



The main graphic area features a dark blue background with a pattern of small, light blue dots that become more densely packed towards the bottom. A white rectangular box is positioned in the lower right quadrant of this area. On the left side of this white box, there is a vertical green bar. The text within the white box is centered and reads: "2019 NORTH AMERICAN CANNABIS SUMMIT SUMMARY OF PROCEEDINGS PUBLIC HEALTH, SCIENCE, AND HEALTH EQUITY". The year "2019" is in green, while the rest of the text is in dark blue.

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2019 NORTH AMERICAN CANNABIS SUMMIT

PUBLIC HEALTH, SCIENCE,
AND HEALTH EQUITY

SUMMARY OF PROCEEDINGS

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INTRODUCTION

The explosive increase in activity around cannabis^a legalization and decriminalization means that policymakers and other stakeholders must be prepared to respond *when*, not *if*, cannabis is made more accessible in their communities. The majority of U.S. states now allow some combination of decriminalization, medical use, and/or adult^b use of cannabis. As of this writing, only four states continue to completely prohibit all use of cannabis. In Canada, support among approximately two-thirds of the population prompted the introduction of Bill C-45 to legalize cannabis nationwide. Passed in June 2018, the new law took effect 4 months later. In that same year, Mexico’s Supreme Court ruled, yet again, in favor of plaintiffs seeking to grow, transport, and use cannabis for personal reasons, thereby setting a binding precedent.

2019 Summit Participants

- Elected officials
- Legislators
- Healthcare providers
- Addiction treatment and recovery specialists
- Prevention professionals
- Researchers
- State and municipal licensing and regulatory entities
- Youth-serving organizations
- Other stakeholders

As professionals grapple with rapidly evolving cannabis laws, the need for rational, science-based conversations on cannabis use has assumed greater urgency. The 2019 North American Cannabis Summit (2019 Summit) responded to this demand by providing an objective forum for hundreds of participants (see Figure 1) to share scientific evidence and expertise, with the goal of developing and implementing a best-practice approach to overseeing and regulating emerging legal cannabis markets.

Expanding on the [2017 National Cannabis Summit’s](#) groundbreaking exploration of the scientific, clinical, and political landscape surrounding state legislation of cannabis in the United States, the 2019 Summit incorporated the experience of its neighboring countries and encouraged participants to explore cannabis policy and practice that will lead to improved public health and health equity outcomes.

Figure 1

a The term “cannabis” is used throughout this report to refer to the genus of plants that includes cannabis sativa, cannabis indica, and cannabis ruderalis. The term “marijuana” is used only when referring to specific governance, research, or marketing campaigns that originally used that term.

b “Adult use” is used in lieu of “recreational use” in this report to objectively describe non-medical consumption of cannabis by individuals who are of legal consumption age.

Format of the Summit

For 3 full days (January 28–30, 2019) in Los Angeles, more than 600 participants and presenters from six countries engaged with each other on matters related to public health, the science of cannabis, and best practices in governance—all focused through a social and health equity lens. The nearly 80 keynote sessions, workshops, and interactive lunch-and-learn discussions (listed in [Appendix A](#)), as well as 34 poster presentations (listed in [Appendix B](#)), were categorized into the following six interrelated tracks:

- **Prevention and Education** addressed cannabis-related education campaigns aimed at educating target audiences about the variety of cannabis products and their health and impairment effects, modes of use, potency, secondhand smoke, and dual-, co-, and/or poly-use with other substances (e.g., tobacco); policies and approaches to protect public health; cannabis prevention and treatment approaches; public health messaging; and capacity building for implementing evidence-based prevention practices.
- **Governance, Federal Law, and Emerging Policy** included policy approaches to legalization; emerging regulatory models; cultivation, production, and processing; sales, consumption, and possession regulations; taxes and financing; and the role of policy in minimizing the health impact of increased access and use.
- **Emerging Research and Epidemiological Data** focused on trends in cannabis consumption following legalization for adult and/or medical use; effect of legalization on attitudes toward cannabis; the role of taxation in managing the market; monitoring and surveillance; and the impact of legalization on law enforcement, workplaces, universities, and public spaces.
- **Regulatory Issues** focused on smoke-free regulation, social clubs/smoking lounges, use and sales at cannabis events, and public use; technology and product testing; potency, product standards, safety, packaging, and labeling; and advertising and marketing.
- **Health Effects** focused on short- and long-term health effects; therapeutic benefits; cannabis use disorder screening, intervention, and treatment; and clinical education and practice, such as prescription and dosing of cannabis for medical purposes.
- **Public Safety** focused on cannabis-impaired driving and road safety, impairment detection and enforcement, environmental impact of cultivation, environmental exposure policies, smoke-free regulations, social clubs, and public consumption.

The evolving nature of the cannabis space is reflected in the count of sessions per track (see Table 1). Prevention and education are of highest interest and experience, while public safety is only starting to gain attention. Highlights of key issues within each track are described in [Section IV](#).

**TABLE 1:
COUNT OF SESSIONS PER TRACK**

Track	Oral Sessions	Poster Sessions
Prevention and Education	31	6
Governance, Federal Law, and Emerging Policy	24	4
Emerging Research and Epidemiological Data	23	15
Regulatory Issues	16	4
Health Effects	14	5
Public Safety	6	0

Planning Partners



Five partners planned the 2019 Summit: [Advocates for Human Potential, Inc.](#) (AHP); the [Canadian Centre on Substance Use and Addiction](#); the [California Department of Public Health](#) (CDPH); University of California, Los Angeles (UCLA) [Integrated Substance Abuse Programs](#) (ISAP); and the University of California (UC) Office of the President [Tobacco-Related Disease Research Program](#) (TRDRP). Linda Frazier of AHP and Beth Rutkowski of ISAP chaired the program planning committee. Forty-four (44) volunteer public health research and policy expert reviewers were recruited to conduct abstract review and scoring of more than 150 submissions in the six identified core areas of cannabis research and practice. Each abstract received three scores that were averaged, and the high-scoring submissions were accepted as oral or poster sessions for the 2019 Summit.

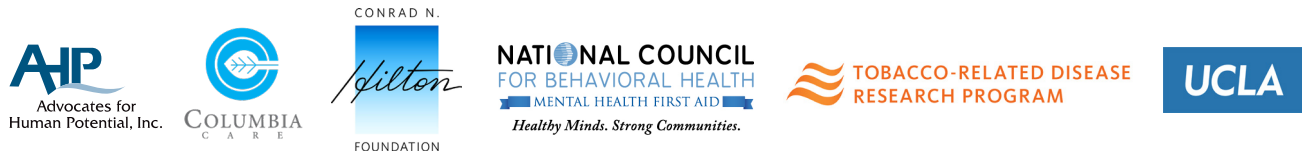
The 2019 Summit program planning committee implemented disclosure requirements that met the standard for continuing education accreditation to assure credibility of the program offerings. A conflict-of-interest statement required that all presenters identify, resolve, and disclose any conflicts before their presentation. A required disclosure slide at the beginning of each oral presentation included the following information:

- All funding sources for presented work
- All industry funding to the investigator in the last 5 years
- Off-label medication uses being discussed

Additionally, each presenter, speaker, discussant, respondent, and faculty member agreed to not promote the sale of goods or services or to insert bias when planning or presenting their activity/session.

To maintain balanced and objective science-based perspectives, the planning partners intentionally did not include an exhibit hall, thereby minimizing commercial influence. Furthermore, the 2019 Summit did not receive cannabis industry funding for any expenses related to keynote sessions, workshops, interactive lunch-and-learn discussions, or poster presentations.

Sponsors



The 2019 Summit would not have been possible without the support of the following sponsors:

- AHP, for its leadership, organizational infrastructure, and financial support
- [Columbia Care](#), provider of medical cannabis products and services, for the opening networking reception
- [Conrad N. Hilton Foundation](#), for its support of the health equity sessions
- [National Council for Behavioral Health](#), for its communications support
- TRDRP, for its award of a conference grant
- [UCLA Health Cannabis Research Initiative](#), for its support of the opening network reception

Master of Ceremonies



Dan Adams

Cannabis Reporter, *The Boston Globe*

Dan Adams of *The Boston Globe* served as master of ceremonies at the 2019 Summit. Since being named the Globe's first dedicated cannabis journalist, Adams has embedded himself in the cannabis community and spotlighted the concerns of marginalized groups while holding industry and government officials accountable. He also authors the "This Week in Weed" newsletter and has moderated several panels on cannabis.

Report Structure

This summary report provides an overview of central points from the 2019 Summit.

- I [Section one](#) discusses U.S., Canadian, and Mexican responses to the growing acceptance of cannabis.
- II [Section two](#) introduces equity as a means to promoting social and economic justice, avoiding health and social harms, and minimizing health inequities.
- III [Section three](#) provides a broad overview of pressing issues, as presented within the keynote sessions.
- IV [Section four](#) highlights issues of greatest common interest for each track and spotlights specific implications of social injustice and health inequity.
- V [Section five](#) explores future direction for continuing this critical international conversation around cannabis.

Sessions referenced are indicated by superscripted numbers that correspond to the list in [Appendix A](#). Asterisked sessions were videotaped; [recordings are available on YouTube](#). The [PowerPoint slides](#) for all sessions are available online.

SECTION I: RESPONDING TO THE GROWING ACCEPTANCE OF CANNABIS

The 2019 North American Cannabis Summit broadened the conversation on policy, regulatory, and governance issues related to cannabis legalization launched at the 2017 National Cannabis Summit to encompass the experience of not only U.S. state and local governments, but also Canada and Mexico.

United States

The U.S. federal government has yet to make a commitment toward cannabis legalization and decriminalization. Recent legislation and events include the following:

- In January 2018, then-Attorney General Jeff Sessions retracted the “Cole memorandum” that stated that due to limited resources, federal enforcement activity of cannabis, including civil enforcement, criminal investigation, and prosecution, would not interfere with state laws—as long as state cannabis laws prevented youth use, gang involvement, drug trafficking, drugged driving, and violence.^c
- In June 2018, the Strengthening the Tenth Amendment Through Entrusting States (STATES) Act was introduced in the Senate to amend the Controlled Substances Act so that federal prohibition did not apply in states that have legalized cannabis. It was blocked as an amendment to the First Step Act 6 months later.
- Also in June 2018, the Food & Drug Administration (FDA) approved a medication containing cannabidiol (CBD) for the treatment of two rare forms of epilepsy. Epidiolex[®] is the first FDA-approved drug derived from an extract of the cannabis plant. The Department of Justice and the Drug Enforcement Administration (DEA) placed it in Schedule V, the least restrictive schedule of the Controlled Substance Act.
- In December 2018, the Agriculture Improvement Act (Farm Bill) passed, legalizing hemp and hemp-based CBD oil.
- In January 2019, the Regulate Marijuana Like Alcohol Act (H.R. 420) was introduced, proposing to remove cannabis from the Controlled Substances Act’s scheduling. A few days later, Attorney General nominee William Barr indicated during his Senate confirmation hearing that cannabis companies operating legally in states that allow cultivation and sales would not face Justice Department action.
- In March 2019, the Safe Banking Act (H.R. 1595) was introduced to allow banks to work with legal cannabis companies in states where the drug has been legalized.

^c Cole, J. (2013, August 29). *Memorandum for all United States attorneys: Guidance regarding marijuana enforcement*. U.S. Department of Justice Office of the Deputy Attorney General. Retrieved from <https://www.justice.gov/iso/opa/resources/3052013829132756857467.pdf>

The DEA considers cannabis, as a Schedule I drug, to have a high potential for abuse and no currently accepted medical use. Evidence supports cannabis as an effective treatment for chronic pain, chemotherapy-induced nausea and vomiting, and multiple sclerosis spasticity symptoms, but additional research on therapeutic benefits and harms is needed.^d The catch 22? To become a legal substance under federal law, clinical trials need to provide evidence that cannabis has a medical use (this would remove it from Schedule I), but because cannabis is illegal under federal law, conducting clinical trials around medical use is nearly impossible; thus, there is insufficient evidence to move it from Schedule I.^{216*}

Activity at the state level reflects the mindset of the country’s adults, two-thirds of whom are in favor of legalizing marijuana (twice as many as those who approved in 2000).^e Comprehensive medical use laws are now in place in more than half of states, the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands; as of this writing, adult use also is allowed in 14 states and territories. Once adult use legislation passes at the state level, it may take more than 2 years for infrastructure, regulations, and tax income to be operational, and perhaps longer for consumers to have access to stores (see Table 2).

TABLE 2: STATES ALLOWING ADULT CANNABIS USE		
State	Vote or Decision to Legalize	First Sales
Colorado	November 2012	January 2014
Washington	November 2012	July 2014
Alaska	November 2014	February 2015
Oregon	November 2014	October 2015
California	November 2016	January 2018
Maine	November 2016	None as yet
Massachusetts	November 2016	July 2018
Nevada	November 2016	July 2017
Vermont	January 2018	Commercialization not legalized
Michigan	November 2018	None as yet
Illinois	June 2019	None as yet

As more states move to legalization of cannabis, they bring a wealth of lessons learned on the power of local ordinances,¹⁰⁷ structural conditions that allow certain people to enter the market while barring others,¹⁴⁸ the potential role of public health in regulating advertising,¹¹⁷ fostering responsible consumers,⁹⁶ and finding middle ground amongst the controversies surrounding legalization, decriminalization, and/or legal therapeutic use of cannabis.¹⁹⁰

d National Academies of Sciences, Engineering, and Medicine. (2017, January). *The health effects of cannabis and cannabinoids: committee’s conclusions*. Retrieved from https://www.nap.edu/resource/24625/Cannabis_committee_conclusions.pdf

e Hartig, H. & Geiger, A. (2018, October). About six-in-ten Americans support marijuana legalization. *Pew Research Center Fact Tank: News in the Numbers*. Retrieved from <https://www.pewresearch.org/fact-tank/2018/10/08/americans-support-marijuana-legalization/>

Canada

With passage of the Cannabis Act in 2018, Canada became the second nation globally, and the first in the Group of Twenty international forum of governments and central bank governors from 19 countries and the European Union (G20), to federally legalize adult use of cannabis.^f Under Canada's constitutional division of powers, provincial and territorial governments—working in concert with local governments—are developing and implementing much of the legislation and policy supporting cannabis regulation.^{137*} The provinces and territories are responsible for setting up retail and distribution, while the federal government oversees production and cultivation, establishes national standards for products, and conducts surveillance and monitoring.

A task force convened by the Canadian federal government in the summer of 2016 jumpstarted the collaborative work of legalizing adult use of cannabis. The task force submitted more than 80 recommendations for a framework through which to regulate and restrict cannabis to achieve the legislation's key priorities of keeping cannabis out of the hands of youth, keeping profits out of the pockets of criminals, and protecting public health and safety. In its pursuit of these priorities, Canada has set international precedents in policy areas such as marketing prohibitions (e.g., refraining from health claims about cannabis and packaging that are appealing to youth) and packaging requirements (e.g., including tetrahydrocannabinol [THC]/CBD content and health warning messages on labels).^{173, 259*}

Prior to legalization, Canada readied its citizenry, advising them of the health effects and safety risks associated with cannabis and helping them become informed consumers if they choose to consume. Public education campaigns, such as *Don't Drive High*, launched in 2017. Surveys indicate vastly differing beliefs about drug-impaired driving among Canadians, ranging from the majority of respondents believing that non-medical cannabis impairs driving to frequent consumers of cannabis believing it is safe to drive immediately after using non-medical cannabis. Research is important for focusing public awareness campaigns, as well as for developing public safety policy and program initiatives, establishing benchmark data, and preparing police around enforcement.⁵¹

Canada's efforts to raise awareness also includes preparing for a potential increase in cannabis use among seniors. The percentage of older adults in Canada continues to grow, as does the need to examine the unique physiological, psychological, social, and pharmacological circumstances that may make them more vulnerable to the effects of cannabis. A multidisciplinary working group of experts are developing evidence-informed guidelines for the prevention, assessment, and management of cannabis use disorder in older adults. These guidelines, intended for healthcare professionals and other stakeholders across Canada, will be finalized and released in 2019.¹²⁶

Another important step in the transformational journey toward cannabis legalization was preparing for surveillance and monitoring. Three federal departments—Health Canada, Justice, and Public Safety Canada—worked together to identify indicators of importance, starting with information currently tracked. The Canadian Institutes of Health Research sponsored workshops in which surveillance and research experts prioritized the indicators.

^f Uruguay legalized adult use of cannabis in 2013.

Mexico

Two ground-breaking developments regarding cannabis consumption among Mexican citizens occurred in 2015. First, a federal judge allowed the family of Graciela Elizalde to import CBD for treating seizures caused by Lennox-Gastaut syndrome, making her the first acknowledged medical cannabis patient in the country. Second, the National Supreme Court of Justice, noting that cannabis prohibition was a violation of the right to the free development of the personality, voted in favor of four individuals seeking to grow cannabis for personal consumption. A fifth similar ruling occurred in October 2018, setting a binding precedent under Mexican law.

These significant changes align with constitutional reform launched in 2011 that involved the adoption of international standards of human rights, which has since framed the analysis of all emerging issues and challenges in the field of life and health sciences. In its pursuit of human rights, the National Bioethics Commission of Mexico is fostering reflection on the social, economic, and health aspects of cannabis regulation. It is within this context that the first public consultation process to update the normative framework surrounding cannabis was carried out in 2016, leading to the 2017 legalization of cannabis for medical purposes.

The landscape for regulating cannabis has reached a turning point, setting bias and personal opinion aside to pursue the latest scientific findings. Health and human rights authorities are working to ensure that the new regulatory model

- prevents the consumption of drugs, especially cannabis, through campaigns aimed at children and young people;
- shapes comprehensive care with a focus on harm reduction; and
- establishes institutional strategies to mitigate the effects of substance abuse.

Mexico's health system is committed to complying with the right to health protection, which includes ensuring access to all therapeutic sources (e.g., pharmaceutical components derived from cannabis). The use of such medications, however, requires clinical research on effectiveness and safety. As knowledge of health risks unfolds, measures for mitigating the negative effects of personal use of cannabis must remain flexible and provisional. A flexible regulatory framework will also accommodate different uses and applications of cannabis as a whole (flower, seed, stem, and root) as they develop.

Mexico faces different realities than its northern neighbors. It is a major producer of cannabis that is distributed internally through retail and trafficked internationally, but to achieve equal footing in the international legal market, quality standards for cannabis production must be established. Cannabis regulation also holds the potential for removing a source of revenue for powerful criminal drug-trafficking organizations in Mexico, thereby promoting pacification within the country.

Such economic and social benefits are overshadowed by the primary goal of cannabis regulation: promoting wellness and safety while respecting free development of the personality. This involves restricting access for children and young people, ensuring quality and safety in cannabis products, promoting responsible consumption and safe storage, and enacting public policies to prevent the use of products with high concentrations of THC (e.g., a tax on concentration).

Facilitating the comparative analysis of case studies of state and community responses to the legalization of cannabis, disseminating findings that may apply to other contexts, and bringing together the experience of various researchers and health service providers will help inform Mexico's efforts to establish harm-reduction criteria.

SECTION II: HEALTH EQUITY AND SOCIAL JUSTICE

Health equity and social justice are critical components of the international conversation on legalizing cannabis. For this reason, health equity was a major focus of the 2019 Summit. The opening keynote and one third of all summit sessions focused on the intersection of health equity and cannabis research, policy, or public health practice. Many other sessions also touched on some aspect of this theme.

Many people view cannabis legalization through a health equity and social justice lens for the following reasons:

- Historically, rates of cannabis-related arrest and incarceration have been higher among black and Latino individuals relative to white individuals, despite cannabis use rates being similar by race and ethnicity.
- Encounters with the criminal justice system negatively affect health outcomes among individuals and within communities.
- Racial disparities in cannabis-related criminal justice encounters are rooted in public policy, such as the U.S. federal government’s “War on Drugs.” Therefore, a public policy approach to ameliorating these harms is warranted.

Racial Disparities in Cannabis-Related Encounters with the Criminal Justice System

In the United States in 2010—before any state had legalized cannabis for adult use—black and Latino individuals were arrested for marijuana possession at four times the rate of white individuals, despite having similar rates of cannabis use.^g A 2017 study conducted for Massachusetts in advance of its first legal sales found that “racial disparities in marijuana arrests are ubiquitous” throughout the United States.^h

What is perhaps more surprising—and disappointing—is that racial disparities in cannabis-related arrest rates persist in states that have legalized it for adult use. For example, data from Colorado show that the number of marijuana arrests for black individuals is double that for white individuals from 2012 through 2017, encompassing a period spanning the decision to legalize to 3 years post-legalization.ⁱ

g Edwards, E., Bunting, W., & Garcia, L. (2013). *The war on marijuana in black and white*. New York: American Civil Liberties Union Foundation. Retrieved from https://www.aclu.org/sites/default/files/field_document/1114413-mj-report-rfs-rel1.pdf

h Gettman, J. (2017). *The impact of drug and marijuana arrests on local communities in Massachusetts*. Prepared for the Massachusetts Cannabis Control Commission. Retrieved from <https://www.mass.gov/files/documents/2017/12/12/Impact%20of%20Drug%20and%20Marijuana%20Arrests%20on%20Local%20Communities%20in%20Massachusetts.pdf>

i Reed, J. (2018). *Impacts of marijuana legalization in Colorado. A report pursuant to Senate Bill 13-283*. Colorado Department of Public Safety, Division of Criminal Justice, Office of Research and Statistics. Retrieved from https://cdpsdocs.state.co.us/ors/docs/reports/2018-SB13-283_Rpt.pdf

Oregon reported racial disparities in arrest rates of similar magnitude for the year following legalization.^j A recent study based on data from the state of Washington concludes that, although arrest rates for black individuals declined following legalization, “relative disparities in marijuana arrest rates for African Americans increased for those of legal age, and remained unchanged for younger adults.”^k

Data suggest that racial disparities in enforcement of cannabis law are not unique to the United States. A recent study documents racial disparities in cannabis arrest rates in Canadian cities from 2015 through 2017, prior to legalization of cannabis for adult use. In Canada, black and indigenous people are five to nine times more likely to be arrested for cannabis possession than white people. As in the United States, cannabis use rates are similar by race/ethnicity.^l

How Encounters with the Criminal Justice System Influence Health Outcomes

In the United States, a person who has been incarcerated—or even arrested without being charged—can suffer lasting repercussions on their ability to find work and housing, or access social services. Studies link incarceration to homelessness,^m and organizations that seek to address housing instability note that incarceration is both a predictor and an outcome of homelessness.ⁿ Individuals who have been incarcerated may lose access to subsidized housing. Interviews with former prisoners incarcerated for nonviolent drug-related crimes indicate that restrictions on housing eligibility push formerly incarcerated individuals to live in higher crime neighborhoods, pay higher rents, and live apart from their families. Housing restrictions are linked with increased recidivism.^o Reviews of the literature show a strong relationship between housing instability and health outcomes for individuals and families.^p

j Oregon Public Health Division. (2016, January). *Marijuana report: Marijuana use, attitudes and health effects in Oregon*. Portland, Oregon: Oregon Health Authority. Retrieved from <https://www.oregon.gov/oha/ph/PreventionWellness/marijuana/Documents/oha-8509-marijuana-report.pdf>

k Firth, C., Maher, J., Dille, J., Darnell, A., & Lovrich, N. (2019). Did marijuana legalization in Washington State reduce racial disparities in adult marijuana arrests? *Subst Use Misuse*, 54(9), 1582-1587. doi: 10.1080/10826084.2019.1593007

l Browne, R. (2018, April 18). Black and indigenous people are overrepresented in Canada’s weed arrests. *VICE Newsletter*. Retrieved from https://www.vice.com/en_ca/article/d35eyq/black-and-indigenous-people-are-overrepresented-in-canadas-weed-arrests

m Nilsson, S., Nordentoft, M., & Hjorthoj, C. (2019, August 6). Individual-level predictors for becoming homeless and exiting homelessness: A systematic review and meta-analysis. *J Urban Health*. doi: 10.1007/s11524-019-00377-x

n Reentry and Housing Coalition. (n.d.). Homelessness: *What we know*. [Webpage]. Retrieved from <http://www.reentryandhousing.org/public-housing>

o Keene, D., Rosenberg, A., Schlesinger, P., Guo, M., & Blankenship, K. (2018). Navigating limited and uncertain access to subsidized housing after prison. *Hous Policy Debate*; 28(2), 199-214. doi: 10.1080/10511482.2017.1336638

p O’Brien, K. (2019, September). Social determinants of health: the how, who, and where screenings are occurring; a systematic review. *Soc Work Health Care*, 58(8), 719-745. doi: 10.1080/00981389.2019.1645795

Developing Public Policy to Ameliorate the Harms Caused by Cannabis Law Enforcement

Social equity programs are states' efforts to use cannabis policy to make amends for the harm caused by cannabis law enforcement to certain individuals, families, and communities. Some states are legalizing with equity as a centerpiece of state law. For example, the Massachusetts Cannabis Control Commission is required by law to "ensure that people from communities that have been disproportionately harmed by marijuana law enforcement are included in the new legal marijuana industry,"^q as described by Commissioner Shaleen Title in her 2019 Summit keynote address. A challenge for the United States, Canada, and Mexico going forward is determining whether cannabis can be legalized in such a way as to not only eliminate racial disparities in arrest and incarceration rates, and not only include black and Latino individuals in the emerging cannabis economy, but also to leverage legalization to make amends for the social and economic harm done to communities of color as a result of past enforcement of cannabis law.

q Cannabis Control Commission, Commonwealth of Massachusetts. (n.d.). *Summary of equity provisions*. Retrieved from <https://mass-cannabis-control.com/wp-content/uploads/2018/03/UPDATED-Guidance-Summary-of-Equity-Provisions-with-6th-criterion-added-1.pdf>

SECTION III: THE KEYNOTES, IN ORDER OF APPEARANCE

Goodbye to the Old Guard: Legalization for the New Generation of Leaders



Shaleen Title

Commissioner, Massachusetts Cannabis Control Commission

Shaleen Title, Commissioner at the Massachusetts Cannabis Commission, opened the 2019 Summit with a discussion of objectivity and neutrality. Too often, these words allow us to disregard the history behind an issue. In the case of cannabis, history included a racist agenda through which to build support for prohibition and a war on drugs that targeted “hippies with marijuana and blacks with heroin.”^r The emotional tie-in of the past, in fact, provides the context for having rational conversation moving forward.

In addition to acknowledging the past, it is important for people with privilege to understand the experiences of those not sharing that same privilege. Some campaigns associated with the cannabis legalization movement inadvertently perpetuate the message that different people deserve different consequences for the same actions.

Commissioner Title went on to explain the genesis of Massachusetts’ Cannabis Control Commission, as well as its key aspects: diverse perspectives, transparency, baseline data, a research agenda, expert advisory groups, and open data. The Commission relies heavily on data in making decisions about public awareness, limits on marketing, environmental regulations, diversity planning, positive impact planning, and social equity.

Entry and market requirements demand large amounts of capital and thus favor the already privileged; this, essentially, encourages “big cannabis.” Making bold, data-driven decisions to create the best—and most diverse—industry possible is crucial during this early period of legalization.

To leave the prohibition mindset behind, employee testing that focuses on impairment on the job, not personal or medical use that may have happened weeks ago, is needed. Residents of public housing are no less entitled to legal access and a place to consume cannabis than private homeowners. Fair and affordable licensing is needed with room for businesses of all sizes.

Saying goodbye to the old guard means saying goodbye to appeasement, to red carpets for the wealthy and connected, and to a pro-/anti-cannabis mentality. The question ushering in the new era is: “How do we inform the law with research and data in order to promote fairness, justice, and economic empowerment with values of which we can be proud?”^{247*}

^r Baum, D. (2016, April). Legalize it all. *Harper’s Magazine*. Retrieved from <https://harpers.org/archive/2016/04/legalize-it-all/>

How Public Health Experts Can Shape the Future of Cannabis Policy



Andrew Freedman & Lewis Koski
Co-founders, Freedman and Koski, Inc.

Public conversations about cannabis legalization across the country that Freedman and Koski repeatedly hear focus on youth consumption, driving while high, poison control center and emergency rooms calls, and tax revenue. Data on these issues do not always align with public perception. For example, contrary to expectations, cannabis consumption among youth in Colorado decreased in the years following its legalization in that state. Careful analysis of data often reveals any number of policy considerations, and the larger the suite of policy changes becomes, the more likely opposition is to organize.

To effectively influence the debate, Freedman and Koski advise tackling bite-sized, data-driven issues and maintaining focus on the core problems. In the case of driving while high, shaping policy on driving under the influence of drugs is a more productive response than attacking cannabis legalization and engenders far more public support. To further foster public support, invest cannabis tax revenue in programs where impact is discernable, such as establishment of new substance abuse programs.

States face several ongoing and unresolved implementation issues, such as those associated with onsite consumption (e.g., smoking cannabis versus consuming edibles); delivery (e.g., ensuring receipt of home deliveries to prevent underage access); potency (e.g., establishing parameters of risky cannabis consumption sans appropriate data); and health and economic equity (e.g., identifying key data to maximize tracking and point-of-sale technology).

With the increase in political and big-industry posturing, stakeholders at all levels might consider the Pareto Principle, which posits that 80 percent of the effects come from 20 percent of the causes, to focus the vision of what federal cannabis legalization should entail. In discussing how regulatory guardrails can be provided to protect the fifth of the population who will use the product, Freedman and Koski noted other questions that abound:

- How can pharmaceutical companies be incentivized to conduct research and gain FDA approval?
- Should interstate commerce be part of an initial round of federal legalization? Are price controls necessary to avoid price collapse?
- What type of advertising should be allowed?
- What should be preserved at the federal level from state systems (e.g., best practices around labeling or packaging)? What will the respective roles and responsibilities be for state actors and for the federal government?^{243*}

Marijuana as Medicine: Can We See Past the Smoke?



Igor Grant

Professor, Department of Psychiatry, and Director of San Diego Center for Medicinal Cannabis Research, UC San Diego

Dr. Grant explained advances in neurobiology that led to the discovery of the cannabinoid receptors, and then to the signaling molecules that work with these receptors. He noted that the endocannabinoid system's regulatory function may have important implications for future medications, whether derived botanically or synthetically.

Findings on [neuropathic pain among HIV patients](#) and other medical conditions from the Center for Medicinal Cannabis Research, which is directed by Dr. Grant, are included in the National Academy of Sciences, Engineering, and Medicine's 2017 report [The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research](#). This report set forth substantial/conclusive evidence of cannabinoid efficacy for chronic pain, spasticity of multiple sclerosis, and control of nausea; moderate evidence of efficacy in improving sleep in those with chronic medical conditions (e.g., chronic pain, fibromyalgia); and limited evidence of efficacy in treatment of certain anxiety disorders and post-traumatic stress disorder.

The safety of combustible material in clinical settings and secondhand smoke are two of several challenges associated with smoked cannabis, prompting consideration of other delivery mechanisms. Significant differences exist in the movement of THC, CBD, and other cannabinoids within the body per mode of administration (smoked and other inhalational, oral, transdermal, oral-mucosal, suppositories). For example, [a study on vaporized cannabis in relation to neuropathic pain](#) indicated that even the very lowest doses of THC-containing product produced an effect. This is important in considering the cognitive, attentional, mood, and psychological effects associated with THC-based products.

To move research forward, Dr. Grant believes discourse on medicinal cannabis must be separated from broader social policy on adult use. Proof of principle and larger-scale clinical trials on cannabis, administered via several routes and among specific constituents, are necessary and must consider effects of age, sex, comorbidities, and other medications. Tax dollars collected from cannabis sales can support such studies, which should also focus on longer-term benefits, toxicity, and broader social effects. Regulatory authorities need to facilitate medical research by re-scheduling cannabis away from the most restrictive designation, recognizing that harm potential is modest, and medical benefits exist. U.S. states should be empowered to license producers for medical research to make diverse products available in a timely manner. If cannabis is to be used as a medicine, it needs to be capable of physician prescription in accordance with agreed protocols and subject to availability from trusted sources (e.g., pharmacies or regulated dispensaries) that confirm potency and purity.²⁴⁶

Cannabis and Opioids: What Is the Role of Cannabis in the Evolving Opioid Epidemic?



Rosalie Pacula

Senior Economist,
Co-director of Drug Policy
Research Center, RAND
Corporation



Ziva Cooper

Research Director, UCLA
Cannabis Research Initiative

Pacula and Cooper discussed several compelling questions related to cannabis and its role in the opioid epidemic. They noted that the initiation rate of non-medical opioid users has declined and opioid prescriptions to patients are declining since their peak in 2010, but rates of heroin initiation are still rising. They feel it is unlikely that cannabis legalization will substantially influence rates of new opioid prescriptions, but if/how it will impact initiation of heroin is unclear.

The rates of misuse of prescription opioids have stabilized, but rates of transition into heroin and illicit drug use appear to still be increasing. It is possible, but uncertain, that cannabis legalization could reduce risky use of prescription opioids. However, there is no evidence that cannabis legalization reduces the likelihood of transitioning from prescription opioids to heroin.

The presenters stated that there is currently no scientific basis on which to promote cannabis legislation as a way of reducing opioid dependence. Although cannabis legalization may be an effective strategy for reducing the harms associated with prescription opioid abuse, today's epidemic is being driven by illicit opioids. Cannabis legalization will not reduce mortality from heroin or illicit synthetics.

The National Academy of Sciences has identified substantial evidence indicating that cannabis and cannabinoids can help certain chronic pain conditions. States that have medicalized cannabis have shown lower rates of opioid prescriptions after medical cannabis stores opened. However, the opioid distribution data reported through the DEA do not show the same decline.

The synergistic effect of THC and opioids is indicated in animal research as well as in a placebo-controlled, double-blind study. Combining cannabis with a low dose of an opioid that is not pain-relieving on its own produced robust pain relief. Research on whether this combination increases the abuse potential, along with analgesic potential, is being pursued.

Studies have found a negative association between cannabis availability and opioid-related mortality, opioid-involved fatal car accidents, and treatment/emergency department admissions. These associations may be due to opioid-related policies enacted at state and federal levels, as well as within healthcare systems. For example, changing the default of an opioid prescription from 30 to 7 days has impacted prescribing. Another example is the overlap of broad-scale distribution of naloxone with the opening of medical cannabis dispensaries, both of which are expected to reduce opioid-related mortality.^{253*}

Public Health Cannabis Monitoring and Surveillance in an Era of Legalization



Gillian Schauer

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Susan Weiss

Director, Division of Extramural Research, National Institute on Drug Abuse



Althea Grant-Lenzy

Non-Infectious Diseases, Centers for Disease Control and Prevention

Members of this panel agreed that a robust surveillance and monitoring system is necessary for assessment of legalization and regulation on a number of different outcomes, such as public health and safety. Armed with this information, policy makers and other stakeholders can report to governmental agencies about what works and what needs adjusting. Cannabis surveillance is particularly challenging due to the speed at which changes are occurring and the nuances of the laws in relation to the ways they are being implemented. In addition to baseline data, resolution on fundamental issues, such as standards of measurement, are urgently needed.

Staff in state and county health departments need to be prepared for inquiries into the extent of the public health burden and the nature of disparities. In comparison to national data, state survey data generally provide a better sense of the most current status of the state or locality. State data sets

are usually designed to be more representative of state or local entities, providing information about specific populations. The third argument for state data is that state systems are often more flexible, allowing inclusion of questions that are of highest priority to local stakeholders.

The challenge of developing different surveillance tools while acknowledging the compromises that are often made in respect to costs and burden prompted the convening of a federal-state coalition to recommend key cannabis indicators to states, including a separate list of measures for specific populations. Specific populations for whom data are scant and particularly important to collect include pregnant women, the indigenous population, users of medicinal cannabis, young adults, and individuals with cannabis use disorders.

Discrepancies in data from large, well-conducted epidemiological surveys need to be understood and explained in order to gain public trust. For example, the Substance Abuse and Mental Health Services Administration's (SAMHSA's) National Survey on Drug Use and Health indicates that rates of cannabis use disorder have been relatively flat over the last few years, but the National Institute on Alcohol Abuse and Alcoholism's National Epidemiologic Survey on Alcohol and Related Conditions indicates nearly a doubling of the rate. Different findings may be due to legitimate methodological reasons (such as the setting in which the survey is administered), but these reasons need to be made clear to policy makers.^{259*}

Perspectives on Moving Forward: What's Next Across North America?



Krista Apse

Director, External Relations, Cannabis Legalization and Regulation Branch, Health Canada



Manuel Ruiz de Chávez

President, National Bioethics Commission of Mexico



Andrew Freedman

Co-founder, Freedman and Koski, United States

After brief descriptions of their respective countries' progress and challenges (captured in [Section 1](#) of this report), panelists shared that the collaborative nature of the 2019 Summit mirrored the way in which North America has made progress on issues surrounding expanding cannabis decriminalization, medical cannabis, and legalization of adult use. Countries have knocked on each other's doors, looking for information on best practices and what has worked in terms of public education and regulation. This type of collaboration—this openness and willingness to share—must continue.

A tremendous amount of sweat equity has been expended on cannabis efforts thus far, but there is much still to do. The deeper we dig, the more issues we uncover. Some issues we faced 3 years ago have been resolved, but in 18 months the landscape will look radically different than it does today, particularly with the passage of significant pieces of legislation, such as the U.S. Farm Bill, and the increasing availability of sideline capital.

With each step, actionable regulation get closer, but complex issues take time. Take, for instance, access to medical cannabis for the uninsured. One way to facilitate this is to continue gathering data on health claims. Increasing confidence in and demand for medical cannabis—as indicated by data—can lead to the greater possibility of insurance coverage of medical cannabis for all. Health equity cannot be an afterthought; it must be pursued in a thoughtful, methodical approach.

The presenters encouraged communities to consider equity in all its aspects. The advent of interstate or international commerce, for example, could result in a price drop, making a now-profitable endeavor vastly less so and thereby damaging politically engineered social equity programs.

Opening up international trade is another issue on the distant horizon. International drug conventions that prohibit movement of cannabis across borders except for medical or scientific purposes must ease before talks of importing and exporting cannabis among countries can commence.^{266*}

SECTION IV: COMPELLING ISSUES, BY TRACK

The 2019 Summit provided an abundance of information on a wide variety of topics—far more than can be conveyed in these proceedings. Key issues of the six tracks are highlighted below by track, in descending order of sessions per track. To reinforce the pervasiveness of health equity and social justice, a “focus question” is posed with specific examples from the summit for each track.

Prevention and Education

Failing to consult the intended audience, basing messages on fear instead of science, “finger-wagging,” and adopting an unrealistic approach to substance use have all contributed to the ineffectiveness of past anti-drug messages.²¹² Compelling education campaigns, such as those described below, share research-informed messages on laws, health effects of cannabis, and prevention among vulnerable populations.

Adult Messaging

Early approaches to health-related adult messaging include campaigns about the law, safe storage/edibles messages, drive-high-get-a-DUI campaigns, and informational websites. Recommendations for future approaches include accepting a harm-reduction approach, obtaining and sustaining state funding for public education campaigns, reigning in industry advertising and messaging, identifying trusted messengers that have the same objectives as public health, and crafting adult messages that don’t unintentionally increase youth use.¹²⁷

State Campaigns

- Alaska’s Department of Health and Social Services developed the [Responsible Consumer](#) adult cannabis public education campaign. Formative research, funded by the Alaska Mental Health Trust Authority and involving Alaskan cannabis consumers and cannabis industry, revealed a preference for non-stigmatizing messages delivered by “normal” Alaskans, such as retailers. The vast majority of research participants agreed that information regarding the law and responsible use would be helpful. Primary goals of the campaign are to educate about the law, promote responsible consumption among adults ages 21+, and prevent or decrease cannabis-impaired driving. Retailers are used as key messengers for the campaign.⁹⁶
- The Colorado Department of Public Health and Environment’s adult cannabis public education social marketing campaign, [Responsibility Grows Here](#), educates cannabis consumers about responsible, safe, and legal use. Informed by formative research with cannabis users and industry, as well as tourists, this campaign aims to increase safe storage, reduce overconsumption of edibles, and reduce public use. The campaign features [Meg the Budtender](#), who is dedicated to furthering responsible cannabis practices by sharing her

trusted budtender tips. Meg's role as a budtender allows her to speak to users with authority and experience. She breaks gender stereotypes typically associated with the cannabis industry.⁹⁷ Other Responsibility Grows Here audiences are pregnant and breastfeeding women, trusted adults, and tourists.

- Public health advocates in New Hampshire successfully navigated between extreme points of view on cannabis legalization, decriminalization, and legal therapeutic use by maintaining a focus on youth. Identifying a significant gap in child safety information, the Prevention Task Force of the Governor's Commission on Alcohol and Drug Abuse Prevention, Treatment, and Recovery; state staff from the Therapeutic Cannabis Program; and the New Hampshire Department of Health and Human Services' Bureau of Drug and Alcohol Services created [Therapeutic Cannabis in New Hampshire: Laws and Responsible Use](#) and [Child Safety Tips for Parents & Grandparents](#).¹⁹⁰

Pregnant and Breastfeeding Women

Understanding the reasons vulnerable populations may choose to consume cannabis can inform effective prevention messages. Research from Rescue Agency indicates that pregnant or breastfeeding women (P/BF) studied do not perceive cannabis as a high-risk substance or moderate cannabis consumption as risky. P/BF women were more likely to consume for reasons that were present before pregnancy, such as anxiety, pain, or enjoyment, rather than pregnancy-related symptoms. Most P/BF consumers formed their cannabis opinions before pregnancy and were resistant to health messages that sounded similar to those they heard growing up. Primary reasons for cannabis consumption among P/BF women were "to relax or calm nerves," "to manage stress," and "to improve quality of sleep," so messages that offer alternative strategies for relaxation would likely be more effective than messages exclusively focused on risks. Prevention campaigns should address unique motivations of P/BF cannabis consumers, offer a trusted source, and contain messages that appeal to the selected segment.^{204, 205}

Youth Engagement

Speakers from Rescue Agency pointed out that teens, like adults, use cultural cues to decide when to pay attention to advertising, ignoring messages that do not reflect their personal lifestyles or values, even if they feature teens. By understanding the reasons behind the decision to use cannabis or not, as well as the values and interests of different groups of teens, campaigns can be developed to specifically appeal to teens who are most at risk.⁷⁶

For example, the King County Youth Marijuana Prevention & Education Program learned from its 18 listening sessions with 202 youth across Washington that youth consume cannabis primarily to follow social norms and to self-medicate. Knowledge of the risks associated with consumption convinces some youth to abstain, but retail legalization and popularity of cannabis among peers are minimizing their perception of risk. Youth want more unbiased information on how cannabis works, long- and short-term effects of consumption, and evidence about risks and benefits. They rely on media (e.g., internet searches, social media, articles, advertisements, music), peers, and parents for information. They want to engage in open, shame-free discussion of unbiased information.²²³

A variety of innovative strategies for engaging youth follow:

- In 2011, the California Health Collaborative responded to the growing need for cannabis prevention services in Fresno County with the [Performing Above the High \(PATH\) Project](#). Its youth-engagement campaign, known as iPATH, trains and empowers youth to lead initiatives that spread awareness on the impact of cannabis on youth and create a shift in norms regarding use in their local communities. This approach creates partnerships where youth are acknowledged and treated as peers with equal decision-making authority, offers opportunities for meaningful sustained participation that allows youth to become fully engaged in the issues that impact them most, and demonstrates that youth can inform and impact community decisions.⁴⁷
- The Los Angeles County Department of Public Health engaged teens to create a unique, [peer-to-peer cannabis use prevention campaign](#). Its process for teen-led message ideation, ad creation, and media strategies resulted in substantially higher video completion rates (measurement of the rate at which digital video impressions play in entirety) than industry benchmarks. More than 40 teens from Los Angeles County attended 2-day media workshops to bring their ideas to life, work with entertainment professionals, and get the chance to produce a commercial.⁵⁸
- “Hustle & Strive” is an online gamified intervention created by Rescue Agency to help teens choose a substance-free life. It uses relevant role models to guide teens toward passions (“hustles”). Focus group research conducted with teens currently involved in or highly susceptible to substance use showed that teens who identified with hip-hop peers were most likely to consume cannabis and other substances. They also exhibited multiple risk factors associated with substance use, including a lack of self/impulse control, sensation seeking, impulsivity, parental or sibling substance use, substance-using companions, and pro-substance norms. Hip-hop teens lacking a passion, such as sports, music, or career goals, often don’t see a reason not to consume.²⁰⁶

Youth Prevention

Adolescence is a particularly critical period for cognitive development. The brain—especially the prefrontal cortex—continues to develop and mature into the third decade of life. Substantial evidence indicates risk of acute psychoses from cannabis overconsumption, an association between cannabis consumption and increased risk of motor vehicle accidents, and early initiation of cannabis consumption as a risk factor for developing problem use. Stakeholders generally agree that youth prevention should be a priority for cannabis work. Factors identified as supportive for youth prevention include stand-alone retail stores and age verification, prohibition of online sales, and local control in every state. In designing youth cannabis prevention programs, states and local communities must consider health effects related to youth use, policies that may impact youth access and use, overlap with other substances, and general messaging challenges. Major state policies aimed at youth include childproof packaging; limitations on gummies, adulterated foods, and foods that look like commercially available products; packaging, labeling, and universal symbols; advertising restrictions; and drugged-driving policies.¹⁵⁷ Examples of specific campaigns aimed at youth follow.

State Campaigns

- The California Department of Public Health conducted three phases of formative research among youth as part of its [Let's Talk Cannabis](#) campaign. Key findings from this research informed the development of a website, health education print material, a community toolkit, and a presence on Facebook and YouTube—all with content to which teens can relate.¹⁹⁸
- [Find Your Moment](#), a component of the Colorado Department of Public Health and Environment's [Responsibility Grows Here](#) public education campaign, targets prevention messages to youth (12–20 years old) *before* they try cannabis. Focus groups and in-depth interviews among youth ensured effective messaging and delivery. The campaign also encourages parents and other trusted adults to talk to youth about underage cannabis use.¹³¹
- The Oregon Health Authority Public Health Division piloted [Stay True to You](#), a mass media health education campaign directed at youth and young adults that includes Talk With Them, a component directed at parents and youth-serving adults. Key findings from the pilot campaign suggest that a campaign, by itself, is unlikely to achieve full impact in the absence of a statewide comprehensive community model that addresses policy, regulation, education, and community social norm changes.²⁰³

Collaborative Efforts

- The Los Angeles County Department of Public Health's Substance Abuse Prevention and Control (SAPC) organized [Rethinking Access to Marijuana](#) (RAM), which is a diverse group of community-based organizations working together to educate people about the harms of youth cannabis use. RAM used the following tools to assess the environment and to educate decision-makers about policies:
 - Data from a Community Health Environmental Scan Survey portrays the retail cannabis landscape (density, impact on neighborhoods, and quality of life) and can be used by policymakers to determine appropriate regulatory and enforcement strategies.
 - The Marijuana Policy Decision Matrix presents strategies that limit youth access to cannabis through best practices relating to storefront dispensaries, personal and commercial cultivation, and delivery services. This evolving document informs decision-makers of the potential impact of various policy options.¹¹⁴
- The [Marijuana Education Initiative](#) (MEI) in Colorado promotes collaboration between youth-serving organizations (e.g., school districts) and the cannabis industry to address social issues surrounding cannabis legalization. MEI empowers educators, mentors, and parents with science-based information to fill the gaps between public health campaigns and classrooms. This is particularly important with the passage of legislation such as Jack's Law (requiring school districts in Colorado to establish policy allowing students to have access to medical cannabis on school grounds) and Quintin's Amendment (allowing school nurses or other school personnel to administer cannabis-based medicine to children for whom it was prescribed).⁴⁵

Focus on Health Equity and Social Justice: Examples

What impact can public health campaigns have on reducing cannabis use, especially among those who are of a racial or ethnic minority and/or who have experienced community trauma—both of which are identified as high-risk factors for use?

- Western approaches to health and social services can create injustices, misunderstandings, and loss of power for First Nations. Yarha', a First Nation training and consulting company, found that successful cannabis use prevention among First Nations is driven by an ecosystem-based approach (with the individual at the core), cultural security, empowerment, and a balance between downplaying and dramatization of substance abuse among First Nations.^{213*}
- The goal of the Asian Pacific Islander Coalition Advocating Together for Healthy Communities' (APICAT's) Tailored Youth Marijuana Prevention Marketing Project is to reduce initiation and use of cannabis by youth, especially among populations most adversely affected by cannabis use throughout Washington. Information collected from diverse youth focus groups was used to develop the "[Together Our Voices](#)" campaign.²¹⁴

Governance, Federal Law, and Emerging Policy

This track is the one that most highly reflected health equity and social justice issues. It was well-populated, with sessions on a variety of topics, including those on research, health care, public health, and judicial matters, which are described below.

Cannabis Research

The Controlled Substances Act does not allow cannabis, as a Schedule I drug, to be used, produced, processed, sold, or grown except under the limited circumstances of research conducted under Schedule I DEA Registration. Prior to conducting research, investigators seeking to conduct cannabis research must obtain proper approvals from DEA, FDA, the National Institute on Drug Abuse, state authorities, and institutional review boards. Researchers must also obtain cannabis from a federally authorized manufacturer, thereby having no access to real-world cannabis for research use. Because the cannabis industry is engaged in activities that are criminally prohibited under federal law, certain risks (e.g., aiding and abetting, money laundering, reputational damage from working with an illegal industry, and loss or forfeiture of federal funding) may be associated with accepting funding from

this industry for research. Academic institutions, such as UC, are actively working to overcome the aforementioned challenges. For example, it has categorized the cannabis industry into three tiers, based on the extent to which its funding is derived from activities that are illegal under federal law. As currently proposed, UC may not accept funding from entities or individuals that appear to directly derive funding from such activities (Tier 1) but can consider, with due diligence and written assurance, support from those whose funding derives from multiple income streams (Tier 2) or are indirectly tied to the cannabis industry (Tier 3).²²⁹

Maintaining Distinct Medical and Adult-Use Cannabis Streams

With the advent of cannabis legalization, many Canadian healthcare professionals concur that maintaining a medical cannabis stream distinct from an adult-use stream is important and will strengthen the value of an interprofessional approach to care for patients.

- Elimination of a medical stream for cannabis will put patients at risk of losing physician guidance on cannabis indications, dosing, and administration. This can be especially problematic for higher-risk patient populations, such as those with cardiac, psychiatric, pediatric, or substance use issues.
- Cannabis used for medical purposes is often third- or fourth-line adjunctive therapy, and frequently used with older patients, increasing risk of adverse drug events and drug interactions. The Canadian Pharmacists Association recommends that the distinction between adult-use and medical cannabis should remain and that pharmacists should be supported and included in the dispensing of medical cannabis.
- The Canadian Nurses Association advocates for a two-stream approach, noting that medical access should not be compromised under the new legislation. It continues to seek opportunities to advance policy related to the role of the nurse and nurse practitioner and ensuring equitable access to medical cannabis.²¹⁵

Equitable Policymaking

Strong public health policies may help address health and socio-economic inequities, such as a lack of legal space for cannabis use for occupants of federal housing and there being a significantly higher risk of secondhand smoke in low-income or public housing. However, enforcement of such policies must be equitable. ChangeLab Solutions called for the application of the following equitable tobacco control strategies to cannabis regulation: strong, self-sustaining local licensing programs; location and density restrictions; restriction or prohibition of certain products (e.g., flavors); pricing strategies; and marketing restrictions.¹⁷⁰

Access to Economic Opportunity

Presenters from the University of Washington explained the state's point system in which a felony conviction generally results in non-issue of a license to participate in the legal cannabis market. Interviews with participants in Washington's medicinal, illicit, and adult-use markets revealed legal and financial barriers that undermine opportunities to participate. Both state regulations and on-the-ground market moralization practices seem to categorize individuals with wealth derived from non-cannabis market activities as worthier of cannabis business ownership than those who have been involved in illicit or medical markets. This has particular consequences for people of color seeking entry into the legal market who have been disproportionately negatively impacted by cannabis criminalization.¹⁴⁸

Focus on Health Equity and Social Justice: Examples

What policy approaches are being used to promote social justice and reduce barriers to participation by minority communities in new legal markets?

- Among the harms of cannabis prohibition policies, convictions and arrests carry profound formal and informal collateral consequences, including education, employment, and housing hardships. Better redress is envisioned through criminal record expungement (and resentencing), preferential industry considerations, and investment of cannabis tax revenue for social good. Short-term recommendations include funding expungement or public health research initiatives, prioritizing the hiring of community members from disproportionately policed areas and people who were formerly incarcerated, and providing business development services to equity participants.^{138*}
- California's Proposition 64 seeks to undo harms inflicted on communities disproportionately affected by past drug policies. Individuals can petition the courts for the removal or reduction of convictions. Legal clinics were offered across the state to help individuals with, and legislation was passed to automate, this process. California qualifies individuals for its equity program by residency and drug conviction and offers a three-tiered incubator business support model.^{246*, 272*}
- Drawing on West Coast experience, Massachusetts included within its ballot initiative provisions for an equity program, including an accountability measure. In addition to residency and personal drug conviction, spousal/parental drug conviction is a qualifier for Massachusetts' equity program. Whereas California activities are spearheaded by local jurisdictions, Massachusetts' equity efforts have been state led.^{246*}
- New Jersey American Civil Liberties Union's (ACLU's) advocacy for racial justice in relation to cannabis encompasses automated or expedited expungement, reinvestment of tax revenue into the communities that have been most devastated by the war on drugs, an equitable and diverse marketplace, and provision for a limited amount of home-grow for personal use so that limited income or mobility does not diminish accessibility. The state is looking into funding carveouts dedicated to drug treatment and counseling, educational concerns, etc. in communities that are most impacted. Local ordinances in California have successfully established similar carveouts.^{272*}

Emerging Research and Epidemiological Data

All aspects of the cannabis cultivator-to-consumer process will benefit from scientific research. Recent developments and findings presented at the 2019 Summit that have implications for policies and practice include the following examples.

Identification of Key Indicators

In the absence of a federal mandate or allocated funding for development of standards, state-level data collection becomes a priority. The Multi-State Collaborative for Public Health and Cannabis, facilitated by the Centers for Disease Control and Prevention (CDC), identified the following preliminary core key indicators:

- Age at first use (for youth/young adults)
- Current use (past 30-day use)
- Mode/method of use (any and primary)
- Reason for use (medical/non-medical/both)
- Amount used
- Product type used (THC/CBD and characteristics)
- Cannabis use disorder
- Secondhand smoke exposure
- Impaired driving
- Household exposure to any cannabis

This work also includes identification of secondary measures and measures for specific populations. Indicators for consumers of medical cannabis, for example, are medical use in past month, medical recommendation, type of provider with whom cannabis is discussed, medical reasons for use, and use in place of other medications. Data is urgently needed for pregnant women, tribal nations, individuals with behavioral health conditions, and other vulnerable populations.

Emerging surveillance includes the rate of cannabis exposures reported to poison centers, emergency department visits and hospitalizations with cannabis-related billing codes, and market data (retail exposure, product sales, and advertising).²⁶⁷

Health and Safety

Research from the Western Center for Agricultural Health and Safety, UC Davis, finds that data on the health and safety hazards facing cannabis workers (those cultivating and processing cannabis) are scant but may include respiratory and dermal exposures, musculoskeletal disorders, physical hazards, and, particularly for women, personal safety. With increasing industrial production, a shift has been detected with more cannabis trimmer work being done by older female workers rather than the traditional immigrants, foreign vacationers, college students, and young working professionals.¹²⁰

The Colorado Department of Public Health and Environment is conducting a research study to quantify the rate of volatile organic compound (VOC) emissions from cannabis cultivation. VOCs chemically interact with nitrogen oxide in sunlight to create ground-level ozone. At cannabis-infused product facilities, the evaporation of solvents also results in VOC emissions. In addition to harming the environment, elevated ozone can cause stinging eyes and throat, chest pain, coughing, breathing difficulty, and cardiovascular harm. In Colorado, VOC emissions from extraction facilities are subject to state air-quality regulations. Cannabis cultivation is considered an agricultural activity and not subject to the same regulations.¹¹³

Cannabis Potency

Researchers from the RAND Drug Policy Research Center pointed out that increases in both the potency of cannabis flower products consumed and the demand for non-flower products (e.g., oils, waxes) make traditional measures, such as grams of cannabis consumed per use day or total metric tons of cannabis flower consumed, less useful. The dearth of research on THC consumption and titration is of concern, particularly in light of studies associating higher-potency cannabis with negative mental health outcomes. To improve understanding of cannabis markets and the health consequences of using cannabis products, THC obtained (which is not the same as THC consumed) is suggested as an alternative measure—one that could also be used as the basis for a potency tax.²²⁵

Washington's Liquor and Cannabis Board mandates use of a seed-to-sale database to track the refinement of each plant and the testing of every product, as well as to facilitate excise tax collection. Researchers from the Alcohol & Drug Abuse Institute at the University of Washington noted, however, that sales data lack a field for package size, lack a consistent indicator of high CBD product, and have other potency-related problems.¹²⁹

Consumption Patterns

Cannabis legalization and liberalization is associated with a greater proportion of consumers in the regulated market. It is unclear, however, what proportion of consumers will make the transition from the unregulated market to the regulated market. Research by RTI International found that of seven factors associated with deciding where to buy cannabis, convenient location and quality of product were the top factors among past 30-day consumers. Policymakers at the state and local levels should consider the role of convenience (placement and density of outlets) in promoting or undermining transition to the regulated market. Researchers suggest that social, as well as economic, factors play a role in cannabis purchase decisions, which may explain why some consumers don't transition to the regulated market when they have the opportunity.¹⁵⁶

The introduction of novel alternative cannabis products, including edible and vaporized cannabis and cannabis concentrates, might appeal to youth, be associated with poly-cannabis use, and be addictive. Recently collected data by the University of Southern California on use/poly-use across the spectrum of cannabis products in cohorts of Southern California youth indicate that adolescent use of alternative cannabis products may be of appreciable prevalence and predominately reported in conjunction with poly-use of other products. Whether teen use and poly-use of alternative cannabis are associated with increased risk of addiction and other adverse consequences merits further inquiry.⁶²

The potential effect of cannabis and tobacco under co-use conditions has become of increasing concern given the emerging prevalence of e-cigarettes and legalization of cannabis. Findings from laboratory research by UC Irvine reveal sex-specific effects of adolescent drug exposure. In male mice, long-lasting effects of adolescent cannabinoid exposure led to decreased anxiety-like behaviors, increased reward-related cognitive flexibility, and increased nicotine intake during adulthood. Female mice exhibited differential effects than males, with cannabinoid treatment leading to decreased weight gain during adolescence and decreased natural reward consumption and nicotine intake during adulthood. Together, these data suggest long-term effects of adolescent co-exposure to nicotine and cannabinoids on later affective, cognitive, and nicotine-taking behaviors in adulthood.¹⁶⁸

Focus on Health Equity and Social Justice: Examples

What impact has the decriminalization of cannabis had on use, particularly among communities and populations most negatively impacted by its prevalence?

- Preliminary results from a University of Washington study of the impact legalization had on racial/ethnic disparities in juvenile cannabis-related allegations in Oregon indicated that, with legalization, relative disparities significantly decreased for African American/black youth, but not for American Indian/Alaska Native youth. Additionally, compared to white youth, the risk of cannabis-related allegations remained greater among American Indian/Alaska Native and African American/black cannabis-using youth (2.1 and 1.9 times greater, respectively).¹¹⁶

Regulatory Issues

As noted by the Public Health Institute during the 2019 Summit, best practices for cannabis regulation are still uncertain and much can be learned from alcohol and tobacco regulation efforts.²⁶⁵ UC San Francisco's Center for Tobacco Control Research and Education provided the example of flavors used in tobacco products to attract and hold young consumers and to make it more appealing for them to consume tobacco products. Presenters urged policymakers to consider prohibiting flavors in cannabis products, as well as adopting other lessons from tobacco regulation, such as plain packaging, strong graphic warning labels, and restrictions on imitation packaging.²³⁴

Cannabis marketing and cannabis exposure are highlighted below as key issues within this track; however, regulation is far more encompassing. CDPH, for instance, identified four areas of regulatory focus: licensure requirement, process control, product standards, and packaging and labeling.²⁷¹

Cannabis Marketing

As cannabis purchase becomes legalized in various locations, marketing presents an unexplored regulatory landscape. Research shows that marketing informs consumer product perceptions, use expectancies, and use behavior.

A University of Washington Alcohol and Drug Abuse Institute study analyzed the content of cannabis advertisements in two freely distributed publications to help inform media campaigns and media literacy programs. Non-medical marijuana ads in the print media studied depict marijuana use as an ordinary behavior, particularly enjoyable in situations associated with contemplation of nature and a quest for life balance. Party scenes and watching sports, common to alcohol marketing, were very rare in the advertisements analyzed in the study.⁹⁴

A Johns Hopkins Bloomberg School of Public Health study of product descriptions on cannabis retailers' websites found many unsubstantiated claims about the products' abilities to produce psychoactive and physical effects. Claims that a product could be used to treat a disease or symptom were common.¹⁸⁸ Regulatory action can help ensure retailers are not conveying inaccurate information, thereby misleading consumers.

Cannabis Exposure

The Public Health Division of the Oregon Health Authority, with support from the National Institutes of Health's National Institute on Drug Abuse, described exposure of adults and youth to retail cannabis advertising in Oregon following legislation. Among those surveyed in 2017, 67 percent of 8th graders and 72 percent of 11th graders self-reported exposure to marijuana advertising. Of the latter, greater exposure was detected among youth in communities with greater cannabis retail presence. The same holds true for exposure among the 55 percent who self-reported exposure to marijuana advertising and health risk messages in a 2015–2016 survey. This project generated several compelling questions, such as how to best monitor exposure, prepare for changes in visibility over time, define "appeals to youth," and effectively regulate social media.¹¹⁷

Findings from a Boston University School of Public Health study indicate that nine out of 10 adolescents aged 15 to 19 in six states with legal non-medical (retail) cannabis are exposed to cannabis advertising and promotions. Higher odds of cannabis use were associated with exposure to cannabis promotions on social media sites and engagement with cannabis social media pages (by liking or following). Results from this study underscore the need for regulation of advertising in both online and offline media in states implementing cannabis legalization.¹⁶⁰

Focus on Health Equity and Social Justice: Examples

What protections must be in place to meet the diversity of local needs?

- The unlicensed cannabis market has been thriving for more than a century and exists across all license types. Compliant operation is costly and squeezed by illicit operations; the actions of well-funded, consolidating industry; non-competitive behavior in unlimited license states; heavy taxation; and established consumer behavior. A licensing system can help protect tax-paying entities, create an on-ramp to legitimate business, and create an off-ramp from the illicit market. County tax credits and preferential licensing merit criteria might encourage licensees to absorb labor previously engaged in the unlicensed market. Training programs can help transition minimum wage trimmers and budtenders to management, extractor, and technician positions.¹¹⁵
- California's dual-licensing system requires cannabis businesses to obtain local authorization from the city and/or the county in which they will operate before they can apply for a state license. From Los Angeles to Mono County, many communities are actually exceeding state law in areas such as limiting products and advertising that are attractive to youth; limiting the number of retailers based on location and density; granting priority for equity applicants for licenses; requiring staff training; requiring in-store warning signs; prohibiting on-site consumption; and prohibiting prescriber conflicts of interest. Many of these policy ideas are based on a model ordinance from the Public Health Institute's "[Getting it Right from the Start](#)" project.¹⁰⁷

Health Effects

Within the health effects track, presenters noted the need for research on issues ranging from THC/CBD ratios for different conditions to sex/gender differences in patterns of cannabis use.^{199, 202} The very absence of research on patient-centered outcomes at the 2019 Summit raises flags of urgency. Patient-centered outcomes are central to the process of integrating cannabis into the healthcare system. This process also must involve continuing medical education for healthcare professionals, which is described below as one of the key issues of this track.

Educating Health Professionals

Are medical schools across North America properly equipping future physicians to respond to increased cannabis use and its medical prescription? According to a literature review by researchers from the Université de Montréal, less than 10 percent of the U.S. medical schools included in the Association of American Medical Colleges Curriculum Inventory documented medical cannabis as a part of their curriculum. The Université de Montréal researchers found in their study on the current state of medical cannabis education among Canadian medical students that respondents had very low to moderate knowledge and comfort levels on cannabis-related subjects. Most respondents believed that curricula could be improved by increasing the number of formal lectures on cannabis-related subjects and increasing exposure to patients who use cannabis.⁷⁰

Even though an evidence base exists for cannabis therapeutic efficacy, no translational authority exists for medical professionals. Uncertain decision-making is undermining medical care, and leaving patients to self-medicate may be considered an abnegation of physician ethics. A limited amount of continuing medical education for certification is available. Inadequate funding makes curriculum development challenging, particularly when avoiding ties to the cannabis industry. Lack of knowledge among healthcare professionals is further complicated by a highly regulated practice environment. Healthcare professionals must be educated on dosing versus titration (“start low and go slow”), paradoxical drug effects, forms of administration (smoking, vaporization, oral, and other routes), treatment plans, adverse reactions, cannabis use disorder, and contraindications (e.g., youth, pregnancy, unstable cardiac disease).²⁶⁸

University Research

As a source of fact-based public education, universities can play a vital role in informing national policy. For example, UC Berkeley’s [Cannabis Research Center](#) promotes interdisciplinary scholarship on the social and environmental dimensions of cannabis production. Fact-based education incorporates “gold-standard, pharma-type” research, epidemiological evidence, evidence from historical and cultural use, and appropriate use of anecdotal and empirical evidence. It allows constructive disagreement and represents multiple voices, which are heard through public engagement with scientists, podcasts, and other media outlets. To ensure objectivity, cannabis industry funding is avoided.³⁷

Adolescent Use

Two Université de Montréal longitudinal studies of boys living in Quebec, Canada support earlier research findings of an association between early-onset cannabis use and both poor cognitive functioning and later substance use disorders. Results showed that age of cannabis use onset and

frequency of use across adolescence were associated with specific neurocognitive decline in verbal IQ and certain executive function tasks by early adulthood, as well as lower rates of high-school graduation. Adolescents who started using cannabis before age 15 were at a higher risk of developing drug use disorder symptoms by age 28, but the odds of developing such symptoms were reduced by 31 percent for each year of delayed cannabis use onset. These findings support prevention efforts aimed at delaying onset and reducing frequency of cannabis use throughout adolescence.¹²⁸

In recognition of how few adolescents seek treatment for substance use disorder symptoms, researchers from the University of Washington identified the need for interventions that reach more adolescents, increase motivation for change, and encourage treatment entry when appropriate. Their study of the Teen Marijuana Check-Up, an in-school protocol for eliciting voluntary self-assessment of marijuana use that involves motivational interviewing and personalized feedback, indicated promising efficacy in attracting heavy users and promoting reductions.¹³⁶

Focus on Health Equity and Social Justice: Examples

What effects does cannabis have on unstudied or understudied health endpoints?

- High Hopes, a small, grassroots harm-reduction initiative offered by the Overdose Prevention Society in Vancouver, Canada, offers cannabis products for purchase or at no cost to individuals so that they have options for pain management beyond opioids. Eighty-two (82) percent of respondents visited High Hopes to taper off opioids. Seventy (70) percent of the respondents indicated that cannabis helped reduce their consumption of opioids.¹⁸⁹
- Researchers from the Université de Montréal longitudinally explored the links between cannabis use and depression and anxiety in youth ages 13, 15, and 17. In sexual minority teens, depression was associated with more cannabis use even when controlling for other substance use (i.e., the effects were cannabis specific). Researchers call for interventions emphasizing skill-building, resiliency, coping skills, connectedness, and healthy school environments.¹²⁴

Public Safety

Few session proposals were received for this track, but this does not indicate lack of importance. Rather, it speaks to the slowly evolving nature of states' and communities' responses to the complex, significant, and far-reaching issues such as those described below.

Drugged Driving

RTI International's literature review on cannabis legalization and traffic safety revealed conflicting data on driving simulation, cannabis exposure and crashes, and legalization and population-level traffic safety outcomes. The quantification of driving under the influence of cannabis (DUIC) is made more challenging by the lack of a common definition of impairment, inaccurate and inconsistent testing, and varying policies and consequences across states. In RTI International's national cannabis survey, fewer respondents from states allowing medical cannabis reported driving high than those from states with no legal cannabis. The perceived safety of driving while high was lower among participants with legal access to medical cannabis. Among study participants from states that have legalized adult use and those with no legal cannabis, no difference in driving high or in the perceived safety of driving while high was detected. Legalization does not appear to conclusively encourage driving while high, but it is likely to affect people's behaviors and perceptions. Future analyses are encouraged to test the relationship between DUIC educational campaigns and behaviors/perceptions.⁵⁷

Cannabis use is associated with dysfunction of the retinal ganglion cells, impairing contrast detection, motion sense, depth perception, and tracking, which could in turn affect the ability to drive. A functional retinal forensics tool—Impairment Measurement Marijuana and Driving—is currently being developed for law enforcement use.¹⁰⁶

Environmental Impact

The policy trade-offs between economic growth, public safety, and environmental protections have been central to cannabis policy debates. Past and current cannabis policy has proven inadequate to address environmental harms (see Figure 2). A researcher from the Humboldt Institute for Interdisciplinary Marijuana Research recommends broadening participation in policy-making beyond the voices of “big business,” incentivizing ecologically sustainable agriculture, and keeping an accurate account of the ecological footprint of the cannabis industry.¹⁵⁰

Environmental Impacts of Cannabis Cultivation

- **Habitat destruction (illegal deforestation, road construction, grading)**
- **Biodiversity damage (pesticide and rodenticide use)**
- **Water and soil pollution (nutrient load in waterways, diesel spills)**
- **Damming/dewatering of streams**
- **Carbon footprint**
- **Garbage**

Figure 2

Focus on Health Equity and Social Justice: Examples

How do public safety issues associated with cannabis disproportionately impact underrepresented, low-income, and otherwise vulnerable populations?

- The legalization of cannabis, combined with the increased use of vaping devices, brings new risks in the form of exposure to secondhand smoke and vape aerosol, which is particularly problematic for populations already experiencing health disparities. A University of Southern California Keck School of Medicine study of renters in multi-unit housing in Los Angeles indicates tenants are being exposed to cannabis smoke, e-cig/vape aerosol, and tobacco, but most of them want to live in a smoke-free environment. Education on various forms of cannabis use that do not affect others' health is needed.²³⁵
- Yurok tribal lands, located in northwestern California, are under siege by illicit cannabis production, which pollutes and diverts water, kills wildlife, and threatens the livelihood of the Salmon People. A UC Davis researcher described how looking at cannabis cultivation through the lens of profit prioritization (i.e., a "Green Rush" in which nature is seen in terms of its monetary value, resulting in violence to land, water, indigenous bodies, and their culture) makes environmental justice difficult to separate from social justice.⁶⁸

SECTION V: FUTURE DIRECTIONS FOR RESEARCH AND POLICY

The professional and passionate discussions that occurred at the 2019 Summit revealed key areas that demand further consideration, research, and action. This section briefly summarizes themes that emerged during the summit, beginning with commentaries from the summit’s steering committee chair and other experts, and concluding with brief calls to action on pressing issues.

A Word from the 2019 North American Cannabis Summit Steering Committee Chair

Linda Frazier MA, RN, MCHES

Director of Addictions Initiatives at AHP

The 2019 North American Cannabis Summit gathered a multidisciplinary group of cannabis experts from across the continent, including scientists, regulators, treatment providers, policymakers, public health professionals, business owners, and—yes—representatives working with or in the cannabis industry.

We convened to advance public health, science, and health equity related to cannabis. We shared our research—research that, for example, helps us understand the benefits and risks of cannabis consumption, the safety of which has been brought to the forefront of public consciousness by recent deaths associated with vaping. We shared our experiences within the cannabis space, as well as lessons learned from the tobacco industry and other fields that inform our effort to ensure equity in the emerging legalized and regulated cannabis industry.

For many, equity represented a new perspective on their cannabis work. The equity track explored the ways in which past enforcement of cannabis policy produced disparities in arrest and incarceration rates; how those disparities have been experienced within communities of color; and how we can remedy past harms through thoughtful development of future cannabis policy. My fellow summit organizers join me in believing that all attendees left with a deeper understanding of these issues and with ideas about how their own work intersects with and can contribute to a more equitable future.

Throughout the 2019 Summit, the tone was one of respectful dialogue and building common ground. At the keynote sessions, question-and-answer opportunities generated lines of attendees at the microphone. In program sessions, presentations prompted robust exchanges of ideas. The conversation sparked by keynotes, program sessions, and posters spilled over into the halls of the hotel between scheduled events.

Two specific events were dedicated to networking: the Monday night reception and a program session on building a cannabis network. The reception—which was held in the same space as the poster sessions—was well attended and characterized by energy and conversation. People

introduced themselves and their work to one another, setting the stage for future collaboration. At the session on building a cannabis network, attendees learned about existing networks with specific goals, such as standardization of survey measures; talked about what they wanted from a network; and explored logistical solutions to staying connected. Attendees were eager to build a community of cannabis experts across various content and practice areas for information sharing and potential collaboration. Plans for establishing the Cannabis Public Health Network are underway!

A Clinical Perspective

Barbara Herbert, MD

Fellow of the American Society of Addiction Medicine

Medical use of cannabis has been largely neglected in policy discussion. While the 2019 Summit may have lacked extensive solid data on actual use and outcomes, it did generate much rigorous and provocative discussion.

Two presentations of putative neurobiological mechanisms for cannabis impact on pain and/or anxiety/stress launched analysis on utilization in those two arenas that will likely inform both research and policy in the future.^{199, 246} A broad epidemiologic study presented by the state of Minnesota appeared to support cannabis use effectiveness in pain treatment,¹⁵⁹ while a literature review and more limited data from Colorado appeared to negate it.³¹

Medical students, seasoned physicians, and nurses all urgently campaigned for more education, even within the limited outcome research available.^{70, 248} Among concerns for providers wanting to meaningfully engage with patients are the diverse products that offer access to both of the most frequently used clinical components of cannabis: CBD and THC. Flowers, extracts, vape pens, edibles, and topicals all have different times of onset and effect. Methods of diffusion (combustion, dabbing, vaporizing flowers, vaporizing extracts) complicates the defining of potency, purity, and labeling. This complexity feeds provider ignorance.

Concerns surrounding secondhand smoke and particulate matter was another significant health issue discussed at the summit.⁷⁴ One California study raised issues of social equity as poorer and more marginalized people were more likely to smoke in less healthy settings.²³⁵ States with no social consumption sites are vulnerable to social inequity accusations because people living in state-regulated housing are unable to smoke in their homes.

Finally, diverse populations, particularly adolescents and elders, present special concerns to providers, as does medical service payment equity. The difficulty of obtaining medical certification and the cost of production often create barriers to access.

While several presentations made a now familiar appeal for more rigorous data on outcome studies for cannabis intervention for specific diseases, the 2019 Summit broadened the discussion to include important evolving basic science and issues that face providers in discussions with patients, even in the absence of meticulous data.

A Policy Perspective

Beau Kilmer, PhD

Director of the RAND Drug Policy Research Center

Jurisdictions considering alternatives to cannabis supply prohibition confront several decisions that will ultimately influence health, safety, and social equity outcomes. Several debates about these design issues ensued during the 2019 Summit.

Issues surrounding the U.S. federal prohibition were sprinkled throughout many of the discussions, with participants noting that it creates problems for state-licensed cannabis business (e.g., access to banking, tax implications) and those trying to research the health consequences. It was also noted that if cannabis was rescheduled from the Controlled Substances Act, this would dramatically change the economic landscape (especially if imports were allowed) and accelerate the price decline.

The topic of cannabis potency permeated many of the presentations. Much of the focus was on the proliferation of high-THC products in jurisdictions that have legalized cannabis and whether limits—or even bans—should be implemented. A common argument made against such actions is that it will still provide opportunities for illicit market actors, and this highlights some of the inherent tradeoffs associated with regulation.

Related to this, there was also discussion about the feasibility of nudging consumers to lower-potency products by taxing cannabis as a function of its THC content (or THC:CBD ratio in the future). Canada is planning to impose a THC tax on cannabis edibles, extracts, and topicals, and I look forward to learning about this policy innovation—and many others—at the next summit.

As the cannabis industry becomes increasingly powerful, spaces where elected officials, regulators, health officials, researchers, and other stakeholders can exchange policy ideas devoid of commercial influence are becoming harder to find. The 2019 Summit was an oasis in this respect, and I can't wait to continue these critical discussions about cannabis policy.

A Public Health Perspective

Lynn Silver, MD, MPH

Senior Advisor to the Public Health Institute

As cannabis legalization sweeps the nation, and even conservative leaders lobby for hemp, public health has often been closed out of the room. In city councils and state legislatures, discussions are polarized and dominated by a well-funded and increasingly politically powerful cannabis industry. That industry seeks nearly unfettered freedom to sell whatever products they creatively invent, no matter how addictive, harmful, or attractive to kids. Public buy-in to the meticulously fostered illusion that cannabis is a natural wellness product with which kids and adults can safely ease the stress of life spreads. Attention to social equity has been secondary at best. Decades of tobacco and alcohol control experience have been conveniently disregarded. Tobacco control, with perhaps the most relevant expertise in the nation in regulating legal but harmful products, has been marginalized. The recent [Surgeon General's advisory](#) offered a welcome counterpoint.

For legalization to have net positive societal effects, rather than simply allowing the emergence of a new tobacco-like industry, strong guardrails need to be in place. The voices of public health officials, clinicians, parents, and teachers need to be at the table. Protecting new legal investors cannot lead to the same or more incarceration as before. The epidemic of vaping-associated lung disease, detected shortly after this summit, illustrates the need for caution. Despite uncertainties on best practice, firm policies with rigorous evaluation are needed to reduce the inexorable shift to higher-potency products, tightly associated with psychosis and addiction; to close the on-ramps to youth addiction created by flavored products, such as mango vaping fluids and cannabis orange soda; to inform consumers of health risks; to tax and capture revenue for prevention; and to constrain aggressive and misleading marketing.

Scientists, advocates, and policymakers need forums such as the 2019 Summit to continue learning, free from conflicts of interest. Already, in the wake of the summit, we saw jurisdictions adopt ideas discussed at the event. We need to keep this exchange vibrant, learning from each other, and to mobilize public health and a wide range of stakeholders to assure that legalization, where it occurs, does more good than harm.

Calls to Action

The recommendations listed below were gleaned from the 2019 Summit sessions and discussions. The order of their presentation here does not imply prioritization; they are of equal urgency.

- **Respond to international developments.** Recognizing that “the current system is not working,”^s Canada legalized adult-use cannabis, fully aware of its noncompliance with international drug treaties that restrict cannabis to medical and scientific applications.^t The United Nation’s reaction to Uruguay’s noncompliance, which preceded Canada’s by 5 years, was simply an urging for resolution in the International Narcotics Control Board’s annual report. This lack of action, combined with a call by the World Health Organization to reschedule cannabis in the international drug council framework,^u suggests that “Canada’s cannabis regulation is part of a bigger trend.”^v The desirability of rescheduling cannabis is at the forefront of the cannabis debate in the United States, as well, due to the barrier that the DEA’s Schedule I status of cannabis poses to research, as described in the first section of this report.
- **Ensure safety of cannabis products through regulatory oversight, product testing, and standardization of product potency.** The availability of high-potency cannabis products is increasing, and little is known about consumption of THC and other cannabinoids. Illnesses and deaths associated with vaping illegal and legally purchased THC have been reported, but authorities have yet to identify the source of the problem, which is particularly frightening considering half of high-school seniors and one-third of 8th and 10th graders who reported using cannabis also reported using vaporizers regularly.²⁶⁹ It is critical that risk factors associated with consumption be controlled at every step of the production process: cultivation, extraction, production, and labeling.

s Zezima, K. (2018, June 8). Canada moves one step closer to legalizing recreational marijuana. *The Washington Post*. Retrieved from <https://www.washingtonpost.com/national/2018/06/08/canada-moves-one-step-closer-to-legalizing-recreational-marijuana/>

t Huber, K. (2018, July 3). Canada breaches international treaties for legalizing recreational marijuana. *CGTN America*. Retrieved from <https://america.cgtn.com/2018/07/03/canada-breaches-international-treaty-legalizing-recreational-marijuana>

u European Monitoring Centre for Drugs and Drug Addiction. (2019, March 25). WHO recommends rescheduling of cannabis. [Webpage]. Retrieved from http://www.emcdda.europa.eu/news/2019/who-recommends-rescheduling-of-cannabis_en

v Walsh, J., Blickman, T., Jelsma, M., & Bewley-Taylor, D. (2017, December 21). Yes, legalizing marijuana breaks treaties. We can deal with that. *iPolitics*. [Website opinion page]. Retrieved from <https://ipolitics.ca/2017/12/11/yes-legalizing-marijuana-breaks-treaties-not-problem/>

- **Extinguish illicit markets.** Consumers buying products from the illicit market may not have reliable information about the potency of those products and, by consuming them, may unknowingly be exposed to fungi, molds, pesticides, heavy metals, or other contaminants.^w An expected outcome of legalizing cannabis for adult use is that some consumers will transition from the unregulated to the regulated market, which will translate into a greater proportion of consumers using products that are tested, labeled (including consumption guidance), and sold by trained staff. It is unclear, however, what proportion of consumers will make the transition to regulated markets if illicit markets continue to exist. Consumers cite a variety of economic, geographic, and social reasons for maintaining ties to the illicit market: the price of cannabis among licensed distributors is elevated due to the complexity and pace of licensing, the location of illicit markets is convenient, and the illicit source is considered a friend.¹⁵⁶
- **Facilitate access to medical-use cannabis.** Poor people experience pain and disease no less acutely than rich people but have fewer options for relief. With the exception of medical use by veterans in Canada, cannabis is generally not covered by insurance (or by Medicaid in the United States). More robust data from health claims may eventually lead to insurance coverage, but until then, patients must cover the cost of the cannabis itself, as well as associated expenses, such as travel to a legal dispensary. Some initiatives, such as Massachusetts' waiver of the annual Medical Use of Marijuana Program fee for those experiencing financial hardship, are starting to address this inequity. However, the issue goes far beyond affordability. For example, inhabitants of federally subsidized housing are not permitted to consume in their homes. Creating legal spaces to use may be perceived as a solution to this barrier but generates concerns about driving high and secondhand smoke.

w Handwerk, B. (2015, March 23). Modern marijuana is often laced with heavy metals and fungus. *Smithsonian.com*. Retrieved from <https://www.smithsonianmag.com/science-nature/modern-marijuana-more-potent-often-laced-heavy-metals-and-fungus-180954696/>

- Systemize expungement of records.** The consequences of a cannabis conviction can be far-reaching. Failing to systemize an expungement process places an unfair burden on people who do not have the resources and time to navigate this complex process, but who would benefit the most from expungement. Several U.S. states (see Figure 3) are pursuing expungement of cannabis convictions, but efforts to automate this process have proven difficult due to incompatible or incomplete data. Canada's record suspension process, which replaced original plans for expungement, has been critiqued as cumbersome and bureaucratic and as of this writing, has resulted in the issue of fewer than 50 pardons.^x
- Expand and standardize cannabis measures and data collection at the national level.** As described in Section I, federal departments in Canada identified indicators of importance as it moved toward legalization of cannabis. U.S. states, too, collaboratively identified initial key indicators. Continuing this work provides an opportunity to specify and standardize measures in health survey data, shape still-crystallizing federal guidance, and gather more substantive information on patterns of cannabis use, the impact of legalization, and shifts in culture that is not currently afforded by large surveillance surveys or, in the United States, the Treatment Episode Data Set. The allocation of adequate resources for cannabis surveillance is strongly encouraged to fill this gap at the local, national, and international levels.

States Pursuing Expungement

California
 Colorado
 Illinois
 Massachusetts
 Maryland
 Missouri
 Nevada
 New Hampshire
 New York
 Oregon
 Washington

Figure 3

x Cain, P. (2019, September 9). Only 44 Canadians have been given cannabis pardons under new system. *Global News*. Retrieved from <https://globalnews.ca/news/5876201/cannabis-possession-pardons/>

- **Establish bias-free training.** Prospective and long-practicing healthcare professionals, as well as newly established staff of cannabis dispensaries, need information on dosing, paradoxical drug effects, forms of administration, treatment plans, adverse reactions, cannabis use disorder, and contraindications. As reflected by the dearth of sessions devoted to this issue at the 2019 Summit, science-based curricula on cannabis is largely absent from medical schools and continuing education. Limited funding for curriculum development results in few objective alternatives to industry-driven clinical education.
- **Promote collaboration.** Cannabis networks, such as the CDC's Multi-State Collaborative on Cannabis and Public Health and the Canadian Centre on Substance Use and Addiction's Cannabis Policy Research Hub, facilitate much-needed sharing of information and ideas among research, policy, and healthcare practice stakeholders who are scrambling to keep up with rapidly changing laws. An informal network using social media or other free online tools can further harness the power and energy of collaborative efforts at an international level. Start-up activities associated with such a network include setting a goal, establishing the degree of formality and enrollment rules, identifying useful platforms, and sourcing financial support.

APPENDIX A: SUMMIT SESSIONS, LISTED BY ABSTRACT NUMBER

Asterisked sessions were videotaped; [recordings are available on YouTube](#). The PowerPoint slides for all sessions are available online and can be accessed through the hyperlink attached to the session title.

- 28 [Cannabis Microbiome Sequencing: Implications for Cannabis Safety Testing](#)
Kyle Boyar, Field Applications Scientist, Medicinal Genomics
- 30 [Prevention of Marijuana Misuse: In the Legal Zeitgeist](#)
Steve Sussman, Professor, University of Southern California
- 31 [Colorado, Cannabis, and the Opioid Epidemic](#)
Kenneth Finn, Physician, Springs Rehabilitation, PC
- 33 [Neurobiological Consequences of Adolescent Cannabinoid Use](#)
Stephen Mahler, Assistant Professor, UC Irvine
- 34 [Marijuana-Impaired Driving: What the Data Shows](#)
Phillip Drum, Inpatient Pharmacy Consultant, Americans Against Legalizing Marijuana
- 37 [Fact-Based Public Education in Cannabis](#)
Eric Siegel, UC Botanical Garden at Berkeley
- 45 [Youth Education and Prevention for the Cannabis Industry](#)
Sarah Grippa, Marijuana Education Initiative
- 47 [I Perform Above the High—A Youth-Led Campaign to Prevent Marijuana Use](#)
James White, California Health Collaborative
Evi Hernandez, California Health Collaborative
- 51 [Factors Related to Drug-Impaired Driving in Canada](#)
Karen Koundakjian, Public Safety Canada
- 57 [Cannabis Legalization and Driving Under the Influence](#)
Lauren Dutra, RTI International

- 58 [Teen Marijuana Use Prevention Campaign](#)
Renee Fraser, Fraser Communications
Rachel Tyree, Los Angeles County Department of Public Health
- 62 [Use of Alternative Cannabis Products Among Youth](#)
Adam Leventhal, University of Southern California
- 68 [Gold Rush to Green Rush: Cannabis Cultivation on Yurok Tribal Land](#)
Kaitlin Reed, UC Davis & Dartmouth College
- 70 [Cannabis in Medical Education: Igniting the Conversation](#)
Laurent Elkrief, Université de Montréal
Philippe Simard, Université de Montréal
Didier Jutras-Aswad, Université de Montréal
Tara D'Ignazio, Université de Montréal
Julien Belliveau, Université de Montréal
- 74 [Health Effects of Secondhand Smoke from Marijuana](#)
Matthew Springer, UC San Francisco
Suzaynn Schick, UC San Francisco
Cynthia Hallett, Americans for Nonsmokers' Rights
Phillip Gardiner, Tobacco-Related Disease Research Program
- 75 [Québec's Public Not-for-Profit Distribution System](#)
François Gagnon, Institut National de Santé Publique du Québec
- 76 All Youth Are Not At-Risk: Using Psychographic Segmentation (slides not available)
Jeffrey Jordan, Rescue: The Behavior Change Agency
- 86 [Guidance and Resources on Cannabis and Food Safety](#)
Elizabeth Landeen, National Environmental Health Association
- 90 [Bureaucracy Meets the Bong: King County Public Health and Marijuana Retail Legalization](#)
Scott Neal, Public Health—Seattle & King County
- 94 [Content Analysis of Marijuana Advertisement in Print Media](#)
Beatriz Carlini, University of Washington Alcohol and Drug Abuse Institute

- 95 [Denormalization: Prime Objective Is to Reduce the Cannabis Use](#)
Pamela McColl, Campaign for Justice on Tobacco Fraud
- 96 [Alaska’s Responsible Consumer Campaign](#)
Eliza Muse, State of Alaska, Department of Health and Social Services
- 97 [Retail Marijuana Responsible Use Education in Colorado](#)
Jessica Neuwirth, Colorado Department of Public Health and Environment
- 102 [The Grassroots of Grass: Cannabis Legalization Ballot Initiative Contributions and Outcomes, 2004–2016](#)
Daniel Orenstein, UC San Francisco
Stanton Glantz, UC San Francisco
- 103 [Cannabis/Cannabinoids and the North American Opioid Crisis](#)
M-J Milloy, British Columbia Centre on Substance Use
Philippe Lucas, University of Victoria, Social Dimensions of Health
- 106 [Marijuana: Retina Driving Impairment](#)
Denise A. Valenti, Impairment Measurement Marijuana and Driving, LLC
- 107 [Strengthening Marijuana Regulation at the Local Level: Examples from California](#)
Leslie Zellers, Public Health Policy & Law
William Perno, Prevention Specialist, SAY San Diego’s Alcohol, Tobacco, and Other Drug Prevention Program
- 112 [Overview of Cannabis Policies in U.S. States: Implications for Public Health](#)
Gillian Schauer, National Institute on Drug Abuse
- 113 [Air Quality Impacts of the Cannabis Industry](#)
Kaitlin Urso, Colorado Department of Public Health and Environment
- 114 [Advocacy Tools for Local Environmental Policy Change](#)
Gilbert Mora, Behavioral Health Services, Inc.
Sokhom Phou, Los Angeles County Office of Education
Raunda Jones, Behavioral Health Services, Inc.
- 115 [Dealing with Unlicensed Cannabis Business Operators](#)
Brad Rowe, UCLA Luskin School of Public Affairs

- 116 [Juvenile Marijuana Arrests in the Era of Adult Legalization](#)
Caislin Firth, University of Washington
- 117 [Signs of the Times: Cannabis-Related Advertising After Retail Legalization, Oregon](#)
Julia Dilley, Multnomah County and Oregon Public Health Division
- 120 [Health and Safety of California Cannabis Workers](#)
Marc Schenker, UC Davis
- 121 [Hey Public Health People: Let's Tax Weed](#)
Patrick Oglesby, Center for New Revenue
- 122 [Effect of Cannabis Legalization on Prenatal Use Rates](#)
Danica Taylor, UC Davis
- 124 [Adolescent Cannabis Use, Depression, and Anxiety in LGB Youth](#)
Kira London-Nadeau, Université de Montréal
Charlie Rioux, Texas Tech University
Sophie Parent, Université de Montréal
Frank Vitaro, Université de Montréal
Sylvana Côté, Université de Montréal
Michel Boivin, Université Laval
Richard Tremblay, Université de Montréal
Jean Séguin, Université de Montréal
Natalie Castellanos-Ryan, Université de Montréal
- 125 [Regulation of Cannabis in Smoke-Free Air Laws in California](#)
Judith Prochaska, Stanford University
Maya Hazarika Watts, ChangeLab Solutions
Evonne Koo, Tobacco-Free Humboldt
Katie Moose, CYAN
- 126 [New Cannabis Use Disorder Guidelines for Older Adults](#)
Amy Porath, Canadian Centre on Substance Use and Addiction
Rand Teed, Rand Teed Consulting
- 127 [Public Health Considerations for Adult Cannabis Use](#)
Gillian Schauer, National Institute on Drug Abuse

- 128 [Psychosocial and Cognitive Outcomes of Youth Cannabis Use](#)
Natalie Castellanos Ryan, Université de Montréal
- 129 [Estimating Cannabinoids Sold from Messy Marijuana Sales Data](#)
Jason Williams, Alcohol and Drug Abuse Institute, University of Washington
Caleb Banta-Green, University of Washington
Dan Burgard, University of Puget Sound
- 131 [Youth & Cannabis: Prevention Strategies that Work](#)
Jessica Neuwirth, Colorado Department of Public Health and Environment
Gillian Schauer, National Institute on Drug Abuse
- 134 **Retail Marijuana in Colorado: Lessons Learned (slides not available)**
Jessica Neuwirth, Colorado Department of Public Health and Environment
Gillian Schauer, National Institute on Drug Abuse
- 136 [Interventions for Adolescent Cannabis Misuse](#)
Denise Walker, University of Washington
- 137* [Cannabis Legalization in Canada: Key Community Responses](#)
Tara Marie Watson, Centre for Addiction and Mental Health
Sergio Rueda, Centre for Addiction and Mental Health
- 138* [Cannabis Reform as Criminal Justice Reform](#)
Douglas Berman, Ohio State University Moritz College of Law, Drug Enforcement & Policy Center
John Card, Northeastern University School of Law
- 141 [Modes of Marijuana Administration Among Females Before & During Pregnancy in the Era of Legalization](#)
Kelly Young-Wolff, Kaiser Permanente Division of Research
Sara Adams, Kaiser Permanente Division of Research
Amy Conway, Kaiser Permanente Division of Research
- 146* [QUIT: A Primary Care-Based Multi-Component Brief Intervention Efficacy Trial to Reduce Risky Cannabis and Other Drug Use](#)
Lillian Gelberg, UCLA Department of Family Medicine
Curtis Bone, University of Pennsylvania
Chukwuemeka Okafor, UCLA Department of Family Medicine
Melvin Rico, UCLA Department of Family Medicine

- 148 [Access to Economic Opportunities: Lessons from Washington State](#)
Michele Cadigan, University of Washington
Anne Tseng, University of Washington
Alexes Harris, University of Washington
- 149 [Defining Safe Cannabis Consumption within the Retail Space](#)
Michele Cadigan, University of Washington
- 150 [The Environmental Impact of Cannabis Liberalization in California](#)
Tony Silvaggio, Humboldt Institute for Interdisciplinary Marijuana Research
- 155 [Dealing with Recreational and Medical Cannabis in the Workplace](#)
Melissa Snider-Adler, DriverCheck, Inc.
- 156 [Why Do Consumers Continue to Use Unregulated Sources Following Legalization?](#)
Jane Allen, RTI International
Matthew Farrelly, RTI International
Brian Bradfield, RTI International
- 157 [Multi-State Considerations for Youth Cannabis Prevention](#)
Gillian Schauer, National Institute on Drug Abuse
- 159 [Experience of Pain Patients in Minnesota’s Medical Cannabis Program](#)
Tom Arneson, Minnesota Department of Health, Office of Medical Cannabis
- 160 [Cannabis Advertising Exposure and Use Among Adolescents](#)
Pamela Trangenstein, Boston University School of Public Health
- 163 [Cannabis Regulation in Los Angeles County: Health Impact Assessment](#)
Will Nicholas, Los Angeles County Department of Public Health
- 167 [Enhancing the Standardized Field Sobriety Test to Detect Cannabis Impairment](#)
Doug Beirness, Canadian Centre on Substance Use and Addiction
Amy Porath, Canadian Centre on Substance Use and Addiction
D’Arcy Smith, Royal Canadian Mounted Police
- 168 [Effects of Adolescent Cannabinoid and Nicotine Exposure](#)
Christie Fowler, UC Irvine

- 169* [State Responses to the Ongoing Opioid Crisis](#)
Camille Gourdet, RTI International
Kevin Conway, RTI International
- 170 [Equitable Policymaking Across Tobacco and Cannabis](#)
Maya Hazarika Watts, ChangeLab Solutions
- 173 [Cannabis Legalization in Canada and Comparisons with US states](#)
David Hammond, University of Waterloo
Samantha Goodman, University of Waterloo
Elle Wadsworth, University of Waterloo
- 176 [Apartment Owners Support Nonsmoking Policies in Los Angeles](#)
Peggy Toy, UCLA Center for Health Policy Research
Ying-Ying Meng, UCLA Center for Health Policy Research
Vanessa Lam, UCLA Center for Health Policy Research
Daniel Hanaya, UCLA Center for Health Policy Research
Tamanna Rahman, UCLA Center for Health Policy Research
Marlene Gomez, UCLA Center for Health Policy Research
Steven Wallace UCLA Center for Health Policy Research
- 186 [Lessons from Alcohol: A Blueprint for Cannabis Regulation](#)
Stephen Schmidt, National Alcohol Beverage Control Association
- 188 [Analysis of Cannabis Retailers' Advertising Tactics](#)
Meghan Moran, Johns Hopkins Bloomberg School of Public Health
Mary Luc, Johns Hopkins Bloomberg School of Public Health
Samantha Tsang, Johns Hopkins Bloomberg School of Public Health
Johannes Thrul, Johns Hopkins Bloomberg School of Public Health
Ryan Kennedy, Johns Hopkins Bloomberg School of Public Health
- 189 [Lighting Up to Extinguish the Opioid Crisis? Exploring Emerging Research for Cannabis Use as a Harm Reduction Strategy](#)
Patrick Smith, Canadian Mental Health Association
Fardous Hosseiny, Canadian Mental Health Association
Leyna Lowe, Canadian Mental Health Association

- 190 [New Hampshire: Finding Marijuana Middle Ground in Extreme Times](#)
Kate Frey, New Futures
Patricia Tilley, NH Department of Health and Human Services
- 194 [The Great California Cannabis Experiment—Is It Working? Regulatory and Industry Perspectives on the Successes and Challenges of 2018](#)
Jennifer Price, Golden State Government Relations
- 198 [Cannabis Education and Information Campaign](#)
Tricia Blocher, California Department of Public Health
- 199 [Building Emotional Resilience: The Emerging Role of Cannabinoids for Mental Health & Emotional Pain](#)
Reef Karim, UCLA Medical Center and Semel Institute for Neuroscience & Human Behavior
- 202 [Sex, Gender, and Cannabis](#)
Lorraine Greaves, Centre of Excellence for Women’s Health
Nancy Poole, Centre of Excellence for Women’s Health
Natalie Hemsing, Centre of Excellence for Women’s Health
Andreea Catalina Brabete, Centre of Excellence for Women’s Health
- 203 [Oregon Youth Cannabis Prevention Campaign](#)
Amanda Cue, Oregon Health Authority
- 204 [Pregnant and Breastfeeding Women: Understanding Audience Motivations & Crafting Prevention Messaging](#)
Sophia Lerdahl, Rescue: The Behavior Change Agency
- 205 Pregnant/Breastfeeding Women’s Motivations Post-Legalization (slides not available)
Sophia Lerdahl, Rescue: The Behavior Change Agency
- 206 A Digital Campaign to Address Youth Multi-Substance Use (slides not available)
Jeffrey Jordan, Rescue: The Behavior Change Agency
- 212 [Public Education and Prevention Campaigns: What Should State Agencies Responsible for Marijuana Prevention and Education Consider in the Development and Evaluation of Campaigns?](#)
Shannon Breitzman, Health Management Associates
Joe Conrad, Health Management Associates
Mike Lee, Cactus Inc

- 213* [Adaptation of Prevention Strategies for First Nations in a Capacity-Building Approach: A Field Experience](#)
David Sioui, Yarha' Inc.
Shantala Langevin, Yarha' Inc.
- 214 [Tailored Youth Marijuana Prevention Marketing for Asian American Native Hawaiian & Pacific Islander Youth](#)
Elaine Ishihara, APICAT for Healthy Communities
- 216* [What if Marijuana Were NOT a Schedule I Drug: Legal and Policy Implications](#)
Kerry Cork, Public Health Law Center
Hudson Kingston, Public Health Law Center
- 221 [Translating Evidence on Cannabis, Alcohol, and Reproduction](#)
Lorraine Greaves, Centre of Excellence for Women's Health
Nancy Poole, Centre of Excellence for Women's Health
Natalie Hemsing, Centre of Excellence for Women's Health
- 223 [Youth Perspectives on Marijuana Use: Themes from Youth Listening Sessions](#)
Kaylin Bolt, Public Health—Seattle & King County
Meghan King, Public Health—Seattle & King County
- 225 [Cannabis Potency: Measurement & Regulatory Issues](#)
Beau Kilmer, RAND Corporation
- 226* [Marijuana: Prevention First!](#)
Annay Picazo, Behavioral Health Services, Inc
Jenifer Harris, Behavioral Health Services, Inc.
- 227 [Lessons from Tobacco: Potency, Flavors, and Advertising](#)
Lynn Silver, Public Health Institute
- 229 [A UC Perspective on Regulatory Barriers to Cannabis Research](#)
Agnes Balla, UC Office of the President
- 234 [Flavored Cannabis Products: Lessons from Tobacco](#)
Stanton Glantz, UC San Francisco

- 235 [Perceptions of Secondhand Smoke from Cannabis, Vape, and Support for Smoke-Free Multi-Unit Housing Regulations](#)
Lourdes Baezconde-Garbanati, University of Southern California
Steve Sussman, University of Southern California
Yaneth Rodriguez, University of Southern California
Rosa Barahona, University of Southern California
Jennifer Unger, University of Southern California
- 243* [Where Do We Go From Here? How Public Health Experts Can Shape the Future of Cannabis Policy](#)
Andrew Freedman, Freedman and Koski, Inc.
Lewis Koski, Freedman and Koski, Inc.
- 244 [It Takes a Village: Engaging the Community to Prevent Underage Cannabis Use](#)
Yolanda Cordero, Los Angeles County Department of Public Health, SAPC
- 246* [Marijuana as Medicine: Can We See Past the Smoke?](#)
Igor Grant, Center for Medicinal Cannabis Research, UC San Diego
- 247* [Goodbye to the Old Guard: Legalization for the New Generation of Leaders](#)
Shaleen Title, Massachusetts Cannabis Control Commission
- 248 [Cannabis in Canada: Implications for Health Care Professionals](#)
Caroline MacCallum, Greenleaf Medical Clinic
Ashley Chisholm, Canadian Nurses Association
Shelita Dattani, Canadian Pharmacists Association
- 252 Why You Should Tell a Reporter All Your Secrets (slides not available)
Dan Adams, The Boston Globe
- 253* [Cannabis and Opioids: What Is the Role of Cannabis in the Evolving Opioid Epidemic?](#)
Rosalie Pacula, Drug Policy Research Center, RAND Corporation
Ziva Cooper, Research Director, UCLA Cannabis Research Initiative
- 255 [Design Considerations for Legalizing Cannabis](#)
Beau Kilmer, RAND Corporation
- 257 [Let's Stay Connected: Building a Cannabis Network](#)
Jane Allen, RTI International

- 259* Public Health Cannabis Monitoring and Surveillance in an Era of Legalization (slides not available)
Gillian Schauer, Multi-State Collaborative on Cannabis and Public Health
Julia Dilley, Multnomah County and Oregon Public Health Division
Hanan Abramovici, Health Canada, Ottawa; Susan Weiss, National Institute on Drug Abuse
Althea Grant-Lenzy, Centers for Disease Control and Prevention
- 260 Opportunities for Cannabis Research Collaborations Across North America (slides not available)
Igor Grant, Center for Medicinal Cannabis Research, UC San Diego
M-J Milloy, British Columbia Centre on Substance Use
- 261 Everything We Messed Up and How We Fixed It (slides not available)
Andrew Freedman, Freedman and Koski, Inc.
Lewis Koski, Freedman and Koski, Inc.
- 264* Opportunities and Challenges of Cannabis Equity Programs (slides not available)
Cat Packer, Executive Director, Los Angeles Department of Cannabis Regulation
Shaleen Title, Massachusetts Cannabis Control Commission
Rodney Holcombe II, Drug Policy Alliance
- 265 [Marijuana Legalization: Building a New Tobacco Industry or Learning from the Past? Lessons from California](#)
Lynn Silver, Public Health Institute
- 266* Perspectives on Moving Forward: What's Next Across North America? (slides not available)
Krista Apse, Director, External Relations, Cannabis Legalization and Regulation Branch, Health Canada
Andrew Freedman, Co-founder, Freedman and Koski, Inc., United States
Manuel Ruiz de Chávez, President, Comisión Nacional de Bioética de México (National Bioethics Commission of Mexico)
- 267* Cannabis Monitoring in an Era of Legalization: Lessons Learned from National and State-Based Public Health Surveillance (slides not available)
Gillian Schauer, Multi-State Collaborative on Cannabis and Public Health
Althea Grant-Lenzy, Centers for Disease Control and Prevention, U.S. Public Health Service
Rashid Njai, Centers for Disease Control and Prevention, U.S. Public Health Service
Julia Dilley, Multnomah County & Oregon Public Health Division

- 268 [Patients Leading the Doctors: How Do Health Professionals Respond to Medical Questions About Cannabis?](#)
Barbara Herbert, Massachusetts Chapter, American Society of Addiction Medicine
- 269 Clearing the Smoke: Vaping Marijuana Among Adolescents: Recent Trends and Implications (slides not available)
Alexandra Kritikos, PhD Student at Brandeis University
- 271 [California's Approach to Cannabis Regulation for Public Health & Safety](#)
Mark Starr, California Department of Public Health
Lori Ajax, California Department of Consumer Affairs
Richard Parrott, California Department of Food and Agriculture
- 272* Cannabis and Reparative Justice (slides not available)
Rodney Holcombe II, Drug Policy Alliance
- 273 Approaches to Cannabis Regulation in Mexico (slides not available)
Jhonnatan Curiel Sedeño, Colegio de la Frontera Norte
Alberto Abad Suárez Ávila, Institute for Judicial Research, Universidad Nacional Autónoma de México (UNAM)
Paula de Gortari Pedroza, UNAM Los Angeles
Gustavo F. Olaiz Barragán, CONBIOÉTICA
Manuel Ruiz de Chávez, Comisión Nacional de Bioética de México (National Bioethics Commission of Mexico)
- 274 [State of the Art Approaches and Challenges of Addressing Cannabis Use in Mexico](#)
Maria Elena Medina Mora, Instituto Nacional de Psiquiatría RFM
Manuel Ruiz de Chávez, Comisión Nacional de Bioética de México (National Bioethics Commission of Mexico)
- 275 Building a Broad-Based Cannabis Program at UCLA: Opportunities for Collaboration and Support (slides not available)
Jeff Chen, UCLA Cannabis Research Initiative
Ziva Cooper, UCLA Cannabis Research Initiative

APPENDIX B: POSTER PRESENTATIONS, LISTED BY SESSION CODE

- 50 Cannabis Legalization in Canada: Recommendations of Quebec's Public Health Directors
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- 54 Secondhand Exposure to Marijuana and Cigarette Smoke in the United States
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- 77 Computerized Interventions to Reduce Youth Cannabis Use
Joanna Jacobus, Assistant Professor, UC San Diego
- 81 Analysis of Cannabis-Related Patient-Provider Communications
Kathleen Gali, Postdoctoral Fellow, Stanford University
Judith Prochaska, Associate Professor of Medicine, Stanford University
Kelly Young-Wolff, Research Scientist, Kaiser Permanente Division of Research
- 87 Kidney Toxicity Induced by Cannabinoid Consumption
Pierre-André Dubé, Pharmacist-toxicologist, Institut national de santé publique du Québec
- 88 Impacts of Point-of-Sale Marijuana Marketing on Adolescent Marijuana Consumption
Yuyan Shi, UC San Diego
Yiwen Cao, UC San Diego
- 89 Developing Activities for Youth Cannabis Use Prevention
Bonnie Halpern-Felsher, Stanford University
Adrienne Lazaro, Stanford University
Richard Ceballos III, Stanford University
- 92 Price Sensitivity of Legal vs. Illegal Cannabis
Michael Amlung, McMaster University
- 99 Cannabis-Induced Psychotic Disorder: Case Series
Nathan Pearson, West Virginia University School of Medicine
James Berry, West Virginia University

- 123 Cannabis Use, Attitudes, and Policy Support in California
Judith Prochaska, Stanford University
Kathleen Gali, Stanford University
Sandra Winter, Stanford Prevention Research Center
Erica Frank, University of British Columbia
- 130 Effects of Cannabis Products According to THC:CBD Ratios
Violaine Mongeau-Pérusse, University of Montréal
- 143 Public Health and the Cannabis Retail Environment, Los Angeles County
Jane Steinberg, Keck School of Medicine, University of Southern California
Cynthia Hallett, Americans for Nonsmokers, Rights
Will Nicholas, Los Angeles Department of Public Health
- 145 U.S. Adult-Use and Medical Cannabis Purchase Limits
Stanton Glantz, UC San Francisco
Candice Bowling, UC San Francisco
- 154 Youth Cannabis Use and Cognitive Function
Natalie Castellanos Ryan, Université de Montréal
- 162 Marijuana Advertisement Violations in Washington State: 2014–2017
Sharon Garrett, Alcohol and Drug Abuse Institute, University of Washington
- 165 Substance Use Among Youth in Washington State
Julia Dilley, Multnomah County and Oregon Public Health Division
Charles Fleming, University of Washington
Isaac Rhew, University of Washington
Katarina Guttmannova, University of Washington
- 171 Social Weedia: Review of Social Media Research on Marijuana
LaTrice Montgomery, University of Cincinnati
- 174 Cannabis Use Among Sexual Minority Men in Los Angeles County
Lorree (Katy) Berteau, UCLA
Ian Holloway, UCLA
Diane Tan, UCLA
Ayako Miyashita Ochoa, UCLA Luskin School of Public Affairs

- 178 Motivations for Cannabis Use Among People Who Inject Drugs
Kelsey Simpson, Keck School of Medicine, University of Southern California
- 181 Physician Perceptions of Marijuana’s Harm and Benefit
Shu-Hong Zhu, UC San Diego
- 182 Relevant Local Data on Cannabis Issues
Catherine Dizon, UC Davis, Tobacco Control Evaluation Center
Jorge Andrews, UC Davis, Tobacco Control Evaluation Center
Sarah Hellesen, UC Davis, Tobacco Control Evaluation Center
Robin Kipke, UC Davis, Tobacco Control Evaluation Center
Danielle Lippert, UC Davis, Tobacco Control Evaluation Center
- 183 Measuring Indoor Smoking Using Air Particle Monitors
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- 184 Analysis of the Association Between Cannabis and Opiate Use
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- 192 Interviews with Washington State’s Cannabis License Holders
Sam Hampsher, BOTEC Analysis, LLC
Clarissa Manning, BOTEC Analysis, LLC
- 193 Helpline Staff Knowledge of Marijuana: Evaluation & Training
Beatriz Carlini, Alcohol and Drug Abuse Institute, University of Washington
Sharon Garrett, Alcohol and Drug Abuse Institute, University of Washington
Meg Brunner, Alcohol and Drug Abuse Institute, University of Washington
- 195 Compendium and Comparison of State Medical Cannabis Testing
Satyam Patel, New Jersey Department of Health, Public Health & Environmental Labs
Sherman Hom, New Jersey Department of Health, Public Health & Environmental Labs
Steven Nguy, New Jersey Department of Health, Public Health & Environmental Labs
- 217 Developing Equitable Approaches to Route of Administration
Lorraine Greaves, Centre of Excellence for Women’s Health
Nancy Poole, Centre of Excellence for Women’s Health
Natalie Hemsing, Centre of Excellence for Women’s Health

- 224 Impact of Cannabis Legalization on Juvenile Offenders
Emily Kan, UC Irvine
- 228 Marijuana Legalization and the Opioid Crisis
Nima Shahidinia, RAND Corporation
- 232 Development of a CBD Registry
Martha Kelly, IMPAQ International
- 233 Increasing Marijuana Use by Older Adults: Causes for Concern
Susan Stoner, University of Washington
- 236 Stigmatization of Marijuana Consumers in the Context of Legalization
Matthew Farrelly, RTI International
Jane Allen, RTI International
Brian Bradfield, RTI International
- 240 Cannabis Workers' Safety and Health
Farzaneh Khorsandi Kouhanestani, UC Davis
- 245 Vaping Cannabis Among Adolescents: Insights from the Monitoring the Future Survey
Alexandra Kritikos, PhD Student at Brandeis University