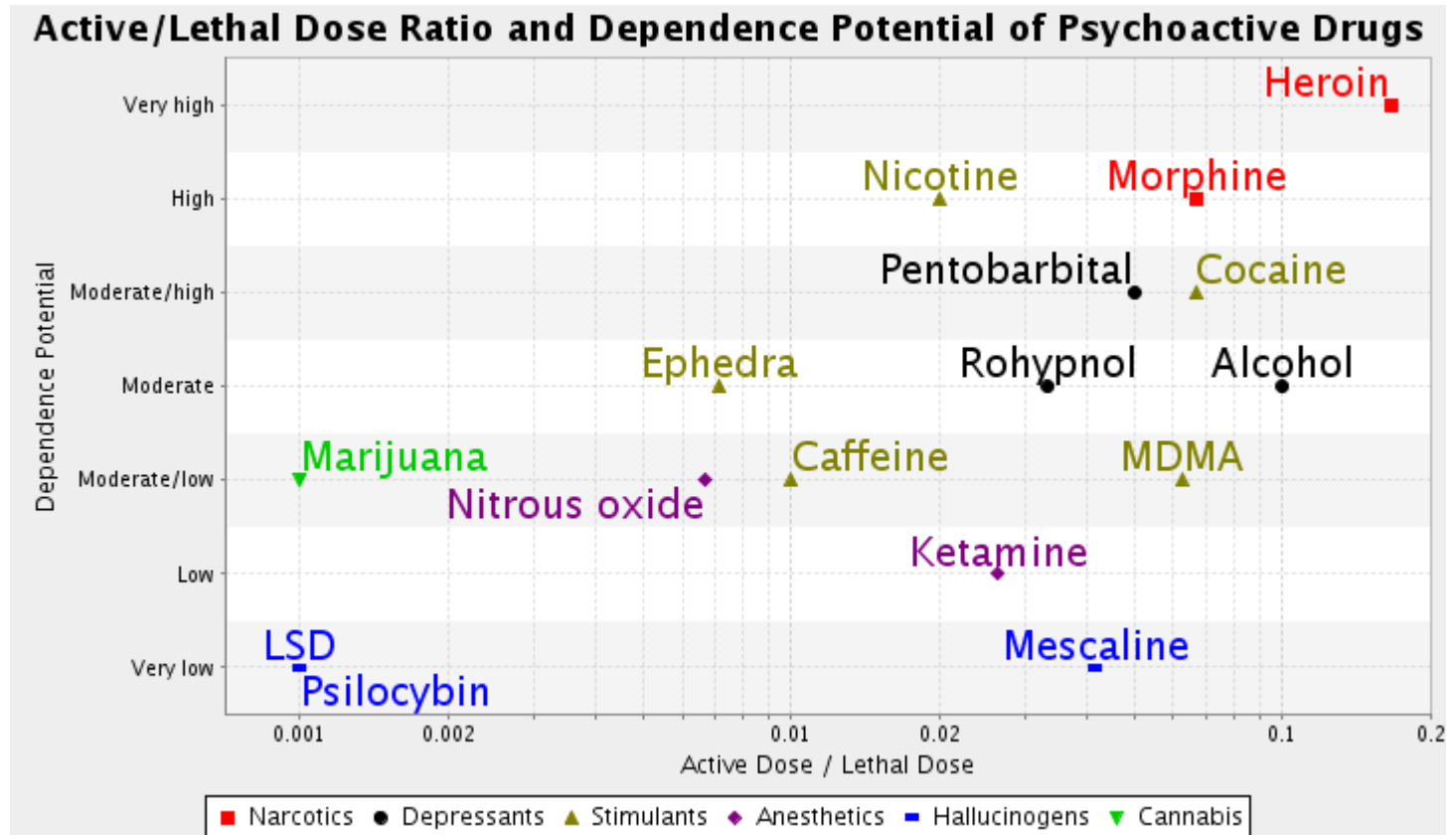
1. Blurred Boundaries: The Therapeutics and Politics of Medical Marijuana; Bostwick, MD; Mayo Clin Proc. February 2012;87(2):172-186 doi:10.1016/j.mayocp.2011.10.003

Marijuana: The Herb Versus and Its Components

It is easy to confuse the terminology.

- Endocannabinoid system
 - Endo = internal
 - Anandamide
- Eating or smoking the cannabis plant = sledgehammer doses compared to natural
 - Dysregulation?
- Marijuana biological activity does not guarantee medical effectiveness

Relative Addictiveness of Drugs

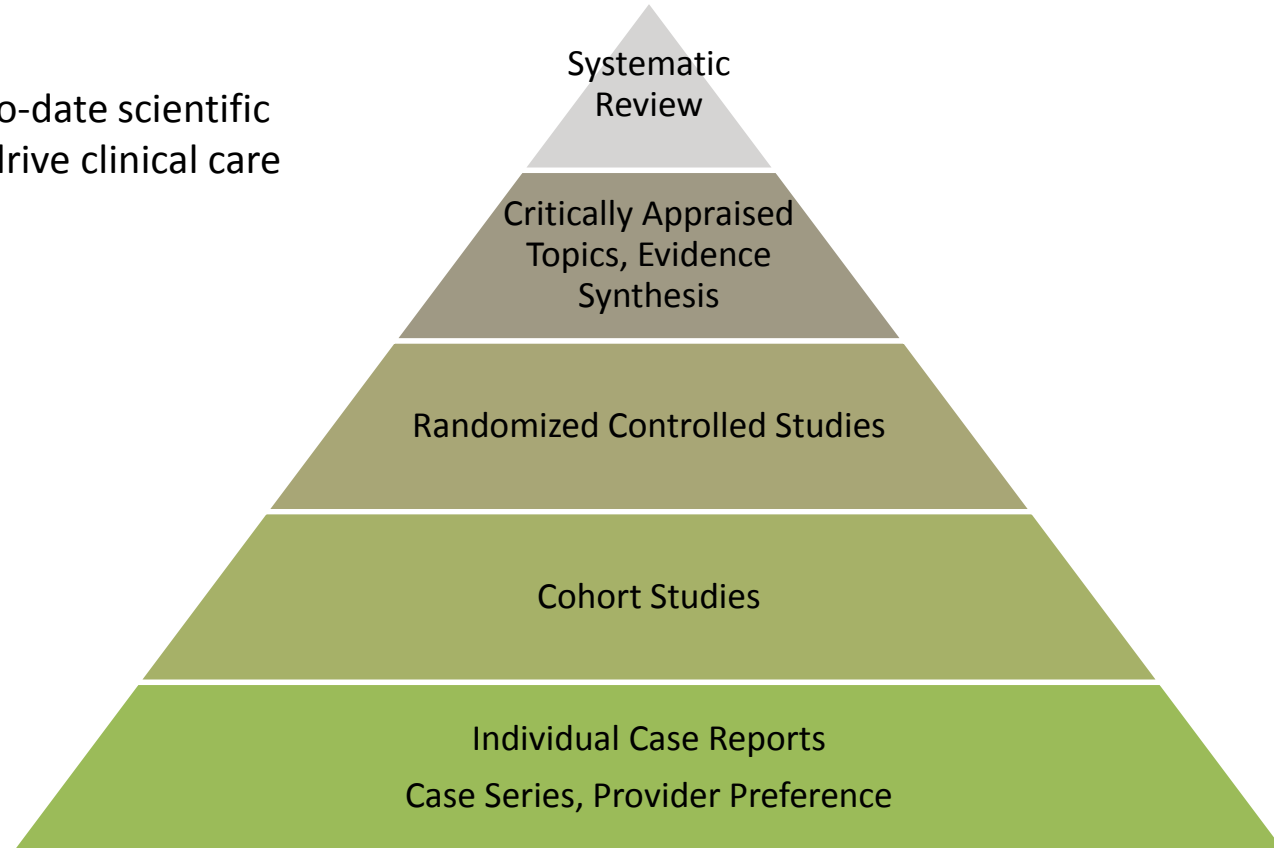


Active/Lethal Dose Ratio and Dependence Potential of Psychoactive Drugs. Data source is Gable, R. S. (2006). Acute toxicity of drugs versus regulatory status. In J. M. Fish (Ed.), *Drugs and Society: U.S. Public Policy*, pp.149-162, Lanham, MD: Rowman & Littlefield Publishers.

The Current Medical Marijuana “Proof”

Does it meet the rigors of evidence-based medicine principles?

- Judicious use of most up-to-date scientific information and proof to drive clinical care
 - Judicious use
 - Up-to-date
 - Scientific proof
 - Drive clinical care





The Basics: Varieties, Diagnoses and Costs

Dr. Hassan Moinzadeh

Medical Marijuana—A History Primer

Marijuana has been used as a remedy for physical ailments and nervous disorders for at least the last 5,000 years.



Cannabis and Cannabinoids

There are at least 85 different chemical compounds derived from cannabis that act on the cannabinoid receptors on cell membranes.

Cannabinoids are classified according to whether they are derived from the plant, made directly in the body, or else manufactured synthetically.

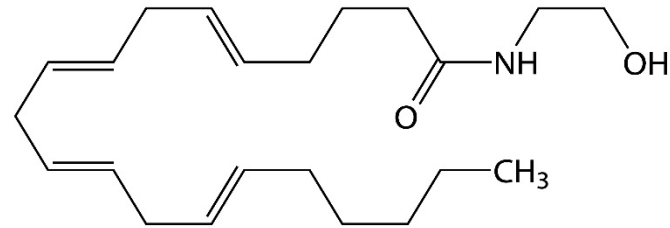
- Phytocannabinoids—buds, tinctures, extracts (THC, CBD, CBN)
- Endocannabinoids—made in the brain from foods high in Omega 3 and Omega 6 (Anandamide)
- Synthetic cannabinoids—manufactured pharmaceutical-grade THC (Marinol)

Cannabinoids—How They Work in the Body

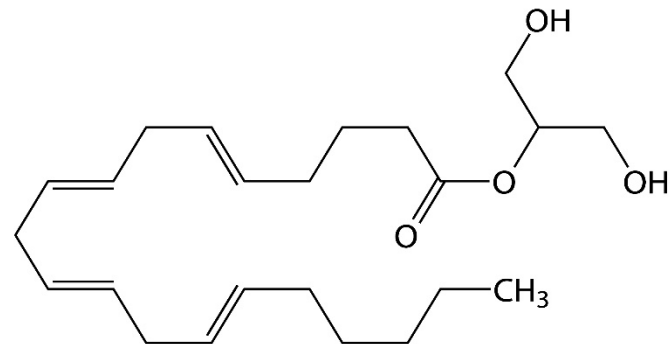
Cannabinoid receptors found in the brain as well as other tissues are involved in regulating a variety of physiological processes.

1. Appetite
2. Pain
3. Pleasure sensations
4. Immune system modulation
5. Mood regulation
6. Other

Cannabinoids: Endocannabinoids



Anandamide



2-Arachidonoyl glycerol

Cannabis Plant—Varieties

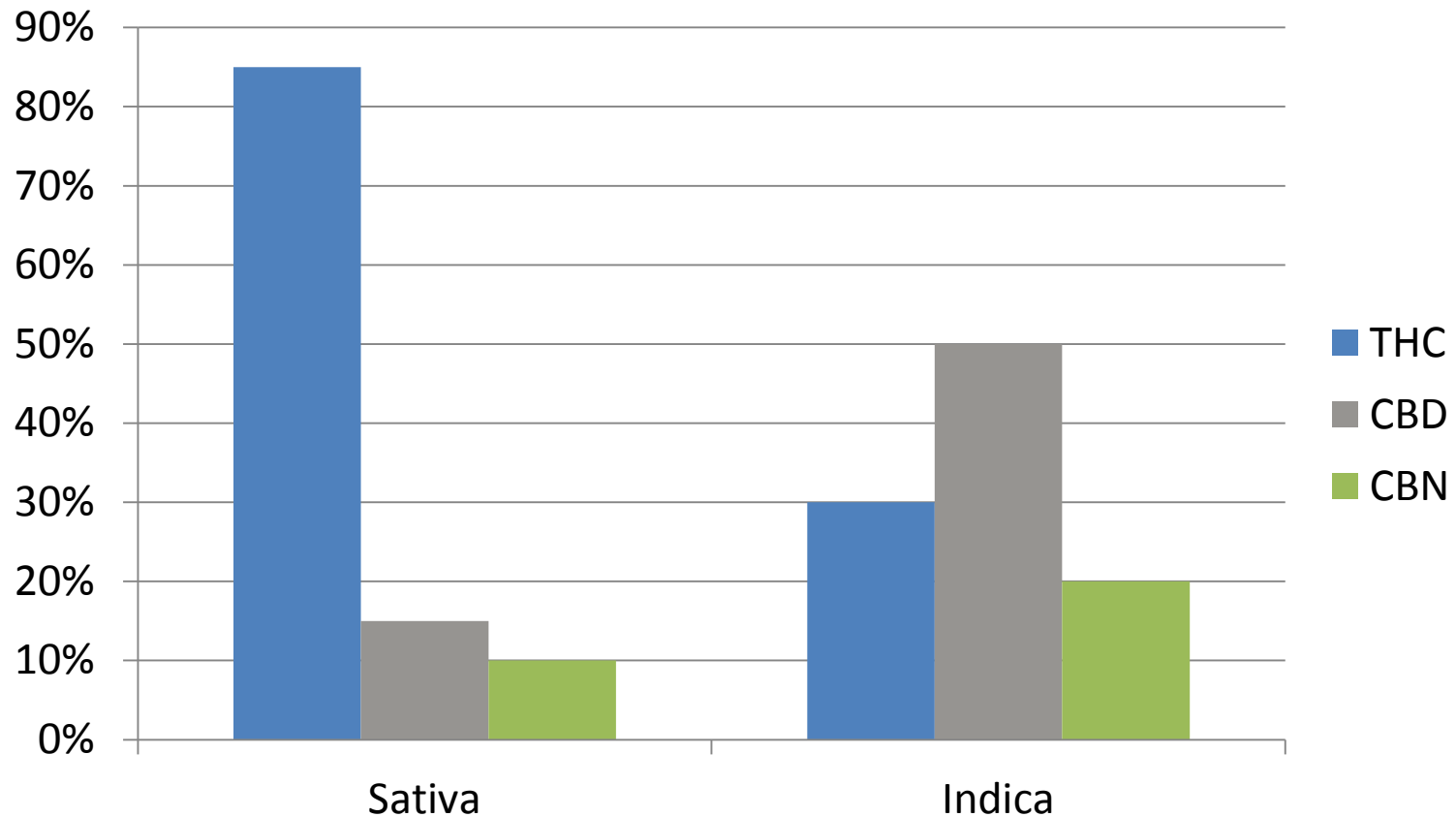
There are two main forms of cannabis plants in cultivation, Sativa and Indica, from which hundreds of different hybrids have been developed to optimize THC versus CBD content.

| Indica | Sativa |
|---|--|
| Fat leaves and short bush | Thin leaves and tall bush |
| Strong stinky or skunky smell | Sweet and fruity smell |
| Higher CBD | Higher THC |
| Body High: heavier, sleepier type of high | Cerebral High: more energetic, soaring |



Cannabis—Sativa and Indica Varieties

Sativa (aka Haze) is higher in THC and gives a “cerebral high”: stimulating, euphoric and increases appetite. Indica (aka Kush) is higher in CBD and gives a “body high”: sedating, relaxing and meditative.



Marijuana—Plant Preparations

Inhaled varieties of marijuana include the forms below.

Flowers and Leaves



Kief and Hash



Marijuana Plant Preparations

Ingestible varieties of marijuana include the forms below.

Infusions, butters, edibles, and elixirs

Tinctures and hash oil



Bioavailability—Inhaled Route

Substances are absorbed within seconds and delivered rapidly into the brain when smoked or aerosolized as a vapor. Maximum blood levels are reached by the time smoking is finished. Psychoactive effects peak at 30-60 minutes.

- Smoking is better for self-titrating the dose—similar to PCA.



Bioavailability—Oral Route

Blood concentration rises gradually over 1-3 hours after ingestion. Onset is slower with lower peak concentration, but effects last longer—up to 12 hours. Tissue absorption can be variable.



Marijuana—Medical Uses

The FDA has not approved marijuana for any of the following conditions. Evidence-Based medical research is limited, with no government control on strength or purity of cannabis strains.

- Appetite stimulation
- Chemotherapy-induced nausea/vomiting
- Neurological and movement disorders: dystonia, incomplete SCI, spasticity, multiple sclerosis, epilepsy, Tourette’s Syndrome, Huntington Chorea
- Pain relief: neurogenic pain, fibromyalgia, collagen-induced arthritis, migraine headaches, HIV and diabetic neuropathy
- Mental Disorders: bipolar disorder, anxiety, PTSD, anorexia nervosa, alcohol and nicotine abuse and dependence, depression
- Cancer Remission: skin tumors and gliomas
- Other Medical Conditions: asthma, inflammatory bowel disease, atherosclerotic heart disease, glaucoma, sickle cell anemia, psoriasis, sleep apnea, adrenal disorders, insomnia, diabetes

Medical Marijuana—Benefits and Risks

American College of Physicians (2008) recommends further research to better understand risks and benefits of cannabis and its components.

- Marijuana is “neither devoid of potentially harmful effects nor universally effective.”
- “Dispassionate scientific analysis” recommended for understanding potential benefits and assessing adverse risks.
- Clinical research is hampered by politics, but also by presence of contaminants, and wide discrepancies in the concentration of cannabinoids depending on growing conditions and plant genetics.
- Examining the therapeutic effects of cannabis via the inhaled route is also difficult because the absorption and efficacy of cannabis depends on the subject’s familiarity with smoking and inhaling. Smoking behavior is not easily quantified or replicated in a large double-blind randomized study.

Marijuana Dispensaries

Quality and variety of products differs from state to state and even city to city. State registration cards are dispensed for medical marijuana based on a doctor's Rx.

- There is currently no specific requirements for working in a dispensary, such as medical, nursing or pharmacy education
- Information about particular strains is part science, part popular lore
- Since there is no product control or oversight, quality control is primarily left to the individual dispensaries

Claims Challenges

Interface between Evidence-Based Medicine, Politics, and Claims Liability is not easy to clarify.

- POST-ACCIDENT DRUG TEST: No standard for impairment, can remain in the body for 2-30 days
- MEDICAL FACTS: Determining potency and effectiveness based on wide variety of strains
- CLAIMS: No national drug code, not distributed by a pharmacy. WHO GETS PAID?



Marijuana Use in the Work Environment

Cost of drug versus cost of monitoring.



Employee Drug Screening

Challenges come up when trying to decide what is the best screening tool versus most accurate in detecting on the job use, especially important in case of an accident.

- Hair—detected up to 90 days

- Blood—detected up to 2-3 days for average users and up to two weeks for heavy, daily users.

- Saliva—THC is detected for 3-4 hours after use, but can increase window to about 12 hours if testing for THC metabolites

- Urine—Positive test for 3-4 days after last use in those who use the drug infrequently
Positive test for about 10 days in heavy users
Positive test for up to 30 days in chronic users or those with high percent body fat.

Saliva Test

Good as a screening tool especially because it can detect current on the job use as opposed to marijuana use off hours.

12 Panel Saliva Test

Cocaine

Opiates

THC

Oxycontin

Benzodiazepines

PCP

Amphetamines

Buprenorphine

Barbiturates

Methadone

Methamphetamine

Medical Marijuana—Interface with Injured Workers

Because of discrepancies between State and Federal Laws, as well as challenges around employee monitoring, there are many unanswered questions and decisions left to courts.

- Recreational versus medical uses: Marijuana may be used as a substitute for opiates for pain control or may be used in combination to reduce total opiate dose per day, to improve quality of sleep, or to reduce anxiety.
- Legal status versus employer expectations: Although Washington and Colorado have legalized recreational use, employees can still be fired if they test positive on urinary drug testing even if they have a doctor's recommendations.
- Court decisions have for the most part sided with employers but as more states legalize medical marijuana, this trend may change.

Court Decisions on Medical Marijuana

Courts have for the most part affirmed private employers' right to maintain zero tolerance on medical marijuana use amongst current or prospective employees, but some judges have raised issues of compensability in injured workers.

1. Coats vs. Dish Network, LLC— Colorado Court of Appeals 2013
 2. Casias vs. Wal-Mart Stores, Inc.—Michigan District Court 2011 (Upheld by U.S. Court of Appeals 2012)
 3. Emerald Steel Fabricators, Inc. vs. Bureau of Labor and Industries—Oregon Supreme Court 2010
 4. Johnson vs. Columbia Falls Alum. Co—Montana Supreme Court 2009
 5. Ross vs. Ragingwire Telecommunications, Inc.—California Supreme Court 2008
-
- A. Vialpando vs. Ben's Auto Services and Redwood Fire—New Mexico Court of Appeals 2014
 - B. Miguel Maez vs. Riley Industrial and Chartis—New Mexico Court of Appeals 2015
 - C. Cockrell vs. Farmer's Insurance and Liberty Mutual—California Workers' Comp Appeals Board 2012



Marijuana in the Workplace

Dr. Steven Moskowitz

Marijuana Side Effects

What is the potential impact on the job?

- Euphoria
- Relaxation
- Perceptual alterations (e.g. time, distance)
- Increased appetite
- Blurred vision, dizziness, dry mouth and eyes, tachycardia
- Increased body awareness, dysphoria, anxiety (some people)
- Hallucinations
- Hypotension and hypertension
- Disorientation, impaired judgement and decision-making
- Memory loss (especially short-term)
- Incoordination, slow reaction time
- Somnolence
- Withdrawal syndrome

Consider Possible Drug-Drug Interactions

Like all drugs, cannabis can interact with other drugs in the injured worker's body, causing unintended consequences.



Cannabis

Interaction With

Result

Psychotropic:

- SSRIs
- TCAs

- Mania
- Tachycardia, delirium

- Lithium

- Increased lithium concentration

- Barbiturates

- CNS depression

Other:

- Anticholinergic agents

- Sedation

- CNS depressants

- Sedation

- Cocaine

- Tachycardia, euphoria

- Disulfiram

- Hypomania

- Ethanol

- Sedation

- Protease inhibitors

- Reduced PI effectiveness

- Sildenafil

- Myocardial infarction

- Theophylline

- Decreased theophylline effect

From ILLICIT AND PRESCRIPTION DRUG INTERACTIONS, The American Journal of Drug and Alcohol Abuse, 2012; 38(4): 334–343 Copyright © Informa Healthcare USA, Inc.

Medical Marijuana and Injured Workers

When urine tests positive for marijuana...

- Medical marijuana is legal in state
 - Not prescribed = illicit or non-prescribed drug
 - Not prescribed by primary treating MD = multiple prescribers; may break pain treatment agreement
 - Prescribed by treating MD
 - ODG 2015: Cannabinoids = Not recommended for pain....there are no quality studies supporting cannabinoid use and there are serious risks
- Most laws protect insurers against obligation of coverage at this time
 - Per ODG, ACOEM and the American Association of Occupational Health Nurses (AAOHN) provides guidance for marijuana in the workplace
 - Recommend that marijuana use be closely monitored for safety-sensitive positions
 - Employers may choose to prohibit their employees from working if impaired by marijuana

Drug Value Proposition

For any drug, consider this equation.

- A. Effectiveness: Objective, increase functions, reduce impairment, reduce more toxic medications, resolve underlying pathology
- B. Addiction/dependence/use disorder: addictiveness of the medication, addiction behaviors (craving, use despite harm, loss of control), risk of overdose/death
- C. Side effects: risk of side effects, evident side effects, medications to treat side effects
- D. Cost: cost within reason of available alternatives

$$\text{Value} = \text{Effectiveness} - (\text{Addiction} + \text{Side Effects} + \text{Cost})$$

Summary

Medical marijuana (MM) may be helpful in some patients, but it's important to recognize and consider side effects and negative consequences.

- There is an increasing public push for medical marijuana
- MM is not proven to be an effective medication by evidence-based studies
- MM has not been compared to already available treatment options
- MM has serious side effects that may render someone unsafe in work and other conditions (such as driving)
- There is significant conflation of issues regarding legalizing recreational marijuana and legalizing medicinal marijuana
- The MM industry is poorly regulated, with little quality control
- Pharmaceutical research may be able to create less intoxicating versions of the cannabinoid molecule
- In workers' compensation, it is reasonable to resist the coverage of this poorly studied intervention and the potential for intoxicated workers

Question and Answer Session

Submit your questions in the Q&A panel on the right of your screen.



Dr. Steven Moskowitz



Dr. Hassan Moinezadeh

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