



## Disclosures and Disclaimers

I do not have anything to disclose.

**The findings and conclusions in this presentation are my own and do not necessarily represent an official position of any of the organizations or agencies with whom I work.**

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## Agenda

- Brief review of health effects
- Current policy landscape
- Comparison of current adult use cannabis policies across states
- Considerations for licit vs. illicit markets
- Considerations related to hemp
- Final thoughts

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# Health benefits of cannabis and cannabinoids

- Science supports benefits, including:
  - Chronic pain relief
  - Nausea relief
  - Appetite stimulation
  - Patient-reported symptoms of MS
  - Rare seizure disorders
  - Some evidence for sleep
- 4 FDA approved drugs
- States may authorize much broader use



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# Potential health risks of cannabis



Impaired motor coordination/  
reaction time



Cognitive development  
and related outcomes



Pregnancy outcomes



Mental health outcomes



In high doses, acute  
psychosis and paranoia



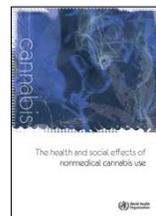
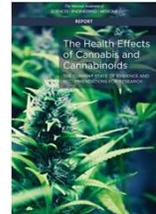
Respiratory and  
cardiovascular effects



Cannabis Use Disorder

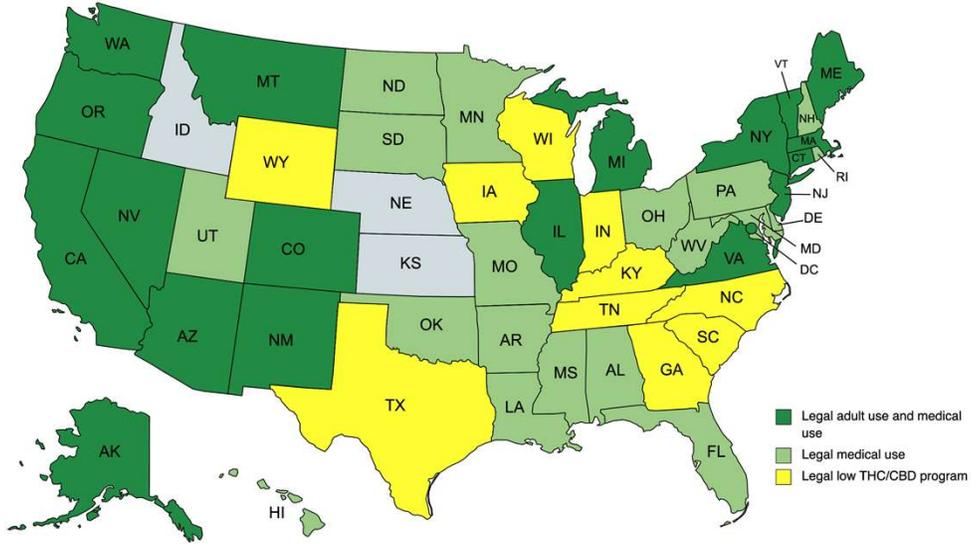


Abuse/dependence on  
other substances



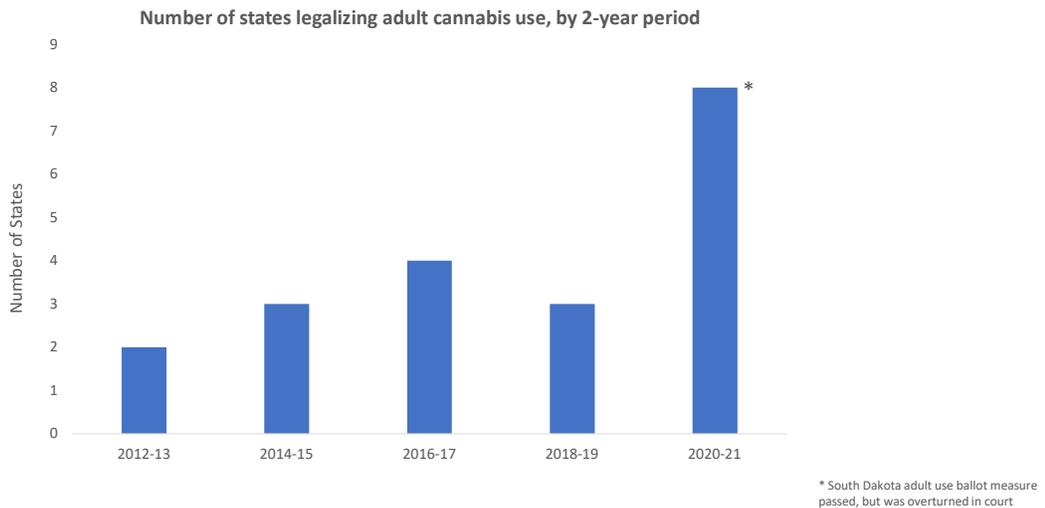
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## Cannabis policy, by state, March 2022



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## Exponential increases in adult use legalization



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## Timeline of Adult Use Cannabis Legalization, by State

State	Year adult use legalization passed	Ballot measure (% support) OR legislative passage	Date retail marketplace opened (opens)
CO	2012	Ballot measure (55%)	January 2014
WA	2012	Ballot measure (56%)	July 2014
OR	2014	Ballot measure (56%)	October 2015 (through medical dispensaries)
AK	2014	Ballot measure (53%)	October 2016
DC	2014	Ballot measure (65%)	No retail marketplace approved
CA	2016	Ballot measure (56%)	January 2018
ME	2016	Ballot measure (50%)	October 2020 (through medical dispensaries)
MA	2016	Ballot measure (54%)	November 2018
NV	2016	Ballot measure (54%)	July 2017 (through medical dispensaries)
VT	2018	Legislative	Expected 2022
MI	2018	Ballot measure (56%)	December 2019
IL	2019	Legislative	January 2020 (through medical dispensaries)
AZ	2020	Ballot measure (60%)	January 2021 (through medical dispensaries)
MT	2020	Ballot measure (57%)	January 2022 (through medical dispensaries)
NJ	2020	Ballot measure (67%)	April 2022 (through medical dispensaries)
SD	2020	Ballot measure (54%)	Legalization overturned by legal challenge
NY	2021	Legislative	Expected 2022 or 2023
VA	2021	Legislative	Expected 2024
NM	2021	Legislative	April 2022
CT	2021	Legislative	Expected 2022

Source: Schauer, G.L., Cannabis Policy in the United States: Implications for Public Health, 2021, *Journal of the National Cancer Institute*

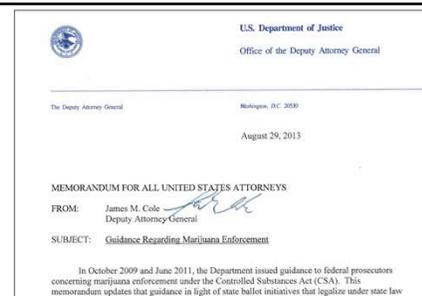
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## Cannabis Legalization 2.0 (and beyond)

- Broader focus than Cole Memo era
- Increased focus on:
  - Social equity and restorative justice
  - Public health and consumer safety
  - Increased parity in regulations across cannabis (medical, adult use, hemp)



Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products



### THE DENVER POST

Despite legalization, people of color still disproportionately targeted for marijuana, new studies say

### Forbes

How Hemp And The Farm Bill May Change Life As You Know It

### The Washington Post

As more states legalize marijuana, more children accidentally ingest THC-laced edibles

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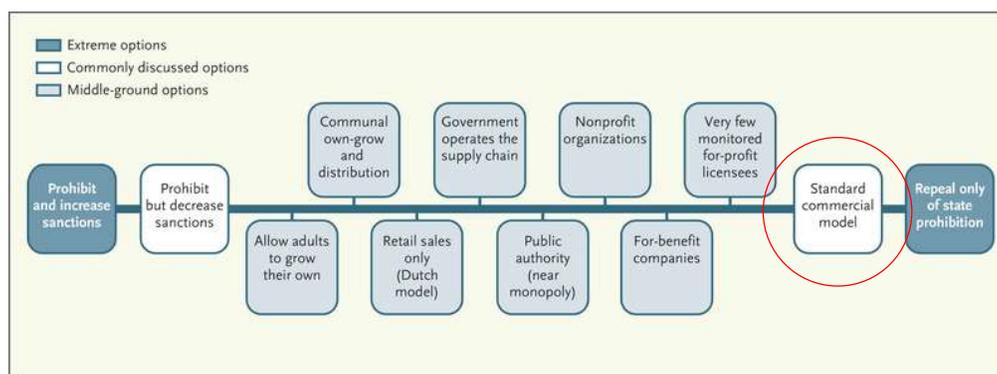
## Sampling of policy variables with regulatory importance:

- How cannabis is regulated and who regulates it
- Taxes (amount, structure, allocation)
- What's legal (amount, product types, serving size/potency)
- Market structure (license types, vertical integration, home grow)
- What's allowed to be in products (excipients, diluents, solvents, additives)
- Product testing
- Packaging & Labeling
- Advertising
- Point of sale environment
- Where people consume products



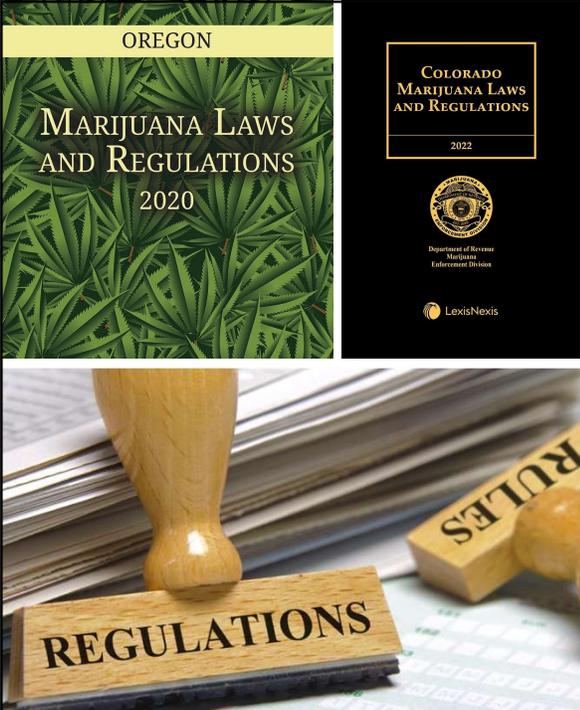
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## What regulatory scheme is chosen?



Citation: Kilmer, B. Recreational Cannabis – Minimizing the Health Risks from Legalization (2017) *New England Journal of Medicine*; 376 (8): 705-707 adapted from: Caulkins, J.P. & Kilmer, B. Considering marijuana legalization carefully: insights for other jurisdictions form analysis for Vermont. (2016) *Addiction*, 111(12): 2082-2089.

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## Who regulates cannabis?

- Liquor/Alcohol/Beverage Control Boards (AK, OR, WA)
- Depts. of Revenue/Taxation/Finance (CO, IL, ME, MT)
- Separate Cannabis Regulatory Agency/Commission (CA, MA, NJ, NV, NY, VT)
- Dept. of Regulation and Licensing (MI, NM)
- Dept. of Consumer Protection (CT)
- Dept. of Public Health (AZ)

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## What are the taxes and where do they go?

**Retail excise and wholesale taxes vary widely:**

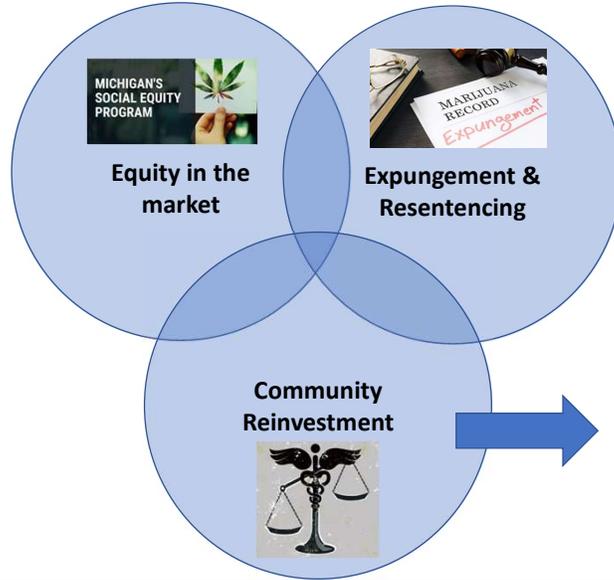
- 6.6% (NJ) to ~10-15% (ME, MA, MI, NV) to 37% (WA)
- AK is only state with no point-of-sale excise tax
- IL and NY are the only states with a THC-based tax

**What taxes fund (beyond the regulatory agency):**

- **Schools** (CO, MA, MI, NV, NY, OR, VA, WA), **Public health/Prevention** (AK, CA, CO, CT, MA, ME, NY, OR, WA), **Mental health/substance abuse** (AK, CT, IL, NY, MA, MT, OR, VA), **Public Safety/Traffic safety** (AK, CA, IL, MT, OR), **Research** (CA, CO, MI, WA), **Local Governments** (CA, IL, MI, NV, NM), **Basic health/wellness fund** (MA, WA) **Roads** (MI), **State Lands and Outdoor Recreation:** MT, **Veterans:** MT **Recidivism reduction** (AK), **Criminal Justice and Community Reinvestment** (CA, CT, IL, NY)

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# Emphasis on equity and restorative justice



- Job placement
- Mental health and/or substance use disorder treatment
- System navigation services
- Legal services
- Reentry services
- Linkages to medical care
- Housing
- Violence Prevention
- Youth Development

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# Public Education Campaigns

- Education about the law
- Drive high get a DUI campaigns
- Campaigns for kids (and parents)
- Pregnant & breastfeeding individuals
- Responsible adult use



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## How is the market structured?

**License types:**

- Cultivator, Processor, Retailer
- Increasingly: delivery, social consumption establishments

**Vertical integration:**

- Allowed but not required in most states
- Not allowed in WA, NY

**Adult Use Homegrow:**

- Allowed in all except WA and IL;
- In NV, have to be >25 miles from retailer

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## Product Types and Forms

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## Product ingredients

### Increased focus post-EVALI on:

- Diluents and excipients
- Terpenes (cannabis-derived, botanical, synthetic)
- Quantity of additives in products
- No nicotine or alcohol as additive

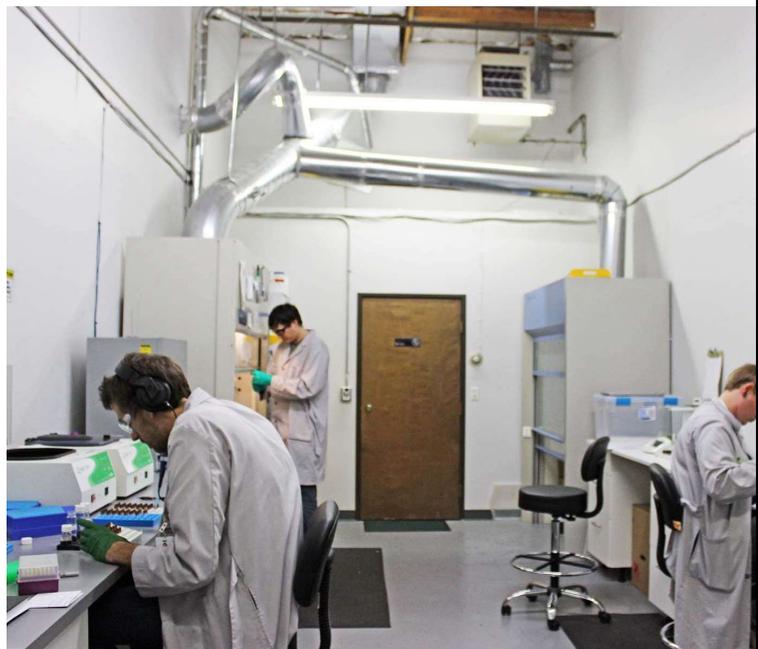
- Full ingredient disclosure
- GRAS requirements (for foods)
- FDA inactive ingredient list (for drugs)



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## Product testing

- **Testing infrastructure**
  - Third party labs
  - State reference/quality assurance lab
- **Analyte testing (what are you testing for?)**
  - Vary across states
- **Testing protocols (when and how are you testing?)**
  - Varies across states



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# Packaging and Labeling

## Challenges:

- Defining and enforcing “cannot appeal to youth” → Packaging still appeals to kids
- Effectively reaching consumers with essential information



**Washington Retail Marijuana**

There may be health risks associated with consumption of this product. Smoking is hazardous to your health. Should not be used by women that are pregnant or breast feeding. For use only by adults twenty-one and older. Keep out of reach of children. Marijuana and products containing marijuana can impair concentration, coordination, and judgment. Do not operate a vehicle or machinery under the influence of this drug. This product is infused with marijuana or active compounds of marijuana.

**Warning:** This product has intoxicating effects and may be habit forming. This product may be unlawful outside of Washington State.

**Caution:** When eaten or swallowed, the intoxicating effects of this drug may be delayed by two or more hours.

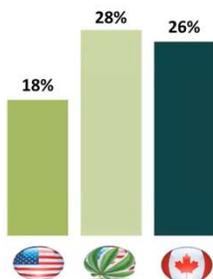
**GOVERNMENT WARNING:** THIS PRODUCT CONTAINS CANNABIS, A SCHEDULE I CONTROLLED SUBSTANCE. KEEP OUT OF REACH OF CHILDREN AND ANIMALS. CANNABIS PRODUCTS MAY ONLY BE POSSESSED OR CONSUMED BY PERSONS 21 YEARS OF AGE OR OLDER UNLESS THE PERSON IS A QUALIFIED PATIENT. THE INTOXICATING EFFECTS OF CANNABIS PRODUCTS MAY BE DELAYED UP TO TWO HOURS. CANNABIS WHILE PREGNANT OR BREASTFEEDING MAY BE HARMFUL. CONSUMPTION OF CANNABIS PRODUCTS IMPAIRS YOUR ABILITY TO DRIVE AND OPERATE MACHINERY. PLEASE USE EXTREME CAUTION.

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# Consumer Awareness & Knowledge

**Do you know the amount/number of THC or CBD of the dried herb you used last?**

% **\*YES\***: DRIED HERB USERS (N=9,796)



**What are the THC and CBD levels in the DRIED HERB you usually use?**

UNIVERSE: DRIED HERB USERS WHO REPORTED KNOWING THC (N=447) AND CBD (N=395)



Source: The International Cannabis Policy Study (PI: David Hammond, University of Waterloo), 2020 data

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## Packaging and Labeling

### Increased focus on:

- Plain, uniform, opaque packaging
- More prominent and clear warnings
- Universal symbol (on all products)
- Inclusion of a poison center phone number and/or a drug information website
- Labeling for total THC (vs. D9 only)



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## Advertising

### Challenges:

- Preventing youth exposure
- Social medial advertising
- Third-party advertising

### Increased focus on:

- Audience restrictions (to prevent youth exposure)
- Limitations (or bans) on advertising in certain outlets
- Restrictions on ad content/purpose
- Warnings on advertisements



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Where are people allowed to consume the products?

**Public and social consumption prohibited:** ME, OR, WA

**Allowed but currently in violation of state law:** MA

**Allowed if locals allow (no state license):** CA, IL

**Allowed with statewide licensing (local approval needed):** AK, CO, MI, NV



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## Protecting Medical Access & Patients

- **Variety of approaches across adult use states in terms of preserving “dispensary” system.**

### Important considerations:

- **Protecting patient access to cannabis** → Rules to require certain supply dedicated for patients.
- **Incentivizing continued production of certain medical products**
- **Preserving patient access to information** (and protecting patient data)
- **Considering patient preferences for points of access for products**

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## Licit vs. illicit markets

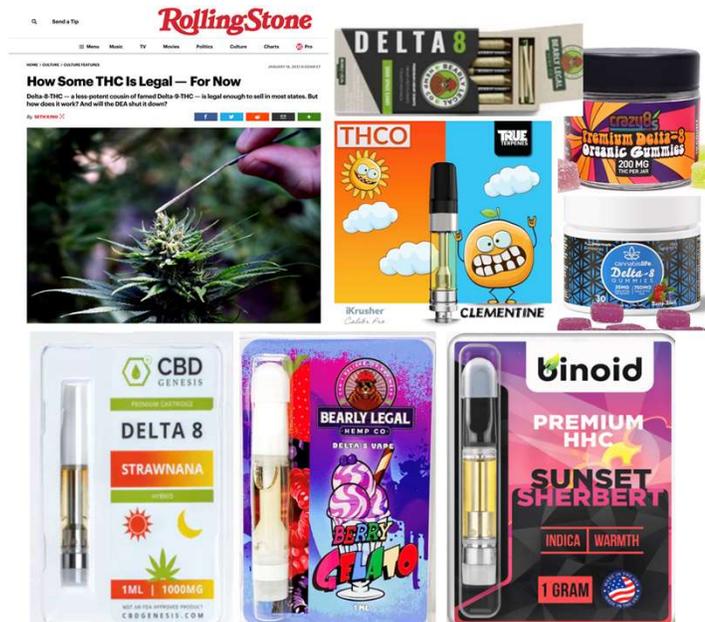
- Tested, regulated products
- Adult only sales environment
- Childproof packaging
- Labeling
- Product recall
- Regulation over ingredients
- Public education opportunities



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Additional consideration:

Hemp-derived novel cannabinoids

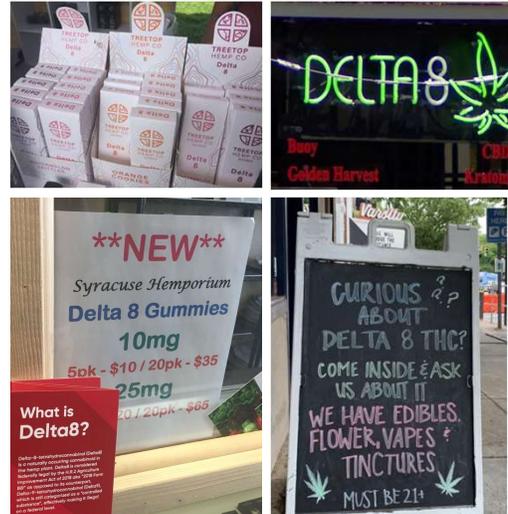


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## THC isomers and Novel Cannabinoids

### Consumer Safety concerns:

- Not subjected to the same packaging, labeling requirements
- Not subjected to the same testing requirements
  - Some new cannabinoid products have no data from use in humans
  - Potentially dangerous manufacturing
  - Unknown byproducts
- Widely available in retail outlets and online → widely available to youth
- May undermine adult use markets



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## Conclusions

- Science supports medicinal uses for cannabis; but there can also be risks to cannabis use. Certain policies can help mitigate against risks.
- Policies with importance to consumer safety and prevention of youth access include those related to product ingredients, testing, packaging and labeling, and advertising.
- Several patient considerations exist including products, access, and supply.
- Consider hemp policies and their potential interplay with adult use policy.
- Other states have already legalized adult use and have lessons learned – but each state has unique populations and needs...
- Take Hawaii-specific policy approaches to protect consumer safety, prevent youth access, promote equity, and create an adult use market.

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**Questions?**