

Impacts of Marijuana Legalization in Colorado

A Report Pursuant to Senate Bill 13-283

October 2018



COLORADO

Division of Criminal Justice

Department of Public Safety

Colorado Department of Public Safety
Division of Criminal Justice
Office of Research and Statistics

700 Kipling St., Denver, Colorado 80215
<https://www.colorado.gov/dcj-ors>



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Prepared by

Jack K. Reed, Statistical Analyst
Office of Research and Statistics

Stan Hilkey, Executive Director, Department of Public Safety
Joe Thome, Director, Division of Criminal Justice
Kim English, Research Director, Office of Research and Statistics



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Table of Contents

Executive Summary..... 1

Section One: Introduction..... 8

 Background, Limitations and Methods 8

 Data limitations 9

 Data Sources 10

 Data Collection Methodology 11

 Brief History of Marijuana Laws..... 11

 Organization of this report 16

 Summary 17

Section Two: Impact on Public Safety..... 18

 Overview 18

 Offenses and Arrests..... 19

 Marijuana Court Case Filings 28

 Crime Around Marijuana Establishments 31

 Traffic Safety 33

 Probationer Drug Test Results 55

 Illegal Cultivation on Public Lands..... 57

 Diversion Out of State..... 60

 Transfer Using Parcel Services 62

Section Three: Impact on Public Health and Behavioral Health Services 63

 Overview 63

 Adult Usage 63

 Hospitalizations and Emergency Department Visits 78

 Poison Control..... 80

 Treatment Trends 82

 Suicide Rate Trends..... 98

Section Four: Impact on Youth 100

 Overview 100

 Youth Use 101

 Criminal Justice Involvement..... 123

School Data 125

Drug-Endangered Children 136

Section Five: Additional Information 141

 Licensing and Revenue 141

 Medical Marijuana Cardholders..... 156

 Overall Crime in Colorado..... 160

Appendix A: Ogden Memorandum 162

Appendix B: Cole Memorandum..... 166

Appendix C: Marijuana Arrests 171

Appendix D: Offenses reported, by location..... 217

Appendix E: Marijuana Drug seizures, by county 220

Appendix F: Court Filings 240

Appendix G: Certified Drug Recognition Experts, by agency 251

Appendix H: Marijuana Business Licensees, by County..... 254

Appendix I: Distribution of Marijuana Tax and Fee Revenue, FY 2017-18 Flowchart 257



EXECUTIVE SUMMARY

In 2013, following the passage of Amendment 64 which allows for the retail sale and possession of marijuana, the Colorado General Assembly enacted Senate Bill 13-283. This bill mandated that the Division of Criminal Justice in the Department of Public Safety conduct a study of the impacts of Amendment 64, particularly as these relate to law enforcement activities. This report seeks to establish and present the baseline measures for the metrics specified in S.B. 13-283 (C.R.S. 24-33.4-516.)

The information presented here should be interpreted with caution. The majority of the data should be considered baseline and preliminary, in large part because data sources vary considerably in terms of what exists historically. Consequently, it is difficult to draw conclusions about the potential effects of marijuana legalization and commercialization on public safety, public health, or youth outcomes, and this may always be the case due to the lack of historical data. Furthermore, the measurement of available data elements can be affected by very context of marijuana legalization. For example, the decreasing social stigma regarding marijuana use could lead individuals to be more likely to report use on surveys and also to health workers in emergency departments and poison control centers, making marijuana use appear to increase when perhaps it has not. Finally, law enforcement officials and prosecuting attorneys continue to struggle with enforcement of the complex and sometimes conflicting marijuana laws that remain. In sum, then, the lack of pre-commercialization data, the decreasing social stigma, and challenges to law enforcement combine to make it difficult to translate these preliminary findings into definitive statements of outcomes.

Recognizing the challenges involved in interpreting the data presented here, the following is a summary of findings:

Public Safety

Arrests

- The total number of marijuana arrests decreased by 52% between 2012 and 2017, from 12,709 to 6,153. Marijuana possession arrests, which make up the majority of all marijuana arrests, were cut in half (-54%). Marijuana sales arrests decreased by 17%. Arrests for marijuana production increased appreciably (+51%). Marijuana arrests that were unspecified, meaning the specific reason for the arrest was not noted by law enforcement, went down by 45%.
 - The number of marijuana arrests decreased by 56% for Whites, 39% for Hispanics, and 51% for Blacks. The marijuana arrest rate for Blacks (233 per 100,000) was nearly double that of Whites (118 per 100,000) in 2017.
 - Nine large Colorado counties (Adams, Arapahoe, Boulder, Douglas, El Paso, Jefferson, Larimer, Mesa, and Weld) showed a decrease in marijuana arrests, ranging between -8% (Boulder) and -67% (Adams). The average decline across these nine counties was -46%.



- Separate data provided by the Denver Police Department's Data Analysis Unit indicates an 81% decrease in total marijuana arrests, from 1,605 in 2012 to 302 in 2017.
 - The most common marijuana industry-related crime in Denver was burglary, accounting for 59% of marijuana crime related to the industry in 2017.

Court filings

- The number of marijuana-related court filings declined 55% between 2012 and 2017, from 11,753 to 5,288.
 - The number of cases with a marijuana-related felony as the top charge declined initially (986 in 2012 to 418 in 2014) but rebounded to near pre-legalization levels (907 in 2017).
 - This contrasts with the decline in misdemeanors (down 13%) and petty offenses (down 62%) between 2012 and 2017.
 - Filings fell by 1% for juveniles 10 to 17 years old, by 28% for young adults 18 to 20 years old, and by 67% for adults ages 21 or older.
- In terms of organized crime, the number of court filings charged with the Colorado Organized Crime Control Act (C.R.S.18-17.104) that were linked to some marijuana charge increased from 31 in 2012 to 119 in 2017.
 - The types of charges associated with COCCA filings that increased most were manufacturing of marijuana or marijuana products (25 to 142) and possession of marijuana with intent to sell (32 to 124).

Traffic Safety

- The increase in law enforcement officers who are trained in recognizing drug use, from 129 in 2012 to 214 in 2018, can increase drug detection rates apart from any changes in driver behavior.
- Traffic safety data were obtained from a number of different sources. Please note that traffic safety data may be incomplete because law enforcement officers may determine that alcohol is impairing the driver, and therefore additional (time consuming and costly) drug testing may not be pursued.
- The total number of DUI citations issued by the Colorado State Patrol (CSP) decreased from 5,705 in 2014 to 4,849 in 2017. The prevalence of marijuana or marijuana-in-combination identified by Patrol officers as the impairing substance increased from 12% of all DUIs in 2014 to 15% in 2017.



- In 2016, the most recent data available, 27,244 cases were filed in court that included a charge of driving under the influence; 17,824 of these were matched with either a breath or blood test.¹
 - Of these, 3,946 had blood samples screened for the presence of marijuana: 2,885 cases (73.2%) had a positive cannabinoid screen and a follow-up confirmation for other cannabis metabolites, and 47.5% detected Delta-9 THC at 5.0 ng/mL or above.
- According to CDOT, the number of fatalities in which a driver tested positive for Delta-9 THC at or above the 5.0 ng/mL level declined from 52 (13% of all fatalities) in 2016 to 35 in 2017 (8% of all fatalities).
 - The number of fatalities with cannabinoid-only or cannabinoid-in-combination positive drivers increased 153%, from 55 in 2013 to 139 in 2017.
 - However, note that the detection of any cannabinoid in blood is not an indicator of impairment but only indicates presence in the system. Detection of Delta-9 THC, one of the primary psychoactive metabolites of marijuana, may be an indicator of impairment.
- A 2017 survey conducted by the Colorado Department of Public Health and Environment found that 3.0% of adults reported driving within two-to-three hours of using marijuana in the past-30 days, while 19.7% of recent marijuana users reported this behavior.

Probationers testing positive

- The proportion of 18 to 25 year-old probationers testing positive for THC increased, from 32% in 2012 and 41% in 2017. The proportion of 36 and older probationers testing positive for THC also increased, from 14% in 2012 to 21% in 2017.

Illegal cultivation on public land

- The number of plants seized on public lands increased. There were 80,926 plants seized in 2017, up 73% from 46,662 in 2012.

Diversion to other states

- The Colorado Information Analysis Center (CIAC), located in the Department of Public Safety, compiled data from the El Paso Intelligence Center (EPIC), manages a database in which law enforcement agencies can voluntarily report drug seizures. The number of seizures for Colorado-sourced marijuana reported to EPIC increased from 286 in 2012 to 608 in 2017.
 - The types of marijuana products seized has changed over time, with marijuana concentrates accounting for 26% of seizures and edibles accounting for another 16% in

¹ Please see http://cdpsdocs.state.co.us/ors/docs/reports/2018-DUI_HB17-1315.pdf for more information.



2017. In 2012, both of those categories combined accounted for 10% of marijuana seizures reported to EPIC.

Public Health

Adult usage rates

- The Colorado Behavioral Risk Factor Surveillance System (BRFSS) is a statewide telephone survey conducted by the Colorado Department of Public Health and Environment (CDPHE). In 2014, the BRFSS was expanded to include questions about marijuana use.
 - In 2017, 15.5% of adults reported marijuana use in the past 30 days, compared to 13.6% in 2014, a significant increase. Also, in 2017, 7.6% reported daily or near daily use. This compares to 6.0% in 2014, a significant increase.
 - Males have significantly higher past 30-day use (19.8%) than females (11.2%).
 - Adults ages 18-25 reported the highest past 30-day usage rates (29.2%), followed by 26-34 year olds (26.4%), 35-64 year olds (12.5%), and those 65 years and older (5.6%).
- According to the National Survey on Drug Use and Health, administered by the federal Substance Abuse and Mental Health Services Administration, the prevalence rates for marijuana use in the past 30 days increased for young adults (18- to 25-years old), from 21.2% in 2005/06 (pre-commercialization) to 31.2% in 2013/14 (post-commercialization), but stabilized at 32.2% in 2015/16. Reported 30-day marijuana use by adults ages 26 years and older increased from 5% in 2005/06 to 14% in 2015/16.

Hospitalizations and emergency department visits

- The Colorado Department of Public Health and Environment (CDPHE) analyzed data from the Colorado Hospital Administration (CHA) with these findings:
 - Hospitalization rates (per 100,000 hospitalizations) with possible marijuana exposures, diagnoses, or billing codes increased from 803 per 100,000 before commercialization (2001-2009) to 2,696 per 100,000 after commercialization (January 2014-September 2015). The period from October 2015-December 2015 indicated another increase, but due to changes in coding systems, variable structures, and policies at CHA, the numbers for 2016 are considered preliminary by CDPHE.
 - The period of retail commercialization showed an increase in emergency department visits, from 739 per 100,000 ED visits (2010–2013) to 913 per 100,000 ED visits (January 2014–September 2015). There was no definitive trend during the period October 2015-December 2015 and, due to changes in coding systems, variable structures, and policies at CHA, these figures for 2016 are considered preliminary by CDPHE.



Poison control

- The number of calls to poison control mentioning human marijuana exposure increased over the past 10 years. There were 45 calls in 2006 and 222 in 2017. Between 2014 and 2017, the frequency of calls reporting human marijuana exposure stabilized.

Youth Impacts

Usage rates

- Data on youth marijuana use was available from two sources. The Healthy Kids Colorado Survey (HKCS), with 47,146 high school and 6,704 middle school students responding in 2017, and the National Survey on Drug Use and Health (NSDUH), with about 512 respondents in 2015/16.
 - HKCS results indicate no significant change in past 30-day use of marijuana between 2013 (19.7%) and 2017 (19.4%). Also, in 2017, the use rates were not different from the national 30-day use rates reported by the Youth Risk Behavior Survey.² In 2017, 19.4% of Colorado high school students reported using marijuana in the past 30-days compared to 19.8% of high school students nationally that reported this behavior.
 - The 2017 HKCS found that marijuana use increases by grade level, with 11.0% of 9th graders, 17.7% of 10th graders, 23.7% of 11th graders, and 25.7% of 12th reporting use in the past 30-days.
 - The 2015/16 NSDUH, with many fewer respondents compared to HKCS, indicated a gradual increase in youth use from 2006/07 (9.1%) to 2013/14 (12.6%); however, the last two years showed decreased use, with 9.1% reporting use in 2015/16. The NSDUH showed that youth use of marijuana in Colorado (9.1%) was above the national average (6.8%).

Arrests

- The number of juvenile marijuana arrests decreased 16%, from 3,168 in 2012 to 2,655 in 2017. The rate of juvenile marijuana arrests per 100,000 decreased from 583 in 2012 to 453 in 2017 (-22%).
 - The number of White juvenile arrests decreased from 2,146 in 2012 to 1,703 in 2017 (-21%).
 - The number of Hispanic juvenile arrests decreased from 767 in 2012 to 733 in 2017 (-4%).
 - The number of Black juvenile arrests decreased from 202 in 2012 to 172 in 2017 (-15%).

² The YRBS is the comparable survey overseen nationally by the Centers for Disease Control and Prevention.

Probationers testing positive

- Data from the state Division of Probation Services indicated that the proportion of 10- to 14-year-olds testing positive for THC one or two times increased from 19% in 2012 to 23% in 2014, while the proportion testing positive three or more times increased from 18% to 25%. The proportion of 15- to 17-year-olds testing positive one or two times went down slightly, from 26% in 2012 to 25% in 2014, while those testing positive three or more times increased from 23% to 25%.

School suspension/expulsion rates

- Data from the Colorado Department of Education show that that drug suspension rates increased from 391 (per 100,000 registered students) in the 2008-09 school year to 551 in 2010-11. The drug suspension rate fluctuated somewhat since then and was 507 in the 2017-18 school year. The drug expulsion rate was 65 (per 100,000 registered students) in the 2008-09 school year, increasing to 91 in 2010-11, and then decreasing to 38 by 2017-18.
 - School discipline data for 2017-18 indicated that marijuana accounted for 22% of all expulsions and 24% of all law enforcement referrals in Colorado public schools.
 - Note that Senate Bill 12-046 and House Bill 12-1345 targeted reform of “zero tolerance” policies in schools, and appear to have decreased expulsions, suspensions, and referrals to law enforcement.³

Drug-endangered children

- To assess drug-endangered children, as required in S.B. 13-283, data from CDPHE’s Child Health Survey (targeting parents with children ages 1-14) was obtained.
 - Of parents with children ages 1–14 who responded to the survey, 6.9% reported some type of marijuana product around the house. When asked about where it was kept, 92% reported storing it in a location the child cannot access.

Additional Information

- In May 2018, 3,101 licensed marijuana businesses were registered in Colorado. Nearly 70% of the licenses for marijuana businesses were concentrated in the counties of Denver (1,226), El Paso (370), Pueblo (303), and Boulder (216).
- Total revenue from taxes, licenses, and fees increased from \$67,594,325 in 2014 to \$247,368,474 in 2017 (+266%). Excise tax revenue dedicated to school capital construction assistance was \$40,000,000 in 2017 and an additional \$27,752,968 was dedicated to the public school fund.

³ See Rosa, J., Krueger, J., and Severson, A. (May 2015). *Moving from Zero Tolerance to Supportive School Discipline Practices*. Office of Dropout Prevention and Student Re-engagement, Colorado Department of Education.

- In April 2018, there were 88,946 individuals registered as medical marijuana cardholders. The most common conditions reported were severe pain (93%), muscle spasms (31%), and severe nausea (14%).

Summary. Again, please note that fundamental measurement challenges interfere with our ability to confidently interpret the information presented here. As previously discussed, legalization may result in reports of increased use, which may be a function of the decreased stigma and legal consequences associated with use rather than actual changes in use patterns. Likewise, those reporting to poison control, emergency departments, or hospitals may feel more comfortable discussing their recent use or abuse of marijuana for purposes of treatment. Finally, complex and sometimes conflicting laws have caused law enforcement officials and prosecuting attorneys to modify policies and practices that cannot be disentangled from available data. For these reasons, it is critical to avoid ascribing changes in many social indicators solely to marijuana legalization.