WILL MARIJUANA LEGALIZATION INCREASE HOSPITALIZATIONS AND EMERGENCY ROOM VISITS?

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Since marijuana legalization will likely increase the availability and convenience of consuming marijuana, there is concern that it will also increase health emergencies. An especially prominent concern is that children will be more likely to ingest marijuana in states that have legalized adult use.

AVAILABILITY OF EDIBLES MAY INCREASE HOSPITALIZATIONS

Traditionally, adult hospitalizations from marijuana use were almost unheard of. Legalization, however, has increased the availability of marijuana products, especially edibles that contain multiple "doses" of delta-9-tetrahydrocannabinol (THC). Edibles have been cited as a common cause for marijuana emergencies because it takes longer to feel the effects of the drug, which may cause users to ingest more. By the time the peak effect of an edible is felt, the user may be extremely high and this may cause them to seek medical attention for acute intoxication.[1]

MARIJUANA-RELATED EMERGENCIES

Edibles have also increased the prevalence of pediatric ingestion because of packaging that makes marijuana products look like candy or desserts. Between 2005 and 2011, there were 985 unintentional pediatric exposures (children nine and younger) in the U.S.[2] In Colorado, emergency room visits for teenagers and young adults ages 13–21 increased from 1.8 per 1,000 in 2009 to 4.9 per 1,000 in 2015.[3]

Another study found that parents at an Aurora, Colorado children's hospital disclosed a history of marijuana exposure in 56% of patients (18 patients) in 2014 and 2015 compared with 19% of patients (three patients) in 2012 and 2013. The authors of the study concluded: "This comfort level of disclosure may be owing to the perception that there will be fewer legal and social ramifications because of legalization. The history of marijuana exposure facilitates timely and appropriate care. Without history of exposure or when the diagnosis is unclear, children have received unnecessary laboratory testing, procedures, and radiographic imaging because exposures can mimic other central nervous system depressants."[4]

Fifteen of the 32 exposures at the children's hospital in 2014 and 2015 were from recreational marijuana, which may suggest that legalization can be blamed for the increase in child ingestion.[5] A study conducted in France, however, found that between 2004 and 2014, annual pediatric admissions increased by 133% and calls to poison control for marijuana increased by 312%—calls for other toxins increased by only 45% in the same time

period. The authors of the French study blame the increase on higher THC content, not legalization. Marijuana is still illegal in France.[6]

Cannabis hyperemesis was first described in 2004 and is characterized by nausea, vomiting, and abdominal pain. Typical patients are young adults who have habitually used marijuana for years.[7] In Colorado, emergency room visits for cyclic vomiting doubled after legalization of medical marijuana, with 41 cases per 113,262 visits before legalization and 87 per 129,095 visits after.[8]

Synthetic cannabis has also caused emergency room visits despite legalization of plant-based cannabis in Colorado. Marijuana contains over 100 cannabinoids, but the main one responsible for its physiological effects is THC. Synthetic cannabis is made in a lab and latches onto the same receptors in the body as THC does. Synthetic cannabis reactions can be unpredictable because once a product has been identified by law enforcement, the chemical composition of the product is changed to avoid detection. Between August 21 and September 1, 2013 in Colorado, there were 263 emergency room patients from synthetic cannabinoids.[9] Notably, plant-based cannabis was technically legalized at that time but only available through home-grow for personal use. Synthetic marijuana, however, can also be problematic when plant-based marijuana is decriminalized—as seen in the recent outbreak in Chicago that has sickened over 160 and killed four.[10]

Butane hash oil burns have also become more common after legalization. These burns typically result from users attempting to make a concentrated THC product at home using butane.[11] Before medical legalization in Colorado, there were no reports of butane hash oil burns, 19 cases during the period when medical marijuana was legal (October 2009–December 2013), and 12 cases in 2014 after recreational legalization.[12] These burns may not be a problem resulting from legal marijuana, as one study found 12 cannabis oil burn patients (out of 161 burn patients) between April 2012 and March 2014 at the Foothills Medical Centre in Calgary, Alberta, Canada while recreational marijuana was illegal.[13]

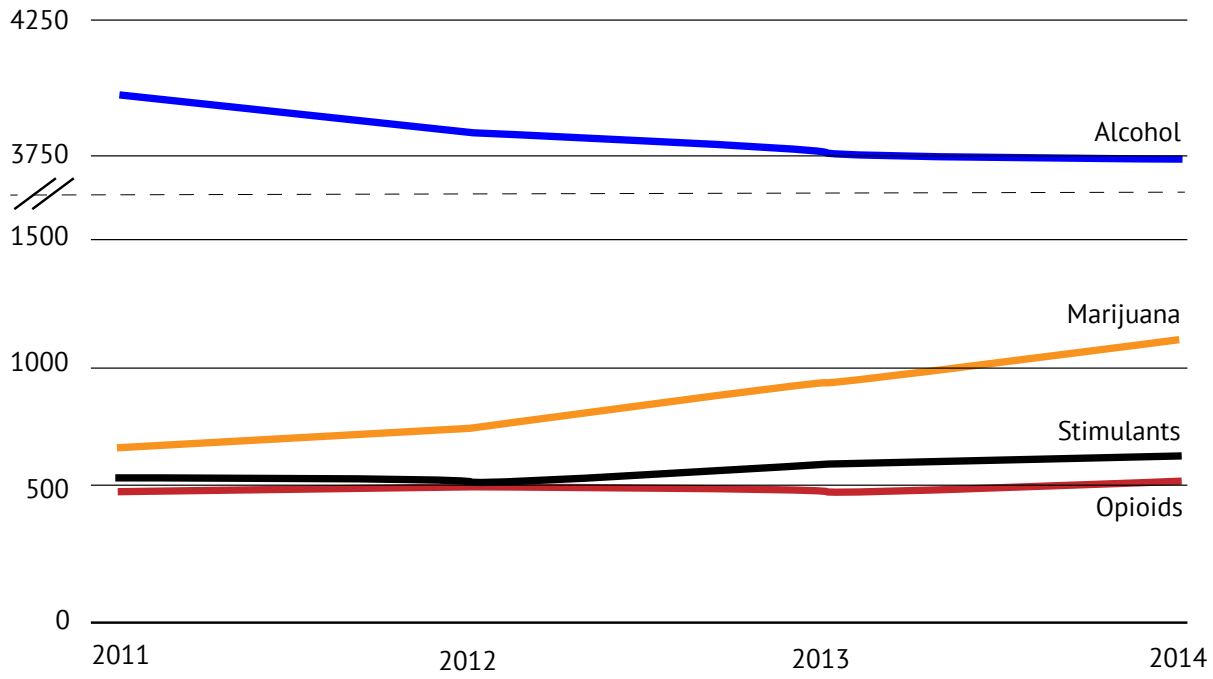
DOES LEGALIZATION INCREASE OVERALL HOSPITALIZATIONS AND CALLS TO POISON CONTROL?

Overall, according to a report by the Colorado Department of Public Health and Environment, there has been an increase in marijuana-related hospital billing codes. This means marijuana could have been a causal factor or contributing factor to the hospitalization and was noted by the physician. In 2000, before any legalization, the rate was 575 hospitalizations per 100,000. Between 2001 and 2009, when marijuana was legal for medical use but not commercialized, the rate of hospitalization increased to 803 per 100,000. Next, from 2010–2013, when medical marijuana was commercialized, hospitalizations increased to 1,440 per 100,000. Finally, data from 2014 through September 2015 during recreational legalization shows that hospitalizations increased to 2,696 per 100,000. Data for emergency room visits were not available until 2011. The rate was 739 per 100,000 from 2010–2013 and 913 per 100,000 from 2014 to September 2015.[14]

Because these rates were found by looking at hospital billing codes, there are multiple limitations. First, hospital billing codes are not standardized across hospitals. Changes over the years could also be the result of increased awareness of marijuana or increased patient honesty. Most importantly, as summarized by the report's authors: "[U]se of these billing codes does not necessarily indicate marijuana was the primary (or even secondary) reason for the HD [hospitalization] or ED [emergency department] visit, rather the presence of a marijuana-related code reflects that marijuana use was noted by the treating physician. Therefore, this summary quantifies HD and ED visits with marijuana-related billing codes and does not quantify HD and ED visits due to marijuana. We hypothesize that this summary reflects marijuana use despite the limitations; however, it does not necessarily show the health care burden of marijuana use." All that can truly be concluded from this data is that physicians are noting marijuana use more frequently, not that marijuana is causing more health problems.[15]

To put these data into perspective, it is necessary to compare hospitalizations for marijuana with any changes in hospitalizations overall. Unfortunately, the hospitalization data used by the Colorado Department of Public Health and Environment are not publicly available. But Figure 1 from that department does show a breakdown of trends in alcohol, marijuana, opioids and stimulants:

FIGURE 1: SUBSTANCE-RELATED EMERGENCY ROOM ADMISSIONS IN COLORADO, 2011–2014 (RATES PER 100,000 ED VISITS)



Source: Colorado Department of Public Health and Environment

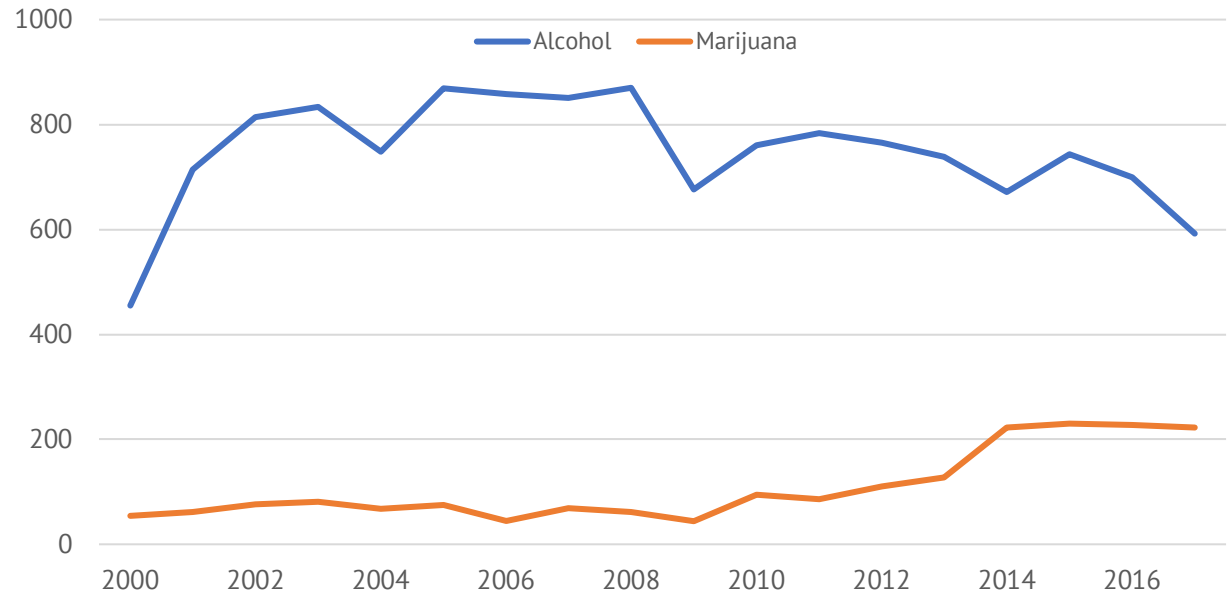
While marijuana emergency room admissions have increased, these increases correspond to a decrease in alcohol admissions. This suggests that marijuana could serve as a substitute for alcohol, which could be beneficial for overall public health since alcohol hospitalizations are typically higher risk.[16]

One study that analyzed the American Association of Poison Control Centers National Poison Data System found that across the U.S., calls to poison control increased by 11.5% in states transitioning toward legality or decriminalization (meaning the state enacted legislation during the review period), and increased by 30.3% in decriminalized states from 2005 to 2011. The rate in illegal states did not change during the same time period. Interestingly, the majority of pediatric exposures took place in nonlegal states, with 496 exposures in children nine and under between 2005 and 2011. There were 396 exposures in decriminalized states and 93 in transitional states.[17]

In legal states marijuana exposure calls are still a minority of all calls. In Colorado, there were 231 human marijuana exposures in 2015[18] out of 41,137 total human exposures.[19] In 2016, there were 224 human marijuana exposures[20] out of 39,669.[21] In Washington there were 357 marijuana cases in 2017 with more nicotine (385) and opioid (1,435) cases.[22] In total, there were 62,987 calls.[23]

Data from the Rocky Mountain Poison and Drug Center show that, similar to hospitalizations, increases in poison control calls for marijuana corresponds to a decrease in alcohol calls.[24]

FIGURE 2: NUMBER OF MARIJUANA EXPOSURES REPORTED TO COLORADO POISON CENTER, 2000–2017



Source: Rocky Mountain Poison and Drug Center

Finally, while these data demonstrate increased emergency room visits and poison control calls related to marijuana, this correlation cannot be directly attributed to the legalization of marijuana. As stated by authors of a Colorado Department of Public Safety report: "[T]he decreasing social stigma regarding marijuana use could lead to individuals being more willing to report use on surveys and to health workers in emergency departments and poison control centers, making marijuana use appear to increase when perhaps it has not."[25]

CONCLUSIONS

While studies show that hospitalizations and calls to poison control have increased with legalization, the corresponding decrease in alcohol use may be a harm-reducing substitution. It is also important to recognize that many of these increases are still minor compared to the total number of poison control calls received in legal states, and that increases may be overestimated due to limitations in reporting. Further, increases may be partially due to the reduced stigma of marijuana use making patients more comfortable seeking medical attention. This could lead to better and more efficient medical care overall.

Without any clear conclusions from available data, the main implication for policy seems to be measures for safe marijuana use. Clear labeling of dosage can help keep adults unfamiliar with marijuana products from consuming too much. In order to prevent pediatric ingestions, packaging, especially for edibles, should also be child-resistant and not be packaged to resemble candy or dessert. Education about proper dosage and how to keep marijuana out of the hands of children could also be beneficial.

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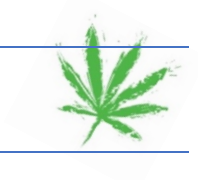
For more on cannabis policy, see reason.org/topics/drugpolicy



ENDNOTES

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