Workshop:
The Status of Marijuana Legalization

Presentation at the National Organization of Alternative Programs

San Antonio, Texas

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March 28, 2017

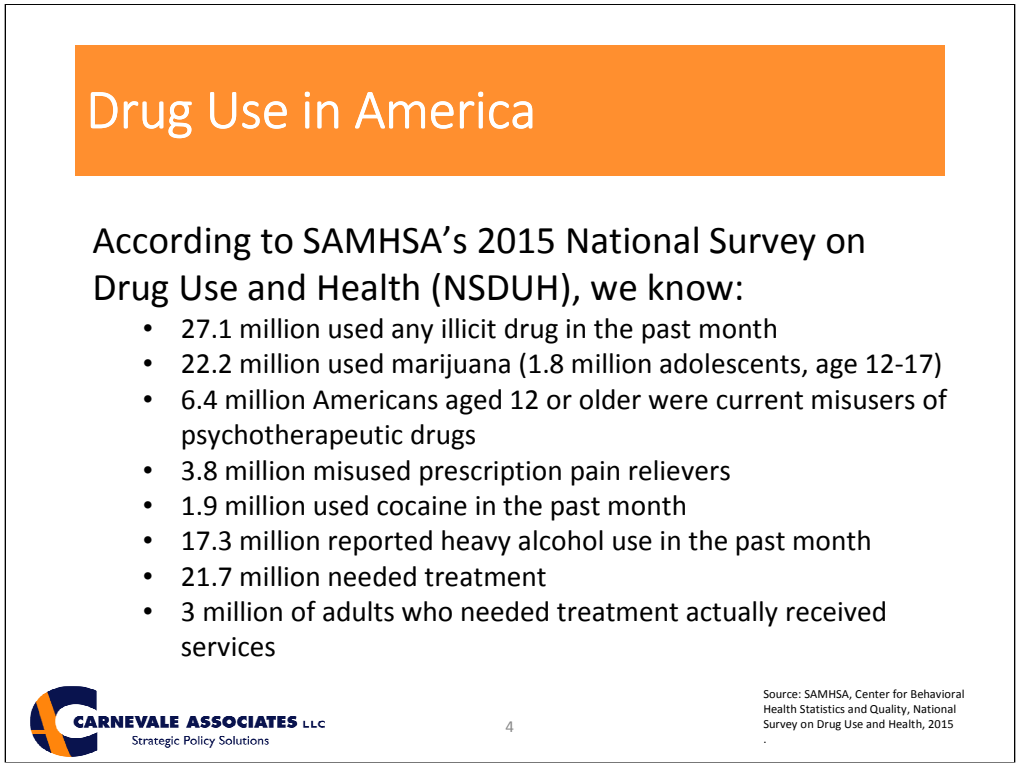
Agenda

This **workshop** will cover 3 general areas:

1. **Illicit Drug and Alcohol Use**
2. **Marijuana Legalization:**
   - Status of State Laws Affecting Marijuana's Legal Status and Federal Options for Intervention
   - Medical and Recreational Marijuana: What Research Tells Us
3. **A Regulatory Framework for Marijuana Regulation**

Note trend in illicit drug use changes over time: That that while Opioids are the clear problem today, that drugs considered problem drugs come and go. E.g., cocaine in the 80s-90s; methamphetamine in the 2000s; Opioids as part of a burst in Rx drug abuse, driving that trend, starting with the intro of Oxy in 1996.

But cocaine is showing signs of a comeback. And marijuana use is on the rise.



Note: COCAINE USE is making a comeback. While it is not shown on this chart, the trend is clear. Coca cultivation is increasing rapidly in Colombia; seizures are up; and cocaine initiation is up.

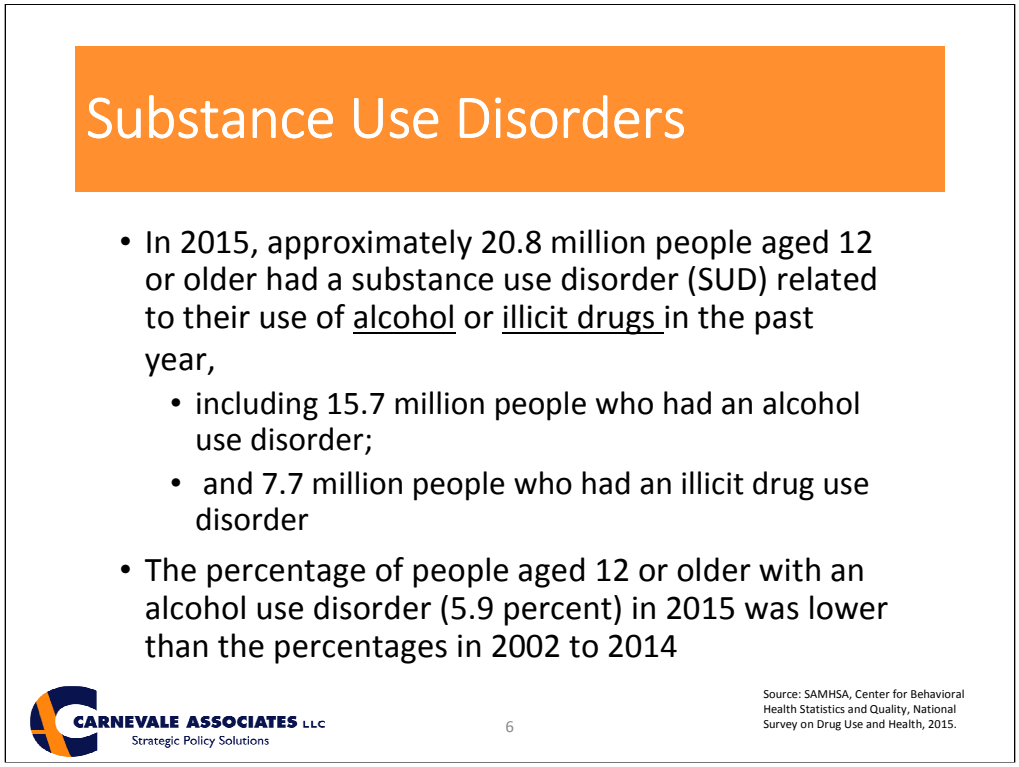
The nation tends to focus policy on current drug problems: we need to be mindful of emerging drug trends. Cocaine is an emerging drug trend.

Prevention is about substance use (and should not be just about a specific substance).

Marijuana Use

- 22.2 million Americans aged 12 or older in 2015 were current users of marijuana, representing 8.3 percent of the population aged 12 or older
- The percentage of people aged 12 or older who were current marijuana users in 2015 was similar to the percentage in 2014, but it was higher than the percentages from 2002 to 2013
- The increase in marijuana use among people aged 12 or older reflects the increase in marijuana use by adults aged 26 or older and, to a lesser extent, increases in marijuana use among young adults aged 18 to 25

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

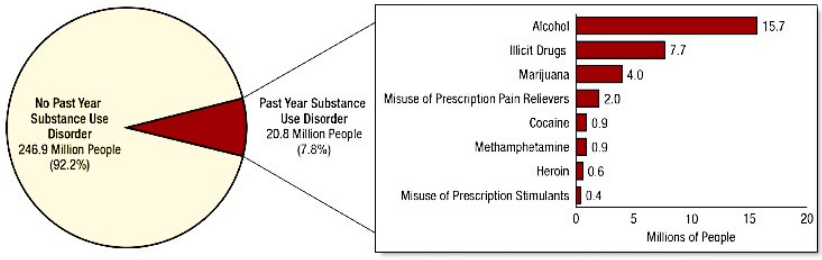


NSDUH includes a series of questions to estimate the percentage of the population aged 12 or older who had SUDs in the past 12 months.

Respondents were asked questions about SUDs if they previously reported use in the past 12 months of alcohol or illicit drugs. Illicit drugs include marijuana, cocaine, heroin, hallucinogens, inhalants, and the nonmedical use of prescription-type psychotherapeutic drugs. ese SUD questions classify people as having an SUD in the past 12 months and are based on criteria specified in the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV)

Substance Use Disorders

Numbers of People Aged 12 or Older with a Past Year Substance Use Disorder: 2015



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Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Substance Use Treatment

- In 2015, an estimated 21.7 million people aged 12 or older needed substance use treatment (i.e., treatment for problems related to the use of alcohol or illicit drugs), or about 1 in 12 people (8.1 percent)
- For NSDUH, people are defined as needing substance use treatment if they had an SUD in the past year or if they received substance use treatment at a specialty facility in the past year
- In 2015, 10.8 percent of people aged 12 or older (2.3 million people) who needed substance use treatment received treatment at a specialty facility in the past year

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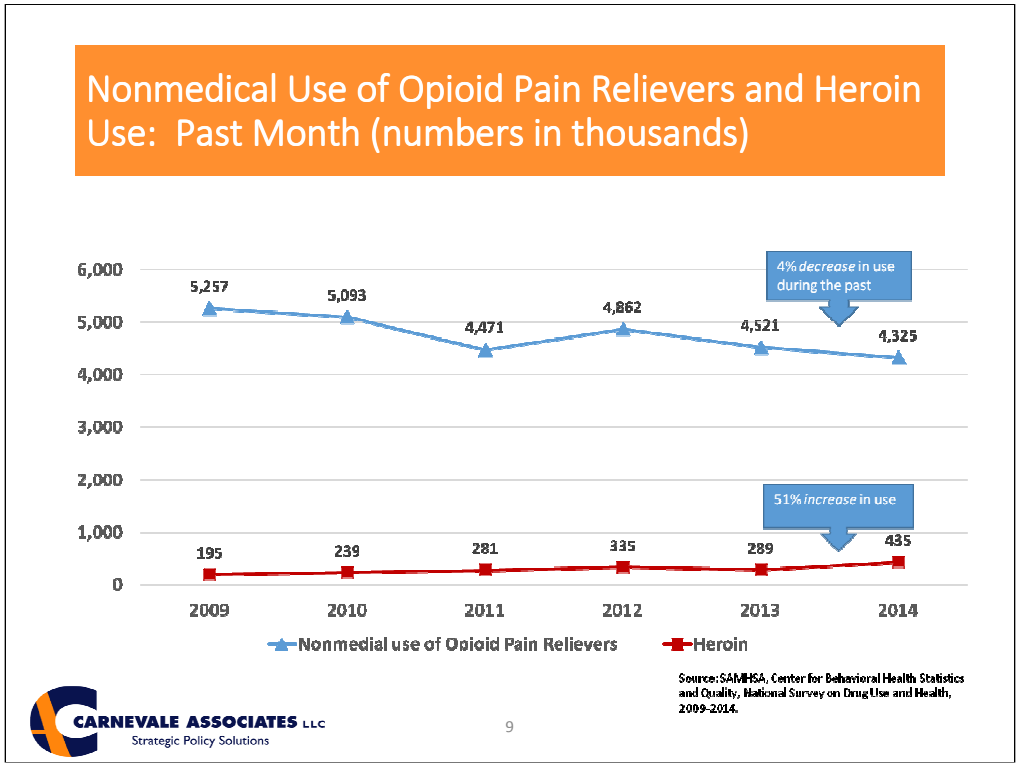
Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

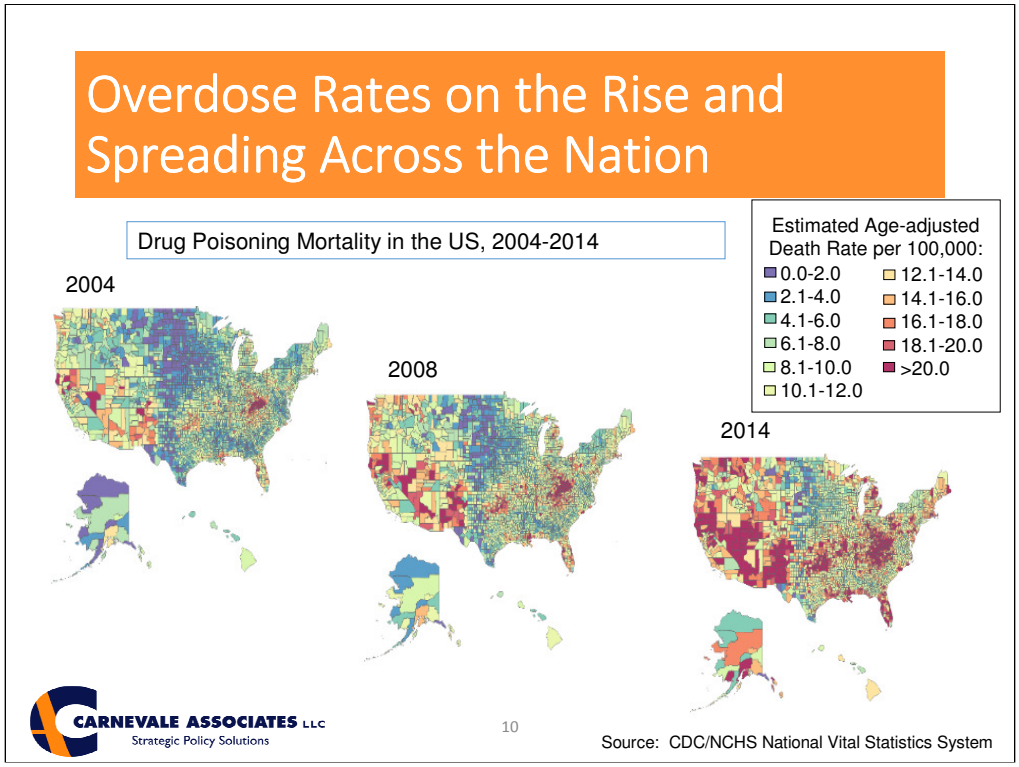
Important to note that while 1 in 10 people who need treatment receive it, it is also clear that many people who need it don't seek it for many reasons. They don't perceived that they need it, don't have resources to consider it, or may fear withdrawal symptoms from detox. Insurance is often cited as the reason.



This chart shows prevalence of opioid pain reliever use and NSDUH heroin use.

There is some evidence that the abuse of pain meds is on the decline, although not by much, but we are seeing an increase in heroin use. So, this is one reason why the opioid epidemic remains very much with us.

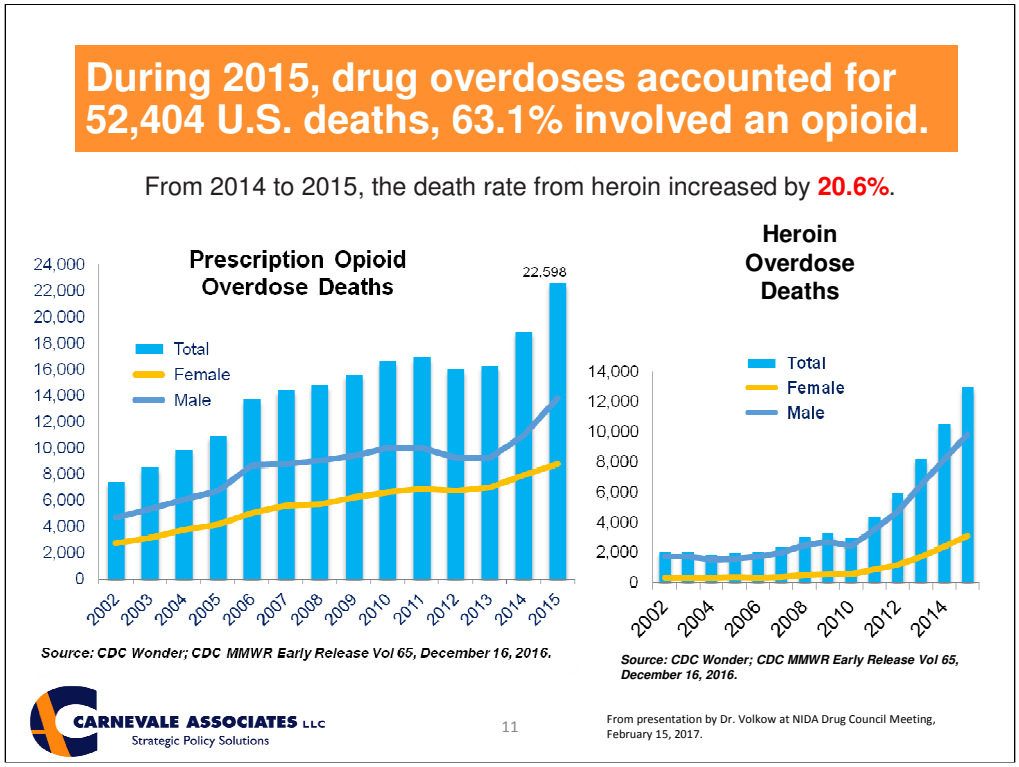
Remember, heroin and pain meds are opioids. The switch to heroin is often driven by easier access to heroin in many areas and the fact that the relative price of heroin versus pain meds favors heroin use.



Now we turn to consequences: Overdose deaths.

Note the colors in red and orange: problem has clearly become a national one by virtue of its spread across the nation since 2004.

Note this is for all prescription drug use (includes opioid prescriptions).



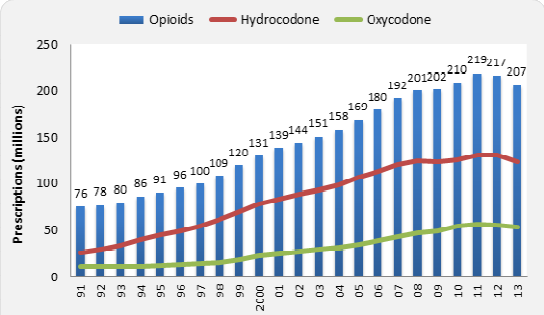
This chart shows all deaths form Prescription Drugs from 2002 through 2015.

. Note the title: 61% of all prescription drug deaths in 2015 involved an opioid.

This chart uses CDC data but was presented by the head of the National Institute of Drug Abuse recently to show the deadly consequences of the opioid epidemic.

High Levels of Opioid Prescriptions have Contributed to Diversion and Overdose Deaths

Near Tripling of Opioid Prescriptions from U.S. Retail Pharmacies, 1991-2013



IMS Health, Vector One®: National, 1991-2011
IMS Health, National Prescription Audit, 2012-2013

Total Rx Opioid Tablets Dispensed in Retail Pharmacies in the USA:

- **2013 15,972,304,698**
- **2014 15,606,882,755**

Source: Jones CM, et al. JAMA *Internal Medicine* 2016: doi: 10.1001/jamainternmed.2015.7799

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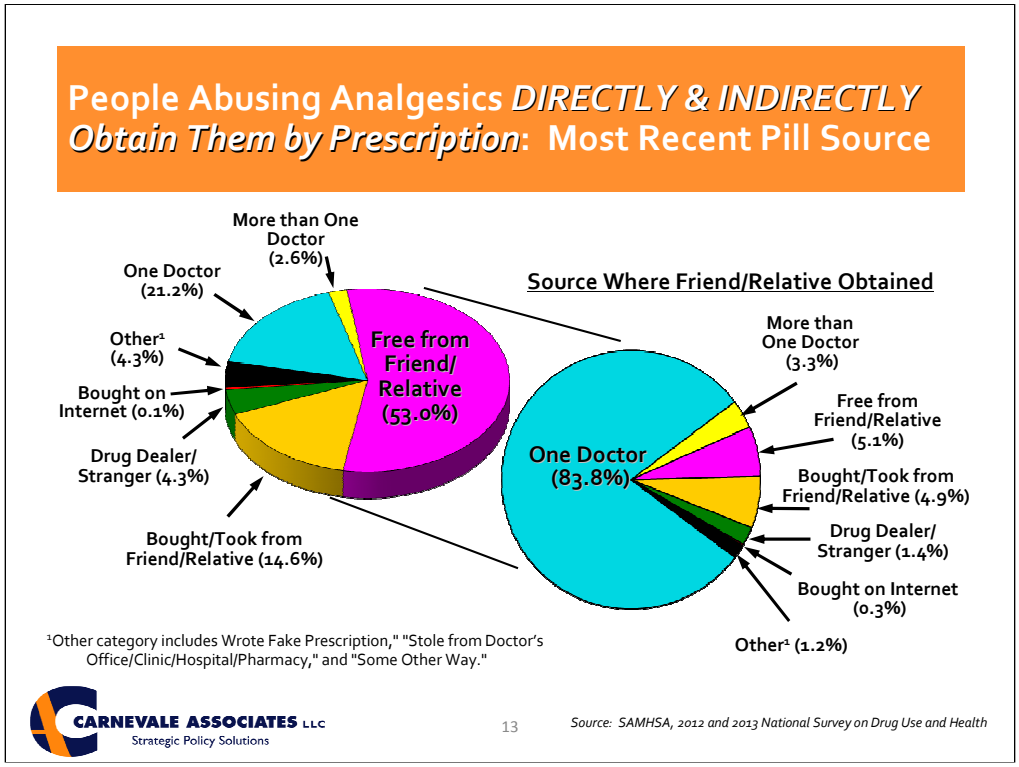
Source: Carlos Blanco, M.D., Ph.D., NIDA

What appears to be contributing to the epidemic? The market is being flooded with prescription opioids.

Based on the US resident pop in the U.S., which is 321,418,820, the number of pills produced in 2014 translates into 49 pills per person. 49 pills for every resident …….

GAO 2001 study cite Purdue for aggressive sales of Oxy starting when it was introduced in 1996. Oxy was designed for caner pain management, but the sales force (according to GAO) pushed its use for all kinds of pain.



Note the title refers to people who report that they abuse prescription drugs.

And where do people get their (non-heroin) opioids? Either directly or indirectly form prescriptions.

Illicit drug Use and the Workplace

- In 2009, the majority (67%) of current drug users aged 18 or older were employed, either full - time (48%) or part - time (19%)
- Among full - time workers aged 18 or older, nearly 1 in 12 (8%) reported past - month (current) use of an illicit drug in 2009.
- Unemployed workers were twice as likely – roughly one in six (17%) – to report current drug use in 2009:
  - Full - time workers aged 18 - 64 who reported current illicit drug use were more than twice as likely as those reporting no current illicit drug use to report they had worked for three or more employers in the past year (12.3% v 5.1%)
  - Full - time workers who were current drug users were more likely to report missing two or more workdays in the past month due to illness or injury, when compared with workers who were not current users (16.4% to 11%)
  - Full - time workers who were current drug users also were about twice as likely as non - users to skip one or more days of work in the past month (16.3% to 8.2%)

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This is the latest data, from 2009. Data from the 2015 survey are not yet available.

Alcohol Use

- In 2015, there were 138.3 million past month alcohol drinkers aged 12 or older (51.7%), including 66.7 million (48.2%) who were binge alcohol users and 17.3 million (12.5%) who were heavy alcohol users.
  - The percentage of people aged 12 or older who were past month alcohol users (51.7 percent) was similar to the percentages in 2009 through 2013 (51.9%-52.2%).
  - The percentage of people aged 12 or older who were past month heavy alcohol users (51.7%) also was similar to the percentages in 2011 through 2014 (51.8-52.7%).
  - However, estimates of binge drinking among people aged 12 or older did not change over the period from 2002 to 2015 (24.9% percent in 2015).

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Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2009-2014.

Binge alcohol is drinking five or more (males) or four or more (females) drinks on the same occasion (at the same time), on one day within the past 30 days.

Heavy alcohol use is binge drinking on at least 5 days within the past 30 days.

Alcohol Binge Drinking and Heavy Use

According to SAMHSA's 2015 National Survey on Drug Use and Health (NSDUH), we know:

•Out of the 138.3 million (59.7%) people who reported use of alcohol in the past month, **binge drinking** is almost half of total reported alcohol drinkers **(24.9%)**

•Of the reported alcohol use in the past month, **6.5%** report **heavy alcohol use**

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Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2009-2014.

Binge alcohol is drinking five or more (males) or four or more (females) drinks on the same occasion (at the same time), on one day within the past 30 days.

Heavy alcohol use is binge drinking on at least 5 days within the past 30 days.

Alcohol Use and the Workplace

- In 2015, the majority (86.4%) of current alcohol users aged 18 or older were employed, either full - time (51.9%) or part - time (13.4%), with the unemployed accounting for 4.5% and the remaining 30.2% not in the labor force

- Unemployed workers were twice as likely to report current alcohol use in 2009.
  - Full - time workers aged 18 - 64 who reported current alcohol use were more than twice as likely as those reporting no current alcohol use to report they had worked for three or more employers in the past year

  - Full - time workers who were current alcohol users were more likely to report missing two or more workdays in the past month due to illness or injury, when compared with workers who were not current users

  - Full - time workers who were current alcohol users also were about twice as likely as non - users to skip one or more days of work in the past month

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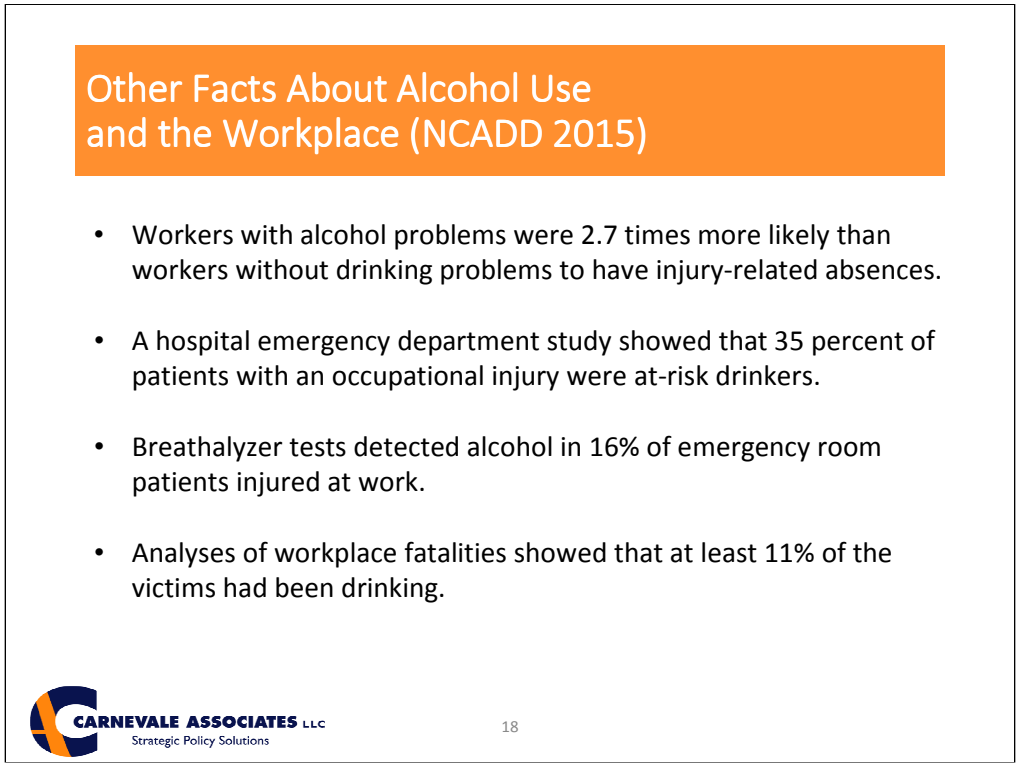
Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2009-2014. and 2009.



Some facts about alcohol in the workplace: (NCADD 2015)

National Council on Alcohol and Drug Dependence

Medical and Recreational Marijuana

Status of State Laws Affecting Marijuana's Legal Status and Federal Options for Intervention

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The Majority of Americans (and States) Permit Some form of Marijuana Use

- In 2016, organized efforts successfully put measures to legalize recreational marijuana use on the ballot in five states.
- Voters in four of those states approved the measures.
- Only Arizona voters narrowly rejected state-level legalization

- Today, 63% of Americans live in states that permit medical use, or both medical and recreational use.

Total Population of States that Have Legalized Recreational Use	**67,942,673**
Percent of US Population	21.1%
Total Population of States that Have Legalized Medical or Recreational Use	203,278,892
Percent of US Population	63.2%

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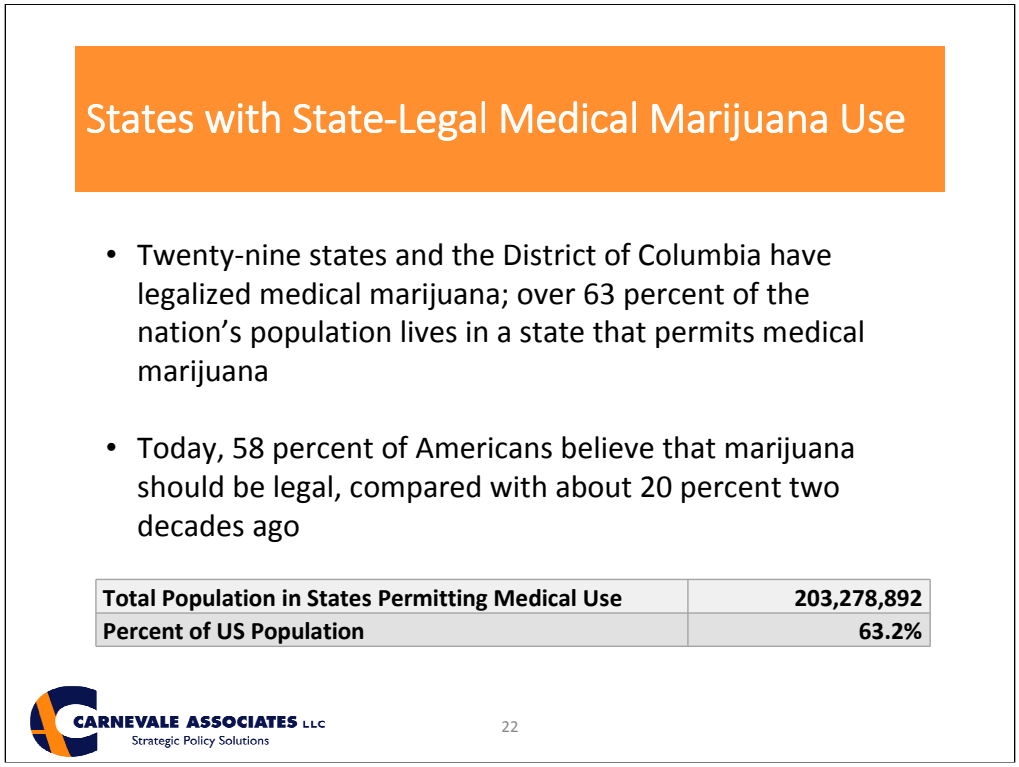
Regardless of your individual view about liberalization of marijuana laws, the fact is that the majority of states and the majority of Americans favor it. So now the question is: how do we regulate it ? How does liberalization fit within a public health model when states are trying to manage a new industry while at the same time trying to eliminate the illegal one?

Currently, eight States and DC permit recreational MJ use.

Note that us is restricted to those age 21 and older. No jurisdiction permits use for those individuals under the age of 21.

21% of Americans reside in a state permitting recreational marijuana use. That's 1 individual for every 5 individuals in the nation.

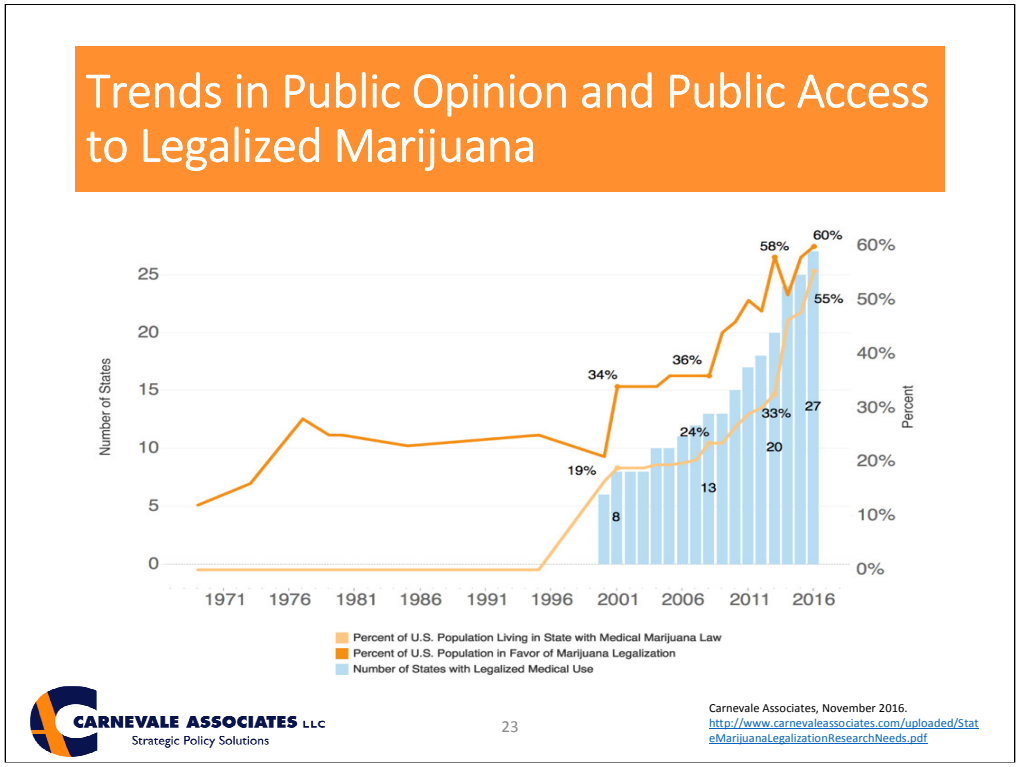
Note that each of these jurisdictions had already passed laws permitting medical marijuana use; we turn to that subject next.



29 States and DC permit medical marijuana use. California was the first state to permit medical marijuana use, starting in 1996. Note that in 2016, 20 years later, California finally passed legislation requiring that the medical marijuana be regulated. 20 years later….

Note the national poll shows that most Americans favor some form of legalization of marijuana. And that just over two decades ago, most Americans were against legalization.

Note: We include Louisiana whereas some folks do not. It passed a law but has been unable to implement it.

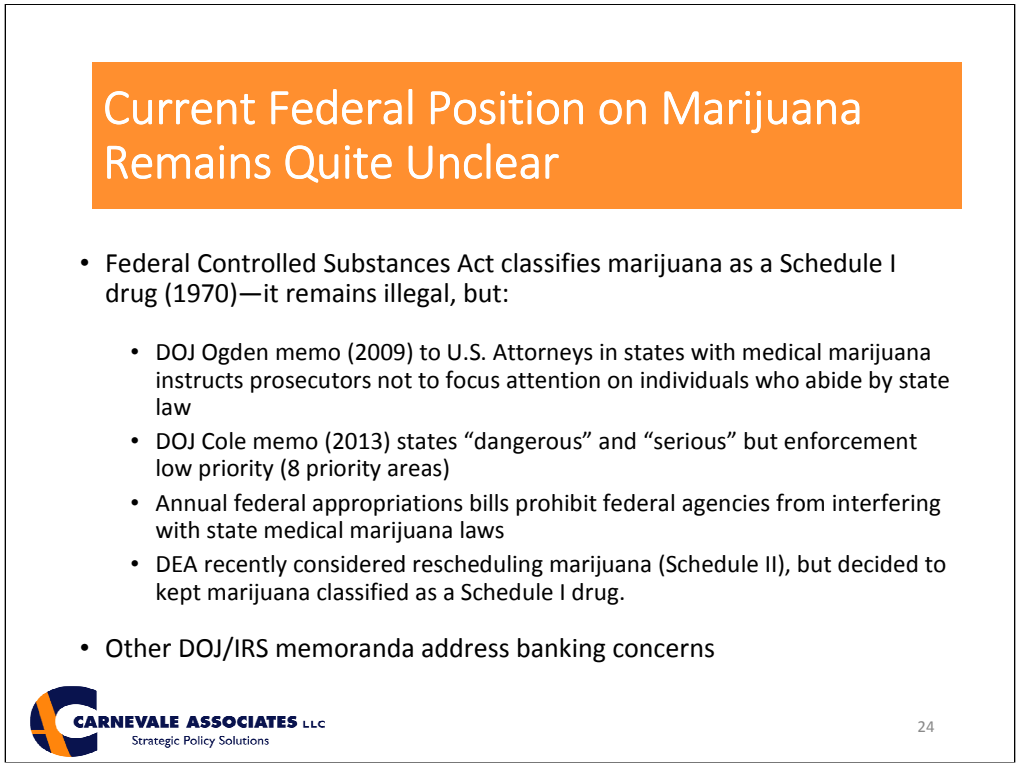


NOTES: As Figure 1 shows, the passage of laws permitting the use of marijuana for medical purposes is very highly aligned with changing public opinion favoring legalization.

Of course, this correlation could be mere coincidence, as it is not possible to attribute a causal relationship between these trends without further study.

Each of the five states considering recreational use of marijuana on Election Day has already legalized the use of medical marijuana.

If the passage of laws permitting medical use is a precursor of recreational use, the likelihood that more states will move to permit recreational marijuana use is strong.

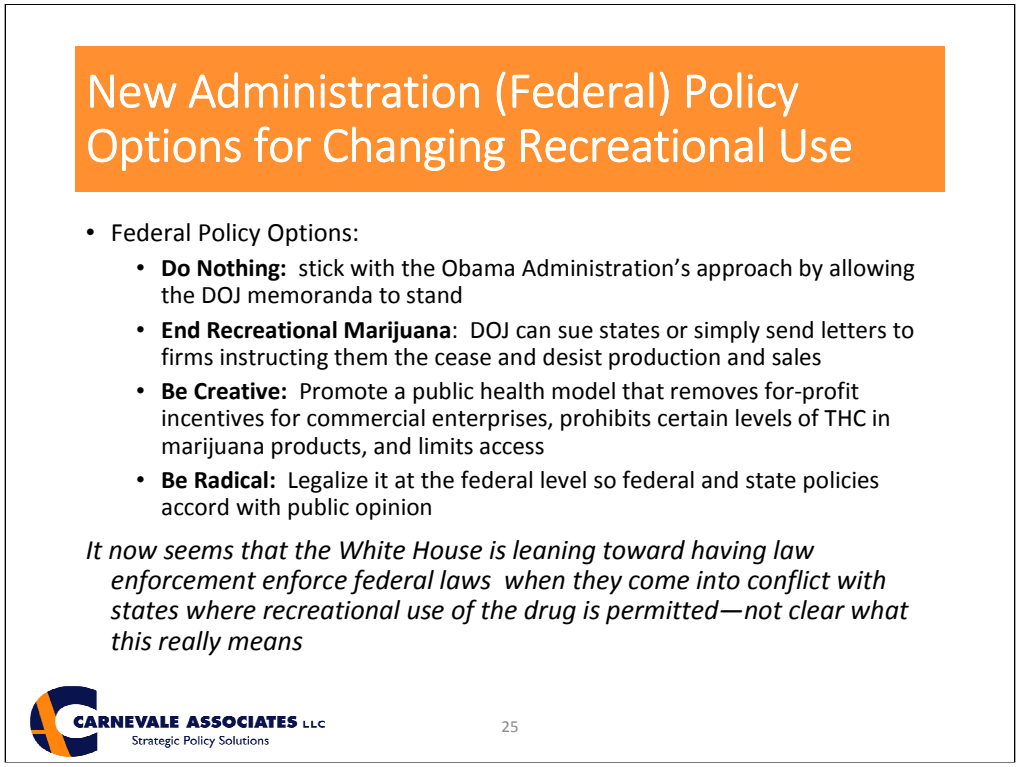


Cole (2013): as long as States prevent distribution to minors; keep out criminal enterprises; prohibit diversion to other states; address health consequences; and other provisions.

Subsequent memos address banking concerns (2014)

U.S. annual budget legislation makes medical marijuana enforcement a low priority for federal law enforcement in 32 states including California

Federal Government issued memoranda allowing for an enforcement compromise that in essence is a hands-off approach; next administration might take a different course.



NOTE: this assumes that medical use continues. After over 20 years of state experience, some evidence that marijuana has medical value, it does seem unlikely that medical marijuana will be part of the political agenda.

Do Nothing: Seems unlikely given that Sessions is strongly anti-marijuana, but….

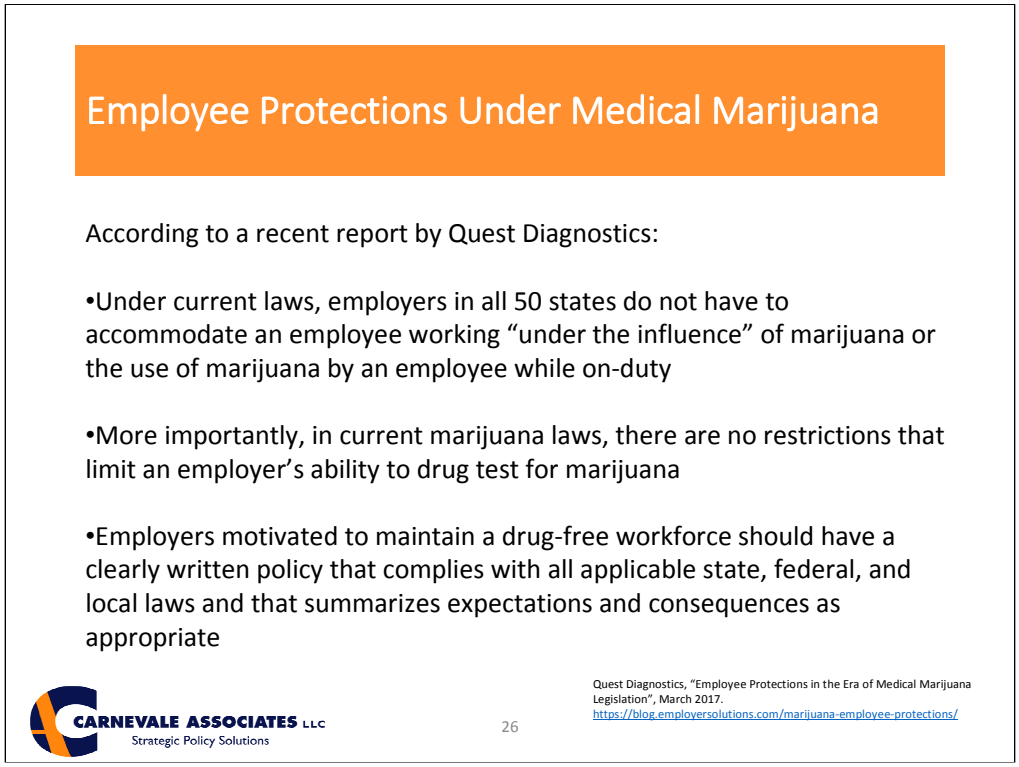
End Recreation: seem unlikely in that there would be substantial potential political costs plus the federal action would be a detriment to state economies (lost jobs, lower state GDP. Strengthening of the illegal market, lost tax revenues)

Be Creative: This would mean that the feds would be giving tacit or quasi approval of state recreational marijuana laws. However, it could push certain products, constrain THC levels, limit access. The problem with all of this is that it creates more incentives for illegal markets to flourish.

Be Radical: This would mean rescheduling MJ from Schedule I to a lower level. The feds could then tax MJ. It could also work to help set prices that accord with the tobacco model that promotes a public health approach.

BUT, the WH announced that it expects to step up enforcement of state recreational marijuana laws. According to CNN:

- The White House said Thursday it expects law enforcement agents to enforce federal marijuana laws when they come into conflict with states where recreational use of the drug is permitted. "I do believe you will see greater enforcement of it," White House press secretary Sean Spicer said regarding federal drug laws, which still list marijuana as an illegal substance.



The Quest Report also states:

"Generally speaking, employees have some protections and legal rights in the workplace against various forms of discrimination and unfair practices. Under the current landscape of today's medical marijuana laws, in some states, employees can now hold marijuana registry cards and use the substance if they suffer from certain specified qualifying conditions such as post-traumatic stress disorder (PTSD) or chronic pain. These laws are inconsistent and constantly changing, including the degree of protections offered in the workplace—and an employer may have a duty to accommodate off-duty use. It is important for employers to understand how employee protections regarding marijuana can vary from state to state and whether or not they have a duty to accommodate.

Currently, legislation and litigation is pending in all the states with, or considering, medical marijuana legislation that could clarify the laws in those states. In general, however, employee protections in state marijuana laws currently fall into four general categories:
States with no employee protections

In the following seven states, either the medical marijuana statute explicitly provides no protections, or the statute is silent and the state has case law that has found no employee protection for off-duty use under each state's respective medical marijuana act. An example is Ohio's medical marijuana law, enacted in 2016, which explicitly provides that employers have the right to establish and enforce zero-tolerance drug testing policies.

California
Colorado
Michigan
Montana
Ohio

Bottom Line Regarding the Workplace

- Federal law = Marijuana is illegal
- Organizations have right to deny use of medicinal marijuana
- Doubt that any impaired nurses program would permit nurses to practice while taking marijuana because THC causes changes to the cognitive function of the brain so it affects the nurses' ability to think critically
- Employers in all 50 states do not have to accommodate an employee working “under the influence” of marijuana or the use of marijuana by an employee while on-duty
- In current marijuana laws, there are no restrictions that limit an employer’s ability to drug test for marijuana
- Employers motivated to maintain a drug-free workforce should have a clearly written policy that complies with all applicable state, federal, and local laws and that summarizes expectations and consequences as appropriate

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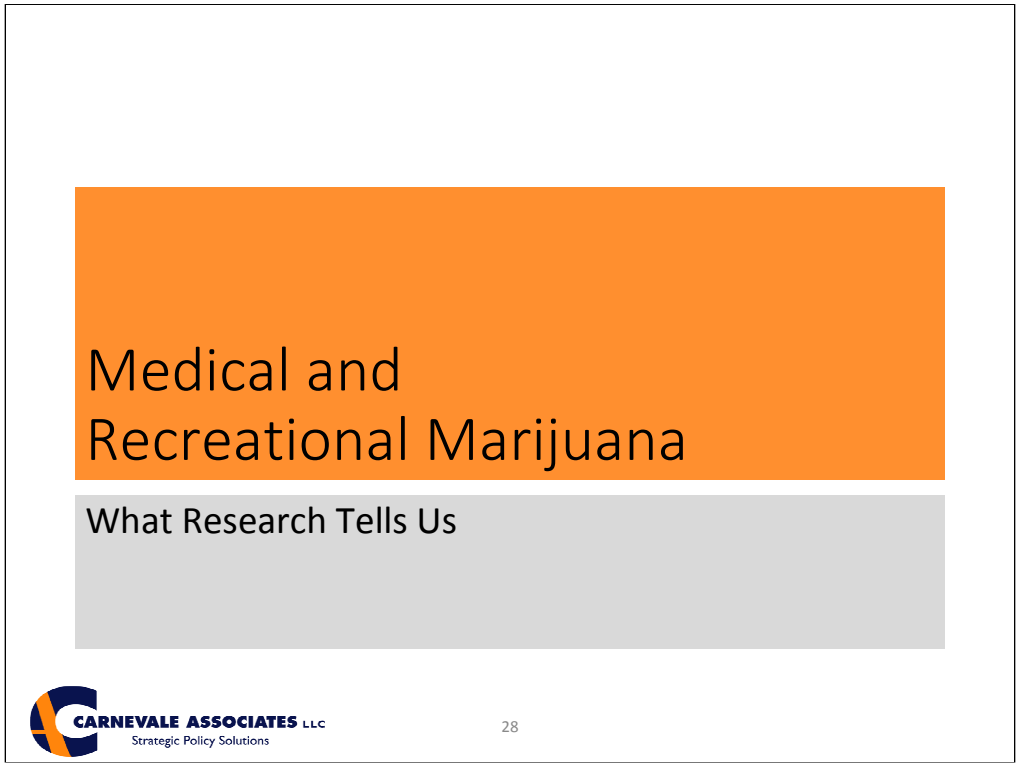
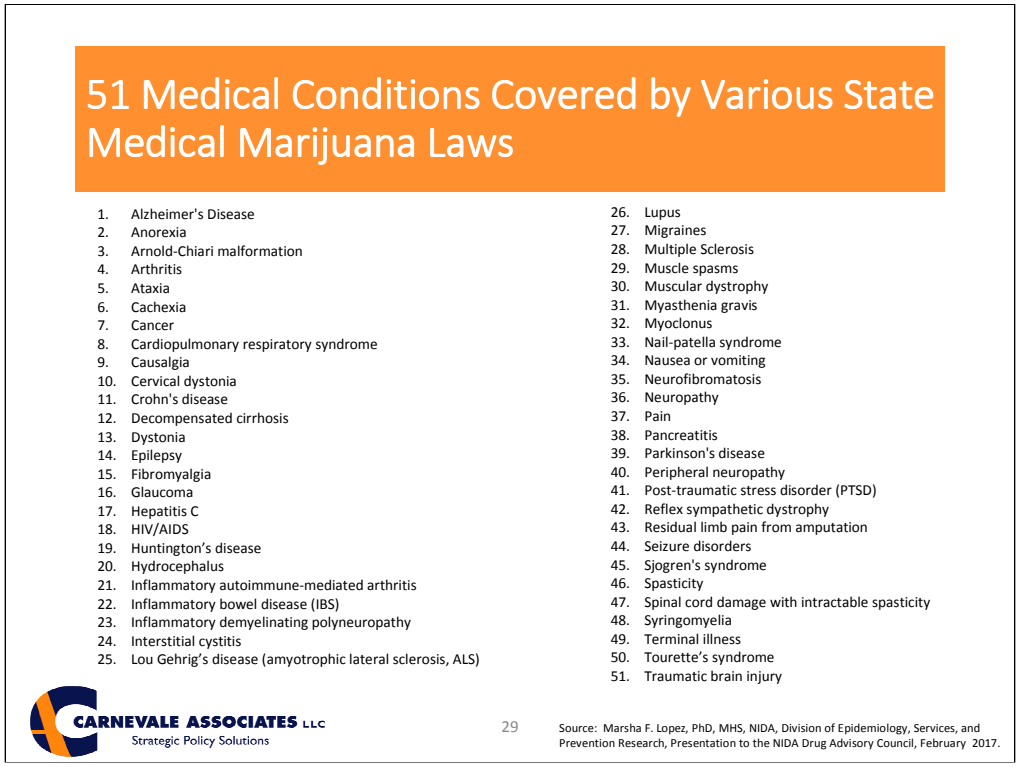
Source: Kate Driscoll Malliarakis, PhD, ANP-BC, MAC, FAAN
Associate Professor
Chair, Policy, Population and Systems Community
Interim Assistant Dean, DNP Program
The George Washington University School of Nursing



Source: NIDA/NIH sponsored research.

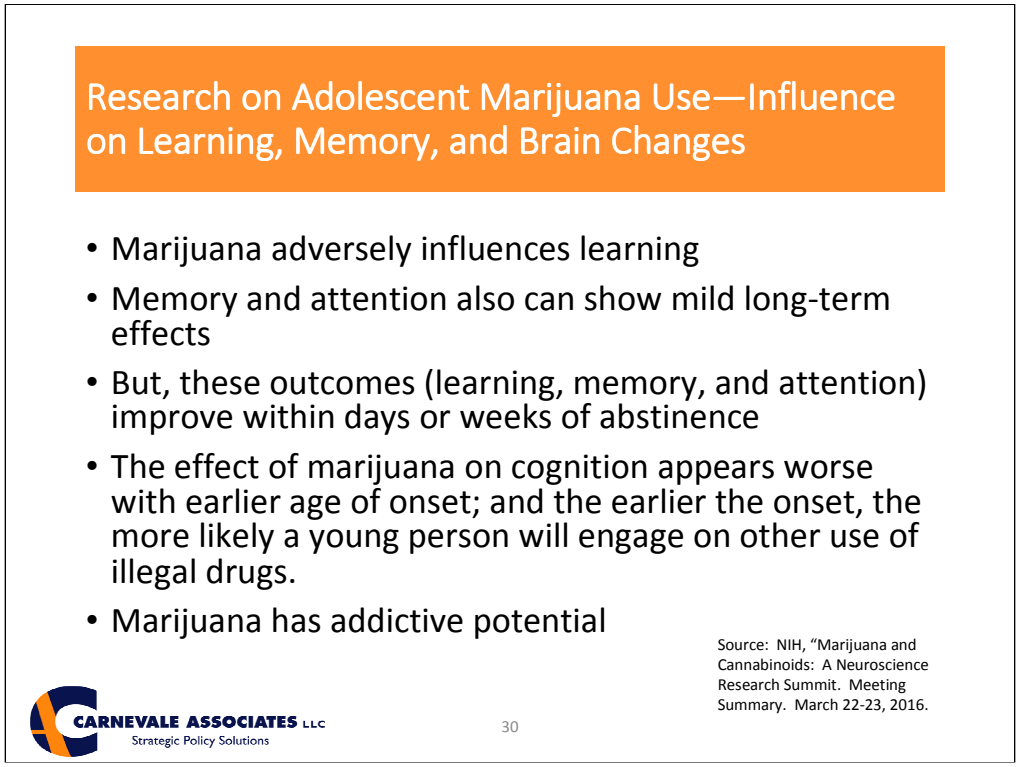


Source of info in slides: From NIDA's two day summit in 2016.

Note: this is what the public perceives via voting for medial MJ as legitimate uses of marijuana. FDA has approved only to types of synthetic THC (eg, marinol).

One scientist noted that it is highly unlikely that marijuana causes widespread changes in brain structure (unlike alcohol).

One study has found that MJ medicalization is associated with a reduction in Opioid use, i.e., MJ is a substitute for pain meds.



Why it's a very good idea to restrict marijuana use for youth: research shows that it can affect the developing brain.

Source of info in slides: From NIDA's two-day summit in 2016.

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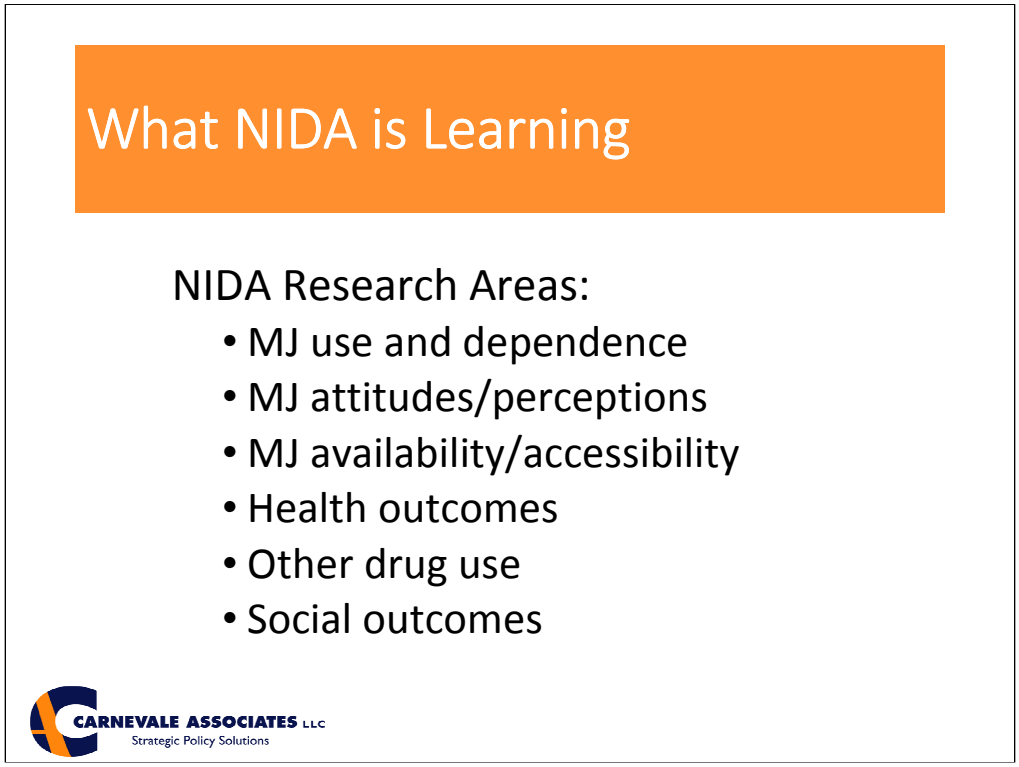
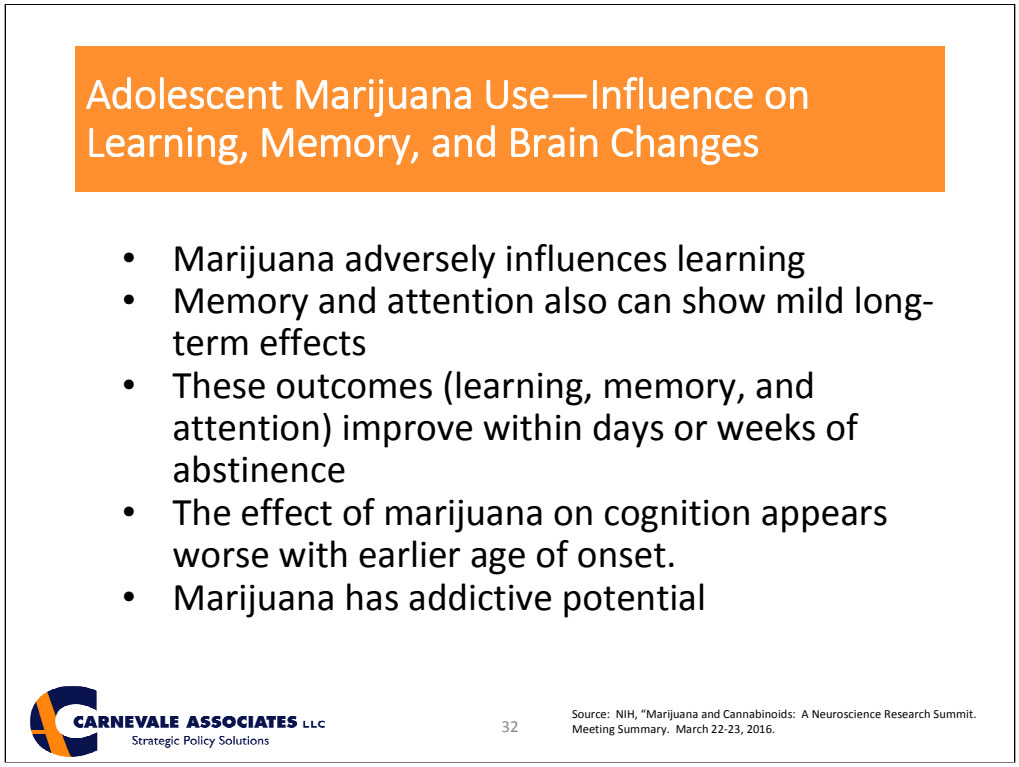


This structure is based on information presented by Marsha Lopez in NIDA's EPI Branch before the NIDA Drug Advisory Council in February 2017.



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Marijuana Use and Dependence

- Product types and methods:
  - Medical marijuana consumers use differently than recreational consumers
  - Smoking is still predominant method in youth, but medical marijuana states more likely to consume in food or other ways than non-Medical Marijuana states
  - Social media is source of information about novel forms of marijuana – e.g. YouTube videos of dabbing
  - Tweets related to edibles and dabs greater in states with medical and/or recreational marijuana laws

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Source: Marsha F. Lopez, PhD, MHS, NIDA, Division of Epidemiology, Services, and Prevention Research, Presentation to the NIDA Drug Advisory Council, February 2017.

Marijuana Use and Dependence

- USE:
  - Adolescents – Marijuana use remained consistent while use of other drugs, alcohol and tobacco declined
  - Adults - increases in marijuana use
  - Parent current marijuana use increased likelihood of child past year marijuana use
- Dependence:
  - Density of dispensaries related to higher rates of marijuana abuse and dependence
  - BUT: 80% medical marijuana patients use daily without cannabis use disorder symptoms

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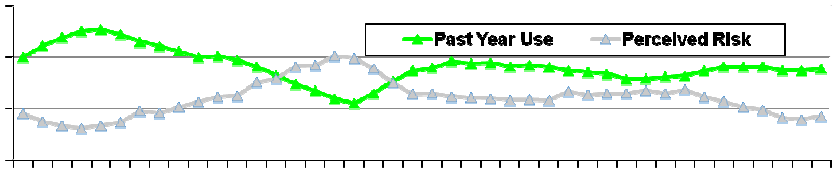
Source: Marsha F. Lopez, PhD, MHS, NIDA, Division of Epidemiology, Services, and Prevention Research, Presentation to the NIDA Drug Advisory Council, February 2017.

Marijuana Attitudes and Perceptions

- MMJ laws not associated with increases in medical marijuana states, however, legislation may more broadly impact perceptions of harm
- Even among parent users, strong opposition to teen use



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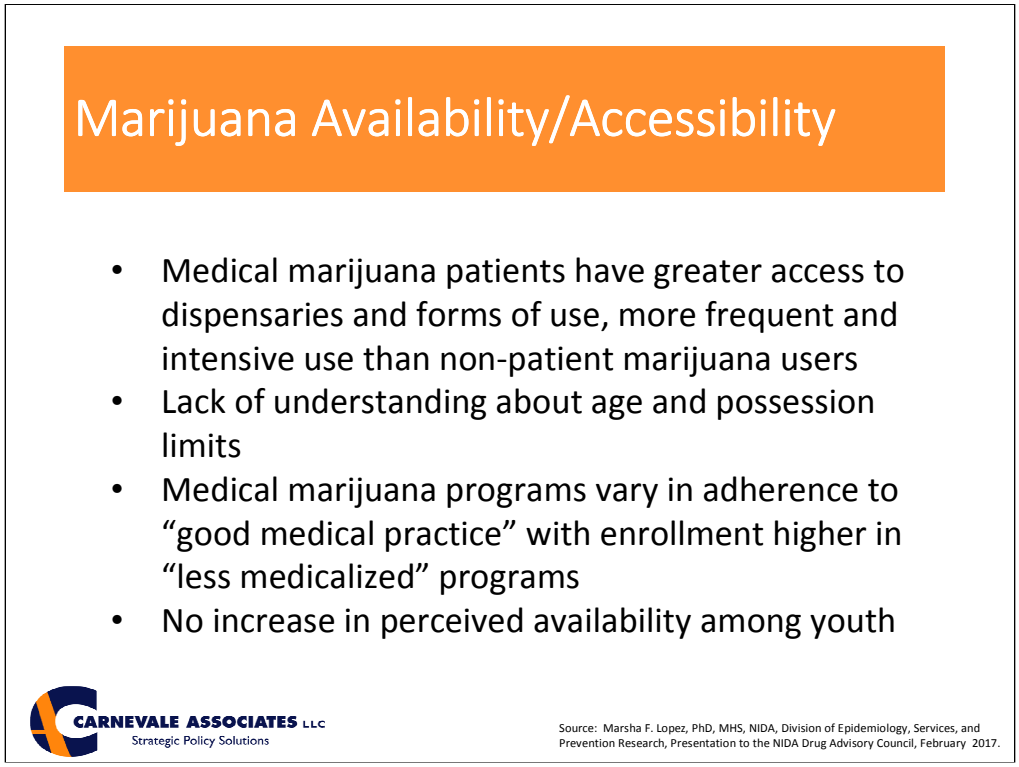
Source: Marsha F. Lopez, PhD, MHS, NIDA, Division of Epidemiology, Services, and Prevention Research, Presentation to the NIDA Drug Advisory Council, February 2017.

SOURCE: University of Michigan, 2016 Monitoring the Future Study

- Get color scheme……



Other research notes that youth use is unchanged since the advent of recreational MJ. MJ use is on the rise, but it is being driven by people 26 and older.

Relationship to Other Drug Use

- Alcohol:
  - Evidence of both substitution and complementarity
  - Concurrent use more common among recreational users and somewhat rare among medical users
- Tobacco:
  - Teen smoking predicted later marijuana use
- Rx Opioids:
  - Trends towards less misuse of prescription opioids

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Source: Marsha F. Lopez, PhD, MHS, NIDA, Division of Epidemiology, Services, and Prevention Research, Presentation to the NIDA Drug Advisory Council, February 2017.

Health Outcomes

- Increase in marijuana dependent hospital discharges and poison center calls
- Medical marijuana patients reported reasons for marijuana use as sleep, anxiety, pain
- Persistent marijuana use in young adulthood positively associated with generalized anxiety disorder, substance use (incl. alcohol and tobacco) disorders; later adult use and dependence

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Source: Marsha F. Lopez, PhD, MHS, NIDA, Division of Epidemiology, Services, and Prevention Research, Presentation to the NIDA Drug Advisory Council, February 2017.

Societal Outcomes

- Density of dispensaries related to higher violent and property crime; child neglect and abuse
- Early adolescent use of marijuana associated with lower education and economic outcomes
- Driving/riding after marijuana use common in underage marijuana-using college students

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Medical and Recreational Marijuana

How to Regulate the New Marijuana Industry

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Background

- Public Policy Institute of California (PPIC) released a study, “Regulating Marijuana in California” in May 2016.
- John Carnevale and Patrick Murphy co-authored the report.

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Presentation is based on a paper co-authored with Patrick Murphy Ph.D. for the Public Policy Institute of California. California is likely to approved a referendum in November 2016 permitting recreational use of marijuana. California was the first state in the nation to approve

(Our recommendations apply to other states as well.)

The first recommendation recognizes that limited to scope to a single (medical and recreational) market whereby there are limits on licenses all the way from cultivation to retail limits the ability to remove the illegal market, but it is easier to loosen up a tight market rather than tighten up a loose market.

We learned from Colorado and Washington that their initial efforts to regulate weren't perfect, therefore, building in a flexible regulatory regime is important.

Note: this is controversial in that a public health model that mimics alcohol or tobacco would seek to limit use and access; but with MJ, states are trying to replace illegal markets so they must keep prices competitive with illegal markets.

Start with the CJ aspects of the motivation, as those promoting legalization talk about this the most. Advocates use arrests to make their case for legalization/decriminalization.

Note: competing goals/objectives. Maximizing revenue offset by efforts to prevent youth use, reducing addiction and abuse, reduce societal consequences.

Recommended simple regulatory framework

Regulatory area	Goals	Example
Cultivation, production, processing	Manage cultivation; limit supply and diversion; environmental protection	Licensure; production limits; tracking
Sales, consumption, and possession	Limit access by youth; reduce arrests; limit diversion	Age restrictions; size of sale limits; home grow restrictions
Taxes and finance	Limit access by youth; raise revenue	Excise taxes; licensure fees
Public health and safety	Prevent impaired driving; limit abuse and addiction	Drugged driving thresholds; prevention and treatment programs
Governance	Oversee and ensure compliance	Assign authority; provide enforcement resources

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Some of the goals driven by state policy concerns; some by federal Cole memo; some both

This ties back to our recommendations from the Report for PPIC. This is how we think a state should start to set up its regulatory framework.

Note that the issue of "home grows' create a situation for a grey market and makes enforcement more difficult. Plus, it is illogical from an economic sense if the policy goal is to create a licit taxable industry.

Elements of a tightly regulated marijuana market: key recommendations

Regulatory area	Key Recommendations
Cultivation and production	Limited number of licenses and size of cultivations; seed-to-sale tracking; strict environmental and water use requirements; no home grows.
Sales, use, and consumption	Sales limited to individuals 21 and older; retail outlets restricted to marijuana-only stores; home grows prohibited.
Taxes and finance	A sales and/or excise tax as a percentage of selling price.
Public health and safety	Aggressive prevention/education campaign aimed at youth; funded research to develop an impairment standard; substance abuse treatment for the uninsured.
Governance	A single regulatory system that requires reporting and data collection across many indicators; built in reporting and impact assessment.

Good Governance: Oversight and performance accountability—Critical data worth tracking

Regulatory area	Data elements
Cultivation and production	Number of business licenses; business characteristics such as location, size, number of employees; major business cost categories; production tracking by product and potency; environmental violation citations.
Sales, consumption, and possession	Population-based drug incidence and prevalence estimates; tonnage needed to supply the legal market; measures of attitudes and perceived risk from drug use; drug product prices along the supply chain; drug purities at point of sale for marijuana and marijuana-infused products.
Taxes and finance	Revenues projected and realized by revenue source, such as tax types, license fees, fines, penalties; total sales.
Public health and safety	Drugged driving arrests and accidents; treatment admissions; emergency department admissions; calls to poison control; school dropout rates, expulsions, and absenteeism; marijuana arrests; public use citations.
Governance	Number of regulatory inspections; regulatory workforce size; number and types of violations; budget earmarked for data collection and research; process and outcome studies on benefits and costs, social costs, diversion, demand, and other topics.

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Good chance to track consumption and price---can start to get better estimates of demand elasticities in a legal market.

Regulatory Area Example: Public health and safety

- Goals: Limit abuse and dependence; protect public safety; prevent impaired driving

- How did other states approach the problem?
  - Both WA and CO established impairment standard (5 ng/ml)
  - Both have supported development of prevention and education efforts
  - Both have seen increases in number of drivers testing positive

Concerns raised by State regulators:

- State-level issues raised by regulators:
  - Science is lagging policy; as a legal commodity (in states), states must address matters such as the proper use of pesticides, fertilizer, herbicides, solvents; tests for contaminants; potency (product standardization)
  - May need help developing state-level use surveys.
  - Model regulations are still emerging—States are interested in best practices
  - Need information about the impact on the illegal market

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There are many other issues, but these were the principal ones raised by state regulators.

Use; risk/protective factors; other drug use. Is MJ use associated with a change in alcohol use? Other drug use?

Illicit Industry– to what extent is the illegal market affected by the legal market? Look at price, consumptions, criminality; diversion; etc.

State GDP—How is state GDP affected by the legal market. Look at job creation,

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