

CLE Program Schedule

National Interdisciplinary Cannabis Symposium (NICS)

October 19–21, 2026 · DoubleTree by Hilton San Diego – Mission Valley · San Diego, California

American Jurisprudence and Regulation & Policy tracks · Instructional time shown per session (60-minute hour basis)

Sessions marked — NO CLE CREDIT are part of the Symposium program but are not accredited for CLE; their minutes are excluded from the instructional-time and credit totals.

Monday, October 19, 2026

9:40 AM – 10:35 AM (55 min) · R&P · *Shutters West I*

#0177 **Veterans, Cannabis, And Care In Conflict: Bridging Policy, Practice, And Evidence**

Joanna Zeiger, PhD; Judge Mary Celeste (Ret.); Shanetha Lewis

9:40 AM – 10:05 AM (25 min) · R&P · *Brickstones*

#0141 **Recreational Cannabis Laws and Advancing Social and Health Equity: A Scoping Review**

Rhonda Jones-Webb, Diana Augustin

9:40 AM – 10:05 AM (25 min) R&P · *Loft III*

#0145 **Comparative Analysis of Metals, Pesticides, Mycotoxins, Microbial Contaminants And Thc Potency In Illegal And Regulated Cannabis Inflorescences In Canada**

David Blais, Emmanuelle Bahl

9:40 AM – 10:05 AM (25 min) R&P · *Shutters West II*

#0157 **Microbial Contamination Across Recreational Cannabis Products in Colorado: Evaluating Safety and Testing Standards**

Duncan Mackie

9:40 AM – 10:05 AM (25 min) · R&P · *Brickstones*

#0151 **Nothing Is Truly Equal for the Black Community: African American Perspectives on Cannabis Legalization and Public Health Equity in Minnesota**

Diana Augustin, Rhonda Jones- Webb

10:10 AM – 10:35 AM (25 min) · R&P · *Loft III*

#0143 **The One-Plant Solution: Advancing A National Unified Cannabis Policy And Regulatory Framework**

Jordan Wellington

10:10 AM – 10:35 AM (25 min) · R&P · *Brickstones*

#0152 **The Links Between Cannabis and Crime: Examining the Evidence from Recent Policy Experiments**

Rosalie Liccardo Pacula

10:40 AM – 11:35 AM (55 min) · AJ · *Shutters West I*

#0001 **Examining Key Issues Facing Regulators, Including Federal Rescheduling, Market Stability Concerns, and the Practical Realities of Enforcing State Cannabis Laws in an Evolving Landscape**

Clint Kellum (California Dept. of Cannabis Control)

10:40 AM – 11:05 AM (25 min) · R&P · *Loft III*

#0137 **A Right To Carry: Patients Without Borders — Interstate medical Cannabis, Dea Pathways, And The Future of continuity of Care**

Thunder Walker

10:40 AM – 11:05 AM (25 min) · R&P · *Brickstones*

#0153 **Characterizing Cannabis Use and Related Effects Among First-Year College Students In A State That Recently Legalized Adult-Use Cannabis**

Julie Sanem, Natalie Scholz

10:40 AM – 11:05 AM (25 min) R&P · *Shutters East II*

#0181 **Detection, Quantification, and Risk Assessment of Pesticides in Commercial Cannabis Products**

Raymond Suhandynata

11:10 AM – 11:35 AM (25 min) · R&P · Loft III

#0138 Education as the Catalyst: How Cannabinoid Science Unlocked Bipartisan Support for Alabama’s Medical Cannabis Act

Tony Wright Jr.

11:10 AM – 11:35 AM (25 min) · R&P · Loft III

#0144 Serving Those Who Served: Building an Equity-Centered Framework for Veteran Cannabis Research and Access in Illinois

Kenneth Saffold Jr., Steven Philpott

11:10 AM – 11:35 AM (25 min) · R&P · Brickstones

#0147 Designing Cannabis Edibles Package Warnings to Guide Safe Consumption

Beth Reboussin

11:10 AM – 11:35 AM (25 min) · R&P · Shutters East I

#0164 From Dispensary Floor to Policy Table: A Practitioner’s Perspective on What Regulators and Educators Get Wrong About Cannabis

Shannon Donnelly

11:50 AM – 12:15 PM (25 min) · LUNCH — NOT INSTRUCTIONAL TIME

Meal service and seating. Excluded from all instructional-time and credit calculations. The meal period closes at 12:15 PM; no session is conducted during it.

12:15 PM – 1:45 PM (90 min) AJ · Great Room B, Floor 1 — **NO CLE CREDIT**

Cannabis Rescheduling: What Changes, What Doesn’t, and What Comes Next — NICS Legal Roundtable (Panel Discussion)

Prof. Robert Mejia (Moderator); Prof. Sam Kamin; Riana Durrett, JD; Shawn Hauser, Esq.; David Holland, Esq.

A moderated legal panel convened after the lunch period closes. Offered as part of the Symposium program; not accredited for CLE, and its 90 minutes are excluded from the credit totals.

1:45 PM – 2:40 PM (55 min) · AJ · Shutters West I

#0002 Cannabis Use as Medical, Nutritional, and Meditational Use in the Rastafari Community

Scheril Murray Powell, Esq., JD

1:45 PM – 2:10 PM (25 min) · R&P · Loft III

#0136 Legalization Lessons Learned: A Georgia Case Study in Policy, Access, and Advocacy

Yolanda Bennett, Angela S. Weston, MS, MBA, MCST

1:45 PM – 2:10 PM (25 min) · R&P · Brickstones

#0148 Changing Points of Access: A Public Health Analysis of Consumer Purchasing Patterns in Minnesota’s Hemp and Cannabis Markets

Eileen Delehanty

1:45 PM – 2:10 PM (25 min) · R&P · Shutters East I

#0174 Weed And Firearms: Navigating The Collision Between Marijuana and the Second Amendment

Craig Small

2:15 PM – 2:40 PM (25 min) · R&P · Brickstones

#0149 How Easy Is It for Underage People to Buy THC Gummies and Seltzers in Minnesota, And Has It Changed Over Time?

Eileen Delehanty

2:15 PM – 2:40 PM (25 min) · R&P · Shutters East I

#0172 Tug-of-War Between the Federal Government and The States Over Hemp-Derived Cannabinoids

David Bush

3:00 PM – 3:50 PM (50 min) · R&P · Loft III

#0139 Predatory Inclusion and the Limits of Social Equity in Legal Cannabis Markets

Tavian Crosland

3:00 PM – 3:25 PM (25 min) · R&P · *Brickstones*

#0154 **Insights From California's 2025 Cannabis Market Outlook Report**

Duncan Macewan

3:00 PM – 3:50 PM (50 min) · R&P · *Shutters East I*

#0173 **Cannabis, Hemp, and Federal Power: How Illegality Is Preserved While Enforcement Shifts**

James Thorburn

3:25 PM – 3:50 PM (25 min) · R&P · *Brickstones*

#0150 **Marijuana, Cannabis, Hemp, Weed? How and By Whom Are These Terms Used?**

Kathleen Lenk

3:55 PM – 4:30 PM (35 min) · R&P · *Shutters East I*

#0168 **Paving A Path for Legal Psychedelics: Lessons from Cannabis Legalization**

Joshua Bauchner

3:55 PM – 4:30 PM (35 min) · R&P · *Brickstones*

#0155 **From Idea to Impact: Designing Cannabis Research That Informs Policy**

Douglas Roehler

Sessions offered Monday: 27 · Instructional time offered: 835 min (13.92 hr)

Tuesday, October 20, 2026

8:00 AM – 8:55 AM (55 min) · R&P · *Gallery (Panel Discussion)*

#0142 **The California Experiment in Cannabis: Competition, Consolidation, and Policy and Regulatory Pathways to Healthier Markets**

Robert Chlala, Michael Polson, Jesse Goldstein, Dilara Üskup and Ishaq Ali

8:00 AM – 9:55 AM (115 min) · R&P · *Brickstones*

#0161 **Insights And Lessons Learned from Nevada**

Kara Cronkhite

8:00 AM – 8:25 AM (25 min) · R&P · *Brickstones (Regulating in Times of Change panel)*

#0162 **A California Perspective on Cannabinoid Product Oversight**

Christina Dempsey

8:00 AM – 8:25 AM (25 min) · R&P · *Brickstones (Regulating in Times of Change panel)*

#0163 **Regulating In Times of Change: A Hawai'i Perspective on Cannabis and Cannabinoid Product Oversight**

Andrew Goff

8:00 AM – 8:25 AM (25 min) · R&P · *Brickstones (Regulating in Times of Change panel)*

#0165 **Colorado Cannabis Regulation Evolution And Insights**

Allison Robinette

10:10 AM – 10:35 AM (25 min) · R&P · *Brickstones*

#0140 **State Cannabis Tax Policy, Competitive Advantage Index Development, And Public Revenue Allocation in The United States**

Jonathan Shepherd, Tyler Mark

10:10 AM – 10:35 AM (25 min) · R&P · *Courtyard II*

#0166 **Unintended Consequences: Negative Health Effects of Herbal Medicine Ingredients in Regulated Cannabis Products**

Richard Holdman

10:40 AM – 11:05 AM (25 min) · R&P · *Courtyard II (Regulatory Oversight Gaps)*

#0159 **Regulatory Outlook for Dermal and Transdermal Cannabinoid Delivery Systems**

John Adamovics

10:40 AM – 11:05 AM (25 min) · R&P · *Brickstones*

#0135 **Digital Forensics, Whistleblowing, And the Visibility of Fraud in Decentralized Contested Markets**

Heather Carrasco

11:10 AM – 11:35 AM (25 min) · R&P · Courtyard II

#0167 **Weedetection: Multi-Platform Detection System To Identify And Characterize Both Commercial And Illegal Sales of Cannabis- Derived Products**

Timothy Mackey

1:15 PM – 1:40 PM (25 min) · AJ · Shutters West I

#0005 **Cannabis and the Courts: Neurobiology, Treatment, and Emerging Jurisprudence**

Linda Hurley

1:15 PM – 2:10 PM (50 min) · AJ · Shutters West I

#0021 **Workplace Cannabis in Transition: A Conversation with Judge Mary Celeste (Ret.) And HR Expert Trisha Zulick**

Judge Mary Celeste (Ret.); Trisha Zulick

1:15 PM – 3:10 PM (115 min) · R&P · Courtyard II

#0146 **Part One & Two: The Implementation Gap: What States Get Right and Wrong After Legalization**

Rob Mejia

1:15 PM – 2:10 PM (55 min) · R&P · Brickstones

#0133 **Pathways to Partnership with the Tribal Cannabis Market**

Riana Durrett, Jeremy Sorgen

1:15 PM – 2:10 PM (55 min) · R&P · Brickstones

#0134 **Cannabis In Indian Country: Foundations, Frameworks, and the Future**

Riana Durrett, Jeremy Sorgen

1:45 PM – 2:10 PM (25 min) · AJ · Shutters West I — **NO CLE CREDIT**

#0006 **Cannabis in Eclectic Medicine**

Kimberly Gwinn, PhD

2:15 PM – 3:10 PM (55 min) · AJ · Shutters East II

#0022 **The Impact of Cannabis Rescheduling on US Immigration Policy and the Economic Health of the Cannabis Industry**

Scheril Murray Powell, Esq., JD

3:30 PM – 4:25 PM (55 min) · AJ · Shutters West I

#0004 **The Compliance Paradox: Navigating The Newly Bifurcated Reality of Cannabis Banking Post- Rescheduling**

Abby Kaufmann

3:30 PM – 3:55 PM (25 min) R&P · Brickstones

#0156 **Characterization of Aerosol Degradation Products from Flavored Cannabidiol- And Cannabigerol-Based E-Liquid Formulations**

Shadab Panahi, Craig Schluttenhofer

4:00 PM – 4:25 PM (25 min) · R&P · Loft III

#0171 **The Quality of Sovereignty in Cannabis**

Jeremy Wilson

4:30 PM – 4:55 PM (25 min) · R&P · Shutters West I

#0176 **What Does Race Have to Do with It? Cannabis Industry Policies Using Critical Race Theory**

Ivan Garcia; Gabriela Mohr-Avitia

4:30 PM – 4:55 PM (25 min) · R&P · Brickstones

#0158 **THC Label Accuracy In Legal Cannabis Markets: Discrepancies Across Flower and Concentrate Products**

Jonathon Lisano

Sessions offered Tuesday: 22 · Instructional time offered: 910 min (15.17 hr)

Wednesday, October 21, 2026

8:00 AM – 8:25 AM (25 min) · AJ · Shutters West I

#0008 **Driving Impairment Associated with Cannabis Edibles, Vaporized Cannabis, and Delta-8 THC**

Tory Spindle, PhD

8:00 AM – 8:25 AM (25 min) · R&P · *Shutters West I*

#0170 **New York State's Approach to Advancing Cannabis Research and Scientific Innovation**

Andrea Unser

8:30 AM – 8:55 AM (25 min) · AJ · *Shutters West I*

#0012 **Expectations V. Performance: Does The Accuracy of Users' Expected Post-Smoking Driving Simulator Performance Differ By Cannabis Use Experience?**

Jake Rattigan, MS

8:30 AM – 8:55 AM (25 min) · R&P · *Courtyard I*

#0160 **Massachusetts Mission To Create Evidence-Based Cannabinoid Policy Rooted In Research Despite Challenging Times.**

Julie Johnson

9:00 AM – 9:25 AM (25 min) · AJ · *Shutters West I*

#0013 **Geographic And Age-Related Variation In Cannabis-Impaired Driving Across The United States**

Jodi Gilman, PhD

9:00 AM – 9:25 AM (25 min) · R&P · *Shutters West I*

#0179 **Transitioning From Schedule I To Schedule III Cannabis Manufacturing Registration: Regulatory Requirements, Research Expansion, And Institutional Readiness**

Joseph Sheehan

9:30 AM – 10:55 AM (85 min) · AJ · *Shutters West I*

#0003 **Regulatory Science in Action: Advancing Public Health Through Cannabis Testing Standards**

Antonio Frazier (California Dept. of Cannabis Control)

9:30 AM – 9:55 AM (25 min) · AJ · *Shutters West I*

#0014 **Predicting Driving After Cannabis Use With Real-Time Ema And Gps Data**

Jane Metrik, PhD

9:30 AM – 9:55 AM (25 min) · R&P · *Shutters West I (Engineering Trust in Cannabis)*

#0180 **Engineering Trust in Cannabis: A Systems-Level Framework for Quality, Safety and Public Health | Session Chair/s: Jeremiah Momper**

Jeremiah Momper

10:00 AM – 10:25 AM (25 min) · AJ · *Shutters West I*

#0015 **Short-Term Residual Effects of Smoked Cannabis on Simulated Driving Performance**

Kyle Mastropietro, MS

10:30 AM – 10:55 AM (25 min) · AJ · *Shutters West I*

#0010 **Winding Roads and Hidden Risks: Cannabis and Polysubstance Impaired Driving in Rural Communities**

Gay Polk-Payton, JD

11:25 AM – 12:35 PM (70 min) · AJ · *Shutters West I*

#0011 **Detection of Δ 9-Tetrahydrocannabinol Impairment Using Resting-State fNIRS: A Randomized Trial**

Jodi Gilman, PhD

12:40 PM – 1:05 PM (25 min) · AJ · *Shutters West I*

#0009 **Impact of Smoked Cannabis on Time Production and Time Estimation Abilities: Implications for Driving Simulator Performance and Field Sobriety Test Impairment**

Kyle Mastropietro, MS

12:40 PM – 1:05 PM (25 min) · R&P · *Shutters West II*

#0169 **From Product To Place: A Systems Framing for Cannabis Hospitality Regulation**

Brian Applegarth

12:40 PM – 1:05 PM (25 min) · R&P · *Shutters West II*

#0175 **From Retail To Experience: The Regulatory Evolution of Cannabis Hospitality**

Brian Applegarth, Ali Fakhri

2:10 PM – 2:35 PM (25 min) · AJ · *Shutters West I*

#0017 **Investigating Cannabinoid Molar Metabolite Ratios as Predictors of Objective Cannabis Intoxication: The Moderating Role of Subjective Intoxication**

Claire Pince, MS

Sessions offered Wednesday: 16 · Instructional time offered: 505 min (8.42 hr)

Novel Approaches to Detecting Cannabis-Related Impairment — Symposium (Wednesday, October 21, 2026)

Scheduled block: Wednesday, October 21, 2026 · 11:25 AM – 1:05 PM · Shutters West I. Delivered as two combined panels — 11:25–11:40 AM (15 min) and 12:40–1:05 PM (25 min); block runs 100 minutes. Individual per-talk times are not separately allocated.

#0007 **Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities**

Thomas Marcotte, PhD (session overview)

#0016 **Challenges In Identifying Individuals Driving Under The Influence of Cannabis (DUIC) Presented By Thomas Marcotte**

Thomas Marcotte, PhD

#0018 **Suitability of Field Sobriety Tests And A Novel Tablet-Based Behavioral Test (Druid) For Cannabis Impairment Detection**

Tory Spindle, PhD

#0019 **Objective Markers of Acute Cannabis Inhalation: Pupillometry and A Tablet-Based Cognitive Test Battery**

Ashley Brooks-Russell, PhD, MPH

#0020 **Driving Under the Influence of Cannabis and Toxicology Testing**

Robert Fitzgerald, PhD

Summary & CLE Notes

- Total presentations: 71 unique (23 American Jurisprudence, 50 Regulation & Policy; two sessions are cross-listed in both tracks and appear in both parts, marked as companions). Each has a confirmed day, time, and room.
- Total instructional time offered across both tracks: 2,310 minutes. Because the two tracks run concurrently, the maximum a single attendee can accrue is 1,005 minutes — 16.75 hours on a 60-minute hour, 20.1 on a 50-minute hour (340 minutes Monday, 385 Tuesday, 280 Wednesday).
- Instructional time is calculated on a 60-minute hour; adjust to your jurisdiction's standard (e.g., 50-minute hour) as required.
- The two tracks run concurrently in separate rooms; an individual attendee earns credit only for the sessions actually attended, so the maximum attainable credit for one attendee is less than the total offered.
- Meals, breaks, and registration are excluded from instructional time.
- The 5 Novel Approaches symposium presentations are delivered within their session block (Wed 11:25 AM–1:05 PM); individual per-talk times are not separately allocated.

CONTINUING LEGAL EDUCATION (CLE) — ACCREDITATION MATERIALS

American Jurisprudence & Regulatory Policy Track

National Cannabis Research Conference 2026

October 19–21, 2026 · DoubleTree by Hilton San Diego – Mission Valley

Track Co-Chairs

Ian Rassman · Joshua Bauchner · Trisha Zulick · Judge Mary Celeste (Ret.)

Contents

Part I — American Jurisprudence Track (23 presentations), organized by conference day.

Part II — Regulation & Policy Track (48 presentations), organized by session.

Each entry gives session, faculty, time, and room, followed by the presenter's abstract as the Description of record. Abstract numbers correspond to the NCRC 2026 program book. Learning Objectives and Materials fields are provided for completion in Part I where not supplied by the presenter.

PART I · AMERICAN JURISPRUDENCE TRACK

MONDAY, OCTOBER 19, 2026

Veterans, Cannabis, And Care In Conflict: Bridging Policy, Practice, And Evidence

Session: *From Rulemaking to Reality: A Facilitated Synthesis of the Regulation & Policy Track* — Session Chair: Judge Mary Celeste (Ret.)

Faculty: Joanna Zeiger, PhD; Judge Mary Celeste (Ret.); Shanetha Lewis | Mon, Oct 19 · 9:40–10:35 AM · Shutters West I |

Abstract #0177

— **Celeste:** Retired judge and adjunct professor at California Western School of Law, where she teaches "Cannabis and the Law"; author of *Cannabis Law and Policy* (2026), a national judicial educator on cannabis, and co-chair of the NCRC 2026 American Jurisprudence track.

— **Zeiger:** Chair of the 2026 National Cannabis Research Conference and a cannabis epidemiologist; founder and CEO of the Canna Research Foundation, a nonprofit conducting outcomes research on the benefits, risks, and patterns of medical cannabis use. A former U.S. Olympic triathlete and Ironman 70.3 world champion, she holds a PhD in epidemiology from the Johns Hopkins Bloomberg School of Public Health and focuses her research on patient outcomes in pain, sleep, and athlete populations.

— **Lewis:** Executive Director of Veterans Initiative 22, a nonprofit focused on veteran suicide prevention through affordable access to medical cannabis and emerging therapies for veterans, first responders, and Gold Star families; she also serves as Chair of Government Relations for the Maryland Task Force on the Responsible Use of Natural Psychedelic Substances. A decorated Army combat veteran of Operations Enduring Freedom and Iraqi Freedom, she holds a Master of Science in Medical Cannabis Science and Therapeutics from the University of Maryland School of Pharmacy.

Description

This panel examines the evolving landscape of cannabis use among U.S. veterans in 2025–2026, highlighting the persistent gap between expanding state-level access and ongoing federal restrictions within the Veterans Affairs (VA) healthcare system. While many veterans qualify for medical cannabis under state laws, VA clinicians remain largely prohibited from recommending cannabis or completing state program documentation, creating a disconnect between legal access and clinical care.

Panelists will explore how this policy-practice mismatch affects veterans' health management, care continuity, and decision-making, particularly for conditions such as chronic pain, sleep disturbances, and PTSD-related symptoms. The discussion will incorporate emerging research on cannabis use in veteran populations, including potential therapeutic benefits as well as risks such as cannabis use disorder.

In addition, the panel will review recent and pending federal and state policy developments that may influence access, research, and clinical guidance for veterans. The session will also situate cannabis within a broader context by comparing the veteran cannabis movement with the rapidly growing interest in psychedelic therapies among veterans. This includes discussion of emerging policy initiatives, state-level psychedelic measures, and recent federal actions to support research on compounds such as ibogaine.

By integrating policy, clinical, and research perspectives, this panel aims to provide a comprehensive overview of the current challenges and opportunities at the intersection of veteran healthcare and evolving substance policy landscapes.

Learning Objectives

Following this session, participants will be able to:

1. Explain the three-way conflict among expanding state cannabis access, federal law, and VA clinical policy, including why VHA Directive 1315 continues to bar VA clinicians from recommending cannabis or completing state-program forms even after the April 2026 rescheduling.
2. Describe what the April 2026 placement of state-licensed medical marijuana into Schedule III did and did not change for veterans, VA clinicians, and active-duty service members.
3. Analyze the scope and limits of *United States v. Hemani* (2026) for veterans who use cannabis and possess firearms, distinguishing its as-applied Second Amendment holding from the broader claim that the firearms prohibition was struck down.
4. Evaluate the current veteran-and-cannabis research literature — prevalence, pain and sleep associations, and qualitative motives — and its limits for establishing condition-specific efficacy, including cannabis-use-disorder risk among older veterans.

5. Compare the veteran cannabis and veteran psychedelics policy movements with respect to their primary asks, policy pathways, and evidence posture.

Materials

Presentation slides provided to registrants: “Veterans and Cannabis: 2025–26 Update” (moderated panel). Key authorities, legislation, and studies referenced in the presentation:

Federal Authority & VA Policy

Final order placing FDA-approved marijuana drug products and marijuana subject to a qualifying state medical license into Schedule III, 91 Fed. Reg. 22714 (Apr. 28, 2026); 21 U.S.C. § 811(d)(1) (treaty pathway).

U.S. Dep’t of Justice, press release, Justice Department Places FDA-Approved Marijuana Products and Products Containing Marijuana in Schedule III (Apr. 23, 2026).

Schedules of Controlled Substances: Rescheduling of Marijuana (notice of hearing), 91 Fed. Reg. (Apr. 28, 2026), DEA Docket No. DEA-1362 — separate from the April 2026 Final Order, this proceeding considers whether all marijuana moves to Schedule III. Hearing held June 29–July 15, 2026 before DEA Chief ALJ Derek C. Julius; post-hearing briefing ordered and no recommended decision had issued as of Aug. 6, 2026.

SAM Inc. v. Department of Justice, Nos. 26-1106, 26-1130, 26-1136 (D.C. Cir.) — consolidated petitions for review challenging the April 2026 Final Order on statutory-authority, APA, and treaty grounds, and invoking *NORML v. DEA* on the scope of 21 U.S.C. § 811(d)(1). Briefing on the stay motion concluded July 17, 2026; no ruling as of Aug. 6, 2026. The April 2026 Final Order remains in effect pending review.

VHA Directive 1315, Access to VHA Clinical Programs for Veterans Participating in State-Approved Marijuana Programs (VA clinicians may not recommend cannabis or complete state forms).

U.S. Dep’t of Veterans Affairs, Marijuana — What Veterans Need to Know (Veterans Health Administration).

VA/DoD Clinical Practice Guideline for the Management of PTSD (2023) (recommendation against cannabis or cannabis derivatives for PTSD treatment).

Department of War memorandum on marijuana and service members (July 9, 2026); UCMJ art. 112a, 10 U.S.C. § 912a; DoDI 1010.01.

Cases

United States v. Hemani, No. 24-1234 (U.S. June 18, 2026) (as-applied Second Amendment holding under 18 U.S.C. § 922(g)(3); statute not repealed and ATF Form 4473 unchanged).

Legislation & Appropriations

Veterans Equal Access Act, H.R. 1384 (119th Cong. 2025) (Mast) (referred to Health Subcommittee; no markup). Veterans Cannabis Use for Safe Healing Act, H.R. 966 (119th Cong. 2025) (bars VA benefit denial for state-program participation).

FY2027 Military Construction–VA appropriations (Veterans Equal Access provision barring enforcement of VHA Directive 1315; House passed May 15, 2026, 400–15; Senate had not acted as of Aug. 6, 2026. Comparable language passed both chambers in prior cycles but was dropped in conference — most recently from the FY2026 package).

Hemp redefined by total THC, P.L. 119-37 § 781 (eff. Nov. 12, 2026).

Florida HB 887 (2026) (veteran registry-fee reduction; passed House, died in Senate Rules); Kentucky Medical Cannabis Program (patient applications opened Jan. 1, 2025; PTSD qualifies).

Key Studies

Cannabis Use Among Older Adults, JAMA Network Open (May 2025) (VA Cannabis and Aging Study; older-veteran prevalence and cannabis use disorder).

Reasons for Cannabis Use by Veterans, Journal of General Internal Medicine (Aug. 2025).

Cannabis Use and Insomnia Symptoms in Veterans With Chronic Pain, Sleep Advances (2026).

Veterans in SUD Treatment Using Cannabis for Pain, Anxiety, and Sleep, Harm Reduction Journal (2026).

Cannabis Legalization and Cannabis Use Disorder in VHA Patients, Drug and Alcohol Dependence (2026).

Parallel Track — Veteran Psychedelics Policy

Executive Order on psychedelics (Apr. 18, 2026); HHS–VA Memorandum of Understanding (July 13, 2026).

Innovative Therapies Centers of Excellence Act of 2025; VHA Novel Therapeutics Preparedness Act of 2026, S. 4220.

Examining Key Issues Facing Regulators, Including Federal Rescheduling, Market Stability Concerns, and the Practical Realities of Enforcing State Cannabis Laws in an Evolving Landscape

Session: *From Rulemaking to Reality: Synthesizing the Legal Impact on the Cannabis Industry* — Session Chair: Ian Rassman

Faculty: Clint Kellum (California Dept. of Cannabis Control) | Mon, Oct 19 · 10:40–11:35 AM · Shutters West I | Abstract #0001
— *Kellum: California Department of Cannabis Control (DCC).*

Description

Background: The evolving landscape of cannabis regulation continues to present complex

challenges for state regulators navigating implementation, enforcement, and coordination with shifting federal policy. In 2018, the federal government legalized industrial hemp, leading to a rise in the availability of intoxicating hemp products.

On April 28, 2026, the federal government announced the rescheduling of medicinal cannabis. The action, issued by the U.S. Department of Justice and Drug Enforcement Administration (DEA), is now being implemented.

Methods: The panel presentation will examine key issues facing regulators, including the rise of intoxicating hemp products, market stability concerns, and the practical realities of enforcing state cannabis laws within a dynamic and rapidly changing industry. Particular attention will be given to how regulatory agencies balance public safety, industry development, and equitable access within a comprehensive legal framework. This session offers a unique opportunity to hear directly from a leading state regulatory authority on the future direction of cannabis law, policy, and enforcement.

Conclusion: This panel presentation by the California Department of Cannabis Control (DCC) will provide a comprehensive overview of California's regulatory framework, with particular focus on licensing, compliance, and enforcement strategies in one of the nation's largest and most mature cannabis markets.

In addition, the presentation will explore ongoing federal-state coordination challenges, including the potential implications of federal cannabis rescheduling and evolving national policy priorities. The DCC perspective will provide valuable insight into how state regulators are preparing for and responding to these developments.

CONCLUSIONS:

Cannabis spp. rules and regulations are public health and safety tools that will continue to evolve. DCC is continually monitoring the condition of the regulated market and federal updates and remains committed to supporting regulatory alignment and simplifying processes wherever possible.

Learning Objectives

Following this session, participants will be able to:

1. Describe how the 2018 federal legalization of hemp gave rise to intoxicating hemp-derived cannabinoid products and the regulatory gaps that followed.
2. Identify the challenges state regulators face in implementing, enforcing, and coordinating hemp and cannabis policy amid shifting federal law.

Materials

Selected resources:

Agriculture Improvement Act of 2018 (2018 Farm Bill), Pub. L. No. 115-334.

U.S. Food and Drug Administration, Regulation of Cannabis and Cannabis-Derived Products, Including Cannabidiol (CBD).

Cannabis Regulators Association (CANNRA), resources on intoxicating hemp-derived cannabinoids.

Congressional Research Service, The Controlled Substances Act (CSA): A Legal Overview (Rep. R45948).

Cannabis Rescheduling: What Changes, What Doesn't, and What Comes Next (NICS Legal Roundtable)

Session: *National Interdisciplinary Cannabis Symposium (NICS) — Legal Roundtable*

Faculty: Prof. Robert Mejia (Moderator); Prof. Sam Kamin; Riana Durrett, JD; Shawn Hauser, Esq.; David Holland, Esq. | Mon, Oct 19 · 12:15–1:45 PM · Great Room B, Floor 1

— **Durrett:** *Inaugural director of UNLV's Cannabis Policy Institute and a cannabis-law lecturer at the William S. Boyd School of Law (JD, UNLV); the gubernatorially appointed first Vice Chair of the Nevada Cannabis Compliance Board and former executive director of the Nevada Dispensary Association.*

— **Holland:** *New York litigation attorney and Executive and Legal Director of Empire State NORML; co-founder and president of the New York City Cannabis Industry Association, former counsel to High Times, and a 25-year cannabis-law advocate who has litigated constitutional challenges to cannabis's Schedule I status.*

— **Hauser:** Partner at Vicente LLP, where she co-chairs the Hemp & Cannabinoids and Federal & International Law practice groups (JD, University of Denver); a Chambers- and Best Lawyers-recognized authority on hemp and cannabinoid regulation who has advised the FDA and international regulators.

— **Mejia:** Award-winning adjunct professor of Cannabis Studies (Hemp & Cannabis Business Management) at Stockton University and a co-founder of its Cannabis & Hemp Research Initiative; founder of the education company Our Community Harvest and author of *The Essential Cannabis Book* and *Cannabis Careers*.

— **Kamin:** Vicente Sederberg Professor of Marijuana Law and Policy at the University of Denver Sturm College of Law (JD and PhD, UC Berkeley); one of the nation's leading marijuana-law scholars, he served on Colorado Governor Hickenlooper's Task Force to Implement Amendment 64.

Description

Federal cannabis policy stands at one of the most significant legal crossroads since enactment of the Controlled Substances Act. As the Drug Enforcement Administration (DEA) continues administrative proceedings regarding the proposed rescheduling of cannabis from Schedule I to Schedule III and litigation surrounding hemp-derived cannabinoids continues to evolve, attorneys, regulators, researchers, healthcare professionals, and industry leaders face unprecedented legal and regulatory uncertainty.

Moderated by Professor Rob Mejia, this panel brings together four nationally recognized cannabis law scholars and practitioners to examine what rescheduling would—and would not—change as a matter of federal law. Drawing upon expertise in constitutional law, administrative law, federalism, taxation, regulatory compliance, litigation, public policy, and cannabis licensing, the panel will explore the legal implications of Schedule III for federal enforcement, research, taxation, FDA oversight, interstate commerce, state cannabis programs, hemp-derived cannabinoids, and future congressional action.

Designed for attorneys, judges, policymakers, regulators, compliance professionals, researchers, healthcare administrators, and cannabis industry stakeholders, this session moves beyond political headlines to provide practical legal analysis of one of the most consequential federal cannabis policy developments in decades.

Learning Objectives

Following this session, participants will be able to:

1. Analyze the legal implications of rescheduling cannabis from Schedule I to Schedule III under the Controlled Substances Act.
2. Distinguish between the practical effects of federal rescheduling and common misconceptions regarding legalization, interstate commerce, prescribing authority, and federal regulatory oversight.
3. Evaluate how rescheduling may affect federal taxation, cannabis research, DEA registration, FDA authority, administrative enforcement, criminal law, and state-regulated cannabis markets.
4. Assess unresolved constitutional, administrative law, and federalism questions likely to arise following any final DEA scheduling decision.

Materials

Selected resources:

Schedules of Controlled Substances: Rescheduling of Marijuana, Notice of Proposed Rulemaking, 89 Fed. Reg. 44597 (Drug Enforcement Administration, May 21, 2024).

U.S. Department of Health and Human Services, recommendation to reschedule marijuana to Schedule III (2023).

Controlled Substances Act, 21 U.S.C. §§ 811–812 (scheduling authority and criteria).

Internal Revenue Code § 280E, 26 U.S.C. § 280E (taxation of controlled-substance businesses).

Cannabis Use as Medical, Nutritional, and Meditational Use in the Rastafari Community

Session: *From Rulemaking to Reality: Synthesizing the Legal Impact on the Cannabis Industry* — **Session Chair:** Ian Rassman

Faculty: Scheril Murray Powell, Esq., JD | Mon, Oct 19 · 1:45–2:40 PM · Shutters West I | Abstract #0002

— **Murray Powell:** Agricultural, cannabis, and dietary-supplement attorney (JD, Florida International University College of Law); founder of the Cannabis HR Council, DEI Subcommittee Chair of ASTM International's D37 cannabis committee, and a *Daily Business Review* "Top 12 Cannabis Attorneys in Florida" and *High Times* 100 honoree.

Description

Cannabis in the Faith Based User Community is seen as a holy sacrament. Part of this designation is based on its reference in ancient text as an essential ingredient in anointing and healing oils, curing tonics, and topical plasters. Despite the long history of use, the legal framework at a State and Federal Level. As conversations about Federal Legalization deepen, there is an opportunity to integrate Sacramental Use into the Law.

In this discussion, I will review the medical and nutritional use of Cannabis as a part of Sacramental Use. We will explore the opportunity to repair the harm of ignoring religious rights

and cultural protections of faith based cannabis use leading to persecution, arrests, incarceration, and commuting to mental institutions over decades.

Learning Objectives

Following this session, participants will be able to:

1. Trace the historical and cultural uses of cannabis as medicine, nutrition, and in religious or meditative practice.
2. Explain how state and federal legal frameworks treat traditional, medicinal, and religious cannabis use.

Materials

Selected resources:

National Academies of Sciences, Engineering, and Medicine (2017). *The Health Effects of Cannabis and Cannabinoids*. Washington, DC: National Academies Press.

Controlled Substances Act, 21 U.S.C. § 801 et seq.

Religious Freedom Restoration Act, 42 U.S.C. § 2000bb; *Gonzales v. O Centro Espirita Beneficente Uniao do Vegetal*, 546 U.S. 418 (2006).

Paving A Path for Legal Psychedelics: Lessons from Cannabis Legalization

Session: *Federal-State Regulation of Marijuana and Hemp in the Wake of Gonzalez v. Raich* — Session Chair: David Bush [Regulation & Policy — companion]

Faculty: Joshua Bauchner | Mon, Oct 19 · 3:55–4:30 PM · Shutters East I | Abstract #0168

— **Bauchner:** *Partner and Chair of the Cannabis, Hemp & Psychedelics Practice Group at Mandelbaum Barrett PC. He co-hosted the inaugural New Jersey Cannabis Symposium and is a past chair of the New Jersey State Bar Association Cannabis & Psychedelics Law Committee, the New York State Bar Association Cannabis Law Committee, and the NORML Legal Committee; he received the New Jersey Law Journal's Innovator of the Year Award and is recognized as a Top 200 Cannabis Lawyer and a Top 200 Global Psychedelic Lawyer. He filed pro-bono amicus briefs in Washington v. Barr (on behalf of former professional athletes) and in Aggarwal v. DEA.*

Description

We filed an amicus brief in the AIMS litigation on behalf of NORML providing a historical account of NORML's efforts to decriminalize cannabis for medicinal purposes for the past half-century and the never-ending efforts of the federal government to delay, resist, and obstruct the progress of science and medicine. While the federal government is unlikely to learn any lessons from the past, NORML hoped that the Court would acknowledge and heed the legal and procedural lessons learned from those past administrative petition litigations so that innocent dying patients – who are the true victims of the government's misbehavior – are not denied readily available medicine.

Learning Objectives

Following this session, participants will be able to:

1. Explain how cannabis came to be criminalized under federal law and the framework of the Controlled Substances Act.
2. Describe the harms that cannabis criminalization has imposed on patients, including professional and Olympic athletes who depend on medical cannabis.
3. Identify the medicinal benefits of cannabis and the evidence — including the FDA approval and de-scheduling of Epidiolex — supporting a currently accepted medical use.
4. Trace the path of cannabis legalization and the legal and constitutional arguments, including substantive due process and patient autonomy, advanced along the way.
5. Analyze how the lessons learned from cannabis legalization can inform a legal path toward the legalization of psychedelics.

Materials

Presentation slides: “Lessons Learned from Cannabis Legalization: Paving a Path for Legal Psychedelics” (Mandelbaum Barrett PC). Authorities referenced:

Statutes

Controlled Substances Act, 21 U.S.C. § 801 et seq.; 21 U.S.C. § 812.

Cases

N.O.R.M.L. v. Drug Enforcement Administration, 559 F.2d 735 (D.C. Cir. 1977).

Carey v. Population Servs. Int'l, 431 U.S. 678 (1977).

Cruzan v. Director, Missouri Dep't of Health, 497 U.S. 261 (1990).

Armstrong v. State, 989 P.2d 364 (Mont. 1999).

Amicus Briefs

Washington v. Barr (2d Cir.) — amicus brief on behalf of former professional athletes.

Aggarwal v. DEA (AIMS / NORML) — amicus brief.

Regulatory

FDA approval and subsequent de-scheduling of Epidiolex (2018–2020).

Cannabis and the Courts: Neurobiology, Treatment, and Emerging Jurisprudence

Session: *Marijuana Rescheduling: Past, Present, and Future* — Session Chair: Alex Kreit

Faculty: Linda Hurley | Tue, Oct 20 · 1:15–1:40 PM · Shutters West I | Abstract #0005

— **Hurley:** *President and CEO of CODAC Behavioral Healthcare, Rhode Island's oldest and largest nonprofit opioid-treatment provider, and adjunct professor at Salve Regina University; a 35-year addiction-treatment leader and recipient of the National Council for Mental Wellbeing's Lifetime Achievement Award.*

Description

As cannabis policy continues to evolve, courts, clinicians, and public institutions face growing pressure to navigate cannabis-related issues with both scientific accuracy and legal precision. This interdisciplinary session examines the neurobiological effects of cannabis exposure — including the distinct risks of rising THC potency and novel delivery systems — with special attention to vulnerable populations including adolescents and individuals with co-occurring disorders.

Participants will explore the jurisprudential dimensions now confronting our legal system, from competency and impairment determinations to diversion programs, criminal justice reform, and family court considerations. The session concludes with a review of evidence-based treatment approaches for cannabis use disorder and advocates for a balanced, scientifically grounded framework supporting both public safety and individual recovery.

Designed for legal professionals, clinicians, policymakers, and advocates working at the intersection of cannabis science, treatment, and the law.

Learning Objectives

Upon completion of this presentation, participants will be able to:

1. Describe the neurobiological effects of cannabis exposure across diverse populations, including the distinct risks associated with increasing THC potency, synthetic cannabinoids, and the impact on adolescent brain development, executive functioning, and vulnerability to cannabis use disorder.
2. Identify the key jurisprudential considerations arising from cannabis-related legal decision-making, including competency determinations, impairment assessments, diversion programs, criminal justice reform, and the intersection of mandated treatment and judicial review.
3. Apply evidence-based approaches to cannabis use disorder treatment — including motivational enhancement therapy, cognitive behavioral therapy, contingency management, and integrated psychiatric care — within a balanced framework that supports both public safety and individual recovery outcomes.

Materials

Presentation slides to follow (currently under revision for length).

Selected resources:

National Academies of Sciences, Engineering, and Medicine (2017). *The Health Effects of Cannabis and Cannabinoids*.

National Institute on Drug Abuse (NIDA), *Cannabis (Marijuana) Research Report*.

American Society of Addiction Medicine (ASAM), public-policy statements on cannabis.

Controlled Substances Act, 21 U.S.C. § 812.

Workplace Cannabis in Transition: A Conversation with Judge Mary Celeste (Ret.) And HR Expert Trisha Zulick

Session: *Rescheduled, Not Safe for Work: Cannabis, Schedule III, and the New Fault Lines in Employment Law* — Session Chair: Trisha Zulick

Faculty: Judge Mary Celeste (Ret.); Trisha Zulick | Tue, Oct 20 · 1:15–2:10 PM · Shutters West I | Abstract #0021

— **Celeste:** *Retired judge and adjunct professor at California Western School of Law, where she teaches "Cannabis and the Law"; author of Cannabis Law and Policy (2026), a national judicial educator on cannabis, and co-chair of the NCRC 2026 American Jurisprudence track.*

— **Zulick:** *Human-resources expert; co-presenter with Judge Mary Celeste (Ret.).*

Description

For three decades the workplace cannabis question had a reliable answer: marijuana is a Schedule I controlled substance, so an employer may treat a positive test as a positive test. State legalization complicated the analysis at the margins — off-duty conduct statutes, cardholder anti-discrimination provisions, and a line of state disability decisions — but the federal anchor held.

That anchor moved in April 2026, when the Department of Justice placed FDA-approved marijuana drug products and marijuana subject to a qualifying state medical license into Schedule III of the Controlled Substances Act. Within weeks, employees and employers alike began asking whether a Schedule III substance authorized under state law could now function as a lawful medication for workplace purposes. In May 2026 the Department of Transportation answered that question for the roughly six million safety-sensitive transportation workers subject to its rules, and the answer was no: a Medical Review Officer may not verify a laboratory-confirmed marijuana positive as negative on the strength of a state-issued card, a physician recommendation or certification, or dispensary records,

because a “legitimate medical explanation” under 49 C.F.R. §§ 40.137(a) and 40.141(b) requires a legally prescribed controlled substance, and state-dispensed marijuana is not an FDA-approved drug.

The dialogue runs in four segments of roughly ten minutes each, one per learning objective. In each segment one presenter poses the question and the other answers, with the roles alternating so that every rule is stated by counsel and then pressure-tested by the practitioner who has to apply it.

Segment one establishes what rescheduling did and did not do, separating its real effects — taxation, research access, and the loss of the “no accepted medical use” premise — from the workplace consequences it left untouched.

Segment two works through the DOT guidance as an applied problem: what an MRO may and may not accept, which safety-sensitive positions Part 40 reaches beyond commercial drivers, and why a lawfully purchased CBD product can produce a confirmed positive with no available explanation.

Segment three turns to the unregulated workforce and sorts the four claim structures a cardholder employee may invoke, testing each against the case law from Coats and Emerald Steel through Noffsinger and Barbuto.

Segment four closes on the evidentiary problem underneath all of it — that a confirmed positive establishes past exposure rather than present impairment — and what that gap means for documentation, reasonable-suspicion procedure, and post-accident testing.

A fifteen-minute audience segment follows. Participants are invited to bring their own fact patterns; presenters route questions by domain and identify plainly where an answer is unsettled rather than supplying a false certainty.

The organizing point is that the workplace question is no longer binary. It is a layered analysis — federal scheduling, FDA approval, safety-sensitive status, state statutory protection, accommodation duty, and the basis on which the employer acted — and the layers now produce different answers for different employees in the same building.

Learning Objectives

Upon completion of this program, participants will be able to:

1. Explain why the April 2026 rescheduling of state-licensed medical marijuana to Schedule III did not alter employer drug-free workplace policies, federal testing obligations, or the disqualifying effect of a positive marijuana test.
2. Apply the Department of Transportation’s May 2026 Part 40 guidance to a Medical Review Officer verification question — including the documents that do not satisfy the “legitimate medical explanation” standard of 49 C.F.R. §§ 40.137(a) and 40.141(b), the range of safety-sensitive positions reached beyond commercial drivers, and the residual risk that a lawfully purchased CBD product produces a confirmed positive.
3. Distinguish the claim structures available to a cardholder employee — federal ADA accommodation, state disability discrimination, statutory cardholder protection, and off-duty conduct protection — and analyze which reasoning in Coats, Ross, Emerald Steel, Noffsinger, and Barbuto survives the removal of the “no accepted medical use” premise.
4. Evaluate the evidentiary difference between a confirmed positive test and demonstrated on-duty impairment, and the implications for employer documentation, reasonable-suspicion procedure, and post-accident testing in light of THC’s detection window.

Materials

Written materials are provided to registrants in advance and consist of the presentation slides, a question-and-answer reference sheet on rescheduling and workplace consequences, and the citation list below.

Federal Regulatory Authority

U.S. Dep’t of Transportation, Office of Drug and Alcohol Policy and Compliance and Office of the General Counsel, Part 40 Question and Answer regarding 49 C.F.R. §§ 40.137, 40.141, and 40.151 (May 2026) (official interpretation under 49 C.F.R. § 40.5).

49 C.F.R. § 40.137(a) (MRO verification of a confirmed positive; legitimate medical explanation); § 40.141(b) (basis for the MRO determination); § 40.151 (limits on what an MRO may accept, including physician recommendations).

U.S. Dep’t of Transportation, ODAPC, CBD Notice (cautioning regulated employees that CBD products may contain THC sufficient to produce a positive result).

Final order placing FDA-approved marijuana drug products and marijuana subject to a qualifying state medical license into Schedule III, 91 Fed. Reg. 22714 (Apr. 28, 2026); 21 U.S.C. § 811(d)(1).

Drug-Free Workplace Act of 1988, 41 U.S.C. §§ 8101–8106; Americans with Disabilities Act, 42 U.S.C. § 12114(a) (illegal drug use exclusion).

Cases

Coats v. Dish Network, LLC, 350 P.3d 849 (Colo. 2015) (off-duty use not “lawful” where federally prohibited).

Ross v. RagingWire Telecomms., Inc., 174 P.3d 200 (Cal. 2008) (no FEHA accommodation duty).

Emerald Steel Fabricators, Inc. v. Bureau of Labor & Indus., 230 P.3d 518 (Or. 2010) (state medical marijuana law preempted as to employment).

Barbuto v. Advantage Sales & Mktg., LLC, 477 Mass. 456 (2017) (handicap discrimination claim available; positive test does not establish on-duty impairment).

Noffsinger v. SSC Niantic Operating Co., 273 F. Supp. 3d 326 (D. Conn. 2017) (federal law does not preempt state anti-discrimination protection for cardholders).

Representative State Authority

California: Cal. Gov't Code § 12954 (AB 2188) (off-duty use; non-psychoactive metabolite testing restrictions).

New York: N.Y. Lab. Law § 201-d (lawful off-duty consumption).

Connecticut, Minnesota, Montana, Nevada, New Jersey, Rhode Island, and Washington: statutory off-duty or cardholder protections of varying scope, each with safety-sensitive and federal-contract carve-outs.

Arizona, Arkansas, Delaware, and Pennsylvania: cardholder anti-discrimination provisions; note the divergence in whether a private right of action is express or implied.

Secondary Sources

Ogletree Deakins, The Evolution of Workplace Drug Testing: What Employers Need to Know for 2026 (Jan. 2026).

Marijuana Policy Project, Cannabis Legalization and Employment Protections (state-by-state survey).

NORML, Transportation Memo: Marijuana Rescheduling Order Doesn't Change Federal Drug Testing Rules (May 18, 2026).

Cannabis in Eclectic Medicine

Session: *Marijuana Rescheduling: Past, Present, and Future* — *Session Chair: Alex Kreit*

Faculty: Kimberly Gwinn, PhD | Tue, Oct 20 · 1:45–2:10 PM · Shutters West I | Abstract #0006

— *Gwinn: Professor in the Department of Entomology and Plant Pathology at the University of Tennessee who investigates the influence of natural products in One Health systems, working to uncover the origins, functions, and ecological roles of natural compounds that mediate interactions within and between organisms. During 2025 and 2026 she served as the Curtis Gates Lloyd Research Fellow at the Lloyd Library in Cincinnati, Ohio, where she investigated the use of cannabis and ergot by practitioners of eclectic medicine.*

Description

BACKGROUND: Eclectic colleges of medicine (ECMs) promoted botanical medicines during the period between 1830 and 1939. This presentation, an exploration of the eclectic medical profession and its uses of cannabis at a time of turmoil in traditional medicine, will provide insight on the importance of the politics of medicine on the definition of legitimate medicines, particularly those of botanical origins.

METHODS: Issues of the Eclectic Medicine Journal (EMJ) were searched for the keywords, cannabis and hemp. The results were binned into neurological disorders and pain, mental health, sleep and other (which included use as a treatment for strychnine poisoning, multi-symptom cases and overviews). Archives from the Lloyd Brothers Pharmacy, a primary supplier of extracts and specific medicines for practitioners, were reviewed for product descriptions and availability. **RESULTS AND**

PERSPECTIVE: In the period between 1855 and 1936, there were 23 articles on use of cannabis published in EMJ. The articles included case reports and recommendations for the use of cannabis by practitioners of eclectic medicine and faculty of ECMs. The largest category of use was neurological disorders and pain; specific applications were for delirium tremens, chorea, headache, and pain associated with menstruation and menopause. In several articles, cannabis was suggested as an appropriate substitute for opium products to avoid the side effects of opium. Extracts of *Cannabis sativa* (American hemp) and *C. indica* (Indian hemp) were sold by Lloyd Brothers as early as 1870. By 1890, additional purification and standardization steps were added, and the resulting specific medicines were added to catalogues. Despite the scientific approaches of the eclectic pharmacy community, the drive to scientifically define legitimate medicine by and philosophical differences with conventional medical communities resulted in rejection of ECMs by the American Medical Association (AMA), and the last class graduated in 1939.

CONCLUSIONS: Clashes with conventional medicine on legitimacy and politics are similar between current debates on alternative medicines, including cannabis, and fights between ECMs and the AMA. Understanding the history of who defines medicine, what counts as valid evidence, and who controls professional gateways provides additional perspective in today's

alternative medicine.

Learning Objectives

After participating in this program, attendees will be able to:

1. Describe the role of Eclectic Colleges of Medicine (1830–1939) in promoting and standardizing botanical medicines, with particular emphasis on cannabis.
2. Identify and summarize historical evidence regarding medical uses of cannabis documented in the Eclectic Medical Journal (1855–1936).
3. Analyze how professional regulation, institutional gatekeeping, and political disputes shaped definitions of “legitimate” medicine and acceptable evidence.
4. Apply historical lessons about medical legitimacy and evidentiary standards to contemporary legal and policy debates involving alternative medicines, including cannabis, and related professional licensing and credentialing issues.

Materials

Primary and secondary sources on the history of cannabis in eclectic medicine:

Primary Source

Eclectic Medical Journal, Volumes 7–96 — digitized Lloyd Library collection, searched for the terms “cannabis” and “hemp.”

Books

Coulter HL. Divided Legacy: A History of the Schism in Medical Thought, Vol. 3 — Science and Ethics in American Medicine, 1800–1914. Wehawken Books (1993).

Haller JS Jr. Medical Protestants: The Eclectics in American Medicine. Southern Illinois University Press (1994).

Haller JS Jr. A Profile in Alternative Medicine: The Eclectic Medical College of Cincinnati, 1835–1942. Kent State University Press (1999).

Scudder JM. The Eclectic Practice of Medicine. Cincinnati: Moore, Wilstach, Keys & Co. (1864).

The Impact of Cannabis Rescheduling on US Immigration Policy and the Economic Health of the Cannabis Industry

Session: *Rescheduled, Not Safe for Work: Cannabis, Schedule III, and the New Fault Lines in Employment Law* — Session Chair: Trisha Zulick

Faculty: Scheril Murray Powell, Esq., JD | Tue, Oct 20 · 2:15–3:10 PM · Shutters East II | Abstract #0022

— **Murray Powell:** *Agricultural, cannabis, and dietary-supplement attorney (JD, Florida International University College of Law); founder of the Cannabis HR Council, DEI Subcommittee Chair of ASTM International's D37 cannabis committee, and a Daily Business Review "Top 12 Cannabis Attorneys in Florida" and High Times 100 honoree.*

Description

This presentation will discuss the three potential environments of Federal Cannabis Legalization. Under our current legalization framework of cannabis being controlled, cannabis criminalization is a pipeline to law enforcement and deportation. With the recent Trump Administration policies, we are seeing increased detention and deportations including Cannabis Workers which impacts the entire Cannabis job pool from entry level to licensees. Fear of detention is keeping workers who are documented and would be considered for seasonal work such as harvesting from pursuing these roles. Under Schedule 2, the limited Federal Legalization has the potential to give protection for our cannabis workers who are not United States Citizens so they do not have to fear that involvement in the industry will cause them to lose their legal status in the United States. Under Descheduling, there is an opportunity to bring in technology and agricultural workers to occupy hard to fill roles in cannabis. There is a clear nexus between cannabis and immigration, from a criminal perspective as well as from a labor perspective. This discussion will evaluate current statistics and implications that influence the economic health of the cannabis industry due to immigration policy shifts and cannabis scheduling.

Learning Objectives

Following this session, participants will be able to:

1. Explain how cannabis criminalization intersects with law-enforcement contact and immigration or deportation consequences.
2. Analyze the effects of current federal control and enforcement policy on affected individuals and communities.

Materials

Selected resources:

Controlled Substances Act, 21 U.S.C. § 801 et seq.

Immigration and Nationality Act, controlled-substance provisions, 8 U.S.C. § 1227(a)(2)(B).

American Civil Liberties Union (2020). A Tale of Two Countries: Racially Targeted Arrests in the Era of Marijuana Reform.

The Compliance Paradox: Navigating The Newly Bifurcated Reality of Cannabis Banking Post- Rescheduling

Session: *From Rulemaking to Reality: Synthesizing the Legal Impact on the Cannabis Industry — Session Chair: Ian Rassman*

Faculty: Abby Kaufmann | Tue, Oct 20 · 3:30–4:25 PM · Shutters West I | Abstract #0004

— **Kaufmann:** *Commercial Director for CRB Monitor, the market-leading source of Cannabis-Related Business (CRB) corporate intelligence, and a certified Cannabis Banking Professional (CBP) and Cannabis Risk Specialist (CRS). Since 2019 she has focused on giving cannabis-industry stakeholders tools to manage risk and monetize opportunity in this highly regulated market. Following her time at New Frontier Data, she served on the board and then as Executive Director of Nevada's largest cannabis-industry trade association, contributing to several legislative and regulatory reforms, and has presented for the Association for Cannabis Banking, the National Association of State Credit Union Supervisors, the Minority Cannabis Business Association, and MJBizCon.*

Description

On April 23, 2026, the Department of Justice reclassified state-licensed medical marijuana to Schedule III of the Controlled Substances Act. This historic move created a multi-tiered regulatory environment where federal legality is determined by specific license types and DEA registration status rather than the plant itself. This session explores why the 2014 FinCEN guidance and Bank Secrecy Act expectations remain the dominant compliance framework for financial institutions (FIs), despite the move to Schedule III. Understanding this "bifurcated reality" is essential for FIs to avoid legal pitfalls.

COMMENTARY or PERSPECTIVE:

The current regulatory environment has increased complexity rather than reducing the compliance burden. Data from CRB Monitor reveals a fragmented market that defies "blanket" banking policies. While medical marijuana is now Schedule III, an operator is only federally lawful if they maintain both a state medical license and a DEA registration; without the latter, they remain Schedule I. Currently, 40% of active licenses are "Adult-use ONLY" (Schedule I), and 27% are combined Adult-use and Medical, creating compliance nightmares for FIs trying to silo revenue. Only 8% of entities exclusively hold state medical licenses. Consequently, for 92% of the industry, FIs must continue applying rigorous FinCEN guidance. Additionally, FIs must prepare for the November 12, 2026, "Hemp Clock" deadline when many hemp-derived cannabinoid products could be moved back to Schedule I.

CONCLUSIONS:

Rescheduling has necessitated a more granular, data-driven approach to risk management. FIs can no longer treat "cannabis" as a monolithic risk category. They must differentiate due diligence based on license type, DEA status, and cannabinoid profiles. The ability to verify dual-licensing status and monitor enforcement actions is now the prerequisite for safe and scalable cannabis banking in a post-Schedule III world.

Learning Objectives

Following this session, participants will be able to:

1. Identify and interpret the foundational statutes, regulations, and overlapping jurisdictions that govern cannabis banking compliance, including the distinct regulatory roles of the Department of Justice (DEA) and the Department of the Treasury (FinCEN).
2. Differentiate the independent enforcement mandates of the Bank Secrecy Act (BSA) from the Controlled Substances Act (CSA), including why the 2014 FinCEN guidance remains the dominant framework and how financial institutions must maintain compliant Anti-Money Laundering (AML) programs and continue filing Suspicious Activity Reports (SARs) after rescheduling.
3. Parse what rescheduling practically achieves versus what it leaves unchanged for financial services, assessing how the transition to a Schedule III environment shifts institutional risk tolerance and affects commercial banking access for cannabis-related businesses.

Materials

Presentation slides (“Cannabis Banking Post-Rescheduling”), the CRB Monitor Regulatory Reference Guide (April 22, 2026), and the CRB Monitor FinCEN/BSA Guidance Checklist, all provided by the presenter.

Key Authorities

Schedules of Controlled Substances: Rescheduling of Food and Drug Administration Approved Products Containing Marijuana From Schedule I to Schedule III, 91 Fed. Reg. 22714 (Apr. 28, 2026) (to be codified at 21 C.F.R. pts. 1300, 1301, 1308, 1312).

Schedules of Controlled Substances: Proposed Rescheduling of Marijuana, DEA Docket No. 1362, Hearing Docket No. 26-96 (Drug Enforcement Admin. June 18, 2026) (preliminary order).

Financial Crimes Enforcement Network, Guidance FIN-2014-G001, BSA Expectations Regarding Marijuana-Related Businesses (Feb. 14, 2014).

What Does Race Have to Do with It? Cannabis Industry Policies Using Critical Race Theory

Session: *From Rulemaking to Reality: A Facilitated Synthesis of the Regulation & Policy Track — Session Chair: Judge Mary Celeste (Ret.) [Regulation & Policy — companion]*

Faculty: Ivan Garcia; Gabriela Mohr-Avitia | Tue, Oct 20 · 4:30–4:55 PM · Shutters West I | Abstract #0176

— Garcia: *Department of Criminology and Criminal Justice, Northern Arizona University.* — Mohr-Avitia: *PhD, LMSW, Northern Arizona University. Her research examines race in written recreational marijuana policy — she presented “Beyond Intent: Examining Race in Written Recreational Marijuana Policies” at the 2025 Council on Social Work Education Annual Program Meeting — and she is a co-author of Public Perceptions of Risks Associated With Driving After Cannabis Use, Drug and Alcohol Dependence (2025).*

Description

Abstract: Cannabis's shift from prohibited substance to lucrative industry has reshaped the social landscape of the United States. As of 2026, 24 states have fully legalized recreational marijuana.

This shift has prompted agencies like the American Civil Liberties Union (ACLU) to argue that marijuana legalization is a racial justice issue since racialized communities have suffered the most from marijuana prohibition. California presents as a perfect case study to understand the relationship between racial equity and access to cannabis licensing. Using Critical Race Theory (CRT) and a qualitative content analysis methodology of 31 written policies from California, this study examined the role of race in those written policies. These policies were chosen after data immersion, with thematic coding used in Dedoose software. The findings revealed that California policies: (1) were written from a colorblind perspective, (2) held most of the decision-making power in the executive branch, and (3) required individuals and entities to have significant financial and social capital to access marijuana business licenses. Findings also indicate that colorblind policies may perpetuate racial inequities in the cannabis industry. Further research on other U.S. states’ policies and racial equity must be conducted to deepen the understanding of racial equity within the cannabis industry.

Learning Objectives

Following this session, participants will be able to:

1. Explain the relationship between cannabis legalization and racial equity in California.
2. Identify how colorblind policies and financial barriers can contribute to racial inequities in cannabis licensing.
3. Evaluate the role of Critical Race Theory in analyzing policies and promoting greater equity within the cannabis industry.

Materials

Key citations and resources supplied by the presenter:

Alexander M (2012). *The New Jim Crow: Mass Incarceration in the Age of Colorblindness*. New York, NY: The New Press.

American Civil Liberties Union (2020). *A Tale of Two Countries: Racially Targeted Arrests in the Era of Marijuana Reform*.

California Department of Cannabis Control, licensees — laws and regulations (cannabis.ca.gov/licensees) and cannabis laws and regulations (cannabis.ca.gov/cannabis-laws/laws-and-regulations).

California Department of Cannabis Control (Apr. 20, 2023), recognition of equity cannabis retailers.

California Proposition 64, Marijuana Legalization (2016) — ballot measure text and history.

Municode Library, California municipal codes (library.municode.com/ca) — for local cannabis licensing ordinances.

Regulatory Science in Action: Advancing Public Health Through Cannabis Testing Standards

Session: *From Rulemaking to Reality: Synthesizing the Legal Impact on the Cannabis Industry* — Session Chair: Ian Rassman

Faculty: Antonio Frazier (California Dept. of Cannabis Control) | Wed, Oct 21 · 9:30–10:55 AM · Shutters West I | Abstract #0003

— *Frazier: California Department of Cannabis Control (DCC) regulatory laboratory.*

Description

Background: Cannabis testing standards sit at the intersection of public health, analytical science, consumer protection, and market oversight. As cannabis products become more diverse and chemically complex, regulators face challenges that extend beyond routine compliance testing. These include novel product formulations, expanding routes of administration, complex product matrices, evolving contaminant risks, laboratory variability, and uncertainty in interpreting results near regulatory action limits. In this environment, testing standards must be scientifically defensible, adaptable, and capable of supporting consistent public health decision-making.

METHODS:

This presentation will provide a regulatory laboratory perspective on how cannabis testing standards are implemented, evaluated, and refined in California. Topics may include method validation expectations, quality assurance and quality control systems, proficiency testing, laboratory performance monitoring, sampling considerations, chain-of-custody practices, data review, and interpretation of analytical results across diverse cannabis product types.

COMMENTARY / PERSPECTIVE:

The next generation of cannabis regulation may move beyond a simple pass/fail testing paradigm toward a more nuanced understanding of analytical confidence, risk, and enforceability. Measurement uncertainty is particularly important when results fall near action limits, where small differences in method performance, sampling, or matrix behavior may affect regulatory outcomes. Product innovation adds further complexity, as flower, concentrates, edibles, beverages, inhaled products, and other emerging formulations introduce distinct analytical challenges.

From the California Department of Cannabis Control (DCC) laboratory perspective, regulatory science provides the bridge between analytical measurement and public health action. Strong testing standards promote laboratory accountability while recognizing the scientific realities of complex matrices and uncertainty in quantitative measurements. This presentation will illustrate how analytical standards support public health protection, laboratory consistency, and enforceable regulatory decisions across a rapidly evolving marketplace.

CONCLUSIONS:

Cannabis testing standards are not static technical requirements; they are public health tools that must evolve with the marketplace. Addressing measurement uncertainty, product complexity, emerging contaminants, sampling practices, and inter-laboratory comparability will be essential to maintaining consumer protection and regulatory credibility. California's experience offers a practical framework for using regulatory science to strengthen trust, accountability, and public health protection in cannabis testing.

Learning Objectives

Following this session, participants will be able to:

1. Describe how regulatory science supports consumer protection and market oversight in legal cannabis markets.
2. Identify the challenges that novel product formulations and expanding routes of administration pose for compliance testing.

Materials

Selected resources:

U.S. Food and Drug Administration, Cannabis and Cannabis-Derived Products.

Cannabis Regulators Association (CANNRA).

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

U.S. Pharmacopeia (USP), cannabis quality standards.

Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — Session Chairs: Thomas Marcotte, PhD; Hollis Karoly, PhD

Faculty: Thomas Marcotte, PhD (session overview) | Wed, Oct 21 · 11:25 AM - 12:35 PM (panel segment) · Shutters West I | Abstract #0007

— **Marcotte:** Co-Director of the Center for Medicinal Cannabis Research at UC San Diego, where he is also a Professor of Psychiatry. His research focuses on the impact of cannabis use on cognition and driving, including simulator and on-road studies, the development of methods for determining cannabis-related impairment, and the evaluation of approaches used by law enforcement. He has served on national and state impaired-driving workgroups and has presented to scientific, law-enforcement, forensic-toxicology, judicial, and traffic-safety advocacy groups, as well as state, national, and international policymakers.

Description

As cannabis legalization expands, the field faces a central scientific and public health challenge: how to detect acute impairment, particularly relating to road safety, in a robust manner that balances sensitivity and specificity. Unlike alcohol, THC concentrations in blood or oral fluid do not reliably reflect functional impairment, and current roadside approaches such as standardized field sobriety tests have shown limitations. This symposium brings together leaders who are exploring novel methods to measure impairments associated with cannabis use. Methods, evaluated via controlled clinical trials, include 1) the use of mobile devices (tablets, phones) to directly assess cognitive abilities that putatively relate to driving ability, 2) portable functional near-infrared spectroscopy to identify prefrontal cortical signatures of acute THC intoxication, and 3) changes in pupillary and ocular functioning following THC use. The session will conclude with a panel discussion summarizing the successes, and limitations, of work to date, including accounting for individual differences in non-intoxicated individuals, identifying instrument form factors that facilitate use in the field, and the long road to acceptance and implementation within the legal arena.

Learning Objectives

Following this session, participants will be able to:

1. Evaluate issues regarding the relationship between cannabis use and field sobriety test (FST) performance.
2. Understand cannabis users' perceptions regarding law enforcement and toxicological detection of driving under the influence of cannabis (DUIC).
3. Identify new methods in development for detecting DUIC.

Materials

Full-text copies of the presenter's cited studies and his curriculum vitae are provided. Key references:

Key References

Marcotte TD, et al. Driving performance and cannabis users' perception of safety: a randomized clinical trial. *JAMA Psychiatry* (2022).

Marcotte TD, et al. Evaluation of field sobriety tests for identifying cannabis-related driving impairment. *JAMA Psychiatry* (2023).

Fitzgerald RL, et al. Driving under the influence of cannabis: impact of combining toxicology testing with field sobriety tests. *Clinical Chemistry* (2023).

Marcotte TD, Fitzgerald RL. Validation of methods for detecting driving under the influence of cannabis: paths forward. *Journal of Studies on Alcohol and Drugs* (2025).

AAA Foundation for Traffic Safety. Examination of cannabis users' perceptions and self-reported behaviors to inform messaging to deter impaired driving.

Abstracts #0007 (session overview) and #0016 (scientific studies) are delivered as a single combined presentation by Dr. Marcotte in the Novel Approaches symposium.

Driving Impairment Associated with Cannabis Edibles, Vaporized Cannabis, and Delta-8 THC

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — Session Chairs: Thomas Marcotte, PhD; Hollis Karoly, PhD

Faculty: Tory Spindle, PhD | Wed, Oct 21 · 8:00–8:25 AM · Shutters West I | Abstract #0008

— **Spindle:** Associate Professor of Psychiatry and Behavioral Sciences at the Johns Hopkins University School of Medicine (PhD, Virginia Commonwealth University); leads human-laboratory studies of cannabis behavioral pharmacology and of cannabis/alcohol driving impairment to inform product standards and dosing policy.

Description

Background: Controlled research to understand how various cannabis and cannabinoid products acutely impact driving performance is critical for public safety, policy recommendations, and patient guidance.

Methods: Three placebo-controlled within-subject crossover human laboratory studies involving controlled cannabinoid administration were conducted. Study 1 and 2 examined multiple doses of oral or vaporized cannabis, alone and in combination with alcohol. Study 3 compared the effects of oral and vaporized delta-8 THC versus delta-9 THC. Using the exact same driving simulations, each study characterized driving performance before and up to 8 hours post-dosing. The primary outcome across studies was global drive score, a composite index of driving based on 9 variables.

Results: When cannabis edibles or vaporized cannabis were used alone, dose-dependent decreases in driving performance were observed. At an equivalent dose (e.g., 25mg THC), vaporized cannabis produced greater peak driving impairment versus oral cannabis, though driving impairment from oral cannabis persisted longer. When cannabis was co-administered with alcohol (0.05% BAC), additive or synergistic effects on driving were observed. Driving impairment from cannabis plus alcohol at a 0.05% BAC matched or exceeded impairment from alcohol alone at 0.08% BAC (U.S. legal intoxication limit). Oral delta-8 THC produced dose-orderly driving deficits, with lower potency than delta-9. Vaporized delta-8 THC exhibited less dose-orderliness in driving impairment, owing to self-titration of puffing behaviors. High doses of delta-8 THC elicited driving impairment comparable to 0.08% BAC alcohol based on archival data from Studies 1-2. Perceived driving impairment across all studies (e.g., ratings of “confidence to drive”) was more favorable than actual driving performance at later timepoints. **Discussion/Conclusions:** There are key differences in magnitude/duration of driving impairment after use of cannabis edibles, vaporized cannabis, and delta-8 THC, and people can be poor judges of their fitness to drive. Current thresholds for alcohol intoxication may be too liberal if someone has consumed both cannabis and alcohol. Continued research is needed to characterize driving impairment from other emergent cannabis products and in populations with increasing cannabis use (e.g., older adults). The use of common measures of driving impairment should be encouraged across laboratories to assist in cross-study comparisons and data harmonization.

Learning Objectives

1. Understand the differences in the timecourse of driving impairment between forms of cannabis such as oral or inhaled.
2. Understand how using cannabis and alcohol simultaneously affects impairment compared to using these drugs alone.
3. Understand challenges with the simulated driving research field and interpreting results across studies.

Materials

Handout provided by presenter: Zamarripa CA, Lin S, Klausner M, et al. Impact of Cannabis Edibles Combined With Alcohol on Driving, Field Sobriety Performance, and Subjective Effects: A Within-Participant Crossover Trial. *JAMA Network Open*. 2026;9(5):e269842. doi:10.1001/jamanetworkopen.2026.9842

Expectations V. Performance: Does The Accuracy of Users' Expected Post-Smoking Driving Simulator Performance Differ By Cannabis Use Experience?

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — Session Chairs: Thomas Marcotte, PhD; Hollis Karoly, PhD

Faculty: Jake Rattigan, MS | Wed, Oct 21 · 8:30–8:55 AM · Shutters West I | Abstract #0012

— Rattigan: Doctoral student in the SDSU/UC San Diego Joint Doctoral Program in Clinical Psychology (MS). His research sits at the intersection of everyday functioning, cognition, and substance use, focusing on the acute and chronic effects of cannabis and alcohol on driving performance and neuropsychological functioning and on how individuals interpret their own impairment.

Description

Background: The Theory of Planned Behavior posits beliefs as an antecedent to behavior.

Although smoking cannabis acutely degrades some users' driving performance, many—especially daily—users do not believe cannabis negatively affects their driving. Discrepancies between expected and actual post-smoking driving ability could contribute to driving impaired. This study evaluated the accuracy of cannabis users' expectations and examined whether accuracy varied by user experience.

Methods: 128 participants smoked 13.4% or 5.9% Δ 9-tetrahydrocannabinol cigarettes ad libitum in a double-blind parallel clinical trial. Participants (67% male; M[SD] age: 30.8[8.7] years) reported expectations regarding cannabis' effects on their driving 1-to-3 weeks before testing. Driving simulations were conducted pre- and 30 minutes post-cannabis administration. Expectation accuracy was defined as agreement between expectation and simulator impairment (derived from pre-to-post-smoking changes in overall performance, e.g., swerving, speed consistency, divided attention, car following). User experience was operationalized as frequency group (<4 or $\geq$ 4 uses per week) and six-month use intensity (frequency*quantity) quartile. Likelihood ratio tests were conducted. Individuals who expected better driving (8%) or were uncertain (5%) were excluded.

Results: 57% expected worse driving and 31% expected no effect on driving. Individuals expecting worse driving were more likely to be low-frequency and low-intensity users (Q1; all $p \leq .02$). 56% expecting worse driving were simulator-impaired and 64% expecting unaffected driving were unimpaired, thus no difference in accuracy was observed ($p = .38$). Simulator impairment and expectation accuracy rates were comparable between low- and high-frequency users (53% v. 44% impaired; 59% v. 58% accurate) and intensity quartiles (43-59% impaired; 48-73% accurate; all $p \geq .21$). However, a post-hoc test suggested greater accuracy among moderately intensive users (Q3) compared to all others combined (73% v. 52% accurate; $p = .04$).

Discussion: Users' expectations regarding acute cannabis effects on their own driving were modestly accurate, even among experienced users. Concerningly, 36% of users expecting no effect were classified as impaired. Findings suggest cannabis use experience may not inherently or consistently improve one's insight into how cannabis affects their driving.

Conclusion: Individuals who inaccurately expect their driving will be unaffected by cannabis, regardless of user experience, may fail to proactively arrange safe transportation and subsequently engage in cannabis-impaired driving.

Learning Objectives

Following this session, participants will be able to:

1. Describe the acute effects of smoked cannabis on driving performance.
2. Explain the discrepancy between cannabis users' perceptions of impairment and their measured driving ability.

Materials

Selected resources:

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

Geographic And Age-Related Variation In Cannabis-Impaired Driving Across The United States

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — Session Chairs: Thomas Marcotte, PhD; Hollis Karoly, PhD

Faculty: Jodi Gilman, PhD | Wed, Oct 21 · 9:00–9:25 AM · Shutters West I | Abstract #0013

— **Gilman:** Associate Professor of Psychiatry at Harvard Medical School and Director of Neuroscience at the Massachusetts General Hospital Center for Addiction Medicine. Her research combines neuroimaging, clinical trials, and epidemiology to understand the effects of cannabis on the brain and behavior, with a particular focus on impairment, substance use disorders, and informing evidence-based public policy.

Description

Background: Cannabis-impaired driving remains a significant public health concern in the United States, particularly as recreational cannabis legalization expands. However, relatively little is known about how the prevalence of self-reported cannabis-impaired driving varies across states and age groups or whether legalization-related differences are specific to cannabis rather than impaired driving more broadly. We examined national and state-level patterns of self-reported driving under the influence of cannabis and alcohol using publicly available National Survey on Drug Use and Health (NSDUH) data.

Methods: We conducted a descriptive repeated cross-sectional study using publicly available 2-year NSDUH national and state summary tables from 2016-2017, 2017-2018, 2018-2019, 2021-2022, 2022-2023, and 2023-2024. Analyses included all 50 states and the District of Columbia. States were classified according to 2024 cannabis policy status as recreational vs nonrecreational (medical or no recreational legalization). Outcomes included published within-cell prevalence estimates of past-year self-reported driving under the influence of cannabis or alcohol. Prevalence estimates were modeled using inverse-variance weighted linear mixed models adjusted for reporting period with random intercepts for state.

Results: Nationally, cannabis-impaired driving was consistently most prevalent among younger respondents across all reporting periods. In 2023-2024, national prevalence was 7.2% (95% CI, 6.9%-7.6%) among individuals aged 18-25 years, 6.7% (95% CI, 6.3%-7.2%) among those aged 26-39 years, and 2.8% (95% CI, 2.6%-3.1%) among adults aged 40 years or older. At the state level, prevalence declined monotonically with age, from a mean of 8.9% among individuals aged 18-25 years to 3.5% among adults aged 50 years or older. Among 18-25-year-olds, prevalence ranged substantially across states, from 3.8% in West Virginia to 22.6% in Vermont. States with recreational cannabis legalization had significantly higher cannabis-impaired driving prevalence across all age groups, with the largest difference observed among young adults aged 18-25 years (difference, 2.65 percentage points; 95% CI, 1.41-3.89). In contrast, alcohol-impaired driving did not differ significantly by recreational legalization status in any age group.

Conclusions: These findings demonstrate substantial geographic and age-related variation in cannabis-impaired driving and suggest that recreational legalization is associated with higher prevalence of cannabis-impaired driving, particularly among young adults.

Learning Objectives

Following this session, participants will be able to:

1. Describe national and state-level patterns of cannabis-impaired driving across age groups in the United States.
2. Explain how cannabis-impaired driving differs between states with and without recreational cannabis legalization.
3. Compare patterns of cannabis-impaired driving with alcohol-impaired driving to better understand the specificity of legalization-related differences.

4. Discuss the public health and policy implications of geographic and demographic variation in cannabis-impaired driving.
5. Identify key challenges and future directions for measuring and preventing cannabis-impaired driving.

Materials

Selected resources:

National Highway Traffic Safety Administration (2017). Marijuana-Impaired Driving: A Report to Congress.

Governors Highway Safety Association (GHSA), Cannabis-Impaired Driving reports.

Substance Abuse and Mental Health Services Administration (SAMHSA), National Survey on Drug Use and Health (NSDUH).

Predicting Driving After Cannabis Use With Real-Time Ema And Gps Data

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — *Session Chairs: Thomas Marcotte, PhD; Hollis Karoly, PhD*

Faculty: Jane Metrik, PhD | Wed, Oct 21 · 9:30–9:55 AM · Shutters West I | Abstract #0014

— **Metrik:** *Professor in the Departments of Behavioral and Social Sciences and Psychiatry and Human Behavior at Brown University, based at the Center for Alcohol and Addiction Studies, and a research scientist and licensed clinical psychologist at the Providence VA Medical Center. Supported by the NIH and VA, her research spans cannabis behavioral pharmacology, ecological momentary assessment, clinical trials, and technology-based approaches to cannabis use, behavioral impairment, and alcohol co-use. She led the first balanced-placebo study of cannabis and the first experimental evidence that cannabis acutely reduces alcohol consumption, and currently serves as President-Elect of the Research Society on Marijuana.*

Description

Background: Driving under the influence of cannabis (DUIC) is a major public health concern; yet, little is known about how individuals decide whether to DUIC. The decision may depend on a host of contextual and event-level factors (e.g., cannabis formulation, driving cognitions) that vary within-person across driving events. This ongoing study uses a novel system that integrates geospatial driving data passively collected via a vehicle-based GPS tracking device with ecological momentary assessment (EMA) to examine DUIC under naturalistic conditions.

Methods: Participants reporting driving 5+ days/week and within 1h of using cannabis ≥once/month (N=95; M[SD]age=37.7[10.8]; 59% female; M[SD]TLFB % cannabis days=95[15.3]) completed 28 days of EMA reports on cannabis use and driving, prompted by an algorithm that detects car movement. Trips were classified as DUIC or non-DUIC based on self-reported cannabis use proximal to driving within a formulation-dependent pharmacological timeframe.

Results: of 6,015 trips, 1,809 (29.7%) were classified as DUIC, with flower used on 70.9%, concentrate on 30.8%, and edibles on 5.9% of DUIC trips. Across all 6,281 cannabis events, using concentrates, relative to flower, was associated with increased odds of driving (OR=1.76[1.48-2.10]). Among 4,532 trips with completed post-drive reports, generalized linear mixed models disaggregating between- and within-subjects effects indicated that those who engaged in more DUIC did not perceive their trips as more or less dangerous (Est=-0.48, SE=0.28, p=.093), whereas engaging in DUIC in-the-moment was perceived as more dangerous (Est=0.20, SE=.03, p<.001). Further, among 3,090 cannabis reports, both mean perceptions of hypothetical danger to drive after using cannabis across participants (AOR=0.73[0.63,0.84]) and increased perceptions of danger in each use event within-person (AOR=0.75[0.70,0.80]) were associated with decreased odds of DUIC. **Conclusions:** Using mobile sensor data, this study is the first to examine prospective event-level influences on DUIC in real time. Preliminary findings demonstrated that nearly one-third of driving was classified as DUIC, with the odds significantly increased for cannabis concentrates. High levels of risk-awareness of DUIC trips suggests drivers are cognizant of DUIC dangers in the moment but that cognition does not seem to curb DUIC frequency. Greater understanding of factors that precede, predict, and modify DUIC behavior has important implications for prevention efforts.

Learning Objectives

Following this session, participants will be able to:

1. Describe how ecological momentary assessment (EMA) integrated with passive GPS vehicle tracking can be used to characterize real-world driving under the influence of cannabis (DUIC).
2. Identify event-level factors, including cannabis formulation and perceived driving risk, that are associated with the likelihood of DUIC in naturalistic settings.
3. Discuss how findings from real-time naturalistic DUIC research can inform prevention strategies, public education, and future cannabis-impaired driving policy.

Materials

Presentation slides reporting the presenter's naturalistic driving-under-the-influence-of-cannabis (DUIC) study — real-time ecological momentary assessment (EMA) integrated with passive, vehicle-based GPS tracking (N=95; 6,015 trips analyzed). Study background, methods, and findings are summarized in the session description above.

Short-Term Residual Effects of Smoked Cannabis on Simulated Driving Performance

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — Session Chairs: Thomas Marcotte, PhD; Hollis Karoly, PhD

Faculty: Kyle Mastropietro, MS | Wed, Oct 21 · 10:00–10:25 AM · Shutters West I | Abstract #0015

— **Mastropietro:** *Fifth-year trainee in the SDSU/UC San Diego Joint Doctoral Program in Clinical Psychology, working with Dr. Thomas D. Marcotte at UC San Diego's HIV Neurobehavioral Research Program—Center for Medicinal Cannabis Research. His research focuses on the residual and acute effects of cannabis on driving, cognition, and health, and he hopes it will inform legislation, roadside impairment detection, and everyday traffic safety behaviors.*

Description

Background: Between periods of use, chronic cannabis consumers may display residual effects on neuropsychological tests of memory and attention. Whether there are comparable deficits in driving has not been thoroughly examined. The current study explored the association between driving simulator performance, cannabis use history, and demographic factors after ≥48h of abstinence. Study I examined simulator performance across a broad range of use within 191 healthy cannabis users. Study II compared performance between participants with the highest cannabis use intensity and a non-cannabis-using comparison group.

Methods: In Study I, 191 healthy cannabis users completed a 25-minute simulated drive, following ≥48h of abstinence. In Study II, a subset of 18 frequent cannabis users was compared to 12 non-using controls who completed identical driving measures in a separate study. In both studies, the main outcome was the Composite Drive Score (CDS), a global measure of driving performance comprising key driving-related variables, including standard deviation of lateral position. In Study I, bivariate Pearson correlations were conducted to analyze the relationships between days of abstinence, blood cannabinoids, and the CDS and its subtests. In Study II, one-way ANOVAs were used to analyze differences in driving performance between frequent users and non-users.

Results: In Study I, there was no relationship between CDS, its subtests, measures of cannabis use history, or demographic variables ($p>0.10$). In Study II, frequent cannabis users and the non-using comparison group did not differ on CDS or performance on its subtests ($p>0.40$).

Discussion: As the largest study of its kind to date, the current study did not find evidence of a residual effect of cannabis on simulated driving performance following >48h of cannabis abstinence. We expand the literature by including variables rarely reported in similar studies, including days of abstinence and age of use onset.

Conclusions: Short-term residual effects of smoked cannabis may not translate into driving simulator dysfunction following >48h of abstinence. These results may direct how future policy weighs different pieces of evidence in the absence of objective confirmation of acute cannabis intoxication, such as one's cannabis use history or residual blood THC, in everyday determinations of impaired driving.

Learning Objectives

Following this session, participants will be able to:

1. Understand whether short-term residual effects of cannabis produce driving-simulator dysfunction in healthy adult cannabis users following more than 48 hours of abstinence.
2. Understand whether, during brief periods of abstinence, cannabis use patterns over the previous six months predict driving-simulator performance, and whether frequent cannabis users show differences in driving performance compared with non-users.
3. Discuss the implications of these findings for roadside cannabis-impairment detection.

Materials

Key citations:

Brooks-Russell A, Brown T, Friedman K, et al. Simulated driving performance among daily and occasional cannabis users. *Accid Anal Prev*. 2021;160:106326.

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

Fitzgerald RL, Umlauf A, Suhandynata RT, et al. Per se driving under the influence of cannabis statutes and blood delta-9-tetrahydrocannabinol concentrations following short-term cannabis abstinence. *Clin Chem*. 2025;71(12):1225–1233.

Grant I, Gonzalez R, Carey CL, Natarajan L, Wolfson T. Non-acute (residual) neurocognitive effects of cannabis use: a meta-analytic study. *J Int Neuropsychol Soc*. 2003;9(5):679–689.

Marcotte TD, Umlauf A, Grelotti DJ, et al. Driving performance and cannabis users' perception of safety: a randomized clinical trial. *JAMA Psychiatry*. 2022;79(3):201–209.

Mastropietro KF, Rattigan JA, Umlauf A, et al. Short-term residual effects of smoked cannabis on simulated driving performance. *Psychopharmacology (Berl)*. 2026;243(4):793–804.

Winding Roads and Hidden Risks: Cannabis and Polysubstance Impaired Driving in Rural Communities

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — **Session Chairs:** Thomas Marcotte, PhD; Hollis Karoly, PhD

Faculty: Gay Polk-Payton, JD | Wed, Oct 21 · 10:30–10:55 AM · Shutters West I | Abstract #0010

— **Polk-Payton:** *Judge and the Judicial Outreach Liaison for highway safety for the State of Mississippi, working under NHTSA funding to advance judicial education and highway safety advocacy at the state and national level. She is Senior Forrest County Justice Court Judge and a municipal court judge, and serves as faculty with the Mississippi Judicial College, All Rise, and the National Judicial College. She works closely with state and national organizations to strengthen the judiciary's response to impaired driving; her work sits at the intersection of law, public safety, and community impact, with a particular focus on rural communities and emerging substance use challenges.*

Description

Background: Impaired driving remains a leading contributor to roadway fatalities in the United

States, with rural areas experiencing disproportionately higher rates of death and serious injury.

While alcohol has historically been the primary focus of enforcement and adjudication efforts, the

increasing prevalence of cannabis use—particularly in jurisdictions with medical or recreational

legalization—has introduced new complexities. Even more concerning is the rise of polysubstance

use, where cannabis is combined with alcohol, prescription medications, or illicit drugs,

significantly amplifying impairment and crash risk. Rural communities face unique challenges,

including limited law enforcement resources, fewer toxicology testing facilities, delayed blood draw

times, and reduced access to treatment and data infrastructure. These factors create gaps in

detection, prosecution, and prevention, necessitating a more comprehensive and system-informed

approach.

Methods

This study employs a mixed-methods approach combining quantitative analysis of statewide crash

and arrest data with qualitative insights from key criminal justice and public safety stakeholders.

Data sources include state highway safety offices, toxicology reports, court records, and law

enforcement arrest data from rural jurisdictions over a five-year period (2019–2024).

Polysubstance involvement is identified through confirmed toxicology screenings indicating the

presence of two or more impairing substances.

Additionally, structured interviews and focus groups were conducted with judges, prosecutors,

defense attorneys, law enforcement officers, toxicologists, and probation officers operating in rural

areas. The study also evaluates time-to-test intervals, evidentiary challenges, and sentencing variability. Comparative analyses were performed between rural and urban jurisdictions to assess disparities in detection, prosecution outcomes, and recidivism.

Results

Preliminary findings indicate a significant increase in cannabis-involved impaired driving cases in rural jurisdictions, with a notable proportion involving concurrent use of alcohol or other substances. Polysubstance cases were associated with higher crash severity and increased likelihood of fatal outcomes compared to single-substance impairment.

Rural law enforcement agencies reported substantial challenges in identifying cannabis impairment due to the absence of standardized roadside testing tools comparable to breath alcohol testing. Toxicology delays—often exceeding several days—were more pronounced in rural areas, impacting timely charging decisions and case development.

Judicial stakeholders reported inconsistent sentencing practices, often influenced by limited access to validated risk assessment tools and treatment programs tailored to polysubstance use. Data fragmentation across agencies further limited the ability to track trends and outcomes effectively.

Discussion

The findings underscore a critical gap between evolving patterns of substance use and the capacity of rural systems to respond effectively. Cannabis impairment, particularly when combined with alcohol or other drugs, presents unique evidentiary and behavioral challenges that differ from traditional alcohol-only cases.

Rural jurisdictions are disproportionately impacted due to structural limitations, including geographic isolation, resource constraints, and limited interdisciplinary coordination. The lack of rapid and reliable roadside and toxicological testing undermines enforcement efforts, while insufficient data integration hampers policy development and judicial decision-making.

A systems-based approach is necessary—one that integrates law enforcement training (e.g., Drug Recognition Experts), expands access to timely toxicology services, enhances data collection and sharing, and equips courts with evidence-based sentencing tools that address polysubstance use and recidivism risk.

Conclusions

Cannabis and polysubstance impaired driving represent an emerging and complex public safety challenge, particularly in rural communities where systemic limitations exacerbate risk. Addressing this issue requires coordinated investment in infrastructure, training, and data systems, as well as the development of tailored legal and clinical responses.

Future efforts should prioritize:

- * Expansion of toxicology capacity and rapid testing protocols
- * Enhanced interdisciplinary training for detection and prosecution
- * Implementation of standardized data collection across agencies
- * Development of rural-specific treatment and supervision strategies

A comprehensive, data-driven, and collaborative framework is essential to mitigate the growing impact of polysubstance impaired driving and to improve roadway safety outcomes in rural America.

Learning Objectives

By the end of this session, attendees will be able to:

1. Identify how cannabis and polysubstance impairment differs from alcohol-only impairment and why those differences matter in detection and adjudication.

2. Describe the unique structural and resource challenges rural jurisdictions face in responding to impaired driving cases.
3. Explain the evidentiary challenges created by toxicology delays and the absence of standardized roadside cannabis testing.
4. Recognize gaps in data collection and agency coordination that affect sentencing consistency and recidivism tracking.
5. Apply an evidence-based systematic framework for improving rural responses to cannabis and polysubstance impaired driving.

Materials

Selected resources:

National Highway Traffic Safety Administration (2017). Marijuana-Impaired Driving: A Report to Congress.

Governors Highway Safety Association (GHSA), Cannabis-Impaired Driving reports.

International Association of Chiefs of Police (IACP), Drug Evaluation and Classification (DRE) Program.

Presentation slides to follow from the presenter closer to the meeting.

Detection of Δ9-Tetrahydrocannabinol Impairment Using Resting-State fNIRS: A Randomized Trial

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — Session Chairs: Thomas Marcotte, PhD; Hollis Karoly, PhD

Faculty: Jodi Gilman, PhD | Wed, Oct 21 · 11:25 AM–12:35 PM · Shutters West I | Abstract #0011

— *Gilman:* Associate Professor of Psychiatry at Harvard Medical School and Director of Neuroscience at the Massachusetts General Hospital Center for Addiction Medicine. Her research focuses on the neural mechanisms of substance use disorders, with an emphasis on developing objective biomarkers of cannabis intoxication and impairment using advanced neuroimaging techniques.

Description

Introduction: Delta-9-tetrahydrocannabinol (THC), the primary psychoactive compound in cannabis, induces intoxication and functional impairment, raising safety concerns in driving.

The traditional impairment detection method, behavioral field sobriety tests, are subject to bias.

The objective of this study was to determine whether resting-state functional near-infrared spectroscopy (fNIRS) can detect THC-related impairment with greater accuracy and lower false positives than field sobriety testing.

Methods: We conducted a double-blind, randomized, crossover study in 183 adults, aged 18–55 years, who used cannabis. Participants received a single oral dose of synthetic THC (range 5–80mg) intended to induce intoxication or placebo in separate visits. fNIRS scans were acquired before and approximately 100 and 200 minutes after study drug administration to assess prefrontal cortex responses at rest and during a working memory task. Machine learning models trained on fNIRS data were then used to identify clinically determined THC-induced impairment.

Results: 183 participants aged 25.3 (SD = 6.3) years, 49.2% female, who used cannabis 6.5 (IQR = 4–7) days per week, completed at least 1 study visit. fNIRS data collected during rest produced a classifier for impairment with an area under the receiver operating curve (ROC-AUC) of 87.35 (95% CI: 83.36–91.19), accuracy of 90.03% (95% CI: 88.24–91.71), and false positive rate of 5.11% (95% CI, 3.58–6.64), using clinical impairment assessment as ground truth, whereas the field sobriety test ROC-AUC was 74.74 (95% CI: 70.28–78.73), accuracy was 69.12% (95% CI: 65.33–72.91), and false positive rate was 34.18% (95% CI: 29.76–38.60). fNIRS performed significantly better than the FST in precision (Difference = 0.23, 95% CI, 0.14–0.33; $P < .001$); accuracy (Difference = 0.15 (95% CI, 0.10–0.19; $P < .001$); false-positive rate (Difference = –0.25, 95% CI, –0.31 to –0.20; $P < .001$), and ROC-AUC (Difference = 0.08, 95% CI, 0.01–0.14; $P = .005$).

Conclusions: In this randomized trial of THC vs placebo, THC intoxication produced prefrontal cortex activation patterns detectable with resting state fNIRS neuroimaging, producing a neural signature of THC-induced impairment that was superior to field sobriety testing for individual level impairment identification.

Learning Objectives

Following this session, participants will be able to:

1. Describe the challenges associated with objectively detecting cannabis-related impairment.
2. Explain the principles of resting-state functional near-infrared spectroscopy (fNIRS) and its application to impairment detection.
3. Summarize the design and primary findings of a randomized, placebo-controlled trial evaluating fNIRS as a biomarker of THC impairment.
4. Discuss the potential legal, regulatory, and public-safety implications of objective measures of cannabis impairment.
5. Identify future directions for translating neuroimaging biomarkers into real-world impairment-detection tools.

Materials

Presentation slides to follow closer to the meeting. Primary reference:

Gilman JM, et al. Detection of Δ^9 -Tetrahydrocannabinol Impairment Using Resting-State Functional Near-Infrared Spectroscopy: A Randomized Clinical Trial. JAMA Network Open (2026).

Impact of Smoked Cannabis on Time Production and Time Estimation Abilities: Implications for Driving Simulator Performance and Field Sobriety Test Impairment

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — Session Chairs: Thomas Marcotte, PhD; Hollis Karoly, PhD

Faculty: Kyle Mastropietro, MS | Wed, Oct 21 · 12:40–1:05 PM · Shutters West I | Abstract #0009

— **Mastropietro:** *Fifth-year trainee in the SDSU/UC San Diego Joint Doctoral Program in Clinical Psychology, working with Dr. Thomas D. Marcotte at UC San Diego's HIV Neurobehavioral Research Program—Center for Medicinal Cannabis Research. His research focuses on the residual and acute effects of cannabis on driving, cognition, and health, and he hopes it will inform legislation, roadside impairment detection, and everyday traffic safety behaviors.*

Description

Introduction: Time production (TPro) and time estimation (TEst) are important for safe driving.

Pro involves proactively generating time intervals of predetermined duration (assessed in field sobriety tests (FSTs)) while TEst involves retroactively judging the duration of elapsed time intervals. The few studies to explore whether cannabis intoxication alters TPro/TEst were limited by including cannabis administration methods not reflecting real-world consumption (e.g., intravenous) and not extending findings to activities of daily living. The current study examined whether acute smoked cannabis use alters TPro/TEst, with extension to driving simulator and FST performance.

Methods: 183 cannabis users completed a driving simulation 30min and FST 1h10min post-smoking active or placebo cannabis. TPro was measured during a law-enforcement administered FST where participants noted when they believed a 30s interval passed (intervals 25–35s considered passing). TEst was measured during a computerized task where participants counted the number of “M’s” appearing onscreen for 48s and then estimated the trial’s duration. Main outcomes were the Composite Drive Score (CDS; global measure of driving performance) and law enforcement FST ratings of impaired/unimpaired. One-way ANOVAs analyzed differences in group TPro/TEst performances, bivariate Pearson correlations analyzed relationships between TPro/TEst performances and CDS change from baseline, and logistic regressions analyzed relationships between TPro/TEst performances and law enforcement FST ratings of impaired/unimpaired.

Results: Regarding TPro, the cannabis group underproduced intervals relative to placebo (mean 32s vs 36s; $p=.003$), and were closer to 30s. For TEst, the cannabis group overestimated intervals relative to placebo (mean 41s vs 37s; $p=.04$). For both groups, TPro and TEst were unrelated to CDS change from pre-to-post smoking ($ps>.39$). For placebo only, reporting longer Pro intervals was associated with higher odds of law enforcement ratings of FST impairment, $OR=1.08$, 95% CI [1.01, 1.16], $p=.03$.

Discussion/Conclusions: The current study confirmed cannabis intoxication yields internal clock

acceleration characterized by underproducing and overestimating time intervals relative to placebo. While the effect of cannabis on time perception was clear at the group level, TPro and Est failed to identify individuals experiencing cannabis-related driving or FST impairment. Future studies may develop measures with stronger psychometrics to identify individuals under the influence of cannabis.

Learning Objectives

Following this session, participants will be able to:

1. Understand the impact of acute smoked cannabis use on time-production and time-estimation abilities — aspects of time perception necessary for safe driving — in healthy adult cannabis users.
2. Understand the efficacy of a law-enforcement-administered time-production task in identifying acute cannabis intoxication.
3. Discuss the utility of post-smoking time-production and time-estimation abilities as potential predictors of driving-simulator and field-sobriety-test impairment, and the implications for roadside cannabis-impairment detection.

Materials

Key citations:

Bech P, Rafaelsen L, Rafaelsen OJ. Cannabis and alcohol: effects on estimation of time and distance. *Psychopharmacologia*. 1973;32(4):373–381.

Marcotte TD, Umlauf A, Grelotti DJ, et al. Driving performance and cannabis users' perception of safety: a randomized clinical trial. *JAMA Psychiatry*. 2022;79(3):201–209.

Marcotte TD, Umlauf A, Grelotti DJ, et al. Evaluation of field sobriety tests for identifying drivers under the influence of cannabis: a randomized clinical trial. *JAMA Psychiatry*. 2023;80(9):914–923.

Sewell RA, Schnakenberg A, Elander J, et al. Acute effects of THC on time perception in frequent and infrequent cannabis users. *Psychopharmacology (Berl)*. 2013;226(2):401–413.

Tinklenberg JR, Roth WT, Kopell BS. Marijuana and ethanol: differential effects on time perception, heart rate, and subjective response. *Psychopharmacology (Berl)*. 1976;49(3):275–279.

Investigating Cannabinoid Molar Metabolite Ratios as Predictors of Objective Cannabis Intoxication: The Moderating Role of Subjective Intoxication

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — Session Chairs: Thomas Marcotte, PhD; Hollis Karoly, PhD

Faculty: Claire Pince, MS | Wed, Oct 21 · 2:10–2:35 PM · Shutters West I | Abstract #0017

— Pince: University of Colorado Boulder.

Description

Background: Blood cannabinoid molar metabolite ratios (MMRs) account for recent cannabis exposure by incorporating Delta-9-tetrahydrocannabinol (THC) and its primary inactive metabolite, 11-nor-9-carboxy-THC (THC-COOH), which accumulates with frequent use. Preliminary findings indicate that MMR1 (THC/THC-COOH) outperformed THC alone in predicting recent legal-market cannabis use and subjective intoxication, particularly amongst frequent users. However, subjective effects do not consistently predict impairment. Accordingly, this study aimed to test whether MMRs (vs THC alone) better predict objective intoxication, and whether these associations are influenced by cannabis use history and acute subjective intoxication.

Methods. Data came from three mobile laboratory-based legal-market cannabis administration studies. All participants self-administered inhaled cannabis products ad libitum (flower or concentrate ranging from 1-90% THC potency, containing < 1-24% CBD). Blood samples for cannabinoid analyses and measures of subjective (2 items from Drug Effects Questionnaire [DEQ]) and objective intoxication (balance [eyes open vs closed] and International Shopping List Task [ISLT] verbal recall, previously found to correlate with blood THC) were assessed before, immediately after, and 1-hour post-use. Mixed effects models were estimated for each outcome and predictor (THC vs MMR1). Models included sex assigned at birth, age, product (flower, concentrate) covariates. Secondary models tested cannabis use frequency and subjective intoxication as moderators.

Results. The final sample included 314 participants (Mean age: 31.61, SD = 12.75; 58% female; 84.7% White; Mean past-month cannabis use: 20.43 days, SD = 11.77; 70% self-administered flower cannabis). There were significant main effects of time on impairment, where balance was significantly worse 1h post-use and recall was worse at both post-use timepoints compared to baseline. Age was also significantly associated with worse performance across objective measures. Secondary models revealed a significant interaction effect such that the relationship between MMR1 and balance impairment was stronger at higher subjective intoxication levels 1 hour post-use ($p < .05$). No other significant main or interaction effects were observed.

Conclusions. The present findings reflect the challenges with using biomarkers to predict cannabis impairment. While MMRs may provide a more behaviorally relevant biomarker of cannabis-related impairment than THC alone, they may be more informative when considered alongside subjective intoxication.

Learning Objectives

Following this session, participants will be able to:

1. Explain the limitations of a single blood THC concentration as a marker of recent use or impairment.
2. Describe how cannabinoid metabolite ratios (THC/THC-COOH) may improve detection of recent cannabis use.

Materials

Selected resources:

National Highway Traffic Safety Administration (2017). Marijuana-Impaired Driving: A Report to Congress.

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

Substance Abuse and Mental Health Services Administration (SAMHSA), Mandatory Guidelines for Federal Workplace Drug Testing Programs.

Challenges In Identifying Individuals Driving Under The Influence of Cannabis (DUIC) Presented By Thomas Marcotte

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — Session Chairs: Thomas Marcotte, PhD; Hollis Karoly, PhD

Faculty: Thomas Marcotte, PhD | Wed, Oct 21 · 11:25 AM - 12:35 PM (panel segment) · Shutters West I | Abstract #0016 — **Marcotte:** *Co-Director of the Center for Medicinal Cannabis Research at UC San Diego, where he is also a Professor of Psychiatry. His research focuses on the impact of cannabis use on cognition and driving, including simulator and on-road studies, the development of methods for determining cannabis-related impairment, and the evaluation of approaches used by law enforcement. He has served on national and state impaired-driving workgroups and has presented to scientific, law-enforcement, forensic-toxicology, judicial, and traffic-safety advocacy groups, as well as state, national, and international policymakers.*

Description

With expanding medical and adult-use cannabis legalization, validated methods for detecting cannabis-related driving impairment are urgently needed. In a randomized clinical trial of 191 cannabis users, 45.6% of participants who smoked THC showed significant simulator-based driving impairment, while field sobriety tests (FSTs) differentiated THC from placebo only at the group level. Notably, 49.2% of placebo participants performed worse than expected on FSTs, and officers incorrectly judged 99% of these individuals as impaired. Blood THC concentrations did not correlate with driving or FST performance.

A survey of 2,023 cannabis users found that only 29% believed law enforcement could detect impairment. Among 161 individuals pulled over for suspected DUIC, 85% reported being released without citation despite many feeling impaired.

Cannabis can impair driving, but impairment is inconsistent across individuals. FSTs alone are insufficient to establish THC-related impairment, and public skepticism about detection may reduce deterrence. Robust validation of additional assessment methods remains essential.

Learning Objectives

Following this session, participants will be able to:

1. Evaluate issues regarding the relationship between cannabis use and field sobriety test (FST) performance.
2. Understand cannabis users' perceptions regarding law enforcement and toxicological detection of driving under the influence of cannabis (DUIC).
3. Identify new methods in development for detecting DUIC.

Materials

Full-text copies of the presenter's cited studies and his curriculum vitae are provided. Key references:

Key References

Marcotte TD, et al. Driving performance and cannabis users' perception of safety: a randomized clinical trial. *JAMA Psychiatry* (2022).

Marcotte TD, et al. Evaluation of field sobriety tests for identifying cannabis-related driving impairment. *JAMA Psychiatry* (2023).

Fitzgerald RL, et al. Driving under the influence of cannabis: impact of combining toxicology testing with field sobriety tests. *Clinical Chemistry* (2023).

Marcotte TD, Fitzgerald RL. Validation of methods for detecting driving under the influence of cannabis: paths forward. *Journal of Studies on Alcohol and Drugs* (2025).

AAA Foundation for Traffic Safety. Examination of cannabis users' perceptions and self-reported behaviors to inform messaging to deter impaired driving.

Abstracts #0007 (session overview) and #0016 (scientific studies) are delivered as a single combined presentation by Dr. Marcotte in the Novel Approaches symposium.

Suitability of Field Sobriety Tests And A Novel Tablet-Based Behavioral Test (Druid) For Cannabis Impairment Detection

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — Session Chairs: Thomas Marcotte, PhD; Hollis Karoly, PhD

Faculty: Tory Spindle, PhD | Wed, Oct 21 · 11:25 AM - 12:35 PM (panel segment) · Shutters West I | Abstract #0018
— **Spindle:** *Associate Professor of Psychiatry and Behavioral Sciences at the Johns Hopkins University School of Medicine (PhD, Virginia Commonwealth University); leads human-laboratory studies of cannabis behavioral pharmacology and of cannabis/alcohol driving impairment to inform product standards and dosing policy.*

Description

Introduction: Validation of methods to detect cannabis-induced impairment at the roadside and in the workplace is critical for public safety. This controlled laboratory research examined the sensitivity of various field sobriety tests (FST), developed originally for alcohol, and a novel tablet-based behavioral test (the DRUID) for detection of cannabis-induced impairment.

Methods: Study 1 administered multiple doses of oral (0, 10, 25mg THC) and vaporized cannabis (0, 5, 20mg THC), and study 2 administered oral cannabis alone (0, 10, 25mg THC) and in combination with alcohol (0.05% BAC) as well as a positive control alcohol only condition (0.08% BAC). Study 1 participants had not used cannabis for at least 30 days at study entry and study 2 participants used cannabis up to twice per week. FST and DRUID were administered before and for up to 8 hours post-dosing.

Results: In Study 1, cumulative clues across all FST and scores on individual FST rarely differed between cannabis and placebo conditions, including at the high THC doses. Conversely, DRUID showed good sensitivity, as it detected significant differences between placebo and high dose THC within both routes of administration, and differences between high and low THC doses. In study 2, FST performance based on cumulative clues was significantly worse from alcohol alone at 0.08% BAC versus placebo as expected, but cannabis alone or cannabis plus alcohol at 0.05% BAC did not differ from placebo. DRUID scores were overall much lower than in study 1, possibly due to tolerance differences across samples, though there were still significant differences between high dose alcohol and cannabis versus placebo. DRUID scores, however, did not differ between cannabis/alcohol co-use conditions and placebo. Across both studies, impairment on individual FST were sometimes observed at baseline or under placebo conditions.

Discussion/Conclusions: Current behavioral tests such as FST or the DRUID have limitations as surrogate tools to detect cannabis-induced driving impairment at the roadside and may be better suited for workplace testing where baseline performance can be established. Further research to discover and validate novel candidate biological and behavioral indicators of cannabis impairment is desperately needed, as current methods have significant limitations.

Learning Objectives

1. Understand limitations of current impairment detection methods for cannabis, including field sobriety testing.
2. Understand the difficulties of using blood THC per se limits to infer impairment.

Materials

Handout provided by presenter: Zamarripa CA, Lin S, Klausner M, et al. Impact of Cannabis Edibles Combined With Alcohol on Driving, Field Sobriety Performance, and Subjective Effects: A Within-Participant Crossover Trial. JAMA Network Open. 2026;9(5):e269842. doi:10.1001/jamanetworkopen.2026.9842

Objective Markers of Acute Cannabis Inhalation: Pupillometry and A Tablet-Based Cognitive Test Battery

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — **Session Chairs:** Thomas Marcotte, PhD; Hollis Karoly, PhD

Faculty: Ashley Brooks-Russell, PhD, MPH | Wed, Oct 21 · 12:40 PM - 1:05 PM · Shutters West I | Abstract #0019

— **Brooks-Russell:** Associate Professor at the Colorado School of Public Health and Director of the Injury and Violence Prevention Center at CU Anschutz. She leads research on cannabis and driving, and impairment detection, primarily using naturalistic methods. Her work examines objective, field-deployable markers of acute cannabis impairment, including pupillometry and cognitive testing, with a goal of informing policy on cannabis-impaired driving.

Description

Background: Identifying acute cannabis impairment remains a challenge for roadside, occupational, and post-incident assessment. Blood Δ^9 -tetrahydrocannabinol (THC) concentrations correlate poorly with impairment, and the standard field sobriety test has limited accuracy for cannabis. Portable, non-invasive, objective measures are needed.

Methods: We conducted two observational studies of self-supplied, naturalistic cannabis inhalation. In the first, 126 adults (95 cannabis users; 31 non-users) completed pupillometer assessments (NeuroOptics PLR-3000) at baseline and approximately 40 and 100 minutes after 15 minutes of ad libitum inhalation of flower or concentrate. Eight static and dynamic pupil measures were calculated; sensitivity, specificity, and area under the curve (AUC) were derived at each post-use timepoint, and LASSO models were used to identify parsimonious combinations. In the second study, 86 adults aged 25–45 (31 daily users, 23 occasional users, 32 non-users) completed a tablet-based test battery (by Impirica) measuring reaction time, gap acceptance (decision-making), and short-term memory before and approximately 60 minutes after smoking self-supplied cannabis flower (15-30% total THC). Research was approved by the Colorado Multiple Institutional Review Board.

Results: Following inhalation, percent change in pupil size, which decreased after use, was the most discriminating pupillary measure, with AUC 0.73 at 40 minutes and 0.75 at 100 minutes. Maximum pupil size was not consistently altered relative to controls, but pupillary dynamics (constriction to light and recovery dilation) were diminished. Combining variables did not meaningfully improve prediction. On the tablet assessment, occasional users showed slower reaction time and replicated fewer shapes than non-users after cannabis use. Daily users took longer on the gap acceptance task post-smoking but maintained accuracy.

Discussion: Pupillary dynamics, rather than static pupil size, are sensitive to acute cannabis inhalation. Cognitive and psychomotor decrements are evident in occasional users, while daily users show evidence of acquired tolerance and a possible prioritization of accuracy over speed in decision-making. Both modalities provide objective signals of recent use without relying on

collection of specimens.

Conclusions: Pupillometry and tablet-based cognitive testing offer complementary, objective approaches for identifying recent cannabis inhalation and warrant further evaluation for roadside and occupational impairment assessment.

Learning Objectives

After this session, participants will be able to:

1. Describe how pupillometry measures perform in distinguishing recent cannabis inhalation.
2. Compare the performance of tablet-based cognitive and psychomotor testing measures across daily, occasional, and non-users, and explain how acquired tolerance affects interpretation.
3. Evaluate the state of the science of objective measures of acute cannabis use and impairment.
4. Identify open scientific questions for advancing objective roadside detection of recent cannabis use and impairment.

Materials

Selected resources:

National Highway Traffic Safety Administration (2017). Marijuana-Impaired Driving: A Report to Congress.

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

Governors Highway Safety Association (GHSA), Cannabis-Impaired Driving reports.

Driving Under the Influence of Cannabis and Toxicology Testing

Session: *Novel Approaches to Detecting Cannabis-Related Impairment: Challenges and Opportunities* — Session Chairs: Thomas Marcotte, PhD; Hollis Karoly, PhD

Faculty: Robert Fitzgerald, PhD | Wed, Oct 21 · 11:25 AM - 12:35 PM (panel segment) · Shutters West I | Abstract #0020
— **Fitzgerald:** *Professor in the Department of Pathology at the University of California, San Diego, where he is Director of the Clinical Toxicology Laboratory and Associate Director of the Clinical Chemistry Laboratory. He received his BS in Chemistry at Loyola College of Maryland and his PhD in Pharmacology/Toxicology at the Medical College of Virginia/Virginia Commonwealth University, and is board certified in toxicology and clinical chemistry by the American Board of Clinical Chemistry.*

Description

Background: Understanding how concentrations of THC in biofluids relate to driving performance is important for keeping our roadways safe and for just legislative processes. This is especially important considering existing per se driving under the influence of cannabis regulations.

Methods: We measured concentrations of THC in biofluids before and after administration of smoked cannabis in a randomized placebo controlled double blind fashion in 191 regular cannabis users. Participants performed driving simulations and trained law enforcement officers performed field sobriety tests (FSTs) in a serial manner over about 6 hours. We related concentrations of THC, as measured with isotope dilution LC-MS/MS, with simulated driving performance before and after smoking cannabis. All aspects of this human research were conducted in accordance with the Declaration of Helsinki.

Results: Active cannabis caused significant deficits in driving performance as compared with placebo although not everyone in the active drug cohort was impaired. FSTs differentiated active drug versus placebo at early time points, but almost 50% of the placebo group were classified as impaired on the initial FST. There was no relationship between biofluid THC concentrations and driving performance. Baseline driving performance was not different between participants who exceeded per se concentrations and those who were below these cutoffs. Combining toxicology testing and FST results improved the ability to classify active drug vs placebo.

Discussion: Participants who smoked active cannabis demonstrated worse performance on the driving simulator up to about 3 hours after smoking. This deficit was not apparent on all participants and was not different from placebo by the end of the study (4.5 hours after

smoking). Concentrations of THC in biofluids did not predict who would perform poorly on the driving simulator. Requiring a positive oral fluid toxicology test in addition to findings on FSTs reduced the number of placebo participants who were classified as being impaired. Many users who had abstained from cannabis for 48 hours exceeded per se cut points putting them at risk for legal consequences despite no indication of impairment.

Conclusions: Identifying drivers who are under the influence of cannabis is challenging and better tools are needed to keep our roadways safe.

Learning Objectives

After participating in this seminar, participants will be able to:

1. Discuss the results of the largest clinical trial evaluating the effect of cannabis on driving performance.
2. Discuss the time frame in which cannabis has a negative impact on simulated driving performance.
3. Describe how well standardized field sobriety tests performed by certified Drug Recognition Experts (DREs) work for identifying cannabis impairment.
4. Describe how combining DRE results with toxicology testing can be used to improve predictive values of driving impairment testing.

Materials

Key references supplied by the presenter:

Fitzgerald RL, Umlauf A, Suhandynata RT, Grelotti DJ, Huestis MA, Mastropietro KF, Grant I, Marcotte TD. Per Se Driving Under the Influence of Cannabis Statutes and Blood Delta-9-Tetrahydrocannabinol Concentrations Following Short-term Cannabis Abstinence. Clin Chem. 2025;71:1225–33.

Marcotte TD, Umlauf A, Grelotti DJ, Sones EG, Mastropietro KF, Suhandynata R, Huestis MA, Grant I, Fitzgerald RL. Evaluation of the Field Sobriety Tests in Identifying Drivers Under the Influence of Cannabis: A Randomized Clinical Trial. JAMA Psychiatry. Published online August 2, 2023. doi:10.1001/jamapsychiatry.2023.2345.

PART II · REGULATION & POLICY TRACK

Track Chairs: Marla Stafford · Mike Lomuto · Riana Durrett · Robert Mejia

Companion inventory — all 47 presentations, grouped by session, each with the presenter's abstract as Description. Scheduled day/time/room are shown where identifiable from the program grid. Learning Objectives and Materials are complete for every presentation; entries drafted by the chairs from the abstract are marked as such and will be replaced by the presenter's final versions as they are received.

Legalization Lessons Learned: State Wins, Warnings, And What Comes Next

Session Chair(s): Robert Mejia, Mike Lomuto

Recreational Cannabis Laws and Advancing Social and Health Equity: A Scoping Review

Faculty: Rhonda Jones-Webb, Diana Augustin | Mon, Oct 19 · 9:40 AM - 10:05 AM · Brickstones | Abstract #0141

— **Jones-Webb:** Professor in the Division of Epidemiology and Community Health at the University of Minnesota, School of Public Health. She also serves as Associate Director of Equity and Engagement in the School's Cannabis Research Center. — **Augustin:** Faculty bio to be supplied by the presenter.

Description

Background. This presentation reviews studies that evaluate whether states and local jurisdictions with recreational cannabis laws have made progress in advancing social and health equity goals particularly in the areas of criminal justice reform, community and economic reinvestment, and health equity.

Methods. The review includes studies published in English from 2012 to 2024 and follows the methodological framework outlined by Arksey and O'Malley (2005) along with subsequent refinements. Reporting adheres to PRISMA-ScR guidelines (Trico et al., 2018).

Results. Studies examining criminal justice reform indicate that legalization is associated with meaningful reductions in aggregate criminal justice outcomes such as arrests for cannabis-related offenses. However, these aggregate improvements frequently co-occurred with persistent and in some cases widening racial and socioeconomic disparities in enforcement and related outcomes. Evidence from studies on economic and community reinvestment and health equity was more limited and heterogenous, with multiple studies suggesting that legalization may reproduce or exacerbate pre-existing structural economic and health inequities.

Discussion and Conclusions. Overall, the evidence base suggests that recreational cannabis legalization has produced meaningful reductions in aggregate cannabis-related enforcement but has not reliably advanced social and health equity goals. Results raise important questions about the unintended consequences, tradeoffs, and ethical considerations that policymakers and other stakeholders will need to consider when adopting or modifying recreational cannabis laws through a social and health equity lens.

Learning Objectives

Following this session, participants will be able to:

1. Discuss how recreational cannabis laws have advanced social and health equity goals.
2. Describe gaps in research on how recreational cannabis laws have advanced social and health equity goals.
3. Describe directions for future research on recreational cannabis laws and social and health equity.

Materials

Key citations supplied by the presenter:

Adinoff B, Reiman A (2019). Implementing social justice in the transition from illicit to legal cannabis. *American Journal of Drug and Alcohol Abuse*, 45(6), 673–688. <https://doi.org/10.1080/00952990.2019.1674862>

Cerdá M, Mauro C, Hamilton A, Levy NS, Santaella-Tenorio J, Hasin D, Wall MM, Keyes KM, Martins SS (2020). Association Between Recreational Marijuana Legalization in the United States and Changes in Marijuana Use and Cannabis Use Disorder From 2008 to 2016. *JAMA Psychiatry*, 77(2), 165. <https://doi.org/10.1001/jamapsychiatry.2019.3254>

Doonan S, Johnson J, Firth C, Flores A, Joshi S (2022). Racial Equity in Cannabis Policy: Diversity in the Massachusetts Adult-Use Industry at 18-months. *Cannabis*, 5(1), 30–41. <https://doi.org/10.26828/cannabis/2022.01.004>

Joshi S, Doonan SM, Pamplin JR (2023). A tale of two cities: Racialized arrests following decriminalization and recreational legalization of cannabis. *Drug and Alcohol Dependence*, 249, 109911. <https://doi.org/10.1016/j.drugalcdep.2023.109911>

Unger JB, Vos RO, Wu JS, Hardaway K, Sarain AYL, Soto DW, Rogers C, Steinberg J (2020). Locations of licensed and unlicensed cannabis retailers in California: A threat to health equity? *Preventive Medicine Reports*, 19, 101165. <https://doi.org/10.1016/j.pmedr.2020.101165>

Comparative Analysis of Metals, Pesticides, Mycotoxins, Microbial Contaminants And Thc Potency In Illegal And Regulated Cannabis Inflorescences In Canada

Faculty: David Blais, Emmanuelle Bahl | Mon, Oct 19 · 9:40 AM - 10:05 AM · Loft III | Abstract #0145

— Blais: Research scientist with the Pesticide Laboratory, Regulatory Operations and Enforcement Branch, Health Canada (Ottawa), and corresponding author of the comparative contaminant study underlying this presentation, published in the *Journal of Cannabis Research* (2026); also senior author of Health Canada's 2023 study applying an expanded 327-pesticide multiresidue method to illicit and licensed cannabis. — Bahl: Scientist with the Cannabis Laboratory, Regulatory Operations and Enforcement Branch, Health Canada (Longueuil, Québec), and a co-author of the same comparative contaminant study.

Description

Following the legalization of recreational cannabis in Canada under the Cannabis Act (2018), regulatory frameworks were established to ensure product safety, quality, and consistency in the legal market. Previous studies identified significantly higher pesticide contamination in illegal cannabis compared to legal products. Building on this, the present study expanded surveillance to include Δ^9 -tetrahydrocannabinol (THC) quantification and a broader range of contaminants, including metals, pesticides, mycotoxins, and microbial agents.

The study analyzed 100 cannabis samples: 50 legal products purchased across Canadian provinces and 50 illegal samples obtained through law enforcement seizures. All analyses were conducted using validated and accredited methods. THC content was measured by LC-UV-MS; pesticides by LC-MS/MS and GC-MS/MS; metals by ICP-MS/MS; mycotoxins by LC-MS/MS; and microbial contamination by MALDI-ToF.

Results showed notable discrepancies in product quality and safety. THC levels in 48% of legal products deviated by more than 20% from labeled values, indicating inconsistencies in potency labeling. Microbial testing revealed that 20% of legal products exceeded European Pharmacopoeia microbial limits, triggering compliance and enforcement actions. However, contamination was significantly higher in illegal products: 55% exceeded aerobic plate count thresholds, and 73% exceeded yeast and mold limits. Mycotoxins were absent in legal samples but detected in 12% of illegal products.

Pesticide contamination was minimal in legal products, with only trace detections (0.01 µg/g) in two samples. In contrast, 94% of illegal samples contained pesticide residues, with an average of 3.4 compounds per sample across 24 different active ingredients. Metal analysis showed higher concentrations of arsenic, cadmium, lead, and mercury in illegal products, while legal samples exhibited higher chromium levels. Several metals exceeded inhalation limits outlined in USP <232> in one or both product groups.

Overall, the study demonstrates that illegal cannabis poses a greater contamination risk across multiple categories. It also highlights issues with THC labeling accuracy in legal products. These findings support the need for continued regulatory oversight, improved risk assessment, and informed decision-making by consumers and policymakers within Canada's legal cannabis framework.

Learning Objectives

Following this session, participants will be able to:

1. Compare contaminant profiles (metals, pesticides, mycotoxins, microbials) and THC label accuracy between legal and illegal cannabis products.
2. Describe the accredited analytical methods (LC-MS/MS, ICP-MS/MS, MALDI-ToF) used to quantify cannabis contaminants.

3. Discuss the regulatory and public-health implications of contamination differences for consumer safety.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Cannabis Act, S.C. 2018, c. 16 (Canada), and Health Canada Cannabis Regulations.

United States Pharmacopeia (USP), cannabis contaminant and microbial limits.

U.S. Food and Drug Administration, cannabis contaminant testing resources.

ASTM International Committee D37 on Cannabis, analytical testing standards.

The One-Plant Solution: Advancing A National Unified Cannabis Policy And Regulatory Framework

Faculty: Jordan Wellington | Mon, Oct 19 · 10:10 AM - 10:35 AM · Loft III | Abstract #0143

— **Wellington:** Partner at the cannabis policy and public-affairs firm Strategies 64 in Denver and host of its Weed Works podcast; helped draft Colorado's Amendment 64 implementing legislation and regulations as a legislative staffer and Marijuana Enforcement Division analyst, and is recognized by Best Lawyers in America for cannabis law.

Description

Background:

U.S. cannabis policy is at an inflection point. Most states have adopted some form of legalization, and the marketplace is evolving rapidly. Yet federal law continues to treat cannabis as two distinct substances, "marijuana" and "hemp," creating a fragmented regulatory environment that undermines public health, complicates enforcement, and incentivizes regulatory arbitrage. States are filling the void, but contradictions embedded in federal law still create confusion and cause problems for regulators, businesses, and consumers. The One-plant Solution (TOPS), published in January by Strategies 64, offers a clear and achievable path to establishing a fair, familiar, and workable system that regulates cannabis as one plant, prioritizes public safety, and reflects today's market realities.

Methods:

TOPS proposes a national policy framework grounded in extensive research. It integrates empirical analysis and real-world insights gained from in-depth stakeholder interviews with regulators, policymakers, industry leaders, and public health experts.

Commentary or Perspective:

TOPS offers the most detailed and realistic roadmap to date for ending the federal government's bifurcated cannabis policy and establishing a coherent, viable, and unified national regulatory framework.

Rather than creating a wholly new system, it leverages existing federal infrastructure while preserving states' role as the primary regulatory authority. It proposes descheduling cannabis and regulating products based on their characteristics and intended use, much like federal oversight models for food, pharmaceuticals, and consumer goods. This approach prioritizes public health and safety through clear standards for product quality, youth access prevention, marketing, taxation, and supply chain integrity.

Our presentation will examine how current federal policy has produced market distortions, enforcement challenges, and consumer confusion, and it will demonstrate how a unified framework can address these issues while supporting continued state innovation. It will also feature insights from our extensive stakeholder engagement, including areas of emerging consensus and persistent friction points that must be addressed.

Conclusion:

At its core, TOPS is about bringing clarity, consistency, and credibility to U.S. cannabis policy. It provides a realistic roadmap for aligning federal law with market realities while delivering a durable framework that protects public health, empowers regulators, and enables responsible industry growth.

Learning Objectives

Following this session, participants will be able to:

1. Describe the challenges created by the current federal distinction between hemp and marijuana.
2. Explain the key components of The One-Plant Solution framework for unified cannabis regulation.

3. Evaluate how a unified regulatory approach could improve public health, regulatory efficiency, and consumer protection while preserving state authority.
4. Discuss stakeholder perspectives and remaining policy considerations for implementing a national unified cannabis framework.

Materials

Primary resource: The One-Plant Solution: Advancing a National Unified Cannabis Policy and Regulatory Framework (TOPS) — white paper published by Strategies 64 (January 2026). Full text: <https://strategies64.com/mp-files/the-one-plant-solution.pdf>

Additional authorities compiled by the chairs:

Agriculture Improvement Act of 2018, Pub. L. 115-334, § 10113 (7 U.S.C. § 1639o) — the definition of hemp by delta-9 THC concentration that produces the two-substance split the paper addresses.

Controlled Substances Act, 21 U.S.C. § 802(16) — the statutory definition of marihuana and its exclusion of hemp.

Colorado Const. art. XVIII, § 16 (Amendment 64) and the Colorado Marijuana Enforcement Division rules, 1 CCR 212-3 — the implementing framework the presenter helped draft, cited as a state model.

Congressional Research Service, Defining Hemp: A Fact Sheet (R44742) — background on the marijuana/hemp distinction in federal law.

U.S. Food and Drug Administration, Cannabis and Cannabis-Derived Products, Including CBD — the agency's position on federal regulatory authority over cannabinoid products.

A Right To Carry: Patients Without Borders — Interstate medical Cannabis, Dea Pathways, And The Future of continuity of Care

Faculty: Thunder Walker | Mon, Oct 19 · 10:40 AM - 11:05 AM · Loft III | Abstract #0137

— Walker: Oklahoma-based cannabis advocate, educator, and business owner; principal of Proud Mary Cannabis, a vertically integrated Oklahoma dispensary, processor, and grow operation, and Oklahoma State Director for Minorities for Medical Marijuana (M4MM). She created the Smoke Currency Tour, a cross-state platform for cannabis education, commerce, and banking discussions, and works as a cannabis appraiser; she is an executive member of the National Society of Real Estate Appraisers and a frequent conference speaker.

Description

Presented as a group presentation within the co-chaired session, Legalization Lessons Learned:

State Wins, Warnings, and What Comes Next, this discussion examines one of the most overlooked failures in modern cannabis policy: the absence of continuity of care for medical cannabis patients traveling across state lines.

As medical cannabis programs continue expanding across the United States, patients remain confined within fragmented systems that fail to recognize treatment continuity beyond individual state borders. Patients do not leave behind their diagnoses, disabilities, chronic pain, PTSD, autism caregiving responsibilities, or treatment plans when they travel, relocate, attend school, or seek specialized healthcare. Yet current cannabis policy effectively criminalizes continuity the moment a patient crosses state lines.

This group presentation explores the growing conflict between state-recognized medical cannabis programs and the absence of interstate reciprocity, standardized patient verification systems, and federal pathways capable of supporting lawful continuity of care. While states have independently developed medical frameworks, the lack of interoperability between programs has resulted in inconsistent patient access, legal ambiguity, disrupted treatment plans, and unequal outcomes for vulnerable populations.

The presentation will focus on three emerging policy pathways shaping the future of interstate medical cannabis access: reciprocal state-to-state medical recognition agreements, standardized patient verification systems, and the evolving role of potential DEA registration frameworks as federal cannabis positioning changes. Particular attention will be given to operational challenges already occurring across medical markets, including travel, tourism, relocation, emergency access, caregiver responsibilities, and cross state patient protections.

Rather than approaching this issue solely through a legislative lens, the discussion is grounded in lived patient realities and marketplace conditions. Patients are already navigating inconsistent systems while providers, dispensaries, regulators, and caregivers continue confronting policy gaps that have failed to evolve alongside patient demand.

The central question driving this discussion is both simple and urgent: if cannabis is recognized as medicine at the state level, on what basis is continuity of care denied at the state line? This presentation is led by Thunder Walker, cannabis appraiser, dispensary owner, media publisher, and patient-centered advocate from Oklahoma, alongside invited clinicians, operators, and policy experts focused on the future of national medical cannabis access and continuity of care.

Learning Objectives

Following this session, participants will be able to:

1. Describe the barriers to continuity of care for medical cannabis patients traveling across state lines.
2. Explain emerging policy pathways for interstate reciprocity, standardized patient verification, and federal repositioning.
3. Discuss the patient, caregiver, and marketplace implications of the absence of interstate medical cannabis recognition.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Controlled Substances Act, 21 U.S.C. § 801 et seq.

U.S. Drug Enforcement Administration, marijuana rescheduling proposed rule, 89 Fed. Reg. 44597 (2024).

Cannabis Regulators Association (CANNRA), medical cannabis and reciprocity resources.

National Conference of State Legislatures (NCSL), state medical cannabis program summaries.

Education as the Catalyst: How Cannabinoid Science Unlocked Bipartisan Support for Alabama's Medical Cannabis Act

Faculty: Tony Wright Jr. | Mon, Oct 19 · 11:10 AM - 11:35 AM · Loft III | Abstract #0138

— Wright: Cannabis advocate in Alabama, formerly with Alabama NORML, the state chapter of the National Organization for the Reform of Marijuana Laws; he served on the Allyship in Activism panel at NORML's 2020 national conference. His presentation traces the state's medical cannabis advocacy through passage of the Alabama Medical Cannabis Act.

Description

This presentation traces the arc of Alabama's medical cannabis advocacy from its difficult early days to the passage of the Alabama Medical Cannabis Act, with particular focus on how education about the endocannabinoid system (ECS) and cannabinoid science became the decisive tool for coalition building. When advocates shifted from political messaging to grounding conversations in human physiology and peer-reviewed research, the dialogue changed. Lawmakers who had been unreachable became engaged. The lead sponsor of the legislation was a Republican physician whose medical training gave him a framework to evaluate the science on its merits, a reminder that shared language matters as much as shared values. The presentation examines Alabama's subsequent rollout challenges, including licensing disputes and implementation delays, and argues that the same education-first approach that built the coalition must now be applied to patients, physicians, and regulators to sustain the program's future.

Learning Objectives

Following this session, participants will be able to:

1. Describe how endocannabinoid-system and cannabinoid-science education supported bipartisan coalition-building for the Alabama Medical Cannabis Act.
2. Explain the licensing and implementation challenges that followed passage.
3. Discuss how an education-first approach can be applied to patients, physicians, and regulators.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Alabama Medical Cannabis Act, Ala. Code § 20-2A-1 et seq.

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

National Institute on Drug Abuse (NIDA), cannabis and the endocannabinoid system.

Cannabis Regulators Association (CANNRA), state medical program resources.

Serving Those Who Served: Building an Equity-Centered Framework for Veteran Cannabis Research and Access in Illinois

Faculty: Kenneth Saffold Jr., Steven Philpott Jr. | Mon, Oct 19 · 11:10 AM - 11:35 AM · Loft III | Abstract #0144

— Saffold: Decorated U.S. Army combat veteran and graduate of the United States Military Academy at West Point, and founder of The Green Zone, which provides resources, community, and education to veterans regarding medical cannabis. He was among 185 applicants selected from more than 4,500 to receive a cannabis dispensary license in Illinois in the state's first adult-use licensing round, and brings executive leadership, strategic planning, distribution logistics, and IT management to the industry; he has pursued an Executive MBA at the Georgia Institute of Technology and advocates for social equity and veteran medicinal cannabis use. — Philpott: Marine Corps veteran and biological science researcher exploring the biosynthesis of secondary metabolite production in cannabis plants in response to their environment. His education in human performance and plant physiology forms the foundation of his diverse experience throughout the cannabis sector. His passion for cannabis lies within his desire to help educate about cannabis as a plant and to separate nature's creation from the stigma and misinformation of the War on Drugs.

Description

As states transition from prohibition to regulated cannabis markets, veterans remain one of the most underserved populations within legalization frameworks. Illinois has positioned itself as a national leader in equity-centered cannabis policy, expungement, and community reinvestment, yet many veterans still face significant barriers related to cannabis access, consumer safety, employment concerns, healthcare communication, and uncertainty surrounding federal policy conflicts. This presentation examines Illinois as a real-world case study in how cannabis legalization intersects with veteran health, public policy, and equity implementation. Drawing from veteran listening sessions, community engagement work, and statewide equity discussions, this session explores the practical challenges veterans encounter while navigating cannabis use in the post-prohibition landscape. This presentation draws in part from a 2025 community needs assessment conducted with Illinois veterans, documenting consumption patterns, access barriers, and support needs across Army, Navy, and Air Force veteran participants. Topics include: The impact of federal-state policy conflicts on veterans, including concerns related to Department of Veterans Affairs (VA) benefits, employment, and stigma The role of community-based organizations in addressing cannabis safety literacy and healthcare navigation How Illinois' equity-centered framework has succeeded and where implementation gaps remain for veterans and historically over-policed communities Emerging lessons surrounding cannabis consumer safety, access pathways, and workforce participation following federal Schedule III changes The importance of community-academic partnerships and public-health framing in building durable cannabis policy models Attendees will leave with a grounded understanding of how veteran experiences reveal both the strengths and unresolved tensions within modern cannabis legalization efforts, and how states can better integrate public health, equity, and community trust into future cannabis policy development. This session is intended for policymakers, educators, healthcare providers, and community organizations seeking practical frameworks for integrating veteran equity into cannabis policy.

Learning Objectives

Following this session, participants will be able to:

1. Describe the barriers veterans face navigating cannabis in a post-prohibition, equity-centered state framework.
2. Explain how federal-state policy conflict affects veterans' VA benefits, employment, and healthcare communication.
3. Discuss community-academic and public-health approaches to integrating veterans into equitable cannabis policy.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Illinois Cannabis Regulation and Tax Act, 410 ILCS 705.

U.S. Department of Veterans Affairs, VHA guidance on veterans and cannabis use.

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

Controlled Substances Act, 21 U.S.C. § 801 et seq.

Legalization Lessons Learned: A Georgia Case Study in Policy, Access, and Advocacy

Faculty: Yolanda Bennett, Angela S. Weston | Mon, Oct 19 · 1:45 PM - 2:10 PM · Loft III | Abstract #0136

— Bennett: Co-founder of the Georgia Medical Cannabis Society, a non-profit advocating for patient access to medical cannabis in Georgia under a "Patients Over Profits" mission, where she manages operations and produces the organization's Compassion In Action podcast; she also serves on the City of Mableton Board of Zoning Appeals. — Weston: Co-founder of the Georgia Medical Cannabis Society and its Chairman and Director of Education (M.S., M.B.A.), leading the organization's work on medical cannabis legislation, patient education, and community outreach.

Description

Legalization Lessons Learned: A Georgia Case Study in Policy, Access, and Advocacy examines

Georgia's medical cannabis program as a patient-centered policy case study of how legalization can exist without meaningful access. Presented by Yolanda Bennett and Angela S. Weston, MS, MBA, MCST, of the Georgia Medical Cannabis Society (GMCS), this proposed study explores the gap between statutory authorization, regulatory implementation, and patient outcomes.

Georgia's framework began as a restricted Low THC Oil Registry model, marked by narrow eligibility, limited product forms, delayed in-state production, tightly controlled licensing, and slow dispensary rollout. Although the law created a medical pathway, many patients continued to encounter geographic, financial, informational, and bureaucratic barriers that made legal medicine difficult to obtain. The central finding is that legalization alone is not access, and regulation alone is not functionality.

Using Georgia as a case study, the presentation reviews policy evolution, patient impact, structural barriers, and the role of advocacy in shaping reform. It highlights how patient storytelling, legislative engagement, provider education, community organizing, and science-based policy discussions helped move conversations from restricted access toward gradual expansion, including expanded product discussions, qualifying condition considerations, dispensary availability, and implementation accountability.

The study identifies key failures, including over-restriction, delayed infrastructure, limited patient education, regulatory bottlenecks, and insufficient planning. It also identifies effective strategies: consistent presence, coalition building, stakeholder follow-up, evidence-based education, and centering patient voices in policy spaces.

For national cannabis policy, research, and regulatory audiences, Georgia offers transferable lessons. States should avoid excessive early restrictions, build infrastructure alongside law, monitor access and outcomes, engage patients and providers from the beginning, and create implementation systems that are equitable, transparent, and usable. As federal cannabis policy evolves, including Schedule III developments and state-federal alignment pressures, Georgia's experience demonstrates why patient-centered policy must be measured by real access, not legal status alone.

Learning Objectives

Following this session, participants will be able to:

1. Describe the gap between statutory authorization, regulatory implementation, and patient access in Georgia's low-THC medical cannabis program.
2. Identify policy failures—over-restriction, delayed rollout, and bureaucratic barriers—that limit functional access.
3. Discuss lessons for building equitable, patient-centered medical cannabis infrastructure.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Georgia's Hope Act, Ga. Code Ann. § 16-12-200 et seq.; Georgia Access to Medical Cannabis Commission.

Cannabis Regulators Association (CANNRA), medical program resources.

National Conference of State Legislatures (NCSL), state medical cannabis laws.

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

Predatory Inclusion and the Limits of Social Equity in Legal Cannabis Markets

Faculty: Tavian Crosland | Mon, Oct 19 · 3:00 PM - 3:50 PM · Loft III | Abstract #0139

— **Crosland:** Brooklyn-based cannabis consultant and equity advocate with more than 20 years of experience in the legacy and legal cannabis markets. He is co-founder of the Restorative Justice Cooperative, which advances cooperative-economics models in cannabis, and founder of the New York chapter of the Social Equity Empowerment Network (SEEN). A fellow of the JUSTUS Foundation, he works to ensure that legacy operators gain equitable access to the legal cannabis industry.

Description

Background

This panel examines the legalized cannabis industry through the framework of “predatory inclusion,” as theorized by Keeanga-Yamahatta Taylor in *Race for Profit*. Taylor’s concept describes how historically excluded populations are formally incorporated into markets under conditions that reproduce structural inequality while obscuring it through the language of access, opportunity, and reform. This discussion extends that framework to contemporary cannabis legalization and social equity policy.

Methods

Using comparative discussion across multiple state cannabis markets, panelists will examine how equity frameworks are implemented through licensing structures, financing mechanisms, regulatory systems, and market participation requirements. The panel draws from lived industry experience, policy analysis, advocacy work, and community-based perspectives.

Commentary/Perspective

Across emerging cannabis markets, equity initiatives are frequently articulated through race-neutral policy language centered on entrepreneurship, participation, and economic mobility. Yet the material conditions of entry into the legal industry continue to produce uneven forms of participation shaped by capital requirements, limited access to financing, regulatory complexity, and concentrated market control. Digging into these markets highlights how predatory inclusion continues to operate through contemporary equity regimes: participants are formally included in a legal industry framed as restorative, while the terms of that inclusion often transfer risk downward and concentrate control upward. Even programs explicitly designed to address the harms of prohibition may reproduce conditions that limit autonomy, constrain ownership, and weaken long-term wealth-building potential.

Conclusion

This panel situates cannabis equity within broader discussions of racial capitalism, neoliberal governance, and race-neutral policymaking. It asks whether current equity frameworks meaningfully redistribute power and resources, or whether they represent a contemporary form of predatory inclusion in which access is expanded without fundamentally altering the structures that determine who benefits and who bears the risk.

Learning Objectives

Following this session, participants will be able to:

1. Explain the “predatory inclusion” framework and its application to cannabis legalization and social-equity policy.
2. Describe how licensing structures, capital requirements, and market concentration shape who benefits from legal cannabis.
3. Evaluate whether current equity programs meaningfully redistribute power and resources.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter’s final list when received):

Taylor, K.-Y. (2019). *Race for Profit: How Banks and the Real Estate Industry Undermined Black Homeownership*.

American Civil Liberties Union (2020). *A Tale of Two Countries*.

Minority Cannabis Business Association, social equity program resources.

Cannabis Regulators Association (CANNRA), social equity licensing resources.

State Cannabis Tax Policy, Competitive Advantage Index Development, And Public Revenue Allocation in The United States

Faculty: Jonathan Shepherd, Tyler Mark | Tue, Oct 20 · 10:10 AM - 10:35 AM · Brickstones | Abstract #0140

— **Shepherd:** *Agricultural Extension Specialist in the Department of Agricultural Economics at the University of Kentucky Martin-Gatton College of Agriculture, Food and Environment, where he serves as State Director of the University of Kentucky Income Tax Program. His work focuses on agricultural taxation, farm financial management, risk management, and farm transition and succession planning, with an emphasis on applied education and decision-making for agricultural producers, professionals, and students.*

— **Mark:** *Professor of Agricultural Economics at the University of Kentucky specializing in production economics, farm management, and hemp economics (PhD). He leads a nationwide evaluation of the U.S. hemp market and directs funded research on hemp production costs, profitability, and risk-management tools for farmers.*

Description

As of 2026, 80% of U.S. states have legalized medical marijuana, 48% have legalized recreational marijuana, and all states permit hemp cultivation. Despite this expansion, cannabis taxation policies vary substantially across jurisdictions in structure, burden, and applicability. States employ combinations of ad valorem taxes, ad quantum taxes, excise taxes, sales taxes, cultivation taxes, and local taxes, often imposed at multiple stages of the supply chain. Additional licensing, compliance, and regulatory costs further increase effective industry burdens. Hemp, typically treated as an agricultural commodity, is frequently exempt from taxation until retail sale, creating additional variation across cannabis-related markets. While prior literature describes cannabis tax structures, limited research has standardized these diverse systems to evaluate their influence on state-level industry competitiveness. This study addresses that gap by developing a Competitive Advantage Index (CAI) that measures the relative competitiveness of state cannabis markets based on combined taxation and regulatory burdens. The index is represented as:

$$CAI = (\text{Tax Burden} + \text{Regulatory Cost} + \text{Licensing Intensity})^{-1}$$

Under this framework, lower combined burdens generate higher competitive advantage scores.

Additional indices are developed for the three primary cannabis market segments: medical, recreational, and hemp. These indices standardize differing state taxation systems into comparable effective burden measures. In addition to calculating CAI scores, this research traces the allocation and remittance pathways of cannabis-generated tax revenues within state governments. The study evaluates how revenues are distributed among state general funds, education systems, infrastructure programs, public health initiatives, law enforcement, agricultural programs, and other earmarked functions. By examining both effective tax burdens and downstream revenue allocation structures, the research provides a more comprehensive assessment of how cannabis taxation regimes affect market competitiveness and public finance outcomes.

Using publicly available taxation statutes, licensing schedules, regulatory fee structures, and state revenue allocation data, this study compares effective cannabis-related burdens on both per-unit and market-entry bases. Because interstate cannabis commerce remains federally prohibited, state cannabis markets operate as isolated systems, allowing taxation and regulatory structures to create geographic comparative advantages that may influence producer location decisions, retail expansion, and long-term industry development.

Learning Objectives

Following this session, participants will be able to:

1. Identify the primary cannabis taxation structures used across U.S. states, including sales, excise, cultivation, and quantity-based taxes.
2. Compare how differences in state cannabis tax policy may influence industry development, market structure, and competitiveness.
3. Explain how the Competitive Advantage Index (CAI) can be used to evaluate relative tax-policy competitiveness across states.
4. Assess the relationship between cannabis tax burden and potential economic outcomes such as business location, legal market participation, and tax revenue generation.

5. Discuss the policy tradeoffs states face when balancing revenue generation, regulatory goals, and the competitiveness of the legal cannabis industry.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Internal Revenue Code, 26 U.S.C. § 280E.

Urban-Brookings Tax Policy Center, state cannabis tax data.

Agricultural Improvement Act of 2018, Pub. L. 115-334 (hemp).

National Conference of State Legislatures (NCSL), cannabis taxation and revenue.

Presentation slides provided by the presenters: "State Cannabis Tax Policy, Competitive Advantage Index Development, and Public Revenue Allocation in the United States — Who's Winning the Competitive Race?"

Part One & Two: The Implementation Gap: What States Get Right and Wrong After Legalization

Faculty: Rob Mejia | Tue, Oct 20 · 1:15 PM - 3:10 PM · Courtyard II | Abstract #0146

— *Mejia: Award-winning adjunct professor of Cannabis Studies (Hemp & Cannabis Business Management) at Stockton University and a co-founder of its Cannabis & Hemp Research Initiative; founder of the education company Our Community Harvest and author of The Essential Cannabis Book and Cannabis Careers.*

Description

Background

As more states move from prohibition to regulated cannabis markets, policymakers and industry stakeholders have a growing body of real-world experience to draw upon. While legalization is often framed as a policy victory, the true test begins during implementation. Licensing delays, testing bottlenecks, inconsistent enforcement, inadequate capitalization, and shifting regulatory priorities can undermine the goals of equity, public safety, and market viability. At the same time, successful policy choices have improved patient access, consumer protection, and long-term business sustainability.

Commentary or Perspective

This panel brings together regulators, educators, advocates, and operators with direct experience in markets including Minnesota, New York, Colorado, Illinois, and others. Presenters will examine how early policy decisions, regulatory sequencing, equity frameworks, compliance burdens, taxation, and the emergence of hemp-derived cannabinoids have shaped market outcomes. Topics will include Minnesota's rollout challenges, New York's implementation struggles, lessons from mature markets such as Illinois and California, and the interaction between state-regulated cannabis and hemp-derived products. Panelists will also explore how state and federal advocacy efforts have influenced legalization pathways and what policymakers should prioritize moving forward.

Conclusions

Attendees will gain practical insights into what states have gotten right, where they have fallen short, and how future legalization efforts can better balance equity, public health, and operator viability. The session aims to provide a roadmap for policymakers, researchers, educators, and industry participants seeking to build cannabis markets that are both functional and durable.

Learning Objectives

Following this session, participants will be able to:

1. Describe how early policy decisions, regulatory sequencing, and equity frameworks shape cannabis market outcomes.
2. Compare implementation lessons across Minnesota, New York, Colorado, and Illinois.
3. Discuss the interaction between state cannabis and hemp-derived cannabinoid markets.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Cannabis Regulators Association (CANNRA), state program comparison resources.

Agricultural Improvement Act of 2018, Pub. L. 115-334 (hemp).

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

National Conference of State Legislatures (NCSL), state cannabis program summaries.

The California Experiment in Cannabis: Competition, Consolidation, and Policy and Regulatory Pathways to Healthier Markets

Faculty: Robert Chlala, Michael Polson, Jesse Goldstein, Dilara Üsküp and Ishaq Ali | Tue, Oct 20 · 8:00 AM - 8:55 AM · Gallery | Abstract #0142

— **Polson:** Director of the UC Berkeley Cannabis Research Center and an associate research scientist in Environmental Science, Policy & Management and Geography (PhD, anthropology, CUNY); studies the political economy and environmental dimensions of cannabis legalization and cultivation. — **Chlala:** Assistant Professor at California State University Long Beach (PhD, sociology, University of Southern California) and a UCLA Institute for Research on Labor and Employment visiting scholar, where he co-leads a statewide study of California cannabis workers with the UCLA Labor Center and community partners; his work examines the cannabis market in relation to urban development, labor, and racial equity. — **Goldstein:** Associate Professor of Sociology at Virginia Commonwealth University (PhD, sociology, CUNY Graduate Center) and co-Principal Investigator of California Cannabis: Healthy and Resilient Markets (CCHARM), the project underlying this presentation; author of *Planetary Improvement* (MIT Press, 2018). — **Üsküp:** Faculty at Charles R. Drew University of Medicine and Science and UCLA (PhD, PhD), whose cannabis work addresses social equity licensing and its effects on communities most affected by the War on Drugs; she served on the Social Equity panel of the 2023 California Cannabis Research Briefing convened by the University of California Office of the President and the Department of Cannabis Control. — **Ali:** Faculty bio to be supplied by the presenter.

Description

As the world's largest cannabis market, California's legalization experience has global significance.

Lately, many point to its experience of crisis and collapse as a foreboding harbinger. Yet, despite the alarms, there is little consensus on the state of California's cannabis market, what policy, practice and economic dynamics got us here, and what strategies might help shape healthier markets. Our panel asks: What can we learn from California's experiments to regulate a sustainable, diverse and equitable cannabis market? Specifically, what is the state's experience with curbing monopolistic and anti-competitive behaviors? What patterns have empirically emerged in ownership, investment, and management? How are small and equity operators weathering these dynamics? And how can policy and regulation better support healthy cannabis markets going forward?

This panel draws from mixed method research to systematically examine how regulations, policy, legal mechanisms and market relationships have shaped the prospects of healthy, competitive cannabis markets in California in the last decade. Panelists will draw from diverse data sources including supply chain data, nearly 100 interviews, ethnography and legal analysis drawn from a major multi-year, multi-university, and mixed methods study of competition and monopolization funded by California's Department of Cannabis Control's Academic Research Grants. Research spans the regulated and unregulated market and includes operator, investment, finance, real estate and ancillary actors.

The panel will share data on key levers of change in industry, including licensing, taxation and enforcement related to the state's massive unregulated market. Presenters will also look at less-explored, often-obscured aspects of market governance including investment and finance relations, banking, land, labor, and more, as well as factors such as trust, predation and social inequalities. While focusing on California, we will explore the interconnections across states and the globe, including patterns of speculation and valuation. Through this multi-faceted research we offer new insights on avenues for promising cannabis policy and regulatory change that take seriously on the ground perspectives, while helping make sense of the wider political-economic contexts that shape ever-changing cannabis markets.

Learning Objectives

Following this session, participants will be able to:

1. Describe the competitive dynamics—consolidation, ownership, and market concentration—in California's legal cannabis market.
2. Explain how legal mechanisms and enforcement of the unregulated market shape small and equity operators' prospects.

3. Discuss policy levers to support a more diverse, equitable, and sustainable cannabis market.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

California Medicinal and Adult-Use Cannabis Regulation and Safety Act (MAUCRSA), Cal. Bus. & Prof. Code § 26000 et seq.

California Department of Cannabis Control, market and licensing data.

UC Berkeley Cannabis Research Center, competition and market studies.

Internal Revenue Code, 26 U.S.C. § 280E.

Raising The Bar: Improving Cannabinoid Product Safety, Potency Label Accuracy, And Analytical Testing Standards

Session Chair(s): Duncan Mackie

Microbial Contamination Across Recreational Cannabis Products in Colorado: Evaluating Safety and Testing Standards

Faculty: Duncan Mackie | Mon, Oct 19 · 9:40 AM - 10:05 AM · Shutters West II | Abstract #0157

— **Mackie:** Director of Pharmacology and Experimental Therapeutics at MedPharm Holdings (dba Bud & Mary's), a licensed Colorado cannabis testing, manufacturing, and research operation, and an Institute of Cannabis Research-funded investigator (PhD). Working with University of Colorado Boulder researchers, his work evaluates cannabis product testing, potency-label accuracy, heavy metals, and microbial safety to inform regulatory standards.

Description

Background

As recreational cannabis markets expand, ensuring product safety through microbial testing is increasingly important. Cannabis products are tested for contaminants such as yeast, mold, Salmonella, and Escherichia coli before sale; however, action limits and testing requirements vary between states due to the lack of federal oversight. In Colorado, total yeast and mold limits differ from standards in other legal markets, and some microbial tests are required only for specific products. This lack of standardization creates challenges for both public health and regulatory consistency. This study evaluated microbial contamination across common recreational cannabis products in Colorado to assess compliance with current Marijuana Enforcement Division action limits.

Methods

A total of 256 recreational cannabis products were purchased from licensed Colorado dispensaries, including flower (N=95), concentrates (N=104), and edibles (N=57). Products were blinded prior to analysis and tested for total yeast and mold, aerobic counts, coliforms, E. coli, and Salmonella using 3M-Petrifilm platforms. Samples were plated neat and through serial dilutions as appropriate for product type. Suspected E. coli positives were sent for third-party qPCR confirmation of Shiga toxin-producing strains. Results were compared to Colorado MED microbial action limits.

Results

Microbial contamination varied significantly by product type. Flower samples showed higher rates of total yeast and mold and coliform failures compared to concentrates and edibles (Fisher's exact tests, $p < 0.001$ for both), while differences in aerobic count pass/fail rates were not significant ($p = 0.508$). Confirmed Salmonella occurred infrequently but differed by product type ($p = 0.002$), driven by higher detection in flower relative to concentrates. No pathogenic E. coli was detected. Within flower products, pre packed items demonstrated the highest overall pass rates, whereas pre rolled flower showed greater variability across microbial endpoints.

Discussion and Conclusions

Although most products met current regulatory thresholds for major pathogens, variation in microbial burden highlights ongoing quality control concerns within the regulated market. Differences in state-level standards and inconsistent testing requirements complicate product safety assessment and regulatory

enforcement. Colorado products generally comply with current microbial safety limits, but significant variability remains. These findings support the need for standardized, evidence-based microbial testing frameworks and improved analytical consistency to protect consumers and strengthen oversight.

Learning Objectives

Following this session, participants will be able to:

1. Describe microbial contamination rates across recreational cannabis product types (flower, concentrates, edibles) relative to Colorado MED action limits.
2. Explain how inconsistent testing requirements and action limits affect public health and regulatory consistency.
3. Discuss the need for standardized microbial testing frameworks.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Colorado Marijuana Enforcement Division, Retail Marijuana Rules (microbial action limits).

United States Pharmacopeia (USP), cannabis microbial limits.

U.S. Food and Drug Administration, cannabis contaminant testing resources.

ASTM International Committee D37 on Cannabis, testing standards.

Characterization of Aerosol Degradation Products from Flavored Cannabidiol- And Cannabigerol-Based E-Liquid Formulations

Faculty: Shadab Panahi, Craig Schluttenhofer | Tue, Oct 20 · 3:30 PM - 3:55 PM · Brickstones | Abstract #0156

— *Schluttenhofer*: Research Associate Professor of Natural Products at Central State University (Ohio) and a former University of Kentucky hemp researcher; studies the production, processing, genetics, breeding, and biochemistry of hemp.

— *Panahi*: Postdoctoral researcher in natural products at Central State University, working in Dr. Craig Schluttenhofer's hemp research program.

Description

BACKGROUND

Electronic cigarettes operate by heating e-liquids, also called vape solutions, to produce an aerosol for inhalation. E-liquids commonly contain cannabinoids, terpenes, flavoring agents, and carrier solvents. Heating coils in electronic cigarettes can reach temperatures ranging from 150 to 250 °C, which are sufficient to induce thermal decomposition and chemical transformation of e-liquid constituents. These conditions may generate potentially toxic compounds that remain insufficiently characterized. This work is the third study in a multipart series aimed at identifying compounds formed during the vaping of increasingly complex e-liquid formulations. Herein, the e-liquids contain cannabinoids plus terpenes used as flavoring agents.

METHODS

To identify both known and unknown chemical compounds, this study evaluated e-liquid formulations containing carrier solvents (propylene glycol, propylene glycol and vegetable glycerin, vegetable glycerin with polysorbate 80), cannabinoids, and terpenes using four different vape devices under controlled laboratory conditions. Aerosols were generated and collected using the Borgwaldt LM5E vaping system, which automatically activates e-cigarette devices and traps the produced aerosol onto glass-fiber filter pads. Five replicates were performed for each vape device. Following aerosol collection, filter pads were extracted with methanol and analyzed using gas chromatography–mass spectrometry.

RESULTS & DISCUSSION

Analysis revealed several major constituents in the tested e-liquid formulations, including predicted oxalic acid esters, fatty acid methyl esters, and hydrocarbon derivatives. Furthermore, several minor compounds were detected in aerosols generated from the tested formulations, including putative thermal degradation products. Similar chemical profiles were observed across the tested vape devices; however, differences in peak intensities were noted, which may be attributed to

variations in device architecture, heating efficiency, and aerosol generation characteristics. The presence of limonene and menthol was also confirmed in the generated aerosols, indicating that terpene-related compounds remained after vaporization and may have undergone thermal transformation during aerosolization.

CONCLUSIONS

The potential health risks of a specific e-liquid formulation depends upon both the formulation and device used. A more thorough investigation of e-cigarette aerosol chemistry is needed to understand the potential risks to consumers.

Learning Objectives

Following this session, participants will be able to:

1. Describe the thermal degradation products formed when flavored cannabinoid e-liquids are aerosolized.
2. Explain the analytical methods (GC-MS) used to characterize known and unknown aerosol constituents.
3. Discuss the consumer-safety and regulatory implications of vape aerosol chemistry.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

U.S. Food and Drug Administration, vaping and e-cigarette product resources.

Centers for Disease Control and Prevention (CDC), EVALI and vaping-associated lung injury resources.

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

ASTM International Committee D37 on Cannabis, vaporizer testing standards.

THC Label Accuracy In Legal Cannabis Markets: Discrepancies Across Flower and Concentrate Products

Faculty: Jonathon Lisano | Tue, Oct 20 · 4:30 PM - 4:55 PM · Brickstones | Abstract #0158

— *Lisano: Research faculty in the Center for Health & Neuroscience, Genes & Environment (CUChange) at the University of Colorado Boulder (PhD), where he serves as Research Scientist II. His research integrates biological and behavioral approaches to understand the health effects of cannabis use and has expanded to include the quality assurance and public health implications of legal-market cannabis products.*

Description

Background: High-potency delta-9-tetrahydrocannabinol (THC) products are becoming increasingly accessible in a rapidly expanding cannabis market, and prior research raises concerns regarding THC labeling accuracy. Using a large representative sample, this study aimed to assess whether there were THC labeling discrepancies in cannabis flower and concentrate products and determine whether discrepancies depended on product type (e.g., flower vs. concentrate) or product subtype.

Methods: These analyses include two sequential studies. In Study 1, a representative sample of 277 cannabis products (n=178 flower; n=99 concentrate) was purchased and analyzed for THC content and labeling accuracy. Label accuracy was defined according to state regulatory guidelines as observed THC being within $\pm 15\%$ of the labeled THC. In Study 2, an additional 87 flower products were purchased (n=265 total) to evaluate whether THC labeling accuracy varied by product subtype: pre-pack (n=76), pre-roll (n=27), re-pack (n=55), and deli (n=107).

Results: In Study 1, mean labeled THC potency was 22.5% for flower and 73.0% for concentrate products, with mean observed potency being 20.8% for flower and 70.7% for concentrate products. Labeling accuracy depended on product type ($\chi^2(2)=47.44$, $p<0.001$), with 56.7% of flower products being within $\pm 15\%$ of labeled THC content, compared to 96% of concentrate products being within that same range. In study 2, THC labeling accuracy depended on flower product subtype ($\chi^2(6)=15.13$, $p=0.02$). Pre-roll products were most likely to be over-labeled (59%; $\chi^2(1) = 7.34$, $p = 0.007$) compared to pre-pack products (28%). Among inaccurately labeled products, re-pack products had a significantly greater portion of over-labeled products (96%) compared to pre-pack (68%; $\chi^2(1)=5.33$, $p=0.02$) and deli (73%; $\chi^2(1) 4.45$, $p=0.04$) products.

Discussion & Conclusions: Cannabis concentrate products were accurately labeled for THC potency, while flower products were less accurate. Although all flower subtypes demonstrated relatively low labeling accuracy, products subject to greater handling by dispensaries (i.e., pre-roll and re-pack) were more likely to be inaccurately labeled for THC. This is concerning regarding public health, safety, and consumer trust, as flower products are the most prevalent cannabis products purchased in legal markets.

Learning Objectives

Following this session, participants will be able to:

1. Understand the regulatory standards that determine if a product is accurate or inaccurately labeled for THC potency.
2. Explore THC potency labeling accuracy in legal market cannabis products.
3. Determine if accuracy varies by product type (concentrate vs. flower) and/or subtype (pre-roll, pre-pack, etc.).
4. Discuss implications of inaccurately labeled products and potential sources for error.

Materials

Selected resources compiled by the chairs (the presenter confirmed his title and description on 8/7/26 and submitted no additional materials):

Giordano G, Brook CP, Ortiz Torres M, MacDonald G, Skrzynski CJ, Lisano JK, Mackie DI, Bidwell LC (2025). Accuracy of labeled THC potency across flower and concentrate cannabis products. *Scientific Reports* 15(1):20822. doi:10.1038/s41598-025-03854-3. — the study underlying this presentation.

Colorado Marijuana Enforcement Division, potency testing and labeling rules.

United States Pharmacopeia (USP), cannabis potency and labeling standards.

ASTM International Committee D37 on Cannabis, labeling and potency standards.

Cannabis Regulators Association (CANNRA), packaging and labeling resources.

Regulatory Outlook for Dermal and Transdermal Cannabinoid Delivery Systems

Faculty: John Adamovics | Tue, Oct 20 · 10:40 AM - 11:05 AM · Courtyard II | Abstract #0159

— **Adamovics:** *Principal Scientist at Empirical Pharmaceutical Services, LLC and an analytical chemist specializing in the quality assessment of medicinal cannabis and cannabinoid preparations. He edited Elsevier's The Analytical Chemistry of Cannabis and serves as Series Editor of its Emerging Issues in Analytical Chemistry, has authored or co-authored more than 120 peer-reviewed papers and numerous book chapters, and sits on the scientific advisory boards of Bright Green Corporation and Biopharmaceutical Research Company. He has provided input on cannabis analysis and quality to state, federal, and international regulators.*

Description

BACKGROUND:

Cannabinoid-based topical and transdermal formulations are increasing. However, regulatory frameworks have not evolved at the same pace, creating a fragmented landscape across jurisdictions. A critical distinction exists between dermal products—intended for localized skin effects—and transdermal systems designed for systemic delivery. This distinction is consequential because it determines whether a product is regulated as a cosmetic, over-the-counter (OTC) drug, or prescription pharmaceutical. As cannabinoid formulations increasingly incorporate penetration enhancers and nanostructured carriers capable of achieving systemic exposure, the drug classification rises significantly.

METHODS:

A comparative framework was applied to evaluate formulation variables—such as active cannabinoids (e.g., CBD, CBG), excipient classes (e.g., ethoxydiglycol, dimethyl isosorbide, laurocapram), and delivery intent (dermal vs transdermal)—against regulatory classification thresholds. Risk stratification was performed qualitatively based on systemic exposure potential, claims language, and historical use of excipients in approved drug products. A mechanistic and regulatory mapping approach was used.

COMMENTARY / PERSPECTIVE:

The regulatory boundary between dermal and transdermal cannabinoid products is increasingly

defined by pharmacokinetics rather than formulation intent. Products marketed with cosmetic claims (e.g., hydration, soothing) may remain within lower regulatory burden categories, but those targeting inflammation, pain, or pruritus inherently approach drug classification. The inclusion of established penetration enhancers—commonly used in transdermal pharmaceuticals—further elevates scrutiny due to their association with systemic delivery. MoCRA introduces additional obligations for safety substantiation, particularly when enhanced dermal absorption could increase systemic exposure.

CONCLUSIONS:

A staged development strategy is the most viable pathway: initial commercialization as dermal products with conservative claims, followed by progression into OTC or drug pathways as clinical and pharmacokinetic data are generated. Ultimately, regulatory classification will be governed by demonstrated systemic exposure and intended therapeutic use. As cannabinoid delivery technologies mature toward controlled transdermal systems, regulatory expectations will converge with those applied to traditional transdermal therapeutics, necessitating rigorous clinical validation, safety data, and clear differentiation between dermal and systemic intent.

Learning Objectives

Following this session, participants will be able to:

1. Distinguish dermal cannabinoid products, intended for localized effects on the skin, from transdermal systems designed to achieve systemic delivery.
2. Explain how that distinction determines whether a product is regulated as a cosmetic, an over-the-counter drug, or a prescription pharmaceutical.
3. Identify the formulation variables — active cannabinoids, penetration enhancers and other excipient classes, and delivery intent — that raise a product's regulatory classification.
4. Describe the additional safety-substantiation obligations MoCRA imposes where enhanced dermal absorption may increase systemic exposure.

[Objectives drafted by the chairs from the presenter's abstract (8/7/26) — substitute the presenter's final versions when received.]

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

U.S. Food and Drug Administration, cosmetic vs. drug classification under the FD&C Act.

U.S. Food and Drug Administration, transdermal and topical drug product guidance.

United States Pharmacopeia (USP), topical and transdermal product standards.

Agricultural Improvement Act of 2018, Pub. L. 115-334 (hemp-derived cannabinoids).

Public Health Implications of Adult-Use Cannabis Legalization In The Us

Session Chair(s): Kathleen Lenk, Darin Erickson

Session Learning Objectives

Upon completion of this session, participants will be able to:

1. Describe the U.S. policy landscape for cannabis and intoxicating hemp products.
2. Explain how cannabis and hemp policies and regulations may affect cannabis use and public health outcomes such as underage youth access and crime.
3. Discuss challenges to conducting cannabis policy research, including using consistent terminology and applying research findings to real-life contexts.
4. Compare how population sub-groups (e.g., African Americans, college students) may have varying experiences with cannabis policy and use.

Nothing Is Truly Equal for the Black Community: African American Perspectives on Cannabis Legalization and Public Health Equity in Minnesota

Faculty: Diana Augustin, Rhonda Jones- Webb | Mon, Oct 19 · 9:40 AM - 10:05 AM · Brickstones | Abstract #0151

— **Augustin:** Graduate research assistant with the Equity and Engagement Core of the University of Minnesota's Cannabis Research Center and a doctoral student in the School of Public Health's Epidemiology program (MPH, University of Minnesota; BA in Africana Studies, Carleton

College), with research examining the equitable implementation of cannabis legalization across Minnesota communities and the structural determinants of maternal and child health.

— **Jones-Webb:** *Professor in the Division of Epidemiology and Community Health at the University of Minnesota, School of Public Health. She also serves as Associate Director of Equity and Engagement in the School's Cannabis Research Center.*

Description

Background and Rationale: Minnesota legalized adult-use cannabis in 2023, making it one of 24 states to do so, with explicit social equity provisions intended to address harms from prior criminalization. Despite this intent, little qualitative research has centered African American community voices in assessing what legalization means for public health, economic opportunity, reparative justice and community safety. This study addresses that gap.

Methods: We conducted six focus groups with African American adults aged 21 and older in Minnesota between March and September (N = 26 participants; groups ranging from 3 to 8 participants; mixed gender). Focus groups were conducted at community sites in Minneapolis and St. Paul. A semi-structured discussion guide addressed: (1) cultural attitudes and beliefs about cannabis; (2) perceived benefits and harms of use; and (3) perceptions of the 2023 legalization law and its social equity provisions. Sessions were audio-recorded, transcribed, and analyzed using mixed inductive-deductive thematic analysis in NVivo.

Findings: Participants described deeply heterogeneous cultural orientations toward cannabis shaped by generation, religion, geography, and family context. While analysis is ongoing, some preliminary cross-cutting public health themes emerged. First, participants widely perceived legalization as having failed to translate into tangible equity for Black Minnesotans. Second, youth access and product safety were prominent concerns. Third, participants articulated a tension between both meaningful therapeutic benefits and significant harms of cannabis use. Finally, participants also identified criminal record expungement and tax revenue reinvestment as critical indicators of whether legalization would genuinely benefit their communities.

Conclusions and Public Health Implications: These preliminary findings highlight that adult-use legalization in Minnesota is experienced by African American community members as a policy environment of potential promise but likely persistent inequity. Community-informed cannabis research and policy must address: equitable enforcement, meaningful inclusion in the cannabis economy, accessible public education on legal rights and health effects, and transparent reinvestment of cannabis tax revenues in communities most harmed by criminalization. Centering Black community perspectives is essential to ensuring that legalization promotes, rather than undermines, public health equity.

Learning Objectives

Following this session, participants will be able to:

1. Describe the US policy landscape for cannabis and intoxicating hemp products.
2. Explain how cannabis/hemp policies and regulations may impact cannabis use and various public health outcomes such as underage youth access and crime.
3. Discuss challenges to conducting cannabis policy research, including using consistent terminology and applying research findings to real-life contexts.
4. Compare how population sub-groups (e.g., African Americans, college students) may have varying experiences with cannabis policy and cannabis use.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

American Civil Liberties Union (2020). A Tale of Two Countries.

Minnesota adult-use cannabis law, Minn. Stat. ch. 342; Office of Cannabis Management.

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

Public Health Implications of Adult-Use Cannabis Legalization In The Us | Session Chair(s): Kathleen Lenk, Darin Erickson

The Links Between Cannabis and Crime: Examining the Evidence from Recent Policy Experiments

Faculty: Rosalie Liccardo Pacula | Mon, Oct 19 · 10:10 AM - 10:35 AM · Brickstones | Abstract #0152

— **Pacula:** Holds the Elizabeth Garrett Chair in Health Policy, Economics & Law in the Health Policy and Management Department at the USC Sol Price School of Public Policy. For more than twenty-five years she has evaluated state substance-abuse policies — decriminalization, legalization, harm reduction, and treatment access — using empirical designs appropriate for causal inference. She co-chairs the National Academy of Sciences, Engineering, and Medicine Forum on Mental Health and Substance Use Disorders, is a Senior Editor at *Addiction*, and a Research Associate at the National Bureau of Economic Research; she holds a PhD in economics from Duke University and spent 21 years at the RAND Corporation, 15 co-directing its Drug Policy Research Center.

Description

Background: The expansion of cannabis policy liberalization in the United States (U.S.) represents one of the most consequential changes in the criminal justice system's approach to drugs since passage of the Controlled Substances Act (CSA) of 1970. Advocates argued legalization would improve efficiency in the criminal justice system by reducing arrests and shifting law enforcement resources to more serious crime, while also reducing crime by displacing the illicit market with regulated businesses. Opponents warned about potential increases in drug use, impaired driving, and related crime. A growing body of research evaluates these competing claims, but the research is of varying quality.

Methods: In this narrative review, we synthesize findings from studies published between January 2015 and September 2025 that use quasi-experimental methods to estimate the causal effects of adult-use cannabis legalization on crime, considering both the direct and indirect effects (through use of other substances). We organize findings using the following categories: (1) pharmacological crime caused by people who use cannabis; (2) crime generated by cannabis markets (illicit and licit); and (3) cannabis and crimes as defined by prohibition. We then consider the impacts legalization has had on the criminal justice system overall, as well as other factors that could influence crime in the future.

Results & Discussion: We conclude that the research evaluating public safety impacts remains in its early stages and interpretation of this research is complicated by factors that include inadequate specification of treatment and control states, the rising potency of products in the marketplace, uncertainty of which products are used by different consumers, and the recent availability of intoxicating hemp-derived products in non-legalizing states. Nonetheless, the best evidence supports that these policies have led to a net decline in crime and large declines in cannabis possession arrests for adults, but not youth. The decline in arrests has not translated into improved efficiency in the criminal justice system or substantial declines in racial disparities. Additionally, there has been a decline but not elimination of crime associated with the illicit market. The longer-term effects of these policies and the changing marketplace will still need to be further studied.

Learning Objectives

Following this session, participants will be able to:

1. Differentiate between association and causal effects of legal policy changes on crime.
2. Identify the limitations of many studies examining the impact of cannabis legalization on crime, in particular the lack of accounting for the alcohol environment.

3. Understand what the most rigorous quasi-experimental analyses show about the impact of cannabis legalization on (1) psychopharmacological crime caused by use, (2) systemic crime caused by legal and illicit cannabis markets, and (3) changes in crime defined by prohibition.

Materials

Selected resources:

Controlled Substances Act of 1970, 21 U.S.C. § 801 et seq.

American Civil Liberties Union (2020). A Tale of Two Countries: Racially Targeted Arrests in the Era of Marijuana Reform.

National Institute of Justice (NIJ), research on marijuana legalization and crime.

Federal Bureau of Investigation, Uniform Crime Reporting (UCR) / National Incident-Based Reporting System (NIBRS).

Characterizing Cannabis Use and Related Effects Among First-Year College Students In A State That Recently Legalized Adult-Use Cannabis

Faculty: Julie Sanem, Natalie Scholz | Mon, Oct 19 · 10:40 AM - 11:05 AM · Brickstones | Abstract #0153

— **Scholz:** Research Fellow at the Cannabis Research Center providing data management, statistical analyses, and manuscript writing, with more than 15 years of health-research experience across academic and non-profit settings. She holds an MPH in epidemiology from the University of Minnesota and a bachelor's degree from Trinity University.

— **Sanem:** Manager of the University of Minnesota School of Public Health Cannabis Research Center (CRC), with 15+ years of experience developing and implementing strategies to understand and reduce substance-use harms; her research interests include substance use policy, harm reduction, and college students. She holds an MPH in community health education and a PhD in epidemiology from the University of Minnesota School of Public Health.

Description

Background. Numerous studies have shown young adult cannabis use increases with adult-use cannabis legalization. To characterize college student cannabis use and related behaviors over time in a state that recently legalized non-medical adult-use cannabis, we launched a cohort study of first-year college students in Minnesota. Minnesota legalized adult-use cannabis in 2023, and cannabis retailers began opening in summer 2025. This study will describe results across students' first year of college.

Methods. We invited first-year college students at five campuses of a large public institution in Minnesota to participate in the first of five surveys in fall 2025. of 3099 students invited, 689 students completed Survey 1 (response rate=22%). Survey 1 respondents were invited to complete Survey 2 starting in spring 2026. of 689 students who completed Survey 1, 345 students completed Survey 2 (response rate=63%). For this study, we assessed past and current cannabis use, product types used, and effects of cannabis use at Survey 1 and will assess potential changes from Survey 1 to 2.

Results & Discussion. Nearly one-third (31%) of Survey 1 respondents reported ever using cannabis. of those respondents, 59% reported cannabis use in their last year of high school. Significantly more respondents who used cannabis during their last year of high school (compared to ever users who did not) reported using cannabis 20+ days in the past month (21% vs. 2%, $p<0.01$). The most common cannabis products respondents reported using were edibles (77.8%) and vapes (70.7%). of respondents who ever used cannabis, more than half reported that cannabis use has a positive effect on their friendships/social life and no effect on their work, family life, studies, physical health, or hobbies/recreational activities. Additional results and potential changes over time will be presented. (Note: Survey 2 results are not yet available but will be analyzed and presented.)

Conclusions. Findings from this cohort study will contribute to understanding how students' cannabis use and related issues may change over the first year of college in a state that recently legalized adult-use cannabis.

Learning Objectives

Following this session, participants will be able to:

1. Characterize student cannabis use across students' first year of college.

2. Explain the relationship between cannabis use during the last year of high school and cannabis use during the first year of college.
3. Describe positive and negative effects of student cannabis use across students' first year of college.

Materials

Selected references (working draft provided by the presenters):

Arterberry BJ, Treloar Padovano H, Foster KT, Zucker RA, Hicks BM. (2019). Higher average potency across the United States is associated with progression to first cannabis use disorder symptom. *Drug and Alcohol Dependence*, 195, 186–192.

Bidwell LC, Martin-Willett R, Karoly HC. (2021). Advancing the science on cannabis concentrates and behavioural health. *Drug and Alcohol Review*, 40, 900–913.

Centers for Disease Control and Prevention. (2024). State medical cannabis laws.

Harris KN, Jupp V, Pittman L. (2024, Dec. 6). Mapping Hemp Products' Legal Status Across US States. Rice University's Baker Institute for Public Policy.

Hasler WL, Alshaarawy O, Venkatesan T. (2024). Cannabis use patterns and association with hyperemesis: A comprehensive review. *Neurogastroenterology and Motility*.

Inman A, Cservenka A. (2024). Cannabis flower, concentrates, and edibles: A narrative review comparing prevalence of use, methods of consumption, and cannabis use disorder outcomes. *Journal of Addictive Diseases*.

Miech RA, Patrick ME, O'Malley PM, Jager JO, Jang JB. (2026). Monitoring the Future national survey results on drug use, 1975–2025: Overview and detailed results for secondary school students. Institute for Social Research, University of Michigan.

Designing Cannabis Edibles Package Warnings to Guide Safe Consumption

Faculty: Beth Reboussin | Mon, Oct 19 · 11:10 AM - 11:35 AM · Brickstones | Abstract #0147

— *Reboussin: Professor of Biostatistics and Data Science at Wake Forest University School of Medicine; principal investigator on NIH/NIDA-funded studies of cannabis edibles packaging, warnings, and youth risk perceptions.*

Description

Background: Warning labels that effectively communicate delayed onset and guide safe consumption of edibles are needed. Current state-mandated warnings are varied, provide limited dosing guidance, and rarely address overconsumption risks.

Methods: Cognitive interviews were conducted with 30 participants recruited via Craigslist in California (August-September 2025) to assess comprehension, clarity, and credibility of the Canadian warning, expert panel selected state-level warnings, newly developed warning icons, and potential dosing and adverse effect statements. Findings informed development of new warnings that are being tested in a between-subjects randomized experiment with 1250 participants recruited via Cloud Research. Participants view a package with: (1) delayed-effects warning (no icon), (2) delayed effects warning (with icon), (3) delayed effects + dosing warning, (4) delayed effects + dosing + adverse effects warning, or (5) no warning. Experimental outcomes include appeal, harm perceptions, behavioral intentions, and warning recall, believability, discouragement, and understanding.

Results: The cognitive interview sample included 10 current cannabis users, 10 ever users who had not used cannabis edibles, and 10 never cannabis users, balanced by age and sex with 50% White and 73% Hispanic. Most participants (>50%) rated all delayed-effects warnings as understandable, clear and believable, with the Canadian warning performing best (73–83% vs. 57–73% for state warnings). Participants preferred the term “full effects” over “intoxicating effects” (overly alarming) and “effects” (too vague). Warnings stating, “it can take x hours to feel” effects were preferred over “may not be felt” (implies no effect) and “may be delayed” (negative). Nearly all participants found the inclusion of dosing instructions helpful and preferred serving size based dosing over milligram-based approaches. Participants said that listing adverse effects reduces ambiguity and reliance on imagination. Findings from the cognitive interviews informed development of new warnings currently being tested in the randomized experiment described above. Findings from the experiment will be presented.

Discussion: Findings from cognitive interviews indicate that while existing delayed-effects warnings are generally understandable, specific language choices (concrete, non-judgmental) and the

inclusion of dosing and adverse effect information may improve clarity and usefulness.

Conclusions: These findings suggest meaningful differences in phrasing may influence message effectiveness and support safer consumption.

Learning Objectives

Following this session, participants will be able to:

1. Assess how language and content influence consumer comprehension, clarity, and perceived credibility of cannabis edibles package warnings.
2. Identify evidence-based warning label features—including delayed-effects messaging, dosing guidance, and adverse effect information—that may support safer edible use.
3. Discuss the policy implications of research on cannabis edibles package warnings for developing standardized, evidence-informed labeling requirements.

Materials

Selected resources:

U.S. Food and Drug Administration, resources on cannabis edibles, labeling, and consumer safety.

Centers for Disease Control and Prevention (CDC), resources on cannabis and edible overconsumption.

Cannabis Regulators Association (CANNRA), packaging and labeling resources.

State packaging and labeling regulations (e.g., Colorado and Washington universal THC symbol requirements).

Changing Points of Access: A Public Health Analysis of Consumer Purchasing Patterns in Minnesota's Hemp and Cannabis Markets

Faculty: Eileen Delehanty | Mon, Oct 19 · 1:45 PM - 2:10 PM · Brickstones | Abstract #0148

— **Delehanty:** Research Associate with the University of Minnesota Cannabis Research Center (PhD, MPH), with more than 10 years of research experience in academic and health-system settings. Her research focuses on the effects of cannabis policy on health; most recently she has studied the sale of hemp-derived THC products to pseudo-underage buyers in Minnesota and the effects of cannabis policy on workplace use.

Description

Background: Since 2022, the legal cannabis market in Minnesota has been dominated by hemp-derived THC products. In 2023 Minnesota legalized non-medical adult-use cannabis but nonmedical dispensaries did not open outside of tribal lands until late 2025. This created a marketplace where hemp-derived THC edibles and beverages were the primary non-medical cannabis products available for many years. We assessed cannabis use and related behaviors at several time points across these changes in the retail landscapes.

Methods: We conducted in-person surveys of Minnesotans age 18 or older in the summer of 2024 (n=1676) and 2025 (n=1781) at the Minnesota State Fairs and will conduct a similar survey at the 2026 Minnesota State Fair. We assessed overall rates of cannabis use, types of products used and how products were obtained. We compare results over time and by participant demographics.

Results & Discussion: About half of respondents (53% in 2024, 49% in 2025) reported using cannabis in the past year. In both years, edibles were most commonly used (87% in 2024, 84% in 2025) followed by beverages (63% in 2024, 64% in 2025) and flower (45% in 2024, 46% in 2025). We saw some differences in types of products used by gender and age: women were equally as likely to use edibles and beverages as men but less likely to use flower. All age categories were equally likely to use edibles but younger people aged 18-20 were more likely to use flower and less likely to use beverages. Edibles and beverages were most often obtained through retail sources (e.g., purchasing at a bar, liquor store or convenience store). Flower was most often obtained through social sources (e.g., getting from friends/family or buying from a dealer). We saw little differences in these patterns between the 2024 and 2025 surveys.

Conclusions: Although we found no changes from 2024 to 2025 in rates of cannabis use, types of products used and how products were obtained, we will assess potential changes in 2026 when

hemp THC retailers were no longer the only legal source in state due to cannabis dispensaries opening in late 2025.

Learning Objectives

Following this session, participants will be able to:

1. Describe purchasing patterns of cannabis, including hemp-derived THC products, over time in Minnesota.
2. Assess how these patterns may be dictated by the legal cannabis marketplace in the state.
3. Discuss potential implications of this research in other states with different cannabis-policy landscapes.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Minnesota Office of Cannabis Management, retail and hemp-THC regulations.

Agricultural Improvement Act of 2018, Pub. L. 115-334 (hemp-derived THC).

Substance Abuse and Mental Health Services Administration (SAMHSA), National Survey on Drug Use and Health (NSDUH).

Centers for Disease Control and Prevention (CDC), cannabis surveillance resources.

How Easy Is It for Underage People to Buy THC Gummies and Seltzers in Minnesota, And Has It Changed Over Time?

Faculty: Eileen Delehanty | Mon, Oct 19 · 2:15 PM - 2:40 PM · Brickstones | Abstract #0149

— **Delehanty:** *Research Associate with the University of Minnesota Cannabis Research Center (PhD, MPH), with more than 10 years of research experience in academic and health-system settings. Her research focuses on the effects of cannabis policy on health; most recently she has studied the sale of hemp-derived THC products to pseudo-underage buyers in Minnesota and the effects of cannabis policy on workplace use.*

Description

Background: Tetrahydrocannabinol (THC) products derived from hemp (edibles and beverages) have been widely available in many retail locations across Minnesota for several years. In 2022, Minnesota instituted a legal purchase age of 21 for hemp THC products but did not require enforcement efforts to prevent sales to underage youth. In 2023, Minnesota required hemp THC retailers to register with the state (no fee) which was replaced in 2024 by a required license that included a fee. As of 2025 age compliance checks at retailers were required but did not begin until 2026. We conducted a study in three phases during these policy changes to assess likelihood of sales of hemp-derived THC products to underage persons using pseudo-underage purchase attempts (persons age 21+ who appeared to be aged 18-20 attempted to purchase hemp-derived THC products without identification).

Methods: In Phase I (2023) we conducted purchase attempts at 125 off-premise retailers in one large city. Phase II (2025) expanded on the number (291), type (on- and off-premise locations) and the geographic location (two cities and surrounding suburbs). Phase III (2026) was conducted at approximately 295 off-premise retailers that were located in small towns and rural areas throughout the state. We assessed the overall sales rate to pseudo-underage persons, differences in sales rates by retailer characteristics (on-premise versus off-premise, location, and whether the retailer primarily carried other age-restricted products) and compared sales rates over time.

Results & Discussion: The overall sales rates were 56% in Phase I, 34% in Phase II, and approximately 19% in Phase III. Within phases, we saw substantial variation in sales rates by retailer characteristics — 20% of liquor stores sold to our pseudo-underage buyer compared to 61% of stores that carry no other age-restricted products (e.g., hair salons, bike shops); 68% retailers in low socioeconomic (SES) areas sold to our buyers compared to 49% in high SES areas. Additional comparisons will be presented.

Conclusions: Sales rate to pseudo-underage persons varied by retailer characteristics and decreased over time. Implications for these results, particularly in light of the changing policy environment, will be discussed.

Learning Objectives

Following this session, participants will be able to:

1. Assess the availability of hemp-derived THC products to underage people in Minnesota.
2. Describe how the purchase rates to pseudo-underage buyers have changed over time.
3. Compare potential differences in sales rate by retailer characteristics.
4. Discuss the observed patterns and potential policy implications of this research.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Minnesota Office of Cannabis Management, age-verification and compliance-check requirements.

Agricultural Improvement Act of 2018, Pub. L. 115-334 (hemp-derived THC).

Substance Abuse and Mental Health Services Administration (SAMHSA), underage-access prevention resources.

Centers for Disease Control and Prevention (CDC), youth cannabis-access resources.

Insights From California's 2025 Cannabis Market Outlook Report

Faculty: Duncan Macewan | Mon, Oct 19 · 3:00 PM - 3:25 PM · Brickstones | Abstract #0154

— **MacEwan:** *Managing Partner and Principal Economist at ERA Economics, LLC, an agricultural and natural-resource economics consultancy. He led the California Cannabis Market Outlook reports prepared for the California Department of Cannabis Control and has authored economic impact analyses of California cannabis cultivation regulations, examining cannabis supply, demand, pricing, and the licensed and unlicensed markets.*

Description

Background: Policymakers and public health officials in the United States are increasingly needing timely, data-driven assessments to better understand the nuances for how legalization affects consumer behavior, illicit market activity, product access, pricing, and the stability of regulated cannabis markets. California's cannabis market provides a valuable case study for evaluating the public health and policy implications of legalization within a complex and evolving regulatory environment. The California Department of Cannabis Control's (DCC) 2025 California Cannabis Market Outlook Report was developed to provide a comprehensive assessment of licensed and unlicensed cannabis market conditions using integrated economic, regulatory, and market surveillance data systems.

Perspective: Using data from the DCC 2025 California Cannabis Market Outlook Report, this presentation will examine how market surveillance, economic analysis, and regulatory data can inform public health-oriented cannabis policymaking. The session will explore trends in cannabis production, consumer demand, retail access, pricing, taxation, enforcement, and market participation using data from California's Cannabis Track-and-Trace system (CCTT), retail sales data, licensing records, enforcement activity, and consumer survey data.

The presentation will highlight several findings with direct relevance to public health and cannabis regulation. Licensed cannabis accounted for approximately 40% of statewide cannabis consumption in 2025, with the remaining market supplied through homegrown or illicit sources. Analyses suggest that local retail restrictions, taxation structures, and continued illicit market competition may reduce consumer participation in the regulated market and limit access to tested and regulated products. The presentation will further examine how recent policy changes, such as temporary increases to California's cannabis excise tax and restrictions on intoxicating hemp-derived products, affected licensed market sales and consumer purchasing patterns.

Conclusions: Comprehensive market surveillance and economic analysis can help regulators and public health officials better understand the evolving impacts of adult-use cannabis legalization. California's experience demonstrates the importance of integrating regulatory, enforcement, and economic data to support adaptive policymaking and strengthen consumer access to safer,

regulated cannabis products.

Learning Objectives

Following this session, participants will be able to:

1. Describe how market surveillance, economic analysis, and regulatory data are combined in the California Department of Cannabis Control's 2025 California Cannabis Market Outlook Report.
2. Explain what the report indicates about the share of statewide consumption supplied by the licensed market and about trends in production, retail access, pricing, and enforcement.
3. Discuss how local retail restrictions, taxation structures, and continued illicit-market competition may affect consumer participation in the regulated market and access to tested products.
4. Evaluate how integrated market data can inform public health-oriented cannabis policymaking.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

California Department of Cannabis Control, 2025 California Cannabis Market Outlook Report.

California Department of Cannabis Control, Track-and-Trace and licensing data.

Internal Revenue Code, 26 U.S.C. § 280E.

Agricultural Improvement Act of 2018, Pub. L. 115-334 (hemp-derived products).

Marijuana, Cannabis, Hemp, Weed? How and By Whom Are These Terms Used?

Faculty: Kathleen Lenk | Mon, Oct 19 · 3:25 PM - 3:50 PM · Brickstones | Abstract #0150

— **Lenk:** *Senior Research Scientist at the Cannabis Research Center in the University of Minnesota School of Public Health (MPH); her expertise is in substance-use policy research with a focus on data analysis and manuscript writing, and she has authored over 80 peer-reviewed journal articles.*

Description

Background. Many terms are used for "cannabis" and these terms can vary by context and across individuals. A lack of a consistent vocabulary for cannabis can create challenges in research.

When collecting data and communicating about cannabis, using terms that resonate with the intended audience can be important to obtain accurate results and convey relevant messages.

Methods. We surveyed convenience samples of adults age 18+ (n=411) in one state using both in-person and online methods. Questions pertained to terms used for cannabis in various contexts. We analyzed results for the full sample and examined differences by demographics and cannabis use with chi-square tests ($p < 0.05$).

Results. When talking with friends and family, "weed" was the most common term overall with about half of respondents using this term and less than 20% using the terms "cannabis" or "marijuana". Differences were seen by age, with younger respondents (compared to older respondents) being more likely to use the term "marijuana" and less likely to use the term "cannabis" when talking to friends. When talking with healthcare providers, "cannabis" was the most common term overall with 47% endorsement, followed by "marijuana" with 32% endorsement. However, again, differences were seen by age with the most common term used by those aged 18-22 when talking with healthcare providers being marijuana (45%) followed by "weed" (38%). Respondents who used cannabis in the past year were more likely than non-users to use terms "weed" and "bud/flower", while non-users were more likely to use the term "marijuana". Most respondents did not use the terms "marijuana" or "cannabis" for hemp-derived THC products. We found few differences in survey results by race/ethnicity and gender.

Conclusions. Our study was one of the first to investigate the variety of terms used for cannabis. Understanding the differences in usage of terms in various contexts and by sub-groups (e.g., cannabis users, younger persons) can be important for communicating with varied audiences in cannabis research.

Learning Objectives

Following this session, participants will be able to:

1. Describe various terms used to describe cannabis/marijuana.
2. Compare terms used for cannabis/marijuana across age groups.
3. Understand how terms used for cannabis/marijuana differ across contexts.

Materials

Selected resources:

National Institute on Drug Abuse (NIDA), cannabis and marijuana terminology resources.

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

Cannabis Regulators Association (CANNRA), harmonized cannabis definitions.

ASTM International Committee D37 on Cannabis, standard terminology.

From Idea to Impact: Designing Cannabis Research That Informs Policy

Faculty: Douglas Roehler | Mon, Oct 19 · 3:55 PM - 4:30 PM · Brickstones | Abstract #0155

— *Roehler: Chief of Research at the California Department of Cannabis Control, responsible for the scientific portfolio of the Cannabis Academic Research Grant Program, where he supports evidence-based cannabis research to inform policy and regulation (PhD, MPH, University of Michigan School of Public Health; postdoctoral fellowship, Rush University Medical Center). He previously spent eight years as a Health Scientist and Epidemiologist at the Centers for Disease Control and Prevention, leading cannabis surveillance and research initiatives.*

Description

Background: As cannabis legalization increases across the country, and federal cannabis policy ebbs and flows, policymakers increasingly seek evidence-based analysis to inform decisions on public health, market regulation, enforcement, equity, and consumer safety, among others. However, academic research often fails to meaningfully inform policy because studies are designed around academic or funder interests rather than policymaker needs, timelines, or implementation realities. Bridging this gap is essential to ensure publicly funded cannabis research translates into actionable policy analysis.

Perspective: Drawing on experience administering one of the nation's largest state-funded cannabis research grant programs through the California Department of Cannabis Control, as well as experience standing up the Cannabis Strategy Unit at the Centers for Disease Control and Prevention, this presentation will provide practical guidance for researchers seeking to maximize the policy relevance of their work. The session will explore key considerations for developing cannabis research that is responsive to policymaker needs, adaptable to real-world regulatory contexts, and positioned to meaningfully contribute to evidence-informed decision-making. It will also examine common barriers that limit the uptake of academic research in policymaking and discuss approaches for navigating the complex intersection of science, regulation, and politics. The presentation will further address an often-overlooked challenge in translational research: determining how findings should be communicated once a study is complete. Discussion will focus on strategies for moving beyond traditional academic dissemination and translating research into formats, messages, and products that better support decision-makers while preserving scientific rigor and appropriate nuance.

Conclusions: Researchers can increase the likelihood that their work informs cannabis policy by designing studies with policy use in mind, from inception through dissemination. Stronger alignment between researchers and policymakers can improve the translation of evidence into policy and support safer, more equitable, and more effective cannabis regulatory systems. Improved methods for data collection and translation can help regulators better navigate the decisional balance between protecting public health and supporting a viable legal cannabis market.

Learning Objectives

Following this session, participants will be able to:

1. Identify common barriers that limit the translation of cannabis research into policy and regulatory decision-making.
2. Incorporate policy considerations into the design and conduct of cannabis research to enhance its relevance for decision-makers.
3. Develop dissemination strategies that effectively communicate research findings to policymakers and other non-academic audiences.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Centers for Disease Control and Prevention (CDC), cannabis and public health resources.

California Department of Cannabis Control, cannabis research grant program.

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

National Institutes of Health, dissemination and implementation research resources.

Engineering Trust in Cannabis: A Systems-Level Framework for Quality, Safety and Public Health

Session Chair(s): Jeremiah Momper

Detection, Quantification, and Risk Assessment of Pesticides in Commercial Cannabis Products

Faculty: Raymond Suhandynata | Wed, Oct 21 · 9:30 AM - 10:55 AM (session segment) · Shutters West I | Abstract #0181

— **Suhandynata:** Assistant Professor of Pathology and Pharmacy at UC San Diego and a board-certified clinical chemist (DABCC; PhD, Stony Brook); develops LC-MS/MS assays for cannabinoids, drugs of abuse, and novel psychoactive substances in the clinical laboratory.

Description

Residual pesticide testing is a critical component of cannabis product safety and regulatory oversight. As cannabis products become increasingly diverse, laboratories must detect and quantify chemically diverse pesticides in complex matrices such as oils, concentrates, vape products, edibles, and other manufactured cannabis products. These analyses are not only technical exercises; they can inform product release, enforcement, consumer protection, and confidence in regulated cannabis markets.

This presentation will provide a practical overview of pesticide detection, quantification, and interpretation in commercial cannabis products. Using recent work from the UC San Diego Center for Medicinal Cannabis Research (CMCR) Reference Laboratory as a foundation, the presentation will discuss challenges in multiplex pesticide testing, including matrix effects, internal standard selection, analytical measurement uncertainty, method validation, and interpretation of results near regulatory action limits. Case examples may be used to illustrate how replicate testing, confirmatory analyses, and standard addition approaches can help evaluate findings when results are close to decision thresholds or when unexpected variability is observed.

The presentation will emphasize how robust analytical methods can support risk-based interpretation of pesticide findings and strengthen the defensibility of cannabis testing programs. More broadly, pesticide testing will be used as a representative example of the scientific infrastructure needed to translate complex laboratory measurements into defensible regulatory decision-making and public health protection.

Learning Objectives

Following this session, participants will be able to:

1. Describe the challenges of multiplex pesticide detection and quantification in diverse cannabis matrices.
2. Explain how measurement uncertainty and confirmatory methods inform interpretation near regulatory action limits.
3. Discuss how robust analytical methods strengthen the defensibility of regulatory decisions.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

California Department of Cannabis Control, pesticide action limits and testing regulations.

United States Pharmacopeia (USP), cannabis pesticide limits.

U.S. Environmental Protection Agency, pesticide tolerances, 40 C.F.R. Part 180.

ASTM International Committee D37 on Cannabis, analytical testing standards.

Engineering Trust in Cannabis: A Systems-Level Framework for Quality, Safety and Public Health | Session Chair(s): Jeremiah Momper

Faculty: Jeremiah Momper (session chair) | Wed, Oct 21 · 9:30 AM - 9:55 AM · Shutters West I | Abstract #0180

— Momper: Professor in the Division of Pharmaceutical Sciences at the UC San Diego Skaggs School of Pharmacy and Pharmaceutical Sciences (PharmD, PhD), and Director of the Cannabis Reference Laboratory within the UC San Diego Center for Medicinal Cannabis Research, which serves as a reference laboratory for the California Department of Cannabis Control. His research applies quantitative pharmacology to drug development and clinical use; he was previously a Commissioner's Fellow in the Office of Clinical Pharmacology at FDA's Center for Drug Evaluation and Research.

Description

Cannabis product integrity and testing are central to consumer safety, regulatory confidence, and the generation of reliable scientific evidence. Cannabis products span a wide range of matrices, formulations, routes of administration, and regulatory classifications, creating scientific and oversight challenges that extend beyond routine pass/fail testing. These challenges require coordinated attention to analytical validity, laboratory standards, contaminant control, measurement uncertainty, and interpretation of results near regulatory decision thresholds. This introductory presentation will frame cannabis product integrity as a public health and research standards issue. It will highlight why well-characterized products are essential for consumer protection, regulatory oversight, and clinical or translational research. Key themes for the session will also be introduced, including laboratory measurement, regulatory action limits, uncertainty near decision thresholds, and the translation of analytical results into defensible regulatory decision-making. The presentation will provide context for the subsequent scientific and regulatory perspectives and emphasize the need for coordinated approaches that connect analytical chemistry, testing standards, oversight, and public health protection.

Learning Objectives

Following this session, participants will be able to:

1. Describe why cannabis product integrity and testing are central to consumer safety and reliable scientific evidence.
2. Explain the analytical-validity, measurement-uncertainty, and interpretation challenges that arise near regulatory thresholds.
3. Discuss the need for coordinated approaches across analytical chemistry, testing standards, and public health.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

United States Pharmacopeia (USP), cannabis quality and testing standards.

ASTM International Committee D37 on Cannabis, standards.

U.S. Food and Drug Administration, cannabis product quality resources.

Cannabis Regulators Association (CANNRA), laboratory and testing resources.

Regulating In Times of Change: Insights And Lessons Learned From Marijuana And Hemp Regulators

Session Chair(s): Gillian Schauer

From Dispensary Floor to Policy Table: A Practitioner's Perspective on What Regulators and Educators Get Wrong About Cannabis

Faculty: Shannon Donnelly | Mon, Oct 19 · 11:10 AM - 11:35 AM · Shutters East I | Abstract #0164

— Donnelly: Over 18 years of experience in the regulated cannabis industry, beginning with dispensary operations and edible production in 2007, working with over 30,000 medical patients and consulting for large cannabis businesses since 2014. She served as Denver's Cannabis Process Navigator, facilitating the licensing of over 20 social equity applicants, and currently leads and teaches cannabis courses in Metropolitan State University of Denver's School of Hospitality, home to the world's first cannabis hospitality program.

Description

[Description drafted by the chairs from the session title and the presenter's learning objectives — substitute the presenter's own abstract when received.] Drawing on more than eighteen years in the regulated cannabis industry — from dispensary operations and edible production through consulting and cannabis education — this presentation offers a practitioner's account of where cannabis regulation and cannabis education diverge from operational reality. It identifies regulatory patterns that fall hardest on small operators and social equity licensees, including capital requirements and opaque application processes; examines the cannabis process navigator model as a scalable intervention for improving equity outcomes in licensing; and proposes a collaborative approach to policy development that seats operators and community members alongside regulators and researchers.

Learning Objectives

Following this session, participants will be able to:

1. Identify specific regulatory patterns that create barriers for small cannabis operators and social equity licensees, including burdensome capital requirements and opaque application processes.
2. Evaluate how cannabis process navigator programs can serve as scalable interventions to improve equity outcomes in licensing.
3. Assess the disconnect between cannabis policy design and the operational realities faced by licensees on a daily basis.
4. Apply a collaborative framework for cannabis policy development that centers operator and community perspectives alongside regulators and researchers.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Cannabis Regulators Association (CANNRA), regulatory resources.

National Conference of State Legislatures (NCSL), state cannabis program summaries.

U.S. Food and Drug Administration, cannabis and cannabis-derived products.

Slides are in development and will be provided closer to the conference; the presenter confirmed no additional citations at this time.

Insights And Lessons Learned from Nevada

Faculty: Kara Cronkhite | Tue, Oct 20 · 8:00 AM - 9:55 AM · Brickstones | Abstract #0161

— **Cronkhite:** Chief of Health and Safety at the Nevada Cannabis Compliance Board (CCB) and a Registered Environmental Health Specialist (BS, Food Science and Nutrition, Cal Poly San Luis Obispo). She has regulated cannabis in Nevada since 2015, beginning in the Department of Public and Behavioral Health's Medical Marijuana Program, and now leads inspection, audit, and health-and-safety oversight of the state's licensed cannabis establishments.

Description

Present information and insights about the biggest regulatory challenges observed in the Nevada Cannabis market. This will include hemp-derived cannabinoid products, lab testing accuracy, and regulating new and emerging products.

Learning Objectives

Following this session, participants will be able to:

1. Describe the biggest regulatory challenges facing Nevada's cannabis market, including hemp-derived cannabinoid products.
2. Explain approaches to regulating new and emerging cannabis products.
3. Discuss lessons for other states from Nevada's regulatory experience.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Nevada Cannabis Compliance Board regulations.

Agricultural Improvement Act of 2018, Pub. L. 115-334 (hemp).

Cannabis Regulators Association (CANNRA), emerging-products resources.

U.S. Food and Drug Administration, cannabis and cannabis-derived products.

Massachusetts Mission To Create Evidence-Based Cannabinoid Policy Rooted In Research Despite Challenging Times.

Faculty: Julie Johnson | Tue, Oct 20 · 8:00 AM - 9:55 AM (panel segment) · Brickstones | Abstract #0160

— **Johnson:** Inaugural Chief of Research at the Massachusetts Cannabis Control Commission, where she leads the agency's Research Department (PhD, The Heller School for Social Policy and Management, Brandeis University; former NIDA postdoctoral fellow at the Johns Hopkins Bloomberg School of Public Health). Her work centers on substance-use epidemiology and state-level cannabis policy, implementation, and regulation, and has produced numerous peer-reviewed manuscripts and legislative research reports.

Description

Cannabis remains federally illegal, limiting research and leaving states to make policy decisions despite significant scientific uncertainty. The Federal 2018 Farm Bill's legalization of intoxicating hemp-derived products further complicates state cannabis regulation via the unanticipated creation of an unregulated but competing hemp cannabinoid market. Existing academic, industry, and clinical research often operate in silos and fails to address urgent regulatory needs or reflect the complexity of the constantly evolving cannabinoid policy landscape. Expanded regulatory science and academic research are critical to inform evidence-based policymaking for both hemp and cannabis derived cannabinoid products.

Massachusetts legalized medical and adult-use cannabis in 2012 and 2016, respectively.

Emergencies such as EVALI, product testing failures, declining medical access, limited tools to detect impaired driving, and uneven social equity outcomes underscore persistent regulatory challenges. Foreseeing these unknowns, the Massachusetts legislature implemented robust and expanding statutory mandates for cannabis research to understand outcomes and inform evidence-based policy. Since 2018, the Cannabis Control Commission, the state agency responsible for all cannabis regulation, has tackled a spectrum of research policy issues under public health, public safety, social equity, economic impacts, social equity impacts and more. However, this applied research still lags behind policy—preventing evidence-based decision policy making, regulation practices, and research standardization, and impacting the myriad outcomes of the national, but state-led cannabis legalization quasi-experiment.

As the science on cannabis accumulates and regulated markets mature, it is critical to understand effects of cannabis laws, provisions, and programs (e.g., medical and social equity programs, youth prevention, cannabis testing and safety) and allow for policy flexibility and adaptation as new concerns arise in the evolving cannabinoid industries. Bridging professional silos and multi-stakeholder collaborations would better integrate regulatory, industry, and clinical data with research expertise to fill research gaps around best-practices for regulating cannabinoid industries as safely and equitably as possible.

Learning Objectives

Following this session, participants will be able to:

1. Describe how Massachusetts has built statutory mandates for cannabis research to support evidence-based policy.
2. Explain the challenges of aligning applied research with regulatory decision-making.
3. Discuss how professional and stakeholder collaborations can fill research gaps.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Massachusetts Cannabis Control Commission regulations, 935 CMR 500/501.

Agricultural Improvement Act of 2018, Pub. L. 115-334 (hemp).

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

Cannabis Regulators Association (CANNRA), research resources.

A California Perspective on Cannabinoid Product Oversight

Faculty: Christina Dempsey | Tue, Oct 20 · 8:00 AM - 9:55 AM (panel segment) · Brickstones | Abstract #0162

— **Dempsey:** Deputy Director of Government Affairs at the California Department of Cannabis Control (DCC), serving as the department's liaison to the state legislature and to local, state, and federal officials. One of the first cannabis staff hired by the State of California, she helped establish the DCC and served as its first Policy & Research Director — directing a statewide grant program, public-awareness campaigns, and the state's public data tools — and previously co-chaired the Cannabis Regulators Association (CANNRA) Public Health & Data Committee (MBA, Rollins College; BBA, Florida State University).

Description

[Description drafted by the chairs from the session title and learning objectives — substitute the presenter's own abstract when received.] This presentation examines California's approach to the oversight of cannabinoid products, including the regulatory

challenges of supervising a diverse and rapidly changing product landscape and the coordination required across the agencies that share responsibility for it.

Learning Objectives

Following this session, participants will be able to:

1. Describe California's approach to cannabinoid product oversight.
2. Explain the regulatory challenges of overseeing diverse cannabinoid products.
3. Discuss coordination across agencies in product oversight.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

California Department of Cannabis Control regulations.

California Medicinal and Adult-Use Cannabis Regulation and Safety Act (MAUCRSA), Cal. Bus. & Prof. Code § 26000 et seq.

Agricultural Improvement Act of 2018, Pub. L. 115-334 (hemp).

Cannabis Regulators Association (CANNRA), product-oversight resources.

Regulating In Times of Change: A Hawai'i Perspective on Cannabis and Cannabinoid Product Oversight

Faculty: Andrew Goff | Tue, Oct 20 · 8:00 AM - 9:55 AM (panel segment) · Brickstones | Abstract #0163

— **Goff:** Program Manager of the Hawai'i Department of Health's Office of Medical Cannabis Control and Regulation and a Deputy Attorney General serving as counsel to the state's Medical Cannabis Program, advising the Department of Health on hemp-derived cannabinoid products (JD, New England School of Law). He leads Hawai'i's regulation and enforcement of medical cannabis and manufactured hemp products, including efforts to bring hemp and cannabis oversight under a single agency.

Description

As Hawai'i navigates a shifting cannabis landscape, the state is balancing a long-standing medical cannabis program with growing pressure to regulate hemp-derived cannabinoid products and emerging product types. This presentation shares insights from the Hawai'i Department of Health's office of Medical Cannabis Control and Regulation (OMCCR) on managing these changes in a small, geographically isolated market. It will highlight key challenges, including inter-island access, limited testing capacity, and ensuring consistent product safety within a constrained supply chain. The discussion will also cover lessons from program oversight, stakeholder engagement, and enforcement, with a focus on practical approaches that support both patient safety and regulatory compliance. Hawai'i's experience reflects broader national trends, but also underscores the need for flexible, locally tailored policy solutions and stronger coordination across jurisdictions.

Learning Objectives

Following this session, participants will be able to:

1. Describe how Hawai'i balances an established medical cannabis program with pressure to regulate hemp-derived cannabinoids.
2. Explain the challenges of oversight, limited testing capacity, and product safety in a small, isolated market.
3. Discuss lessons on locally tailored policy and interagency coordination.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Hawai'i Department of Health, Office of Medical Cannabis Control and Regulation rules.

Agricultural Improvement Act of 2018, Pub. L. 115-334 (hemp).

Cannabis Regulators Association (CANNRA), interstate regulatory resources.

U.S. Food and Drug Administration, cannabis and cannabis-derived products.

Colorado Cannabis Regulation Evolution And Insights

Faculty: Allison Robinette | Tue, Oct 20 · 8:00 AM - 9:55 AM (panel segment) · Brickstones | Abstract #0165

— **Robinette:** Director of Policy and Regulatory Affairs for the Marijuana Enforcement Division and Natural Medicine Division within the Colorado Department of Revenue, where she leads the divisions' engagement in the legislative process and the implementation of legislation through rulemaking and compliance assistance. She previously served as an Assistant Attorney General in the Colorado Attorney General's Office, representing the Marijuana Enforcement Division and other state agencies as general and litigation counsel (JD and certificate in environmental and natural resources law, University of Denver Sturm College of Law).

Description

The Colorado Marijuana Enforcement Division will participate as a panelist alongside marijuana and cannabinoid hemp regulators from across the country. As the first state to successfully launch a fully regulated commercial, adult-use cannabis market, Colorado provides a unique perspective on establishing new regulatory landscapes and navigating rapid industry evolution. The discussion will highlight the historical development and evolution of the state's three distinct regulatory frameworks: medical and adult-use marijuana, industrial hemp, and hemp product manufacturing. We will explore the iterative process of rulemaking and legislation that forged a sophisticated system, covering critical lessons learned in public health, consumer protection, and balancing economic opportunity with social equity. A primary focus will be on the indispensable role of interagency and stakeholder coordination. This includes the successful mechanisms and strategies for collaboration between state agencies, local governments, industry representatives, and the public. The panel offers a deep dive into the operational challenges and successes of regulating a fast-moving, complex, and politically dynamic industry.

Learning Objectives

Following this session, participants will be able to:

1. Describe the historical development of Colorado's medical, adult-use, hemp, and hemp-cannabinoid regulatory frameworks.
2. Explain the iterative rulemaking and legislative process and lessons in public health, consumer protection, and social equity.
3. Discuss the role of interagency and stakeholder coordination.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Colorado Marijuana Enforcement Division, Retail and Medical Marijuana Rules.

Colorado Revised Statutes Title 44, Article 10 (Marijuana Code).

Agricultural Improvement Act of 2018, Pub. L. 115-334 (hemp).

Cannabis Regulators Association (CANNRA), regulatory resources.

Federal-State Regulation of Marijuana And Hemp In The Wake of Gonzalez V. Raich

Session Chair(s): David Bush

Weed And Firearms: Navigating The Collision Between Marijuana and the Second Amendment

Faculty: Craig Small | Mon, Oct 19 · 1:45 PM - 2:10 PM · Shutters East I | Abstract #0174

— Small: Senior Counsel and Vice Chair of the Cannabis Industry Group at Clark Hill, advising cannabis, hemp, and emerging-industry clients on regulatory, transactional, and operational matters nationwide. With more than 19 years in cannabis law, he guides companies through mergers and acquisitions, multistate licensing and compliance, and the shifting intersection of state and federal law, and has been named a Top 200 Cannabis Lawyer by Cannabis Law Report for three consecutive years.

Description

The Second Amendment's guarantee of the right to keep and bear arms has long coexisted with federal restrictions on firearm ownership by those deemed "prohibited persons" under the Gun Control Act of 1968. Among the most consequential and increasingly contested of those restrictions is the federal prohibition on firearm possession by users of marijuana, a substance that remains classified as a Schedule I controlled substance under the Controlled Substances Act despite widespread state-level legalization for medical and recreational purposes. The result is a profound tension between federal law and the choices of millions of Americans who comply with state law yet find themselves stripped of a constitutional right.

This presentation examines the federal framework underlying this conflict, including the CSA's scheduling regime, ATF Form 4473, and the NICS background check process, and traces the legislative, judicial, and executive developments actively reshaping it. On the judicial front, the Supreme Court's decision in *NYSRPA v. Bruen* established a new historical-tradition framework for

evaluating Second Amendment restrictions, one that lower courts have applied to challenge firearm prohibitions for marijuana users. Cases such as *United States v. Daniels* and *United States v. Hemani*, now pending before the Supreme Court, will test whether the federal government can constitutionally disarm individuals solely on the basis of marijuana use.

Executive action has further complicated the landscape. The ongoing federal process of rescheduling marijuana from Schedule I to Schedule III under the CSA, accelerated by Executive Order 14370, could fundamentally alter the legal foundation for firearm prohibitions tied to marijuana use, potentially triggering a reevaluation of longstanding ATF guidance and renewed advocacy for regulatory reform.

These developments raise profound questions about the future of federal firearm regulation in an era of rapidly evolving drug policy. Attendees will leave with a practical understanding of where the law stands today, where it may be headed, and what firearm owners, dealers, and legal practitioners can do now to navigate this uncertain terrain.

Learning Objectives

Following this session, participants will be able to:

1. Describe the federal framework—the Gun Control Act, 18 U.S.C. § 922(g)(3), ATF Form 4473, and the NICS check—that prohibits firearm possession by marijuana users.
2. Explain how *NYSRPA v. Bruen*’s historical-tradition test is reshaping Second Amendment challenges to marijuana-user firearm prohibitions.
3. Discuss how marijuana rescheduling and pending litigation (*Daniels*, *Hemani*) may alter firearm rights for cannabis users.

Materials

Presentation slides and a full hyperlinked resource list provided by the presenter. Key authorities and resources:

Constitutional & Statutory

U.S. Const. amend. II; 18 U.S.C. §§ 922, 924.

Cases

United States v. Rahimi, 602 U.S. 680 (2024).

New York State Rifle & Pistol Ass’n v. Bruen, 597 U.S. 1 (2022).

United States v. Harrison, 654 F. Supp. 3d 1191 (W.D. Okla. 2023), rev’d and remanded, 153 F.4th 998 (10th Cir. 2025).

Fried v. Garland, 640 F. Supp. 3d 1252 (N.D. Fla. 2022), vacated and remanded sub nom. *Fla. Comm’r of Agric. v. Att’y Gen. of United States*, 148 F.4th 1307 (11th Cir. 2025).

United States v. Daniels, 124 F.4th 967 (5th Cir. 2025), cert. denied, No. 24-1248 (U.S. June 29, 2026).

United States v. Hemani, 146 S. Ct. 1677 (2026).

United States v. Hunter Biden (D. Del. 2024) (§ 922(g)(3) prosecution of an unlawful drug user in possession).

Federal Framework & Guidance

The Controlled Substances Act: A Legal Overview for the 119th Congress (CRS Report R45948).

Federal Gun Control Act of 1968; ATF guidance, 27 C.F.R. § 478.11; NICS background check (FBI).

Revising Firearms Transaction Record, “Form 4473,” 91 Fed. Reg. (May 8, 2026); DEA Marijuana Rescheduling Regulatory Actions; Executive Order 14370.

Legislation

MORE Act — H.R. 5601 (118th Cong., 2023–24); H.R. 5068 (119th Cong., 2025–26).

SAFE / SAFER Banking Act — H.R. 2891 & S. 2860 (118th Cong.); H.R. 9471 (119th Cong., 2026).

State Measures

Oklahoma SB 39 (2025); Oregon HB 3615 (2023); Colorado SB 19-093 (2019).

Hyperlinked copies of all resources (Westlaw, congress.gov, DEA, ATF, FBI, and news sources) provided by the presenter.

Tug-of-War Between the Federal Government and The States Over Hemp-Derived Cannabinoids

Faculty: David Bush | Mon, Oct 19 · 2:15 PM - 2:40 PM · Shutters East I | Abstract #0172

— *Bush*: Senior cannabis and hemp attorney at Hoban Law Group in Colorado (JD, University of Wisconsin; MS, agricultural economics, University of Arizona); founder and president of the Industrial Hemp Research Foundation and a longtime hemp-industry policy advocate.

Description

The seminal decision of the US Supreme Court in *Gonzalez v. Raich* established that Congress had

authority to regulate intrastate Cannabis activities that having a “substantial effect” on interstate commerce. Left unspoken was another principle that exerted a profound impact on both intrastate and interstate cannabis activities: Whatever States might do to regulate cannabis independently, federal law enforcement can always enforce federal law. Both principles have been tempered in recent decades by a line of other cases decided by the US Supreme Court, particularly *New York v. United States*, *Printz v. United States* and *Murphy v. National Collegiate Athletic Association*, which strengthened principles of dual sovereignty that underlie the American form of federalism. Recent developments in federal law have imposed sweeping new federal regulations, restrictions and prohibitions upon hemp-derived cannabinoid products, leaving many questions to be resolved in coming rulemaking by the Food & Drug Administration and likely litigation in the courts. Two parallel developments might affect the shape of those coming regulations: First, the federal government has undertaken a process of progressively rescheduling medical and non-medical marijuana and marijuana products from Schedule I to Schedule III under the Controlled Substances Act. Second, a legislative initiative is underway in Congress to create a pathway for States to “opt out” of many of the new federal hemp cannabinoid laws and regulations. These developments raise profound questions about the future of federal and state regulation of hemp-derived Cannabinoid products. Questions arise against the backdrop of federalism, which creates boundaries between federal and state authority. It remains unclear whether regulation of hemp-derived cannabinoid products will evolve into a unified system of highly coordinated federal and state control, or if it might morph into a complex and balkanized regime, where States and Indian nations speak with dozens of different, and possibly conflicting voices. This presentation will summarize the American system of federalism under the U.S. Constitution and the 10th Amendment, to create a critical context for evaluating emerging patterns of federal and state regulation of hemp-derived cannabinoid products. Attendees may take away a renewed appreciation for and understanding of the complexities and challenges of an evolving tug-of-war between federal and state regulation of this vital yet threatened industry.

Learning Objectives

Following this session, participants will be able to:

1. Describe the federalism framework—*Gonzales v. Raich*, the Commerce Clause, and the Tenth Amendment—governing federal-state cannabis authority.
2. Explain how recent federal restrictions on hemp-derived cannabinoids and marijuana rescheduling reshape that framework.
3. Discuss whether hemp-cannabinoid regulation will evolve toward coordinated or fragmented control.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter’s final list when received):

Gonzales v. Raich, 545 U.S. 1 (2005).

Murphy v. National Collegiate Athletic Association, 584 U.S. 453 (2018).

Agricultural Improvement Act of 2018, Pub. L. 115-334 (hemp).

Controlled Substances Act, 21 U.S.C. § 801 et seq.

Cannabis, Hemp, and Federal Power: How Illegality Is Preserved While Enforcement Shifts

Faculty: James Thorburn | Mon, Oct 19 · 3:00 PM - 3:50 PM · Shuttles East I | Abstract #0173

— *Thorburn*: Trial and appellate attorney with more than thirty years of experience representing businesses and individuals in complex litigation, constitutional disputes, administrative proceedings, federal tax controversies, and regulatory matters, and founder of the Thorburn Law Group, LLC (Greenwood Village, Colorado). He is nationally recognized for precedent-setting litigation involving constitutional law, federalism, administrative law, and federal taxation; his advocacy in *Standing Akimbo, LLC v. United States* drew a noted statement from Justice Clarence Thomas.

Description

Background:

Nearly two decades after *Gonzales v. Raich*, federal cannabis policy continues to operate within a framework often described as inconsistent. In practice, however, that framework reflects a more structured approach in which federal illegality is preserved as a legal predicate, even as enforcement priorities shift in response to state legalization and evolving policy considerations. Understanding how this system operates is critical for evaluating current regulatory developments and emerging legal challenges, particularly as similar dynamics begin to appear in the hemp industry.

Methods (if applicable):

This presentation draws on doctrinal analysis of federal case law, including *Gonzales v. Raich*, *Feinberg v. Commissioner*, and *Standing Akimbo, LLC v. United States*, as well as review of federal policy developments and current litigation. The analysis is informed by practical litigation experience in federal tax controversy and cannabis-related disputes.

Commentary or Perspective:

These authorities reveal a consistent dynamic. Federal law continues to treat cannabis activity as unlawful (or restricted), enabling the government to impose tax, regulatory, and collateral consequences, even where criminal enforcement is selectively restrained. Section 280E, IRS enforcement practices, and investigatory tools illustrate how tax policy functions within this broader structure. At the same time, emerging constitutional challenges—including Second Amendment litigation currently before the U.S. Supreme Court—demonstrate how federal illegality extends beyond taxation to affect other rights and systems. Recent developments in hemp regulation suggest that this framework is not limited to cannabis, but is being applied in adjacent markets as federal and state law continue to diverge.

Conclusions:

The current federal-state cannabis framework reflects not a resolution of legal tension, but a system in which illegality is preserved while enforcement is selectively applied. As regulatory pressures expand into hemp and constitutional challenges reach the Supreme Court, this structure is increasingly strained. These developments raise important questions about the future of federal cannabis policy and its implications for law, regulation, and industry practice

Learning Objectives

Following this session, participants will be able to:

1. Describe how federal cannabis policy preserves illegality as a legal status while selectively restraining criminal enforcement.
2. Explain how tax authorities (e.g., 26 U.S.C. § 280E) and case law impose consequences absent criminal prosecution.
3. Discuss how this framework may extend to hemp and to pending constitutional challenges.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Internal Revenue Code, 26 U.S.C. § 280E.

Standing Akimbo, LLC v. United States, 594 U.S. ____ (2021) (Thomas, J., statement respecting denial of certiorari).

Alpenglow Botanicals, LLC v. United States, 894 F.3d 1187 (10th Cir. 2018).

Gonzales v. Raich, 545 U.S. 1 (2005).

Additional references supplied by the presenter:

Administration Response to Arizona Proposition 200 and California Proposition 215, 62 Fed. Reg. 6164 (Feb. 11, 1997) (Office of National Drug Control Policy).

Feinberg v. Commissioner, 808 F.3d 813 (10th Cir. 2015) (Gorsuch, J.).

Presentation slides provided by the presenter: "Use of Indirect Enforcement for Prohibition of Hemp and Cannabis."

Paving A Path for Legal Psychedelics: Lessons from Cannabis Legalization

Faculty: Joshua Bauchner | Mon, Oct 19 · 3:55 PM - 4:30 PM · Shutters East I | Abstract #0168

— **Bauchner:** Partner and Chair of the Cannabis, Hemp & Psychedelics Practice Group at Mandelbaum Barrett PC. He co-hosted the inaugural New Jersey Cannabis Symposium and is a past chair of the New Jersey State Bar Association Cannabis & Psychedelics Law Committee, the New York State Bar Association Cannabis Law Committee, and the NORML Legal Committee; he received the New Jersey Law Journal's Innovator of the Year Award and is recognized as a Top 200 Cannabis Lawyer and a Top 200 Global Psychedelic Lawyer. He filed pro-bono amicus briefs in *Washington v. Barr* (on behalf of former professional athletes) and in *Aggarwal v. DEA*.

Description

We filed an amicus brief in the AIMS litigation on behalf of NORML providing a historical account of NORML's efforts to decriminalize cannabis for medicinal purposes for the past half-century and the never-ending efforts of the federal government to delay, resist, and obstruct the progress of science and medicine. While the federal government is unlikely to learn any lessons from the past, NORML hoped that the Court would acknowledge and heed the legal and procedural lessons learned from those past administrative petition litigations so that innocent dying patients – who are the true victims of the government's misbehavior – are not denied readily available medicine.

Learning Objectives

Following this session, participants will be able to:

1. Describe the lessons drawn from cannabis administrative-petition litigation for psychedelics legalization.
2. Explain the AIMS litigation and the arguments raised in NORML's amicus brief.
3. Discuss how federal administrative processes affect drug rescheduling and patient access.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

Controlled Substances Act, 21 U.S.C. §§ 811-812.

Americans for Safe Access v. DEA, 706 F.3d 438 (D.C. Cir. 2013).

Gonzales v. O Centro Espírita Beneficente União do Vegetal, 546 U.S. 418 (2006).

U.S. Drug Enforcement Administration, petition and rescheduling process resources.

Regulatory Oversight Gaps And Public Health Risk In The Hemp-Derived Era

Unintended Consequences: Negative Health Effects of Herbal Medicine Ingredients in Regulated Cannabis Products

Faculty: Richard Holdman | Tue, Oct 20 · 10:10 AM - 10:35 AM · Courtyard II | Abstract #0166

— **Holdman:** Marijuana Health Monitoring projects manager and medical consultant for the Colorado Department of Public Health and Environment; he leads an ongoing systematic review of scientific literature on marijuana health effects that is combined with surveillance data to inform public health recommendations surrounding marijuana use.

Description

Background: Cannabis use is decriminalized or legal in 47 U.S. states, but the resulting patchwork of state and territorial laws leads to regulatory differences such as labeling, retail availability, and allowed formulations, which has created public health concerns. Colorado collects reports of adverse health events related to retail cannabis products and, in 2022, received notification of hepatotoxicity after consumption of a cannabis product purchased through a licensed dispensary. **Methods:** This is a case series of cannabis consumers reporting hepatotoxicity after consuming a cannabis product containing the herbal additive, Corydalis or Stephania. Notification of the first case was received in March 2022, and by May 2024, 52 reports had been collected. Data were obtained via self-report and clinical interviews with the consumer, their health care provider, or a dispensary worker. The Colorado Department of Public Health and Environment (CDPHE) attempted contact with all reports and coordinated with other agencies to gather comprehensive information on the product, ingredients, and clinical health impacts.

Results: All contacted cases reported similar histories of consumption of a tablet sold through dispensaries and development of symptoms consistent with liver injury. Many received extensive

medical testing in an attempt to determine the cause. Blood tests revealed a pattern of markedly elevated liver enzymes, alanine transaminase (ALT) and aspartate transaminase (AST). Symptoms resolved following product cessation. The product was marketed as a sleep aid and initially claimed to contain 100mg of Corydalis Rhizome extract per serving. Product analysis determined the inclusion of Tetrahydropalmatine (THP), a compound derived from Corydalis or Stephania extract, depending on the date manufactured. Scientific literature on THP suggests a potential for hepatotoxicity.

Conclusion: The inclusion of THP in a regulated cannabis product formulation led to multiple cases of hepatotoxicity among previously healthy individuals seeking sleep aid from products with natural ingredients. This liver injury was determined to be caused by the herbal additive THP, not by a cannabinoid or interaction with cannabinoids, highlighting the urgent need for caution and rigorous study when incorporating any herbal medicine ingredients into regulated cannabis formulations.

Learning Objectives

Following this session, participants will be able to:

1. Describe the process and cross-agency collaboration in identifying, investigating, and mitigating public health risks.
2. Understand the signs and symptoms associated with cases of hepatotoxicity after consuming a regulated cannabis product and how this informed determination of the root cause.
3. Evaluate regulatory differences in cannabis product labeling, allowed formulations, and retail availability.

Materials

Selected resources:

Cannabis Regulators Association (CANNRA), interstate regulatory resources.

Colorado Department of Public Health and Environment (CDPHE), Retail Marijuana Public Health Advisory Committee / adverse-event monitoring.

U.S. Food and Drug Administration, Cannabis and Cannabis-Derived Products.

Centers for Disease Control and Prevention (CDC), cannabis and public health resources.

Engineering Trust In Cannabis: A Systems-Level Framework For Quality, Safety, And Public Health

Session Chair(s): Jeremiah Momper

Digital Forensics, Whistleblowing, And the Visibility of Fraud in Decentralized Contested Markets

Faculty: Heather Carrasco | Tue, Oct 20 · 10:40 AM - 11:05 AM · Brickstones | Abstract #0135

— Carrasco: Assistant Professor of Accounting in the James and Gail Ellis School of Business Leadership at the University of New Mexico (PhD; CPA, New Mexico), whose research examines how accounting, auditing, and information systems influence judgment, accountability, and decision making in environments shaped by uncertainty, regulatory oversight, and technological change. Drawing on experience in public accounting and regulatory research, her scholarship spans auditor development, governance, data analytics, artificial intelligence, and accountability in emerging markets, with publications in leading journals including *Contemporary Accounting Research*, *Accounting, Auditing & Accountability Journal*, and *Accounting Horizons*.

Description

This session explores how digital forensic techniques can identify cannabis testing irregularities, including THC potency inflation, contamination threshold clustering, laboratory shopping, and other statistically detectable anomalies. Drawing on real-world cases, it examines how whistleblowers, regulators, and industry stakeholders expose misconduct and navigate the challenges of accountability in decentralized markets.

Participants will consider why transparency alone does not always lead to corrective action and learn how digital forensics, structured reporting pathways, and embedded protections can strengthen fraud detection, support regulatory oversight, and reduce retaliation risks. The session offers practical insights for improving consumer protection, market integrity, and trust in cannabis testing systems.

Learning Objectives

Following this session, participants will be able to:

1. Identify common indicators of cannabis testing irregularities, including THC potency inflation, contamination threshold clustering, laboratory shopping, and other statistically detectable anomalies.
2. Explain how whistleblower experiences and organizational responses influence the detection, escalation, and remediation of testing misconduct in cannabis markets.

3. Evaluate the strengths and limitations of transparency-based oversight systems in decentralized cannabis testing markets and their implications for accountability.
4. Describe how digital forensic tools, structured reporting pathways, and embedded protections can improve fraud detection, regulatory action, and whistleblower protection.

Materials

Materials supplied by the presenter:

Carrasco H (2026). Practitioner Summary of “Digital Forensics, Whistleblowing, and the Visibility of Fraud in Decentralized Contested Markets.” James and Gail Ellis School of Business Leadership, University of New Mexico. 5 pp. Received 8/7/26.

Summarized: drawing on thirteen whistleblowing and enforcement cases, the paper argues that transparency alone does not produce accountability, and proposes a governance framework combining forensic analytics, structured reporting, and anti-retaliation safeguards. Refer to the practitioner summary cited above for the full treatment.

[*RESTRICTED* — the summary carries a patent-pending notice and states that the material is not to be reproduced, distributed, cited, or shared without the author’s written permission, and that the full manuscript is still in preparation. Obtain the presenter’s written permission before circulating this document beyond the accrediting body.]

Whistleblowing framework cited in the presenter’s summary:

Near JP, Miceli MP (1985). Organizational dissidence: the case of whistle-blowing. *Journal of Business Ethics* 4(1):1–16.

Near JP, Dworkin TM, Miceli MP (1993). Explaining the whistle-blowing process: suggestions from power theory and justice theory. *Organization Science* 4(3):393–411.

Near JP, Miceli MP (1996). Whistle-blowing: myth and reality. *Journal of Management* 22:507–526.

Additional background compiled by the chairs:

U.S. Food and Drug Administration, laboratory data-integrity resources.

ASTM International Committee D37 on Cannabis, laboratory standards.

Cannabis Regulators Association (CANNRA), testing-laboratory oversight resources.

From Rulemaking To Reality: A Facilitated Synthesis of The Regulation & Policy Track

Session Chair(s): Mary Celeste

Weedetection: Multi-Platform Detection System To Identify And Characterize Both Commercial And Illegal Sales of Cannabis- Derived Products

Faculty: Timothy Mackey | Tue, Oct 20 · 11:10 AM - 11:35 AM · Courtyard II | Abstract #0167

— **Mackey:** Professor in the Global Health Program at UC San Diego and director of its Global Health Policy & Data Institute (PhD, global public health, UCSD/SDSU); CEO and co-founder of the public-health data-science firm S-3 Research, with over 270 publications on surveillance, drug policy, and online health-product claims.

Description

Background: The WeeDetection Project, funded through the SBIR program of the National Institute on Drug Abuse, was designed to monitor, detect, and characterize illegal and unregulated online cannabis sales. While state-level cannabis legalization has expanded, illicit cannabis transactions continue to thrive across social media, e-commerce platforms, and dark web marketplaces, creating significant public health and regulatory challenges for the legal cannabis industry. These unregulated sales expose consumers to untested, mislabeled, or adulterated products with unknown potency levels and potentially hazardous ingredients.

Methods: We developed and tested an advanced, technology-driven solution that leverages big data analytics, machine learning, and data visualization to systematically detect and analyze illegal online cannabis sales activities and also characterize important market intelligence about the legitimate and illegal cannabis marketplace. The solution integrates automated data mining, machine learning-based classification, compliance verification, and interactive reporting dashboards to provide real-time intelligence for key customer segments including regulators, law enforcement, and industry stakeholders.

Results: We collected a large-scale dataset of cannabis-related product listings from various online sources, including social media platforms and e-commerce websites. Data collection was based on cannabis-related keywords and targeted data collection of specific cannabis product e-commerce

marketplaces. In total, we collected over 800,000 social media posts and comments, 2,271 cannabis retailer records and 1,047,648 product listings from Leafly, and 5,168 cannabis retailer records covering 1,185,406 product listings from Weedmaps. We successfully developed a machine learning-driven classification system that identified 99,973 posts and comments across multiple social media platforms that exhibited selling behaviors, with the highest concentration found on Twitter (X), Instagram, Google Groups, and Telegram. A data visualization tool was also developed to generate public health intelligence for specific stakeholders.

Discussion: Findings highlight the widespread presence of unauthorized cannabis sales and the increasing use of encrypted messaging platforms for transactions. For e-commerce platforms, the classification system automatically labeled 10 percent of the uncoded Weedmaps dataset with high confidence, assigning product categories such as flavor, product type, and cannabinoid composition, critical to identifying products that may be unregulated or in non-compliance.

Conclusion: As state legalization expands and potential de-scheduling of adult-use cannabis products at the Federal level is discussed, tools to conduct monitoring and compliance checks of the online marketplace is more important than ever in ensuring the integrity of the cannabis products supply chain and ensuring consumer safety.

Learning Objectives

Following this session, participants will be able to:

1. Describe how illicit cannabis sales operate across social media, e-commerce, and dark-web platforms.
2. Explain the machine-learning and data-analytics methods used to detect and characterize illegal online cannabis sales.
3. Discuss the regulatory and public-health value of online-market surveillance.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

National Institute on Drug Abuse (NIDA), Small Business Innovation Research (SBIR) program resources.

U.S. Food and Drug Administration, online sales and enforcement resources.

Federal Trade Commission, online marketplace and advertising resources.

Controlled Substances Act, 21 U.S.C. § 801 et seq.

What Does Race Have to Do with It? Cannabis Industry Policies Using Critical Race Theory

Faculty: Ivan Garcia, Gabriela Mohr-Avitia | Tue, Oct 20 · 4:30 PM - 4:55 PM · Shutters West I | Abstract #0176

— Garcia: Department of Criminology and Criminal Justice, Northern Arizona University. — Mohr-Avitia: PhD, LMSW, Northern Arizona University. Her research examines race in written recreational marijuana policy — she presented "Beyond Intent: Examining Race in Written Recreational Marijuana Policies" at the 2025 Council on Social Work Education Annual Program Meeting — and she is a co-author of *Public Perceptions of Risks Associated With Driving After Cannabis Use, Drug and Alcohol Dependence (2025)*.

Description

Abstract: Cannabis's shift from prohibited substance to lucrative industry has reshaped the social landscape of the United States. As of 2026, 24 states have fully legalized recreational marijuana. This shift has prompted agencies like the American Civil Liberties Union (ACLU) to argue that marijuana legalization is a racial justice issue since racialized communities have suffered the most from marijuana prohibition. California presents as a perfect case study to understand the relationship between racial equity and access to cannabis licensing. Using Critical Race Theory (CRT) and a qualitative content analysis methodology of 31 written policies from California, this study examined the role of race in those written policies. These policies were chosen after data immersion, with thematic coding used in Dedoose software. The findings revealed that California policies: (1) were written from a colorblind perspective, (2) held most of the decision-making power in the executive branch, and (3) required individuals and entities to have significant financial and social capital to access marijuana business licenses. Findings also indicate that colorblind policies

may perpetuate racial inequities in the cannabis industry. Further research on other U.S. states' policies and racial equity must be conducted to deepen the understanding of racial equity within the cannabis industry.

Learning Objectives

Following this session, participants will be able to:

1. Explain the relationship between cannabis legalization and racial equity in California.
2. Identify how colorblind policies and financial barriers can contribute to racial inequities in cannabis licensing.
3. Evaluate the role of Critical Race Theory in analyzing policies and promoting greater equity within the cannabis industry.

Materials

Key citations and resources supplied by the presenter:

Alexander M (2012). The New Jim Crow: Mass Incarceration in the Age of Colorblindness. New York, NY: The New Press.

American Civil Liberties Union (2020). A Tale of Two Countries: Racially Targeted Arrests in the Era of Marijuana Reform.

California Department of Cannabis Control, licensees — laws and regulations (cannabis.ca.gov/licensees) and cannabis laws and regulations (cannabis.ca.gov/cannabis-laws/laws-and-regulations).

California Department of Cannabis Control (Apr. 20, 2023), recognition of equity cannabis retailers.

California Proposition 64, Marijuana Legalization (2016) — ballot measure text and history.

Municode Library, California municipal codes (library.municode.com/ca) — for local cannabis licensing ordinances.

New York State's Approach to Advancing Cannabis Research and Scientific Innovation

Faculty: Andrea Unser | Wed, Oct 21 · 8:00 AM - 8:25 AM · Shutters West I | Abstract #0170

— *Unser: Program Analyst in the Scientific Programs and Research unit at the New York State Office of Cannabis Management (PhD), where she focuses on advancing cannabis science and research, including oversight and compliance of the cannabis research license and OCM's internal research studies. She received her BS in Biochemistry from the College of St. Rose (2009) and her MS (2011) and PhD (2015) in Nanoscale Science from the University at Albany, where she worked on electrospinning biocompatible nanofibers and microstrand fabrication to facilitate stem-cell differentiation into brown adipose tissue. She then spent nine years at Humonix Biosciences (formerly Glauconix Biosciences) on a 3D human-tissue model for glaucoma drug screening, both at the bench and in client relations.*

Description

Background: Significant gaps remain in existing cannabis research across the United States, that once filled, could propel the generation of meaningful data-driven insights. The New York State (NYS) office of Cannabis Management (OCM) is conducting research studies that target these gaps with frameworks for evaluating commercially available medical and adult-use cannabis products. OCM will use observational studies to generate real-world data (RWD) on cannabis product consumption. Participants will be enrolled remotely and prospectively evaluated using established and validated clinical assessment tools to characterize patterns of cannabis product consumption, concomitant medication use, adverse events, and changes in symptom burden. This RWD will provide insight into how patients incorporate cannabis products into existing treatment regimens and how such products are utilized in routine care settings.

By combining patient-reported outcomes using established clinical evaluation tools and patterns of real-world product consumption, these studies will not only provide a framework for researchers, but they will generate evidence to inform regulatory policy, improve patient care, and guide the design of future clinical research.

To further support the advancement of science and innovation, NYS established the Cannabis Research License (CRL) through the Marijuana Regulation and Taxation Act (MRTA). A NYS CRL permits researchers to produce, process, purchase, and/or possess cannabis to test chemical potency and composition levels, examine the efficacy and safety of cannabis as part of medical treatment, perform clinical investigations of cannabis-derived drug products, and conduct genomic or agricultural studies.

Commentary or perspective: Across the country, cannabis policy and clinical practice have

outpaced the science supporting them. The development of comprehensive research infrastructure provides critical support for scientific innovation and collaboration. Demonstrating the feasibility of the aforementioned studies will provide a pathway to guide researchers and support the collection of significant, evidence-based results for cannabis research.

Conclusions: OCM is implementing research studies which are examples of how NYS stakeholders and researchers may use a NYS CRL to conduct cannabis research and to gain real-world evidence on cannabis product consumption and participant-reported outcomes. By providing this framework, NYS researchers will have the tools to design future studies that bolster cannabis research and better serve practitioners, patients, and the public.

Learning Objectives

Following this session, participants will be able to:

1. Describe how the NYS Office of Cannabis Management's research initiatives and research licensing pathway support cannabis research in New York State.
2. Identify the eligibility, application, and regulatory requirements of the NYS Cannabis Research License under Part 132.
3. Explain how patient-reported outcomes and real-world evidence on cannabis consumption can inform regulatory and policy decisions.
4. Explain how Cannabis Research License holders can structure partnerships with licensed cultivators, processors, and academic or clinical institutions to conduct compliant research, including relevant IRB approval requirements.

Materials

Key citations and resources supplied by the presenter:

Marihuana Regulation and Taxation Act (MRTA), S.854-A (N.Y. 2021).

Cannabis Research License regulations, 9 NYCRR Part 132 — N.Y. Office of Cannabis Management, [part-132-ocm-research-regulations.pdf](https://cannabis.ny.gov/research) (cannabis.ny.gov/research).

[Presenter advises that no reference slides are available for this session (8/7/26).]

Additional background compiled by the chairs:

National Academies of Sciences, Engineering, and Medicine (2017). The Health Effects of Cannabis and Cannabinoids.

Controlled Substances Act, 21 U.S.C. § 801 et seq.

Transitioning From Schedule I To Schedule III Cannabis Manufacturing Registration: Regulatory Requirements, Research Expansion, And Institutional Readiness

Faculty: Joseph Sheehan | Wed, Oct 21 · 9:00 AM - 9:25 AM · Shutters West I | Abstract #0179

— Sheehan: Founder and owner of Kerry Farms in Winfield, Illinois (DuPage County), which grows hemp for CBD oil and honey. The operation has pursued sustainability initiatives beyond cultivation, including a 2023 Illinois EPA grant to build public direct-current fast chargers for electric vehicles across DuPage, Peoria, and St. Clair counties.

Description

Background:

The recent federal rescheduling of cannabis from Schedule I to Schedule III under the Controlled Substances Act represents one of the most significant policy shifts in modern U.S. drug regulation. This transition has the potential to substantially expand cannabis research, manufacturing, and clinical development opportunities while reducing many of the historic barriers associated with Schedule I classification. However, organizations seeking to manufacture cannabis for research, pharmaceutical development, or commercial purposes will still face substantial regulatory requirements involving the United States Drug Enforcement Administration (DEA), Food and Drug Administration (FDA), state regulatory agencies, and local authorities. This analysis evaluates the anticipated compliance requirements and operational considerations associated with obtaining federal authorization as a Schedule III cannabis manufacturer.

Methods:

This commentary reviews current federal controlled substance regulations, proposed cannabis rescheduling frameworks, DEA manufacturing registration requirements, FDA pharmaceutical

manufacturing standards, and institutional compliance obligations relevant to Schedule III substances. Areas examined include security protocols, inventory controls, Good Manufacturing Practice (GMP) requirements, recordkeeping, research oversight, quality assurance systems, and coordination with state cannabis licensing structures.

Commentary or Perspective:

Although rescheduling cannabis to Schedule III may reduce certain research restrictions and eliminate several administrative burdens associated with Schedule I status, manufacturers will continue to operate within a tightly regulated federal framework. Applicants will likely be required to obtain DEA registration, implement secure storage and diversion prevention systems, maintain comprehensive inventory and chain-of-custody records, and comply with routine federal inspections. In addition, facilities involved in pharmaceutical-grade cannabis production may need to adhere to FDA Good Manufacturing Practice standards, validated laboratory testing protocols, and formal quality assurance programs. Institutions conducting human research may still require Institutional Review Board oversight and compliance with federal clinical trial regulations. The transition to Schedule III could significantly improve banking access, tax treatment under Internal Revenue Code Section 280E, interstate research collaboration, and institutional participation from universities and healthcare systems. However, uncertainty surrounding federal implementation timelines, state-federal conflicts, and evolving manufacturing standards may continue to create operational challenges during the transition period.

Conclusions:

The proposed rescheduling of cannabis to Schedule III represents a transformative opportunity to expand federally compliant cannabis manufacturing and scientific research within the United States. Organizations preparing for participation in this emerging framework should prioritize regulatory readiness, pharmaceutical-grade compliance systems, and institutional partnerships to successfully navigate the evolving federal landscape. Expanded manufacturing capacity under Schedule III may accelerate clinical research, improve product standardization, and support the development of evidence-based cannabis therapeutics and policy.

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Learning Objectives

Following this session, participants will be able to:

1. Describe the manufacturing and compliance implications of rescheduling cannabis from Schedule I to Schedule III.
2. Explain how FDA and DEA oversight and cGMP expectations would change under Schedule III.
3. Discuss the transition challenges facing cannabis manufacturers.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

U.S. Drug Enforcement Administration, marijuana rescheduling proposed rule, 89 Fed. Reg. 44597 (2024).

U.S. Department of Health and Human Services, cannabis scheduling recommendation (2023).

Controlled Substances Act, 21 U.S.C. §§ 811-812.

U.S. Food and Drug Administration, current Good Manufacturing Practice (cGMP) resources.

Cannabis In Indian Country

Session Chair(s): Riana Durrett, Jordyn Sanders

Pathways to Partnership with the Tribal Cannabis Market

Faculty: Riana Durrett, Jeremy Sorgen | Tue, Oct 20 · 1:15 PM - 2:10 PM · Brickstones | Abstract #0133

— **Durrett:** Inaugural director of UNLV's Cannabis Policy Institute and a cannabis-law lecturer at the William S. Boyd School of Law (JD, UNLV); the gubernatorially appointed first Vice Chair of the Nevada Cannabis Compliance Board and former executive director of the Nevada Dispensary Association. — **Sorgen:** Assistant Research Professor at Mills College at Northeastern University and Provost Impact Fellow (PhD, University of Virginia), with postdoctoral training at UC Berkeley's Department of Environmental Science, Policy and Management. His research addresses Tribal authority in environmental policy and land use decision making, land sovereignty and stewardship, and Tribal sovereignty in emerging industries; he led the UC Berkeley Cannabis Research Center project on Tribal cultural resource protection in California cannabis permitting.

Description

Over the past decade, dozens of federally recognized tribes in the United States have exercised their sovereignty to develop cannabis programs, and dozens more operate federally approved hemp programs. Some sources estimate that more than 25% of the 575 federally recognized Native American Tribes are now involved in a cannabis or hemp program.

Pathways to Partnership, a Tribally-led research collaboration with UNLV's Cannabis Policy Institute, the University of California, Davis, Northeastern University, aims to assess the landscape of tribal cannabis in California and provide regulatory and business guidance to state and tribal representatives seeking to forge equitable and productive business relationships. The project will run from 2026-2028 and is funded by the California Department of Cannabis Control.

At the conference, Jeremy Sorgen (Northeastern University) and Riana Durrett (UNLV Cannabis

Policy Institute) will share a description of the project and preliminary findings based on meetings with the advisory committee, literature reviews, and analysis of compacts entered between states and tribes in other states. Sorgen and Durrett will also cover lessons learned from gaming and tobacco compacts, recommending how California can avoid repeating mistakes if California pursues government to government relations pertaining to the sovereign cannabis market. Through an eight-member advisory committee of tribal leaders, attorneys, and operators that keeps the research rooted in indigenous voices and adherence to laws and policies around tribal sovereignty, the team uses self-determination and sovereign status as a compass to respect tribal independence while supporting economic growth and safety.

Learning Objectives

Following this session, participants will be able to:

1. Describe the landscape of tribal cannabis and hemp programs among federally recognized tribes.
2. Explain the Pathways to Partnership research collaboration and its regulatory and business-guidance aims.
3. Discuss how equitable state-tribal cannabis business relationships can be structured.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

U.S. Department of Justice, Policy Statement Regarding Marijuana Issues in Indian Country (2014).

California Department of Cannabis Control, tribal cannabis resources.

Native American Rights Fund, tribal sovereignty resources.

Controlled Substances Act, 21 U.S.C. § 801 et seq.

Cannabis In Indian Country: Foundations, Frameworks, and the Future

Faculty: Riana Durrett, Jeremy Sorgen | Tue, Oct 20 · 1:15 PM - 2:10 PM · Brickstones | Abstract #0134

— **Durrett:** *Inaugural director of UNLV's Cannabis Policy Institute and a cannabis-law lecturer at the William S. Boyd School of Law (JD, UNLV); the gubernatorially appointed first Vice Chair of the Nevada Cannabis Compliance Board and former executive director of the Nevada Dispensary Association.* — **Sorgen:** *Assistant Research Professor at Mills College at Northeastern University and Provost Impact Fellow (PhD, University of Virginia), with postdoctoral training at UC Berkeley's Department of Environmental Science, Policy and Management. His research addresses Tribal authority in environmental policy and land use decision making, land sovereignty and stewardship, and Tribal sovereignty in emerging industries; he led the UC Berkeley Cannabis Research Center project on Tribal cultural resource protection in California cannabis permitting.*

Description

Over the past decade, approximately 50 federally recognized tribes in the United States have exercised their sovereignty to develop cannabis programs, and there are about the same number of federally approved hemp cultivation programs. According to some sources, more than a quarter of the 575 federally recognized Native American Tribes are involved in a cannabis or hemp program.

This panel discussion brings together leading voices at the intersection of cannabis policy and economic development among tribal communities to share insights about the rapidly changing tribal cannabis landscape in the United States. The panel will then explore the legal and jurisdictional foundations that shape cannabis policy in Indian Country, beginning with a brief but necessary primer on tribal sovereignty. Panelists will discuss existing frameworks governing cannabis business activities among Native American tribes, highlighting both opportunities and barriers for tribal nations navigating a complex legal and policy environment. Finally, looking forward, the panel considers emerging issues such as federal rescheduling, evolving hemp regulations, and the potential for intertribal trade.

Learning Objectives

Following this session, participants will be able to:

1. Describe the legal and jurisdictional foundations of cannabis policy in Indian Country, including tribal sovereignty.
2. Explain existing frameworks governing cannabis business activities among tribes.
3. Discuss economic-development and policy considerations for tribal cannabis.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

U.S. Department of Justice, Policy Statement Regarding Marijuana Issues in Indian Country (2014).

Native American Rights Fund, tribal sovereignty resources.

Agricultural Improvement Act of 2018, Pub. L. 115-334 (tribal hemp production).

Controlled Substances Act, 21 U.S.C. § 801 et seq.

The Quality of Sovereignty in Cannabis

Faculty: Jeremy Wilson | Tue, Oct 20 · 4:00 PM - 4:25 PM · Loft III | Abstract #0171

— *Wilson: Former Eastern Band of Cherokee Indians Tribal Councilman representing the Wolfetown community (2017–2019) and subsequently Governmental Affairs Liaison to the Cherokee Principal Chief. He was a public advocate for cannabis as tribal economic development and worked on the tribe's cannabis framework, including the 2021 Tribal Council ordinance removing tribal penalties for possession of an ounce or less and the push toward a tribal medical cannabis program. He is founder of Four Directions Creative Consulting and has worked as a cannabis consultant.*

Description

Cannabis legalization presents a complex, unique, but potentially transformative opportunity for tribes seeking to expand economic development and diversify revenue streams beyond traditional sectors such as gaming, federal contracting, and natural resources. This abstract examines the landscape of cannabis within tribal economies, emphasizing sovereignty as both an enabler and a constraint. Federally recognized tribes possess unique authority to regulate, license, and operate cannabis enterprises on tribal lands, yet must navigate a fragmented legal landscape shaped by federal prohibition, state-level legalization frameworks, and evolving enforcement policies. I led the effort of medical cannabis legalization for the Eastern Band Cherokee as a legislator and advocate.

Learning Objectives

Following this session, participants will be able to:

1. Describe how cannabis legalization offers tribes economic-development and revenue-diversification opportunities.
2. Explain how tribal sovereignty operates as both enabler and constraint within a fragmented federal-state legal landscape.
3. Discuss lessons from the Eastern Band of Cherokee Indians medical cannabis effort.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

U.S. Department of Justice, Policy Statement Regarding Marijuana Issues in Indian Country (2014).

Native American Rights Fund, tribal sovereignty resources.

Agricultural Improvement Act of 2018, Pub. L. 115-334 (tribal hemp production).

Controlled Substances Act, 21 U.S.C. § 801 et seq.

From Retail to Experience: The Regulatory Evolution of Cannabis Hospitality

Session Chair(s): Brian Applegarth, Ali Fakhri

From Product To Place: A Systems Framing for Cannabis Hospitality Regulation

Faculty: Brian Applegarth | Wed, Oct 21 · 12:40 PM - 1:05 PM · Shutters West II | Abstract #0169

— *Applegarth: Founder of the California Cannabis Tourism Association (now Cannabis Travel Association International) and of Applegarth Strategies; leads the cannabis and hemp councils for the California Travel Association and Destinations International and co-authored the first U.S. study of the cannabis travel audience.*

Description

As adult-use cannabis markets mature, legalization is entering a new phase—one that extends beyond cultivation, processing, and retail sales into environments increasingly connected to tourism, hospitality, public space, and lived community experience. Across the United States and

internationally, policymakers and local jurisdictions are beginning to confront a more complex question: how does cannabis function once it becomes part of a place-based experience economy?

This presentation introduces a destination stewardship lens for understanding the evolution of cannabis hospitality regulation. Drawing on comparative observations from mature markets including California, Colorado, Amsterdam, and the greater Netherlands, alongside emerging policy efforts in newer jurisdictions, the session explores how cannabis hospitality influences visitor experience, community dynamics, tourism integration, and the long-term sustainability of local cannabis economies.

Rather than approaching cannabis hospitality solely as a regulatory or commercial issue, the presentation situates it within broader systems shaping destinations over time—including public perception, local identity, resident experience, economic participation, and the relationship between policy design and real-world implementation. Particular attention will be given to how jurisdictions are navigating the transition from retail-only systems toward more integrated consumption environments, and how those decisions influence both visitor experience and community response.

Comparative case studies will highlight emerging approaches, policy considerations, and key points of friction as states and municipalities evaluate how hospitality fits within the next phase of cannabis market development. By establishing a systems-oriented and place-based analytical lens, this presentation aims to support more integrated thinking around cannabis hospitality regulation and the evolving relationship between cannabis, tourism, and destination stewardship.

Learning Objectives

Following this session, participants will be able to:

1. Describe the “destination stewardship” lens for understanding cannabis hospitality regulation.
2. Compare cannabis hospitality approaches across mature markets (California, Colorado, the Netherlands) and emerging jurisdictions.
3. Discuss how cannabis hospitality affects visitor experience, community dynamics, and tourism integration.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter’s final list when received):

California Department of Cannabis Control, consumption-lounge and event regulations.

Colorado Marijuana Enforcement Division, hospitality and consumption rules.

Cannabis Regulators Association (CANNRA), consumption-lounge resources.

National Conference of State Legislatures (NCSL), cannabis consumption and hospitality laws.

From Retail To Experience: The Regulatory Evolution of Cannabis Hospitality

Faculty: Brian Applegarth, Ali Fakhri | Wed, Oct 21 · 12:40 PM - 1:05 PM · Shutters West II | Abstract #0175

— **Applegarth:** *Founder of the California Cannabis Tourism Association (now Cannabis Travel Association International) and of Applegarth Strategies; leads the cannabis and hemp councils for the California Travel Association and Destinations International and co-authored the first U.S. study of the cannabis travel audience.* — **Fakhri:** *Faculty bio to be supplied by the presenter.*

Description

As adult-use cannabis markets mature, policymakers are entering a new phase of regulatory design centered on cannabis hospitality and licensed public consumption. Initial legalization frameworks focused primarily on cultivation, processing, and retail access. Increasingly, however, jurisdictions are evaluating whether and how to authorize on-site consumption lounges, event-based permits, integrated hospitality models, and tourism-oriented cannabis experiences. This curated session explores the evolution of cannabis regulation from retail-only systems toward more structured consumption environments and emerging cannabis experience economies. Through a combination of panel dialogue, comparative case studies, and policy-informed discussion, the

session will examine how different jurisdictions are approaching cannabis hospitality at the state, municipal, and destination levels. Drawing on observations and emerging data from mature and evolving markets, panelists will explore how cannabis hospitality intersects with tourism, visitor behavior, community dynamics, economic participation, and long-term social sustainability. Particular attention will be given to how local jurisdictions are navigating questions related to public consumption, destination identity, municipal governance, public health considerations, and the integration of cannabis into broader hospitality and visitor economy frameworks. The session will also examine how policy approaches differ across jurisdictions, highlighting emerging implementation models, areas of regulatory friction, and evolving best practices as destinations evaluate the role cannabis hospitality may play within future economic development and tourism strategies. This session aims to support more integrated thinking around cannabis hospitality regulation and the evolving relationship between cannabis, tourism, and destination stewardship as markets continue to mature.

Learning Objectives

Following this session, participants will be able to:

1. Describe the evolution of cannabis regulation from retail-only systems toward on-site consumption and hospitality models.
2. Compare state, municipal, and destination approaches to consumption lounges, event permits, and integrated hospitality.
3. Discuss the policy-design considerations for licensed public cannabis consumption.

Materials

Selected resources (compiled by the chairs from the abstract; substitute the presenter's final list when received):

California Department of Cannabis Control, consumption-lounge and event regulations.

Colorado Marijuana Enforcement Division, hospitality and consumption rules.

Cannabis Regulators Association (CANNRA), consumption-lounge resources.

National Conference of State Legislatures (NCSL), cannabis consumption and hospitality laws.