Marijuana:

Healing or Hurting Iowa Children?

Dale Woolery – Governor's Office of Drug Control Policy

Iowa Drug Endangered Children Conference

April 4, 2016

"It was impossible to get a conversation going, everybody was talking too much."

"If you don't know where you're going, you'll wind up somewhere else."

Baseball Legend– Yogi Berra

Marijuana:
Healing or Hurting Iowa Children?

Yes…both…sort of…maybe?

Full Answer (What We Know So Far)

Healing?
Particular derivatives of marijuana (e.g., CBD) may help provide relief to some Iowans with certain conditions.

Hurting?
The use of marijuana (i.e., THC) can cause negative health effects & result in impairment, abuse & addiction.

Stay Tuned!
Scientific research, including clinical trials of potential new medicines, continues at an increasingly rapid pace to get more answers.

Language is Important

Marijuana or Cannabis:
Dried leaves, flowers, stems & seeds from the plant, Cannabis sativa.

Cannabinoids:
Chemical compounds found in marijuana. Scientists say marijuana consists of more than 100 cannabinoids (& over 500 chemicals in total).

Cannabinoid Receptors:
Brain neuron molecules to which cannabinoids attach, disrupting mental & physical functions (memory, coordination, concentration, etc.).

Cannabidiol (CBD):
One non-psychoactive marijuana compound that may have medical value without affecting the mind or behavior.

Delta-9-tetrahyrdocannabinol (THC):
Marijuana's main psychoactive/mind-altering compound that may also have therapeutic value.

Distinction with a Difference

Cannabis-Based Medicine:
Cannabis derivatives that test safe & effective as research-based medicines for use by health care professionals in treating patients with valid medical needs, & regulated to reduce public safety risks.

Medical Marijuana:
Differing forms of cannabis approved by legislative or popular vote in some states for treating various health conditions, with fewer controls & safeguards than FDA-approved medicines.

Iowa Law:
Permits regulated use of limited quantities of CBD oil to treat qualified patients with intractable epilepsy.

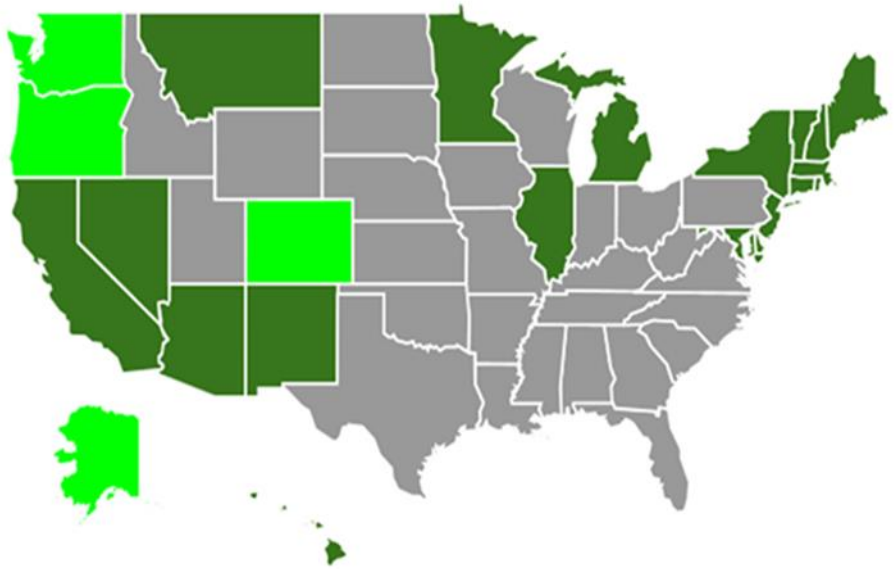
Derivatives?

Drug/Medicine	Plant Source	Use
Aspirin	Willow	Fever & Pain
Atropine	Belladonna Plant	Pupil Dilator in Eye Exams
Digitalin	Foxglove	Heart Medication
Menthol	Eucalyptus Tree	Cough Medicine Ingredient
Morphine	Opium Poppy	Pain Reliever
Quinine	Quinine Tree	Malaria Preventive
Reserpine	Snakeroot	Hypertension
Taxol	Pacific Yew	Ovarian Cancer Drug
Tubocurarine	Curare Tree	Surgical Muscle Relaxant
Vinblastine	Periwinkle	Hodgkin's Disease
Vincristine	Periwinkle	Leukemia Drug
Cannabidiol (CBD)?	Cannabis Plant	Seizure Control…?

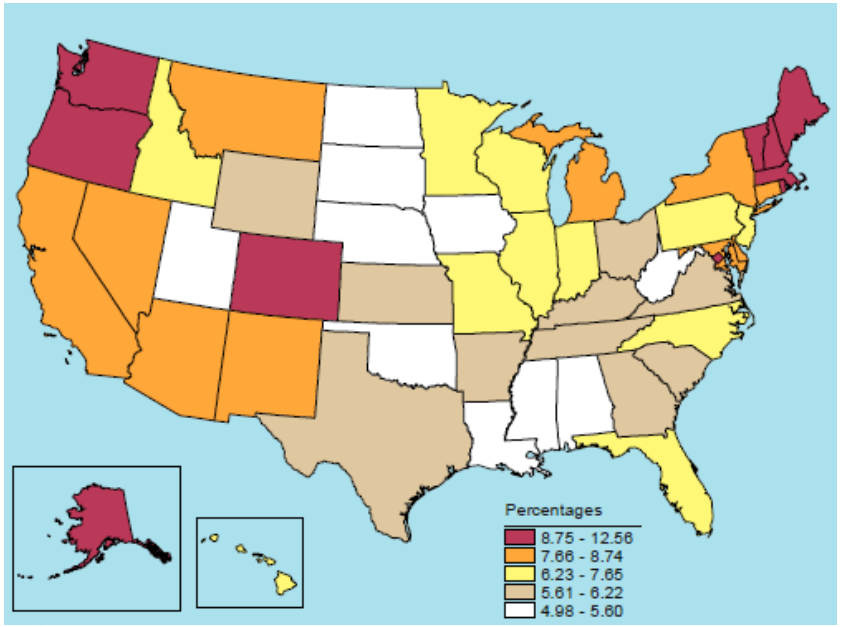
2001 Scientific American

Marijuana Laws & Use by Teens
by State

"Medical" & "Recreational" Marijuana Laws
(2015 Governing.com)



Past Month Use by 12-17 Year Olds
(2013-2014 NSDUH)



- Dark Green = "Medical" marijuana (23 & DC).
- Light Green = "Medical" & "Recreational" marijuana (4).
- Not Shown: Low THC non-psychoactive "CBD" oils (18, including Iowa, where the Pharmacy Board recommended in 2015 the Legislature consider rescheduling CBD only).

Scientific Positions on Marijuana

- The FDA has not approved the use of marijuana as medicine, saying "there is currently sound evidence that smoked marijuana is harmful."
- The Institute of Medicine has declared smoking marijuana is unsafe, & "marijuana is not modern medicine."
- The National Institute on Drug Abuse reports "marijuana is addictive," with nearly 4.5 million Americans meeting the clinical criteria for marijuana abuse or dependence.

Health Group Positions on Marijuana

- Major public health organizations (American Cancer Society, American Glaucoma Foundation, American Medical Association, American Psychiatric Association, National Pain Foundation, National Multiple Sclerosis Society, National Association of School Nurses, et al.) do not support smoked marijuana.

- The American Academy of Pediatrics "opposes marijuana use by children & adolescents…the use of 'medical' marijuana outside the regulatory process of the FDA…&…legalization of marijuana."

Marijuana Health Effects

- Marijuana can: cause or worsen respiratory symptoms; impair short-term memory & motor coordination; slow reaction time; distort perceptions; raise heart rate; disrupt problem solving & learning ability; alter mood, judgment & decision-making; & in some people cause severe anxiety or psychosis.
  2012 National Institute on Drug Abuse, NIH, Drug Facts

- More U.S. citizens met the American Psychiatric Association's diagnostic criteria for marijuana abuse/dependence than for pain relievers, cocaine, tranquilizers, hallucinogens & heroin combined.
  2011 U.S. Substance Abuse & Mental Health Services Administration, National Survey on Drug Use & Health

- Marijuana is addictive. About 9% of users become addicted. That number increases to 1 in 6 among users who start in adolescence, & to 25-50% among those who use marijuana daily.
  2014 National Institute on Drug Abuse

Marijuana Health Effects

- THC exposure very early in life may negatively effect brain development. In school, children prenatally exposed to marijuana are more likely to show gaps in problem-solving skills, memory & the ability to remain attentive. 2016 National Institute on Drug Abuse
- Breastfeeding mothers are cautioned that some research suggests THC is excreted into breast milk in moderate amounts. 2016 National Institute on Drug Abuse
- Given the substantial increases in THC content of marijuana over the past 20 years, fetuses of marijuana-using mothers are being exposed to significant amounts of THC. 2011 Wu, Jew & Lu, Future Neurology
- Secondhand marijuana smoke can pose a health hazard resulting in illness or altered consciousness in infants & young children. 2012 Zarfin, Yefet, Abozaid, et al., Child Abuse & Neglect

Marijuana/Cannabis a.k.a.???

Marijuana/Cannabis a.k.a.

Then

- Weed
- Grass
- Pot
- Reefer
- Hash
- Hemp
- Joints
- Blunts
- Buds

Marijuana/Cannabis a.k.a.

Then

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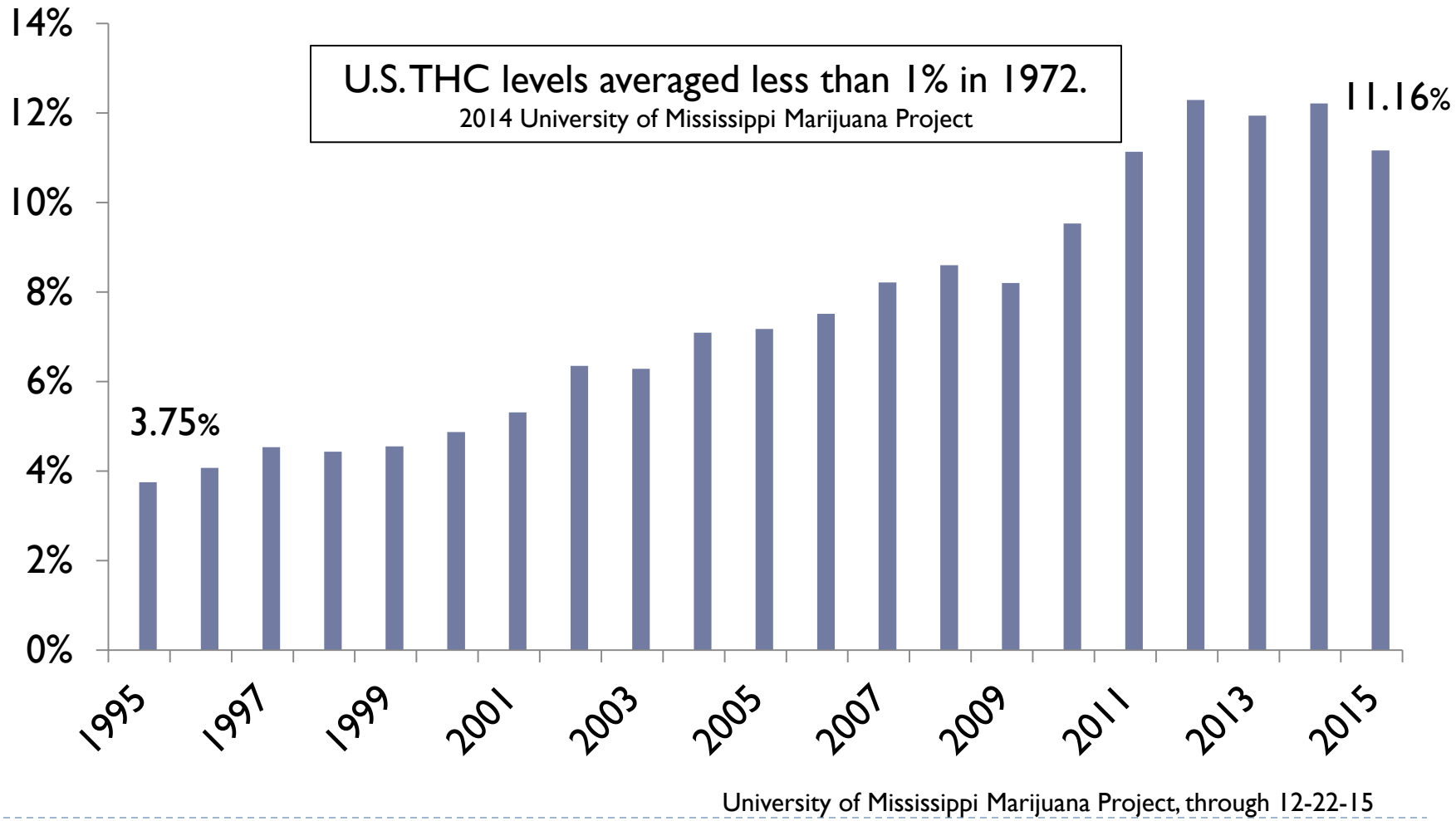
Now

- Hash Oil
- Honey Oil
- Wax
- Earwax
- Budder
- Crumble
- Shatter
- Black Glass
- Edibles

What is a “BHO” Lab???

Marijuana's Increasing THC Potency

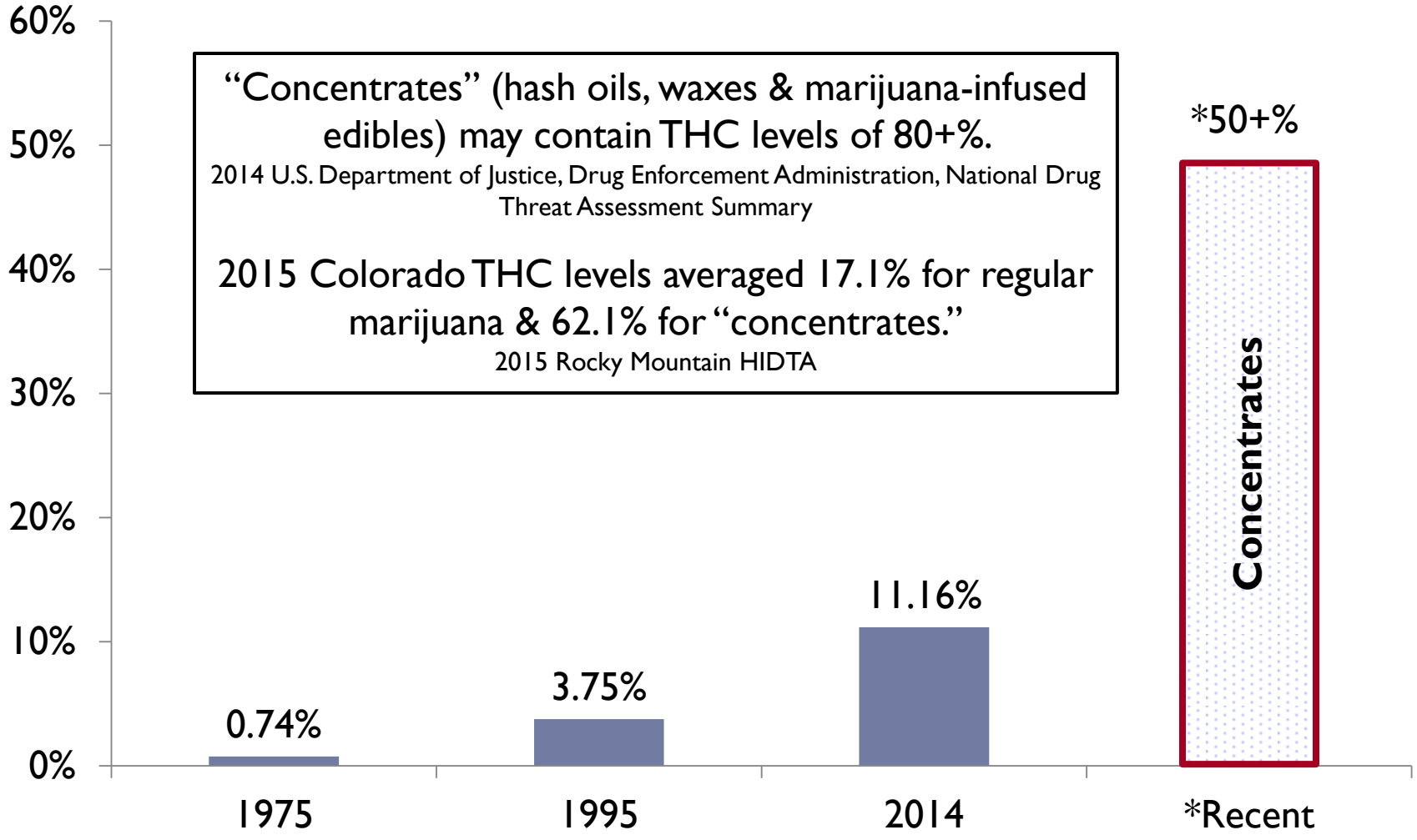
Marijuana Seized in U.S.



University of Mississippi Marijuana Project, through 12-22-15

New Marijuana's Increasing Potency

U.S. Seizures, Concentration of THC by % of Weight



National Institute on Drug Abuse & U.S. Drug Enforcement Administration

Marijuana "Concentrates"

Hash Oil (aka: honey oil or 7:10)

Chemically extracted from cannabis plant with solvent. Produces amber or brown colored viscous liquid. One or two drops = one "joint." Often used in vape devices. THC estimate: 40-80%.

Wax (aka: budder, crumble, earwax)

Created by whipping hash oil during THC extraction. Results in a consistency similar to earwax. "Dabbing" is inhaling vapor from wax on a heated surface.
THC estimate: 50-80%.

Marijuana "Concentrates"

Shatter

Yellow or amber colored thin & brittle cake made in multiple steps that involve a pressure vacuum.
THC estimate: May exceed 80-90%.

Edibles

Delayed effects of marijuana-infused foods (e.g., brownies, suckers, peanut butter, gummy chews, drinks, etc.) on unsuspecting users—particularly children drawn to product packaging—can lead to psychotic episodes & other dangers.
THC estimate: 50% or higher.

Marijuana "Concentrates"

Vaping

Many users of marijuana concentrates prefer smokeless, odorless e-cigarette or electronic smoking devices. "Vaping" is fast-acting & easy to conceal, a concern in schools & among youth generally.

BHO Labs (Butane Honey Oil labs)

THC extraction labs, aka BHO labs due to the use of butane for hash/honey oil extraction are on the rise…in Iowa too (e.g., December 2015 Davenport house, injuring 1 of 8 family members).

One byproduct is more lab-related explosions, fires & personal injuries.

Marijuana "Concentrates"

Regular daily users of high-potency marijuana (~16% THC), similar to

forms found in the U.S., are 5 times more likely than non-users to have a psychotic disorder. Weekend users are 3 times as likely to suffer psychosis.

2015 Lancet Psychiatry, Kings College London

"2 deaths connected with edible marijuana products have Colorado lawmakers scrambling to toughen regulations & experts warning of bizarre behavior as consumers eat powerful pot-infused foods."

May 8, 2014 USA Today

The self-inflicted shooting death of a 22-year old man on family ski trip is blamed on 4 marijuana gummy bears.

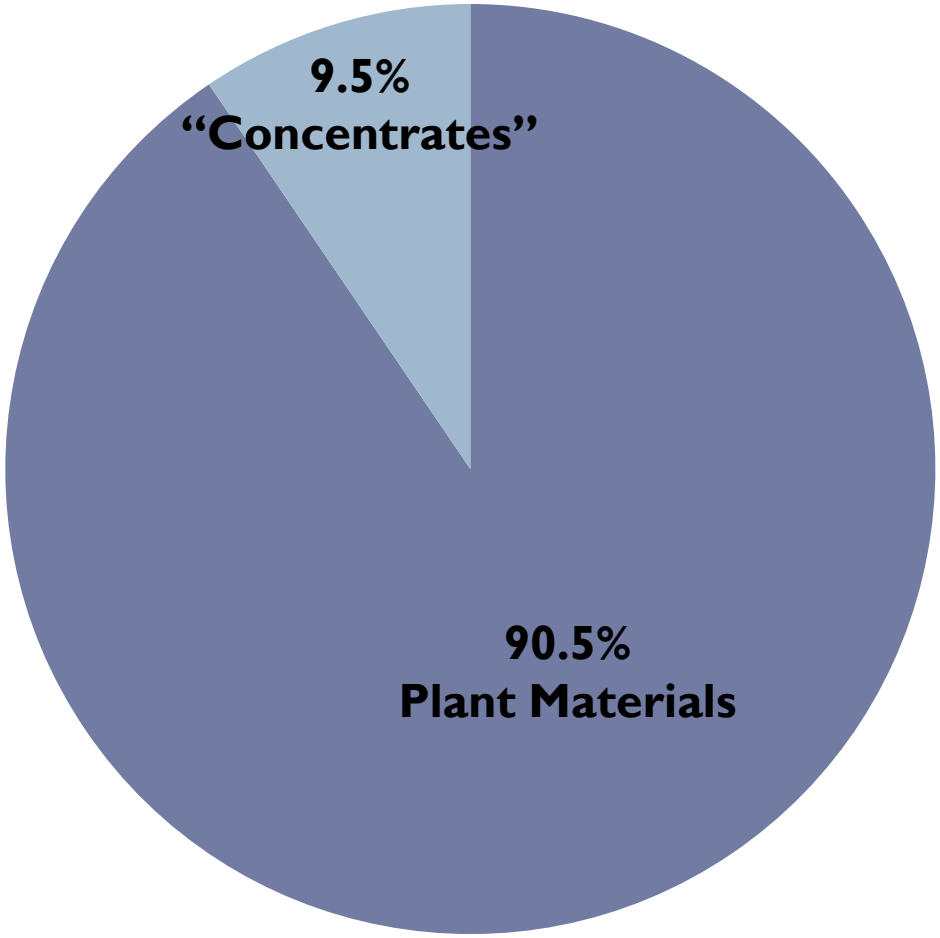
March 26, 2015 Denver Post

26.5% of teenage marijuana & e-cigarette users report using electronic devices to vaporize more potent marijuana & hash oil.

September 2015 Yale University, Pediatrics Journal

New Marijuana in Iowa

Approximately 9.5% of all 2015 marijuana samples submitted to the Iowa crime lab involved marijuana "preparations," or "concentrates" (e.g., hash oils, waxes & marijuana-infused edibles).



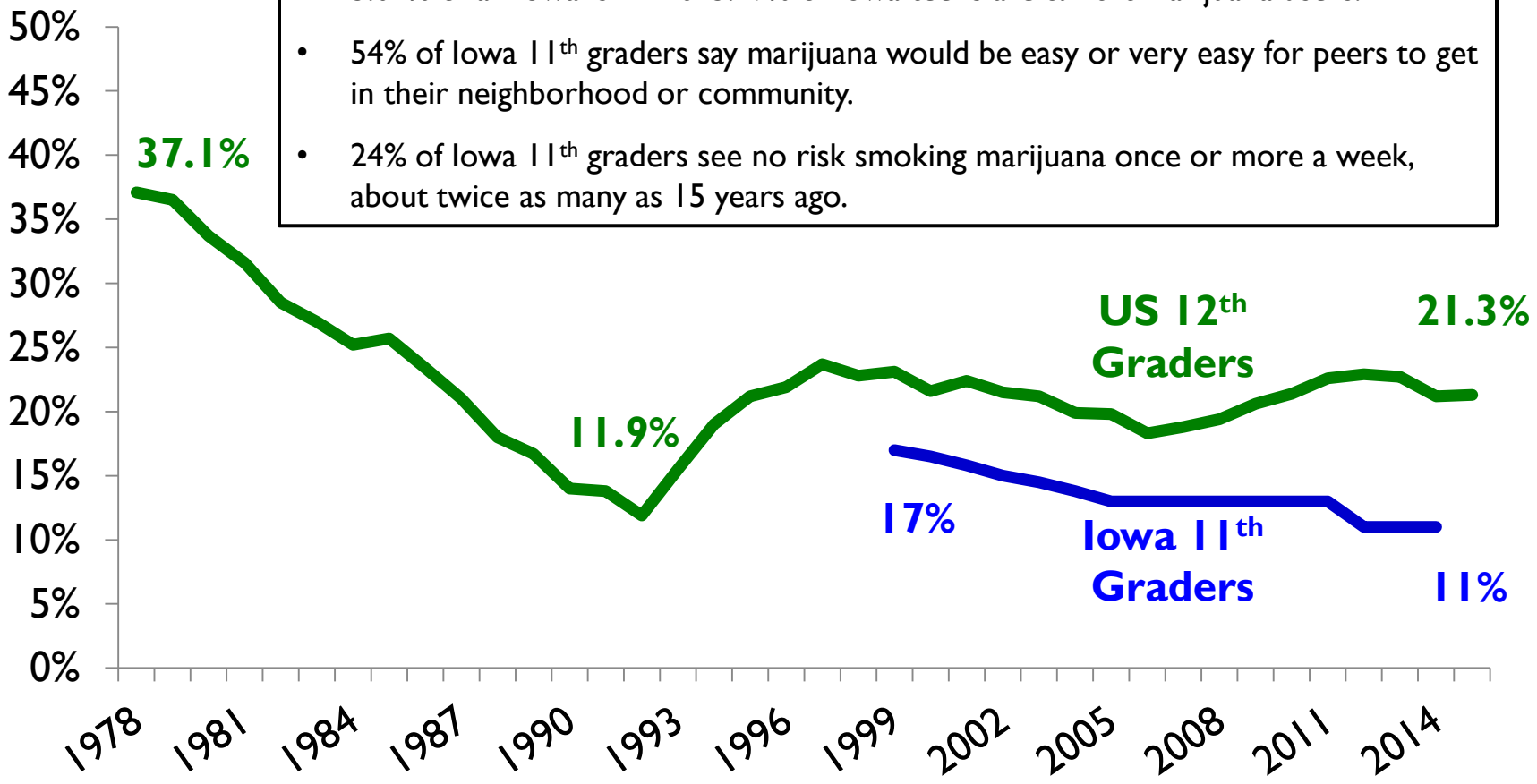
2015 Iowa Department of Public Safety, Division of Criminal Investigation

Marijuana Rates in Iowa:
High or Low???

Current Youth Marijuana Use

Past 30 Days: U.S. vs. Iowa

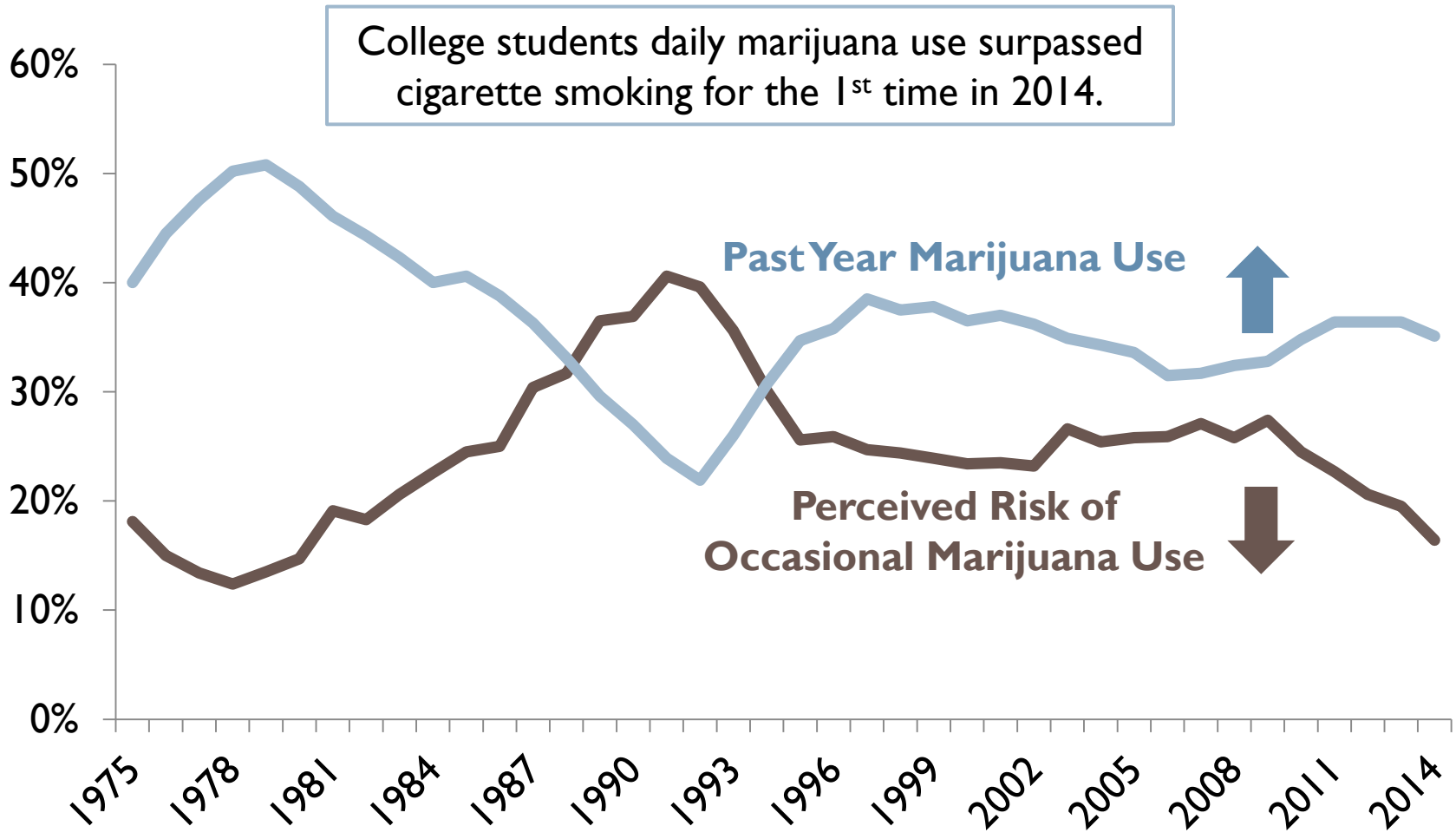
- 5.02% of all Iowans 12+ & 5.17% of Iowa teens are *current* marijuana users.
- 54% of Iowa 11th graders say marijuana would be easy or very easy for peers to get in their neighborhood or community.
- 24% of Iowa 11th graders see no risk smoking marijuana once or more a week, about twice as many as 15 years ago.



2015 Monitoring the Future Survey & 2014 Iowa Youth Survey

Youth Marijuana Attitudes vs. Use

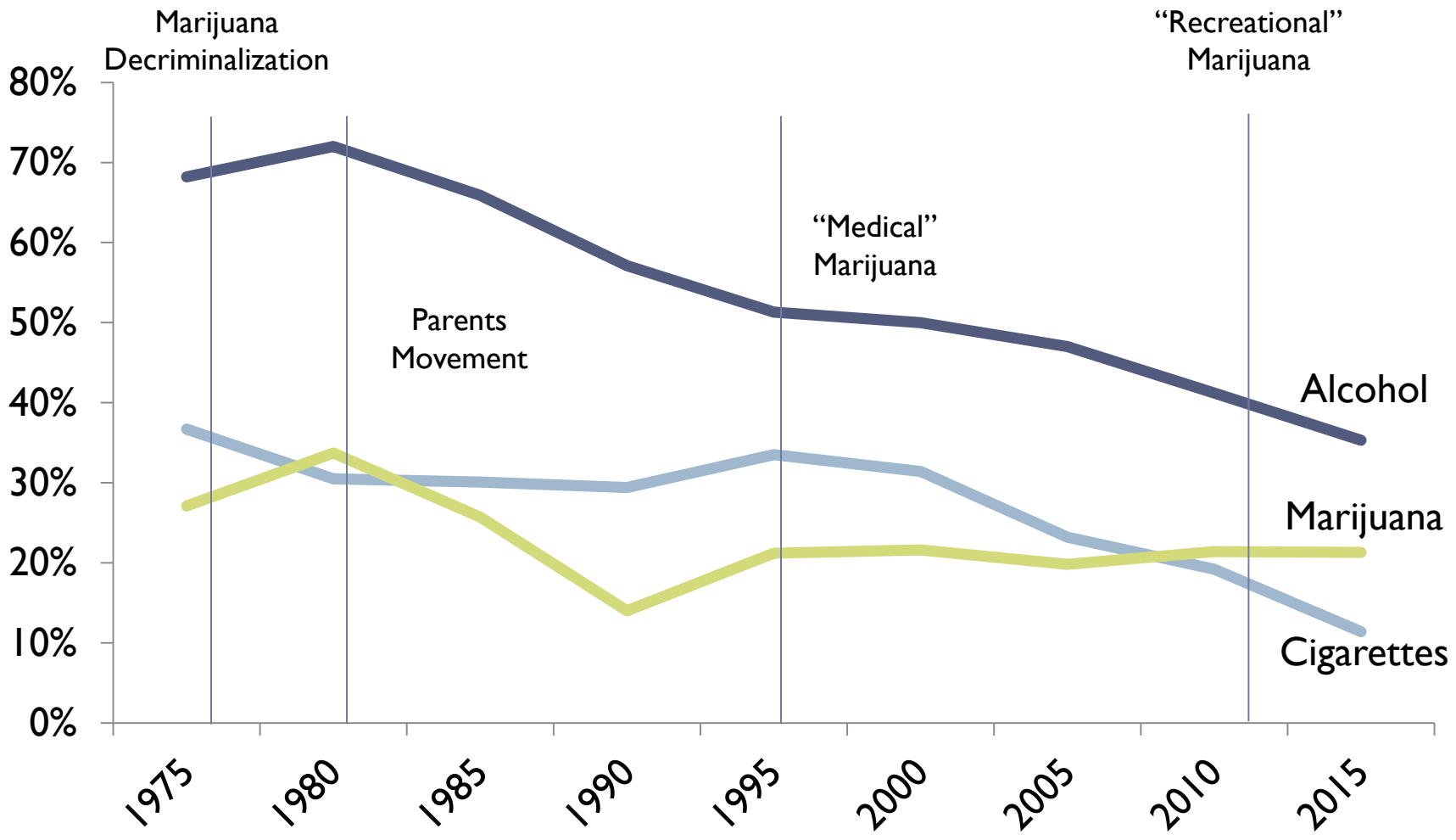
Among U.S. 12th Graders



Monitoring the Future Survey, 2014

Youth Substance Use 40-Year Trends

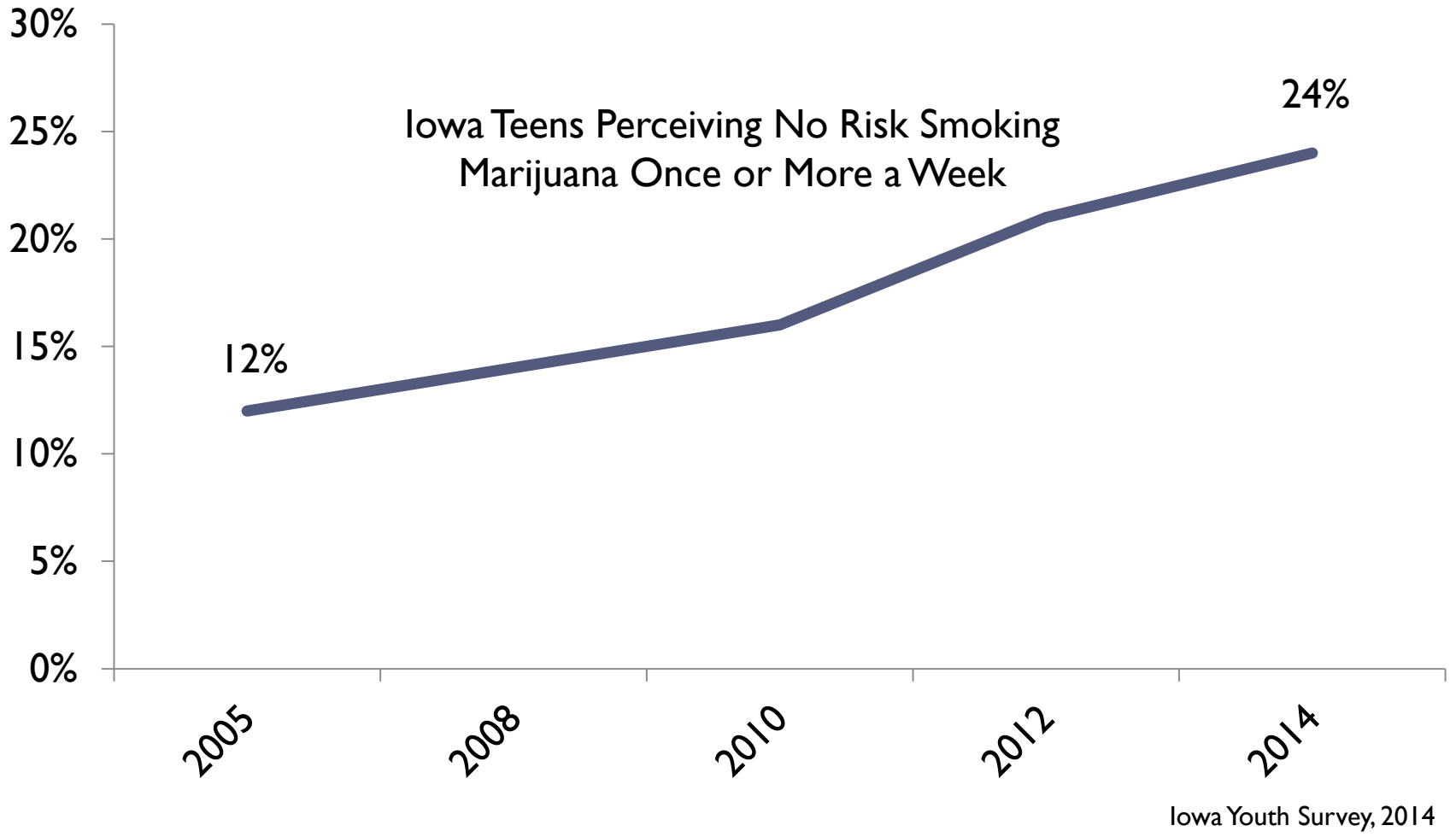
Current Use (past 30 days) Among U.S. 12th Graders



Monitoring the Future, 1975-2015

Youth Marijuana Attitudes

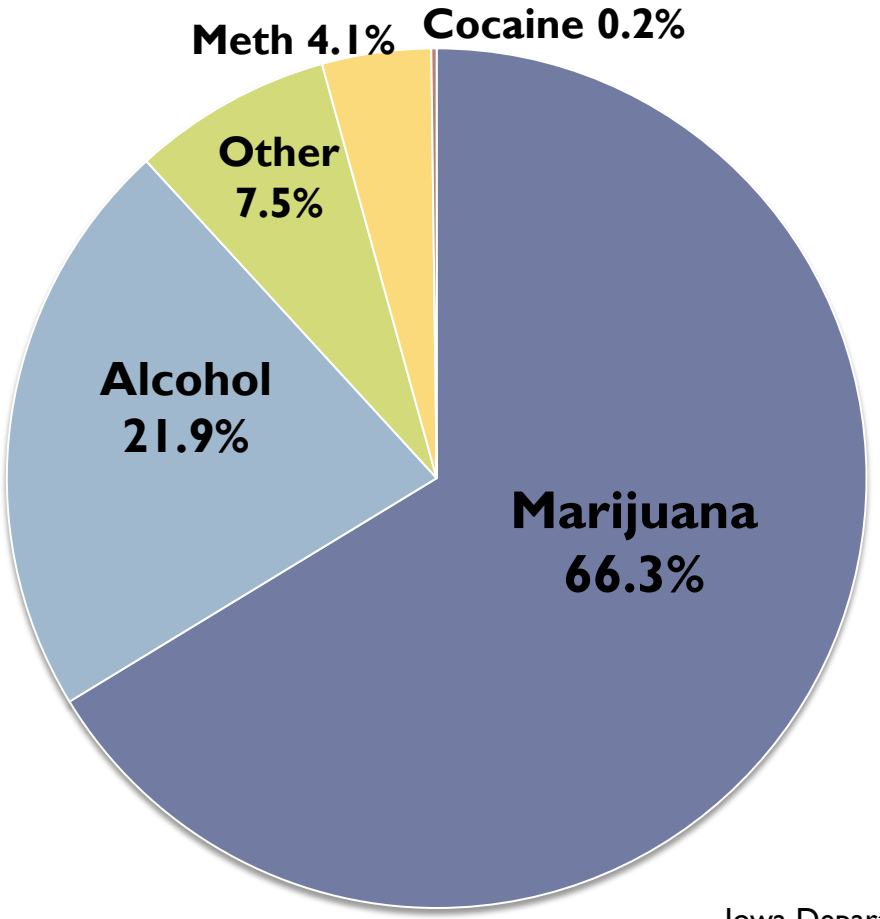
Among Iowa 11th Graders



Iowa Youth Survey, 2014

Drugs of Choice: Iowa Youth

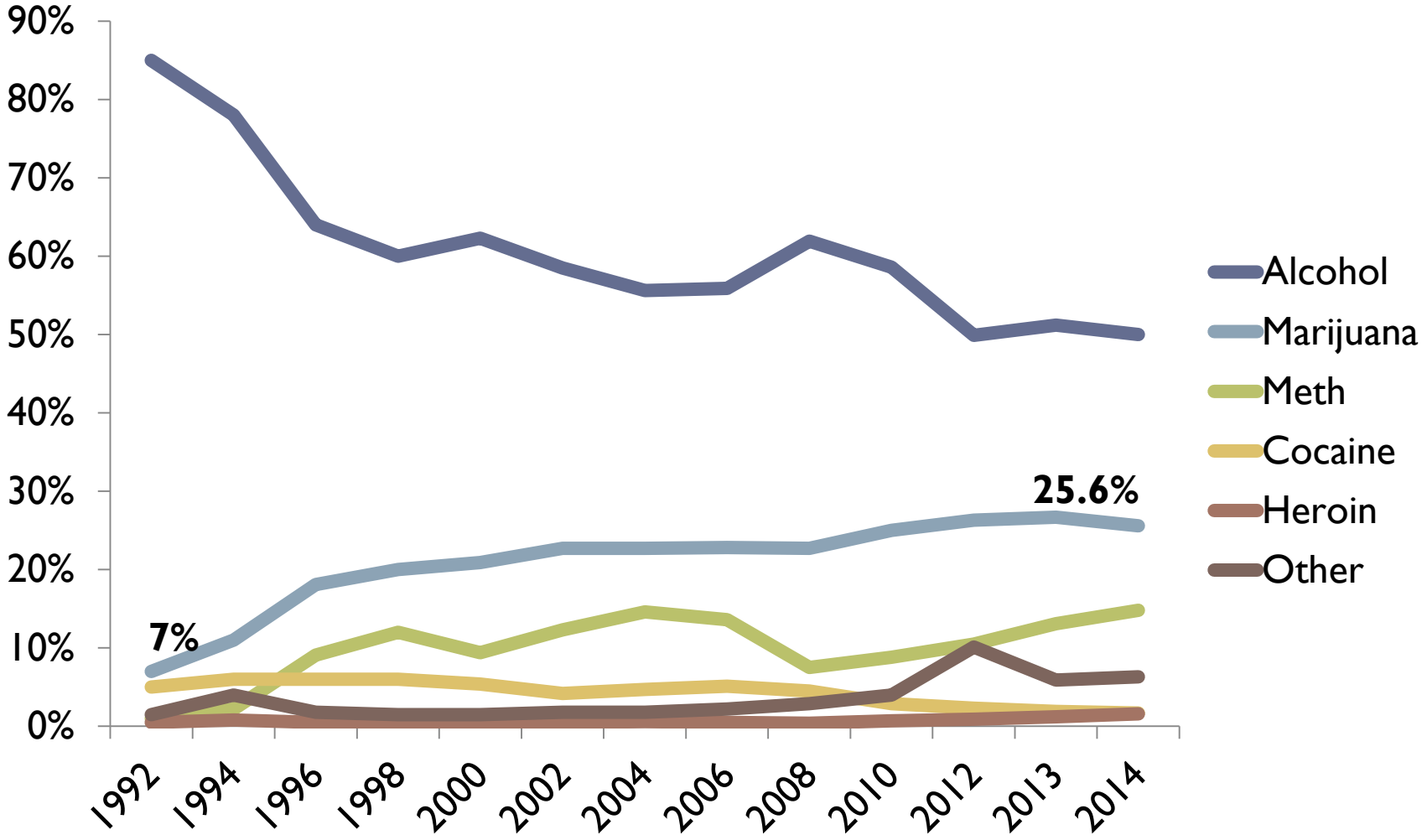
Primary Substance for 5,026 Juveniles in Treatment



Iowa Department of Public Health, 2014

Drugs of Choice: All Iowans

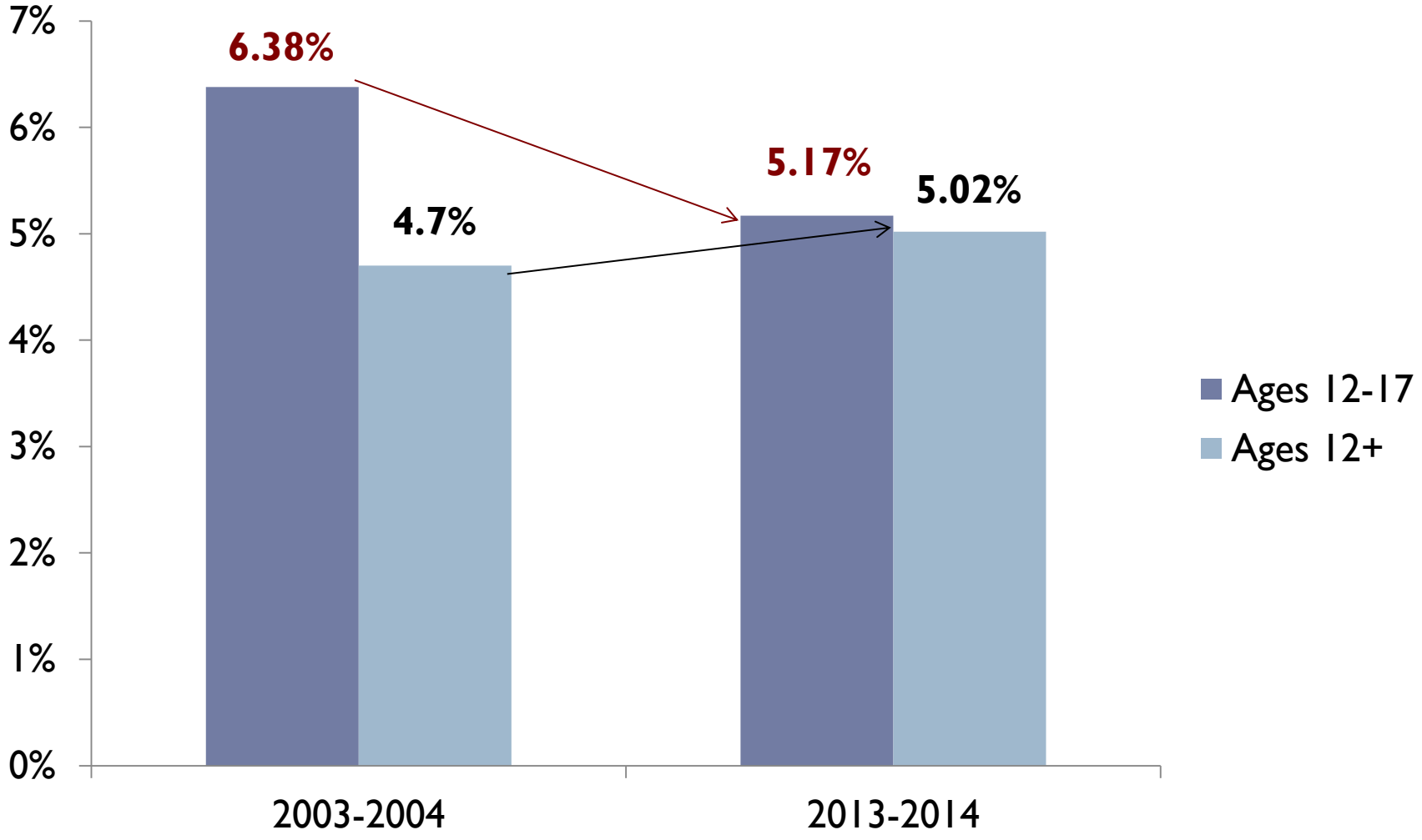
Primary Substance of Choice by Iowans in Treatment



Iowa Department of Public Health, 2014

Marijuana Use in Iowa

Past 30-Days: Pre-Teens & Teens vs. All Iowans

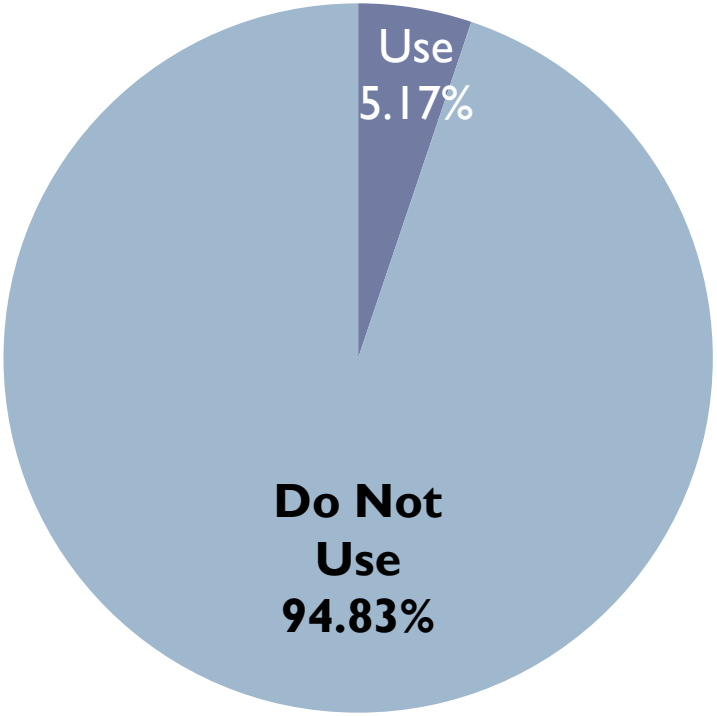


National Survey on Drug Use & Health,

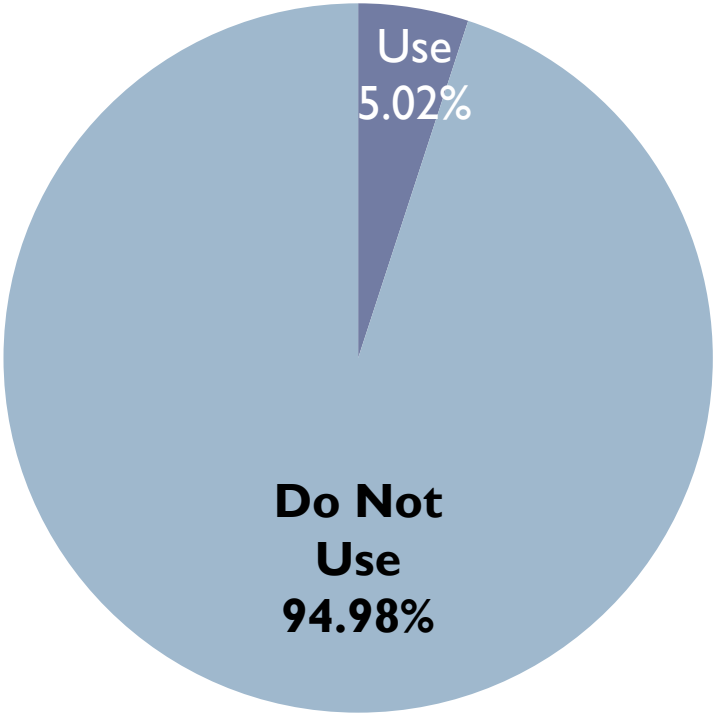
Iowans' *Current* Marijuana Use

Most Iowans are not *current* marijuana users (past 30 days).

Iowa Youth 12-17 years old currently using marijuana.

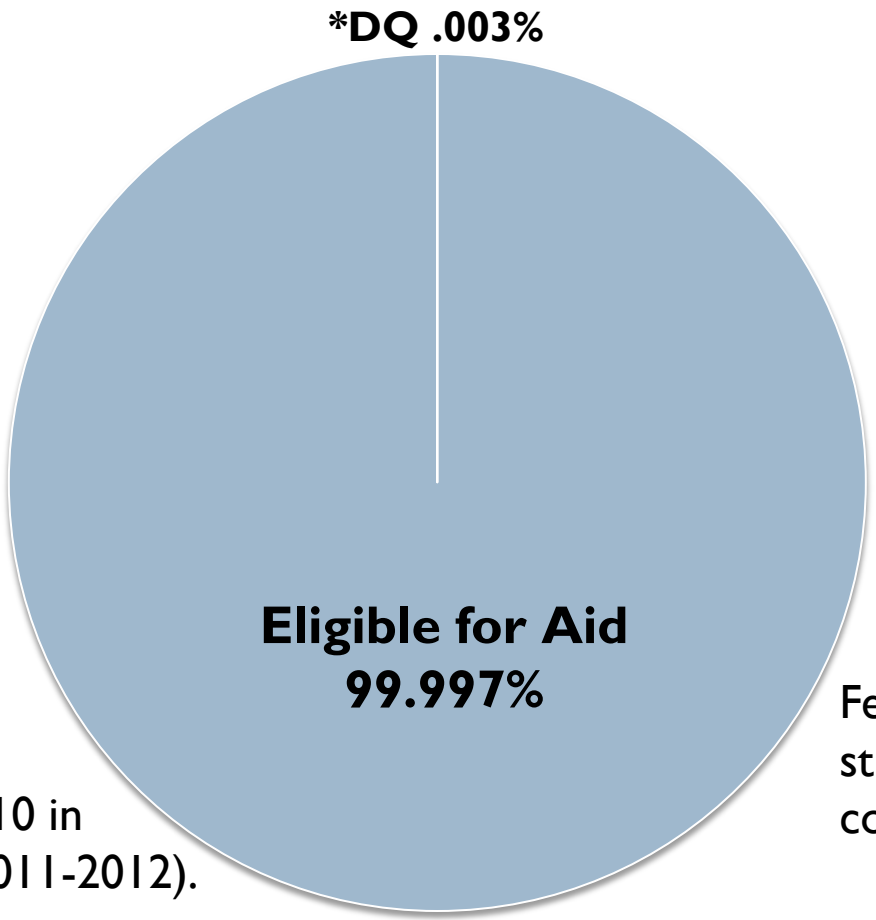


Iowans 12 & older currently using marijuana.



2013-2014 National Survey on Drug Use & Health

Iowa College Students Risking Aid
Due to Drug Conviction



*In 2014-2015, 6 of 175,424 qualified for suspension of federal financial aid due to a drug conviction (vs. 7 in 2013-2014, 10 in 2012-2013 & 14 in 2011-2012).

Federal law permits students to requalify by completing treatment.

Iowa College Student Aid Commission, 2015

2015 Iowa Prison Admissions

1st Time Marijuana Possession Most Serious Offense

Of 3,842 total prison admissions:

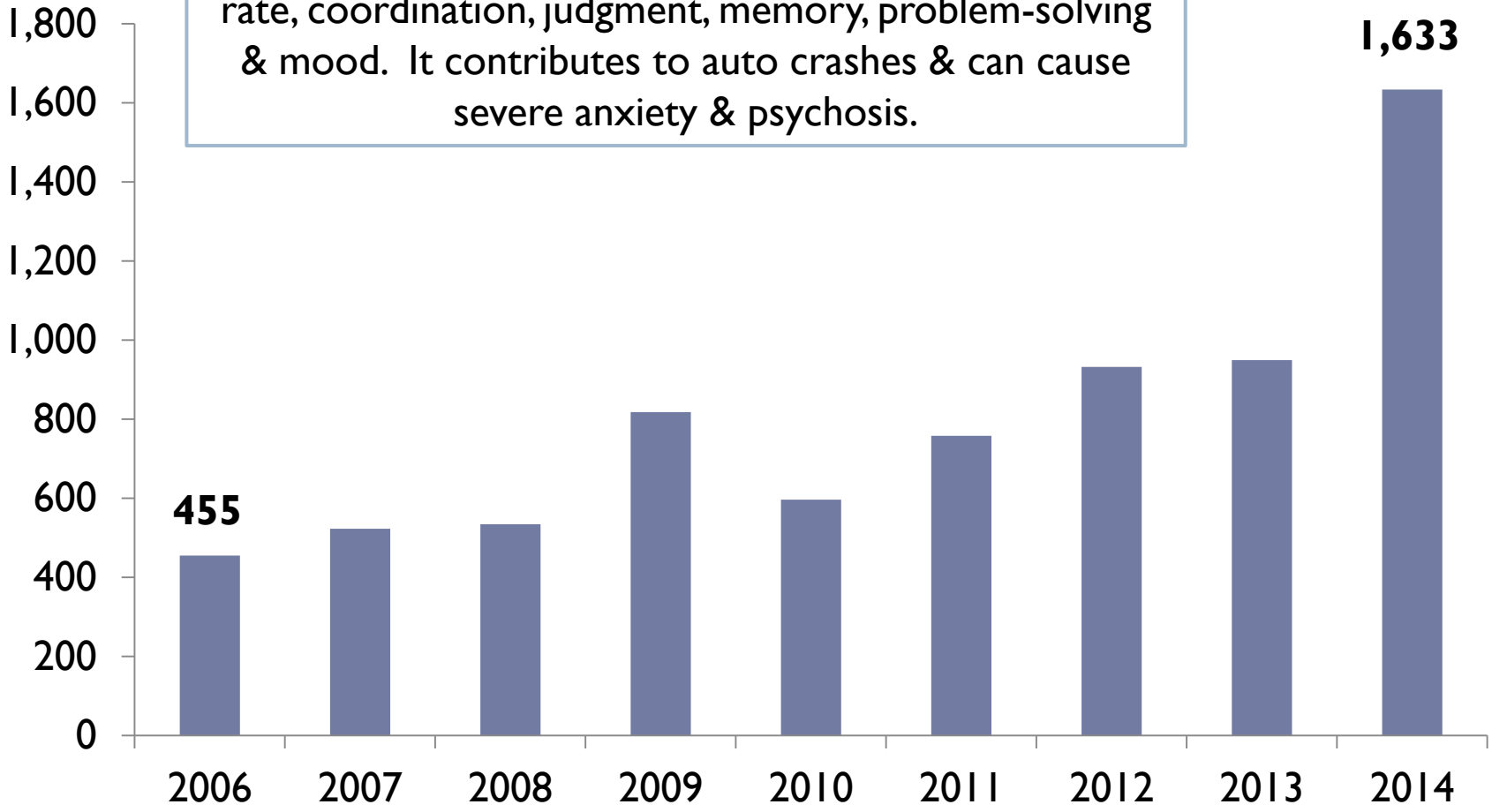
- 130 (3.4%) were for marijuana trafficking (manufacturing delivery, intent to deliver & conspiracy)
- 50 (1.3%) were for 3rd or subsequent marijuana possession,
- 3 (0.08%) was for 2nd or subsequent marijuana possession, and
- None (0%) was for 1st-time marijuana possession.

Iowa Department of Corrections + Division of Criminal & Juvenile Justice Planning, 2015

Iowa Marijuana ER Visits

Cannabis Use as Causal or Contributing Factor

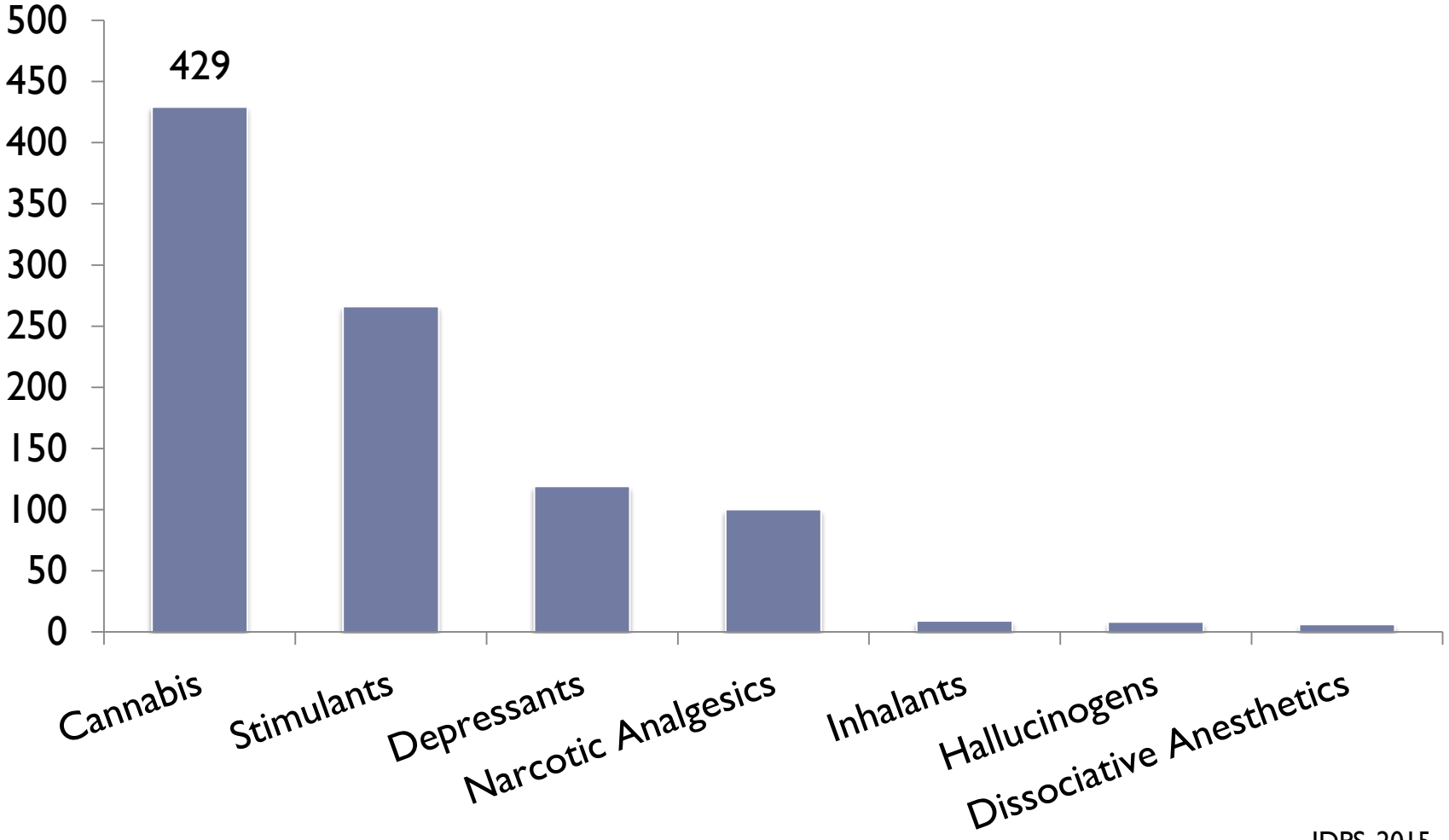
Marijuana impairs/worsens respiratory systems, heart rate, coordination, judgment, memory, problem-solving & mood. It contributes to auto crashes & can cause severe anxiety & psychosis.



Iowa Department of Public Health, 2014

Iowa Drug-Impaired Driving

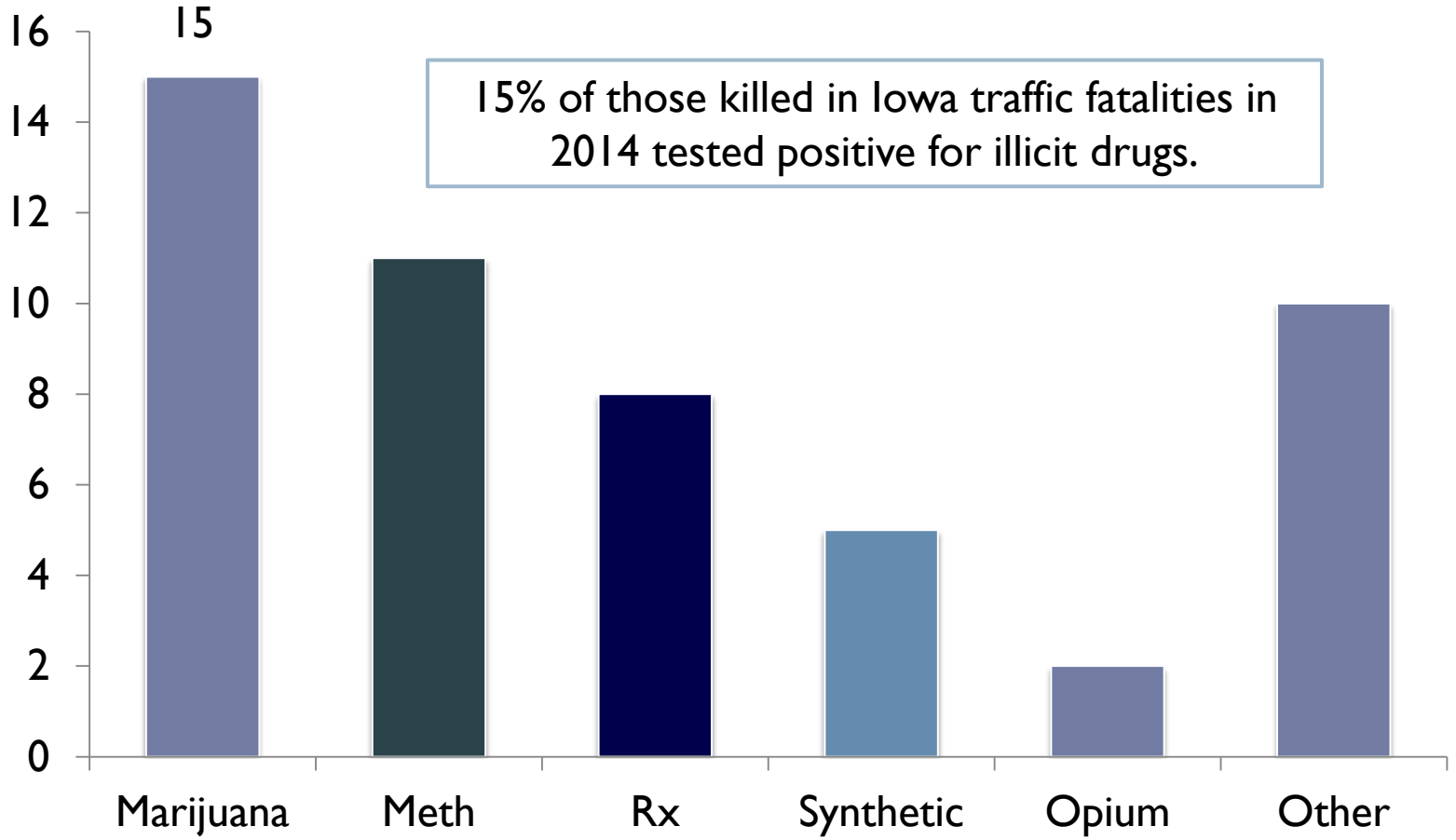
2015 Non-Alcohol Evaluation Findings by Drug Recognition Experts



IDPS, 2015

Iowa Drug-Related Traffic Fatalities

Number Killed in 2014 Testing Positive for Illicit Drugs

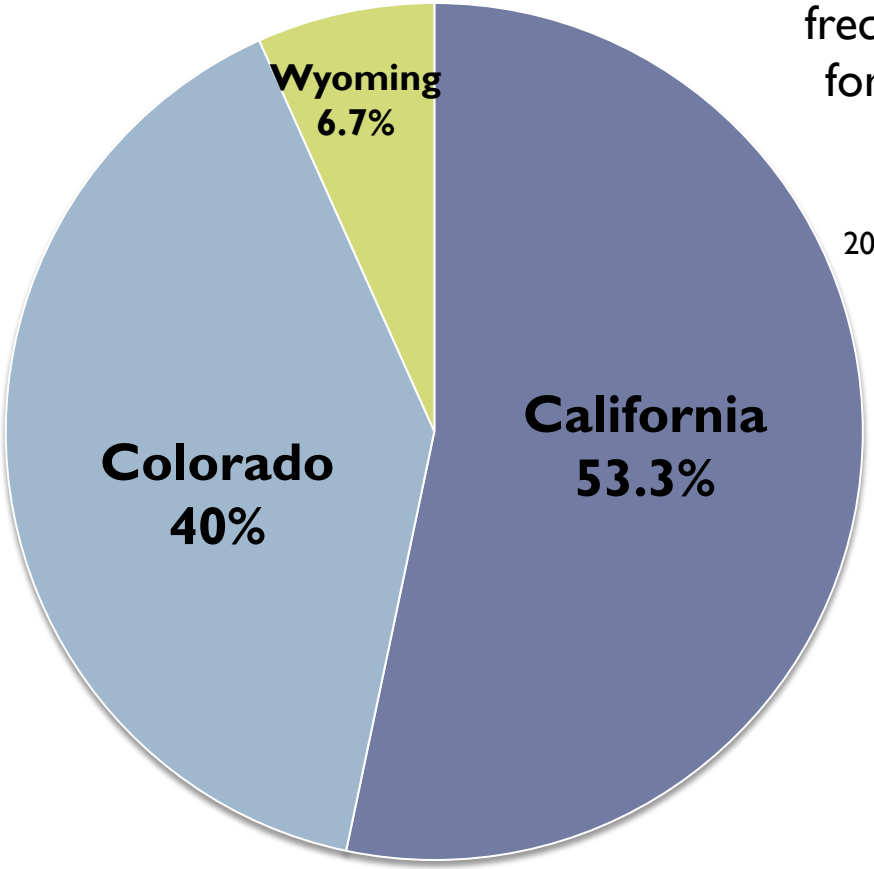


Does not include alcohol-related fatalities.
Alcohol & poly-drug combinations were detected in some crashes.

Source: IDOT, 2014

Source of Marijuana Seized in Iowa

2015 Iowa State Patrol Significant Highway Interdictions



Iowa was the 6th most frequent state destination for Colorado marijuana seized in highway interdictions.

2014 El Paso Intelligence Center

Iowa Department of Public Safety, 2015

"Medical" Marijuana: Case Studies

Diversion (Leakage)

- 74% of Denver teens in substance abuse treatment say they used someone else's "medical" marijuana.
  2012 Salomonsen-Sautel, et al., Journal of the American Academy of Child Adolescent Psychiatry
- 34% of 12th grade marijuana users in "medical" marijuana states say one of their sources is another person's "medical" marijuana.
  2013 Monitoring the Future Survey/University of Michigan
- States that decriminalized marijuana saw a 30+% increase in poison center call rates for children requiring medical intervention between 2005 & 2011 vs. no change in other states.
  2014 Annals of Emergency Medicine
- The average number of Colorado marijuana-related exposures for young children 0-5 was 4.75/year from 2006-2009, but rose 268% to 17.5/year from 2010-2013. 2014 Rocky Mountain Poison & Drug Center
- There's been a spike in the number of Colorado children treated for accidentally consuming marijuana-laced foods & beverages.
  May 2013 Journal of the American Medical Association Pediatrics

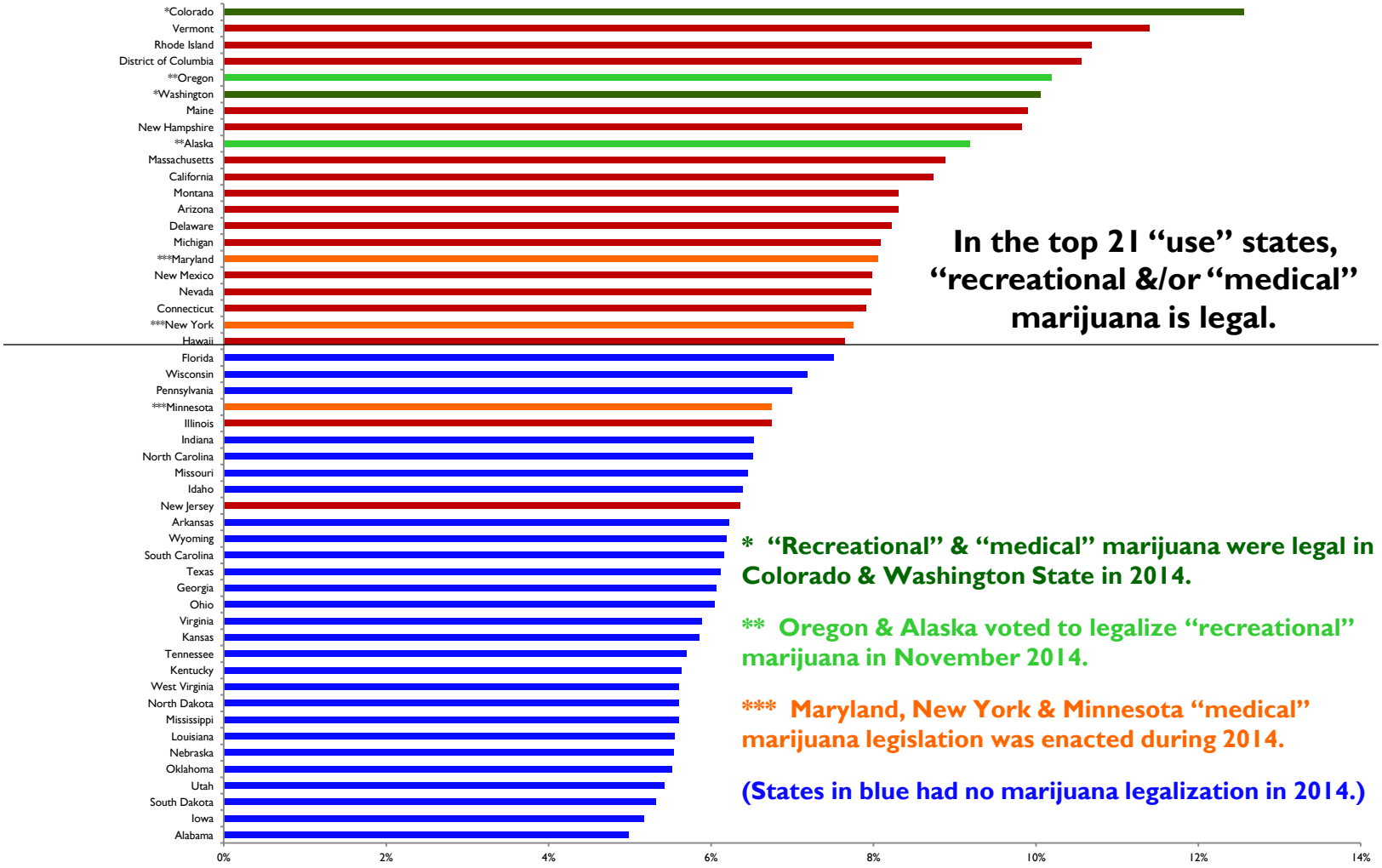
"Medical" Marijuana: Case Studies

Use/Abuse

- "Medical" marijuana laws do not increase adolescent marijuana use, but adolescent use is higher in "medical" marijuana states.
  2015 Hasin, Wall, Keyes, Cerda, et al., Lancet
- "Medical" cannabis laws amplify recreational juvenile cannabis use by allaying social stigma & placating fear that cannabis use could potentially result in a negative health outcome.
  2015 Stolzenberg, D'Alessio & Dariano, International Journal of Drug Policy
- Colorado & Washington State had the 2nd & 3rd highest marijuana use rates among persons 12 & older (12.7% & 12.28% vs. 7.4% for the U.S. & 5.98% in Iowa). This happened under "medical" marijuana laws, & a year before full-scale legalization.
  2012-2013 National Survey on Drug Use & Health
- The top 21 states (& DC) for current marijuana use among teens all have approved "medical" marijuana. 2013-2014 National Survey on Drug Use & Health

Current Youth Marijuana Use Rates

Age 12-17 in "Medical" vs. Non-"Medical" Marijuana States



In the top 21 "use" states, "recreational &/or "medical" marijuana is legal.

*** "Recreational" & "medical" marijuana were legal in Colorado & Washington State in 2014.**

**** Oregon & Alaska voted to legalize "recreational" marijuana in November 2014.**

***** Maryland, New York & Minnesota "medical" marijuana legislation was enacted during 2014.**

(States in blue had no marijuana legalization in 2014.)

2013-2014 National Survey on Drug Use & Health

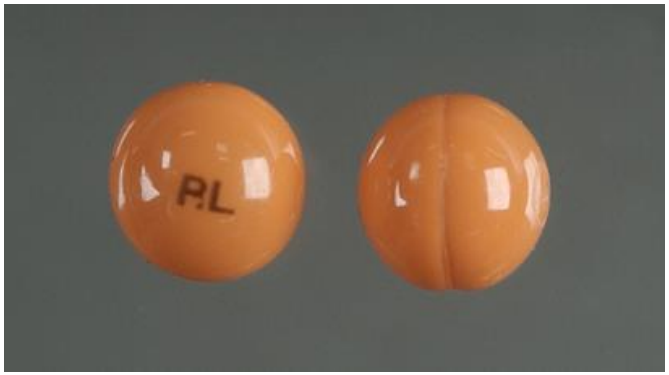
"Medical" Marijuana: Case Studies

Youth Learning Potential

- The top 9 states for marijuana use in high school were all "medical" marijuana states, with an average use rate of 1/4 students (vs. a national rate of 1/5 & an 1/9 Iowa rate).
  2014 Centers for Disease Control, 2013 Colorado Youth Risk Behavior Survey & 2014 Iowa Youth Survey
- Drug-related student suspensions & expulsions increased 40% in Colorado schools from 2008/2009-2013/2014.
  2015 Colorado Department of Education
- 77% of American teens now believe smoking pot is safe.
  2014 Behavioral Health Barometer, U.S. Substance Abuse & Mental Health Services Administration
- Persistent marijuana use during adolescence can cause a long-term 8-point drop in IQ, & harm attention span & memory.
  2012 National Academy of Sciences, Dunedin Study
- Marijuana use in the 1st year of college can lead to students skipping classes, lower grades & later graduation.
  2015 University of Maryland School of Public Health, College Life Study

“Medical” Marijuana: Alternatives

- Research shows a few orally-administered synthetic medicines containing the cannabis plant’s principal psychoactive compound tetrahydrocannabinol (THC) do have therapeutic potential to relieve pain, control nausea, stimulate appetite & decrease ocular pressure. Smoking or ingesting crude marijuana is not required.



- Dronabinol (Marinol) & Nabilone (Cesamet) are FDA-approved & legally available as prescription pills.

"Medical" Marijuana: Alternatives

- A mouth spray (Sativex) with 2 cannabinoids extracted from the cannabis plant failed FDA-authorized tests for cancer pain, but may be tested on spasticity problems.

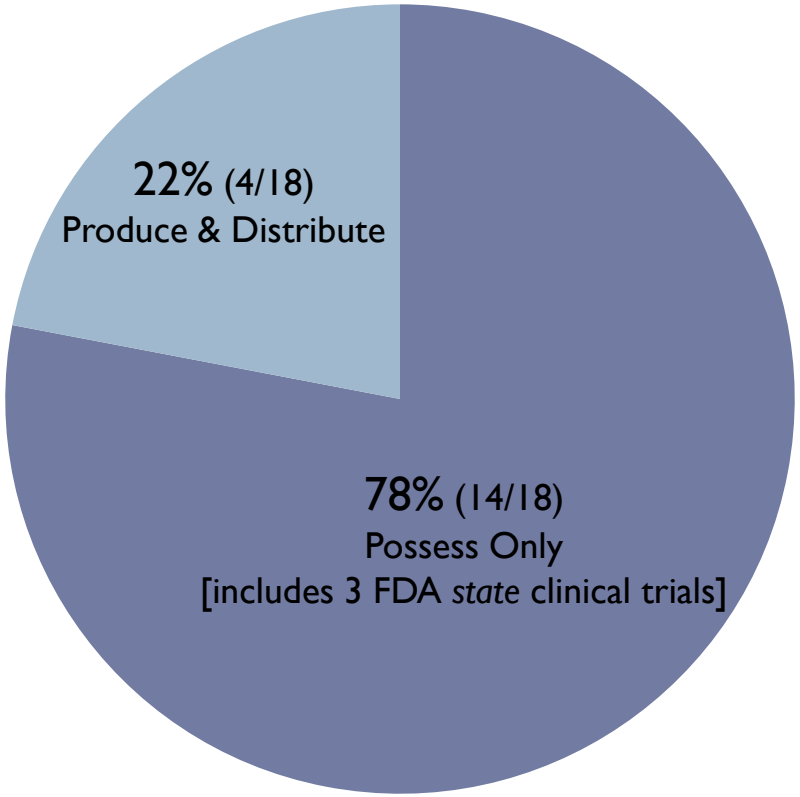
- An oral liquid (Epidiolex) containing the non-psychoactive & nearly pure cannabis extract Cannabidiol (CBD) is an FDA orphan drug in a fast-track study in Iowa & elsewhere to treat severe seizures. Initial clinical trial results are encouraging & if all goes well an Rx product could be on the market by the end of 2017.

- 18 states, including Iowa, now permit limited use of CBD solutions by patients with severe medical needs.

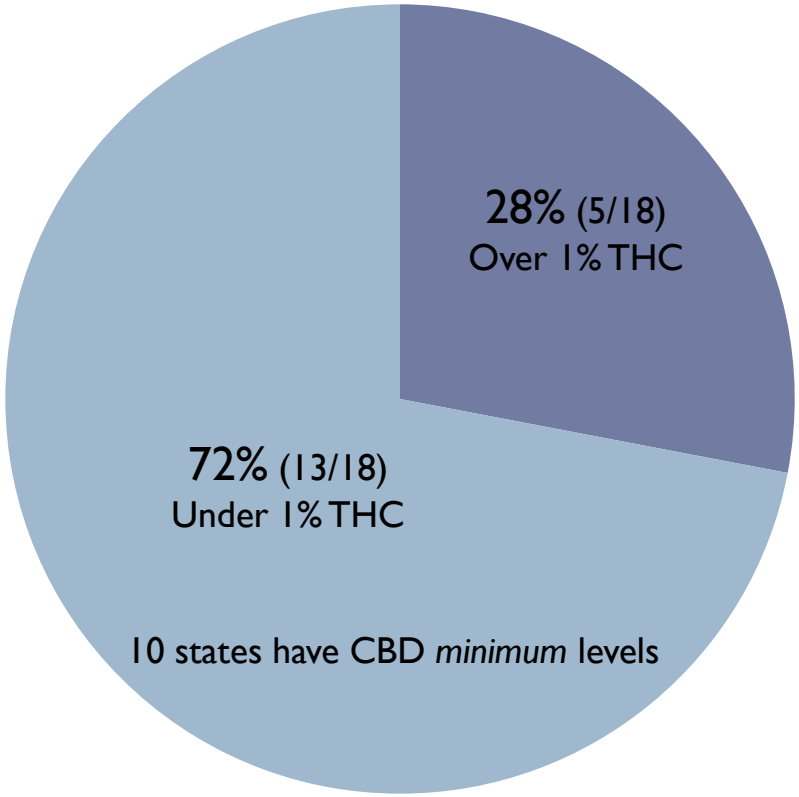
CBD Laws in 18 States

Differences in Scope

Production & Distribution vs. Possession Only



THC Levels: Under 1% vs. Over 1%



National Alliance for Model State Drug Laws, 2016

"Medical" Marijuana: Research

- NIH invested $111 million in 281 cannabinoid research projects in fiscal 2015, including 49 ($21m) to examine potential therapeutic properties of cannabinoids & 15 ($9m) on CBD. This is in addition to 17 independently funded research projects approved since 1999 to study possible therapeutic uses of marijuana/derivatives.

- The DEA says it has not denied any bona fide research application & the number of authorized researchers is growing. 399 active researchers were registered as of June 2015 to study Schedule I controlled substances. Of these, 265 were studying marijuana & its extracts, including CBD (41 involving human subjects).

"Medical" Marijuana: Research

- A systematic review & meta-analysis published in the June 2015 Journal of the American Medical Association found most uses of "medical" marijuana would not pass FDA review due to a lack of reliable evidence to support the drug's use.

- A 2016 Columbia University Medical Center study found that while 14 of 24 US "medical" marijuana programs were essentially nonmedical in practice, they enrolled over 99% of all participants, mostly in western states with fewer regulations.

"Medical" Marijuana: Research

- Adults who use marijuana are 5 times more likely to develop an alcohol use disorder, according to a 2016 study by Columbia University's Mailman School of Public Health & City University of New York.

- A NIDA study in June 2015 found using marijuana & alcohol together impacts driving more than using either substance alone.

- The U.S. Senate Drug Caucus held a June 2015 hearing to lower CBD research barriers & said the U.S. Justice Department would analyze CBD for potential medical benefits. The Administration also removed an extra federal research requirement.

"Personal Use" Marijuana:
Case Studies

- From 2013-2014, marijuana-related poison calls almost doubled in Colorado & increased 50% in Washington State. Calls involving children nearly doubled in both states.
  2015 Colorado & Washington Poison Centers

- Marijuana exposure rates among children 5 & under increased 16% per year after legalization in affected states, & child exposures rose147% from 2006-2013.
  2015 National Poison Database System, Clinical Pediatrics Journal

- The number of exposures to THC-infused edibles in Colorado children increased 4-fold in 1 year, from 19 cases in 2013 to 95 in 2014.
  2015 Rocky Mountain Poison & Drug Center

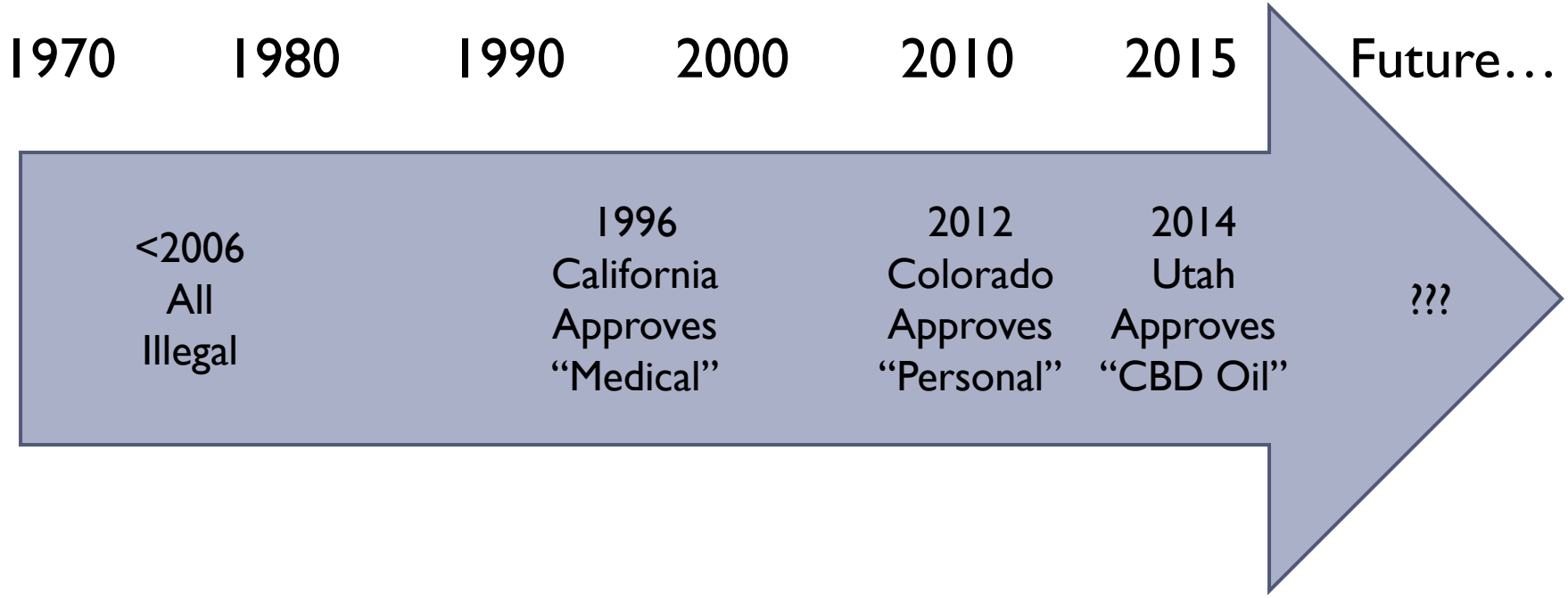
"Personal Use" Marijuana:
Case Studies

- Since legalization in Washington State in 2012, poison center calls related to THC-infused products increased 312.5% & calls related to marijuana oil increased 850% over the course of 3 years.
  2016 Northwest High Intensity Drug Trafficking Area, Washington State Poison Center

- Marijuana was involved in 98% of 2013-2014 Seattle Public School student drug violations, plus 48% of Washington State student expulsions & 42% of suspensions.
  2016 Northwest High Intensity Drug Trafficking Area

- College student daily marijuana use surpassed cigarette smoking for the 1st time, increasing to 5.9%, the highest level since 1980.
  2014 Monitoring the Future Survey/University of Michigan

U.S. Marijuana Policy Continuum



Changing Attitudes: Quest & compassion for therapy, financial incentives, social justice, privacy concerns, social media/internet, etc.?

Critical Considerations: Medical efficacy, research outcomes, public safety & holistic policy!

Marijuana: Healing or Hurting?
Parting Thoughts…

- Clear the language clutter & confusion.
- Skepticism can be healthy ("How do you know?").
- Scientifically vet non-psychoactive CBD for medical possibilities.
- Psychoactive marijuana (mind-altering THC) is another matter.
- Don't leave public safety out of the conversation.
- #1 question: "Is it good for Iowa kids?"
- Accelerate research, heighten education & foster understanding.

Drug Prevention Info To Go…

- Drug use is a preventable behavior, & drug addiction is a treatable disease. Key influencers do make a difference.

- Teens who learn about drug dangers through ongoing dialogue at home are up to 50% less likely to ever use them.

- A frequent reason cited by drug free teens for deciding to not use drugs is the fear of disappointing their parents.

Share the News & Stay Safe!

Iowa Office of Drug Control Policy

www.Iowa.Gov/ODCP