

Car crashes, alcohol consumption and vet visits: How legal recreational marijuana has changed Michigan, Illinois and more

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COLUMBUS, Ohio – Ohio voters will decide on Nov. 7 whether to legalize marijuana for recreational adult use, potentially taking Ohio down a road that nearly half of U.S. states already have paved.

The 41-page proposed initiated statute outlines in detail what an adult-use cannabis program would look like in the state, from a business and regulatory standpoint. If it passes, recreational marijuana would be legal for anyone age 21 and older.

But Issue 2 also contains lots of unknowns. While opponents have issued warnings about the potential fallout of providing easier access to marijuana, backers highlight the expected windfall from taxes that could fill government coffers and support new programs.

The debate raging in Ohio is similar to what happened in other states that have approved recreational marijuana. Weed has been legal in Colorado for more than a decade. California, the largest state in the union, legalized it in 2016. A wave of other states have legalized recreational marijuana in the last several years too, including fellow Midwestern states like Michigan and Illinois.

That 23 states already have approved marijuana for recreational use offers a trove of information to help understand what it could mean for Ohio.

Cleveland.com and The Plain Dealer looked at data from nearby Michigan and Illinois; Colorado and Oregon, with among the oldest adult-use programs in the country; and California, the largest marijuana market in the U.S., to illuminate what the future might hold for Ohio if Issue 2 passes.

Academic research also can provide insights into effects of recreational marijuana, although the studies show many variables that make the solid conclusions elusive for everything from alcohol consumption rates to emergency veterinarian visits.

Impaired driving

Car accidents involving drivers who tested positive for cannabis generally increased in states with recreational marijuana, according to studies and statistical modeling.

For instance, the share of drivers involved in fatal crashes who tested positive for marijuana jumped in Michigan, where recreational sales began in December 2019, from 26.4% in 2018 to 39.4% in 2020, according to a 2023 report from the Illinois Adult Use Cannabis Health Advisory Committee, which compared Illinois to other states. The Insurance Institute for Highway Safety also found an increase in injury crashes in Colorado, Oregon and California after recreational marijuana sales began.

However, the extent of how many accidents are caused by marijuana is debated among researchers, when accounting for driver age, sex and other factors associated with a higher accident rate.

“People who are more frequent users develop some strategies for how to mitigate or minimize some of the effects that are observed, particularly as it relates to basic vehicle control,” said Timothy Brown, a University of Iowa research scientist who has been studying marijuana’s effect on driving for a decade. “They might slow down, for example, a little bit compared to what they would normally drive to give themselves more time to respond and so that might make their performance look a little bit better.”

Some drivers increase their following distances behind other vehicles to compensate for their impairment, [according to the Insurance Institute for Highway Safety](#) research, which was published in the Journal of Studies on Alcohol and Drugs last year, looking at crashes from 2009-2018.

Brown, the University of Iowa researcher, and his team legally obtain cannabis for research purposes with a clearance from the federal government. The subjects of each study consume it, usually in a vaporized form. Then they enter a simulator, where the team observes them drive.

Marijuana’s effects on drivers varies, depending on a person’s history of cannabis use, how fast the psychoactive properties of the drug hit their brains and the form – such as smoking flower or swallowing an edible – that they use, Brown said.

The slower speeds that some marijuana users employ to compensate for their impairment may give the drivers more time to respond to something unexpected on the road than if they were driving at a higher rate of speed. But research is currently inconclusive about whether the extra time enables drivers to make the right decisions, Brown said.

“When you compare it to alcohol I think that there may be a little more awareness by cannabis users that they’re high and they’re impaired compared to somebody who may be as drunk,” he said.

In some of Brown’s studies, the subjects consume both cannabis and alcohol.

“It poses a challenge,” he said. “If you legalize cannabis, and you also have a lot of alcohol on board, you might not be over the legal limit for alcohol but with the cannabis, it exacerbates the effects of the alcohol. So your (driving) performance is degraded. You wouldn’t get a DUI for alcohol but one of the challenges of cannabis is that in the lab, I know when you took the cannabis. I know what your levels are. On the road, there’s not a biological test where I can have you draw blood and know that you used cannabis 90 minutes ago or two hours ago, versus somebody who may have used it 36 to 48 hours ago who may have a similar THC concentration in their blood.”

In general, testing drivers on the road is a challenge, said Dr. Guohua Li, a physician and professor of epidemiology and anesthesiology at Columbia University.

The THC molecule is larger than ethanol, or the alcohol molecule, so Breathalyzers don’t successfully track impairment from marijuana. Police must use saliva or blood tests. Blood tests are the gold standard because they’re more sensitive than saliva tests, Li said.

“The saliva test is much cheaper than the blood test and it’s less invasive,” he said. “It’s more convenient to collect the sample. It’s good to tell you if THC exists or is present in the sample. But if you want to know how much THC, the THC concentration level, the saliva test is not very good.”

While police officers keep Breathalyzers on hand to test drivers for alcohol impairment, they’re don’t have the same equipment in their cruisers to run blood tests, Li said.

Police on the scene of a fatal or serious accident often first test for alcohol with a Breathalyzer. If the driver’s alcohol level is below the legal limit but an officer suspects impairment may be involved, they could haul the driver to the police station or hospital for a blood test.

“But say the driver has a very high level of blood-alcohol concentration, they may just stop there,” he said. “Because alcohol may be enough evidence for them to proceed” with a driving-under-the-influence investigation.

How weed and booze mix

In most states, alcohol consumption increased alongside marijuana legalization, according to many studies. That includes research [published last year in the JAMA Health Forum](#) that looked at the drinking habits of more than 4.2 million adults who were surveyed for the Centers for Disease Control and Prevention from 2010 to 2019.

However, the study found the increase was largely driven by young adults from the ages of 18 to 26, said University of Pittsburgh health policy and management

professor Coleman Drake, a study author. They were most likely to be white men without any college education.

“I think an important distinction is we found an increase in drinking in the span of a month from when states legalized recreational cannabis,” Drake said. “But we did not find increases in binge or heavy drinking. That’s not to say that it isn’t a problem entirely. I think the findings of the study would be a lot more concerning if there would have been increases in binge and heavy drinking.”

Do people drink and consume cannabis together? Are they hitting them separate? The study didn’t find the context of when people were using marijuana and alcohol.

Drake noted that other studies have found the opposite effect, with alcohol sales decreasing upon legalization, [including a study earlier this year](#) that found in Canada, alcohol sales were about 1.8% lower than they otherwise would have been had the country not legalized medicinal and later recreational marijuana.

The studies uses different datasets and captured different environments, Drake said.

According to the National Institute on Alcohol Abuse and Alcoholism, per capita consumption of alcohol increased in Illinois, Colorado, Oregon and California between the first year of full recreational marijuana sales and 2021. In Michigan, revenues were slightly down.

Tax revenues from alcohol wildly varied by state. Michigan, Illinois and California saw higher revenues in 2021 compared to the first full year of adult-use legalization. But Colorado and Oregon lost significant tax revenue from alcohol in 2021, even as the per capita consumption in those states increased.

Drake cautions that alcohol consumption during the pandemic changed because people’s daily habits changed.

[People stocked up on liquor](#) at the beginning of the pandemic, when many were sent home to work remotely or were laid off. Later on in the pandemic, [liquor stores struggled](#) to stock enough bottles of popular liquor on the shelves, due to supply-chain shortages. Those factors may distort some of the more recent data.

“A lot of studies do end in 2019 because there’s such an environmental change,” Drake said.

THC sales and taxes

If Ohio voters approve Issue 2 at the ballot box, revenues from the 10% tax proposed for recreational marijuana in the first full year of sales could range between \$182 million and \$218.4 million.

[That's according to estimates](#) from the Drug Enforcement and Policy Center at Ohio State University Moritz College of Law, which looked at revenues in Michigan, Illinois, Nevada, Oregon, Washington and Colorado.

By the fifth year, tax revenues could range between \$336.4 million and \$403.6 million. The OSU researchers said they took a conservative approach to revenue projections.

In its most recent fiscal year, nearby Michigan collected more than \$400 million in taxes on marijuana after sales hit \$1.8 billion in 2022. In Illinois, tax collections topped \$450 million in its most recent fiscal year with \$1.5 billion in 2022 sales. California, the largest recreational marijuana market in the country, collected \$1.1 billion in taxes in 2022 on \$5.4 billion in sales.

Ohio's 10% proposed excise tax on cannabis would be among the lowest in the country. Ohio purchasers also would have to pay state and local sales taxes on purchased product.

[Under the proposed law](#), tax collections would be sent to local communities where marijuana businesses are located. They also would bankroll a substance abuse and addiction fund, a fund to pay for the regulation of adult-use marijuana businesses and a "cannabis social equity and jobs fund" that would provide money for businesses and job creation for people in communities adversely affected by the war on drugs.

Since Issue 2 is an initiated statute, or proposed law, the General Assembly could amend or repeal it if voters pass it. Republican legislative leaders in Columbus have indicated they would make changes to the law, but have been mum on what exactly they would do.

The dog ate my edibles

The number of household pets – in particular dogs – that have consumed marijuana appears to be on the rise.

While there is no national clearinghouse tracking down how many dogs and cats are getting stoned, the Pet Poison Helpline is seeing a rapid increase in pet patients who have consumed THC. The helpline is [a 24-hour animal poison control service](#) available in the U.S., Canada and the Caribbean for pet owners and veterinary professionals.

In the past five years in the U.S., there has been a 700% increase in calls relating to marijuana consumption to the helpline, said Dr. Renee Schmid, the service's manager of veterinary medicine and professional services and senior veterinary toxicologist.

Among recreational states, there is variation in pet calls to the help line. Even Ohio, which only has marijuana for medicinal purposes, has seen an increase in calls in the

past four years, according to data provided by the helpline. Medical marijuana dispensaries opened in the state in mid-January 2019.

The most common calls are about pets that ate an edible, Schmid said.

“In dogs and cats what we typically see, we often see excessive sedation, so these guys will be really sluggish at home and they will be lethargic,” she said. “They can have difficulty walking. They can be really sensitive to sound and motion, so the owner will say ‘Gosh, they’re jumpy. They’re really jittery.’ We then can also see a decrease in heartrate.”

Sometimes pets are unable to hold urine. Their respiratory rates or body temperature can drop, she said. Sometimes, pets become the opposite of sedated. They become agitated or aggressive, she said.

“Dogs in particular are a lot more sensitive to THC than humans are,” Schmid said.

On average, it takes 12 to 24 hours before the pets begin to feel well again if they ingest THC. If they get exposed through smoke inhalation, they can feel better in just a few hours.

“Animals with mild signs can be monitored at home,” Schmid said. “But with more severe signs we generally want to keep them in the clinic. And then they often get put on intravenous fluids, monitoring them that way so that we can keep a close eye on their heartrate, their blood pressure, on the body temperature.”

Schmid attributes the increase in calls to the helpline to more marijuana available in the U.S. Also, pet owners are more likely to cop to having cannabis in the home, as it’s becoming more normalized and has less stigma.

Edibles can contain other ingredients that are harmful to pets, such as chocolate, which contains theobromine, a toxin for dogs that in high enough levels can be deadly. Some edibles contain the sweetener xylitol, which can cause low blood sugar and liver failure in dogs, she said.

Many pet owners swear by the health benefits of CBD, a non-psychoactive compound found in marijuana and hemp.

But because THC isn’t good for dogs, Schmid recommends pet parents only purchase pure CBD products. Some products falsely advertise, and humans need to closely study them when making a purchase, Schmid said.

“I believe that there are some veterinary CBD products that are out there on the market, that are claiming to be pure CBD and that they’re from a reputable company,” she said. “A lot of times those are going to be OK to give. But you really have to do your research.”