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Pandora's Box? The (Unknown) Consequences of Legalizing Marijuana Use

Rebecca Haffajee

University of Michigan School of Public Health, haffajee@umich.edu

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PANDORA'S BOX? THE (UNKNOWN) CONSEQUENCES OF LEGALIZING MARIJUANA USE

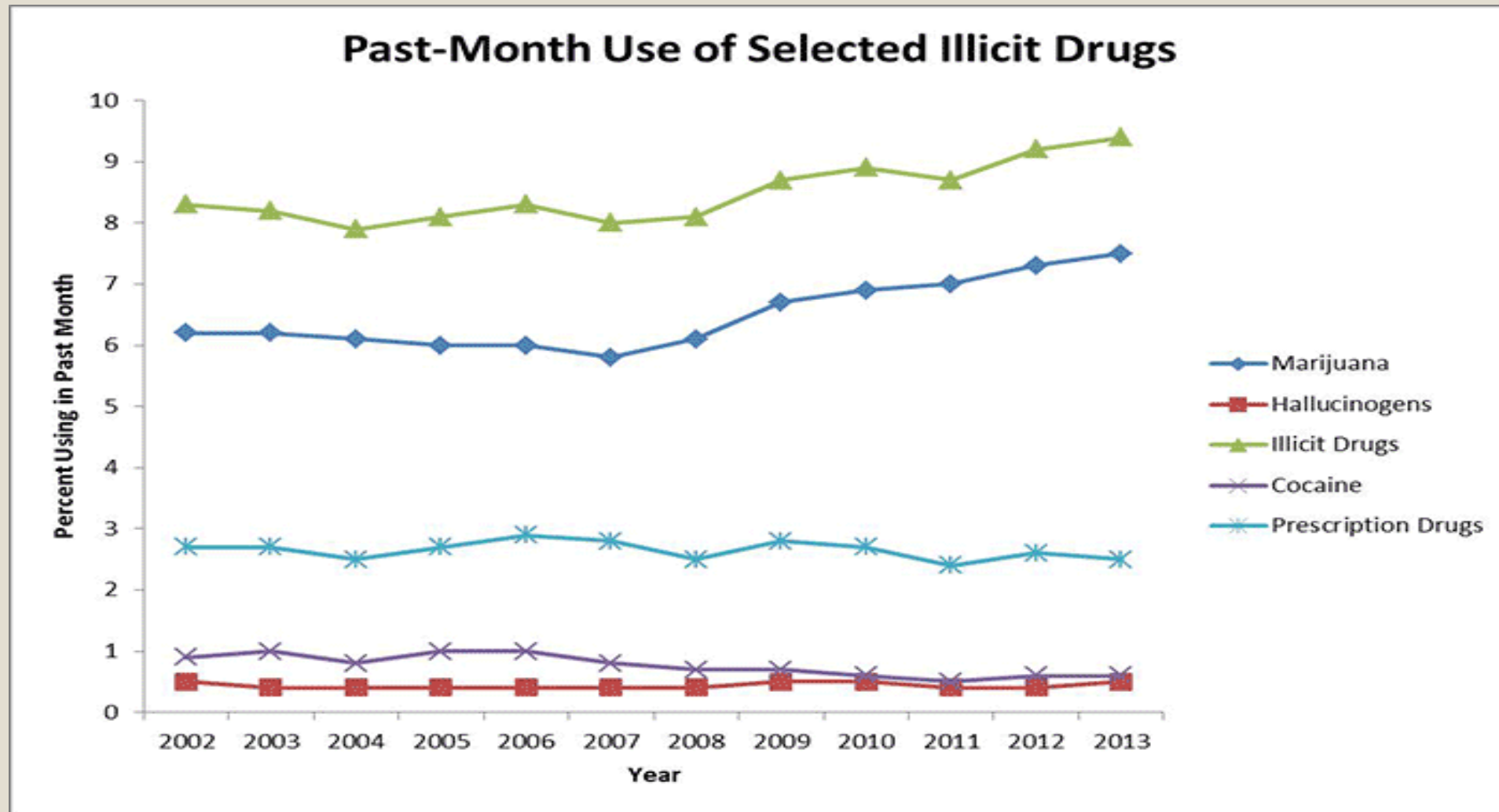
Rebecca Haffajee, JD, PhD, MPH
Assistant Professor, University of Michigan School of Public Health

Law Students for Sensible Drug Policy, University of Michigan Law School
March 23, 2017

Today's Discussion

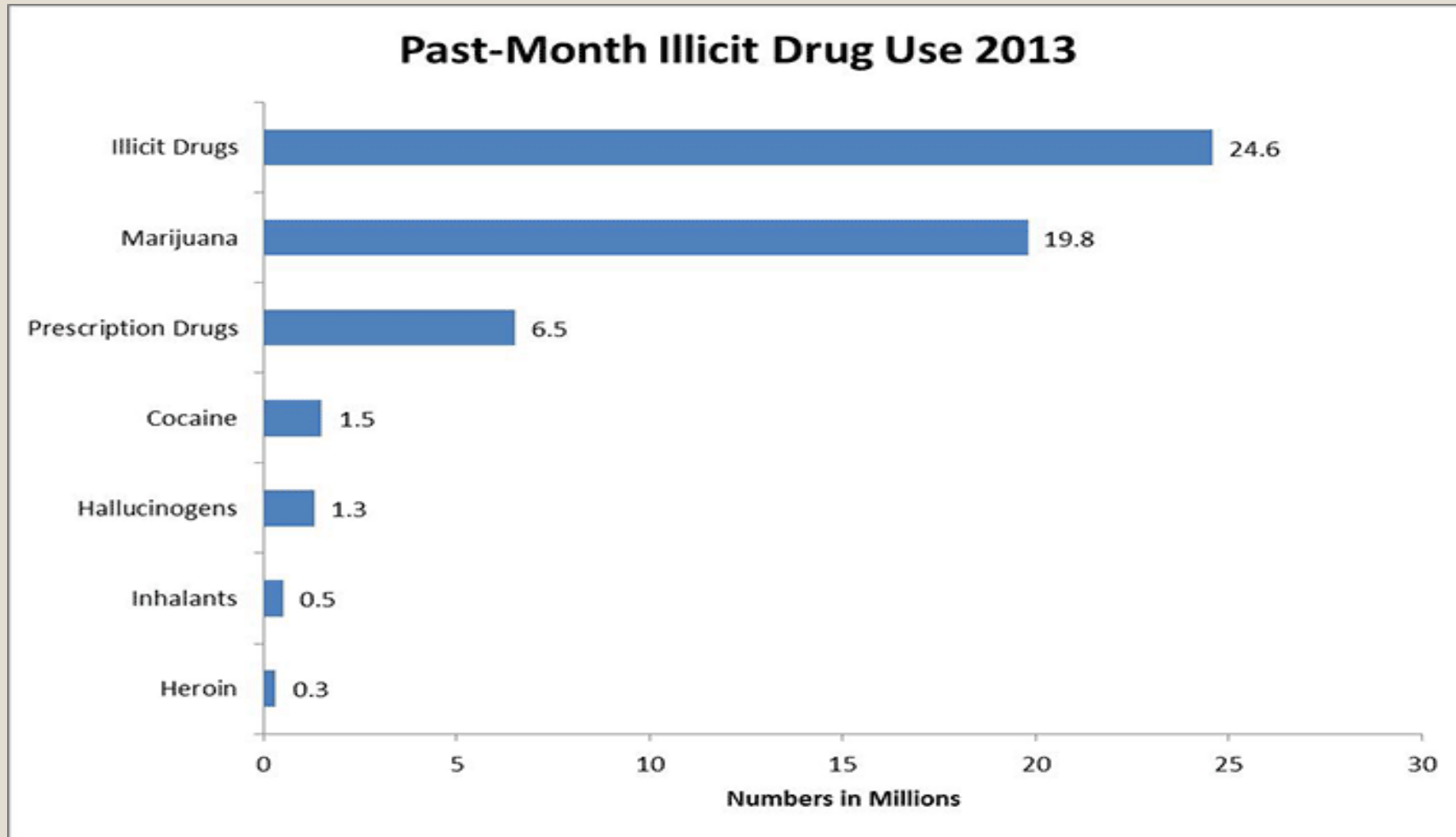
1. **Marijuana Use in the U.S.**
2. **Health Effects of Marijuana Use: What Do We Know?**
3. **Marijuana Legalization: The Policy Landscape**
4. **Public Health Concerns with Marijuana Legalization**

Marijuana Use in the U.S.



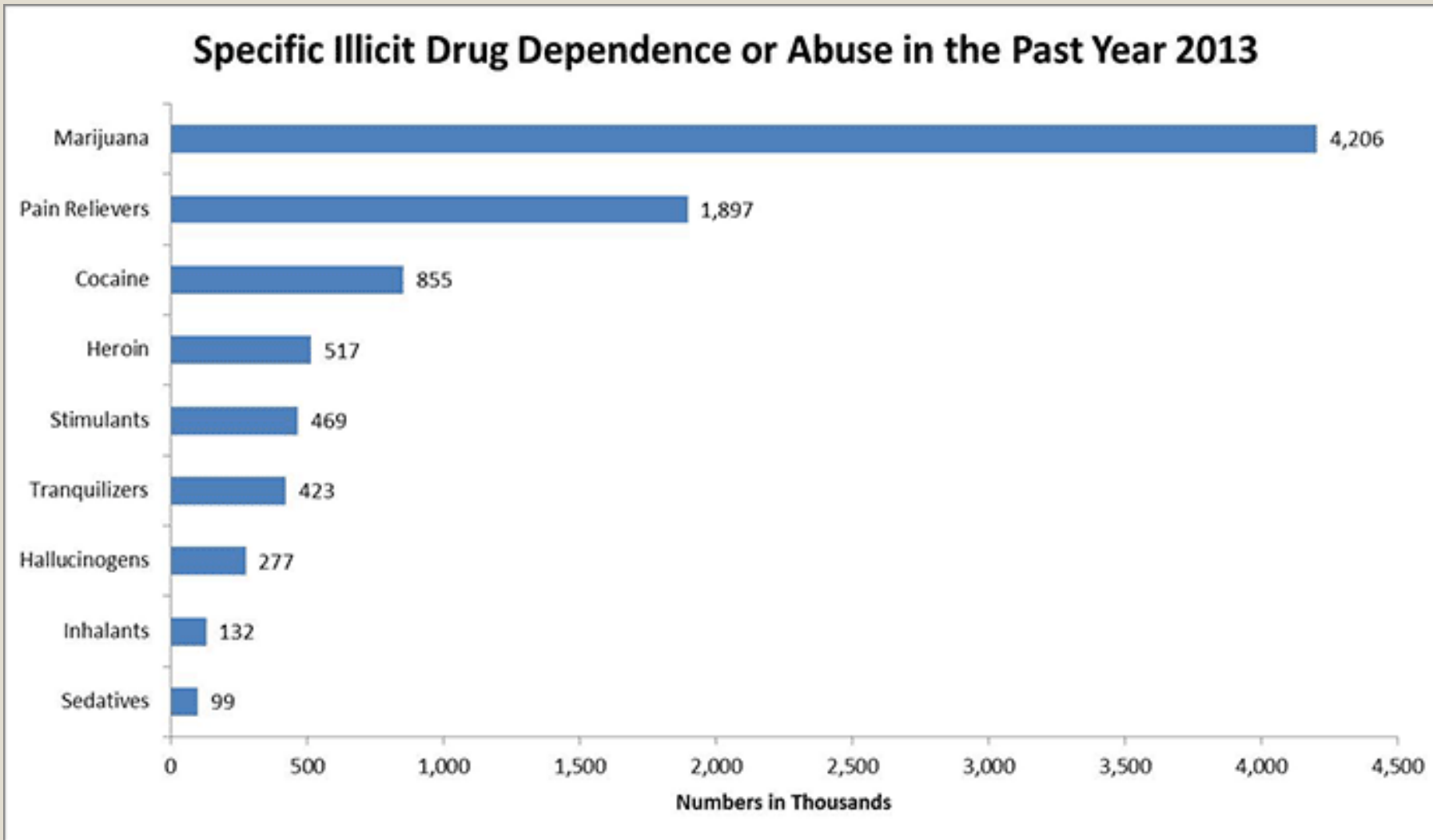
Source: National Survey on Drug Use and Health, 2013.

Marijuana Use in the U.S. (cont'd)



Source: National Survey on Drug Use and Health, 2013.

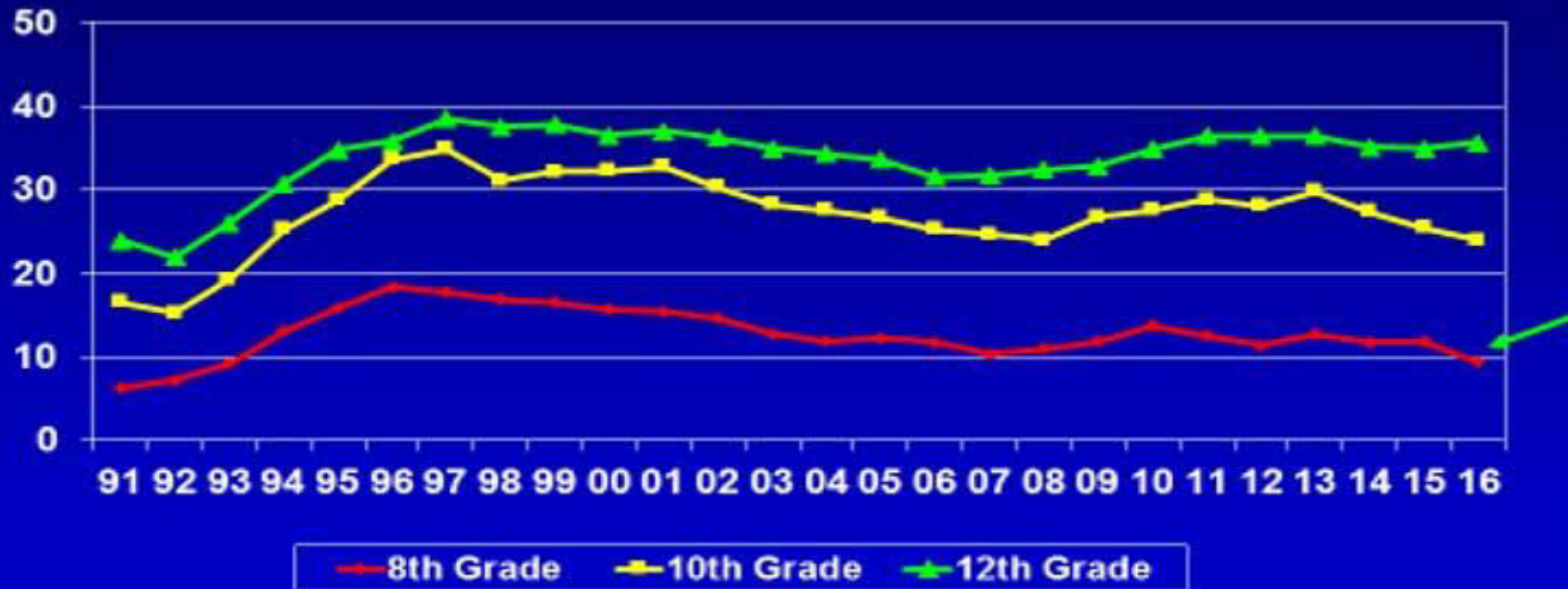
Marijuana Use in the U.S. (cont'd)



Source: National Survey on Drug Use and Health, 2013.

Marijuana Use Among Adolescents

Percent of Students Reporting Use of Marijuana in Past Year, by Grade

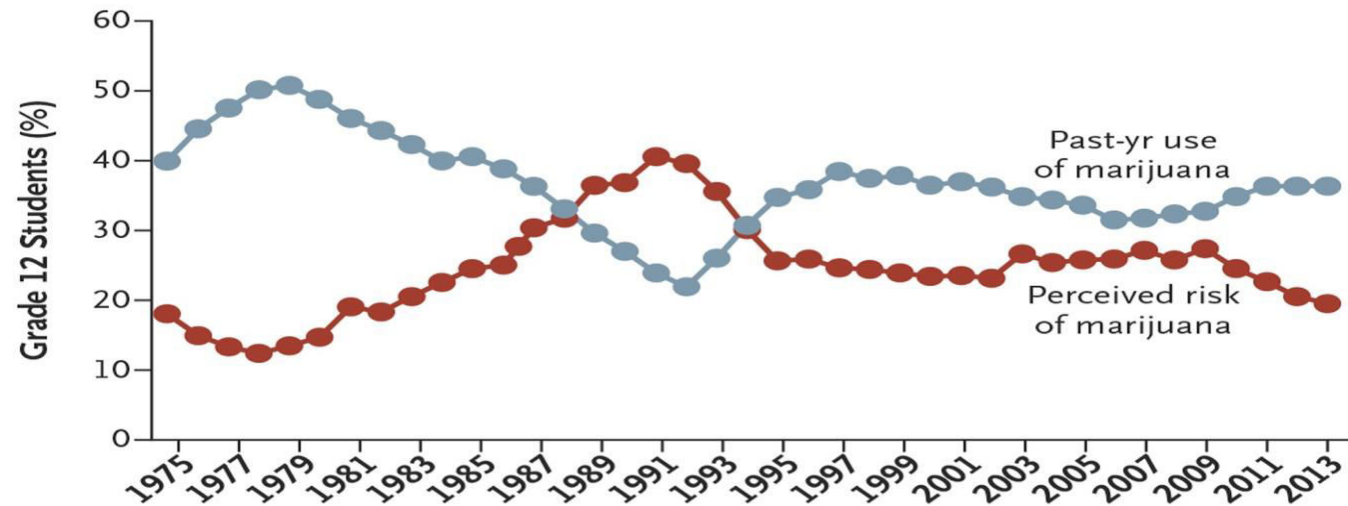


↗ Denotes significant difference between 2015 and 2016

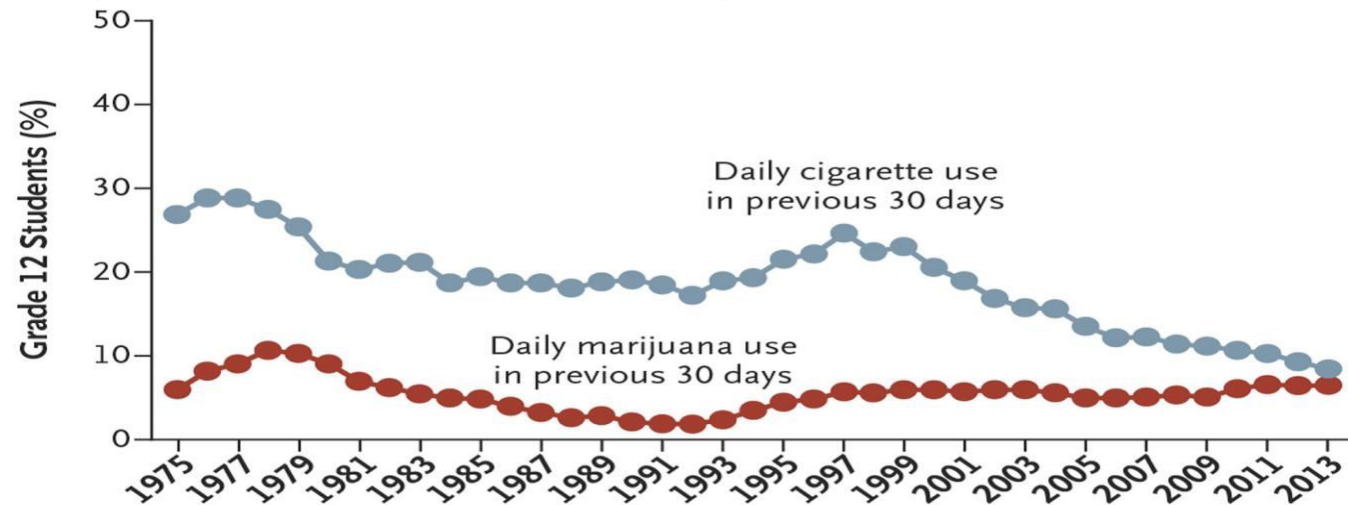
SOURCE: University of Michigan, 2016 Monitoring the Future Study

Use of Marijuana in Relation to Perceived Risk and Daily Use of Tobacco Cigarettes or Marijuana among U.S. Students in Grade 12, 1975–2013.

A Correlation between Perceived Risk and Use



B Reported Daily Use of Cigarettes or Marijuana



source: Volkow ND et al. N Engl J Med 2014;370:2219-2227

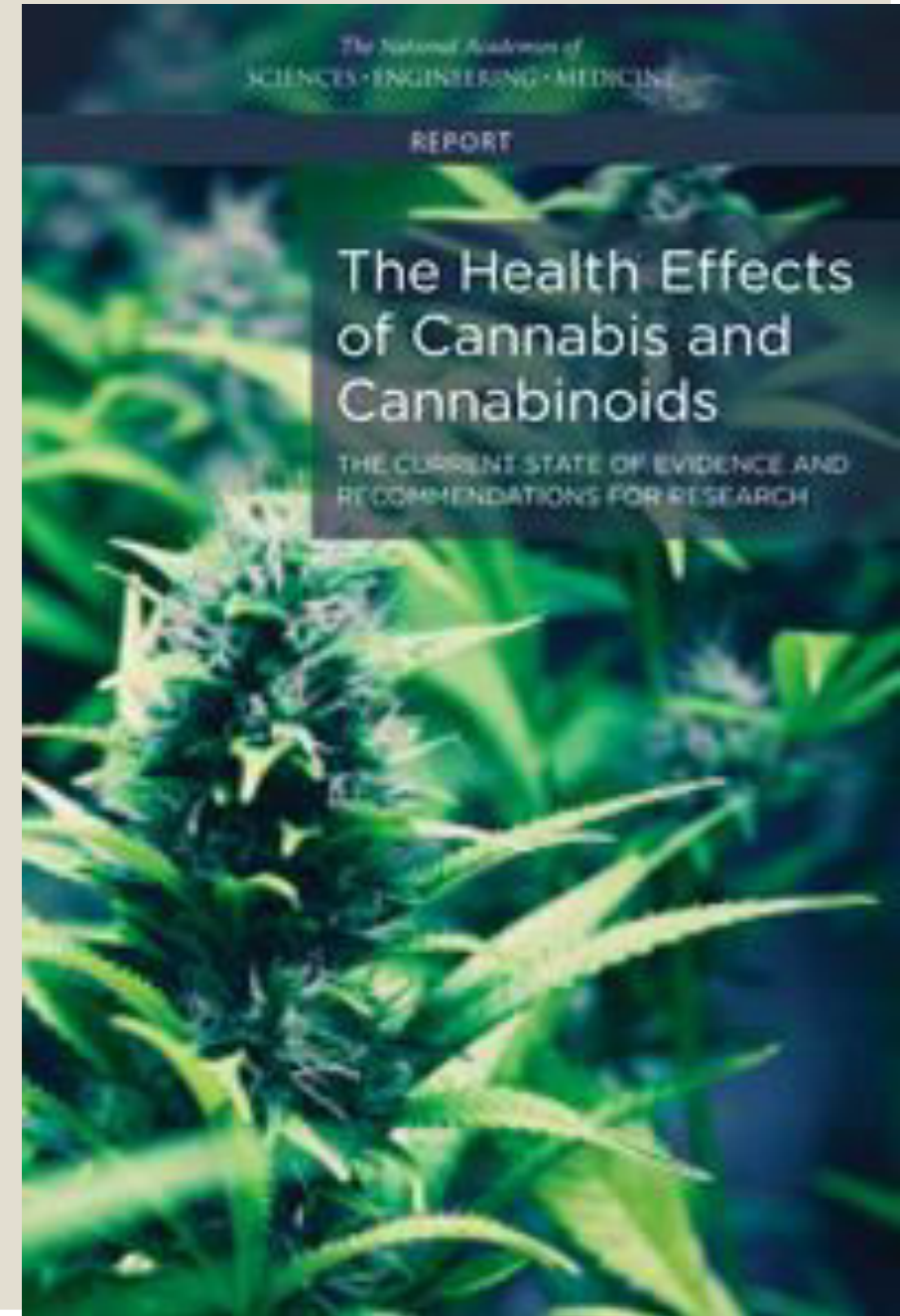


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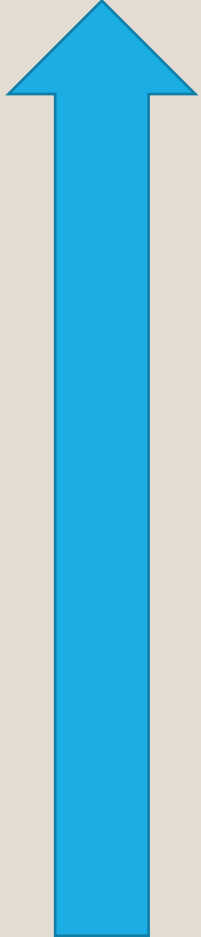
Health Effects of Marijuana

- National Academies of Sciences, Engineering, and Medicine Report, Jan. 2017
- Reviewed over 10,000 scientific abstracts to reach nearly 100 conclusions!
- Outstanding source for marijuana health effects.
- 4 key recommendations for research priorities.



Health Benefits of Marijuana

High level
of
evidence

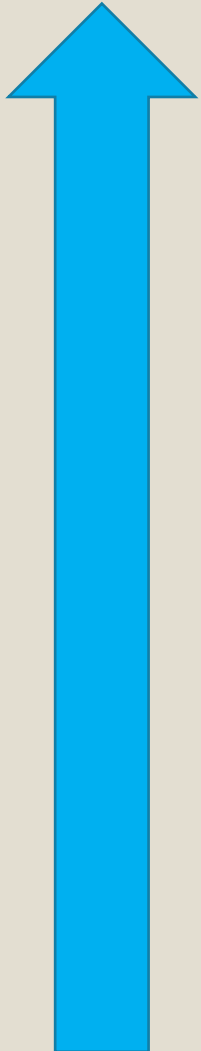


- Significantly reduced **chronic pain** symptoms
- Reduced **nausea & vomiting symptoms** in cancer patients
- Reduced multiple-sclerosis related **muscle spasms**
- Improved short-term **sleep** outcomes
- Increased appetite for people with HIV/AIDS
- Decreased **PTSD** symptoms
- Decreased intraocular pressure associated with **glaucoma**

Low level
of
evidence

Health Harms of Marijuana

High level
of
evidence



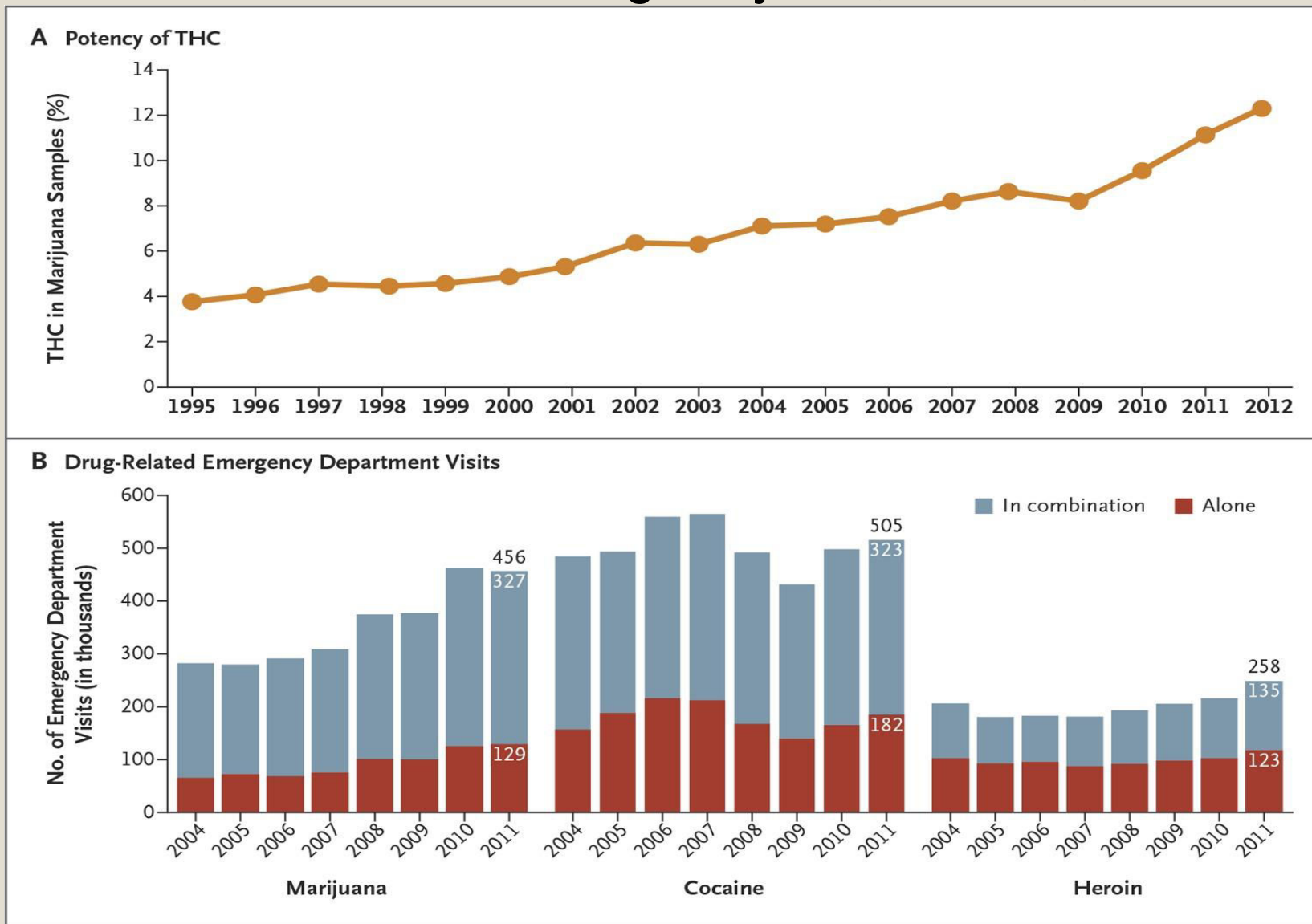
- **Addiction** (9% overall, 17% who initiate in **adolescence**) (long-term use)
- Chronic **bronchitis** (long-term use)
- Impaired **motor coordination** & more likely to get into **car accident** (short-term use)
- Altered brain development, **cognitive impairment** (long-term use, **adolescence**)
- Impaired short-term **memory** (short-term use)
- Lower **child birthweight** when mothers used marijuana
- Increased **child overdose** risk where marijuana legalized
- Poor **educational outcomes** (long-term use)
- Association with **mental illness** (psychosis, depression, anxiety) (long-term use)

Low level
of
evidence

What We Still Don't Know

- Effects of **smoking** marijuana
- Effects of **edibles** and other forms of administration
- Effects of more **potent** (i.e., higher THC content) marijuana
- Effects on certain kinds of **cancers** (esophageal, prostate, hodgkins lymphoma, cervical, bladder)
- Effects on **respiratory system**
- Whether injury risks (motor vehicle, overdose) lead to actual **deaths**
- **Infant outcomes** where mothers used marijuana

Increases over Time in the Potency of THC in Marijuana & Number of ED Visits Involving Marijuana, Cocaine, or Heroin



Source: Volkow ND et al. N Engl J Med 2014;370:2219-2227

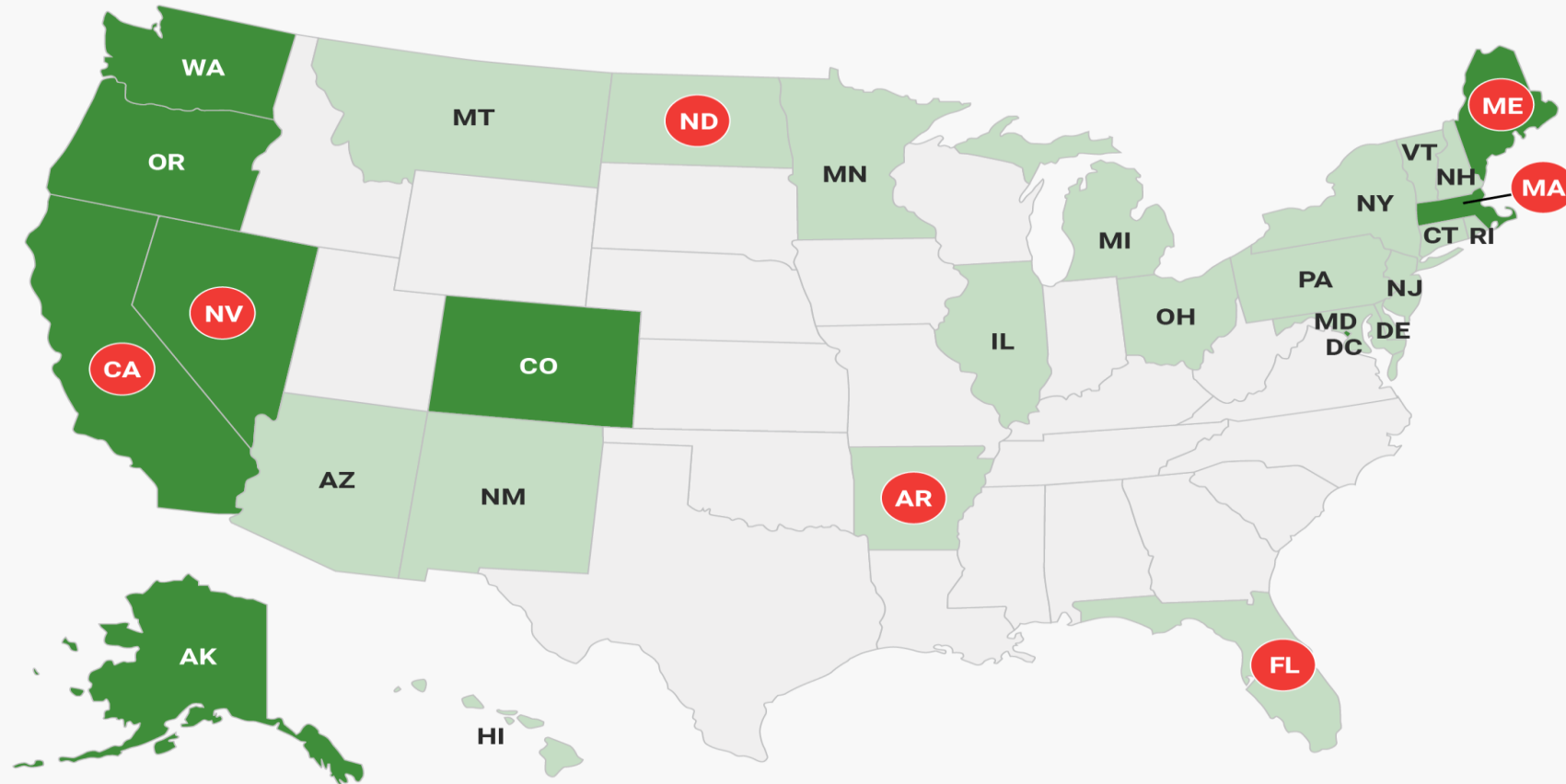


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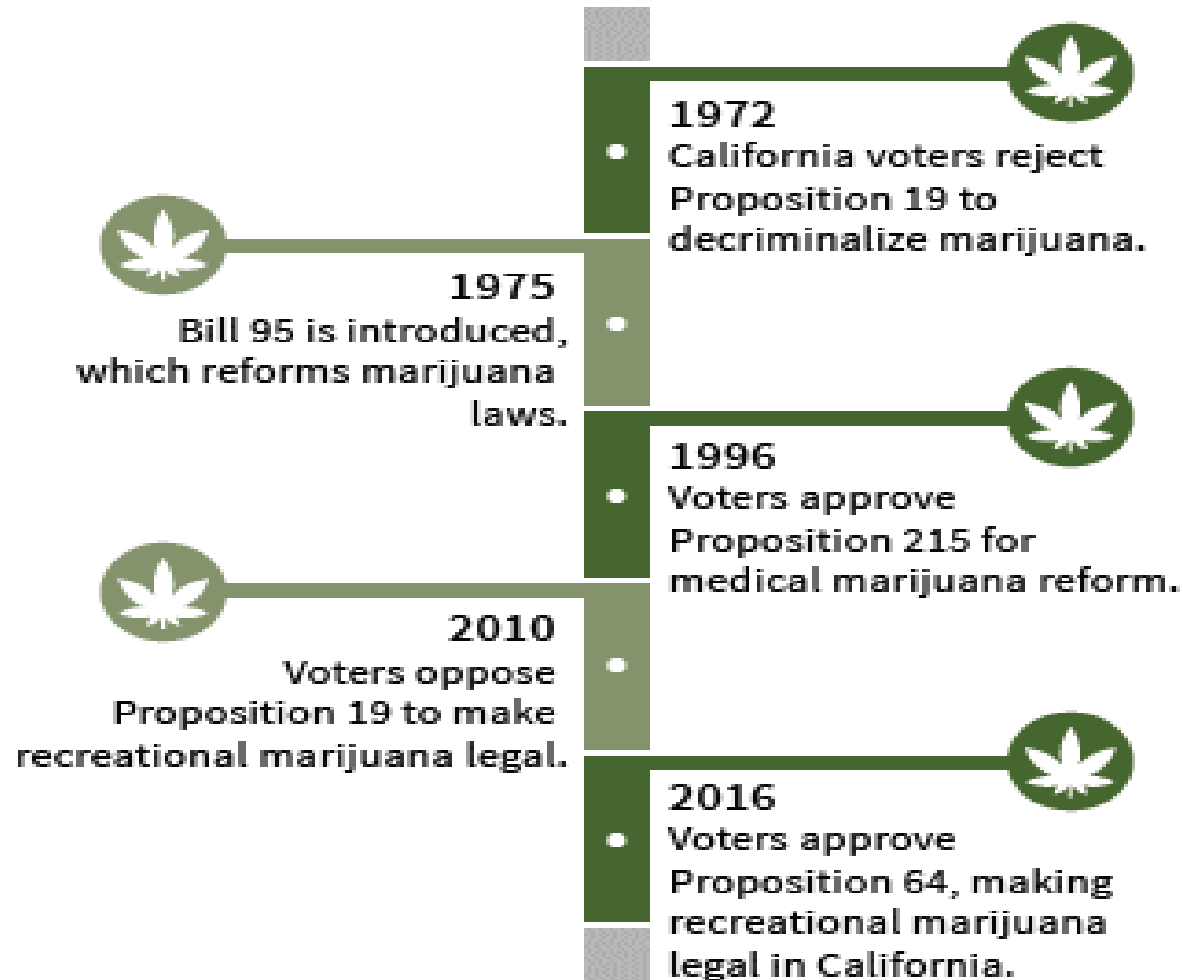
STATES WHERE MARIJUANA IS LEGALIZED

■ Legalized marijuana ■ Legalized medical marijuana ● Legislation passed Nov. 2016



The Marijuana Legalization Timeline for California

Since 1972, California has been on the cutting edge of legalizing marijuana.



Legalization Timeline



1972

2004

2008

2012

2013

2014

Decriminalization in
Ann Arbor

Ann Arbor
Medical
Marijuana
Initiative

Michigan
Medical
Marijuana
Act Passes

Decriminalization in
Flint, Detroit, Grand
Rapids, Ypsilanti

Decriminalization
in Lansing,
Ferndale, Jackson

Decriminal-
ization in
Oak Park,
Hazel Park,
Berkley,
H.W., P.R.,
Mt.
Pleasant,
Saginaw,
Port Huron



Federal Government & Marijuana

- Still considers marijuana illicit substance: **Schedule I** under Controlled Substance Act (CSA)
- **Gonzales v. Raich** (2005): *regardless of state laws*, federal law enforcement has the authority under the CSA to arrest & prosecute physicians who prescribe or dispense marijuana and patients who possess and cultivate it.
- 2009: **DOJ memo** to U.S. Attorneys – federal resources should not be used to prosecute persons whose actions comply with states' laws permitting medical marijuana use.
- How will **Sessions/Trump** proceed? (esp. w/r/t recreational laws)

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Public Health Consequences of Recreational Legalization: Too Early to Tell?

- Extrapolations from harmful marijuana effects:
 - Increased **dependence**
 - Reduced reaction time/**motor impairment**:
 - Increased traffic injuries
 - Increased occupational injuries
 - **Adolescent** harms:
 - Impaired brain development (pre 21)
 - Reduced educational performance
 - Reduced **motivation and productivity**
 - Economic consequences
 - Increased incidence of **bronchitis**, maybe cancers (including from second-hand smoke)

Lessons from Medical Marijuana Legalization?

- Modest or no increases in **marijuana use** (literature mixed)
 - Legalizing home cultivation, marijuana dispensaries increase use (Pacula, 2016)
- Decreased prescribing of **substitutable drugs** for pain (Bradford, Health Affairs, 2016)
 - Substitution or supplementation?
 - Reductions in opioid harms, such as deaths (?)

Lessons from Tobacco? Alcohol?

- **Analogies:** addictive (less so than tobacco), similar delivery mechanisms/product innovations (vaporized forms, smoking), motor impairment (alcohol), huge profits/industry interests at stake
- **Predictions:**
 - Marijuana *price* likely to fall as did in CO
 - Tobacco & alcohol: use generally increases when price fall
 - But how much, how long will it take?
 - Likely to see large increases in marijuana *use* with legalization/increased access
 - Harms likely to increase as *potency* increases
 - Attractiveness of marijuana may increase with *product innovations*, esp. minors
 - Likely that *industry* will try to minimize regulation, market to vulnerable populations (youth)

Research Challenges

- Lack of data!
 - *No good individual-level dataset on marijuana use over time
 - Collecting person-level data prohibitively expensive to collect, analyze
 - Currently available self-reported annual surveys only capture info on marijuana use and perceptions of risk, not reason for use
 - Ecological studies as a result
- Regulatory environment:
 - Schedule 1 designation impedes clinical trial research – all materials must be sourced by NIDA (frequency, magnitude, mode of use different from real world)
- Funding – although improving
- Poor methods, small scale studies

How to Proceed? Lessons from CO

- “Good”:
 - Policy incrementalism
 - Collecting data on traffic injuries, ED visits, poisonings
 - Education campaigns for adolescents, safe storage
 - Including marijuana in smoking prohibitions
 - Monitoring/educating about traffic risks
- “Bad”:
 - Proliferation of new consumable products (e.g., candies, lozenges, baked goods, drinks) if unchecked
 - Increase in THC & modes of use if no regulation around dosing levels, guidance for use, etc.
 - Consider taxes, other mechanisms, to regulate price
 - Consider regulating marketing to children

Questions/Discussion

Thank you!

haffajee@umich.edu