

Public Health Journal Club

# Marijuana Legalization and Public Health

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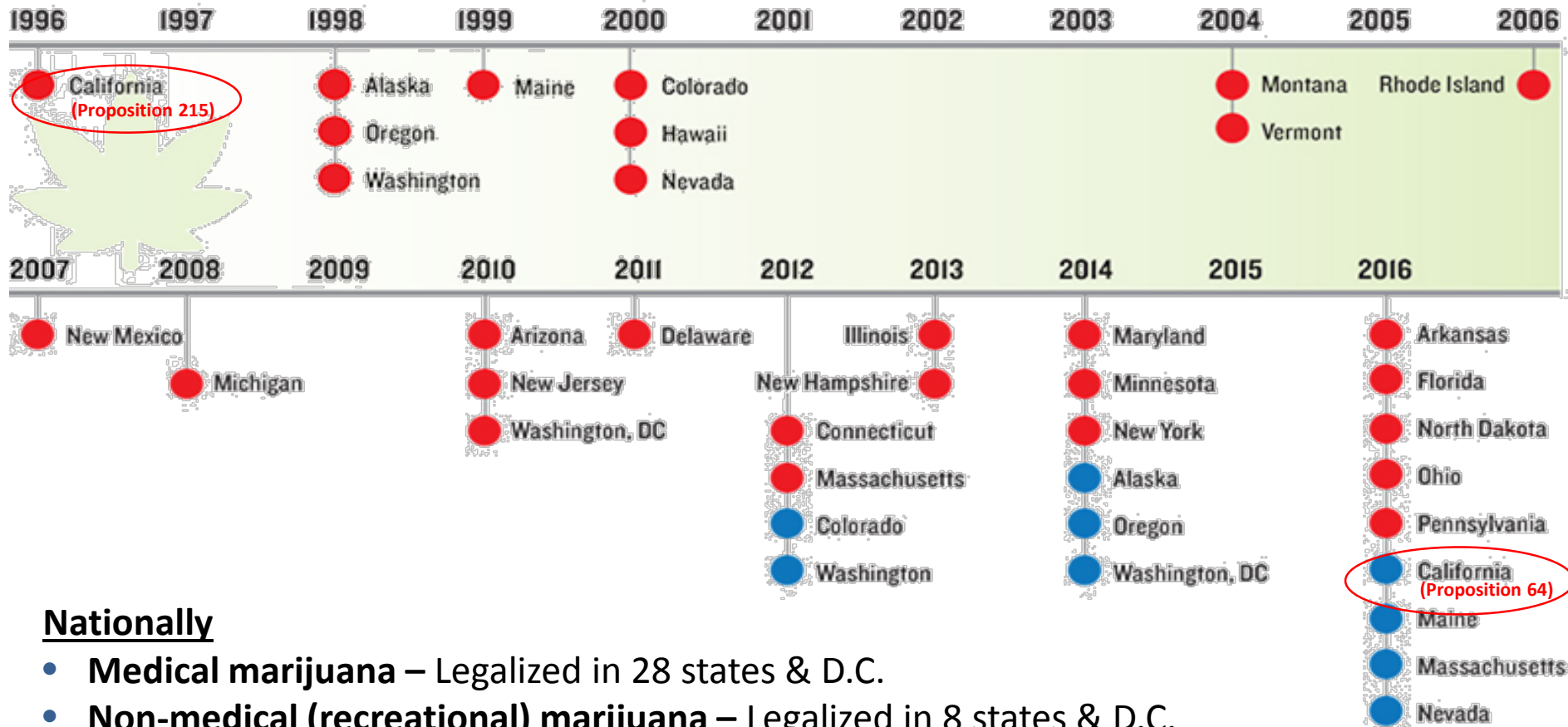
# Outline

- Marijuana Policy Landscape
- The Public Health Framework of Legalized Marijuana in Colorado\*
  - Overview of AJPB journal article
  - Implications in Los Angeles County
- Summary

\*Ghosh T, Van Dyke M, Maffey A, et al. The Public Health Framework of Legalized Marijuana in Colorado. *Am J Public Health*. 2016 Jan;106(1):21-7. doi: 10.2105/AJPH.2015.302875. Epub 2015 Nov 12.



# Marijuana Policy Landscape



## Nationally

- **Medical marijuana** – Legalized in 28 states & D.C.
  - **Non-medical (recreational) marijuana** – Legalized in 8 states & D.C.
- \*Colorado, Washington, Oregon, & Alaska have most experience with legalizing both medical & non-medical marijuana.

## California

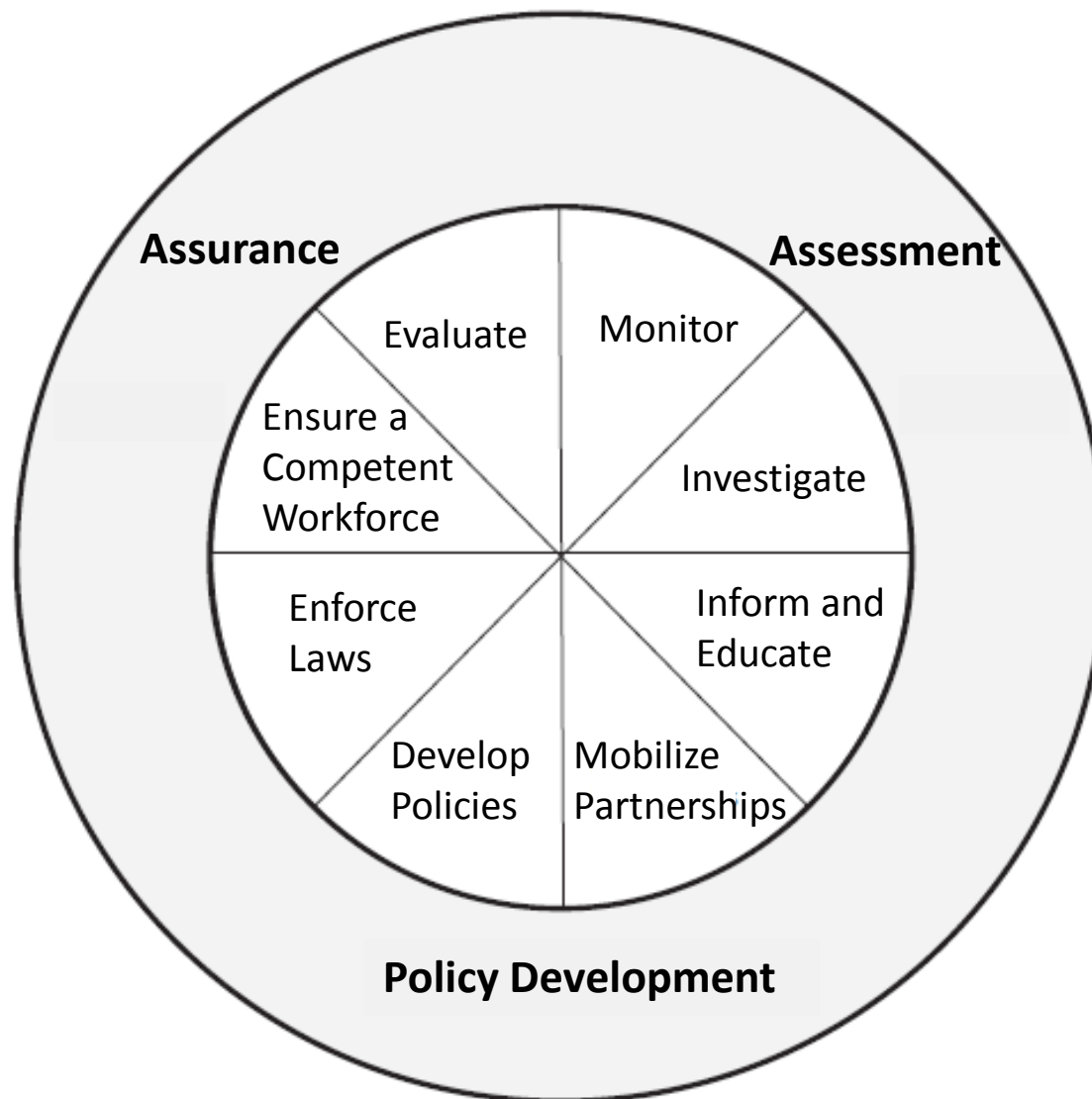
- **Proposition 215** – Legalized medical marijuana (1996)
  - **Proposition 64** – Legalized non-medical marijuana (2016)
- \*Both medical & non-medical marijuana are still illegal under federal law.

## Main Objectives of Article

1. To share a public health framework for legalized non-medical marijuana
2. Highlight challenges to implementing this public health framework
3. Provide recommendations to public health agencies where marijuana legalization is being considered



# Public Health Framework for Legalized Non-Medical Marijuana



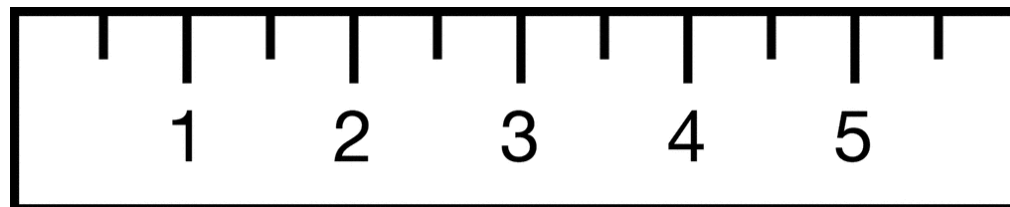
## Assessment



- CORE PRINCIPLE: **Data needs to inform and shape policy**
- Having **pre-legalization data** as a baseline to compare post-legalization data to is important
- Data should be coming from **various data sources**
  - Leverage existing population-based surveys by incorporating marijuana-related questions
    - Prevalence estimates (self report)
    - Add edible marijuana questions to foodborne illness questionnaires
  - Passive surveillance of hospital and emergency department discharges
  - Stateside trauma registry
  - Mortality data (Coroner's)
  - Birth defect data
  - Poison control data → particularly for youth poisonings
- **Evaluation of post-legalization activities to assess efficacy and benefit** will be critical

## Challenges with Assessment

- **Lack of validated questions** regarding frequency, dose, methods of use, behaviors while impaired, storage, cultivation, and manufacturing is a challenge
- Need to identify **good data source for DUI's** → National Fatality Analysis Reporting system only confirms presence of a drug in fatal crashes (not serious injury crashes) and does not include the level of impairment associated with drug
- Need to identify **good data source for contamination of marijuana by bacteria, mold, and chemicals**
- **Lack of comprehensive database of blood THC measurements**
- **Lack of consistency in testing for marijuana**, even if alcohol is detected
- **Lack of ICD-10 codes related to marijuana** and **inconsistent application of codes**



## Policy Development

- Ideally would align regulations for non-medical and medical marijuana use
- Edibles (associated with poison control calls and anecdotal overdoses) and youth should be key focus areas for regulatory development.
- Leverage knowledge gained from successes with tobacco and alcohol policy and regulatory experiences





## Evidence-Based Strategies to Reduce Public Health Concerns of Marijuana

- **Increase unit price** → 10% sales price on marijuana (not applicable to medical marijuana)
- **Increased taxes** → 15% excise tax on wholesale marijuana product (not applicable to medical marijuana)
  - Price increases need to be weighed against risks of creating parallel black market for non-medical marijuana
- **Smoke-free policies** → Extended smoke-free policies and secondhand smoke policies in public spaces to marijuana as well as tobacco
  - Similarly, public and open consumption of marijuana in any form was prohibited in CO
- **Mass-reach health communications**
  - Rules on packaging, labeling, and product safety requirements
    - Packaging cannot appeal to youth underage 21 or use cartoon characters
    - Ban on internet pop-up ads and any type of ad that targets minors
    - Advertising via TV, radio, print, internet or event sponsorship is only allowable when it can be documented that the youth audience under age 21 is less than 30%
    - Outdoor advertising is prohibited, except for the sign of the marijuana retail store



# Evidence-Based Strategies to Reduce Public Health Concerns of Marijuana

- **Education**

- **Consistent messaging is critical** → web portal to coordinate messaging across state/local agencies
- “Good to Know Colorado” statewide campaign to educate all CO residents about safe, legal, and responsible marijuana use

- **Key messages:**

- **Health impacts of marijuana on youth** and the particular importance of preventing use in this group; dangers of underage marijuana use
    - **Safe marijuana storage**
    - **Risks of marijuana use during pregnancy and breastfeeding**
    - **Special risks with edible marijuana**, particularly as it relates to serving sizes and overdose risks
    - **Risks of secondhand marijuana smoke**
    - **Harms of combining marijuana with alcohol and other substances**
    - **Targeted education:**
      - » **Producers of edible products** → food safety trainings to reduce risks of foodborne illness and contamination of marijuana products
      - » **Education to prevent occupational injuries and illnesses**



## Evidence-Based Strategies to Reduce Public Health Concerns of Marijuana

- **Education (cont'd)**
  - **Marijuana-specific educational conferences** can help to disseminate info, and also get a sense of what is going on in the community with regard to marijuana legalization to ensure that government agencies are in tune with the cultural aspects of marijuana use among the general public
  - **Need more research on health benefits & risks** (related to marijuana's designation as Schedule 1 drug)
- **Legal limit for marijuana-impaired driving**
  - CO set limit at 5 ng/mL of THC in whole blood
  - CO Dept of Transportation developed a “Drive High, Get a DUI” educational campaign



## Evidence-Based Strategies to Reduce Public Health Concerns of Marijuana

- **Strict retail licensing and enforcement**
  - **Restriction of marijuana use, possession, and cultivation to adults aged 21 years or older**
  - **Drug felony offense if an adult more than 2 years older than the minor gives or sells the minor marijuana or related products**
  - **Bans presence of minors under age 21 in retail stores**
  - **Limits hours of operation** of retail marijuana stores from 8am – midnight
  - **Requires identification** at point of purchase for proof of age
  - **Illegal to sell marijuana to someone younger than 21 years**
  - Marijuana retail store education program to **educate employees about marijuana** health impacts, safety practices, and the importance of restricting access to youth
    - **Local governments could impose sales restrictions further**



## Challenges with Policy Development

- **Discordant regulations for non-medical and medical marijuana use**
  - Medical marijuana users have higher possession limits, higher grow limits, ability to designate a caregiver to grow the user's plants, exemption from excise and sales taxes, ability to obtain a medical marijuana registration card for those under age 21
- **Discrepant federal, state, and local laws on marijuana**



## Assurance

- **Major goals of marijuana enforcement**
  - Ensure a marijuana product free of contaminants
  - Child-resistant marijuana packaging
  - Properly labeled marijuana packaging
- Periodic evaluations to **ensure that marijuana retail outlets are not selling to individuals under age 21**
- **Inspection and certification of non-medical marijuana testing facilities**
- **Ensure a competent workforce** → Relevant marijuana education for healthcare providers, public health professionals, inspectors, etc.



## Challenges with Assurance

- **Identifying funding for surveillance and staff time (as early as possible) to begin establishing necessary framework for marijuana assurance and other activities**
- **Lack of national standards on marijuana testing**
- **Lack of proficiency testing and reference laboratories**





# Implications in Los Angeles County





## Systematic Review and Meta-Analysis of Cannabinoids for Medical Use

Strength of Evidence	Condition
<b>Moderate-Quality</b>	<ul style="list-style-type: none"> <li>▪ Chronic pain</li> <li>▪ Spasticity due to multiple sclerosis or paraplegia</li> </ul>
<b>Low-Quality</b>	<ul style="list-style-type: none"> <li>▪ Nausea and vomiting due to chemotherapy</li> <li>▪ Weight gain with HIV</li> <li>▪ Sleep disorders</li> <li>▪ Psychosis</li> <li>▪ Tourette Syndrome</li> </ul>
<b>Very Low-Quality</b>	<ul style="list-style-type: none"> <li>▪ Depression</li> <li>▪ Anxiety</li> </ul>
<b>Increased Risk of Short-Term Adverse Events</b>	
<ul style="list-style-type: none"> <li>▪ Dizziness</li> <li>▪ Dry mouth</li> <li>▪ Nausea</li> <li>▪ Fatigue</li> <li>▪ Somnolence</li> <li>▪ Euphoria</li> </ul>	<ul style="list-style-type: none"> <li>▪ Vomiting</li> <li>▪ Disorientation</li> <li>▪ Drowsiness</li> <li>▪ Confusion</li> <li>▪ Loss of balance</li> <li>▪ Hallucinations</li> </ul>

# Potential Medical RISKS of Marijuana

## Systematic Literature Review of Health Risks of Marijuana Use (Colorado Dept of Public Health and Environment)

Topic Description	Strength of Evidence	
	Substantial	Moderate
Marijuana Use During Pregnancy and Breastfeeding		Decreased IQ scores
		Attention problems
		Decreased growth
		Decreased cognitive functions
		Decreased academic ability
Unintentional Marijuana Exposures in Children		Legal marijuana access increases unintentional marijuana exposures in children
		Child resistant packaging reduces unintentional pediatric poisonings
Marijuana Use Among Adolescents and Young Adults	Other illicit drug use and addiction after adolescence	Impaired cognitive abilities and academic performance after 28 days abstinence
	Psychotic symptoms or disorders similar to schizophrenia	Less high school graduation
		Increased marijuana use and addiction after adolescence
		Alcohol or tobacco use and addiction after adolescence
		Quitting lowers risks outlined above

## Systematic Literature Review of Health Risks of Marijuana Use (Colorado Dept of Public Health and Environment)

Topic Description	Strength of Evidence	
	Substantial	Moderate
Marijuana Dose and Drug Interactions	Smoking > 10 mg THC leads to driving impairment	Higher blood [THC] in impaired drivers now compared to past
	Ingesting > 10 mg THC leads to driving impairment	
	Waiting at least 6 hrs after smoking < 18 mg resolves/nearly resolves driving impairment	
	Time to peak blood [THC] up to four hours post oral ingestion	
	Passive exposure does not lead to positive screen by urine or blood	
Marijuana Use and Respiratory Effects	Same carcinogens in marijuana smoke as tobacco smoke	Heavy use increases airflow obstruction
	Chronic bronchitis with cough/wheeze/sputum	
	Precancerous lesions in airways	
Marijuana Use and Injury	Increased motor vehicle crash risk	
	Association between THC level and motor vehicle crash risk	

# Marijuana Data & Policy – Considerations for Los Angeles County

- Research supports the **dangers of underage marijuana use on the adolescent brain and the importance of delaying use** (psychotic symptoms, addiction, etc).



– Leveraging effective strategies used for tobacco and alcohol should be considered for marijuana, particularly targeting youth.

- **Consider regulating / limiting marijuana outlets in similar fashion as alcohol outlets** so they must maintain a certain density and distance from schools and youth centers

- **Edibles** have been associated with increases in poison control and anecdotal reports of overdoses.

– Regulatory policies targeting edible marijuana will be important

- **Secondhand marijuana smoke** has been demonstrated to possess carcinogens similar to that of tobacco.

– Consider smoke-free and secondhand smoke policies

## Marijuana Data & Policy – Considerations for Los Angeles County (cont’d)

- Moderate evidence that **marijuana use during pregnancy and while breastfeeding** leads to decreased growth, cognitive functioning, and academic problems for the fetus/infant later in life.
  - Consider messaging campaigns about marijuana risk associated with pregnancy and breastfeeding.
- Substantial evidence demonstrates that marijuana use increases risk of **motor vehicle accidents**, and that this association can be related to THC level as well as concurrent alcohol use.
  - Regulation and enforcement of drugged driving will be important.



## Marijuana Data & Policy – Considerations for Los Angeles County (cont'd)

- Data supports **moderate taxation** (as opposed to under- or over-taxation) to balance limitation on access with need to avoid increasing costs to the point of incentivizing the emergence of a parallel and unregulated black market.
  - Consider a measured and balanced approach to marijuana-related revenue generation.



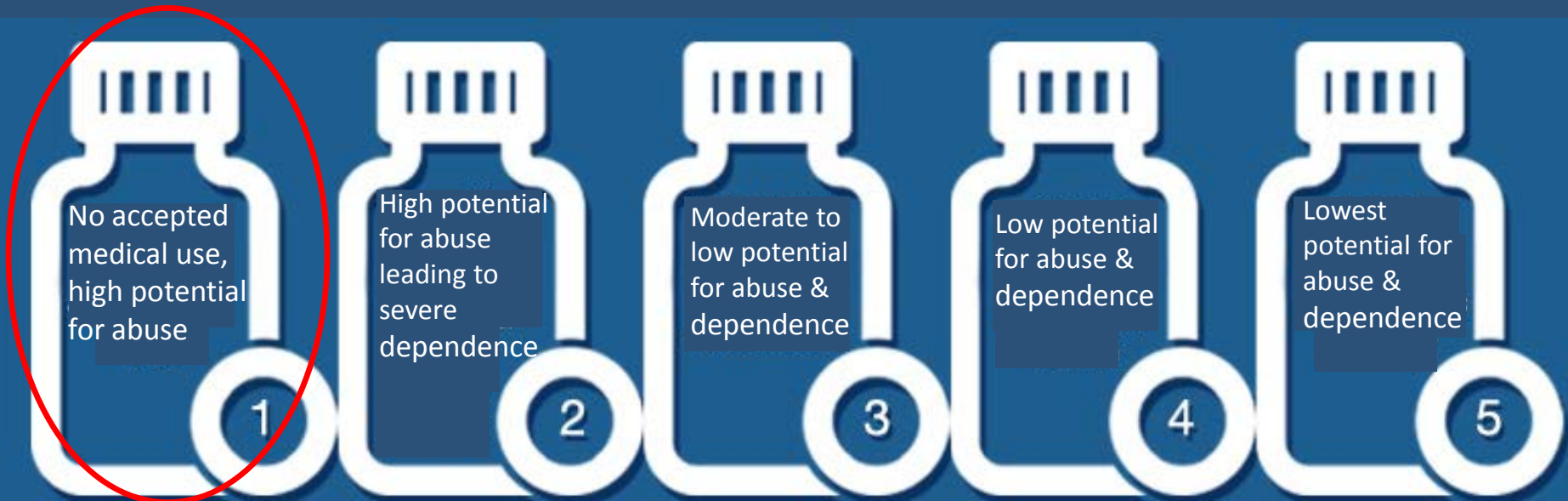
## Considerations for Building Public Health Framework for Marijuana

- Breadth of public health issues associated with marijuana necessitate **close multidisciplinary collaboration among health departments, local agencies, and broad stakeholder group**
- **Task force comprised of subject matter experts from diverse backgrounds** to establish a robust and organized regulatory and public health framework and to coordinate post-legalization activities will be necessary
  - **Diverse representation on task force may prevent misalignment** (e.g., developing policy that may benefit one aspect of the marijuana issue while undermining others)

## Federal Considerations

- **Need more research on the active compounds within marijuana in order to legitimize medical use**
  - Marijuana's categorization as a Schedule 1 drug does not facilitate this open research

### Scheduling of Controlled Substances





## Terminology is Important!

- When referring to the medical marijuana, it will be important to start using more specific terminology referring to its active **compounds** vs. more general terms such as “marijuana” or “cannabis” because while further study is necessary, available evidence suggests they have very different effects on health
  - **Tetrahydrocannabinol (THC)**
  - **Cannabidiol (CBD)**



## Summary

- Legalization of medical and non-medical (recreational) marijuana is spreading nationally, including legalization of both in CA.
- **Colorado has developed a public health framework for approaching legalization of non-medical marijuana, with core areas including:**
  - Assessment
  - Policy Development
  - Assurance
- **Marijuana policy and data are evolving and require further study. However, two core takeaways from experiences in Colorado thus far are:**
  - Marijuana policy impacts a broad range of issues and **requires a comprehensive and multifaceted approach to policy development.**
  - **Data-driven policy is critical and there is a need to standardize and collect more/better marijuana-related data** in order to:
    - Learn from past experiences
    - Increase the likelihood of developing policies that maximize the public good

# Thank you!

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CHANGE BRINGS  
**OPPORTUNITY.**  
-NIDO QUBEIN

