

# Medical Marijuana in New York: “Gateway Theory” Debunked

## Fatal Flaw in the Gateway Theory: Correlation Does Not Equal Causation

Research simply does not support the “gateway theory” – the notion that marijuana use, especially among youth, leads to the use of other substances. Because marijuana is the mostly widely used illicit substance, were the gateway theory true, we would expect to see many more users of other illicit substances than we do. But the vast majority of people who use marijuana do not go on to use other illicit drugs. One the key flaws in the “gateway theory” is that it equates the correlation between marijuana use and the use of other drugs with causation. By the same logic, one could argue that milk is a gateway to illicit drug use since most people who use illicit drugs also drank milk as young people.

## Research Has Found No Increase in Marijuana Use Among Youth in State with Medical Marijuana Programs

Research from states with medical marijuana programs have found that youth rates drop or remain stable after a state passes a medical marijuana law. For example, a recent *American Journal of Public Health* article from 2013<sup>i</sup>, using data from 4 states over 9 years, concluded: "Our results suggest that, in the states assessed here, MMLs [medical marijuana laws] have not measurably affected adolescent marijuana use in the first few years after their enactment." A prior 2012 study looking at a 17 year period also reached a similar conclusion: "We are confident that marijuana use by teenagers does not increase when a state legalizes medical marijuana."<sup>ii</sup> The 1999 Institute of Medicine report found that: “There is broad social concern that sanctioning the medical use of marijuana might increase its use among the general population. At this point there are no convincing data to support this concern. The existing data are consistent with the idea that this would not be a problem if the medical use of marijuana were as closely regulated as other medications with abuse potential... No evidence suggests that the use of opiates or cocaine for medical purposes has increased the perception that their illicit use is safe or acceptable.” A study conducted 15 years after the passage of the first medical marijuana law concluded that teens’ marijuana use has generally gone down following the passage of medical marijuana laws<sup>iii</sup>. Of the 13 states studied, only the two with the most recently enacted laws (Michigan and New Mexico) showed possible increases, and the increases were modest and within the margin of error.

## Of Cited Figures About Rates of Marijuana Addiction Among Youth Are Based on Faulty Logic

In Anthony et al (which many people cite for the statistic that 1 in 6 young people who try marijuana will become addicted) the "1 out of 6" statistic does not appear anywhere in the original source, figures or tables (2002<sup>iv</sup>, 1994<sup>v</sup>); the only way to come to this number is by manipulating the data. The study’s authors attempt to measure the “Cumulative Probability for Meeting Criteria for [Marijuana] Dependence” by a certain age does not follow users *over time*, and thus represents a survey-based snapshot of their lives in which they recollect their past use (which is a known weakness in this particular type of study design). These data, collected from 3,940 total users sampled of whom 354 were classified as dependent, allows for the inference that, by age 18, 5.61% or "1 in 17" marijuana users are at risk for dependence. It does not, however, allow for an analyst to add together dependence risk percentages from ages 10, 15, 16, 17 and 18, to get 14.5% or "1 in 6." If the same math were applied to all ages reported, you would end up with 162.24%.

Another possible source is a NIDA reference to “1 in 6” is based on self-reported data from the annual National Survey on Drug Use and Health to analyze data for "age of first marijuana use" and "Illicit Drug Dependence or Abuse in the Past Year." In a similar maneuver, the authors added the percentages for drug-dependent youths who had used marijuana age 14 or younger (12.7%) and ages 15-18 (4.9%), which equaled 17.6%, or "1 in 6." They effectively played with numbers to invoke the widely debunked marijuana gateway theory<sup>vi</sup>. A better measure of addiction or dependence is looking at those who use marijuana who enter treatment. If we look at it this way, we see that 2.8% of 12-17 year olds who used marijuana in 2010 entered treatment for it. When looking at the broader landscape of marijuana use, we see that 1.1% of marijuana users 12 and older in 2010 went to treatment for the substance.

[Marijuana Dependence is a Problem for Some People But Not One Solved by Denying the Seriously Ill Access to Medical Marijuana](#)

Certainly, some people have a problem with marijuana. Marijuana use by young people can especially be a problem and should be discouraged, but denying those with debilitating medical conditions access to medical marijuana is not a winning prevention strategy. Rather, we need honest, reality-based drug prevention and treatment programs to reduce the problematic use of marijuana by children and adults alike. An increasing number of drug prevention and treatment providers support medical marijuana because they understand that denying medical treatment to the sickest New Yorkers does nothing to prevent the misuse of drugs and only harms those already suffering from debilitating illnesses. In fact, the current President of the Addictions Division of the New York State Psychological Association wrote in an op-ed, “The Compassionate Care Act will ultimately make the job of drug treatment professionals like me easier<sup>vii</sup>. The worst dangers associated with medical marijuana come from forcing patients to seek medical marijuana on the illicit market...”

# *Annotated Bibliography of Key Research Refuting Gateway Theory*

[Van Gundy, Karen, and Rebellon J., Cesar \(2010\). A Life-course](#)

[Perspective on the “Gateway Hypothesis”. Journal of Health and Social Behavior, 51\(3\) 244–259.](#)

This study assesses the role of marijuana in the “gateway hypothesis.” The results indicate a moderate relation between early teen marijuana use and young adult abuse of other illicit substances; however, this association fades from statistical significance with adjustments for stress and life-course variables. For example, they find that early marijuana use does not elevate risk for the use of other illicit drugs among young adults who are employed. In light of these findings, they urge U.S. drug control policymakers to consider stress and life-course approaches in their pursuit of solutions to the “drug problem.”

[Morral, A. R., McCaffrey, D. F. and Paddock, S. M. \(2002\). Reassessing the marijuana gateway effect. Addiction, 97: 1493–1504.](#)

Using parameter estimates derived from US household surveys of drug use conducted between 1982 and 1994, a model of adolescent drug use initiation in the United States was constructed. Each of the phenomena used to support claims of a ‘marijuana gateway effect’ are reproduced by the model, even though marijuana use has no causal influence over hard drug initiation in the model. They conclude that the marijuana gateway effects may exist. However, they assert that their results demonstrate that the phenomena used to motivate belief in such an effect are consistent with an alternative simple, plausible common-factor model. No gateway effect is required to explain them. The common-factor model has implications for evaluating marijuana control policies that differ significantly from those supported by the gateway model.

[Goluba, A. and B. Johnson. \(2002\). The misuse of the ‘Gateway Theory’ in US policy on drug abuse control: A secondary analysis of the muddled deduction. International Journal of Drug Policy, 13\( 1\): 5–19.](#)

The findings of this study indicate that (1) extremely few members of the general population become persistent daily harder drug users engaged with the criminal justice system; and (2) an increasing percentage of daily harder drug users who are engaged with the criminal justice system did not follow the gateway sequence of substance use progression. They conclude: **“These results strongly suggest that the use of gateway drugs by youths is not the central cause of hard-drug use and its associated problems.”** (emphasis added) They note that fighting the use of gateway drugs by youths may not be a particularly appropriate approach to drug abuse prevention.

[Tarter, R. et al. \(2006\). Predictors of Marijuana Use in Adolescents Before and After Licit Drug Use: Examination of the Gateway Hypothesis. Am J Psychiatry, 163:2134-2140. 10.1176/appi.ajp.163.12.2134](#)

In this study, twenty-eight (22.4%) of the participants who used marijuana did not exhibit the gateway sequence, thereby demonstrating that this pattern is not invariant in drug-using youths. Among youths who did exhibit the gateway pattern, only delinquency was more strongly related to marijuana use than licit drug use. Specific risk factors associated with transition from licit to illicit drugs were not revealed. The alternative sequence had the same accuracy for predicting substance use disorder as the gateway sequence. They conclude that proneness to deviancy and drug availability in the neighborhood promote marijuana use. These findings support the common liability model of substance use behavior and substance use disorder – not the gateway theory.

[O'Connell, T. and Ché B Bou-Matar. \(2007\). Long term marijuana users seeking medical cannabis in California \(2001–2007\): demographics, social characteristics, patterns of cannabis and other drug use of 4117 applicants," Harm Reduction Journal, 4\(16\): 1-7.](#)

Analysis of the demographic and social characteristics of a large sample of applicants seeking approval to use marijuana medically in California supports an interpretation of long term non problematic use by many who had first tried it as adolescents, and then either continued to use it or later resumed its use as adults. In general, they have used it at modest levels and in consistent patterns which anecdotally-often assisted their educational achievement, employment performance, and establishment of a more stable life-style. ***“These data suggest that rather than acting as a gateway to other drugs, (which many had also tried), cannabis has been exerting a beneficial influence on most.”*** (emphasis added)

[Degenhardt, L.; Chiu, W. T.; Conway, K.; Dierker, L.; Glantz, M.; Kalaydjian, A.; Merikangas, K.; Sampson, N.; Swendsen, J.; and Kessler, R. C. \(2009\). "Does the 'gateway' matter? Associations between the order of drug use initiation and the development of drug dependence in the National Comorbidity Study Replication," Psychological Medicine, 39\(1\): 157–167.](#)

The authors look at deviations from normative patterns of drug use initiation that involve the initiation of illicit drug use earlier than usual -- the gateway pattern of initiation. But they find that other factors seem to be more important in the development of drug dependence, such as pre-existing mental disorders. They note conclude: “in targeting intervention efforts, it would probably be more productive to screen directly for these factors (i.e. internalizing disorders, early-onset substance use) than to screen for gateway violations.

# Medical marijuana is humane

By Andrew Tatarsky, Commentary

Wednesday, January 29, 2014

<http://www.timesunion.com/opinion/article/Medical-marijuana-is-humane-5182570.php>

As a psychologist who has specialized in substance use treatment for over 30 years, I have given a lot of thought to medical marijuana. Over the years, I have seen several patients who have used marijuana medicinally but have suffered — from potential criminalization and the shame, stigma and fear that comes from using an illicit substance. Twenty states and D.C. now permit the use of medical marijuana. New York should join them.

I applaud Gov. [Andrew Cuomo](#)'s recent acknowledgement of cannabis' medical value for some seriously ill people. However, the 1980 Olivieri Law that he is using, through which medical marijuana would be available through 20 hospitals around the state, has significant restrictions, preventing many patients who need the medicine from receiving it.

The Legislature is currently considering the Compassionate Care Act, which would create one of the best-regulated medical marijuana programs in the country. The administration has signaled that if the Legislature passes the bill, the governor would support it. Many of my colleagues in the addiction and mental health treatment communities support this bill, as reflected in endorsements by the [New York State Psychological Association](#) and its Division on Addiction.

Allowing the seriously ill access to safe and legal medical marijuana under their health care provider's supervision is, fundamentally, an issue of compassion and human rights. The medical value of cannabis is no longer a matter of dispute. The efficacy of cannabis for controlling certain conditions and symptoms is well-established in the scientific literature. And, compared to other prescription medications, like widely used opioid pain relievers, medical cannabis is relatively safe, having no known lethal dose and few side effects.

The Compassionate Care Act will ultimately make the job of drug treatment professionals like me easier. The worst dangers associated with medical marijuana come from forcing patients to seek medical marijuana on the illicit market, with potentially devastating consequences — like untested and possibly contaminated product, lifelong criminal records, and shame and stigma from using an illegal substance.

It's time to acknowledge that our current efforts to prohibit marijuana use, by pushing an abstinence-only message and exaggerating the dangers, have failed. Marijuana use by young people can be a problem and should be discouraged, but denying those with debilitating medical conditions access to medical marijuana is not a winning prevention strategy.

When our young people learn that their drug education is filled with misinformation about marijuana, we lose credibility and damage our ability to teach them accurate information about the real dangers of marijuana and other drugs.

We need honest, reality-based drug prevention and treatment programs to reduce the problematic use of marijuana by children and adults alike.

In fact, another reason I support the Compassionate Care Act is because it would generate and earmark substantial funding for such prevention programs, which have unfortunately been devastated by cuts in recent years.

I am not suggesting that medical marijuana is the right choice for everyone. There are risks associated with using it, just as with any medication. Medical marijuana shouldn't be recommended for use in adolescents, unless there is a compelling medical need, and people with particular mental illnesses, especially schizophrenia, should avoid using it.

There is also the risk, in a small percentage of users, of overuse and addiction; those cases should be referred to mental health and substance use treatment professionals for assessment and treatment. But we can best assess our patients and address these risks by having an open and honest dialogue — something nearly impossible for most health care practitioners in New York right now.

Our responsibility as drug treatment providers is to work with our patients to help them create full, meaningful, and healthy lives.

We have long had to deal with helping clients who use potentially dangerous and addictive medications to treat illnesses, and we do so because no one should have to suffer needlessly.

Medical marijuana is a fundamental matter of compassion, and bringing it into a safe, regulated and de-stigmatizing system will solve far more problems than does our current system of criminalizing our sickest and most vulnerable citizens.

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<sup>i</sup> Livingston, M.D., Lynne-Landsman, S.D. and Wagenaar, A.C. (2013). Effects of state medical marijuana laws on adolescent marijuana use. *American Journal of Public Health*, 10 (8), 1500-1506. Retrieved from: <http://www.ncbi.nlm.nih.gov/pubmed/23763418>.

<sup>ii</sup> Anderson, D.M., Hansen, B. and Rees, D. I. (2012). Medical marijuana laws and teen marijuana use. *Institute for the Study of Labor*. Retrieved from: [http://www.iza.org/en/webcontent/publications/papers/viewAbstract?dp\\_id=6592](http://www.iza.org/en/webcontent/publications/papers/viewAbstract?dp_id=6592).

<sup>iii</sup> Earleywine, M. and O'Keefe, K. (2011). The impact of state medical marijuana laws. *Marijuana Policy Project*. Retrieved from: <http://www.mpp.org/reports/teen-use.html>.

<sup>iv</sup> Anthony, J.C. and Wagner, F.A., (2002). From first drug use to drug dependence: Developmental periods of risk for dependence upon marijuana cocaine and alcohol. *Neuropsychopharmacology*, 26, 479-488. Retrieved from: <http://www.nature.com/npp/journal/v26/n4/full/1395810a.html>.

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<sup>v</sup> Anthony, J.C., Kessler, R.C. and Warner, L.A. (1994). Comparative epidemiology of dependence on tobacco, alcohol, controlled substances and inhalants: Basic findings from the national comorbidity survey. *Experimental and Clinical Pharmacology*, 23(3), 244-268. Retrieved from: <http://psycnet.apa.org/index.cfm?fa=buy.optionToBuy&id=1994-45545-001#e7>.

<sup>vi</sup> Szalavitz, M. (2010). Marijuana as a gateway drug: The myth that will not die. *Time: Health & Family*. Retrieved from: <http://healthland.time.com/2010/10/29/marijuana-as-a-gateway-drug-the-myth-that-will-not-die/>.

<sup>vii</sup> Tatarsky, A. (2014). Medical marijuana is humane. *Times Union*. Retrieved from: <http://www.timesunion.com/opinion/article/Medical-marijuana-is-humane-5182570.php>.