LESSONS LEARNED AFTER 4 YEARS OF MARIJUANA LEGALIZATION

OCTOBER 2016

Reviewed by researchers from:
University of Colorado at Denver
Johns Hopkins University
Harvard Medical School
Children's Hospital Boston
University of Kansas

SAM Smart Approaches to Marijuana
preventing another big tobacco
www.learnaboutsam.org

COLORADO & WASHINGTON STATE SINCE LEGALIZATION

In the wake of multimillion-dollar political campaigns funded with out-of-state money, Colorado and Washington voted to legalize marijuana in November 2012. Though it would take more than a year to set up retail stores, personal use (CO, WA) and home cultivation (in CO, which includes giving away of up to six plants) were almost immediately legalized after the vote.

Public marijuana use, though illegal, remains a common way to observe the law. Also, a brand-new marijuana industry selling candies, cookies, waxes, sodas, and other marijuana items has exploded—and with it a powerful lobby to fight any sensible regulation.

Though it is still early—the full effects on mental health and educational outcomes, for example, will take many more years to fully develop—these "experiments" in legalization and commercialization are not succeeding by any measure.

Colorado now leads the country in past-month marijuana use by youth, with Washington not much further behind. Other states that have since legalized marijuana occupy 4th place (District of Columbia) and 5th place (Oregon). States with lax "medical marijuana" laws occupy 2nd and 3rd place (Vermont and Rhode Island, respectively).

Additionally, as explained in greater detail below, the laws have had significant negative impacts on public health and safety, such as:

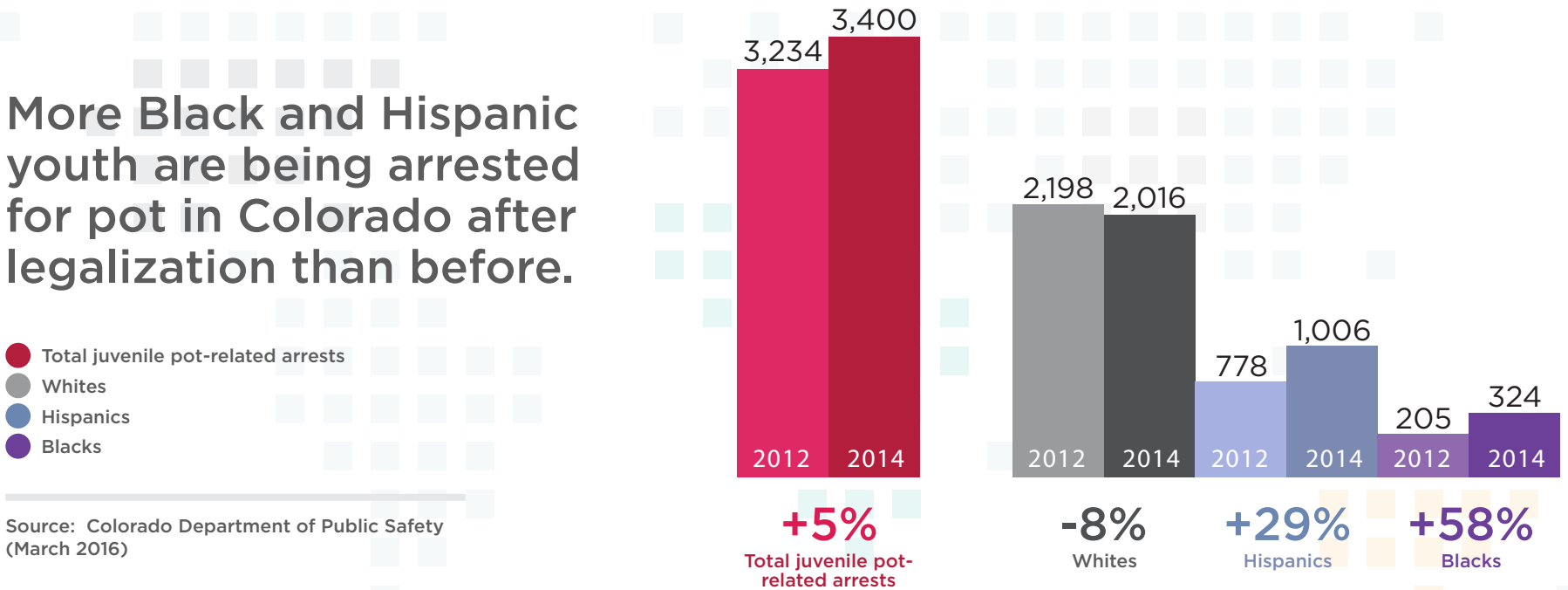
- Rising rates of pot use by minors
- Increasing arrest rates of minors, especially black and Hispanic children
- Higher rates of traffic deaths from driving while high
- More marijuana-related poisonings and hospitalizations
- A persistent black market that may now involve increased Mexican cartel activity in Colorado

The federal government, through the Department of Justice (DOJ), announced it would initially take a hands-off approach to state implementation of legalization, instead promising to track eight specific consequences—from youth marijuana use to use on public lands—and determine action later. So far, however, neither the federal nor state authorities have implemented a robust public tracking system for these criteria. This failure led the U.S. Government Accountability Office (GAO) to criticize DOJ in 2016 for not appropriately monitoring and documenting legalization outcomes. As of the date of this publication, there has been no word from the Department of Justice about state marijuana program compliance with any of the eight criteria it identified. Quietly, however, state agencies such as the Colorado Department of Public Safety, have released scathing updates on marijuana data indicators.

THOUGH IT IS STILL EARLY, THESE "EXPERIMENTS" IN LEGALIZATION ARE NOT SUCCEEDING.

In the meantime, the promises of tax revenue windfalls and decreased crime have not materialized. Pot tax revenue comprises a tiny fraction of the Colorado state budget—less than one percent—and after costs of enforcement are subtracted, the remaining revenue is very limited. Some Colorado school districts have not seen a single dollar of new funding from state pot taxes, such as those in Denver. And in Washington State, half of the marijuana tax money legalization advocates promised for prevention and schools has been siphoned off into the state's general fund.

More Black and Hispanic youth are being arrested for pot in Colorado after legalization than before.



Source: Colorado Department of Public Safety (March 2016)

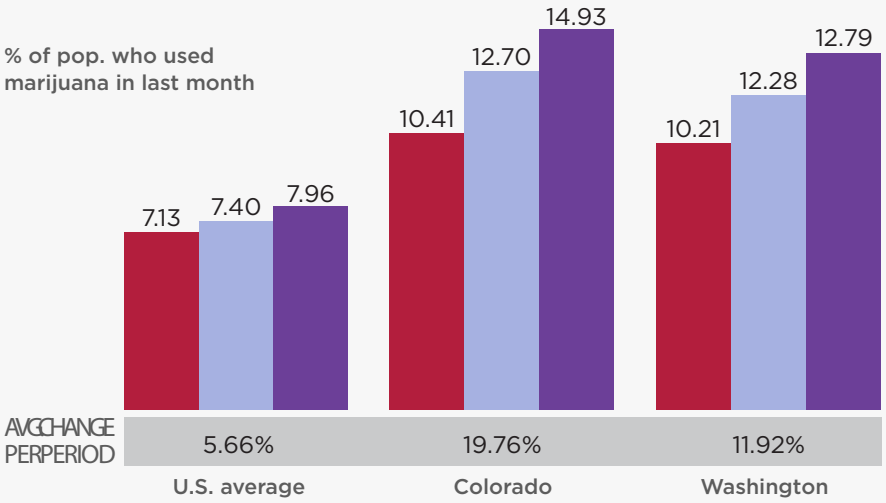
YOUTH MARIJUANA USE SINCE LEGALIZATION

Since Colorado and Washington State legalized marijuana, regular use of the drug among children aged 12-17 has been both above the national average and rising faster than the national average.

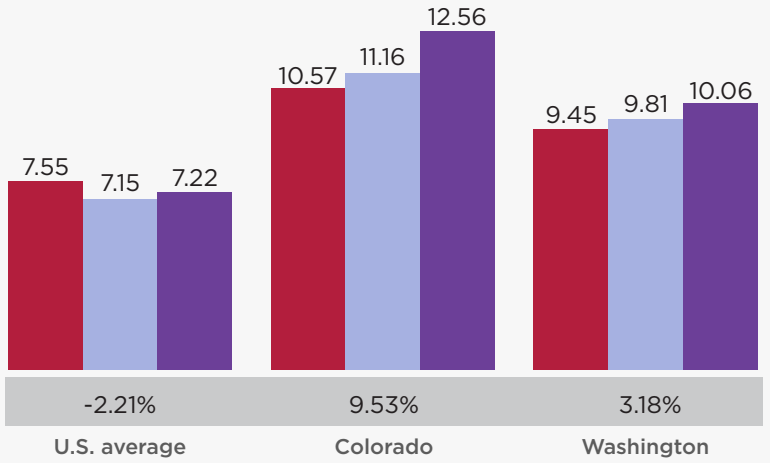
Moreover, Colorado now leads the nation among 12 to 17-year-olds in (A) last-year marijuana use, (B) last-month marijuana use, and (C) the percentage of people who try marijuana for the first time during that period ("first use").

Washington State, for its part, now ranks sixth place for last-month and last-year use by the same age cohort, up from 12th and 14th place, respectively, before legalization. It also now ranks 10th in the nation for "first use" among 12 to 17-year-olds, up from 16th place in 2011-2012.

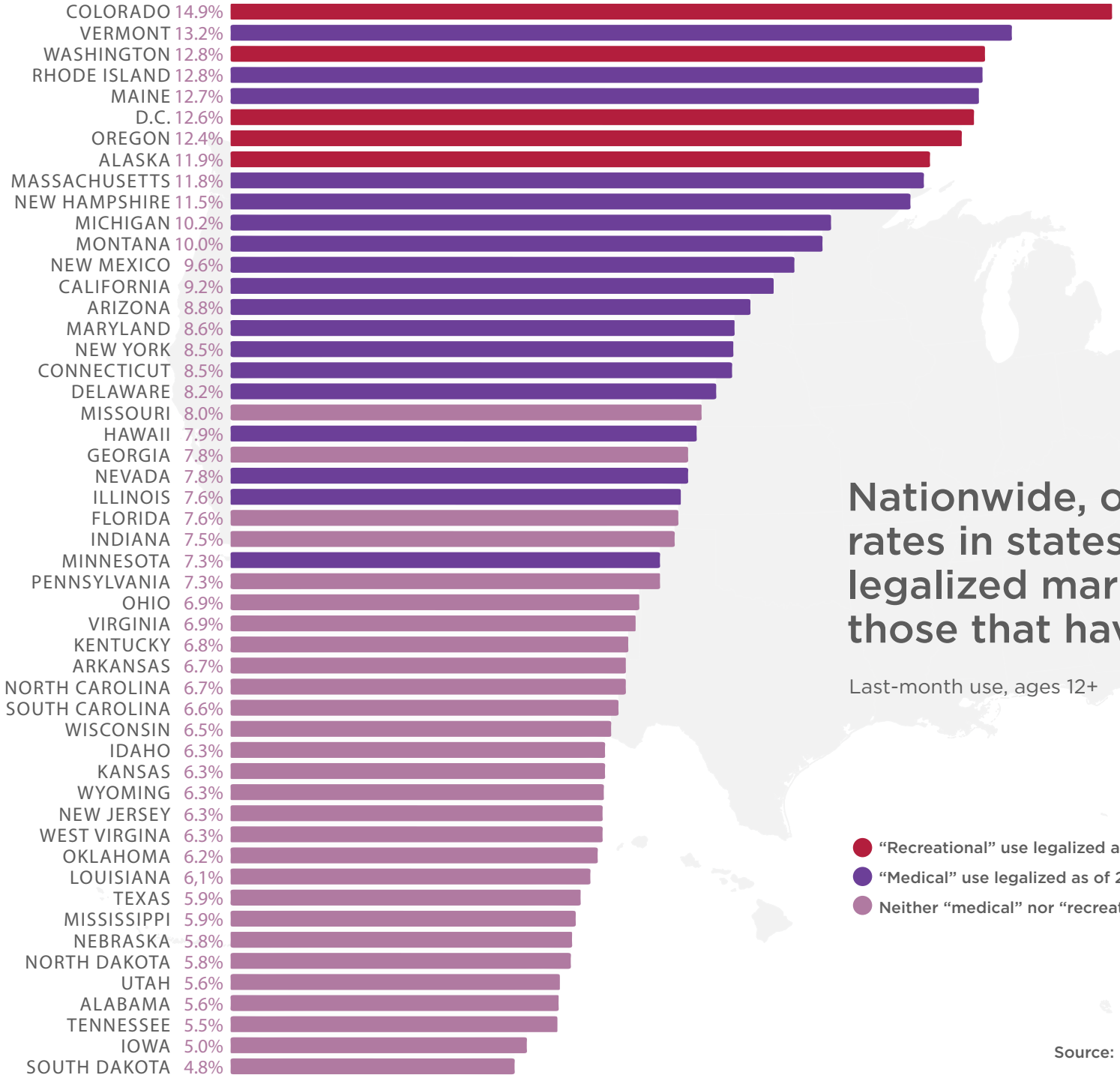
Overall use in CO and WA is both higher than and rising faster than the national average



The same trend is seen among minors (ages 12-17)



Source: NSDUH state estimates

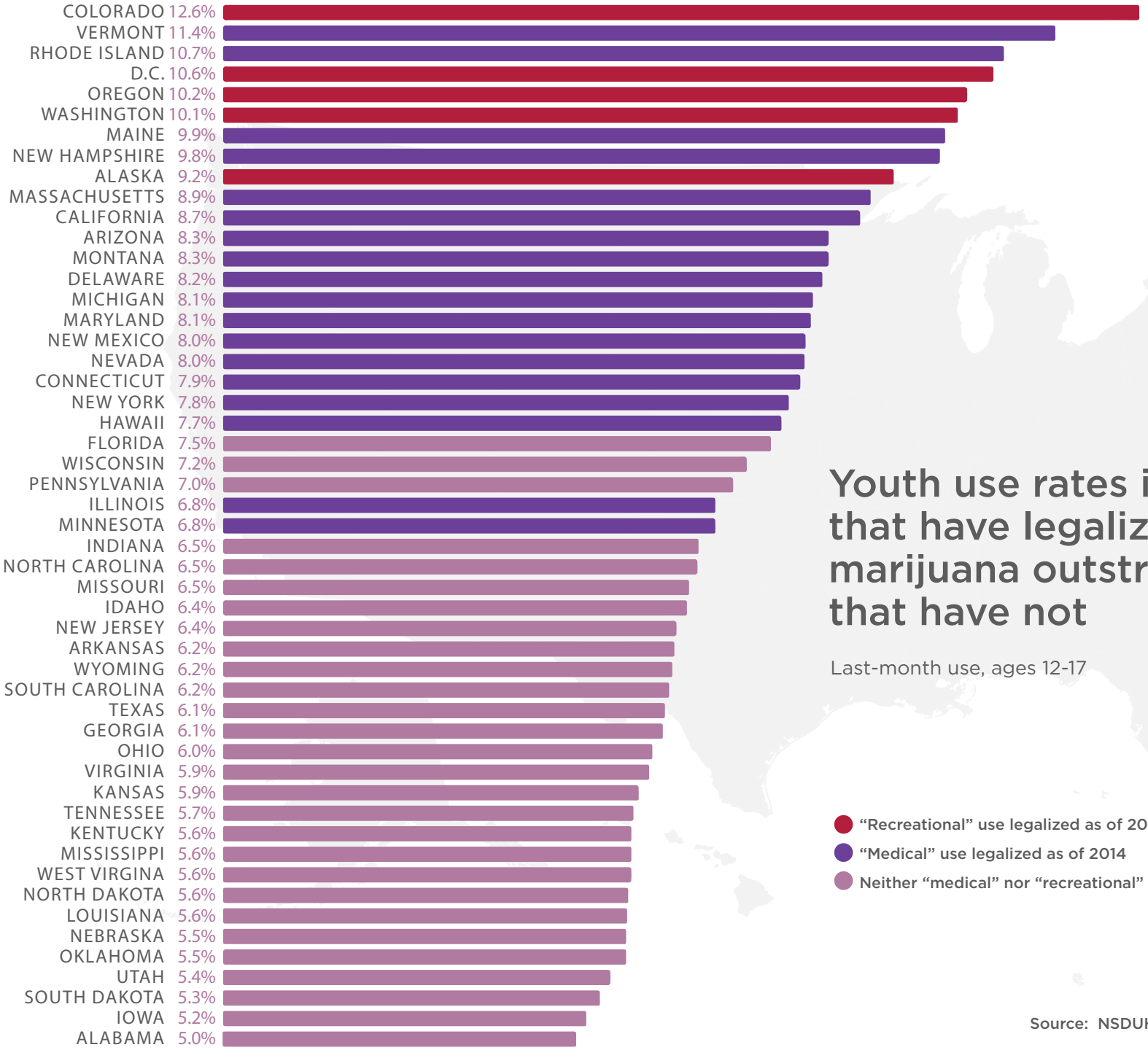


Nationwide, overall use rates in states that have legalized marijuana outstrip those that have not

Last-month use, ages 12+

- “Recreational” use legalized as of 2014
- “Medical” use legalized as of 2014
- Neither “medical” nor “recreational” use legalized as of 2014

Source: NSDUH state estimates (2013-2014)



Youth use rates in states that have legalized marijuana outstrip those that have not

Last-month use, ages 12-17

- “Recreational” use legalized as of 2014
- “Medical” use legalized as of 2014
- Neither “medical” nor “recreational” use legalized as of 2014

Source: NSDUH state estimates (2013-2014)

COLORADO NOW RANKS #1 IN MARIJUANA USE BY MINORS

The only nationally representative survey looking at drug use prevalence among U.S. households is the National Survey on Drug Use and Health (NSDUH). According to NSDUH—the decades-old gold standard for information on a wide range of substance abuse topics—marijuana use in Colorado and Washington has increased over the past decade.

In contrast, recent headlines claiming that use has not gone up in Colorado derive from an analysis of results from a state study, the Colorado Healthy Kids Survey (CKHS). State studies like CHKS often feed into the Centers for Disease Control Youth Behavior Risk Survey (YRBS). The CKHS, however, has been excluded from the CDC YRBS survey because of its unreliability. It does not contain reliable data for two reasons. First, it suffers from serious methodological flaws. It is not a representative sample of Colorado schools, and excludes both the second-most-populous and third-most-populous counties altogether (Jefferson and Douglas Counties, respectively). It also omits schools in El Paso County, home to Colorado Springs, and excludes kids across the state who are not in school (*e.g.*, dropouts). Also, the survey designers decided, without explanation, to set the threshold for statistical significance far higher, meaning that differences that would usually be statistically significant would not appear to be so under the new standard. Thus, the CKHS methodology is so flawed that the CDC does not use it for its YRBS survey.

Second, a deeper dig of the CHKS results reveals distressing news. Youth use has actually risen statewide since legalization according the survey, at about the same rate tobacco use has fallen in that same timeframe. Moreover, this increase since 2013 halted a four-year trend of declining

Colorado ranking among 50 states & DC (regular use, kids 12-17 yrs. old)

Retail stores open	2013-2014	1
Recreational marijuana passes	2012-2013	3
	2011-2012	4
	2010-2011	5
	2009-2010	4
Medical marijuana commercialized	2008-2009	1
	2007-2008	4
	2006-2007	8
	2005-2006	14
	2004-2005	8
	2003-2004	9
	2002-2003	10

Source: NSDUH state estimates

marijuana use—the turning point occurred exactly when the state legalized pot. Nonetheless, most press coverage has glossed over this point.

Additionally, swings in youth use per the CHKS are quite large in some counties where pot shops are prevalent. For instance, the Summit/Eagle/Vail area reported a 90% increase in use among high school seniors in the last two years, and NW Steamboat/Craig showed a 58% increase in the same timeframe. Not only does this suggest serious problems in those areas, such wild swings in short periods of time also call into question the robustness of the data set. (In fact, other areas show large swings in the other direction; another area just two regions over from NW Steamboat/Craig showed a 34% decrease in use among seniors in the same timeframe—a very sharp and unusual contrast.)

Regular Pot Use Has Gone Up Among 18 to 24 Year- Olds in Washington Since Legalization

Source: NW HIDTA Report, citing the Forecasting and Research Division of the Washington State Office of Financial Management

BLACK MARKET ACTIVITY SINCE LEGALIZATION

Despite claims to the contrary, legalization has not reduced black market marijuana activity in Colorado. In February 2015, Colorado Attorney General Cynthia Coffman told reporters: "The criminals are still selling on the black market. ... We have plenty of cartel activity in Colorado (and) plenty of illegal activity that has not decreased at all."

Lt. Mark Comte of the Colorado Springs Police Vice and Narcotics Unit similarly commented that legalization "has done nothing more than enhance the opportunity for the black market." Indeed, a federal law enforcement official characterized Colorado as "the black market for the rest of the country," a statement supported by the sharp increase in seizures of marijuana mailed out of Colorado since legalization.

Moreover, the legalization of pot in Colorado appears to have opened the door for Mexican cartel operations in the heart of the United States. A representative of the Colorado Attorney General's office noted in 2016 that legalization "has inadvertently helped fuel the business of Mexican drug cartels...cartels are now trading drugs like heroin for marijuana, and the trade has since opened the door to drug and human trafficking."

Similarly, the Drug Enforcement Administration reported that "since 2014, there has been a noticeable increase in organized networks of sophisticated residential [marijuana] grows in Colorado that are orchestrated and operated by drug trafficking organizations." The mayor of Colorado Springs, John Suthers, agreed, stating that "Mexican cartels are no longer sending marijuana into Colorado, they're now growing it in Colorado and sending it back to Mexico and every place else," hiding in plain sight among legal operations.

"THE CRIMINALS ARE STILL SELLING ON THE BLACK MARKET. ...WE HAVE PLENTY OF CARTEL ACTIVITY IN COLORADO (AND) PLENTY OF ILLEGAL ACTIVITY THAT HAS NOT DECREASED AT ALL."

Colorado Attorney General Cynthia Coffman

A POSSIBLE LINK TO **HOMELESSNESS**

The easy availability of marijuana post-legalization also appears to have swelled the ranks of Colorado's homeless population. While overall U.S. homelessness decreased between 2013 and 2014 as the country moved out of the recession, Colorado was one of 17 states that saw homeless numbers increase during that time. Perhaps not coincidentally, it was also when Colorado legalized "recreational-use" marijuana and allowed retail sales to begin.

In the Denver metropolitan area, where over half of the state's homeless live, shelter usage grew by about 50 percent, from around 28,000 accommodations per month in July 2012 to 42,000 per month in November 2015. Surveys at Denver shelters estimate that about 20 to 30 percent of the newcomers are there for the easy access to pot. A shelter for younger people placed that number even higher, with a spokesman indicating that "at least one in three [residents] were saying said they were here in Denver because of the legalization of marijuana … [t]hat has become our new normal."

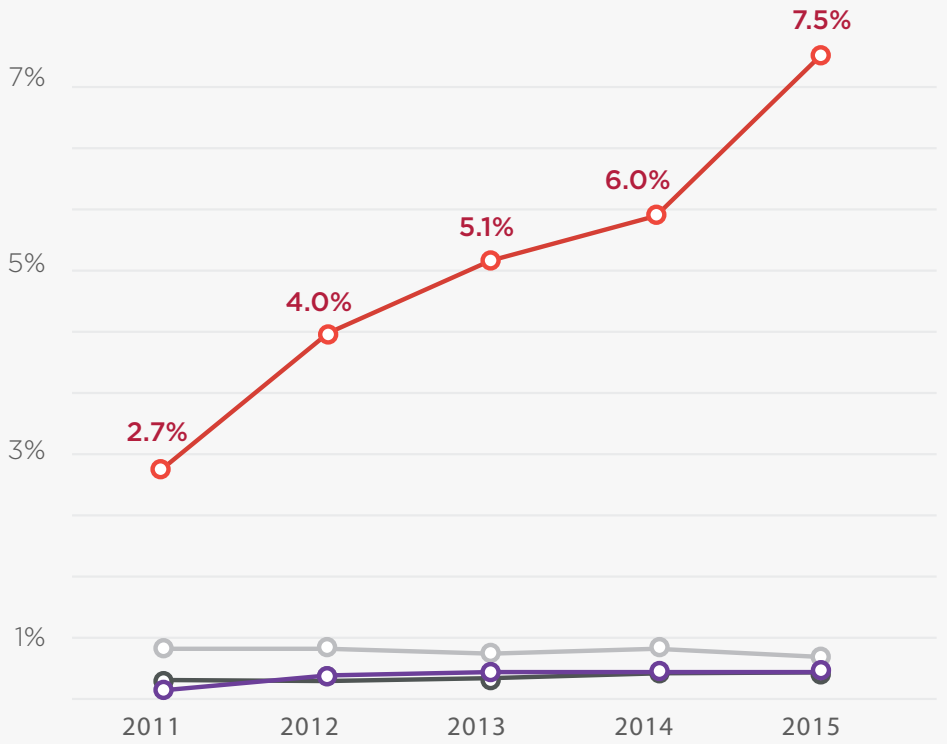
IMPACT ON BUSINESSES AND THE WORKFORCE

Marijuana legalization also involves significant downsides to existing businesses. As marijuana use has increased in states that have legalized its use, so has use by employees, both on and off the job. Large businesses in Colorado now state that after legalization they have had to hire out-of-state residents in order to find employees that can pass a pre-employment drug screen.

The CEO of large Colorado construction company GE Johnson has said that "his company has encountered so many job candidates who have failed pre-employment drug tests because of their THC use that it is actively recruiting construction workers from other states." And the owner of Colorado Springs construction company Avalanche Roofing & Exteriors told *The New York Times* that in Colorado, "to find a roofer or a painter that can pass a drug test is unheard-of."

The data from major drug

POSITIVE WORKPLACE ORAL DRUG TEST RESULTS



	MARIJUANA	OPIATES	COCAINE/ METABOLITE	AMPHETAMINE
AVG ANNUAL CHG 2011-15	29.1%	-5.3%	2.9%	22.3%
% CHANGE 2011-15	177.8%	-19.6%	12.2%	124.0%

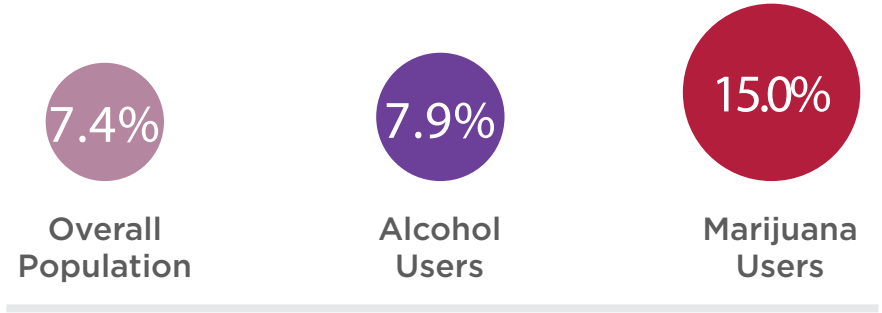
Source: Quest Diagnostics, 2015 data from over 900k tests from Jan to Dec 2015.

Accidents, injuries, absenteeism, and disciplinary problems among pot users all increase costs

CONTROL GROUP (TESTED NEGATIVE FOR POT USE)		POT USERS
100%	INDUSTRIAL ACCIDENTS	155%
100%	DISCIPLINARY PROBLEMS	155%
100%	ABSENTEEISM	178%
100%	INJURIES	185%

testing firm Quest Diagnostics, which analyzes the results millions of workplace drug tests each year, recently reported a 47% spike in the rate of positive oral marijuana test results in U.S. workplaces from 2013 to 2015 — and more detailed data shows an incredible 178% rise in that rate from 2011 to 2015. The same study also indicates that after years of declining drug use in the workplace, the percentage of employees in the combined U.S. workforce testing positive for drugs has steadily risen over the last three years to a reach 10-year high.

PERCENTAGE OF PEOPLE WHO MISSED WORK DURING THE PAST 30 DAYS "BECAUSE [THEY] JUST DIDN'T WANT TO BE THERE"



Source: NSDUH tables

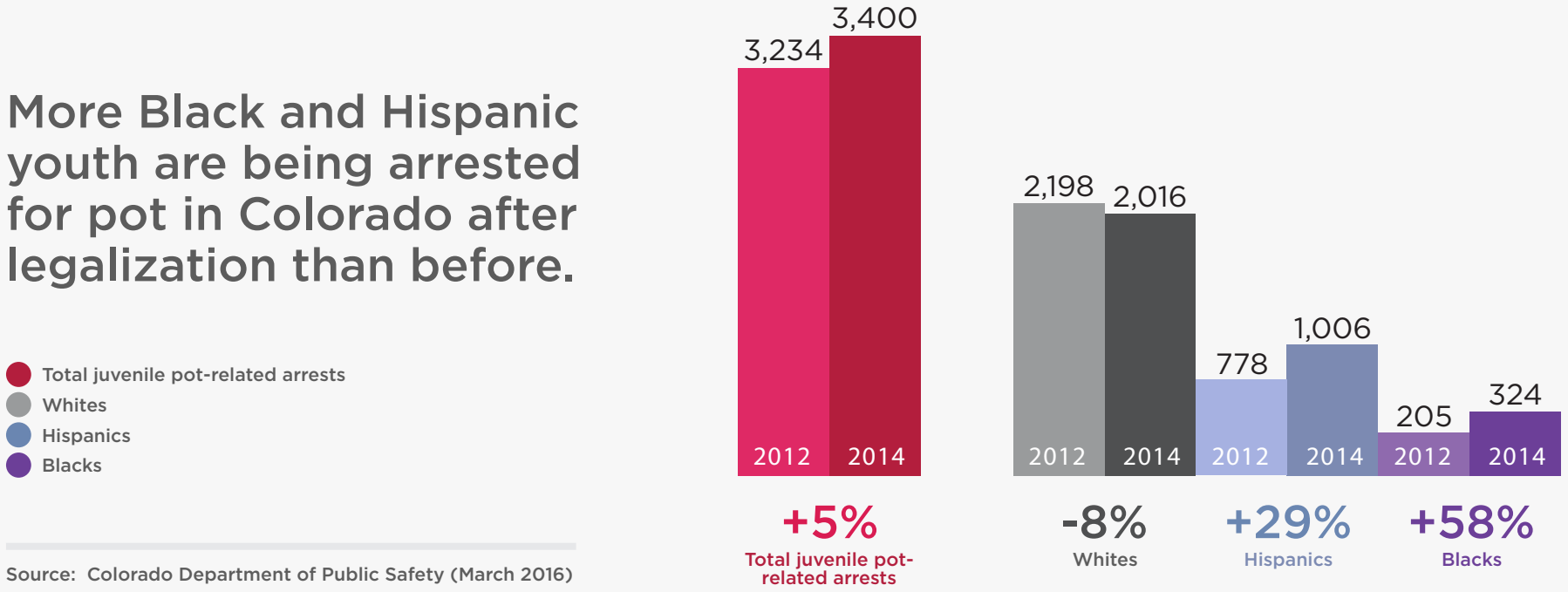
IMPACT ON COMMUNITIES OF COLOR

A 2016 investigation by the Denver Post revealed that a "disproportionate share" of marijuana businesses are now located in lower-income and minority communities in Denver, communities that often suffer disparate impacts of drug use. One of Denver's lower-income neighborhoods has one marijuana business for every 47 residents.

This is similar to a Johns Hopkins study that showed that predominantly black, low-income neighborhoods in Baltimore were eight times more likely to have carry-out liquor stores than white or racially integrated neighborhoods.

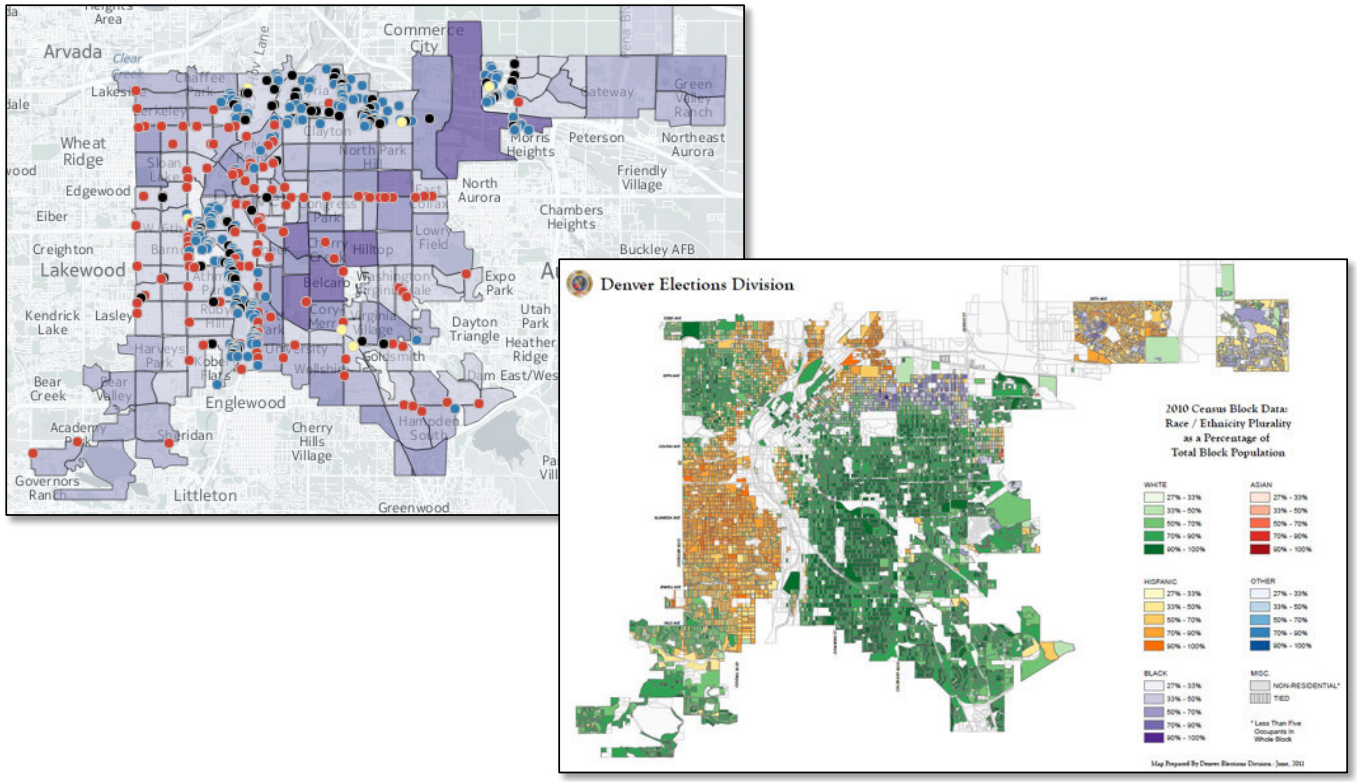
And in Colorado, ironically, more Hispanic and black kids are being arrested for marijuana after the state legalized pot in 2012 than before. Between 2012 and 2014, the number of Hispanic and black kids under 18 years old arrested for marijuana-related offenses rose 29 percent and 58 percent, respectively. At the same time, the number of white kids arrested for the same crimes fell 8 percent.

More Black and Hispanic youth are being arrested for pot in Colorado after legalization than before.



Source: Colorado Department of Public Safety (March 2016)

Locations of pot businesses (dots represent businesses; neighborhoods shaded by income; lighter = lower-income)



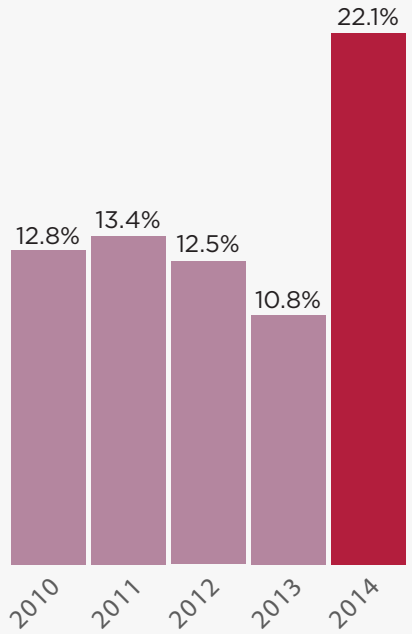
Denver neighborhoods colored by race/ethnicity: green = White; orange = Latino; purple = Black; red = Asian; blue = Other

MARIJUANA BUSINESSES IN DENVER HAVE CONCENTRATED IN NEIGHBORHOODS OF COLOR

DRIVING WHILE HIGH: A SERIOUS AND GROWING PROBLEM IN LEGALIZED STATES

Driving while high is increasingly responsible for traffic fatalities in Colorado and Washington since pot legalization. The percentage of traffic deaths related to marijuana doubled in Washington State the year retail marijuana sales were allowed. In Colorado, marijuana is now involved in more than one of every five deaths on the road, and that number is rising.

Moreover, since the average wrongful death verdict exceeds $1 million, the rising rate of pot-related traffic deaths necessarily implies costs that can quickly exceed any tax revenues earned.

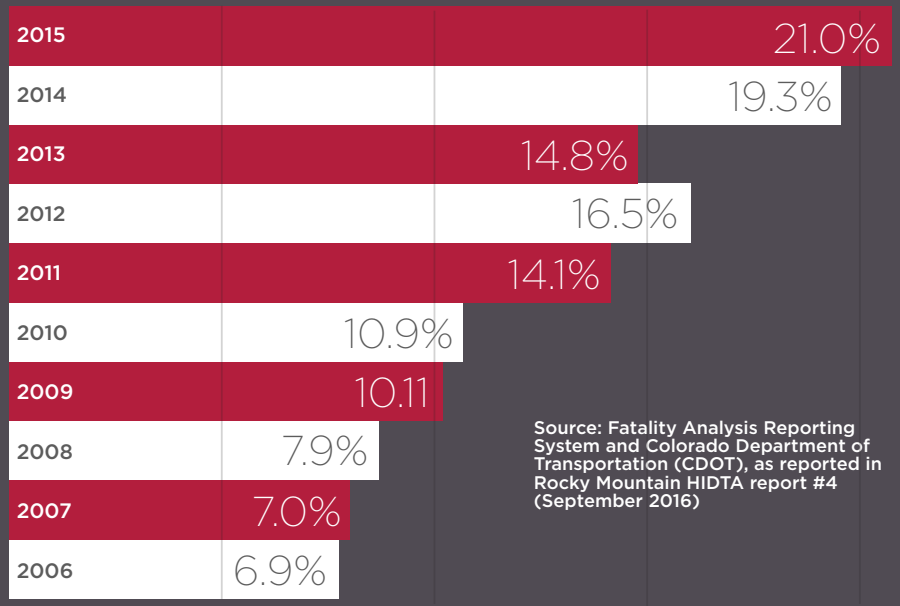


Percentage of WA traffic fatalities where driver tested positive for recent marijuana use

more than doubled the year recreational marijuana sales began.

Source: AAA Foundation for Traffic Safety

Percentage of all traffic fatalities in CO where the operator tested positive for marijuana



Source: Fatality Analysis Reporting System and Colorado Department of Transportation (CDOT), as reported in Rocky Mountain HIDTA report #4 (September 2016)

2015 — **32.7%**

2014 — **28.0%**

2013 — **24.7%**

2012 — **18.6%**

2011 — **20.2%**

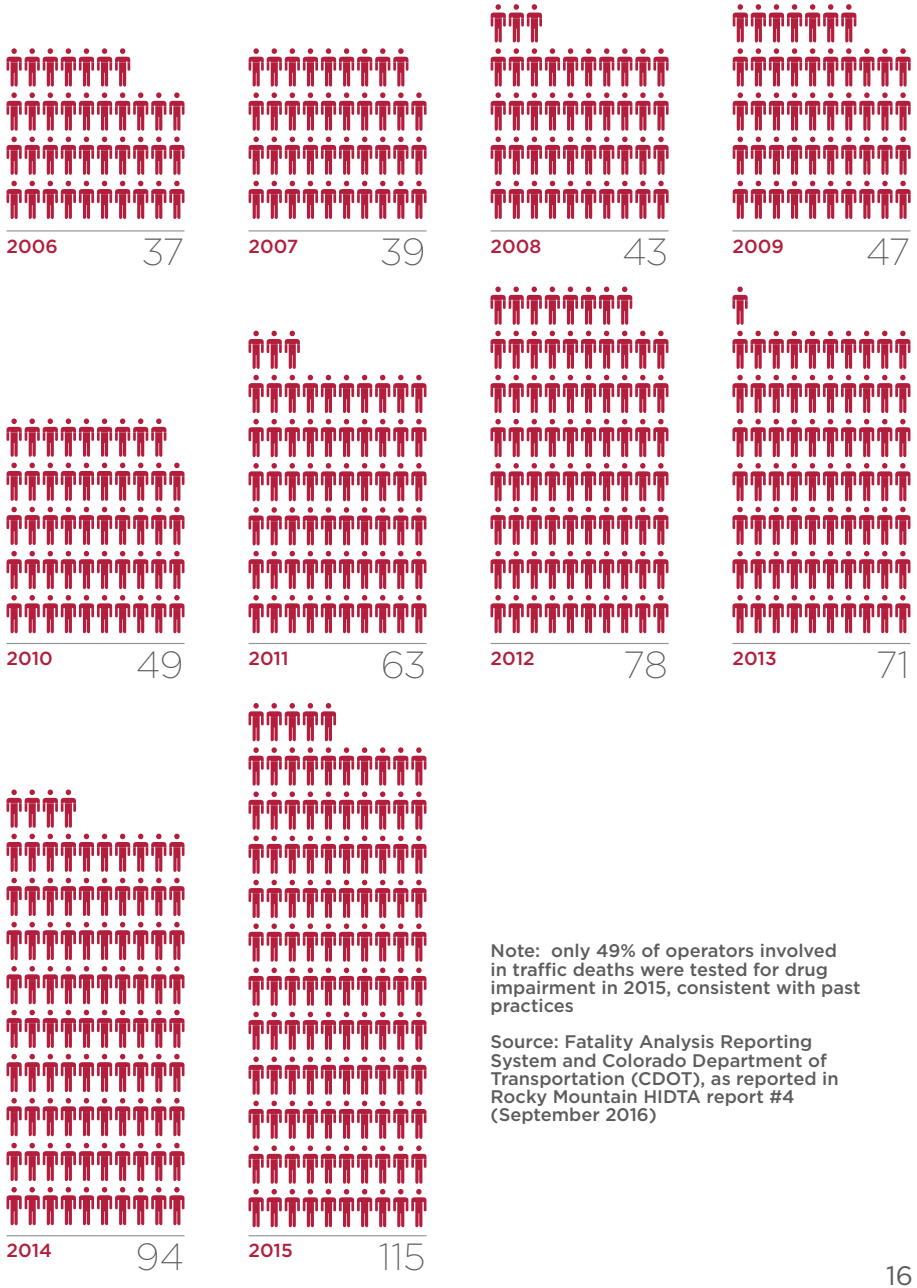
2010 — **19.4%**

2009 — **18.2%**

The percentage of DUI cases relating to driving while high has risen considerably in Washington State since legalization

Source: Washington Traffic Safety Commission

The overall number of traffic deaths related to marijuana has also risen sharply in CO



Note: only 49% of operators involved in traffic deaths were tested for drug impairment in 2015, consistent with past practices

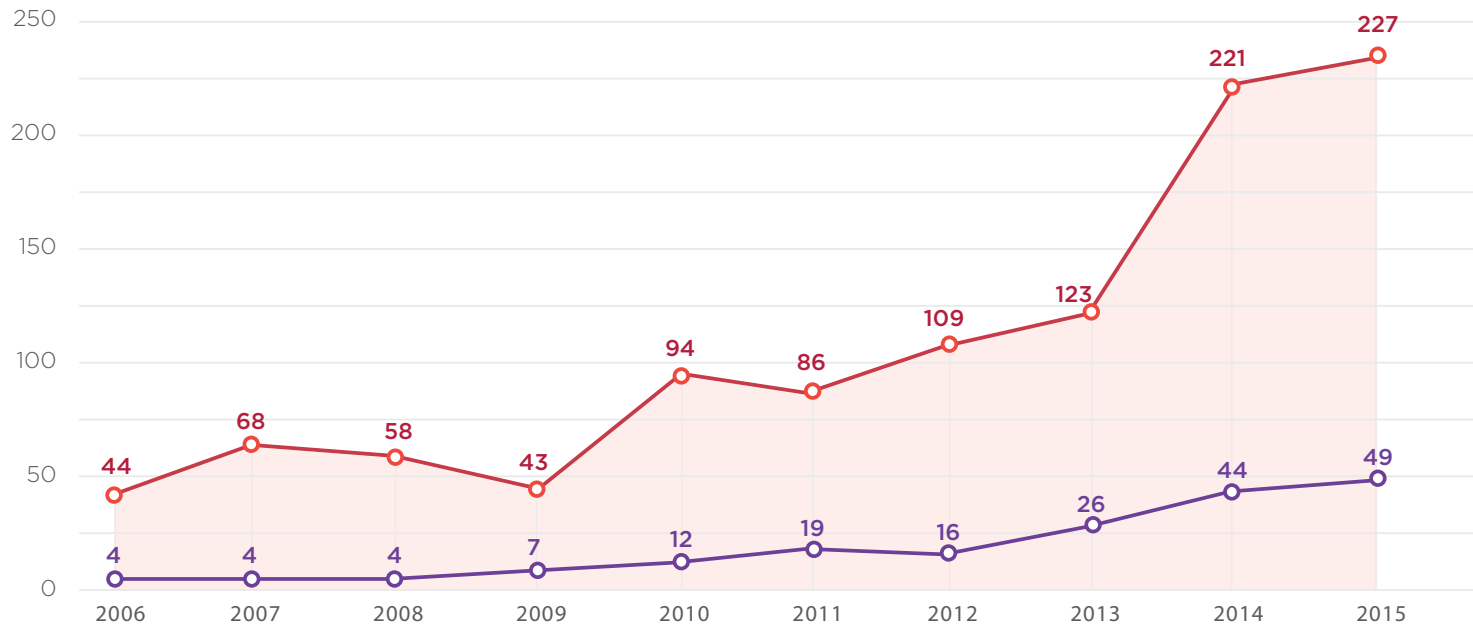
Source: Fatality Analysis Reporting System and Colorado Department of Transportation (CDOT), as reported in Rocky Mountain HIDTA report #4 (September 2016)

Another serious consequence of legalization is the spike in poison control center calls and hospital/ER visits related to marijuana.

Calls to poison control in Washington State surged 68 percent from 2012 (pre-legalization) to 2015, and 109 percent in Colorado over the same timeframe. Even more concerning, calls in Colorado related to children zero to eight years of age rose over 200 percent.

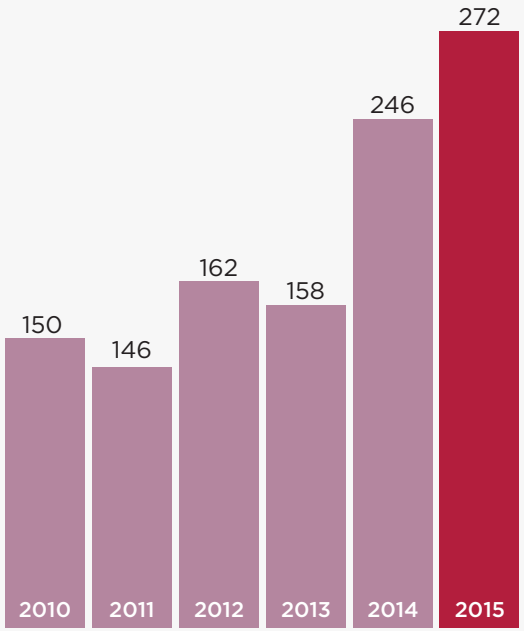
Similarly, hospitalizations related to marijuana in Colorado have increased over 70 percent since legalization, an average of over 30 percent per year. Emergency room visits also spiked, especially for out-of-state visitors. Out-of-state visits to the emergency room for marijuana-related symptoms accounted for 78 of every 10,000 emergency room visits in 2012, compared to 163 for every 10,000 visits in 2014—an increase of 109 percent. Among Colorado residents, the number of marijuana-related visits was 70 for every 10,000 in 2012 compared to 101 for every 10,000 in 2014, a 44 percent increase.

EMERGENCY MARIJUANA-RELATED **POISON CONTROL CALLS IN CO**



	Increase post-legalization (2012-2015):	Avg. annual chg. 2008-2015:
ALL AGES	108%	22%
AGES 0-8	206%	43%

Source: Rocky Mountain Poison and Drug Center



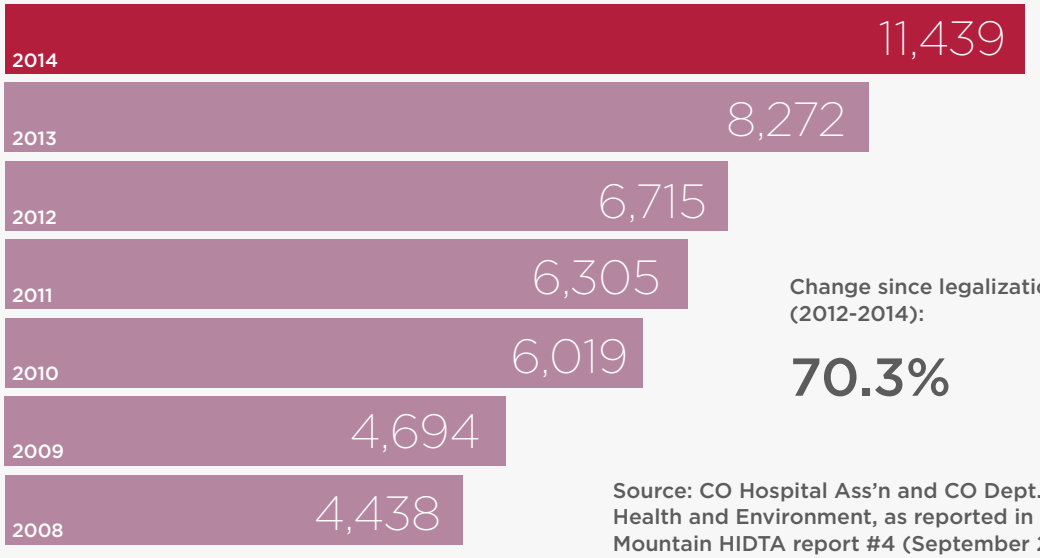
Poison Control Center Calls in Washington State have increased since legalization

Change since legalization (2012-2015):

67.9%

Source: Washington Poison Center

Hospitalizations related to marijuana in CO have increased over 70% since legalization, an average of over 30% per year.



Change since legalization (2012-2014):

70.3%

Source: CO Hospital Ass'n and CO Dept. of Public Health and Environment, as reported in Rocky Mountain HIDTA report #4 (September 2016)

COLORADO'S POWERFUL POT LOBBY PUSHES BACK AGAINST ATTEMPTS TO REGULATE IT

Colorado's pot lobby has been hard at work stacking the deck since legalization passed in 2012, including:

- Blocking legislation to deter use of illegal pesticides that promote marijuana production
- Suing over restrictions on marijuana advertising targeting children
- Proposing legislation to move regulatory authority from Department of Revenue/ Colorado Department of Public Health and Environment to a special committee packed with industry representatives
- Making it more difficult for local initiatives restricting marijuana businesses to be represented on the ballot by raising the threshold for signature collection, from 5% to 15% of the voting electorate
- Sponsoring an initiative in Denver to allow pot smoking in restaurants and cafés

EDIBLES: A GROWING PUBLIC **HEALTH PROBLEM**

Edibles, which now comprise at least half of the Colorado marijuana market, often contain 3-20 times the THC concentration recommended for intoxication.

There have been at least three deaths related to marijuana edibles through 2015.

While Colorado is looking at how to control this industry, the marijuana industry marches on—defending gummis, cupcakes, lollipops, and sodas—similar to how Big Tobacco defended their practices for a century.

Starting in late 2016, Colorado will require edible marijuana products to be stamped with a symbol indicating they contain THC, ostensibly to prevent children from eating them accidentally. But the symbol itself, a diamond with the letters "THC" inside, will do little to deter young children who are unaware of what THC is. Moreover, the marijuana industry successfully defeated an earlier plan to make the label look like an octagonal "Stop" sign, claiming that it implied their products were dangerous. As the photo below suggests, the presence of the stamp on attractive pot candies is certainly does not diminish their attractiveness to kids.

PRIVATE EQUITY AND INSTITUTIONAL CAPITAL **ARE POURING INTO THE MARIJUANA BUSINESS**

The marijuana-focused private equity firm, Privateer Holdings, in partnership with the descendants of Bob Marley, have created a multinational cannabis brand called Marley Natural. Investors have already raised $50 million to launch Marley Natural and other branded marijuana businesses. The political campaigns to legalize marijuana do not mention these branded marijuana products, candies, or advertising practices.

MARIJUANA & DRUG TREATMENT

More people in treatment are selfreporting heavy use of marijuana than ever before. In 2007, 22% of people in treatment in CO reported using the drug heavily. That number has increased every year since, and now 36% of people in treatment for marijuana are heavy marijuana users.

2012

8

2013

184

2014

770

2015

752

Arrests/citations for unlawful public display or consumption of marijuana in Denver. Source: Denver Police Department (reported by Rocky Mountain HIDTA)

2014

3,958

2015

4,454

2016

4,849

Drug/narcotics violations reported in Denver (NIBRS). (2016 data extrapolated from reports from Jan to Sep.) Source: Denver Police Department

CRIME

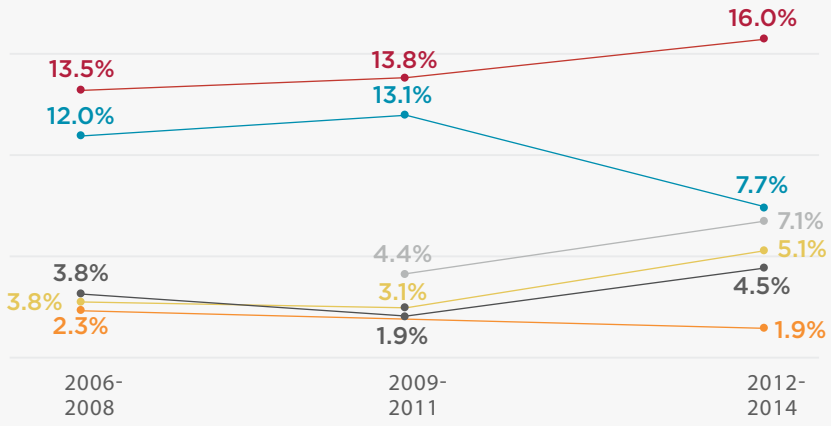
Drug and narcotics crime in Denver has increased at about 11% per year since marijuana legalization. While it is unclear if legalization has caused this increase, it does contradict promises of pro-legalization advocates that legalization would reduce such crime rates.

Indeed, Denver's overall crime rate has risen, as well as rates of serious crimes like murder, motor vehicle theft, aggravated assault, and burglaries. Many marijuana-related offenses, such as public marijuana consumption, have also increased as use has trended up.

Among juveniles, trends suggest that marijuana legalization is associated with a higher incidence of marijuana related offenses in elementary and high schools. More juveniles on probation are testing positive for marijuana than ever before. The rate has increased from 28% to 39% among the youngest cohort (10-14 years old) in just three years.

MARIJUANA, ALONG WITH OPIOIDS, IS INCREASINGLY FOUND IN ADOLESCENT SUICIDE VICTIMS IN COLORADO

Percentage of CO adolescent suicide victims testing positive for intoxicants



Source: Colorado Department of Public Health and Environment, Colorado Violent Death Reporting System (reported by Rocky Mountain HIDTA)

MORE DATA IS NEEDED.

More sophisticated data are sorely lacking with respect to marijuana in Colorado and Washington. Real-time data are needed on both the consequences of legalization and the economic costs of such a policy, such as:

- Emergency room and hospital admissions related to marijuana
- Marijuana potency and price trends in the legal and illegal markets
- School incidents related to marijuana, including representative data sets
- Extent of marijuana advertising toward youth and its impact
- Marijuana-related car crashes, including THC levels even when BAC is over 0.08
- Mental health effects of marijuana
- Marijuana brief intervention and treatment admissions
- Cost of implementing legalization from law enforcement to regulators
- Cost of mental health and addiction treatment related to increased marijuana use
- Cost of needing but not receiving treatment
- Effect on the market for alcohol and other drugs
- Cost to workplace and employers
- Impact on employee productivity

Additionally, of particular concern are recent findings by the independent, non-partisan Government Accountability Office (GAO) that the Department of Justice had not "documented their monitoring process [of marijuana legalization] or provided specificity about key aspects of it[.]" The report detailed statements by DOJ officials that "they did not see a benefit in DOJ documenting how it would monitor the effects of state marijuana legalization," and its author GAO found that "DOJ has not documented its plan for monitoring the effects of the state marijuana legalization."

ALCOHOL CONSUMPTION HAS RISEN IN COLORADO POST-LEGALIZATION

Many legalization advocates suggest that marijuana use will displace alcohol use after legalization. Unfortunately, the opposite trend has occurred in Colorado, with per capita alcohol consumption up slightly since 2012, mirroring studies indicating that marijuana use often accompanies alcohol use instead of replacing it. Moreover, marijuana-laced beers and wines are already being developed that would mix both addictive substances together.

The trend towards use of both substances simultaneously raises additional risks to public safety. Studies show that simultaneous use has an additive effect with respect to roadway impairment.

ABOUT SMART APPROACHES TO MARIJUANA (SAM)

Comprising the top scientists and thinkers in the marijuana research and practice space, SAM works to bridge the gap between the public's understanding of marijuana and what science tells us about the drug. At the local, state, tribal, and federal levels, SAM seeks to align marijuana policy and attitudes about the drug with 21st-century science, which continues to show how marijuana use harms the mind and body. SAM argues against extremes in marijuana policy, and opposes both incarceration for low-level use and blanket legalization, favoring instead a health-based approach to marijuana. Learn more at www.learnaboutsam.org.

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