

# 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

<b>Pre-Decriminalization of Cannabis:</b>		<b>Post Decriminalization of Cannabis:</b>	
<b>Crash Type</b>	<b>Number of Crashes</b>	<b>Crash Type</b>	<b>Number of Crashes</b>
Fatal	33	Fatal	44
Injury	25	Injury	26
Property Damage Only	13	Property Damage Only	21
<b>Grand Total</b>	<b>71</b>	<b>Grand Total</b>	<b>91</b>
<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)