Cannabis: Impairment, Drug Testing, and Return to Work

Dean Hashimoto, MD, JD (chair)
Michael Erdil, MD
Debra Dyleski-Najjar, JD
Kenji Saito, MD
Ian Rivera, MD
Thomas Winters, MD

9:55-11:20am

Monday, March 28th, 2022

New Research Findings Regarding Marijuana Use for Musculoskeletal Pain

Michael Erdil MD, FACOEM
OEHN
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Questions

- Is marijuana / cannabis / cannabis based medications (CBM) effective for treating chronic non-cancer pain (CNCP)?
- Are the benefits of CBM for treating CNCP greater than the adverse effects?
- Conclusions vary
- Individualized patient conversations (benefit vs risk) complicated
- " Medicine is a science of uncertainty and an art of probability."
  - Sir William Osler

"Mother, are you sure your marijuana use is purely medicinal?"

- Transition from evaluation of trials to syst reviews to syst reviews of syst reviews

Efficacy, tolerability and safety of cannabis-based medicines for chronic pain management – An overview of systematic reviews

Hauser Eur J Pain 2017

- **Inconsistent findings of efficacy** of cannabinoids in neuropathic pain and painful spasms in MS
- **Inconsistent results on tolerability and safety** of CBM for any chronic pain

Medical cannabis or cannabinoids for chronic non-cancer and cancer related pain: a systematic review and meta-analysis of randomised clinical trials

Wang BMJ Open 2021

2022
Work Related Injuries Workshop

- **Non inhaled** medical cannabis **small to very small increase in proportion of chronic pain patients with important improvement** in pain, physical function, sleep quality vs placebo
- Non inhaled medical cannabis **does not improve emotional, role or social functioning** vs placebo
- Non inhaled medical cannabis **small increase in proportion of patients with adverse effects** cognitive impairment, vomiting, drowsiness, dizziness, impaired attention, and nausea

Cannabinoids, cannabis, and cannabis-based medicines for pain management: an overview of systematic reviews

Moore Pain J Online 2021

2022
Work Related Injuries Workshop

- Current reviews are **mostly lacking in quality and cannot provide a basis for decision-making**
  - Critically low or low (24/25 [96%] positive; 10/12 [83%] negative
- **Limited confidence in the results** in the systematic reviews using AMSTAR-2 definitions

Cannabinoids, cannabis, and cannabis-based medicine for pain management: a systematic review of randomised controlled trials

Fisher Pain J Online 2021

2022
Work Related Injuries Workshop

- Studies have **unclear or high risk of bias**, and outcomes had GRADE rating of **low- or very low-quality evidence**
- **Little confidence** in the estimates of effect
- Evidence **neither supports nor refutes claims** of efficacy and safety for cannabinoids, cannabis, or CBM in the management of pain.

Why do recommendations differ?

- Limited research in US due to DEA classification
- Methodologic issues of studies
  - Design and quality
  - Study subjects, Controls / comparisons
  - Agents and administration
  - Outcomes, Duration
  - Strength of findings, clinical significance
  - Bias
  - Lack of quality studies adverse effects CBM for pain management
  - Lack of quality studies CBD for pain
- Applicability of studies to real world settings (medical and recreational marijuana)

Observations

- Problematic applicability to real world settings and WC
- Need for well designed studies including specific pain populations; assessment of efficacy vs. harms; evaluation of route of administration, dose, frequency; impact on opioid use; use in multimodal care
- Need for better clinician education and patient shared decision making tools
- Limitations regarding pharmacologic safeguards and standards
  - Product composition, bioavailability, route of administration, dosing and frequency
  - Pharmacist vs medical marijuana dispensary as educators

Medical cannabis or cannabinoids for chronic pain: a clinical practice guideline

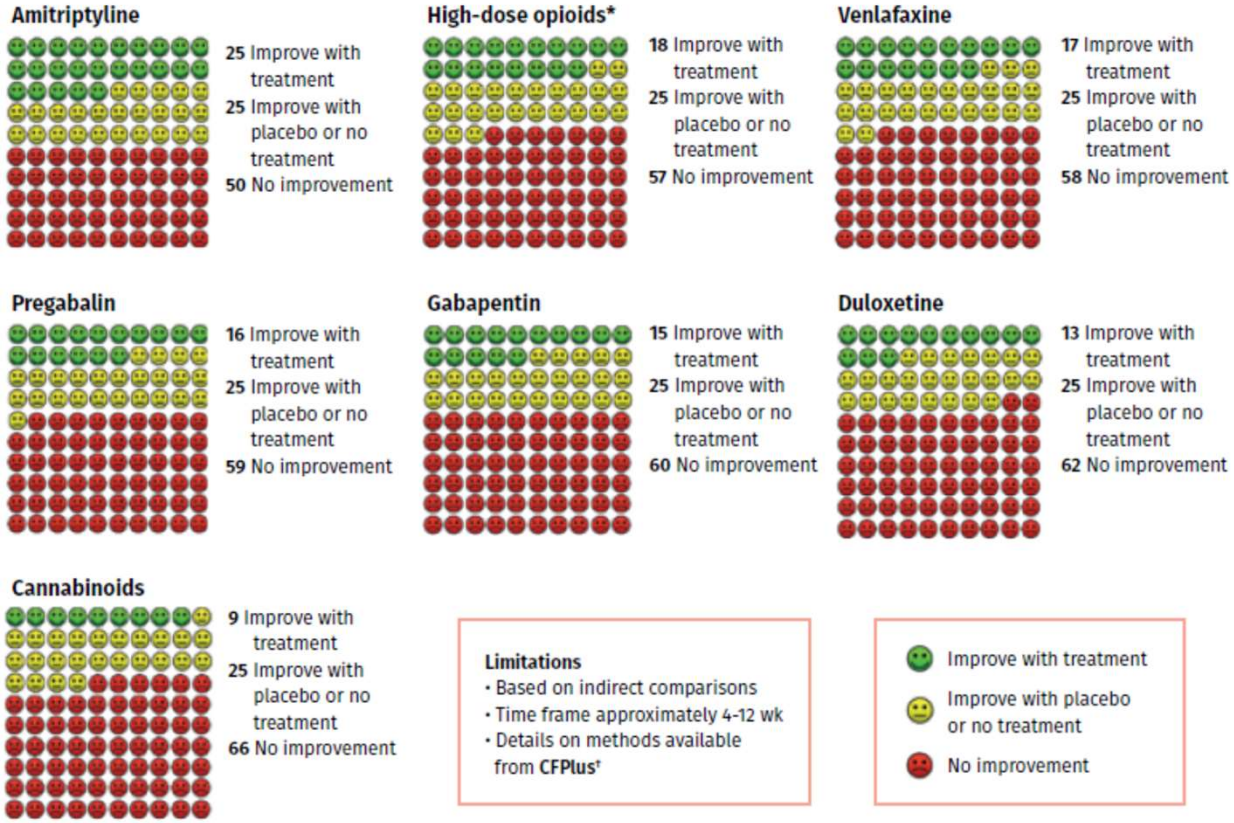
Busse BMJ 2021

- **Weak recommendation** to offer a trial of non-inhaled medical cannabis or cannabinoids, in addition to **standard care and management** (if not sufficient to manage pain symptoms), for people living with chronic cancer or non-cancer pain.
  - Moderate to severe chronic pain
  - Regardless of pain mechanism except does not include end of life care
  - **Does not include inhaled forms** (smoked or vaporized)
  - Trials **did not include chronic pain patients with mental illness, disability benefits, veterans**
  - Evidence of association with **neurocognitive effects**
    - Literature more focused on recreational use and high dose
  - Less confident whether use of CBM reduces opioid use


Evidence profile potential benefits
Favours standard care
No important difference
Favours cannabis
1 to 4 months
Events per 1000 people
Evidence quality
Reduction in pain 520 100 more 620 ★★★★ Moderate
Improved physical function 280 40 more 320 ★★★★ High
Improved emotional function 310 No important difference 330 ★★★★ High
1 to 3.5 months
Improved role function 410 No important difference 410 ★★★★ High
Improved social function 390 No important difference 380 ★★★★ High
1.3 to 3.5 months
Improved sleep quality 480 60 more 540 ★★★★ High
Evidence profile potential short term harms
1.3 to 3.5 months
Events per 1000 people
Evidence quality
Cognitive impairment 10 20 fewer 30 ★★★★ Moderate
1 to 3.5 months
Drowsiness 40 50 fewer 90 ★★★★ Moderate
1 to 4 months
Impaired attention 10 30 fewer 40 ★★★★ Moderate

Meaningful (30%) pain improvement pharmacologic comparisons

Allan Can Fam Phys 2018



Clinician considerations

- Clinician decision making considerations
  - Education, lack of evidence in WC settings, small and inconsistent evidence other settings
  - Pain severity and duration, # failed non-pharmacologic and pharm options, multimodal approach
  - Risk screening strategy
- Acknowledge neither cannabis / cannabinoids or opioids are the answer for CNCP
- Patient informed education
  - Limited benefits and clinical significance (est VAS benefit CBM vs placebo 1.2-1.6 vs 0.8 / meaningful benefit 38% vs 30%; benefit NNTB 11-24), adverse effects / risks (harm NNTH 3-10)
  - Patient preferences
  - Considerations for route of administration, dose and frequency, titration
  - Recognize potential quality control and patient use issues in real world settings
  - Evaluate benefits and adverse effects if trial
  - Decisions regarding use of opioids and other sedating agents
  - Recommendations regarding driving and work including safety sensitive work

Clearing the Haze: Marijuana, CBD, Drug Testing and Workplace Impairment

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Helping Employers Stay Ahead Of The Curve

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Agenda

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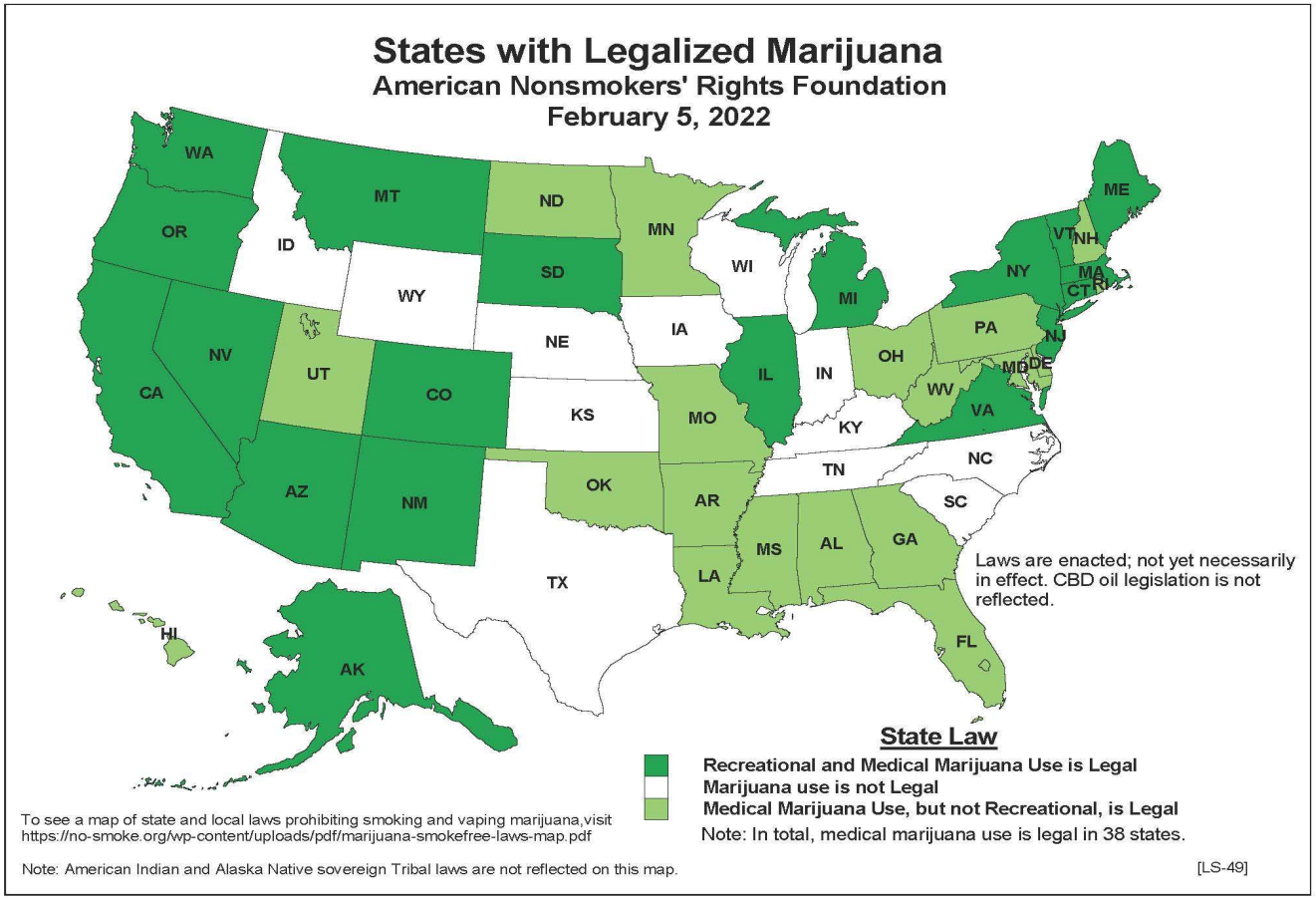
- Overview of State Laws
- New England Laws
- Protections for Marijuana Users?
- What Should Employers Do?
- Insurance Coverage
- Role of the MRO

National Status of Marijuana Laws

38 States Total Legalize Marijuana in Some Form

Marijuana Laws Across the Country



New England Marijuana Laws

New England State Marijuana Laws

- Connecticut – Recreational (Conn. Gen. Stat. Ann. § 21a-279) and Medical (Conn. Gen. Stat. Ann. §§ 21a-408 to 21a-414)
- Maine – Recreational (28-B M.R.S.A. §§ 101 to 1504) and Medical (22 M.R.S.A. §§ 2421 to 2430-H)
- Massachusetts – Recreational (M.G.L c. 94G §§ 1 to 21) and Medical (M.G.L. c. 94I §§ 1 to 8)
- New Hampshire – Medical (N.H. RSA §§ 126-X:1 to 126-X:12)
- Rhode Island – Medical (R. I. Gen. Laws §§ 21-28.6-1 to 21-28.6-18)
- Vermont – Recreational (18 V.S.A. § 4230a; 7 V.S.A. §§ 831 to 847) and Medical (18 V.S.A. §§ 4471 to 4474n)

Workplace Protections for Marijuana Users

Some State Laws Include Workplace Protections for Marijuana Users

Workplace Protections

- Generally, under all existing laws, employers are not required to allow employees to:
  - Perform their duties while under the influence of cannabis.
  - Possess, use, or consume cannabis while performing their duties or while on the employer's premises.

Connecticut Law Protects Off Duty Use

- CT Medical Marijuana Law Prohibits discrimination against qualifying medical marijuana patients (Conn. Gen. Stat. Ann. § 21a-408p).
- CT Recreational Marijuana Law Has Specific Protection for Off Duty Use:
- Employers may not discipline or take any adverse action against employees who:
  - Smoke, vape, or use cannabis outside of the workplace.
  - Have smoked, vaped, or used cannabis outside of the workplace before becoming an employee, if doing so does not cause the employer to violate a federal contract or lose federal funding.

Connecticut Law Re: Drug Testing

- State Recreational Marijuana Law specifically provides that while employers may drug test, an employer may not terminate or refuse to hire if a positive test, unless:
  - Failing to do so would cause the employer to violate a federal contract or cause it to lose federal funding.
  - The employer reasonably expects the employee is using cannabis while engaged in work duties.
  - The employee manifests specific, articulable symptoms of drug impairment while working that decrease or lessen the performance of their duties.

Maine Medical Marijuana Law Protects Off Duty Use

- Employers cannot discriminate against employees or applicants on the sole basis of their status as qualifying patients (22 M.R.S.A. § 2430-C(3)).
- The prohibition against employer discrimination is waived if the employer would violate federal law or lose a federal contract or federal funding (22 M.R.S.A. § 2423-C(3)
- Employers are not required to accommodate marijuana use in any workplace or any employees working under the influence (22 M.R.S.A. § 2426(2)(B)).

Maine Recreational Marijuana Law

- No specific protection for workers under Maine recreational marijuana law.
- Previous provision protecting off duty use repealed.
- An employer:
  - Need not permit or accommodate the use, consumption, or possession of marijuana in the workplace.
  - May enact and enforce workplace policies restricting the use of marijuana by employees in the workplace or while working.
  - May discipline employees under the influence of marijuana in the workplace. (28-B M.R.S.A. § 112.)

Maine DOL Guidance Re: Drug Testing

- ***In Maine, marijuana is still on the list of substances for which an employer may test. Testing is only allowed if a company has a drug testing policy that has been approved by the Maine Department of Labor (MDOL). Employers that do continue to test for marijuana, or take disciplinary action for marijuana use, must comply with the Substance Abuse Testing Law, the Marijuana Legalization Act, the Maine Medical Use of Marijuana Act and the Maine Human Rights Act. The Department cannot provide legal advice and we encourage employers to consult with private legal counsel regarding the law.***

Massachusetts Medical Marijuana Law

- Employers are not required to accommodate any on-site medical marijuana use at any place of employment (935 Code Mass. Regs. § 501.840(2)(d)).
- Allowing off-site use of medical marijuana despite an employer's drug-free workplace policy may be a reasonable accommodation under Massachusetts' disability discrimination law, if it is not an undue hardship on the employer's business. (See Barbuto v. Advantage Sales & Mktg., LLC, 78 N.E.3d 37 (Mass. 2017).)

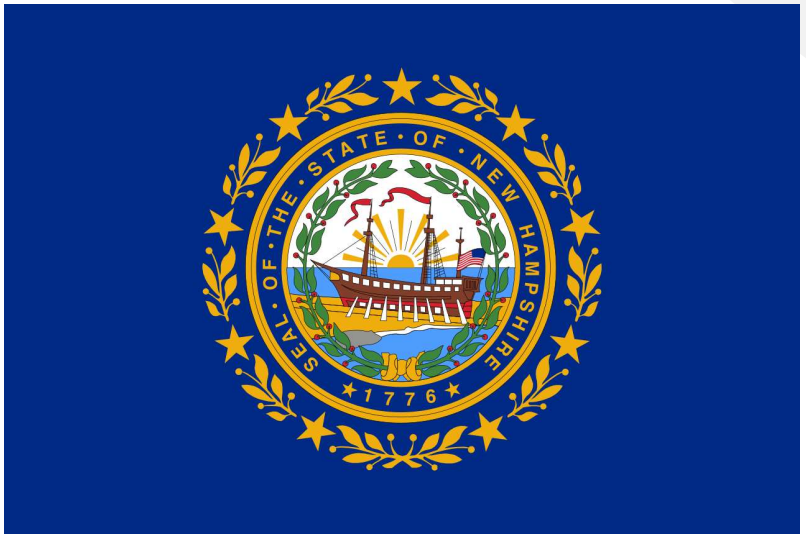
Massachusetts Recreational Marijuana Law

- Employers are not required to permit or accommodate conduct otherwise allowed by this law in the workplace and can still enact and enforce workplace policies restricting the consumption of marijuana by employees (M.G.L. c. 94G § 2(e)).

New Hampshire Medical Marijuana Law

- Employers are not required to accommodate medical cannabis use in the workplace (N.H. RSA § 126-X:3(III)(c)).

- However, the New Hampshire Supreme Court held that an employer can be held liable for employment discrimination if it fails to consider medical cannabis as a reasonable accommodation for an employee's disability (Paine v. Ride-Away, Inc., 2022 WL 129928 (N.H. Jan. 14, 2022) (holding that N.H. RSA ch. 354 does not exclude the use of medical cannabis as a reasonable accommodation).



Vermont Medical Marijuana Law

- Vermont's Medical Marijuana Law is a criminal statute.
- Individuals may be subject to arrest or prosecution for being under the influence of cannabis while in a workplace (18 V.S.A. § 4474c(a)(1)(B)).
- There are no civil requirements or limitations relevant to employers.

Vermont Recreational Marijuana Law

- VT Recreational Marijuana law does not:
- Require employers to permit or accommodate the use, consumption, possession, transfer, display, transportation, sale, or growing of cannabis in the workplace.
- Prevent an employer from adopting a policy that prohibits cannabis in the workplace.
- Create a cause of action against an employer that terminates an employee for violating any policy restricting or prohibiting cannabis use by employees. (18 V.S.A. § 4230a(e).)

Rhode Island Medical Marijuana Law

- Employers may not refuse to employ or otherwise penalize a person solely for the person's status as a medical marijuana cardholder, except:
- An employer may take action against an employee for:
  - using or possessing marijuana at the workplace;
  - undertaking a task under the influence of marijuana when doing so constitutes negligence, professional malpractice, or jeopardizes workplace safety;
  - operating a motor vehicle, machinery, equipment, or firearms while under the influence of marijuana; or
  - violating employment conditions in a collective bargaining agreement (CBA).
  - when the employer is a federal contractor or otherwise subject to federal law and the employer's failure to take action against an employee would cause the employer to lose a monetary or licensing benefit. (R.I. Gen Laws § 21-28.6-4.)
- Employers are not required to accommodate medical marijuana use in the workplace (R.I. Gen. Laws § 21-28.6-7(b)(2)).

What Should Employers Do?

How to Treat Marijuana in the Workplace?

- Review current drug testing and substance use policies to ensure they are compliant with state and federal laws.
- Don't allow use in the workplace.
- If employees use off-duty – does it impact job performance?
- Should marijuana be included in drug tests?
- Positive drug test does not mean impairment.
- Reasonable accommodation analysis – See Barbuto (MA) and Paine (NH)
- Review "Zero Tolerance" drug policies, and consider amending them in accord with the Barbuto decision.
- Review Job Descriptions: Assure essential functions (which may include cognitive ability) are clearly stated.
- Train HR, Supervisors and Managers.
- Keep abreast of research regarding "impairment."

Reasonable Accommodation

- Employers must engage in the interactive dialogue with all handicapped employees.
- Off-duty medical marijuana may have to be accommodated, as long as use of medical marijuana does not cause an undue hardship for the employer.
- Lack of clear guidance on “impairment.”
- Understand the “interactive dialogue” and how to engage in the dialogue.
- An employer will NEVER WIN an accommodation analysis without a medical opinion on what accommodations will allow the employee to safely perform the essential job functions.
- Must have good job descriptions -- Assure essential functions (which may include cognitive ability) are clearly stated.

Interactive Process

- Employer must engage in an interactive dialogue with the employee to "identify the precise limitations resulting from the handicap and potential reasonable accommodations that could overcome those limitations." (Barbuto)
- NEED A MEDICAL OPINION!!!!!
- If no equally effective alternative, employers bear the burden to prove undue hardship in refusing to reasonably accommodate the medical needs of the handicapped employee.
- "Undue Hardship," the Employer's Burden to show:
  - Impairs the employee's performance;
  - Poses an "unacceptably significant" safety risk to the public, the employee, or her fellow employees.
- Employer may also show undue hardship if use of marijuana would violate employer's contractual or statutory obligations and thereby jeopardize its ability to perform its business.
  - For example: "Safety Sensitive" employees or federal contractors.

Interactive Process – *Barbuto*

- Barbuto Court noted that medical marijuana is legal under Massachusetts law, and that an exception to the employer's drug policy is a facially reasonable accommodation where the employee's physician has determined that marijuana is the most effective medication for the employee's condition and any alternative would be less effective.
- The Court cited the Medical Marijuana Act which provides that any person that meets the requirements of the Act shall not be "denied any right or privilege" on the basis of their medical marijuana use.
- The Court further reasoned that the Act does not require "any accommodation of any on-site use of medical marijuana in any place of employment," which implicitly recognized that off-site medical marijuana use may be a permissible accommodation.
- Employee must cooperate in the interactive process.
- Accommodation is for the underlying disability.

Workers' Compensation

- Six states expressly allow workers' compensation coverage of medical marijuana – Connecticut (Petrini v. Marcus Dairy, Inc., case no. 6021 CRB-7-15-7, 05/12/16)), Minnesota, New Hampshire (In Re Appeal of Andrew Panaggio, 174 N.H. 89, 2021), New Jersey, New Mexico, New York.
- Six states expressly prohibit – Maine (Gaetan H v. Bourgoin. Twin Rivers Paper Company, LLC, et al., 187 A.3d 10 (ME 2018)), Massachusetts (Daniel Wright's Case, 486 Mass. 98 (10/27/20)), Florida, North Dakota, Ohio, Washington.
- Fourteen states expressly provide reimbursement not required. Ten states silent as to workers' compensation coverage of marijuana.
- Factors to consider: was a WC claim filed, diagnosis of qualifying medical condition, evidence supporting qualifying condition, patient registration in medical marijuana program, marijuana as reasonable and necessary medical care, marijuana as last resort treatment.
- See Howard et al., Review of cannabis reimbursement by workers' compensation insurance in the U.S. and Canada, American Journal of Industrial Medicine, August 30, 2021. https://www.claimsjournal.com/app/uploads/2021/10/WCRI.marijuana.pdf

Role of the MRO

- What will the MRO test for?
- What will the MRO report as a positive result?
- Will verify accuracy of result and ask employee for explanation of a positive result.
- May not report a positive test if legal use, unless federal contractor.
- If federal contractor or DOT safety sensitive, positive marijuana would mean failed drug test.

What About CBD?

- 33% of American adults have used CBD once or more. (SingleCare, 2020)
- CBD generally does not contain THC, so does not produce a high.
- Generally, employees should not be impaired through CBD use.
- CBD products not regulated by FDA.
- Problem if CBD products are not properly manufactured or accurately labeled -- can contain THC.
- One study found 43% of CBD products tested had more THC than indicated on the label. https://jamanetwork.com/journals/jama/article-abstract/2661569
- CBD use should not result in a positive drug test, unless the CBD contains THC at a high enough concentration.
- Could result in many positive drug tests, although employees have never used marijuana and may not be impaired.

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Impairment: How Can You Tell?

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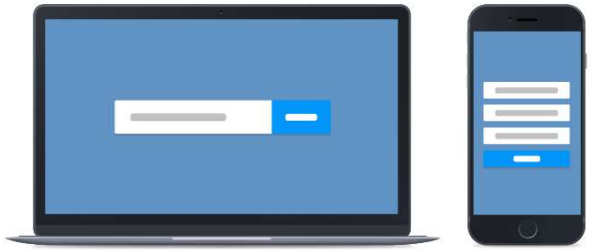

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Fitness for Duty (FFD) Pearls:

FFD Exam Requires

- detailed review of medical records and background information from multiple sources physical and/or mental status exam

Confer with

- treating physician, FCE testing, cardiovascular testing, drug & alcohol testing, job site analysis (JSA), and other specialized testing may be necessary

Impaired or Not Impaired?

When poll is active, respond at **pollev.com/medlaw**

Text **MEDLAW** to **22333** once to join

Based on Cognitive Observation – is he Impaired? (speech and A-Z backwards)

Yes

No

Start the presentation to see live content. For screen share software, share the entire screen. Get help at **pollev.com/app**

Based on Cognitive Observation – is he Impaired? (speech and A-Z backwards)

Yes

No

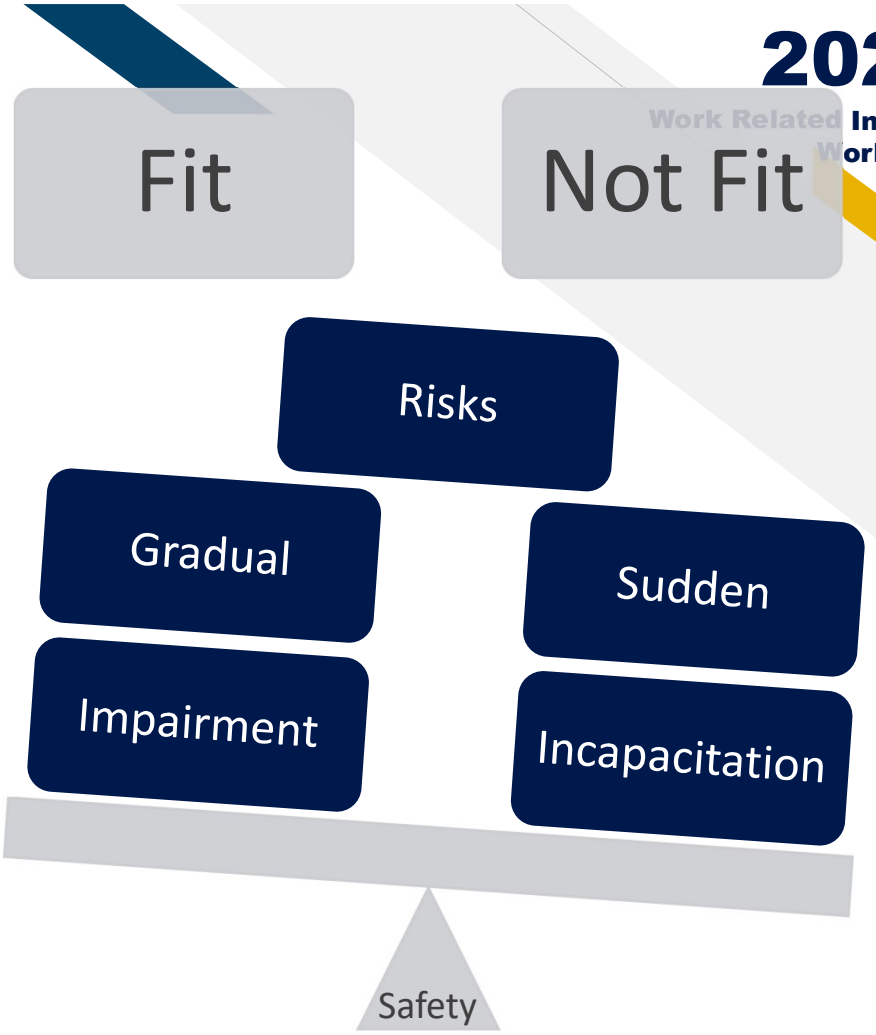
Discussion

A Fitness for Duty Evaluation must include assessment for

The Risk of
- Sudden or
- Gradual

- Impairment/Incapacitation

- Factors:
  - Mental/Cognitive
  - Physical



What are some clinical cues we should look out for when it comes to Marijuana?

Top

Discussion

Q&A

Top

Road safety impact of cannabis

Ian Rivera, MD
Anesthesiology
Pain Management

Cannabis and Driving

- Does cannabis use affects driving skills in ways that can increase the chances of being involved in a collision?
- Are the effects of the drug on the driving behavior of medical users similar to, or different from, the effects on non-medical users?
- What is the impact of tolerance to the effects of cannabis on road safety as well as different routes of administration (e.g., edibles, vaped)?

Does Cannabis increase risk of collision

Bates and Blake 1999

- “There is no evidence that consumption of cannabis alone increases the risk of culpability for traffic crash fatalities or injuries for which hospitalization occurs, and may reduce those risks”
- Their conclusions were based on a relatively small number of studies addressing questions that were methodologically challenging.

Role of cannabis in motor vehicle crashes. *Bates MN, Blakely TA Epidemiol Rev. 1999; 21(2):222-32.*

Does Cannabis Increase Risk of Collision

- Three meta-analyses,
  - The acute use of cannabis does increase collision risk, although the extent of the increase differed across studies.
- More needs to be understood in terms of how cannabis might increase collision risk.
- Research has yet to establish the characteristics of cannabis-involved collisions, or the impact of cannabis on injury severity resulting from collisions

Acute cannabis consumption and motor vehicle collision risk: systematic review of observational studies and meta-analysis. *Asbridge M, et al. BMJ. 2012 Feb 9; 344():e536.*

Cannabis use as a risk factor for causing motor vehicle crashes: a prospective study. *Brubacher JR, et al. Addiction. 2019 Sep; 114(9):1616-1626*

Factors that appear to predict an increased likelihood of DUIC.

- Adolescent or young adult
- Experiencing cannabis-related problems
- medical cannabis vs. recreational cannabis user ?

Watson TM, Erickson PG. Cannabis legalization in Canada: how might ‘strict' regulation impact youth? *Drugs Educ Prevent Policy.* (2019) 26:1–5. 10.1080/09687637.2018.1482258

Cannabis Role in the Road Safety

- Canada in 2012,
  - cannabis attributable collisions accounted for 75 deaths and 4,407 injuries,
  - an additional 7,794 individuals involved in property-damage only collisions, estimated costs of over $1 billion (CDN) 780 Billion (USD)

Estimating the harms and costs of cannabis-attributable collisions in the Canadian provinces. *Wettlaufer A, Florica RO, Asbridge M, Beirness D, Brubacher J, Callaghan R, Fischer B, Gmel G, Imtiaz S, Mann RE, McKiernan A, Rehm J*
Drug Alcohol Depend. 2017 Apr 1; 173():185-190.

Cannabis Role in the Road Safety

- The largest portion of casualties and costs resulted from collisions involving young drivers, since they are most likely to drive under the influence of cannabis.

Estimating the harms and costs of cannabis-attributable collisions in the Canadian provinces. *Wettlaufer A, Florica RO, Asbridge M, Beirness D, Brubacher J, Callaghan R, Fischer B, Gmel G, Imtiaz S, Mann RE, McKiernan A, Rehm J*
Drug Alcohol Depend. 2017 Apr 1; 173():185-190.

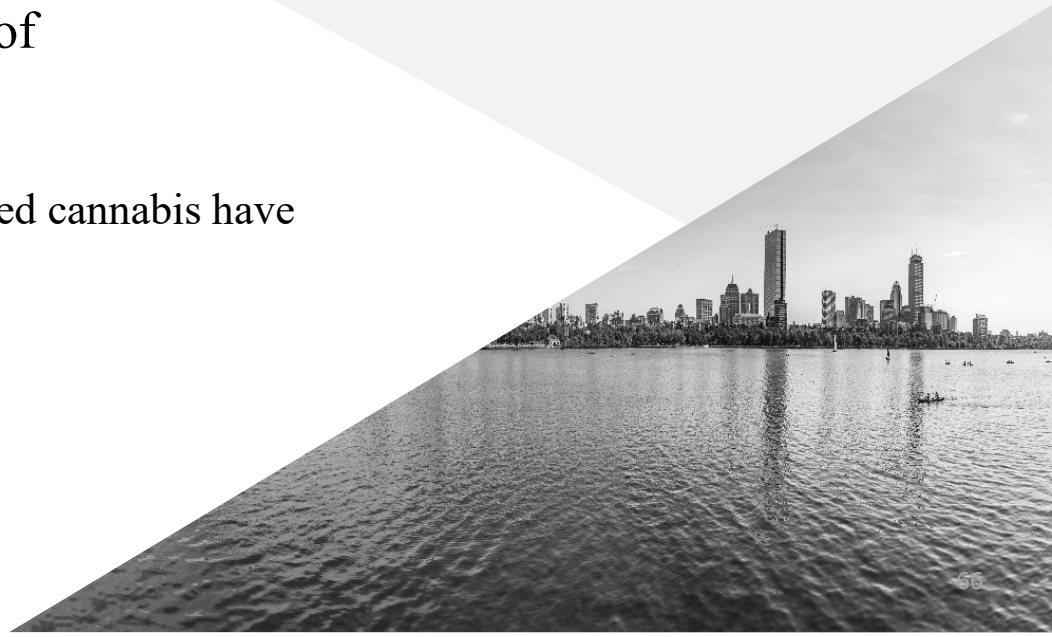
Cannabis Potency

- The potency of recreational cannabis has steadily increased.
- Cannabis now has upwards of 10% THC, with some potency estimates as high as 19–22%

Increasing delta-9-tetrahydrocannabinol (Δ-9-THC) content in herbal cannabis over time: systematic review and meta-analysis.*Cascini F, Aiello C, Di Tanna G Curr Drug Abuse Rev. 2012 Mar; 5(1):32-40*

Routes of Administration

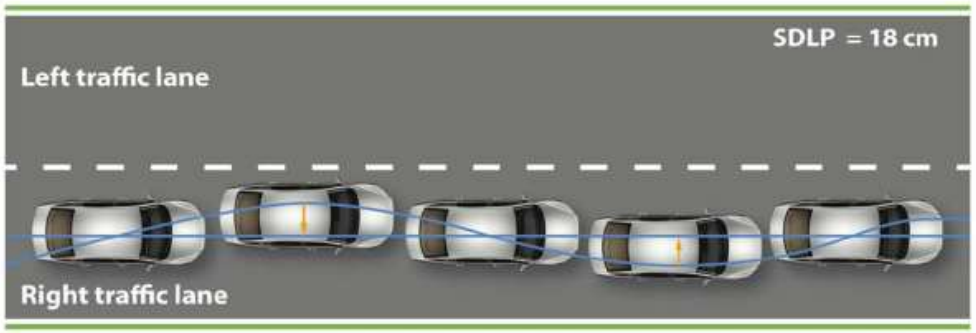
- Smoking remains the most common route of administration,
  - most frequently studied in simulator studies
  - important changes in driving after use of smoked cannabis have been found



Deviation of Lateral (SDLP)

Increase in collisions after use of cannabis

The most consistent finding with smoked cannabis is an increase in Standard Deviation of Lateral (SDLP), a measure of weaving



Effect of Smoked Cannabis on Vigilance and Accident Risk Using Simulated Driving in Occasional and Chronic Users and the Pharmacokinetic-Pharmacodynamic Relationship.*Hartley S, Simon N, Larabi A, Vaugier I, Barbot F, Quera-Salva MA, Alvarez JC*
Clin Chem. 2019 May; 65(5):684-693

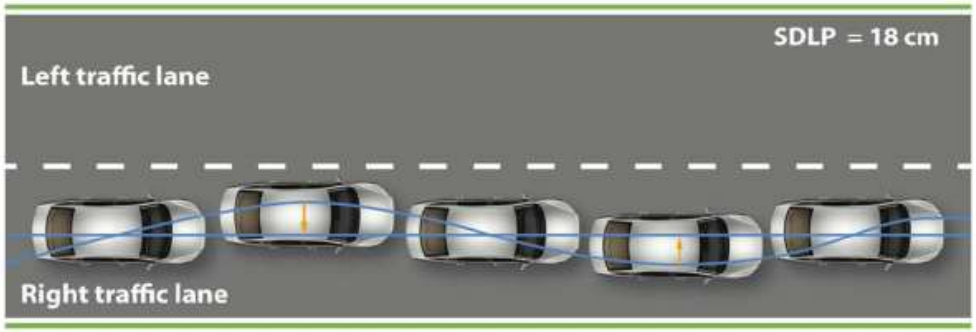
Cannabis and driving

Despite increases in SDLP no effects on inappropriate lane crossings or lane position were found.

Steering angle was not affected

In general, cannabis decreases speed and speed variability.

Measures of reaction time are increased



Cannabis smoking impairs driving performance on the simulator and real driving: a randomized, double-blind, placebo-controlled, crossover trial. *Micallef J, Dupouey J, Jouve E, Truillet R, Lacarelle B, Taillard J, Daurat A, Authié C, Blin O, Rascol O, Philip P, Mestre D*
Fundam Clin Pharmacol. 2018 Oct; 32(5):558-570

Vaping

- 27% of cannabis users vape using a pen or e-cigarette
- few studies examined the effects of vaped THC on simulated driving
- Vaped THC increased SDLP

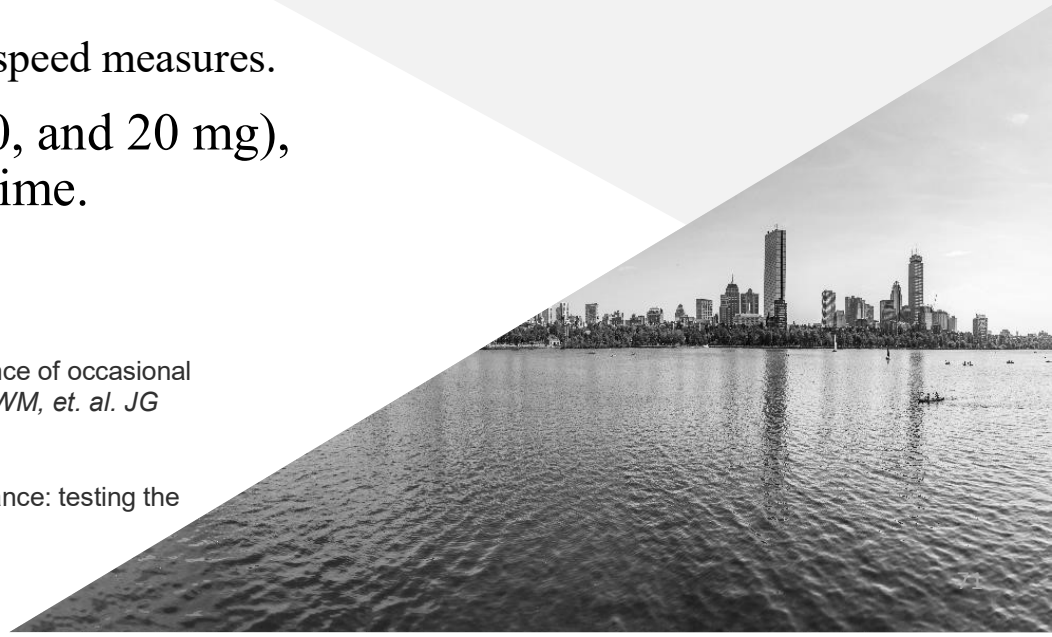
Cannabidiol (CBD) content in vaporized cannabis does not prevent tetrahydrocannabinol (THC)-induced impairment of driving and cognition. *Arkell TR, Lintzeris N, Kevin RC, Ramaekers JG, Vandrey R, Irwin C, Haber PS, McGregor IS Psychopharmacology (Berl). 2019 Sep; 236(9):2713-2724*

Oral Consumption

- Approximately 46% of people who use cannabis consume their cannabis in food.
- At present, not aware of any published studies of the effects of cannabis edibles on simulated driving

Oral Consumption

- Two doses of oral dronabinol (10 and 20 mg) or placebo,
  - participants drove at a constant speed on a rural road or behind a lead car in a car-following task.
  - Dronabinol increased SDLP, but did not affect speed measures.
- In another study with oral dronabinol (0, 10, and 20 mg), SDLP was also increased, as was reaction time.

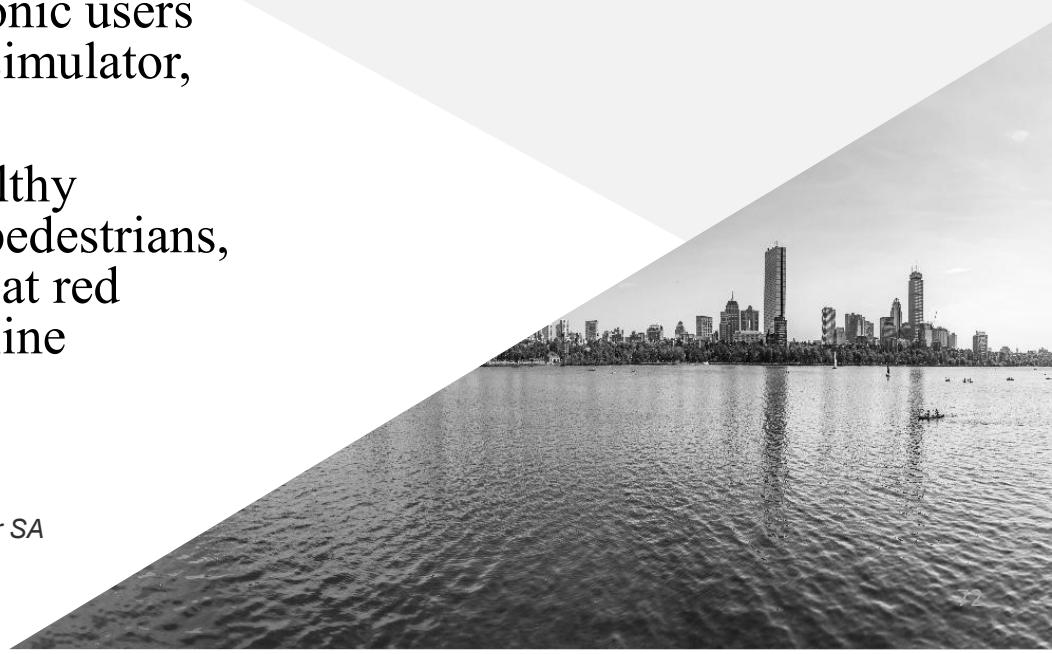


Medicinal Δ(9) -tetrahydrocannabinol (dronabinol) impairs on-the-road driving performance of occasional and heavy cannabis users but is not detected in Standard Field Sobriety Tests. *Bosker WM, et. al. JG Addiction. 2012 Oct; 107(10):1837-44.*

Comparing treatment effects of oral THC on simulated and on-the-road driving performance: testing the validity of driving simulator drug research.*Veldstra JL, Bosker WM, et. al. Psychopharmacology (Berl). 2015 Aug; 232(16):2911-9*

Tolerance

- At present, very few studies of the effects of frequent cannabis use on simulated driving
- Some recent studies found that heavy, chronic users of cannabis were impaired on the driving simulator, even in the absence of acute intoxication
- In one study, (simulator), compared to healthy controls, chronic cannabis users hit more pedestrians, missed more stop signs, made fewer stops at red lights, drove faster, and made more centerline crossings.



Recreational cannabis use impairs driving performance in the absence of acute intoxication.*Dahlgren MK, Sagar KA, Smith RT, Lambros AM, Kuppe MK, Gruber SA Drug Alcohol Depend. 2020 Mar 1; 208():107771.*

Effects of Sex

- It appears that females were more sensitive to the subjective effects of cannabis than males.
- More men than women use cannabis, although this gap is narrowing.
- Women show a greater progression to dependence than men.
- Both sex reported similar subjective and cognitive effects of cannabis, despite the observation that males had almost twice the blood level of THC as compared to females, and that males smoked more of the cannabis cigarette than females.

Sex differences in the acute effects of smoked cannabis: evidence from a human laboratory study of young adults. *Matheson J, Sproule B, Di Ciano P, Fares A, Le Foll B, Mann RE, Brands B*
Psychopharmacology (Berl). 2020 Feb; 237(2):305-316

THC and Driving

- There is good consensus that cannabis increases the risk of collision and alters SDLP and sometimes speed in simulator studies
- There is a poor and inconsistent relationship between levels of THC in biological fluids and degree of impairment
- *per se* limits cannot discriminate between impaired and unimpaired drivers. Arkell, et al. concluded that more research is needed.
- It should be noted that the study that they used to test their hypothesis involved occasional users

The failings of per se limits to detect cannabis-induced driving impairment: Results from a simulated driving study. *Arkell TR, Spindle TR, Kevin RC, Vandrey R, McGregor IS Traffic Inj Prev. 2021; 22(2):102-107*

THC and Driving

- Simulator Driving at 30 min, 24 and 48 h after smoking a cannabis cigarette with 12.5% THC or placebo
- THC in blood was analyzed throughout the session.
- high THC groups and low THC groups
- high THC group drove significantly slower 30 min after smoking, as compared to placebo.
- SDLP, the high THC group was different from placebo at 30 min and 48 h after smoking cannabis under single task conditions

Acute and residual effects of smoked cannabis: Impact on driving speed and lateral control, heart rate, and self-reported drug effects. *Brands B, Mann RE, Wickens CM, Sproule B, Stoduto G, Sayer GS, Burston J, Pan JF, Matheson J, Stefan C, George TP, Huestis MA, Rehm J, Le Foll B*
Drug Alcohol Depend. 2019 Dec 1; 205():107641

Medical Cannabis and driving

- little research on the effects of medical cannabis use on driving
- mean speed was decreased
- decreases in speed were similar to those observed in the recreational users

Effects of therapeutic cannabis on simulated driving: a pilot study. Di Ciano P, Matamoros A, Matheson J, Fares A, Hamilton HA, Wickens CM, et al. *J Concurrent Dis.* (2020) 2:3–13

Levels of Cannabis in the Body Associated With Impairment

- Serum levels of cannabis between 7 and 10 ng/ml caused levels of impairment that were comparable to Blood Alcohol Levels (BALs) of 0.05%

Developing limits for driving under cannabis. *Grotenhermen F, Leson G, Berghaus G, Drummer OH, Krüger HP, Longo M, Moskowitz H, Perrine B, Ramaekers JG, Smiley A, Tunbridge R*
Addiction. 2007 Dec; 102(12):1910-7.

Levels of Cannabis in the Body Associated With Impairment

- Norway study;
  - 3 ng/ml of THC in whole blood was comparable to a BAL of 0.05%,
  - 9 ng/ml of THC in whole blood was comparable to a BAL of 0.12% BAC

Impairment based legislative limits for driving under the influence of non-alcohol drugs in Norway.
Vindenes V, Jordbru D, Knapskog AB, Kvan E, Mathisrud G, Slørdal L, Mørland J
Forensic Sci Int. 2012 Jun 10; 219(1-3):1-11

CBD : THC

- Review of the effects of THC:CBD oromucosal sprays on driving
  - did not find an impairment in driving in patients with multiple sclerosis who were using CBD:THC oromucosal sprays to treat their symptoms
  - 80–90% of respondents reported no change in driving ability as a result of use of the THC:CBD oromucosal spray

The influence of THC:CBD oromucosal spray on driving ability in patients with multiple sclerosis-related spasticity.*Celius EG, Vila C*
Brain Behav. 2018 May; 8(5):e00962.

CBD : THC

- Participants vaped 11% THC, THC/CBD (11% THC, 11% CBD) or placebo
  - THC/CBD condition increased SDLP to the same extent as THC alone
  - this study used the vaped route, and CBD is often taken orally

Cannabidiol (CBD) content in vaporized cannabis does not prevent tetrahydrocannabinol (THC)-induced impairment of driving and cognition. *Arkell TR, Lintzeris N, Kevin RC, Ramaekers JG, Vandrey R, Irwin C, Haber PS, McGregor IS Psychopharmacology (Berl). 2019 Sep; 236(9):2713-2724*

Conclusions

- Recent research provides converging evidence that DUIC can increase collision risk and may be an important contributor to deaths and injuries resulting from collisions
- Young adults appear most likely to engage in DUIC
- Acute effects of cannabis on driving-related behaviors may include an increase in weaving, and a reduction in speed
- This seems true regardless of the route of administration although more research is needed

Conclusions

- all studies of the effects of oral cannabis on driving consisted of synthetic THC (dronabinol) and no studies of cannabis edibles have been published
- little is known about the types of collisions most likely to involve cannabis, or if cannabis affects injury severity
- More research is needed to understand sex differences in the effects of cannabis

Conclusions

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Impar Corporation

Role of the MRO:

What Is Reported & Due Diligence for a Non-Negative Test?

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Occupational and Environmental Health Network

Disclosures

I have no relevant financial interests to disclose.

Outline

- Regulatory backdrop
- Testing
- Verification and reporting
- Special considerations
- Q&A

Regulatory Backdrop

49 CFR Part 40

Coverage

- Transportation employers, safety-sensitive transportation employees (including self-employed individuals, contractors and volunteers as covered by DOT agency regulations), and service agents

Employer responsibilities

- Complies with all testing parameters
  - Random testing frequency set by DOT Agency
- Provides Designated Employer Representative (DER) to remove employees from safety-sensitive duties, or cause employees to be removed from these covered duties, and to make required decisions in the testing and evaluation processes
- May use a service agent (i.e. MRO) to comply with DOT agency drug and alcohol testing regulations
  - Service agent CANNOT be DER

49 CFR Part 40

MRO Responsibilities

- Acts as an “independent and impartial gatekeeper and advocate for the accuracy and integrity of the drug testing process” (§40.123)
- No doctor-patient relationship is established
- No conflict with employer’s lab (financial benefit)
- Provides quality assurance review of the drug testing process
- Reviews Custody and Control Form (CCF) for all provided specimens
- Investigates and helps correct problems with employers, collectors and labs
- As necessary, consults with Office of Drug & Alcohol Policy & Compliance (ODAPC) to address program issues
- **Determines if donor has legitimate medical explanation for non-negative test result (positive, adulterated, substituted, invalid)**
- Ensures timely flow of information to employers
- Protects the confidentiality of the drug testing information

Testing

49 CFR Part 40

DOT Tests

- Testing parameters regulated by the government
  - DOT tests must be completely separate from non-DOT tests in all respects
  - DOT tests must take priority and must be conducted and completed before a non-DOT test is begun
- 5 Panel Test (urine only) at an HHS-certified lab
  - Marijuana (THC)
  - Cocaine
  - Amphetamines
  - Opioids **(no synthetics)**
  - Phencyclidine (PCP)
- Initial screening AND confirmation capabilities
- Specimen validity testing
- Split collection

Non-DOT Tests

- Testing parameters set by employer (i.e. unregulated)
- May obtain more comprehensive testing (i.e. synthetic opioids, benzodiazepines, etc.)
  - May also NOT test for THC
- Variable
  - Urine, hair, blood, saliva
  - Screening vs. confirmation capabilities
  - Single vs. split collection
  - Lab certification

§40.13, §40.85, §40.87, §40.89, §40.153

DOT Test (5-Panel: Marijuana)

Initial test analyte	Initial test cutoff	Confirmatory test analyte	Confirmatory test cutoff concentration
Marijuana metabolites (THCA)	50 ng/mL3	THCA	15 ng/mL

Verification and Reporting

MRO Non-Positive Test Verification

- Verification occurs with…
  - Employee
  - Treating provider/pharmacist (5 day window unless FFD concerns)
- MRO must determine if a confirmed positive test is…
  - Legally valid
    - i.e. consistent with the Controlled Substances Act
  - Medically necessary
    - i.e. the medication cannot be changed to one that does not make the employee medically unqualified or does not pose a significant safety risk
    - **Even if medically necessary, the MRO can raise FFD considerations to the employer**
- During verification, MRO MUST speak with the employee to conduct a medical interview and report a positive result or refusal to test except for these three conditions:
  - If the employee expressly declines to discuss the test with the MRO
  - If the DER has made contact with the employee and provided instructions to contact the MRO and ≥ 72 hours have passed
  - If the DER or the MRO has attempted contacting the employee and ≥ 10 days have passed since the MRO receives the confirmed positive test result

§40.133, §40.137

Due Diligence for Non-Negative Test

Prior to Donor Interview

- MRO receives confirmed positive test
  - Review Copy 1 of the CCF to ensure test result is legible and certifying scientist signed the form
  - Review Copy 2 of the CCF to ensure test validity to determine whether a test should be cancelled
- If test is valid, MRO conducts a medical interview to determine if there is an acceptable medical explanation
  - MRO must make reasonable effort to reach donor (≥ 3 attempts in 24 hours with voicemail, e-mail, or letter)

During Donor Interview

- Confirm donor identity
- MRO MUST warn the employees with a confirmed positive, adulterated, substituted or invalid test that third party reporting is required even without the employee's consent
- MRO informs donor of lab results
- Verification reporting based on donor's response
  - If positive or refusal to test, MRO notifies donor of his or her right to have the split specimen tested (≤ 72 hours)

§40.129, §40.131, §40.141, §40.153

Reporting

- Negative
  - Legally valid and medically necessary
- Test cancelled
  - Invalid test per review of CCF
- Positive
  - If verified true positive (confirmed by donor interview)
  - If donor declines interview
  - If medical providers refuse interactive dialogue with MRO (≥ 72 hours, ≥ 3 attempts)
- Refusal to test (w/ remarks)
  - Adulterated
  - Substituted
  - Other

STEP 6: COMPLETED BY MEDICAL REVIEW OFFICER - PRIMARY SPECIMEN ☐ **URINE** ☐ **ORAL FLUID**

In accordance with applicable federal requirements, my verification is:

☐ **NEGATIVE** ☐ **POSITIVE** for: _____

☐ DILUTE

☐ **REFUSAL TO TEST** because – check reason(s) below: ☐ **TEST CANCELLED**

☐ ADULTERATED (adulterant/reason): _____

☐ SUBSTITUTED

☐ OTHER: _____

REMARKS: _____

X _____ _____ ___/___/___

Signature of Medical Review Officer | **(PRINT) Medical Review Officer's Name (First, MI, Last)** | **Date (Mo/Day/Yr)**

STEP 7: COMPLETED BY MEDICAL REVIEW OFFICER - SPLIT SPECIMEN

In accordance with applicable federal requirements, my verification for the split specimen (if tested) is:

☐ **RECONFIRMED** for: _____ ☐ **TEST CANCELLED**

☐ **FAILED TO RECONFIRM** for: _____

REMARKS: _____

X _____ _____ ___/___/___

Signature of Medical Review Officer | **(PRINT) Medical Review Officer's Name (First, MI, Last)** | **Date (Mo/Day/Yr)**

COPY 2 - MEDICAL REVIEW OFFICER COPY

Special Considerations

HIPAA

- NOT applicable to MRO verification of test results if…
  - (1) The information is likely to result in the employee being determined to be medically unqualified under an applicable DOT agency regulation; or
  - (2) The information indicates that continued performance by the employee of his or her safety-sensitive function is likely to pose a significant safety risk

- Third parties the MRO is authorized to report to (no employee consent)…
  - The employer
  - A physician or other health care provider responsible for determining the medical qualifications of the employee under an applicable DOT agency safety regulation
  - A SAP evaluating the employee as part of the return to duty process
  - A DOT agency
  - The National Transportation Safety Board in the course of an accident investigation

Marijuana: DOT Tests

- 1996: marijuana legal for medical use in California
- Today
  - Medical use: legal in 36 states
  - Recreational use: legal in 18 states
  - Federal level: Class I Controlled Substance
- Impact on MRO: still verifies ALL confirmed DOT drug tests for marijuana as positive (regardless of medical or recreational use)

- "You must not verify a test negative based on information that a physician recommended that the employee use a drug listed in Schedule I of the Controlled Substances Act. (e.g., under a state law that purports to authorize such recommendations, such as the 'medical marijuana' laws that some states have adopted)."
- "You must not accept an assertion of consumption or other use of a hemp or other non-prescription marijuana-related product as a basis for verifying a marijuana test negative."

Marijuana: Non-DOT Tests

- *Barbuto v. Advantage Sales and Marketing, LLC (2017)*
  - "Under Massachusetts law, the use and possession of medically prescribed marijuana by a qualifying patient is as lawful as the use and possession of any other prescribed medication. Where, in the opinion of the employee's physician, medical marijuana is the most effective medication for the employee's debilitating medical condition, and where any alternative medication whose use would be permitted by the employer's drug policy would be less effective, an exception to an employer's drug policy to permit its use is a facially reasonable accommodation."

- MRO must engage in interactive process with donor and donor's health care provider to determine if an accommodation is reasonable
  - Request copy of medical marijuana certificate that is current
  - Discuss nature of employee's debilitating medical condition and the indications for medical marijuana
  - Identify alternative treatments tried, improvements with marijuana, side effects and potential drug interactions
  - Ensure no safety concerns (impairment)

2012 Mass. Acts 369, § 2(C)

Questions?

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