

Health and Safety Endpoints: Injury and Death, and Crime Rates

Roadway Safety Subcommittee
Governor's Marijuana Advisory Commission
Summary of Nov. 14 Presentation

Studies/Research Deemed Best/Most Reliable

- National Academies of Sciences, Engineering, and Medicine. 2017. The health effects of cannabis and cannabinoids: The current state of evidence and recommendations for research. Washington, DC: The National Academies Press
- Rogeberg, O., and R. Elvik. 2016. The effects of cannabis intoxication on motor vehicle collision revisited and revised. *Addiction* 111(8):1348–1359
- Compton, R. (2017, July). Marijuana-Impaired Driving - A Report to Congress. (DOT HS 812 440). Washington, DC: National Highway Traffic Safety Administration
- Li G, Chihuri S, Brady JE. Role of alcohol and marijuana use in the initiation of fatal two-vehicle crashes. *Ann Epidemiol.* 2017;27(5):342-347
- Monitoring Health Concerns Related to Marijuana in Colorado: 2016 – Changes in Marijuana Use Patterns, Systematic Literature Review, and Possible Marijuana-Related Health Effects. Colorado Department of Public Health and Environment (2016)

Studies/Research Deemed Best/Most Reliable

- Jayson D. Aydelotte et al. “Crash Fatality Rates After Recreational Marijuana Legalization in Washington and Colorado”, American Journal of Public Health 107, no. 8 (August 1, 2017): pp. 1329-1331
- Rocky Mountain High Intensity Drug Trafficking Area. The Legalization of Marijuana in Colorado: The Impact. Volume 5, October 2017
- AAA Foundation for Traffic Safety. Prevalence of Marijuana Involvement in Fatal Crashes: Washington, 2010-2014 (May 2016)
- Arthur Huber III, Rebecca Newman, Daniel LaFave, Cannabis Control and Crime: Medicinal Use, Depenalization and the War on Drugs, The B.E. Journal of Economic Analysis & Policy, Vol. 16, Issue 4
- Jerome Adda, Brendon McConnell, and Imran Rasul, Crime and the Depenalization of Cannabis Possession: Evidence from a Policing Experiment, Journal of Political Economy, Volume 122, Number 5 (October 2014)

Research Summary

- National Academy of Science 2017: “There is substantial evidence of a statistical association between cannabis use and increased risk of motor vehicle crashes”
- Acute cannabis intoxication “is related to a statistically significant risk increase” for motor vehicle crashes” and “roughly 20–30% of traffic crashes involving cannabis use occur because of the cannabis use.
- NHTSA: “Despite the variability in results, this research has demonstrated the potential of marijuana to impair driving related skills”
- More research needed on marijuana use in combination with alcohol

Research Summary (cont.)

- CO Dept. of Health:
 - “the risk of a motor vehicle crash increases among drivers with recent marijuana use”
 - “the higher the blood THC level, the higher the motor vehicle crash risk”
 - “using alcohol and marijuana together increases impairment and the risk of a motor vehicle crash more than using either substance alone”

Statistics/Data Colorado

- “Marijuana-related traffic deaths when a driver tested positive for marijuana more than doubled from 55 deaths in 2013 to 125 deaths in 2016.”
- “Marijuana-related traffic deaths increased 66 percent in the four-year average (2013-2016) since Colorado legalized recreational marijuana compared to the four-year average (2009-2012) prior to legalization.”
- “In 2009, Colorado marijuana-related traffic deaths involving drivers testing positive for marijuana represented 9 percent of all traffic deaths. By 2016, that number has more than doubled to 21 percent.”

Statistics/Data Washington

- Before and immediately after legalization the “proportion of drivers positive for THC was generally flat”
- That the proportion “began increasing significantly at a rate of 9.7 percentage points per year approximately 9 month” after legalization
- In the year 2014, “the number and proportion of drivers in fatal crashes who were positive for THC were both more than double the averages from the prior four years”

Vermont Statistics/Data

- Vermont Fatal Crash Data for 2017 (as of 10/23/17):
 - 6 Operators suspected as driving under the influence of alcohol only.
 - 10 Operators suspected as driving under the influence of drugs only.
 - 6 Operators suspected as driving under the influence of both alcohol & drugs
 - Of the 16 operators with alcohol & drugs or drugs alone in their system, 11 were positive for Active Cannabis – Delta 9 THC.

Vermont Pre- and Post-Decriminalization: Crashes by crash type in Vermont, where at least one driver tested positive for cannabis

Pre-Decriminalization of Cannabis:		Post Decriminalization of Cannabis:	
Crash Type	Number of Crashes	Crash Type	Number of Crashes
Fatal	33	Fatal	44
Injury	25	Injury	26
Property Damage Only	13	Property Damage Only	21
Grand Total	71	Grand Total	91
<i>*Dates used: 1/1/2010 - 6/30/13</i>		<i>*Dates used: 7/1/2013 - 12/31/16</i>	

Crime Rates Statistics/Data

- CO Dept. of Public Safety
 - In Colorado, arrest rates for property crime increased 15% in 2013 and another 10% in 2014
 - Denver saw a slight increase in the number of reported crimes committed in and around marijuana establishments, from 170 reports in 2012 to 183 in 2015.
 - The most common reported crime is burglary, representing 62% of all industry-related crimes.
 - Juvenile marijuana arrests have increased 5% from 3,235 in 2012 to 3,400 in 2014.
 - Reported marijuana offenses occurring in elementary and secondary schools have increased 34% from 1,766 in 2012 to 2,363 in 2014.
- Statistically significant increase in burglaries (6.6%) and robberies (11.6%) in the 5 years following depenalization of marijuana (27 states and D.C.)

January Report/Recommendations

- An appropriate impairment testing mechanism, including the possible merits of saliva-based testing standards
- Adequacy of and funding for drug recognition experts (DREs) and training
- Capacity for in-state testing and analysis of toxicology samples for DUIs related to drugs such as marijuana
- Feasibility of regional impairment standards
- Need for a performance benchmark or benchmarks to be assessed before the further decriminalization or legalization of recreational marijuana use or establishment of a tax and regulatory system
- Impact on established search and seizure law
- Changes to Vermont law required to protect those under 21 years old and ensure highway safety.” (TBD)