



## INDEPENDENT FISCAL OFFICE

March 17, 2021

The Honorable Stanley E. Saylor  
Chairman  
House Appropriations Committee  
245 Main Capitol Building  
Harrisburg, PA 17120

Dear Chairman Saylor:

This letter responds to your request for additional information on states that have legalized recreational marijuana and associated costs arising from legalization that are external to revenue estimates. The Independent Fiscal Office (IFO) reviewed various studies from four states that were early enactors of recreational marijuana legalization. These states include Colorado (recreational use legalized in 2012), Washington (2012), Oregon (2014) and California (2016).

While state revenue collections from recreational marijuana are well-documented, states are generally unable to estimate the costs of externalities associated with legalized adult use. This response focuses on areas where states have noted a change in utilization of public services in the years following legalization. Data were compiled for changes in youth and adult use, utilization of public services including emergency department visits, poison control center calls, and changes in traffic accidents and DUIs that involve marijuana.

### **Marijuana Use**

According to the National Survey on Drug Use and Health, between 2011 and 2019 marijuana use increased among adults across the United States, but decreased among those ages 12 to 17. During this period, adults who reported using marijuana in the past month increased from 19.0% to 23.0% for ages 18 to 25 and from 4.8% to 10.2% for ages 26 and older.<sup>1</sup> Youth (ages 12 to 17) current use declined from 7.9% to 7.4%. Marijuana use can cause short- or long-term health issues, which can impact health care costs. For example, smoking marijuana can harm lung tissues and users can develop problems with attention, memory and learning functions.<sup>2</sup> The Centers for Disease Control and Prevention reports that about 1 in 10 users will become addicted to marijuana and that ratio increases to 1 in 6 for users who start before age 18.

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<sup>1</sup> Past month is also referred to as current use.

<sup>2</sup> Centers for Disease Control and Prevention. "Marijuana and Public Health." (2018).

### Adult Use

Current (past month) marijuana use increased among adults in the four states reviewed, but did not vary significantly from national trends. Colorado reported that marijuana use increased 5 percentage points for ages 18 to 25 and 7 percentage points among those 26 and older over a five-year period. In Oregon, adult use increased from 11% to 19% between 2014 and 2017 and from 18% to 31% for ages 18 to 24. In Washington, marijuana use increased across all age groups between 2011 and 2017. Similar to Oregon, the most notable change was for ages 18 to 24, which grew from 16% in 2011 to 28% in 2018.

State	Adult Current Marijuana Use
Colorado	For ages 18-25, marijuana use increased from 26.8% in 2011-2012 to 32.2% in 2015-2016. For ages 26+, marijuana use increased from 7.6% in 2011-2012 to 14.0% in 2015-2016.
Washington	Marijuana use increased among adults for all age categories from 2011-2017.
Oregon	Marijuana use increased from 11% in 2014 to 19% in 2017 (age18+).
California	For ages 18-25, marijuana use increased from 23.1% in 2015-2016 to 25.2% in 2017-2018. For ages 26+, marijuana use increased from 8.7% in 2015-2016 to 10.4% in 2017-2018.

### Youth Use

All four states reported that current marijuana use remained steady or declined for high school students over the time frames considered. The Washington State Healthy Youth Survey reported marijuana use declined from 10% to 7% for 8<sup>th</sup>-graders and from 20% to 18% for 10<sup>th</sup>-graders between 2010 and 2018. No change in current marijuana use was reported for 12<sup>th</sup>-graders during the same time period.

State	Youth Current Marijuana Use
Colorado	High school students' marijuana use declined from 22.0% in 2011 to 19.4% in 2017.
Washington	12th-grade marijuana use remained steady between 2010 and 2018 (26%). 8th-grade and 10th-grade marijuana use declined between 2010 and 2018.
Oregon	In 2018, 8% of 8th-graders and 20% of 11th-graders reported marijuana use. These statistics have remained relatively unchanged over the past six years.
California	Marijuana use (age 12-17) remained steady from 2015-2016 (7.3%) to 2017-2018 (7.1%).

## Public Health Costs

States monitor marijuana-related public health costs including: emergency department visits and rates of hospitalization, calls to poison control centers and marijuana addiction treatment admissions. Increased use of these services drives public health-related expenditures and would reduce the net revenues from legalization of recreational marijuana.

### Emergency Department Visits

The table below displays emergency department (ED) visits and/or admissions for possible marijuana exposure for Colorado, Oregon and California. All three states reported an increase in marijuana-related visits after recreational marijuana legalization. In Oregon, males (age 18 to 25) had the highest rate of marijuana-related ED visits from 2015 to 2018 (16.7 per 1,000 ED visits). A 2020 brief by the federal-state Healthcare Cost and Utilization Project found that the national average cost per ED visit was \$530 in 2017.

State	Emergency Department Visits
Colorado	Visits for possible marijuana-related indications increased from 739 per 100,000 in 2010-2013 to 913 per 100,000 from January 2014 - September 2015.
Washington	--
Oregon	The rate of marijuana-involved visits increased from 3.5 per 1,000 visits to 6.5 per 1,000 visits from October 2015 through November 2018.
California	Between 2015 to 2019, visits and admissions for any marijuana-related abuse increased from 118,383 to 236,954.

### Poison Control Calls

Marijuana-related calls to poison control centers increased in all four states following legalization. In Colorado, marijuana-related calls increased from 86 in 2011 to 230 in 2015. Notable increases included calls regarding ages 9 to 17 years old (+256%) and ages 25 and older (+163%). In Washington, from 2014 to 2018, calls regarding people age 12 and under had the greatest increase of marijuana-related calls (+166%). The Oregon Poison Center received approximately three times as many marijuana-related calls in 2018 compared to 2014. The largest increase in calls were regarding those age 21 and older (increasing from 50 to 144).

State	Poison Control Calls
Colorado	The number of calls that mentioned marijuana exposure increased from 86 in 2011 to 230 in 2015.
Washington	The number of calls for marijuana-related incidents increased from 242 in 2014 to 439 in 2018.
Oregon	The number of marijuana-related calls to the Oregon Poison Center increased from 103 in 2014 to 316 in 2018.
California	The number of CBD-related exposure calls increased from 15 in 2015 to 1,526 in 2019.

## Public Safety

As a regulated substance, such as alcohol, recreational marijuana places new demands on public safety infrastructure. These include costs related to enforcement of new regulations and negative externalities such as persons driving under the influence of marijuana (marijuana-related DUIs). There are also likely public safety cost savings due to reduced arrests and court filings for marijuana possession and sale. These and other possible cost savings related to recreational marijuana legalization are discussed at the end of this response.

### Traffic Safety

Between 2012 and 2016, Oregon reported 81 fatal crashes that involved a driver who tested positive for marijuana. Sixty-two percent of those traffic fatalities also involved alcohol and/or other drugs. Colorado and Washington both reported an increase in the number of drug-related DUIs following the legalization of recreational marijuana. While most researchers note an increase in traffic-related fatalities after recreational marijuana legalization, results are mixed on whether increased marijuana consumption is a statistically significant factor that causes an increase in the number of fatal crashes. For example, Hansen et al. (2018) tested this correlation by constructing a synthetic control group of fatal crash data for 20 states from 2000 to 2016 and were unable to identify increased fatal accidents as a causal effect of recreational marijuana legalization in Colorado and Washington. However, Aydelotte et al. (2019) performed a difference-in-differences analysis using nine control states and were able to determine a statistically significant increase in fatal crashes after the opening of commercial dispensaries in Colorado and Washington.<sup>3</sup>

State	Traffic Safety
Colorado	DUIs dropped 15% between 2014 (5,705) and 2017 (4,849). Citations for marijuana or marijuana-in-combination increased 5% (+35) between 2014 and 2017.
Washington	In 2018, drug-only DUIs increased to 2,029 from 1,710 in 2011.
Oregon	81 fatal crashes occurred between 2012 and 2016 with an involved driver that tested positive for marijuana. 62% of marijuana-involved traffic fatalities also involved driver use of alcohol and/or other drugs.
California	--

## Other Costs that Offset Revenue Impact

In addition to the negative externalities and societal costs listed above, the legalization of marijuana may also increase costs in other areas including: marijuana substance abuse treatment, workplace incidents involving marijuana, drug-free workplace policies and unemployment, home growing and marijuana grey market enforcement, and certain long-term negative health impacts due to increased marijuana use.

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<sup>3</sup> See Benjamin Hansen et al., "Early Evidence on Recreational Marijuana Legalization and Traffic Fatalities," (2018) and Jayson D. Aydelotte et al., "Fatal Crashes in the 5 Years After Recreational Marijuana Legalization in Colorado and Washington," (2019).

**Potential Cost Savings**

In response to the request, this summary detailed the negative externalities and costs associated with recreational marijuana legalization. There are also cost savings associated with reduced illegal marijuana use. Decreased illegal activity facilitates a reduction in public safety resources dedicated to marijuana arrests and court filings, which may lead to criminal justice cost savings. Additionally, recreational marijuana represents a new retail industry, which can lead to job creation and economic growth.

I hope you find the information useful. Per office policy, we will plan to post this response to our website three business days after transmittal to your office. If you have any questions regarding the letter, please do not hesitate to contact me (717-230-8293).

Sincerely,



Matthew J. Knittel  
Director, Independent Fiscal Office.

## Sources

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