

# LINES OF INQUIRY

LINES OF INQUIRY IS A NEW, REGULAR SERIES IN TWO BY TWO. LINES OF INQUIRY TACKLES TIMELY QUESTIONS IN PUBLIC HEALTH SCIENCE HIGHLIGHTING OUR FACULTY RESEARCH AND PROVIDING PERSPECTIVE ON OFTEN CONTROVERSIAL TOPICS.

## Bringing science to the controversy over medical marijuana laws and teen use



In December the National Institutes of Health (NIH) reported that adolescent marijuana use had reached a 30-year high, with 1 in 15 teens found to use the drug on a near daily basis. At the same time, teens' use of virtually every other illicit substance, including alcohol, tobacco, and cocaine, had declined.

The spike in marijuana use led a few officials to blame laws that have allowed greater availability of the drug for medical purposes. Sixteen states have passed such laws, all in the last 15 years.

"[W]hen I've done focus groups with high school students in states where medical marijuana is legal, they say, 'Well, if it's called medicine and it's given to patients by caregivers, then that's really the wrong message for us as high school students,'" said White House Director of the Office of National Drug Control Policy R. Gil Kerlikowske, one of the most prominent critics of medical marijuana laws.<sup>1</sup>

Supporters of the laws disagree. They say that if anything, medical marijuana discourages use because teens associate the drug with medicine, not recreation.

As policymakers on both sides of the issue clamor to take action, scientists say that research on the link between the laws and the rise in teen use is increasingly important. The few studies that have been done are mixed in their results, and their authors say more data must be analyzed to make conclusions about a causal relationship.

"Whether there is a link between medical marijuana laws and teen marijuana use is very controversial right now. The topic has seen a lot of debate and opinion but very little research," says Dr. Deborah Hasin, Professor of Clinical Epidemiology (in Psychiatry).

To address this knowledge gap, Dr. Hasin assembled a team of researchers at Columbia's Mailman School of Public Health (Department of Epidemiology and Biostatistics) and College of Physicians and Surgeons (Departments of Psychiatry), including Drs. Magdalena Cerdá, Katherine Keyes, and Melanie Wall. The group published a study in the *Annals of Epidemiology* in September 2011 finding that during 2002-2008 teens in the 16 states where medical marijuana is legal were more likely to use the drug and less likely to view it as harmful than those in states where it cannot be used for medicinal purposes. The findings are supported by a companion paper from this team published in January in *Drug and Alcohol Dependence* showing that adult rates of marijuana use, abuse, and dependence were higher in states with medical marijuana laws than those without them.

The US has a long history of argument over the effects

<sup>1</sup> Anahad O'Connor. "Marijuana Use Growing Among Teenagers." New York Times. 14 Dec, 2011. [well.blogs.nytimes.com/2011/12/14/marijuana-growing-in-popularity-among-teenagers](http://well.blogs.nytimes.com/2011/12/14/marijuana-growing-in-popularity-among-teenagers)

of legislation on social mores and behavior of teens. One debate relevant to the marijuana question, says Dr. Hasin, is over states that passed laws in the 1970s lowering the minimum drinking age from 21 to 18 or 19. Drunk-driving fatalities increased among adolescents after the laws were passed, causing states to eventually restore the legal age to 21. Later studies show that individuals legally allowed to purchase alcohol before age 21 had an increased risk for alcohol and drug disorders and suicide that persisted even into their 40s and 50s.<sup>2</sup>

The questions surrounding legalized marijuana are also a replay of an earlier period in American history. Medicinal forms of cannabis were available in American pharmacies starting in the 1850s, endorsed as a pain reliever by some physicians, notably Dr. William Brooke O'Shaughnessy. But major American pharmaceutical societies never got on board, and as urban hashish parlors mushroomed during the late 1800s and sensational news stories emerged about the dangers of marijuana, doubts about the effects of medicinal laws eventually led to federal and state restrictions.

The drug was effectively banned at the federal level in 1937 by the Marihuana Tax Act, and in 1952, the government introduced mandatory sentencing for possession. Teenagers during this era were told at school that marijuana was "devil weed" and a gateway to cocaine and heroin use.<sup>3</sup>

Public opinion began to change once again in the 1960s and 1970s. Several states, beginning with California in 1976, reduced penalties for marijuana possession from a felony to a misdemeanor. Twenty years later, California became the first state in recent history to allow marijuana for medical use.

Since then, scientific studies have provided mixed evidence for medical marijuana, with some showing it relieves nausea, glaucoma, and symptoms associated with cancer and AIDS, and others questioning its efficacy. Federal and state law is also divided. In addition to the 16 states that have medical marijuana laws on the books, 12 more are considering it. However, the US Food and Drug Administration has not approved marijuana through its scientific review process, and the Obama administration opposes legalization.

A preliminary study presented at the American Public Health Association annual meeting in November by Dr. Esther Choo, an emergency medicine physician and assistant professor at Brown University's Rhode Island Hospital, found that there was no statistically significant difference between teenage marijuana use in Rhode



MARIJUANA TOOK ON THE REPUTATION AS A DANGEROUS GATEWAY DRUG DURING THE 1930S-50S, BUT SENTIMENT BEGAN TO SHIFT IN THE SECOND HALF OF THE TWENTIETH CENTURY.

Island, where it is legal for medical purposes, and Massachusetts, where it is not legal.<sup>4</sup> The two states were a good comparison because of their many cultural similarities, says Dr. Choo. However, the study is not the final verdict on the laws and their effects, she adds.

"It's reassuring there has been no effect, but it's not conclusive. It will be helpful to have information from other states that have had the policy in place for longer," says Dr. Choo. She is currently working on a further study comparing several other paired states.

To resolve some of the uncertainty, the Mailman/Physicians and Surgeons team is currently proposing a grant that could go even further in establishing whether medical marijuana laws are responsible for the greater teen use shown in their paper based on national data.

"We would like to explain our findings", Dr. Hasin says, "including whether the greater use of marijuana in states with medical marijuana laws occurs after the laws are passed, or whether the laws appear related to more generally favorable attitudes towards marijuana use in the states that passed them. Explaining the direction of effect is important, since incorrect information could lead to policies that would be ineffective."

The team grant proposal, which has been submitted to the National Institutes of Health, would look at national surveys on high school students from the years 1991-2012 using data from "Monitoring the Future," an ongoing study funded by NIH's National Institute on Drug Abuse that offers one of the most comprehensive chronicles of adolescent behaviors, values, and perceptions related to substance use and that carried out the study of adolescents that was released in December. (Monitoring the Future investigators at the University of Michigan are collaborators in the grant proposal).

What is important to keep in mind, the researchers say, is that it is currently not clear how the medical marijuana laws affect behavior. However, if future study results become conclusive, they will almost certainly have consequences for how drug policy plays out in the US, especially as more states decide whether to permit the use of marijuana for medical purposes.

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3 Charles Cooper and Declan McCullagh. "America's Love Hate History with Pot." CBS News. 10 Nov, 2009. [cbsnews.com/stories/2009/07/13/national/main5154550.shtml](http://cbsnews.com/stories/2009/07/13/national/main5154550.shtml)

4 Maia Szalavitz. "Study: Legal Medical Marijuana Doesn't Encourage Kids to Smoke More Pot." *Time.* 3 Nov, 2011. [healthland.time.com/2011/11/03/study-legal-medical-marijuana-doesnt-encourage-kids-to-smoke-more-pot](http://healthland.time.com/2011/11/03/study-legal-medical-marijuana-doesnt-encourage-kids-to-smoke-more-pot)