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MARIJUANA, THE STRAIGHT DOPE:
GUIDANCE FOR FEDERAL POLICY REFORM

by

Erik D. Baker

December 2017

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This thesis explores the increasingly popular push by states to decriminalize and legalize marijuana and the resulting problems that raise concern about maintaining the current federal marijuana policy. This thesis conducts an analysis of various policy options to resolve conflicts that arise between recently enacted state legislation and federal criminal statutes, U.S. compliance with international treaties, and public safety. Utilizing Bardach's eight-step method, this thesis compares three possibilities for policy recommendation. The first option is to maintain the status quo, or to continue a policy of relaxed federal enforcement. The second option is one of strict enforcement, essentially rolling back marijuana laws in the states and mandating compliance with current federal law. The third option is one of balancing the desires of the states while ensuring treaty compliance and public safety by rescheduling marijuana.

The research shows that a rescheduling of marijuana, from Schedule I of the Controlled Substance Act to Schedule III, would protect marijuana's access to those with a medical necessity while ensuring compliance with international counter-narcotics accords and enable the drug's availability for research purposes.

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MARIJUANA, THE STRAIGHT DOPE: GUIDANCE FOR FEDERAL POLICY REFORM

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ABSTRACT

This thesis explores the increasingly popular push by states to decriminalize and legalize marijuana and the resulting problems that raise concern about maintaining the current federal marijuana policy. This thesis conducts an analysis of various policy options to resolve conflicts that arise between recently enacted state legislation and federal criminal statutes, U.S. compliance with international treaties, and public safety. Utilizing Bardach's eight-step method, this thesis compares three possibilities for policy recommendation. The first option is to maintain the status quo, or to continue a policy of relaxed federal enforcement. The second option is one of strict enforcement, essentially rolling back marijuana laws in the states and mandating compliance with current federal law. The third option is one of balancing the desires of the states while ensuring treaty compliance and public safety by rescheduling marijuana.

The research shows that a rescheduling of marijuana, from Schedule I of the Controlled Substance Act to Schedule III, would protect marijuana's access to those with a medical necessity while ensuring compliance with international counter-narcotics accords and enable the drug's availability for research purposes.

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LIST OF ACRONYMS AND ABBREVIATIONS

CB	cannabinoid
DEA	Drug Enforcement Administration
delta-9-THC	delta-9-tetrahydrocannabinol
DOJ	U.S. Department of Justice
FDA	U.S. Food and Drug Administration
HSS	U.S. Department of Health and Human Services
INCB	International Narcotics Control Board
IOM	Institute of Medicine
LSD	lysergic acid diethylamide
MCCA	Major Cities Chiefs Association
MML	medical marijuana legalization
NIDA	National Institute on Drug Abuse
NSDUH	National Survey on Drug Use and Health
ONDCP	Office of National Drug Control Policy
SAMHSA	Substance Abuse and Mental Health Services Administration
THC	delta-9-tetrahydrocannabinol
U.S.C.	United States Code

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NOTE TO THE READER

It should be noted that a majority of the data compiled in this thesis was published prior to 2016. The facts and findings reflected in that research, however, still provide a solid framework for an analysis of the problems and potential policy changes. The research and recommendations illustrated remain very timely due to the fact that the federal government has neither acted, nor stated its intent to act in the near-term, to remedy the conflicts perpetuated by a status quo acceptance of current federal marijuana policy.

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EXECUTIVE SUMMARY

On August 14, 1970, marijuana was added to Schedule I of the Controlled Substance Act. This, according to the Drug Enforcement Administration, effectively outlawed the substance federally, classifying the drug as having a high likelihood of abuse and no medical purpose. More than four decades later, the current trend is one of state voters and legislators enacting laws, which are in conflict with this prohibition, allowing for the use of marijuana medically, and in the case of some states, recreationally. What policy changes should the federal government consider in light of the ongoing state marijuana reforms? This thesis seeks to answer that question.

The states' push for marijuana decriminalization and legalization creates numerous problems and raise concerns about the current federal marijuana policy. These include inconsistent enforcement and prosecutorial guidance, noncompliance with standing international counter-drug treaties, and citizens in many states now acting as research subjects.

The enforcement inconsistencies are illustrated by the fact that the U.S. Department of Justice, U.S. Department of Homeland Security, and countless state, local, and tribal law enforcement agencies police the frontlines of the effort to disrupt the tide of marijuana into the United States—all while more and more states vote to legalize the same substance. The marijuana decriminalization movement is creating a climate in which markets are being created for a substance that cannot be imported or cultivated in vast quantities legally, nor can the proceeds associated with its sale be processed through the legitimate banking system.

In an attempt to illustrate the problems created by the states' movement, this thesis reviews the current literature. This author conducted research to identify dimensions of the issues that may warrant policy changes.

This research explores four areas:

a. The impact of state legalization of marijuana on international accords that the United States has signed.

b. The impact of potential medical benefits on marijuana's federal classification and the impact of its classification on research.

c. The impact of marijuana legalization on health and public safety risk.

d. The mechanism by which marijuana could be reclassified.

This thesis provides evidence that current states' efforts are in conflict with federal marijuana law and policy in four areas explored: legal, law enforcement, medical, and health and public safety. The research shows that current scheduling stifles the very research that would tend to provide evidence for the need to reschedule marijuana in the first place. Similarly, current scheduling precludes the classification of marijuana as a prescription drug, which would provide for its regulation and compliance with both federal and international law.

Evidence reported in this thesis shows a medicinal value of marijuana and also the dangers associated with its use early in life as well as impaired driving, and unknown THC content. While decriminalization appears to lead to greater use, even by those not legally authorized, there has been no evidence that increased marijuana use leads to an increase in Part-I (serious) reported criminal activity. The ambiguity in federal enforcement and the increasing tolerance by states and municipalities have started us down the road to rescheduling marijuana and THC. This thesis illustrates the need to finish the trip.

This thesis explores three options for federal marijuana policy. The first is the status quo approach, or continued freedom of states to pass new laws while maintaining the relaxed enforcement of federal marijuana laws. Two other options considered are strict enforcement of federal marijuana law, and finally, the rescheduling of marijuana.

The author's advice to this federal administration and the yet-to-be appointed administrator of the Drug Enforcement Administration is to look at the

issue of marijuana legislation with a fresh eye and also through the lens of all that has been learned over the last few years. This thesis seeks to highlight some of this research knowledge and impart it on those that are in positions of decision-making. The author has come to believe that the placement of marijuana in Schedule I was never meant to be permanent. As more and more of the original questions surrounding marijuana are answered and for more questions to be properly addressed in the future, the federal classification of marijuana must change.

This thesis is framed by the fact that 45 states and territories have already passed some form of legislation that decriminalizes marijuana. Most of those 45 states, the District of Columbia, and Guam have passed laws allowing for the medicinal use of marijuana. That is precisely what marijuana as a Schedule III drug would provide, along with treaty compliance, and the ability to use the country's banking system in connection with marijuana as a legitimate business.

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I. DIMENSIONS OF EMERGING CHANGES IN MARIJUANA POLICY

A. RESEARCH QUESTION

On August 14, 1970, marijuana was added to Schedule I of the Controlled Substance Act.[1] This effectively outlawed the substance federally, classifying the drug as having a high likelihood of abuse and no medical purpose.[2] More than four decades later, the current trend is one of state voters and legislators enacting laws that are in conflict with this prohibition, allowing for the use of marijuana medically, and in the case of some states, recreationally. What policy changes should the federal government consider in light of the ongoing state marijuana reforms?

B. PROBLEM STATEMENT

The states' push for marijuana decriminalization and legalization creates numerous problems that raise concerns about the current federal marijuana policy. These include inconsistent enforcement and prosecutorial guidance, noncompliance with standing international treaties, and citizens in many states now acting as research subjects.

The enforcement inconsistencies are illustrated by the fact that the U.S. Department of Justice, U.S. Department of Homeland Security, and countless state, local, and tribal law enforcement agencies police the frontlines of the effort to disrupt the tide of illegally imported marijuana into the United States. In 2013, the U.S. Senate passed a comprehensive immigration reform bill[3] that included $30 billion in additional spending for border security and calls for an additional

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[1] Sanjay Gupta, "Why I Changed My Mind on Weed," *CNN*, August 8, 2013, http://www.cnn.com/2013/08/08/health/gupta-changed-mind-marijuana/.

[2] Drug Enforcement Administration, "DEA Controlled Substances Act," accessed July 17, 2017, https://www.dea.gov/druginfo/csa.shtmlTitle 21 USC.

[3] "S.744—113th Congress (2013–2014): Border Security, Economic Opportunity, and Immigration Modernization Act," Congress, December 10, 2014, https://www.congress.gov/bill/113th-congress/senate-bill/744.

20,000 to 30,000 new Customs and Border Protection agents and officers. This proposed expansion came on the heels of an expansion that had already tripled the size of the Border Patrol between 2004 and 2012, with most of the buildup along the southwestern border of the United States with Mexico.[4] This increased enforcement posture is in addition to the vast resources already expended by other agencies, including the Drug Enforcement Administration (DEA), in the fight against marijuana. However, at the same time, this country has been host to a growing domestic market for marijuana, as illustrated by the number of states that have sought to legalize it in some fashion (see Figure 1).

Figure 1. U.S. Marijuana Policy by State[5]

[4] Jeremy Slack, Daniel Martinez, Scott Whiteford, and Alison Lee, *Border Militarization and Health: Violence, Death, and Security* (Tucson, AZ: University of Arizona, 2013).

[5] Source: Douglas A. Berman, "Marijuana Policy Project," September 2015, http://lawprofessors.typepad.com/marijuana_law/2013/09/can-we-rank-the-best-and-worst-medical-marijuana-states-by-what-metrics.html.

There are several reasons why the U.S. federal government would likely opt against maintaining the current strategy of allowing individual states to pass legislation that is in direct conflict with federal mandates. Though the 10th Amendment to the U.S. Constitution precludes the federal government from commanding the states to criminalize marijuana, Title 21 of the U.S. Code outlaws its cultivation, importation, possession, transportation, sale, and use. The conflict between federal prohibition and state legalization sends a confusing message to the citizens of this country as well to the law enforcement personnel who must struggle to determine which side of the enforcement doctrine they must adhere. Several recent articles, including a *New York Times* piece[6] in April of 2015 and a Lincoln Memorial University, Duncan School of Law article[7] illustrate the dilemma.

The *Times* article[8] describes the current situation of a former marijuana dispensary owner from Morro Bay, California. The subject, Charles Lynch, is caught between the state system that allowed him grow and sell marijuana from a storefront and the federal legal system that has recently convicted him of several counts of illegal drug dealing for the same activity. Mr. Lynch's conviction appeal has highlighted just how bizarre things have become in marijuana legislation. An amendment to the 2015 House Appropriations Bill outlawed the Justice Department from spending any federal funds to prevent states from "implementing their own state laws that authorize the use, distribution, possession or cultivation of medical marijuana."[9] According to many in Congress, including conservative California Republican Representative Dana Rohrabacher

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[6] Erik Eckholm, "Legal Conflicts on Medical Marijuana Ensnare Hundreds as Courts Debate a New Provision," *The New York Times*, April 8, 2015, https://www.nytimes.com/2015/04/09/us/medical-marijuana-dispensers-trapped-by-conflicting-laws.html?mcubz=2.

[7] Melanie M. Reid, "The Quagmire that Nobody in the Federal Government Wants to Talk About: Marijuana," *New Mexico Law Review* 44, Rev. 169 (2014): 169–206, http://works.bepress.com/melanie_reid/11/.

[8] Ibid.

[9] "H.Amdt.332 to H.R.2578—114th Congress (2015–2016)," Congress, June 3, 2015, https://www.congress.gov/amendment/114th-congress/house-amendment/332/all-info.

who co-authored the bill, if the United States Attorney's Office pursues prosecutions against individuals such as Mr. Lynch for activity that complies with state laws as quoted above, then it is the one violating federal law. In addition to the prosecutorial issues, to quote the Duncan Law School paper,[10] "the lack of clarification has law enforcement and medical marijuana dispensary owners at a standoff, with the one side awaiting orders to shut down the businesses and the other risking a loss of livelihood if such an order is given."[11]

The same Controlled Substance Act of 1970 that gave us Title 21 also reaffirmed three international drug control treaties the compliance with which the United States and all other signatory nations, are charged. The three international drug control accords are the 1961 Single Convention on Narcotic Drugs as Amended by the 1972 Protocol,[12] which limits marijuana "exclusively to medical and scientific purposes;" the 1971 Convention on Psychotropic Substances;[13] and the 1988 Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances,[14] which criminalizes all marijuana use that is not scientific in nature.

Besides the contradictory legislation, conflicting enforcement protocols, and issues of non-compliance with international accords, the states that have opted for the legalization of marijuana have done little to regulate its content. Delta-9-tetrahydrocannabinol (delta-9-THC or THC) is a naturally occurring component of *cannabis sativa L.* (marijuana).[15] THC is one of the compounds

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[10] Ibid.

[11] Reid, "The Quagmire that Nobody," 169.

[12] United Nations, *Single Convention on Narcotic Drugs, 1961* (New York: United Nations, 1961), https://www.unodc.org/pdf/convention_1961_en.pdf.

[13] United Nations, *Convention on Psychotropic Substance, 1971* (New York: United Nations, 1971), https://www.unodc.org/pdf/convention_1971_en.pdf.

[14] United Nations, *1988 Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances* (New York: United Nations, 1988), https://www.unodc.org/pdf/ convention_1971_en.pdf.

[15] Sarah R. Calhoun, Gantt P. Galloway , and David E. Smith, "Abuse Potential of Dronabinol (Marinol)," *Journal of Psychoactive Drugs* 30, no. 2 (1998): 197–196.

that have been clinically demonstrated to possess therapeutic utility.[16] It is also the compound that is scheduled by the DEA and the most widely cited compound in testing and recording potency. Whether for medicinal use or for the recreation of its users, THC content varies greatly in concentration in samples of seized marijuana.[17]

Other issues created by the legalization efforts of states such as Colorado, Washington, and most recently California and Oregon are the boom in "narcotourism" and a potential increase in the number of impaired drivers operating motor vehicles within those jurisdictions and between states. As more and more states enter the clouded world of marijuana decriminalization and legalization, the need to provide some policy guidance to the federal government to rectify the problems created by the differing state laws becomes even more acute.

C. LITERATURE REVIEW

This thesis includes the author's preliminary review of the literature in an effort to identify dimensions of the issues that may warrant policy changes.

1. This research explores four areas:

    a. The impact of state legalization of marijuana on international accords that the United States has signed.

    b. The impact of potential medical benefits on marijuana's federal classification and the impact of its classification on research.

    c. The impact of marijuana legalization on health and public safety risk.

    d. The mechanism by which marijuana could be reclassified.

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[16] Janet E. Joy, Stanley J. Watson, Jr., and John A. Benson, Jr., eds., *Marijuana and Medicine: Assessing the Science Base* (Washington, DC: National Academy Press, 1999), 25.

[17] Zlatko Mehmedic, Suman Chandra, Desmond Slade, Heather Denham, Susan Foster, Amit S. Patel, Samir A. Ross, Ikhlas A. Khan, and Mahmoud A. ElSohly "Potency Trends of Δ9-THC and Other Cannabinoids in Confiscated Cannabis Preparations from 1993 to 2008," *Journal of Forensic Sciences* 55, no. 5 (2010): 1209–1217.

2. This review of the literature illustrates the following:

   a. Various state laws are in conflict with the current federal statutes.

   b. These inconsistencies have led to confusion and conflict between the enforcement policies of state, local, and federal law enforcement.

   c. Congress, while voting to fund counter-marijuana efforts, has also passed an appropriations bill precluding the federal government from using federal funds in contradiction of any state marijuana legalization efforts, adding to the confusion.

   d. The legalization efforts of the states have also potentially put the United States in non-compliance with international counter-drug treaties.

   e. The data suggests medical merit to marijuana but also reveals new dangers with increased decriminalization.

   f. The current scheduling of marijuana limits the availability of the substance for research purposes, hindering the very thing that could help guide federal policy changes.

   g. There is a mechanism in place by which the federal government could move to reclassify marijuana in another schedule of the Controlled Substance Act.

1. The Impact of State Legalization of Marijuana on International Accords that the United States Has Signed

The International Narcotics Control Board (INCB) is the body that is charged with overseeing the international compliance with the above-listed treaties. The INCB published an annual report in 2013 that stated that thanks to the passage of marijuana legalization reforms in the states of Colorado and Washington, the United States is "not in conformity with the international drug control treaties."[18] In its 2015 report, the INCB continues to call for the illegality of all dangerous drugs but does concede "States should be guided by the principle of proportionality in the determination of penalties."[19] The report goes

[18] Wells Bennett and John Walsh, *Marijuana Legalization is an Opportunity to Modernize International Drug Treaties* (Washington, DC: Brookings Institution, 2014).

[19] Ibid.

on to say “the flexibility provided for by the conventions to offer alternatives to conviction or punishment for drug-related crimes of a minor nature remains underutilized.”[20]

Researchers at the Brookings Institution state in their 2014 report that our federal government’s current “wait-and-see” position is not sustainable.[21] The increase in the number of states that are decriminalizing marijuana use for recreational purposes is shifting the country further and further away from compliance with the treaties. Recent U.S. Department of Justice (DOJ) guidance, in the form of the August 2103 “Cole memo,” is essentially the new legislative framework.[22] In the memo, Deputy Attorney General James M. Cole lays out prosecutorial guidelines for the enforcement of Title 21 marijuana laws, accounting for “whether a [marijuana operation in a legal state] is demonstrably in compliance with a strong and effective state regulatory system.”[23]

It appears that the DOJ may be modeling the current policy after one that for years has looked nothing like the U.S. prohibition rather but that of the Netherlands. Marijuana is not legal in Amsterdam or any other city in the Netherlands. In fact, laws are on the books that make production and possession, even for personal use, a misdemeanor. The Netherlands are also party to the 1961 Single Convention on Narcotic Drugs as Amended by the 1972 Protocol,[24] the 1971 Convention on Psychotropic Substances,[25] and the 1988

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[20] International Narcotics Control Board, *Availability of Internationally Controlled Drugs: Ensuring Adequate Access for Medical and Scientific Purposes* (New York: United Nations, 2015), https://www.incb.org/incb/en/publications/annual-reports/annual-report-supplement-2015.html.

[21] Ibid.

[22] James M. Cole, *Guidance Regarding Marijuana Enforcement* [memorandum] (Washington, DC: U.S. Department of Justice, 2013), http://www.dfi.wa.gov/documents/banks/cole-memo-08-29-13.pdf.

[23] Ibid.

[24] Ibid.

[25] Ibid.

Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances.[26]

These conventions state that there has to be legislation in place criminalizing possession of controlled substances. However, it does not mandate the enforcement of these laws. In addition to this loophole, these conventions allow for drugs to be used for scientific and medical purposes. There has been a long-standing lack of enforcement that has rendered marijuana functionally legal in the Netherlands. Since 1976, the Dutch Ministry of Justice has applied what is called a *gedoogbeleid*, or tolerance policy. It has published an official set of guidelines with regard to the non-prosecution of "soft drugs," including marijuana. Since the policy's inception, the courts have ruled in many cases against prosecutorial efforts citing the tradition of non-enforcement.[27]

In response to this policy of pseudo-legalization, an entire soft drug industry has evolved in the Netherlands. Narcotourism flourished as the streets of Amsterdam, which is filled with "coffee shops" pedaling various strains of marijuana instead of Arabica blends. Until recently, anyone in possession of less than 5 grams of marijuana or fewer than five plants would not be prosecuted. However, the Dutch have recently been rethinking their relaxed strategy and have begun implementing restrictions on the purchase and possession of marijuana by non-residents.[28]

There are several approaches available to resolve the conflict between legalization and treaty-compliance in the United States. One option is suggested by the work of the Center for Effective Policy Management at Brookings. The authors advocate that the dilemma of treaty non-compliance presents an opportunity to craft changes to these international drug control treaties that would

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[26] Ibid.

[27] Center for Public Impact, "The Dutch Policy on Marijuana Use: Continuity and Change," November 23, 2016, https://www.centreforpublicimpact.org/case-study/dutch-policy-marijuana-use-continuity-change/.

[28] Ibid.

"modernize" them to align with the growing international acceptance of marijuana.[29] Another approach would be to innovate the way we comply with the treaties as that they are currently written. All three accords call for the outlawing of marijuana except for medical or scientific reasons. By accepting the research outlined in the reports from the Mayo Clinic[30] and Koppel's *Systematic Review: Efficacy and Safety of Medical Marijuana in Selected Neurological Disorders*,[31] there is an opportunity for rewriting our federal marijuana laws rather than the treaties.

2. Impact of Potential Medical Benefits on Marijuana's Federal Classification, and the Impact of its Classification on Research

The national ban on marijuana began on August 14, 1970, when Assistant Secretary of Health, Dr. Roger O. Egeberg wrote a letter recommending the plant be classified as a Schedule I substance.[32] In his rationale, Egeberg stated,

> Since there is still a considerable void in our knowledge of the plant and effects of the active drug contained in it, our recommendation is that marijuana be retained within Schedule I at least until the completion of certain studies now underway to resolve the issue.[33]

In a 2008 position paper, the American College of Physicians demonstrated the dilemma that is currently facing the country. To quote Dr. Bostwick, in their paper, the authors "trod the middle ground between praising and demonizing botanical cannabis" when they stated it is "neither devoid of potentially harmful effects nor universally effective."[34] The group called for "sound scientific study"

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[29] Bennett and Walsh, *Marijuana Legalization*.

[30] Michael J. Bostwick, "Blurred Boundaries: The Therapeutics and Politics of Medical Marijuana," in *Mayo Clinic Proceedings* 87, no. 2 (2012): 172–186, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3538401/.

[31] Barbara S. Koppel et al., "Systematic Review: Efficacy and Safety of Medical Marijuana in Selected Neurologic Disorders Report of the Guideline Development Subcommittee of the American Academy of Neurology," *Neurology* 82, no. 17 (2014): 1556–1563.

[32] Gupta, "Why I Changed My Mind."

[33] Ibid.

[34] Bostwick, "Blurred Boundaries."

and "dispassionate scientific analysis."[35] It is this further study that is lacking, due profoundly to the fact that marijuana is Schedule I. We find ourselves in a quagmire highlighted by Dr. Douglas Fields in his article entitled "The Absurdity of Medical Marijuana." In the article, he discusses the need for further research to determine if marijuana should be reclassified coupled with an absurd lack of the plant material available for research due to its very classification.[36] Marijuana classification by the Controlled Substance Act[37] places it in the category of those substances that do not show any accepted medical use. In spite of centuries of prescription, it fails to rate on par with the likes of other highly abused substances that have shown some medical benefit, such as opioids, which are derived from the opium poppy; cocaine, which is derived from the coca plant; close methamphetamine analogs, such as dextroamphetamine and methylphenidate; or even barbiturates and benzodiazepines. All of these substances are currently listed in Schedule II. Schedule II drugs are those with "high potential for abuse, less abuse potential than Schedule I drugs, with use potentially leading to severe psychological or physical dependence."[38] The primary difference between Schedule I and II definitions is the allowance for Schedule II drugs to have some accepted medical use.[39]

3. Impact of Marijuana Legalization on Health and Public Safety Risk

The White House has an Office of National Drug Control Policy (ONDCP). The ONDCP published a fact sheet in 2010 that listed several risks of marijuana

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[35] PJ Cohen, "Medical Marijuana: The Conflict between Scientific Evidence and Political Ideology, Part Two of Two," *Journal of Pain & Palliative Care Pharmacotherapy* 23, no. 2 (2009): 120–140.

[36] Douglas Fields, "The Absurdity of 'Medical Marijuana,'" *Brain Facts* [blog], December 20, 2014, http://blog.brainfacts.org/2014/12/the-absurdity-of-medical-marijuana/.

[37] Drug Enforcement Administration, "Controlled Substances Act," accessed March 3, 2017, https://www.dea.gov/druginfo/csa.shtml.

[38] Drug Enforcement Administration, "Drug Scheduling," accessed March 3, 2017, https://www.dea.gov/druginfo/ds.shtml.

[39] Ibid.

legalization. In a 2005 article in *Journal of General Internal Medicine*, Moore et al. note that these include "dependence, respiratory and mental illness, poor motor performance, and impaired cognitive and immune system functioning."[40] Marijuana intoxication can cause "distorted perceptions, problems with thinking, problem solving, learning, and memory."[41] According to Moore et al., "Studies have shown an association between marijuana use and increased rates of anxiety, depression, suicidal thoughts, and schizophrenia."[42] In addition, marijuana smoke has been shown to contain "50–70 times more carcinogenic hydrocarbons than tobacco smoke."[43] A 2011 study by the Partnership for Drug-Free Kids and the MetLife Foundation illustrated that heavy marijuana use within

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[40] Brent A. Moore et al., "Respiratory Effects of Marijuana and Tobacco Use in a U.S. Sample," *Journal of General Internal Medicine* 20, no. 1 (2005): 33–37. Also see Donald P. Tashkin, "Smoked Marijuana as a Cause of Lung Injury," *Monaldi Archives for Chest Disease* 63, no. 2 (2005): 93–100.

Other evidence on the effect of marijuana on lung function and the respiratory system, and the link with mental illness, can be found in expert reviews offered by Wayne D. Hall and Rosalie L. Pacula, *Cannabis Use and Dependence: Public Health and Public Policy* (Cambridge, UK: Cambridge University Press, 2003).

Room et al. write, "Cannabis use and psychotic symptoms are associated in general population surveys and the relationship persists after adjusting for confounders. The best evidence that these associations may be causal comes from longitudinal studies of large representative cohorts." Furthermore, they also write, "animal studies suggest that high doses of cannabis extracts and of THC impair immune functioning." Robin Room et al., *Cannabis Policy: Moving beyond Stalemate* (Oxford: Beckley Foundation, 2009), http://archive.beckleyfoundation.org/Cannabis-Commission-Report.pdf.

Also see Louisa Degenhardt, and Wayne Hall, "Is Cannabis a Contributory Cause of Psychosis?," *Canadian Journal of Psychiatry*, 51 (2006): 556–565. "A major study examining young people and, importantly, a subset of sibling pairs was released in February 2010 and concluded that marijuana use at a young age significantly increased the risk of psychosis in young adulthood." See John McGrath et al., "Association between Cannabis Use and Psychosis-related Outcomes Using Sibling Pair Analysis in a Cohort of Young Adults," *Archives of General Psychiatry*, 67, no. (2010): 440–447.

[41] Harrison G. Pope et al., "Neuropsychological Performance in Long-term Cannabis Users," *Archives of General Psychiatry* 58, no. 10 (2001): 909–915.

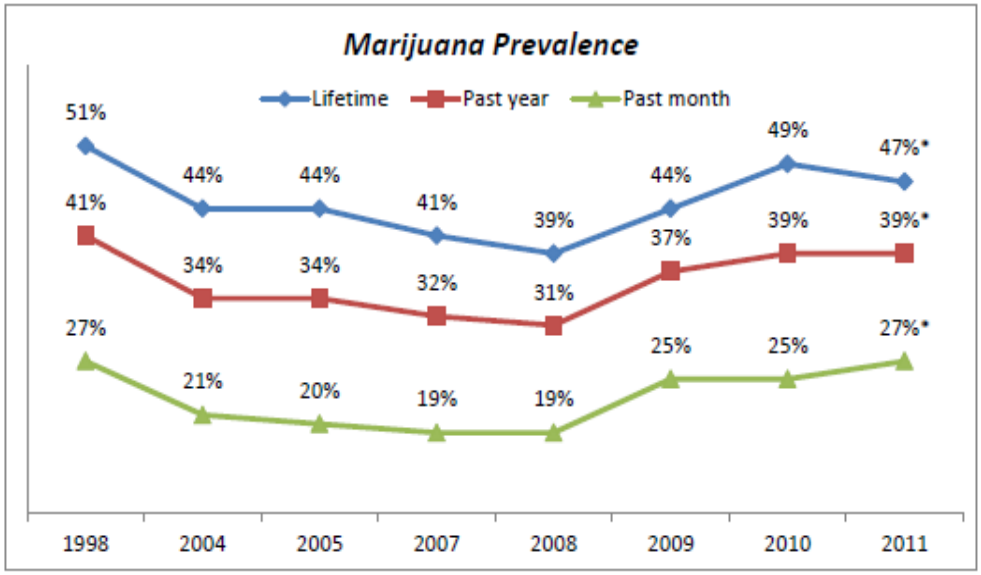
[42] Theresa H. Moore et al., "Cannabis Use and Risk of Psychotic or Affective Mental Health Outcomes: A Systematic Review," *Lancet* 370, no. 9584 (2007): 319–328.

[43] Ibid.

the preceding month increased 80 percent for the period from 2008 to 2011 (see Figure 2).[44]

Of the 23 states that currently have marijuana laws, 12 of them have passed their respective legislation since 2008. The four states of Arizona, Delaware, Michigan, and New Jersey and the District of Columbia passed their marijuana-friendly laws during the years of reported increased use (see Figure 2). These facts indicate an increased use and lead one to conclude that that the increases could be the result of marijuana legalization in those 12 states to pass marijuana laws since 2008.

Figure 2. Prevalence of Marijuana Use



*Significantly higher than 2008 levels

THC is one of the two most medically relevant substances in marijuana.[45] THC provides medical relief but also causes marijuana's psychoactive effects.[46]

[44] MetLife Foundation, *The Partnership Attitude Tracking Study* (New York: MetLife Foundation, 2012), http://www.drugfree.org/wp-content/uploads/2012/05/PATS-FULL-Report-FINAL-May-2-PDF-.pdf.

[45] Bostwick, "Blurred Boundaries."

[46] Ibid.

Its content varies greatly in concentration in samples of seized marijuana.[47] Two potential risks involved in marijuana decriminalization are those of THC content and impaired driving.

The synthetic THC content found in the only U.S. Food and Drug Administration (FDA)-approved synthetic cannabinoid, Marinol, is consistent. Federal law and regulation require that a regulated "drug's chemistry must be known and reproducible."[48] Most jurisdictions opting for legalization are foregoing these drug safety mandates, acknowledging that there are no standards for growing processes or THC levels of marijuana. As of December 2016, 45 states and the District of Columbia now allow for the medical use of marijuana. Of those states, only 17 have laws limiting the THC content or psychoactive effects.[49]

Marijuana has seen rising levels of THC over the past 60 years of testing.[50] For comparison, the national average of THC content in 1978 was 1.37 percent, in 1988 it was 3.59 percent, and in 2008 it was 8.49 percent.[51] The highest tested sample in a December 2008–March 2009 study recorded 22.04 percent THC content. Though some marijuana advocates argue that the increases in THC level merely mean that smaller doses can be ingested,[52] this logic does little to negate the potential for abuse. In addition, it is quite possibly the biggest risk that comes from unregulated and unknown THC levels. A recent

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[47] Mehmedic et al., "Potency Trends of Δ9-THC."

[48] Jonathan P. Caulkins, Angela Hawken, Beau Kilmer, and Mark A. R. Kleiman, *Marijuana Legalization: What Everyone Needs to Know* (Oxford: Oxford University Press, 2012).

[49] National Conference of State Legislatures, "State Medical Marijuana Laws," August 30, 2017, http://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx.

[50] Mahmoud A. ElSahly, *Potency Monitoring Project, December 16, 2008–March 15, 2009* (Oxford: MS: University of Mississippi, 2009), 104.

[51] Ibid.

[52] Ibid.

report from the Colorado State Department of Public Health reveals typical THC levels for marijuana in Colorado in the 20 percent range.[53]

A 2015 RAND Corporation study of the correlations between the legality and acceptability of substances and their level of use shows that alcohol and cigarettes far outpace marijuana in reported use.[54] This trend could potentially wane if illegality ceased to keep prices high and social acceptability low. Another report, published in *Addiction* in January of 2014, examined the marijuana use of fatally injured *drivers*. This study showed that the number of drivers testing positive for marijuana tripled between 1999 and 2010.[55] Though the study tested merely for drug use and not a level of impairment, the tests were conducted on drivers involved in fatal traffic collisions. It should be noted that California was the first state to decriminalize marijuana in 1996, with the medical marijuana legislation passed by Proposition 215. Only six states that routinely test the toxicology of injured drivers were included in the study, California was one of them.[56] Neither Colorado nor Washington was included.

Another study from 2012, supported by the National Institutes of Health, conducted a "meta-analysis of nine different research studies." The research found that drivers who "test positive for marijuana or report driving within three hours of marijuana use are more than twice as likely as non-marijuana impaired drivers to be involved in motor vehicle crashes."[57] Though there is no data with regard to amount of marijuana ingested or the potency, the findings point to increased likelihood of traffic collisions for drivers that have tested positive for

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[53] Colorado Department of Public Health and Environment, *Monitoring Health Concerns Related to Marijuana: 2014* (Denver, CO: Colorado Department of Public Health and Environment, 2014), https://drive.google.com/file/d/0B0tmPQ67k3NVVUhScGZUSWpGQ1k/view.

[54] Deborah S. Hasin et al., "Medical Marijuana Laws and Adolescent Marijuana Use in the USA from 1991 to 2014: Results from Annual, Repeated Cross-sectional Surveys," *The Lancet Psychiatry* 2, no. 7 (2015): 601–608.

[55] Joanne E. Brady and Guohua Li, "Prevalence of Alcohol and Other Drugs in Fatally Injured Drivers," *Addiction* 108, no. 1 (2013): 104–114.

[56] Ibid.

[57] Mu-Chen Li et al., "Marijuana Use and Motor Vehicle Crashes," *Epidemiologic Reviews* 34, no. 1 (2011): 65–72.

marijuana or admitted use within three hours of getting behind the wheel, which indicates increased risk of traffic-related injury.

Another 2014 study looks at the state of Colorado before and after its legalization of marijuana. Compiling data from compiled from 1994 to 2011, the researchers compared fatal motor vehicle crashes in Colorado and in 34 states (at the time) without "medical marijuana" laws.[58] Colorado passed its first marijuana law in mid-2009. The researchers found that "fatal motor vehicle crashes in Colorado involving at least one driver who tested positive for marijuana accounted for 4.5 percent in the first six months of 1994."[59] This percentage "increased to 10 percent in the last six months of 2011."[60] The increase was significantly greater in Colorado than in any of the 34 non-medical marijuana states.[61]

4. The Mechanism by Which Marijuana Could Be Reclassified Federally

The classification of drugs and narcotics within the Schedule of Controlled Substances is the responsibility of the DOJ and the DEA. Per the Congressional Research Service (CRS), the "placement of drugs or other substances into schedules under the Controlled Substance Act (CSA) is based upon the substance's medical use, potential for abuse, and safety or dependence liability."[62] The act further provides a mechanism for substances to be added to a schedule, and thusly controlled; decontrolled, or removed from the scheduling framework altogether, and rescheduled or transferred from one schedule to another.

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[58] Stacy Salomonsen-Sautel et al., "Trends in Fatal Motor Vehicle Crashes before and after Marijuana Commercialization in Colorado," *Drug and Alcohol Dependence* 140 (2014): 137–144, https://www.ncbi.nlm.nih.gov/pubmed/24831752.

[59] Ibid.

[60] Ibid.

[61] Li et al., "Marijuana Use."

[62] Congressional Research Service, *The Legal Process to Reschedule Marijuana* (Washington, DC: Congressional Research Service, 2012), https://fas.org/sgp/crs/misc/reschedule.pdf.

Quoting the Controlled Substance Act, a CRS 2015 legal sidebar entitled, *The Legal Process to Reschedule Marijuana*, states,

> There are two general methods by which marijuana may be rescheduled:
>
> 1. Congress may choose to enact legislation amending the CSA. Congress placed marijuana in Schedule I when it enacted the CSA in 1970 and retains the authority to move the drug to a less restrictive schedule or to remove the drug from the CSA framework entirely.
>
> 2. The Drug Enforcement Agency (DEA) may administratively move marijuana to a lower schedule or remove it entirely. The CSA authorizes the DEA (by delegation from the Attorney General) to "transfer between schedules" any drug that meets the criteria for inclusion in the "schedule in which such drug is to be placed," or to "remove any drug...from the schedules" if it "does not meet the requirements for inclusion in any schedule."
>
> In addition to these basic scheduling criteria, the CSA lays out eight factors that must be considered in any scheduling determination.

§811 of the CSA clearly defines the eight criteria noted above. Subchapter C, entitled "Factors determinative of control or removal from schedules" mandates that the following criteria be applied to any substance under consideration for CSA scheduling placement.[63]

1. Its actual or relative potential for abuse.
2. Scientific evidence of its pharmacological effect, if known.
3. The state of current scientific knowledge regarding the drug or other substance.
4. Its history and current pattern of abuse.
5. The scope, duration, and significance of abuse.
6. What, if any, risk there is to the public health.
7. Its psychic or physiological dependence liability.

[63] 21 USC §811.

8. Whether the substance is an immediate precursor of a substance already controlled under this subchapter

D. CHAPTER CONCLUSION

The purpose of this literature review was to identify dimensions of the marijuana legislation problem that may warrant policy changes.

The research illustrates that:

a. Various state laws are in conflict with the current federal statutes.[64]

b. These inconsistencies have led to confusion and conflict between the enforcement policies of state, local, and federal law enforcement.[65]

c. While voting to fund counter-marijuana efforts, Congress also passed an appropriations bill precluding the federal government from using federal funds in contradiction of any state marijuana legalization efforts, which adds to the confusion.[66]

d. The legalization efforts of the states have also potentially put the U.S. in non-compliance with international counter-drug treaties.[67]

e. The data suggests medical merit to marijuana,[68] but also reveals new dangers with increased decriminalization.[69]

f. The current scheduling of marijuana limits the availability of the substance for research purposes, hindering the very thing that could help guide federal policy changes.[70]

g. There is a mechanism in place by which the federal government could move to reclassify marijuana in another schedule of the Controlled Substance Act.[71]

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[64] National Conference of State Legislatures, "State Medical Marijuana Laws."

[65] Cole, *Guidance Regarding Marijuana*.

[66] "Amendment Text: H.Amdt.748—113th Congress (2013–2014)," Congress, 2014, https://www.congress.gov/amendment/113th-congress/house-amendment/748/text.

[67] Bennett and Walsh, *Marijuana Legalization*.

[68] Koppel et al. "Systematic Review."

[69] Li et al., "Marijuana Use."

[70] Fields, "The Absurdity of 'Medical Marijuana.'"

[71] "Title 21 United States Code (USC) Controlled Substances Act," Drug Enforcement Agency, accessed April 29, 2017, https://www.deadiversion.usdoj.gov/21cfr/21usc/811.htm.

The problem facing the country can be summed up with one line in Dr. Bostwick's Mayo Clinic report. He says, "In sum, marijuana offers the recreational substance abuse version of caveat emptor."[72] However, a buyer-beware approach to marijuana does not appear to be in the best interests of the country. By identifying the dimensions of the problem that may warrant policy changes, opportunities will emerge for the federal government to craft new policies to protect the American people.

E. RESEARCH DESIGN

The research methodology for this research is policy analysis. I used the eight-step process as outlined by Eugene Bardach in his book, *A Practical Guide for Policy Analysis* (see Figure 3).[73]

Figure 3. Eight-Step Policy Analysis[74]

Eight Step Policy Analysis
Step 1: Define the Problem
Step 2: Assemble Some Evidence
Step 3: Construct Alternatives
Step 4: Select Criteria
Step 5: Project Outcomes
Step 6: Confront the Trade-Offs
Step 7: Decide
Step 8: Tell Your Story

In his book, Bardach tells us that defining the problem is critical because it gives us a reason for the work we are undertaking and provides a sense of

[72] Bostwick, "Blurred Boundaries."

[73] Ibid.

[74] Adapted from: Eugene Bardach and Eric M. Patashnik, *A Practical Guide for Policy Analysis: The Eightfold Path to More Effective Problem Solving* (Washington, DC: CQ press, 2015).

direction.[75] He explains that it is often helpful when defining a problem "to think in terms of deficit or excess."[76] The abundance of state laws that are in direct conflict with federal drug statutes creates a chaotic environment. This chaos flows from the fact that while states are voting to decriminalize and legalize marijuana, Title 21 of the U.S. Code still forbids its use for any purpose.[77] Use for any purpose other than medical or research puts the United States in non-compliance with international counter-drug treaties.[78] Classification of marijuana as a Schedule I drug precludes the kind of robust, clinical research that is required to effectively mandate its regulation. The void in testing and regulation in those states that have opted for some form of legalization leads to increased risk of overdosing, accidental ingestion, and impaired driving. The marijuana laws passed by individual states have created uncertainty, inconsistency, and potential danger.

Assembling evidence of the problem and potential policy solutions involve gathering the existing data. One key factor in my evidence collection is be to, as Bardach puts it, "free my captive mind."[79] As a law enforcement and homeland security professional, it was imperative that the author follow Bardach's advice to seek research and data from sources with whom one would expect to disagree—"the more sharply the better."[80]

The analysis leads to the construction of alternatives in federal marijuana policy. Just as the defining of the problem and the scope of research required the application of a lens for what criteria the author is using, the alternative policy recommendations are similarly presented with certain criteria in mind. The

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[75] Bostwick, "Blurred Boundaries."

[76] Bardach and Patashnik, *A Practical Guide*, 2.

[77] "U.S. Code: Title 21—Food and Drugs," Legal Information Institute, accessed April 29, 2017, https://www.law.cornell.edu/uscode/text/21.

[78] Ibid.

[79] Bardach and Patashnik, *A Practical Guide*, 16.

[80] Ibid.

answer to the problem of conflicting state and federal marijuana legislation is not one that can be answered by a single policy shift. A policy recommendation may, when applied to some criteria, be complimentary of some states' laws, and when applied to other criteria may conflict with the same states' paths. The two are not, as Bardach puts it, "mutually exclusive."[81]

A recommendation from Bardach that is applicable to this thesis is for each of the criterion to always include the approach of "let present trends (or business-as-usual) continue undisturbed."[82] This is never meant to "do nothing," but rather, in this case for example, that it may not be the proper time in the evolution of a current state's evolving marijuana legislative process to intervene. There may, for example, be solutions pending already for relaxing prohibitions on the research of marijuana. The key is to look at what specifically state decriminalization laws are doing to create the problem defined and what policy options flow from those effects. The goal of this thesis is to add "menu items" to the list of informed policy options that the federal government has in resolving the problem.

Step four of the research methodology is to select the criteria to evaluate the potential alternatives.[83] Though the criteria may be the same in name as those used to define the problem and frame the research, in this step they are used differently. Bardach describes a two-fold path to policy recommendation, one that is both analytical and evaluative.[84] The criteria applied in this exercise may be legal, law enforcement, international, political, and medical, just as in the first step. When gathering data to be used in constructing alternatives, these criteria were applied analytically. That is to say that I used a more objective and open-minded approach to my research to gather a fair, if not impartial, representation of the existing research.

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[81] Ibid.

[82] Ibid., 18.

[83] Ibid., 16.

[84] Ibid., 31.

As Bardach describes it, this step is where "we expect to see subjectivity and social philosophy to have freer play."[85] When evaluating each of the policy alternatives in terms of the criteria, it now becomes in terms of the projected outcomes and the benefits that each may bring. The author defines groups of individuals, or stakeholders, in this step. When applying the international criterion, for example, the author has to take into account what it means for the federal government to be in non-compliance with an international treaty and ultimately what that could mean for individual states. From a law enforcement perspective, there are many stakeholders; the taxpayers in "legal" states that have presumably voted for relaxed marijuana enforcement and the officials charged with protecting people from the dangers posed by bad or incomplete legislation.

Now that the criteria are selected, in terms of who is affected by potential outcomes, it is time to project those outcomes. Bardach begins his chapter by reminding the analyst that policy recommendations are for the future, not the present or the past, so certain assumptions have to be made about projecting them. He also reminds us that projecting the outcomes means being realistic.[86] There are logistical and political constraints that should be factored in when seeking to provide policy recommendations that are realistic.

Magnitude estimates are helpful in projecting many of the outcomes in this study. There are hard numbers that describe potential tax revenue, for instance, or percentages in likelihood of impaired driving. The use of scenario writing may prove to be the best way to project the various recommendations. Bardach reminds us of the importance in countering what he calls the emergent-features problem by viewing the projected policy outcomes from various points of view. By examining the projections from the perspective of various stakeholders, the viability of those projections are better illustrated in each scenario.

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[85] Ibid., 32.

[86] Ibid., 47.

Bardach's next step in the policy analysis is to confront the trade-offs. This step involves focusing on the outcomes and making comparisons to what Bardach refers to as the "base case."[87] The base case in this analysis is the status quo. What the outcomes would be if there were no changes in federal policy is the first outcome scenario for each alternative. It is helpful in this study to focus on just a few states. For example, Colorado has been a leading force in providing its own alternatives to the federal policy of prohibition. Examining the projected outcomes of various federal policy changes, in terms of Colorado, offers trade-offs that can be applied to the country as a whole.

In preparation of the next step, Bardach instructs the analyst at this point to "focus, narrow, and deepen"[88] the analysis of the most viable policy options. It is at this stage that Bardach tells us to think very seriously in terms of the requirements to get the policy alternatives adopted and the mechanics by which the policy could and would be implemented in the future.

Step seven in the process is to "decide!" At this stage, Bardach tells the analyst to imagine that she or he is the decision maker, the one who is going to be deciding whether to implement the policy recommendations.[89] He tells us to think of it terms of plausibility. If an analyst does not believe enough in his or her own recommendations to implement them, then the analyst will not be able to convince others of their value. Any hesitation that the analyst feels could be due to insufficient analysis of the trade-offs or an illustration of implementation problems that the analyst still needs to address.

The final step in the policy process is to tell the story. Bardach tells us to first test our own understanding of the conclusions by attempting to explain the policy answers to the problem defined in one minute or less. Bardach refers to

[87] Ibid., 66.

[88] Ibid., 68.

[89] Ibid., 69.

this exercise as the “Grandma Bessie” test.[90] This test is one that is applied in the thesis process at every meeting with the advisors. The audience for the recommendations of this thesis is the federal government. The “story” winds from the history of the problem, through the gathering of pertinent data, to constructing alternatives, and analyzing their potential outcomes and trade-offs.

[90] Ibid., 70.

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II. THE NATURE OF THE PROBLEM: RECENT CHANGES IN MARIJUANA POLICY HAVE CREATED INCONSISTENCIES AND CONFLICT

The debate over marijuana in this country is not a new one. In fact, marijuana has been discussed since the beginning of recorded time. In his 2012 article, Dr. J. Michael Bostwick provides a brief history of marijuana, its therapeutics, and use.[91] He reports that for "five millennia there is recorded use of marijuana to treat a variety of ailments. The first medical use probably occurred in Central Asia and later spread to China and India."[92] The website ProCon provides examples of historical use of medicinal marijuana; it explains,

> The Chinese emperor Shen-Nung is known to have prescribed it nearly five thousand years ago. Between 2000 and 1400 BC, it traveled to India and from there to Egypt, Persia, and Syria. Greeks, and Romans valued the plant for its ropelike qualities as hemp, and it also had medical applications.[93]

Marijuana use was not prevalent in western civilizations during medieval times, though it was valued for its fibers, hemp, to make rope, cloth, and paper.[94] In fact, the American Declaration of Independence is purported to have been drafted on hemp-based paper.[95]

Irish doctors who learned of the plant's therapeutic properties while in India began prescribing the drug to their patients.[96] In the United States, 1860 saw the first documented research study, as the Ohio State Medical Society conducted the first official U.S. government study of cannabis, analyzing the

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[91] Bostwick, "Blurred Boundaries," 173.

[92] ""Historical Timeline: History of Marijuana as Medicine—2900 BC to Present," accessed March 3, 2017, http://medicalmarijuana.procon.org/view.timeline.php?timelineID=000026.

[93] Ibid., 173.

[94] Allison Mack and Janet E. Joy, *Marijuana as Medicine?: The Science Beyond the Controversy* (Washington, DC: National Academy Press, 2001), 15.

[95] "What Kind of Paper was the Constitution Written On?," U.S. Constitution Online, September 12, 2011, http://www.usconstitution.net/constfaq_a8.html.

[96] Mack and Joy, *Marijuana as Medicine?*," 15.

medical literature and compiling a detailed list of conditions that "doctors had successfully treated with psychoactive hemp, ranging from bronchitis and rheumatism to venereal disease and postpartum depression."[97] That same year, physicians attending a national conference "reported success in using marijuana to treat chronic cough, gonorrhea, pain, and a variety of other conditions."[98]

By 1930, American pharmaceutical companies had begun bottling extracts of marijuana as a painkiller and sedative as well as manufacturing marijuana cigarettes.[99] At the same time, the free flow of commerce and people across the U.S.-Mexico border brought the spread of marijuana use for recreational purposes.[100] The first federal legislation that addressed marijuana use was the Uniform Narcotic Drug Act of 1932, which encouraged states to prohibit marijuana.[101] By 1937, every state in the Union had passed some form of legislation outlawing marijuana use.[102] In spite of the prohibitions, marijuana use continued to rise through the 1960s and 70s.[103]

The federal ban on marijuana began on August 14, 1970, when Assistant Secretary of Health, Dr. Roger O. Egeberg wrote a letter recommending the plant be classified as a Schedule I substance,[104] as listed in Title 21 of the U.S. Code.[105] Schedule I drugs are those that law enforcement officers are tasked with enforcing the prohibitions on cultivation, importation, transportation,

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[97] Martin A. Lee, *Smoke Signals: A Social History of Marijuana: Medical, Recreational, and Scientific* (New York: Scribner, 2012), 81.

[98] Mack and Joy, *Marijuana as Medicine?*," 16.

[99] Ibid., 17.

[100] Richard J. Bonnie and Charles H. Whitebread, *The Forbidden Fruit and the Tree of Knowledge: An Inquiry into the Legal History of American Marijuana Prohibition* (Charlottesville, VA: Virginia Law Review Association, 1970), 56.

[101] Caulkins et al., *Marijuana Legalization*, 19.

[102] Bonnie and Whitebread, *The Forbidden Fruit*, 11.

[103] Mack and Joy, *Marijuana as Medicine?*," 18.

[104] Schedule 1 is a classification given by the Drug Enforcement Administration to those substances designated as having no accepted medical use and a high potential for abuse.

[105] Gupta, "Why I Changed My Mind."

possession, and use of. They are those drugs that have been identified by the DEA as "having no accepted medical use and a high potential for abuse."[106] Other drugs classified as Schedule I are heroin, lysergic acid diethylamide (LSD), 3,4-methylenedioxymetmaphetamine (ecstasy), methaqualone, and peyote.

The same Controlled Substance Act of 1970 that gave us Title 21 also reaffirmed three international drug control treaties with which the United States, and all other signatory nations, are charged compliance.[107] The INCB is the international body charged with monitoring the compliance of the treaty and assisting governments in upholding their treaty obligations. In its 2014 annual report, the INCB states that the recent legislation in Colorado and Washington are "not in conformity with the international drug control treaties" and that the United States must "ensure the full implementation of the international drug control treaties on its entire territory."[108]

In 1996, California became the first state to challenge the federal prohibitions on marijuana. Voters in the state passed Proposition 215, which was officially entitled "Compassionate Use Act of 1996."[109] It became the first medical marijuana legislation in the United States.[110] It not only "allows patients with a valid doctor's recommendation and the patients' designated primary caregivers to possess and cultivate marijuana for personal medical use," it has since been expanded to "protect a growing system of collective and cooperative distribution."[111] California has since added §11362.5 to the California Health and

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[106] United States Controlled Substance Act 21 United States Code §801 et seq., 1970

[107] Ibid.

[108] International Narcotics Control Board, *Report for the International Narcotics Control Board for 2013* (New York: International Narcotics Control Board, 2013), https://www.incb.org/incb/en/publications/annual-reports/annual-report-2013.html, 96.

[109] "California Proposition 215, the Medical Marijuana Initiative (1996)," *Ballotpedia*, accessed March 3, 2017, https://ballotpedia.org/California_Proposition_215,_the_Medical_Marijuana_Initiative_(1996).

[110] Ibid.

[111] Ibid.

Safety Code.[112] To date, a total of 28 states, the District of Columbia, and Guam all now have laws allowing medical marijuana programs.[113] In November 2012, voters in Washington state[114] and Colorado[115] and approved ballot measures that legalized the production, distribution, and possession of marijuana for recreational purposes. In the four years since, five more states and the District of Columbia have also voted to legalize the recreational use of marijuana.[116]

The most recent DOJ guidance, in the form of the August 2013 "Cole memo," is essentially the new federal marijuana legislative framework.[117] In the memo, Deputy Attorney General James M. Cole lays out prosecutorial guidelines for the enforcement of Title 21 marijuana laws, accounting for "whether a [marijuana operation in a legal state] is demonstrably in compliance with a strong and effective state regulatory system."[118]

Besides the contradictory legislation, conflicting enforcement protocols, and issues of non-compliance with international accords, the states that have opted for the legalization of marijuana have done little to regulate its content. Delta-9-tetrahydrocannabinol (delta-9-THC or THC) is a naturally occurring

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[112] "Medical Marijuana Identification Card Program," California Department of Public Health, accessed April 29, 2017, https://archive.cdph.ca.gov/programs/MMP/Pages/default.aspx.

[113] National Conference of State Legislatures, "State Medical Marijuana Laws."

[114] According to its executive branch, Washington state's Initiative Measure No. 502 (Initiative 502) would, among other things, "remove state-law prohibitions against producing, processing and selling marijuana, subject to licensing and regulation by the liquor control board ... and allow limited possession by persons aged twenty-one and over." Ballot measure summary from Jeffrey T. Even to Sam Reed, July 15, 2011. See also generally Wash. Rev. Code §69.50.401(3) (codifying ballot measure).

[115] As proposed, Amendment 64 ("Amendment 64") to Colorado's Constitution purported to "provid[e] for the regulation of marijuana; permit[] a person twenty-one years of age or older to consume or possess limited amounts of marijuana; provid[e] for the licensing of cultivation facilities, product manufacturing facilities, testing facilities, and retail stores; permit local governments to regulate or prohibit such facilities; [and] requir[e] the general assembly to enact an excise tax to be levied upon wholesale sales of marijuana[.]"); see also generally Col. Const., art. 18, sec. 16 (codifying ballot measure).

[116] National Conference of State Legislatures, "State Medical Marijuana Laws."

[117] Ibid.

[118] Cole, *Guidance Regarding Marijuana*.

component of *cannabis sativa L.* (marijuana).[119] THC is one of the compounds that have been clinically demonstrated to possess therapeutic utility.[120] It is also the compound that is scheduled by the DEA and the most widely cited compound in testing and recording potency. Whether for "medicinal" use or for the recreation of its users, THC content varies greatly in concentration in samples of seized marijuana.[121] The very research that Dr. Egeberg awaited and that could be used to show the efficacy and dangers of marijuana are stifled by the catch-22 scenario created by marijuana's current scheduling. Because it is Schedule I, marijuana is only available for research at one university campus in the country and only at certain potencies.

Other issues created by the legalization efforts of states such as Colorado, Washington, and others are the boom in "narcotourism" and a potential increase in the number of impaired drivers operating motor vehicles within those jurisdictions and between states. The news is not all bad, however. There has been research conducted to examine whether marijuana use in young adults leads to greater involvement in criminal activity. A study published in 2014 examined data from states with decriminalized marijuana from 1990–2006 and found no link between marijuana use and higher crime rates.[122] Another positive side effect of the decriminalization of marijuana and the legitimization of the industry may be the tax revenue generated from its legal sale and purchase. A recent Brookings Institute report assessing the benefits of proposed marijuana legalization in Vermont offered projected tax revenue between $20 million and $75 million, annually.[123] As more and more states enter the clouded world of marijuana decriminalization and legalization, the need becomes even more acute

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[119] Calhoun, Galloway, and Smith, "Abuse Potential."

[120] Joy, Watson, Jr., and Benson, Jr., *Marijuana and Medicine*, 25.

[121] Mehmedic et al., "Potency Trends of Δ9-THC."

[122] Robert G. Morris et al., "The Effect of Medical Marijuana Laws on Crime: Evidence from State Panel Data, 1990–2006," *PloS one* 9, no. 3 (2014): 1–7 http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0092816&type=printable.

[123] Bennett and Walsh, *Marijuana Legalization*.

to provide some timely and "balanced" (see Figure 4) policy guidance to the federal government to rectify the problems created by the differing state laws.

Figure 4. Marijuana's Legal Future Still Hangs in the Balance[124]

A. EVIDENCE: THE NATURE OF THE INCONSISTENCIES AND CONFLICT

The author gathered data with regard to the nature of the inconsistencies and conflict as part of the review of literature. The evidence gathered is presented below to answer the questions raised through application of the following four specific, but overlapping, criteria:

1. Legality: international and domestic
    a. What are the U.S. federal government's responsibilities with regard to international drug control treaties?
    b. What are the implications of state marijuana legalization efforts on treaty compliance?
    c. Are there other countries that are struggling with the same inconsistencies and conflicts?
    d. What are the options for classification within the Schedule of Controlled Substances?

[124] Diana Mivelli, "Cannabis Confusion," UF Law, December 5, 2014, www.law.ufl.edu/uflaw/feature/cannabis-confusion.

2. Impact on law enforcement

   a. What is the current federal guidance for enforcement and prosecution?

   b. What is the current guidance to state, local, and tribal law enforcement?

   c. Are there links between marijuana abuse and other criminal behavior?

3. Medical impact

   a. Are there efficacies to marijuana use and at what potencies and chemical compositions?

   b. What would reclassifying marijuana potentially do for research?

4. Impact on health and public safety risk

   a. What are the potential dangers of marijuana use?

   b. What effect does the shift in decriminalization and legalization have on the risks associated with marijuana?

B. LEGALITY: INTERNATIONAL

As already noted, there are three international treaties to which the United States is a signatory nation. That is to say that compliance requires legislation on the part of the countries involved. The United States passed such legislation in the form of the Controlled Substance Act.[125] Prior to 1996, each of the 50 U.S. states had statutes mirroring the federal counter-drug statutes.[126] Since the

[125] See 21 U.S.C. §801(7) (finding that "[t]he United States is a party to the Single Convention on Narcotic Drugs, 1961, and other international conventions designed to establish effective control over international and domestic traffic in controlled substances."); "21 U.S.C. §802a (2), (3) (finding that, among other things, the 1971 Convention on Psychotropic Substances is not self-executing, and expressing intent of Congress that the amendments made by this Act, together with existing law, will enable the United States to meet all of its obligations under the [1971] Convention and that no further legislation will be necessary for that purpose; observing that control of psychotropic substances under the 1971 Convention would be carried out pursuant to the CSA's framework);" H.R. Rep. 112–324 (I) at 3 (2011) (stating that "[t]he United States is a signatory to two leading international drug treaties: the 1961 Single Convention on Narcotic Drugs and the 1971 Convention on Psychotropic Substances. The first treaty has been extremely influential in standardizing national drug control laws. *The Controlled Substances Act was intended to fulfill our treaty obligations*").

[126] "State Medical Marijuana Laws," National Conference of State Legislatures, August 30, 2017, http://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx.

passage of the first medical marijuana laws in California, there has been a steady push toward greater state acceptance of medical marijuana and a broadening of acceptance toward full legalization.

As early as 2011, the INCB was commenting on the passage of state marijuana reforms in the United States. In its 2011 annual report, the INCB formally requested that the U.S. government "ensure the implementation of all control measures for the cannabis plant and cannabis, as required by the 1961 Convention as amended by the 1971 Protocol, in all states and territories falling within its legislative authority."[127] Following the 2012 votes in Colorado and Washington, the INCB's then-president, Raymond Yans, warned that the United States permitting recreational use of marijuana "would be a violation of international law, namely the United Nations Single Convention on Narcotic Drugs of 1961, to which the United States is a party."[128]

In September of 2014, President Obama made a statement supporting the United Nations drug conventions and the INCB, while at the same time asserting the right for nations to exercise flexibility in the application of laws conforming to those conventions. He stated,

> The United States shares the view of most countries that the U.N. drug conventions—without negotiation or amendment—are resilient enough to unify countries that often hold divergent views of the causes of the international narcotics problem, while at the same time providing a framework upon which to build the best solutions to it. The U.N. drug conventions, which recognize that the suppression of international drug trafficking demands urgent attention and the highest priority, allow sovereign nations the flexibility to develop and adapt new policies and programs in keeping with their own national circumstances while retaining their focus on achieving the conventions' aim of ensuring the availability of controlled substances for medical and scientific purposes, preventing abuse and addiction, and suppressing drug trafficking

[127] International Narcotics Control Board, *Report*, 96.

[128] "INCB President Calls on the United States Government to Address Initiatives Aimed at Permitting Recreational Drug Use," press release, United Nations Information Service, March 14, 2013, http://www.unis.unvienna.org/unis/en/pressrels/2013/unisnar1164.html?

> and related criminal activities. The United States supports the view of most countries that revising the U.N. drug conventions is not a prerequisite to advancing the common and shared responsibility of international cooperation designed to enhance the positive goals we have set to counter illegal drugs and crime.[129]

If compliance of a signatory nation is questioned, the INCB may elect to exercise their rights under a specific rule. As stated in the board's description of non-compliance authority, "Article 14 of the 1961 Convention can be used when the board believes that the aims of the 1961 Convention are seriously endangered by the failure of a state to comply with treaty obligations." Under Article 14 (as quoted here):[130]

- The board can start consultations and request explanations from the government concerned.
- It can call upon the government concerned to adopt remedial measures.
- It may propose that a study be carried out regarding a state's drug control problems.
- If the government has not given satisfactory explanations or adopted remedial measures, the board may bring the matter to the attention of the United Nations Economic and Social Council and the Commission on Narcotic Drugs.[131]

The United States is not alone in this dilemma between international conventions and public sentiment toward decriminalization of marijuana. The Dutch have struggled with the issue since before California introduced the Compassionate Use Act. The problem that the Netherlands has experienced is one of regulation. In their debate over marijuana legalization, the Dutch are two decades ahead of us and provide a fair roadmap that we may follow if we choose

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[129] "Presidential Determination—Major Drug Transit or Major Illicit Drug Producing Countries for Fiscal Year 2015," press release, September 15, 2014, White House, Office of the Press Secretary. https://obamawhitehouse.archives.gov/the-press-office/2016/09/12/presidential-determination-major-drug-transit-or-major-illicit-drug.

[130] Ibid.

[131] "Article 14 of the 1961 Convention: the most powerful instrument of the Board," *Focus on International Drug Control* no. 1 (November 2008): 5, http://www.incb.org/documents/Newsletter/INCB_Newsletter_Issue_1.pdf. Special Issue on Afghanistan.

to look where they have traveled. Since 1976, the Dutch Ministry of Justice has applied what is called a *gedoogbeleid*, or a policy of tolerance. Though the medicinal value of marijuana is one that is cited as justification for decriminalization, there is little in Dutch policy of tolerance with regard to potency. The Dutch do acknowledge a point in THC level at which marijuana, as a "soft drug," loses its medicinal value in favor of psychoactive effect and hence becomes what the Dutch refer to as a "hard drug." Since 2011, this has been enforced at levels of THC over 15 percent.[132]

Since January 2015, the Dutch government has rethought its stance on marijuana tolerance and its classification as a soft drug for the purposes of enforcement. The policy of tolerance is giving way to much less open acceptance of the sale and use of marijuana. Described by the residents and mayor of one border city in the Netherlands, pot tourists who crossed the border made a nuisance of themselves by snarling traffic, littering, and even urinating in public.[133] These problems have led the central government of the Netherlands to limit the number of marijuana coffee shops in the country, as well as shutter those that are too close to schools and outlaw the sale of marijuana products to those that are not citizens of the Netherlands.[134] In line with the legacy Dutch model of lax enforcement, however, the Dutch central government is leaving implementation of these new measures to the local authorities. The *New York Times* quoted Dutch Justice Minister Io Opstelten as saying, "the best way of seeing which measures are effective is at the local level."[135]

It also appears from arrest and prosecution statistics that the enforcement of the laws regarding cultivation and importation are being applied with greater

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[132] "Amsterdam Ditches Controversial 'Weed Pass,'" *NY Daily News*, November 21, 2012, http://www.nydailynews.com/life-style/health/amsterdam-ditches-controversialweed-pass-law-article-1.1205634.

[133] "While U.S. States Relax Marijuana Laws, Pot Haven Netherlands Crack Down, with Mixed Success," CBS News, March 7, 2014, http://www.cbsnews.com/news/while-us-states-relax-marijuana-laws-pot-haven-netherlands-cracks-down-with-mixed-success/2/.

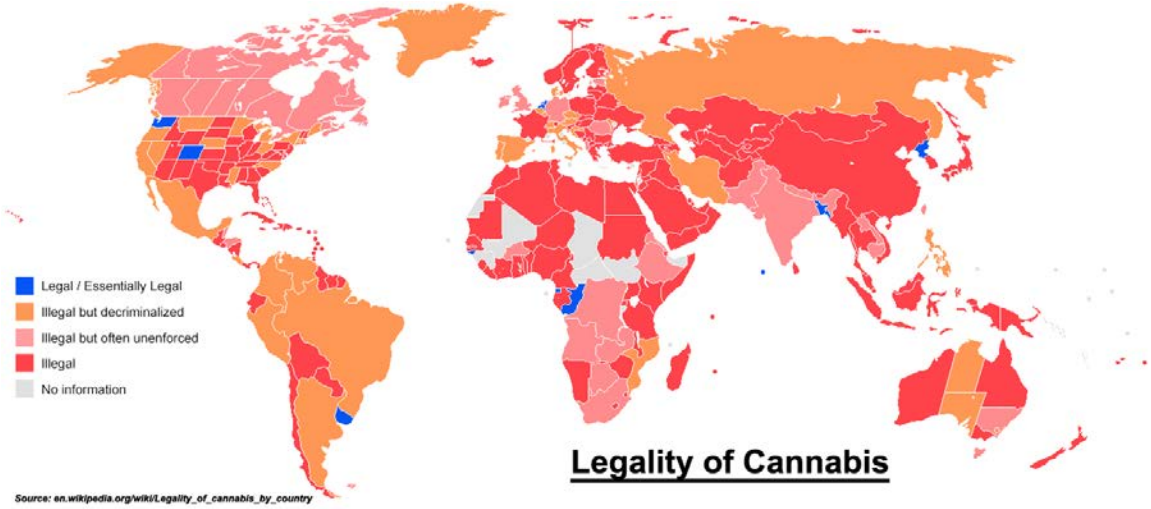
[134] Ibid.

[135] "Amsterdam Ditches Controversial," *NY Daily News*.

force in the Netherlands as of late.[136] The absence of a regulated production piece in the Dutch model has left what is commonly referred to as a "backdoor" to organized criminal activity by forcing the marijuana coffee shop owners to buy product from criminal syndicates.[137]

As Figure 5 illustrates, as of June 2015, the worldwide trend is toward something other than marijuana prohibition.

Figure 5. Map of Legality of Cannabis[138]



While countless countries are rethinking and modifying their laws with regard to marijuana, none appear to have gone as far as Portugal. According to an article in *Time*, in 2001, "Portugal became the first country in Europe to abolish all criminal penalties for personal possession of drugs."[139] The Portuguese stance toward drugs is one of public health and the treatment of

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[136] "In the Netherlands, 38 Years of Lessons 'Tolerating' Pot," *Aljazeera America*, February 21, 2014, http://america.aljazeera.com/watch/shows/america-tonight/america-tonight-blog/2014/2/21/netherlands-cannabislessonscolorado.html.

[137] Ibid.

[138] "Legality of Cannabis by Country," *Wikipedia*, last updated January 15, 2017, en.wikipedia.org/wiki/Legality_of_cannabis_by_country#/media/File:World-cannabis-laws.png.

[139] Maia Szalavitz, "Drugs in Portugal: Did Decriminalization Work?," *Time*, April 26, 2009, http://www.time.eom/time/health/article/0,8599,1893946,00.html.

addiction rather than incarceration.[140] The INCB hosts membership from 95 percent of the countries in the world, and 185 signatory nations on the three counter-drug accords. Portugal is one of those nations. In reviewing the recent annual reports of the INCB, though the board acknowledges concern with the worldwide trend, it stops short of taking any substantive action against Portugal or any other countries pursuing marijuana decriminalization. It is noted in its annual report that the only nation as of 2015 under sanctions of Article 14 of the 1961 Convention is Afghanistan.[141] The board appears committed to working with the nations of the world as the evolution of drug policy plays out.

C. LEGALITY: DOMESTIC

Referenced here and attached in the appendix are tables defining the U.S. states' positions on marijuana law as of November 9, 2016. A total of 28 states, the District of Columbia, and Guam have passed "comprehensive public medical marijuana and cannabis programs,"[142] and an additional 17 states that allow the use of "low-THC" marijuana products in limited situations. To be included as having a comprehensive program, which Colorado, Washington, and the latest additions do, the National Conference of State Legislatures (as quoted here) requires the state's legislation to contain the following:[143]

1. Protection from criminal penalties for using marijuana for medical purposes;
2. Access to marijuana through home cultivation, dispensaries, or other system that is likely to be implemented;
3. It must allow a variety of marijuana strains; and
4. It must allow either smoking or vaporization of some kind of marijuana product.[144]

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[140] John Faubion, "Reevaluating Drug Policy: Uruguay's Efforts to Reform Marijuana Laws," *Law and Business Review of the Americas* 19, no. 3 (2013): 383–408.

[141] International Narcotics Control Board, *Report*.

[142] National Conference of State Legislatures, "State Medical Marijuana Laws."

[143] Ibid.

[144] Ibid.

These movements bring the total to 45 out of 50 as the number of states in the United States that have passed laws that are in direct conflict with Title 21 of the U.S. Code, the Controlled Substance Act. Per §801, Congress makes the following findings with regard to the drugs listed in Schedules I–V, including marijuana:[145]

> (1) Many of the drugs included within this subchapter have a useful and legitimate medical purpose and are necessary to maintain the health and general welfare of the American people.
>
> (2) The illegal importation, manufacture, distribution, and possession and improper use of controlled substances have a substantial and detrimental effect on the health and general welfare of the American people.
>
> (3) A major portion of the traffic in controlled substances flows through interstate and foreign commerce. Incidents of the traffic, which are not an integral part of the interstate or foreign flow, such as manufacture, local distribution, and possession, nonetheless have a substantial and direct effect upon interstate commerce because—
>
> > (A) after manufacture, many controlled substances are transported in interstate commerce,
> >
> > (B) controlled substances distributed locally usually have been transported in interstate commerce immediately before their distribution, and
> >
> > (C) controlled substances possessed commonly flow through interstate commerce immediately prior to such possession.
>
> (4) Local distribution and possession of controlled substances contribute to swelling the interstate traffic in such substances.
>
> (5) Controlled substances manufactured and distributed intrastate cannot be differentiated from controlled substances manufactured and distributed interstate. Thus, it is not feasible to distinguish, in terms of controls, between controlled substances manufactured and distributed

[145] "21 U.S. Code §801—Congressional Findings and Declarations: Controlled Substances," Government Printing Agency, accessed October 15, 2016, https://www.gpo.gov/fdsys/pkg/USCODE-2011-title21/pdf/USCODE-2011-title21-chap13-subchapI-partA-sec801.pdf.

interstate and controlled substances manufactured and distributed intrastate.

(6) Federal control of the intrastate incidents of the traffic in controlled substances is essential to the effective control of the interstate incidents of such traffic.

(7) The United States is a party to the Single Convention on Narcotic Drugs, 1961, and other international conventions designed to establish effective control over international and domestic traffic in controlled substances.[146]

Contained in the Controlled Substance Act are five options for the scheduling of dangerous drugs.[147] The designation given to marijuana affects not only the recognition given its medical utility by the federal government, but also affects the research that can legally be done. To date, the Drug Enforcement Administration has only issued a single license for the cultivation of marijuana for research and that is to the University of Mississippi.[148] The program, which is funded by NIDA, provides marijuana for research, but it is limited in its ability to produce various strains and potencies.

In response to demand from the research community, NIDA currently offers marijuana cigarettes in varying potencies, up to 6.7 percent THC and bulk marijuana in strains up to 12.4 percent THC.[149] The process by which these samples are obtained is an arduous one. Dr. Sue Sisley, a psychiatry professor and post-traumatic stress disorder researcher at the University of Arizona, recently received approval to use marijuana in her studies.[150] The approval process, as described in the *Washington Post* article about Dr. Sisley's struggle,

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[146] Ibid.

[147] Ibid.

[148] National Institute on Drug Abuse. "NIDA's Role in Providing Marijuana for Research," last updated March 2017, http://www.drugabuse.gov/drugs-abuse/marijuana/nidas-role-in-providing-marijuana-research.

[149] National Institute on Drug Abuse, "Marijuana Plant Material Available from the NIDA Drug Supply Program," March 2015, http://www.drugabuse.gov/researchers/research-resources/nida-drug-supply-program-dsp/marijuana-plant-material-available-nida-drug-supply-program.

[150] Evan Halper, "Pot Researcher Abruptly Fired by University of Arizona," *Los Angeles Times*, July 1, 2014, http://www.latimes.com/nation/la-na-pot-researcher-fired-20140701-story.html.

involved first applying to the U.S. Department of Health and Human Services to purchase marijuana from the program at the University of Mississippi. Then she obtained approvals to use the marijuana in human trials from the Food and Drug Administration. Finally, the DEA had to approve the possession and transportation of the drug.[151]

In the 1997 book he co-authored with James Bakalar, Harvard psychiatrist Lester Grinspoon argues that marijuana's Schedule I status has impeded research. "Since 1970," he says, "it has been the major reason why the kinds of large double-blind studies which have been the basis for FDA approval of medicines since the mid-1960s have been impossible to pursue in this country."[152] Moving marijuana from Schedule I to II or III may allow for greater research of the drug's medical benefit and health risks. It should also be noted that moving marijuana to Schedule III might also eliminate the Internal Revenue Service section prohibitions on the movement of proceeds and taking of business deductions with regard to profits and expenses related to "trafficking in controlled substances" as listed in Schedules I and II.[153]

1. Impact on Law Enforcement

Through continued member participation on the INCB, the U.S. federal government appears to remain committed to the United Nations' mandates for "shared responsibility to drug control efforts in areas such as demand reduction, supply reduction, judicial cooperation, and the control of illicit trade in drugs."[154]

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[151] Ariana Eunjung Cha, "Marijuana Research Hampered by Access From Government and Politics, Scientists Say," *Washington Post*, March 21, 2014, https://www.washingtonpost.com/national/health-science/marijuana-research-hampered-by-access-from-government-and-politics-scientists-say/2014/03/21/6065eb88-a47d-11e3-84d4-e59b1709222c_story.html?utm_term=.da2d7062478c.

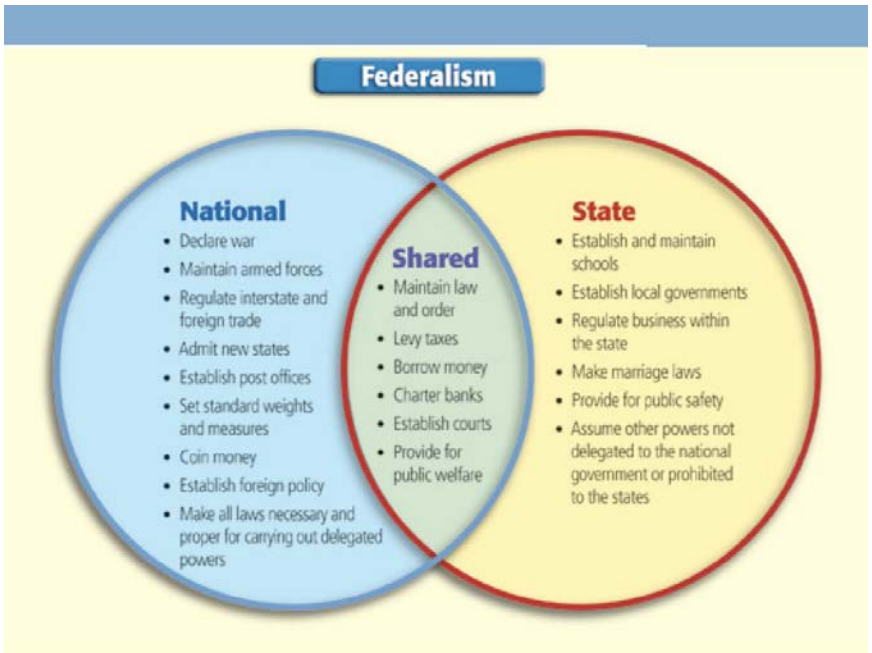
[152] Lester Grinspoon and James B. Bakalar, *Marihuana, the Forbidden Medicine* (New Haven, CT: Yale University Press, 1997), 256.

[153] "26 U.S. Code §280E—Expenditures in Connection with the Illegal Sale of Drugs," Government Printing Office, accessed October 15, 2016, https://www.gpo.gov/fdsys/pkg/USCODE-1998-title26/pdf/USCODE-1998-title26-chap1-subchapB-partIX-sec280E.pdf

[154] Ibid.

At the same time, the United States is home to a federal system of government, a system in which individual states enjoy a certain amount of freedom in ensuring their constituents common welfare (see Figure 6).

Figure 6. Concentric Circles of Federalism[155]



In the United States, 45 states and the District of Columbia have seen their way to establishing laws with regard to the production, possession, and use of medical marijuana. In the cases of Colorado and Washington, and now five others, those efforts have included the legalization of marijuana for recreational purposes.

In 2013, the federal government answered the state decriminalization and legalization efforts with a memo from the DOJ.[156] In the August 2013 memo and again reiterated in a February 2014 memo, Deputy Attorney General James M.

[155] David J. Shestokas, "American Federalism: Source, Purpose, and Establishment Part II," David J. Shestokas, April 20, 2013, http://www.shestokas.com/constitution-educational-series/american-federalism-source-purpose-and-establishment-part-ii/.

[156] Ibid.

Cole lays out guidelines for the federal enforcement and prosecution of violations of Title 21 marijuana laws.

Specifically, the Cole memo enforcement priorities are:[157]

1. Preventing the distribution of marijuana to minors
2. Preventing revenue from the sale of marijuana from going to criminal enterprises, gangs, and cartels
3. Preventing the diversion of marijuana from states where it is legal under state law in some form to other states
4. Preventing state-authorized marijuana activity from being used as a cover or pretext for the trafficking of other illegal drugs or other illegal activity
5. Preventing violence and the use of firearms in the cultivation and distribution of marijuana
6. Preventing drugged driving and the exacerbation of other adverse public health consequences associated with marijuana use
7. Preventing the growing of marijuana on public lands and the attendant public safety and environmental dangers posed by marijuana production on public lands
8. Preventing marijuana possession or use on federal property[158]

Another piece of federal guidance came recently in the form of an amendment to Senate appropriations bill H.R. 4660. On June 11, 2015, the U.S. Senate Appropriations Committee passed a rider, authored by California Representatives Dana Rohrbacher, a Republican, and Sam Farr, a Democrat, to the appropriations bill. The rider simply states at the end of the bill that

> none of the funds made available in this act to the Department of Justice may be used, with respect to any of the States of Alabama, Alaska, Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Illinois, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Oklahoma, Oregon, Rhode Island, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia,

[157] Cole, *Guidance Regarding Marijuana*.

[158] Ibid.

> Washington, and Wisconsin or with respect to either the District of Columbia or Guam, to prevent any of them from implementing their own laws that authorize the use, distribution, possession, or cultivation of medical marijuana.[159]

After the House vote and in anticipation of the Senate voting, Representative Farr stated the following regarding the intent of the rider:

> States with medical marijuana laws are no longer the outliers; they are the majority. This vote shows that Congress is ready to rethink how we treat medical marijuana patients in this country. This amendment gives states the right to determine their own laws for medical marijuana use; free of federal intervention. It also gives patients comfort in knowing they will have safe access to the medical care legal in their state without the fear of federal prosecution. But while momentum is on our side, there is still work to be done to get this bill out of the Senate. In the meantime, the federal government can continue to prosecute medical marijuana patients. This is more than just a waste of taxpayer dollars; it needlessly destroys lives and tears families apart. The majority of states and now the House of Representatives have clearly stated that this absurd policy needs to stop. I look forward to working with my colleagues in the Senate to pass this amendment and remove the burden weighing down so many patients in our country.[160]

With regard to state, local, and tribal enforcement of marijuana laws, there is no longer the overlapping prohibition of marijuana that existed prior to 1996. As listed in the appendix there are myriad new laws on the books across the country. Across 45 states, there are law enforcement personnel allowing marijuana activities that are within the laws of their respective jurisdictions, but remain in conflict with the federal statute.

A coalition of chiefs of police from around the country make up an organization known as the Major Cities Chiefs Association (MCCA). In June of 2014, the MCCA published a position paper on marijuana decriminalization. The

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[159] "Rohrbacher-Farr Amendment," Congress, 2014, https://www.congress.gov/amendment/113th-congress/house-amendment/748/text. July 6, 2015

[160] "U.S. Congress Votes to End Federal Medical Marijuana Raids," Americans for Safe Access, June 1, 2014, http://asa-nc.com/us-congress-votes-to-end-federal-medical-marijuana-raids/1203292/.

body focused on medical marijuana, opposing the legalization of marijuana, but giving a six-point position on the decriminalization for medical purposes:

1. Support for more scientific research on the risks of marijuana use before further legislative action is taken or medical use is expanded.
2. Support stronger regulations and processes to prevent abuse and fraud involving "medical marijuana."
3. Support penalties for driving while impaired by alcohol and marijuana at the same time.
4. Support legislation giving law enforcement the ability to detect and test drivers for impairment by marijuana. Establish thresholds for impairment.
5. Oppose legalization of marijuana. Recognize the need for lesser penalties for possession of small amounts.
6. Oppose the use or consumption of marijuana in public, anytime, anywhere.[161]

In its position paper, the MCCA, claiming a "frontline" view of the impact of drugs, states, "there is a direct nexus between crime and drug abuse, which affects the safety of our communities."[162] Researchers at the University of Texas sought to examine whether or not there is a connection between what they call "medical marijuana legalization (MML)"[163] and criminal behavior. Published in March of 2014, the article sought to do several things, as stated in the introduction:

> The issue addressed in this article is whether MML has the effect of increasing crime. While there are many mechanisms by which MML might affect crime rates, the most obvious is by increasing the number of marijuana users, which may lead to a broader social acceptance of drug using behaviors and drug users. To the extent that marijuana use serves as a "gateway" to harder drugs such as cocaine and heroin, MML could lead to long-term increases in crime as an ever-growing number of illicit drug users engage in

[161] Major Cities Chiefs Association, "Major Cities Chiefs Position on Marijuana," June 20, 2104, www.majorcitieschiefs.com/pdf/news/mcc_marijuana_final_06202014.pdf.

[162] Ibid.

[163] Morris et al., "The Effect of Medical Marijuana."

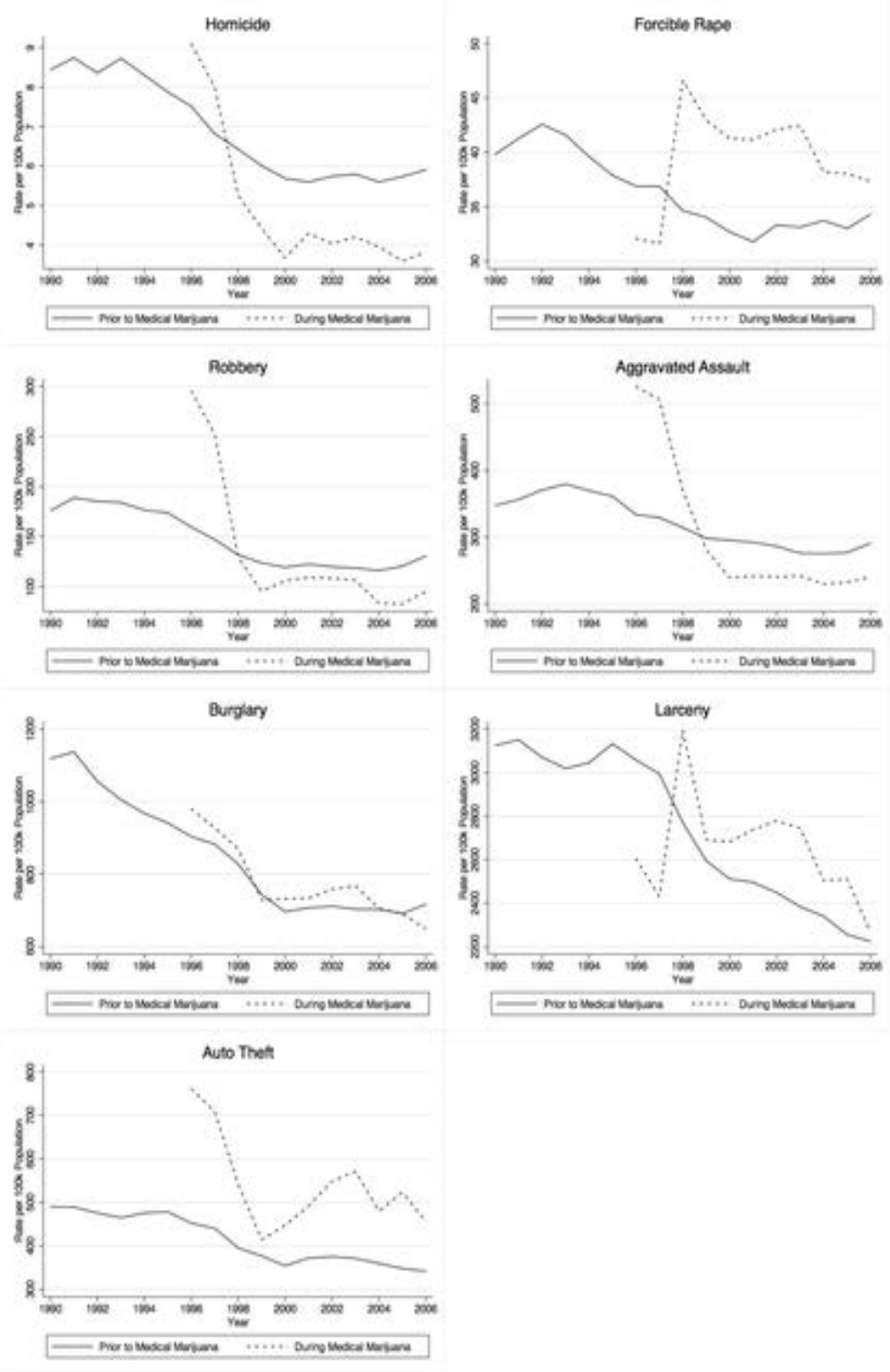
> serious predatory crimes to support their habits. But even if MML does not lead to a rise in marijuana use (especially among youth), the laws could still stimulate crime as newly opened medical marijuana dispensaries provide criminals with a highly attractive target with their repository of high quality marijuana and customers carrying large amounts of cash.[164]

The University of Texas researchers collected crime data for all 50 states from the DOJ covering the 17-year period from 1990 to 2006. They then compiled all Part I crime statistics—homicide, rape, robbery, assault, burglary, larceny, and auto theft—for each. The researchers then compared the changes in mean crime levels for all 50 states with those in 11 states that passed some form of MLL legislation.[165] The following seven graphs (see Figure 7) show the data for each of the Part I crime categories illustrating the rates in non-MML states compared with those states that have MLL in place.

[164] Ibid

[165] Ibid.

Figure 7. Mean State Crime Rates as a Function of Year[166]



[166] Source: Ibid.

Table 1 "reveals the impact of the MML trend variable on crime rates, while controlling for the other time-varying explanatory variables."[167] The headings represent each of the Part I crime categories. The variables, including MML, are listed on the left. The numbers represent either the increase or decrease in each of the respective reported crime totals.

Table 1. The Effect of Medical Marijuana Laws on Crime: Evidence from State Panel Data, 1990–2006[168]

Variable	Homicide	Rape	Robbery	Assault	Burglary	Larceny	Auto Theft
Medical Marijuana Law (MML)	−0.024***	−0.005	−0.016	−0.024*	−0.004	−0.002	0.026
	(0.007)	(0.009)	(0.010)	(0.013)	(0.007)	(0.004)	(0.016)
Unemployment rate	0.031**	−0.001	0.039**	−0.021	0.022**	0.005	0.036**
	(0.012)	(0.014)	(0.015)	(0.022)	(0.011)	(0.009)	(0.017)
Employment rate	1.325	3.672***	3.637**	4.249***	0.420	−0.584	−0.069
	(1.277)	(1.156)	(1.536)	(1.383)	(0.943)	(0.747)	(1.715)
Poverty rate	−0.008**	0.006	0.001	0.001	−0.004	−0.002	−0.007*
	(0.003)	(0.004)	(0.005)	(0.005)	(0.003)	(0.002)	(0.004)
Per-capita income	−0.013	−0.226***	−0.148**	−0.173*	−0.194***	−0.099***	−0.137
	(0.057)	(0.067)	(0.072)	(0.100)	(0.048)	(0.036)	(0.102)
Proportion aged 15 to 24	3.528	−0.279	−3.591	−3.245	0.676	−0.266	5.279
	(2.447)	(1.681)	(3.371)	(2.961)	(1.696)	(1.422)	(3.509)
Proportion aged 25 to 34	−4.250**	−0.202	−3.478	−7.492**	5.150***	2.729	11.352***
	(1.884)	(2.038)	(2.920)	(3.112)	(1.904)	(1.712)	(2.609)
Proportion aged 35 to 44	−1.393	−3.083	−4.008	−13.777***	−1.940	0.193	−3.558
	(2.041)	(2.319)	(3.366)	(4.654)	(1.928)	(1.489)	(4.075)
Beer consumption	0.903**	0.504*	1.261***	0.436	0.857***	0.762***	1.376**
	(0.399)	(0.283)	(0.442)	(0.576)	(0.291)	(0.280)	(0.580)
Percent college degree	−0.004	0.016	−0.032**	−0.012	−0.001	0.005	−0.018
	(0.011)	(0.010)	(0.012)	(0.017)	(0.007)	(0.007)	(0.013)
Percent metropolitan	0.015**	0.022**	0.004	0.004	−0.006	−0.005	−0.009
	(0.007)	(0.008)	(0.009)	(0.015)	(0.008)	(0.006)	(0.014)
Prisoners per 100k	−45.675	−20.410	−33.918	41.979	−7.186	9.724	−56.412
	(33.964)	(22.442)	(35.013)	(30.046)	(26.127)	(18.575)	(48.726)
Police officers per 100k	−0.001	0.000	−0.002	−0.001*	−0.000	0.001	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
R^2	.50	.46	.58	.44	.83	.75	.44

Robust standard errors in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$
Note: State fixed-effects and year fixed-effects are included in all estimates but are not shown in the table. The following variables were divided by 100000 in order to produce coefficients that did not require scientific notation to interpret: Employment rate, Beer consumption, and Prisoners per 100k.
doi:10.1371/journal.pone.0092816.t002

[167] Ibid.

[168] Source: Major Cities Chiefs Association, "The Effect of Medical Marijuana Laws."

As stated in University of Texas researchers' conclusion, two findings worth noting emerged from their analysis.[169] First, the impact of MML was negative or lacked statistical significance in all but two of the models, which could actually indicate a "dampening effect"[170] on those crimes. The second key finding was that the only findings that were statistically significant were those in the models that related to homicide and assault.[171] The results "indicated approximately a 2.4 percent reduction in homicide and assault, respectively, for the each year the MML was in effect."[172]

As the study admits, there are many factors confounding a study that looks at only one factor's effect on crime rate; however, there was no glaring evidence that the legalization of marijuana in states that have done so have seen any increase in the listed crime totals. In fact, collectively, the states with legalized marijuana enjoyed a decrease in most violent crime for each year their medical marijuana laws have been in effect.[173]

2. Medical Impact

NIDA reports that the "U.S. Food and Drug Administration (FDA) has not recognized or approved the plant marijuana as a medicine."[174] In a 1998 article by Jonas, he explains, "A major criticism of alternative therapies like medical marijuana is they have not been scientifically tested, leading many to question their safety and efficacy."[175] As discussed earlier, the stifling process by which marijuana is approved and obtained for research is one of the biggest hurdles in

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[169] Major Cities Chiefs Association, "The Effect of Medical Marijuana Laws."

[170] Ibid.

[171] Ibid.

[172] Ibid.

[173] Ibid.

[174] "Drug Facts: Is Marijuana Medicine?," National Institute on Drug Abuse, July 2012, http://www.drugabuse.gov/publications/drugfacts/ marijuana-medicine.

[175] Wayne B. Jonas, "Alternative Medicine: Learning from the Past, Examining the Present, Advancing to the Future," *Jama* 280, no. 18 (1998): 1616–1618.

the understanding of its effects. The debate on the subject of the efficacies of marijuana rages, and its discussion in medical circles has gone on for ages. However, due to legal restrictions, the research supporting the various positions is not anywhere near as robust as the argument.

In April of 2014, researchers for the American Academy of Neurology "published a systematic review of medical marijuana (1948–November 2013) to address treatment of symptoms of multiple sclerosis (MS), epilepsy, and movement disorders."[176] In the article by Koppel et al., they explain that that "graded the studies according to the American Academy of Neurology classification scheme for therapeutic articles."[177] The team was able to find only 34 research studies that rated inclusion.[178] The findings of the study showed that oral cannabis extract and THC were "probably effective" in the treatment of spasticity, painful spasms, urinary dysfunction, and tremors, as they were tested in patients suffering from multiple sclerosis.[179] The researchers "reviewing the scientific literature on marijuana found only 1729 studies in the literature."[180] Of those, only the 34 studies noted in their work "met the criteria to be useful in their analysis of the efficacy of medical marijuana on neurological conditions."[181]

Dr. Fields is the Chief of the Nervous System Development and Plasticity Section of the National Institutes of Health, in Bethesda Maryland. In his posting on brainfacts.org entitled "The Absurdity of Medical Marijuana," Douglas Fields points out several correlations to a lack of studies of marijuana in the field of neurological research.[182] He finds that while only

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[176] Koppel et al. "Systematic Review."

[177] Ibid.

[178] Ibid.

[179] Ibid.

[180] Ibid.

[181] Ibid.

[182] Fields, "The Absurdity of 'Medical Marijuana.'"

> 34 studies were found for the enormous range of neurological conditions where activation of CB1 and CB2 receptors in the brain by compounds in marijuana could have an effect, there are 32,836 studies in the scientific literature on health and tobacco.[183]

There are 87,735 studies on "'health and alcohol' in the medical literature (PubMed search)."[184] The primary difference between the substances studied is their availability. Tobacco and alcohol are legal and readily available for research purchases; marijuana is not.

As of January, 2014, there were 28 active NIDA grants related to the topic of marijuana and the benefits of individual cannabinoid chemicals from the marijuana plant for medical purposes.[185] The current federally funded research is in six different disease categories: autoimmune diseases, inflammation, pain, psychiatric disorders, seizures, and substance abuse.[186] In addition to the NIDA-funded studies, there have been 16 independently funded studies since 1999 exploring the potential medical benefits of marijuana.[187]

Prior to discussing the potential medicinal benefits of marijuana and related studies, it is important to understand how marijuana affects the brain. The cannabinoid (CB) receptors within the brain have been identified as the sites where the chemical components contained in marijuana, including THC, bind and cause various psychoactive effects.[188] These CB receptors, combined with the body's naturally occurring chemicals, anandamide and 2-arachidonoyl glycerol, comprise the endocannabinoid system[189] (see Figure 8).

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[183] Ibid.

[184] Ibid.

[185] National Institute on Drug Abuse, "NIDA Research on the Therapeutic Benefits of Cannabis and Cannabinoids," last updated May 2015, http://www.drugabuse.gov/drugs-abuse/marijuana/nida-research-therapeutic-benefits-cannabis-cannabinoids.

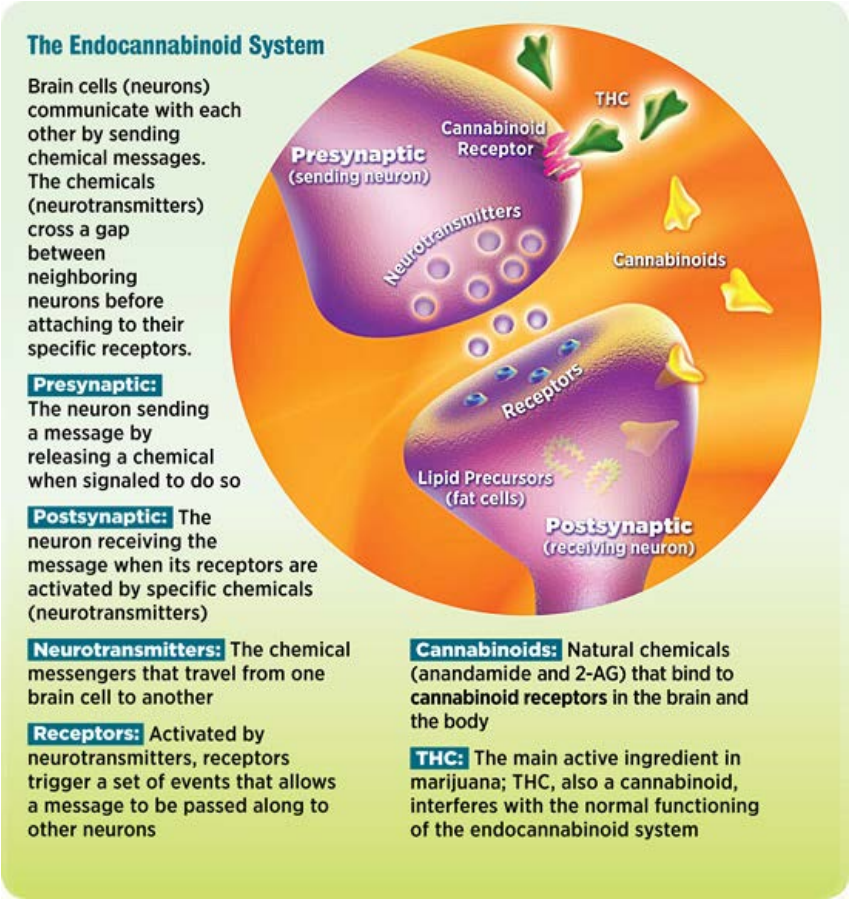
[186] Ibid.

[187] Ibid.

[188] "Science of Marijuana: How THC Affects the Brain," Scholastic, July 5, 2015, http://headsup.scholastic.com/sites/default/files/NIDA10-INS2_Stu%20Mag_0.pdf.

[189] Ibid.

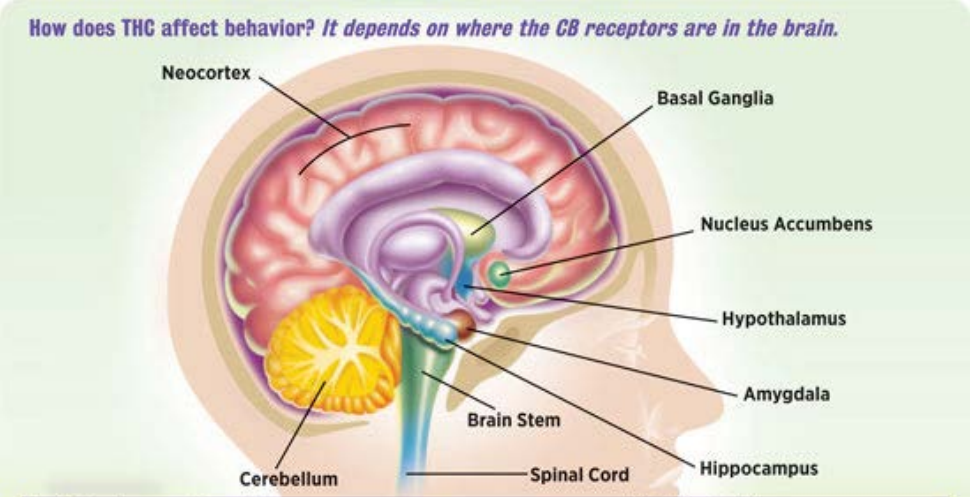
Figure 8. The Endocannabinoid System[190]



As illustrated in Figure 8, the effect that THC and other cannabinoids have on the brain is dependent on what part of the brain the affected CB receptors are located in. The illustration in Figure 9 shows nine structures of the brain that contain high numbers of CB receptors, and the manner in which THC affects each respective structure.

[190] Source: Ibid.

Figure 9. CB Receptors in the Brain and THC Effects[191]



Brain Structure	Regulates	THC Effect on User
Amygdala	emotions, fear, anxiety	panic/paranoia
Basal Ganglia	planning/starting a movement	slowed reaction time
Brain Stem	information between brain and spinal column	antinausea effects
Cerebellum	motor coordination, balance	impaired coordination
Hippocampus	learning new information	impaired memory
Hypothalamus	eating, sexual behavior	increased appetite
Neocortex	complex thinking, feeling, and movement	altered thinking, judgment, and sensation
Nucleus Accumbens	motivation and reward	euphoria (feeling good)
Spinal Cord	transmission of information between body and brain	altered pain sensitivity

The brain structures illustrated above all contain high numbers of CB receptors

In January 1997, the White House Office of National Drug Control Policy (ONDCP) asked the Institute of Medicine (IOM) to "conduct a review of the available scientific evidence to assess the potential health benefits and risks of marijuana and its various cannabinoids."[192] The results of this study were published in the 1999 book *Marijuana and Medicine: Assessment of the Science Base* by Joy et al. Prior to 1999, the most recent report was published by the IOM in 1982. This earlier work was produced prior to the findings in the 1980s and 1990s with regard to discovery of the CB receptors and their function in the brain.[193]

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[191] Source: Ibid.

[192] Joy, Watson, Jr., and Benson, Jr., *Marijuana and Medicine*, 1.

[193] Ibid., 2.

After much research, the IOM made several general conclusions, as stated in the executive summary of the 1999 book:

1. Cannabinoids likely have a natural role in pain modulation, control of movement, and memory.
2. The natural role of cannabinoids in immune systems is likely multi-faceted and remains unclear.
3. The brain develops tolerance to cannabinoids.
4. Animal research demonstrates the potential for dependence, but this potential is observed under a narrower range of conditions than with benzodiazepines, opiates, cocaine, or nicotine.
5. Withdrawal symptoms can be observed in animals but appear to be mild compared to opiates or benzodiazepines, such as diazepam (Valium).[194]

With regard to the efficacy of cannabinoid drugs, the authors of *Marijuana and Medicine* state that the accumulated data indicate a potential therapeutic value, especially for indications such as pain relief, control of nausea and vomiting, and appetite stimulation.[195] They note that the best established therapeutic effects are from THC. THC and cannabidiol (CB) are the two most prevalent cannabinoids in marijuana.[196]

Joy et al. reviewed reports detailing over 30 purported medical uses of marijuana. They narrowed the scope of their research to five areas of symptoms and conditions. These areas were pain, nausea and vomiting, wasting syndrome and appetite stimulation, neurological symptoms including muscle spasticity, and glaucoma.[197] While the report warns repeatedly of the dangers associated with smoked marijuana, they acknowledge that the scientific data indicate a medicinal value to marijuana, in spite of the risks.[198] Furthermore, the researchers make

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[194] Ibid., 3.

[195] Ibid.

[196] Ibid.

[197] Ibid., 138.

[198] Ibid.

the recommendation to continue clinical trials of cannabinoid drugs so as to develop safer, reliable, more rapid-onset systems of delivery.[199]

When analyzing the potential consequences of marijuana use, the researchers for the 1999 study compiled data from four studies relating to the psychoactive effects of THC and the point at which a patient reported "feeling high."[200] The highest concentration of marijuana cigarette smoked by any of the subjects in the studies was 3.5 percent THC.[201] Due to the inherent dangers and the already discussed lack of testing material, there is still no similar research at higher levels of THC concentration.[202] The samples used in trials focused on the efficacies of marijuana were all below this level.

Future studies are needed to explore the testing of marijuana in its many compositions for medical purposes. These studies must be controlled clinical examinations of marijuana in its natural and synthetic forms and the various methods of ingestion. Today, smoked marijuana is not the only form of marijuana in use. According to a 1998 article by Calhoun, Galloway, and Smith, "There are a number of forms of marijuana that are used for medical purposes, including a synthetic form, Marinol (dronabinol), which is taken orally."[203] According to Calhoun, Galloway, and Smith,

> Marinol is a Schedule III prescription drug, approved by the FDA in 1985 for treatment of nausea and vomiting of cancer chemotherapy patients who have not responded to conventional antiemetic therapy. In 1992, the FDA also approved it for use in loss of appetite and weight loss related to AIDS.[204]

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[199] Ibid., 179.

[200] Ibid.

[201] Ibid., 85.

[202] Ibid.

[203] Calhoun, Galloway, and Smith, "Abuse Potential."

[204] Ibid.

Another form used in Canada is a spray alternative called Sativex.[205] In 2006, the FDA issued an investigational new drug application for Sativex.[206]

If marijuana were moved from Schedule I to either Schedule II or III, it is possible that the DEA would be far more likely to grant licenses for the cultivation of the substance for research. Currently, the University of Mississippi holds the exclusive right to produce such material and supplies marijuana cigarettes with no more than 6.7 percent THC.[207] With an increase in availability of plant material, as well as greater acceptance of the research in the form of increased grant funding, there would be much more scientific data available with regard to the efficacies of marijuana and its components.

3. Health and Public Safety

The Substance Abuse and Mental Health Services Administration (SAMHSA) is the agency within the U.S. Department of Health and Human Services that "leads public health efforts to advance the behavioral health of the nation."[208] SAMHSA's stated mission is "to reduce the impact of substance abuse and mental illness on America's communities."[209] SAMHSA administers the National Survey on Drug Use and Health (NSDUH), which is a "primary source of statistical information on the use of illegal drugs, alcohol, and tobacco by the U.S. civilian, noninstitutionalized population aged 12 or older."[210] Conducted on behalf of the U.S. federal government since 1971, the survey

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[205] Peter A. Clark, Kevin Capuzzi, and Cameron Fick, "Medical Marijuana: Medical Necessity versus Political Agenda," Medical Science Monitor 17, no. 12 (2011): 249–261.

[206] Douglas C. Throckmorton, *FDA Work on Medical Products Containing Marijuana* (Washington, DC: U.S. Food and Drug Administration, 2015), https://www.fda.gov/downloads/aboutfda/centersoffices/officeofmedicalproductsandtobacco/cder/ucm438966.pdf.

[207] National Institute on Drug Abuse. "NIDA's Role."

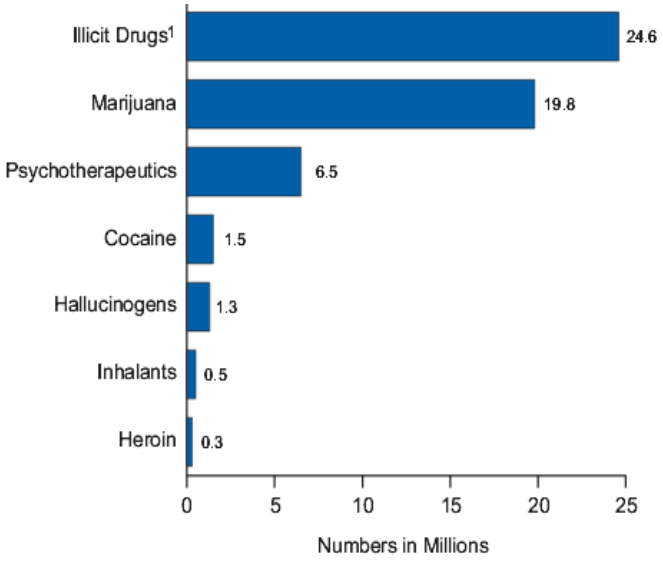
[208] "About Us," Substance Abuse and Mental Health Services Administration, accessed October 15, 2016, https://www.samhsa.gov/about-us.

[209] Ibid.

[210] "About Population Data/NSDUH," Substance Abuse and Mental Health Services Administration, accessed May 15, 2017, http://www.samhsa.gov/data/population-data-nsduh/about.

currently "collects data through face-to-face interviews with a representative sample of the population at the respondent's place of residence."[211] Results, such as those in Figure 10 for past month use in 2013, are published for responses to questions pertaining to each of the drug types/categories.

Figure 10. Past-Month Illicit Drug Use among Persons Aged 12 or Older: 2013[212]



[1]Illicit Drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically.

According to the data compiled by the NSDUH, in 2011, over 18 million people, age 12 and older, report past-month use of marijuana.[213] In 2013, the number rose to 19.8 million (see Figure 11). Though this number represents less than 10 percent of the total population, and 58 percent of people report that they

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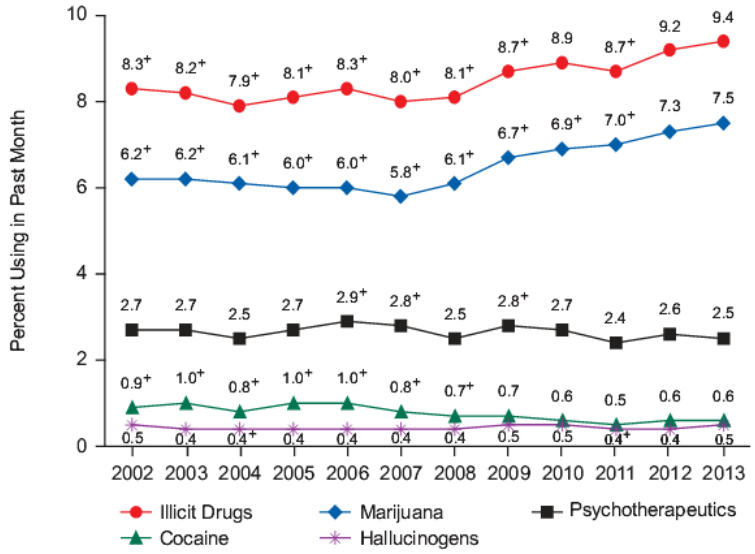
[211] Ibid.

[212] Source: Center for Behavioral Health Statistics and Quality, *Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings* (Rockville, MD: Substance Abuse and Mental Health Services Administration, 2013), http://www.samhsa.gov/data/sites/default/files/NSDUHresultsPDFWHTML2013/Web/NSDUHresults2013.pdf.

[213] Center for Behavioral Health Statistics and Quality, *Results from the 2011 National Survey on Drug Use and Health: Summary of National Findings* (Rockville, MD: Substance Abuse and Mental Health Services Administration, 2011), http://media.samhsa.gov/data/NSDUH/2k11Results/NSDUHresults2011.pdf.

have never used marijuana, the trend is clear. A look at Figure 11 illustrates the fact that illicit drug use is on the rise and that marijuana accounts for much of the increase.

Figure 11. Past-Month Use of Selected Illicit Drugs among Persons Aged 12 or Older: 2002–2013[214]



+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

The news is not all bad, however. Greater medical accessibility to the drug may account for some of the increase, and the increase in past-month use was not in any of the age groups under 21 years of age.[215] In fact, every age bracket from age 12 through age 20 reported a decrease in the use of illicit drugs over the last year (see Figure 12). SAMHSA reported that past-month use of marijuana by youth ages 12–17 accounted for 7.5 percent of illicit drug use in 2013. This is down from 7.9 percent in 2011.[216]

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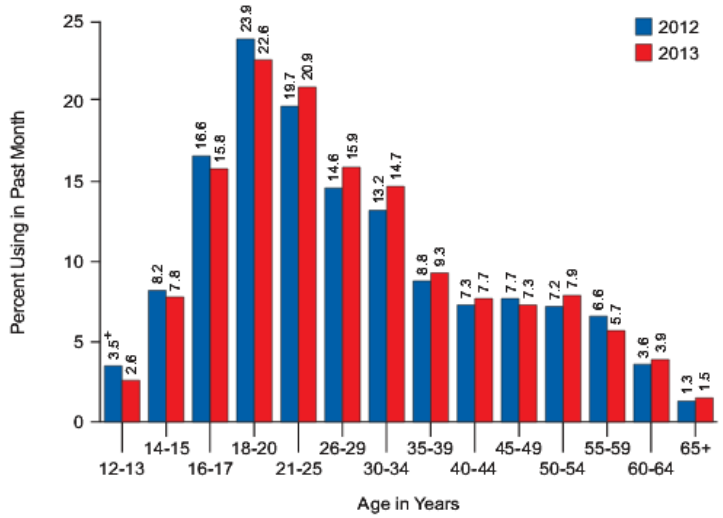
[214] Source: Center for Behavioral Health Statistics and Quality, *Results from the 2013*.

[215] Ibid.

[216] Ibid.

Figure 12. Past-Month Illicit Drug Use by Age among Persons Age 12–65+: 2012–2013[217]



+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

While the country as a whole saw a decrease in youth past-month use of marijuana, the state of Colorado saw different statistics. Colorado voted to legalize marijuana for recreational use in 2009. When comparing the three years prior to 2009, with the three years after, there was a 25 percent increase in the past-month use of marijuana by 12–17 year-olds (see Figure 13).[218] When comparing the responses of 12–17 year-olds nationwide, the results show that the top 10 states in past-month marijuana use all have laws allowing marijuana use for medical or recreational purposes. The bottom 10 states still prohibit the use of marijuana by law (see Figure 14). The national average of 7.5 percent of 12–17 year-olds reporting past-month drug use contrasts starkly with those in Colorado, with nearly 10.5 percent admitting marijuana use in the past month (see Figure 15).

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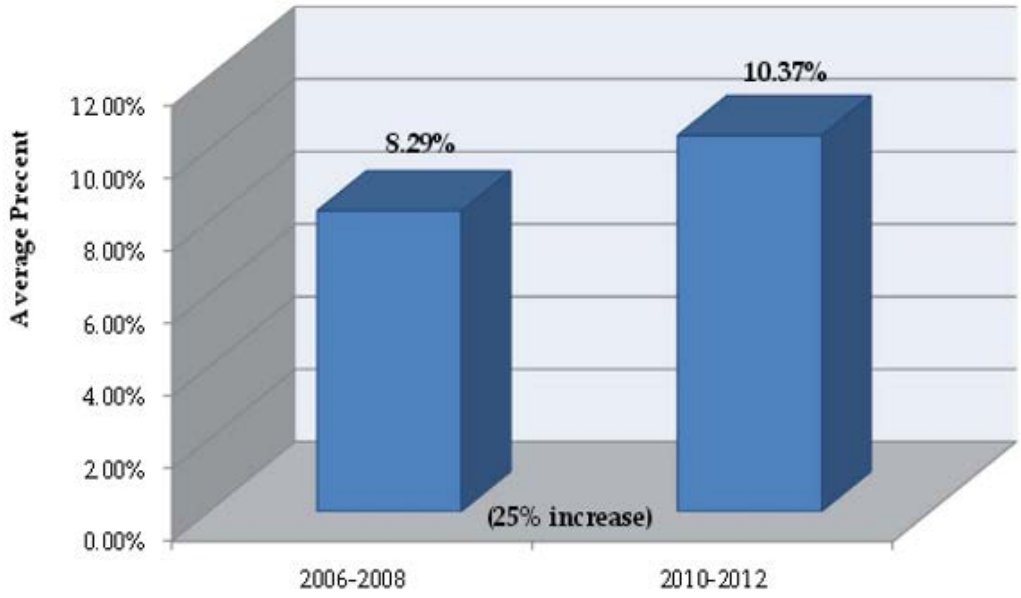
[217] Source: Ibid.

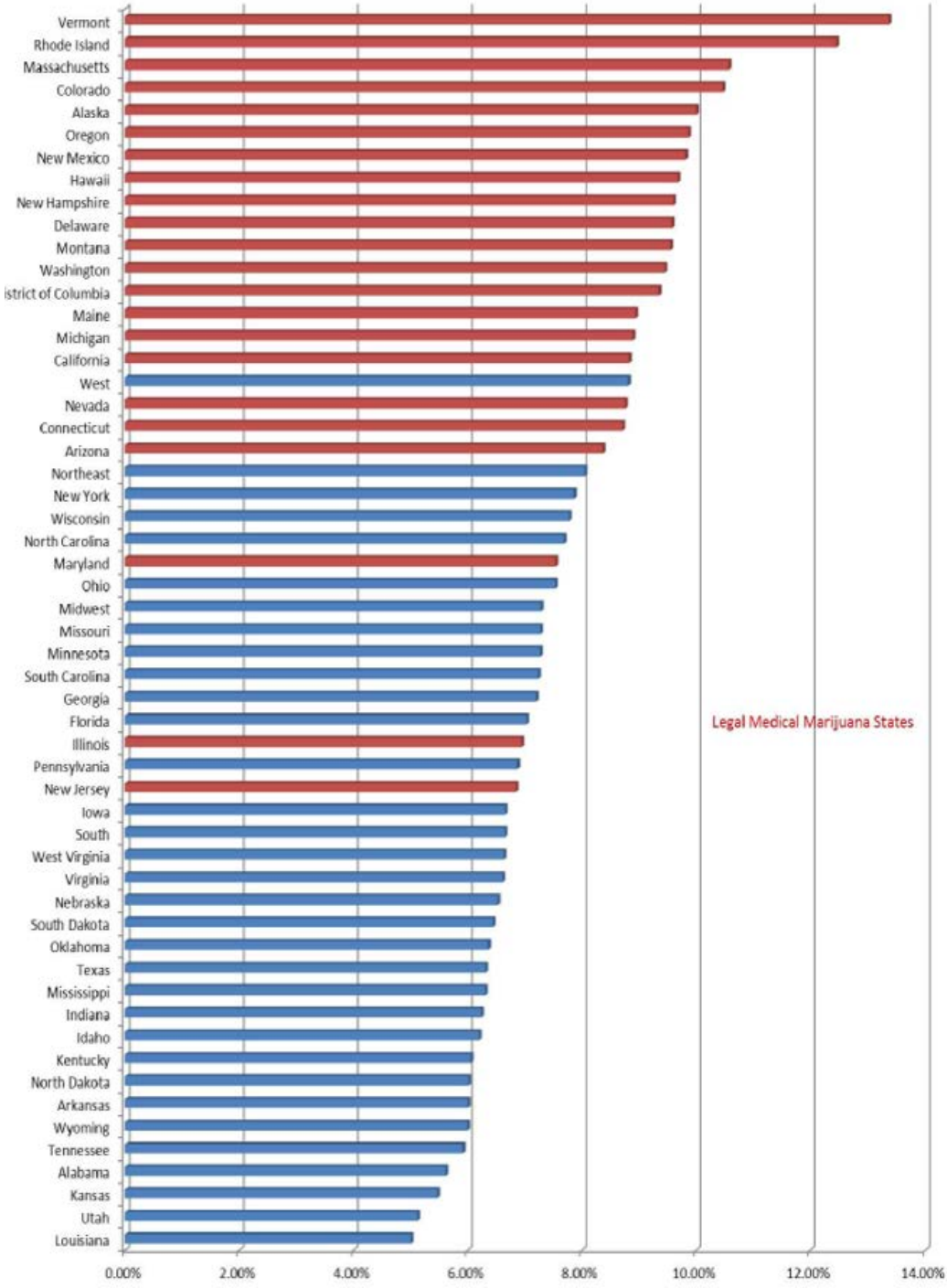
[218] Rocky Mountain High Intensity Drug Trafficking Area, *The Legalization of Marijuana in Colorado: The Impact*, Vol. 2 (Denver, CO: Rocky Mountain High Intensity Drug Trafficking Area, 2014), http://www.in.gov/ipac/files/August_2014_Legalization_of_MJ_in_Colorado_the_Impact(1).pdf.

Figure 13. Average Past-Month Use of Marijuana among Persons Ages 12–17: Pre- and Post-medical Marijuana Commercialization Year 2009[219]



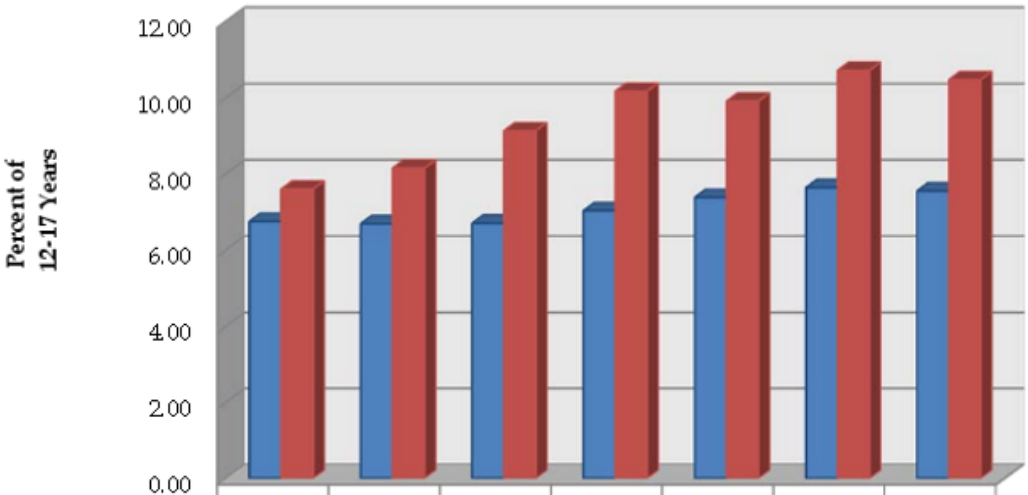
[219] Source: Rocky Mountain High Intensity Drug Trafficking Area, *The Legalization of Marijuana*.

Figure 14. Past-Month Usage of Marijuana among Ages 12–17 in Medical Marijuana States in 2012[220]



[220] Source: Rocky Mountain High Intensity Drug Trafficking Area, *The Legalization of Marijuana*.

Figure 15. Past-Month Marijuana Use among Ages 12–17, National versus Colorado: 2006–2012[221]



	2006	2007	2008	2009	2010	2011	2012
National Average	6.75	6.69	6.70	7.03	7.38	7.64	7.55
Colorado Average	7.60	8.15	9.13	10.17	9.91	10.72	10.47

Regarding the increased use of marijuana in young people (ages 12–17), it is important to point out that any adverse effects of the drug are far worse when acting on a still-developing brain and body.[222] It should also be pointed out that risks are quantified in terms merely of reported use, with no factor for THC content. The inconsistent and ever-increasing THC levels seen in marijuana, as of late, increase all of these risk factors.

Another inherent risk of marijuana use is one already discussed—that of impaired driving. Studies show that drivers testing positive for marijuana or who report driving "within three hours of marijuana use are twice as likely to be involved in a traffic collision."[223] Another illustration of the increased adverse

[221] Source: Rocky Mountain High Intensity Drug Trafficking Area, *The Legalization of Marijuana*.

[222] Nora D. Volkow, Ruben D. Baler, Wilson M. Compton, and Susan RB Weiss, "Adverse Health Effects of Marijuana Use," *New England Journal of Medicine* 370, no. 23 (2014): 2219–2227.

[223] Li et al., "Marijuana Use."

health effects of marijuana legalization are emergency department visits before and after efforts to legalize the recreational use of marijuana. According to the SAMHSA *Drug Abuse Warning Network Report*, dated February 2013, emergency department visits involving illicit drugs were relatively stable from 2004 (991,640 visits) to 2009 (974,392 visits).[224] 2009 is the year that Colorado became the first state to allow recreational use of marijuana.[225] Between 2009 and 2011, emergency department visits attributable to marijuana abuse rose by 19 percent.[226] Again, there is no data with regard to THC levels of the marijuana that is causing the increase in emergency department visits, but we do have the report from the Colorado Department of Public Health that states that typical THC levels in that state are in the 20 percent range.[227]

In spite of reports that show fewer adolescents believe that "regular cannabis use is harmful to their health,"[228] another recent study concludes that there is "sufficient evidence to warn young people that using cannabis could increase their risk of developing a psychotic illness later in life."[229] Yet another research study polled regular users of smoked marijuana. When asked to rate the "subjective effects of cannabis on their cognition, memory, career, social life, physical health and mental health, large majorities of heavy users (66–90 percent) reported a negative effect."[230]

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[224] "Highlights of the 2011 Drug Abuse Warning Network (DAWN) Findings on Drug-Related Emergency Department Visits," February 22, 2013, http://archive.samhsa.gov/data/2k13/DAWN127/sr127-DAWN-highlights.htm.

[225] "Amendment 64 Use and Regulation of Marijuana," City of Fort Collins, accessed March 3, 2017, https://www.fcgov.com/mmj/pdf/amendment64.pdf.

[226] Ibid.

[227] Colorado Department of Public Health and Environment, *Monitoring Health*.

[228] Madeline H. Meier et al., "Persistent Cannabis Users Show Neuropsychological Decline from Childhood to Midlife," *Proceedings of the National Academy of Sciences* 109, no. 40 (2012): E2657–E2664.

[229] Moore et al., "Cannabis Use."

[230] A. J. Gruber, H. G. Pope, J. I. Hudson, and D. Yurgelun-Todd, "Attributes of Long-Term Heavy Cannabis Users: A Case–Control Study," *Psychological Medicine* 33, no. 8 (2003): 1415–1422.

D. CHAPTER CONCLUSION

In conclusion, there has been evidence provided that current federal law and policy is creating conflict in all four of the areas explored in this thesis: legal, law enforcement, medical, and health and public safety. Recent and continuing changes in state marijuana laws are in direct conflict with current federal marijuana scheduling and the mandates set forth in international accords to which the United States is a party. Current scheduling stifles the very research that would tend to provide evidence for the need to reschedule marijuana in the first place. Similarly, current scheduling precludes the classification of marijuana as a prescription drug, which would provide for its regulation and compliance with federal and international law.

Evidence has been shown of the medicinal value of marijuana, and also the dangers associated with its use early in life, impaired driving, and unknown THC content. While decriminalization appears to lead to greater use, even by those not legally authorized, there has been no evidence that increased marijuana use leads to increase in Part-I (serious) reported criminal activity. The ambiguity in federal enforcement and the increasing tolerance by states and municipalities have started us down the road to rescheduling marijuana and THC. Now, we need to finish the trip.

III. ALTERNATIVES: OPTIONS FOR POLICY GUIDANCE

So far in this thesis, the author has identified a host of reasons why current federal marijuana policy is not sustainable: the myriad conflicts that arise between the evolving state marijuana legal landscape and the federal statutory prohibition on marijuana include the continued non-compliance with international accords, inconsistent law enforcement and prosecutorial guidance; a lack of research, increased use among developing teens and young adults, and an inability for those profiting to legally use the banking system. This section discusses three options for federal policy.

A. OPTION ONE: STATUS QUO

The first option is to continue with the status quo—to continue business as usual. As has already been quoted from Bardach, this policy option is not to say that the federal government has the option to "do nothing," but rather to continue the trend that is already underway. This trend, as evidenced by the guidance put forth in the Cole memo,[231] is one of relaxed enforcement. In this option, the states would continue to enact their own marijuana legislation with no regard for the standing federal statutes and little regard for the regulation of marijuana production, sales, and use. The federal government would continue to allow such state legislative freedom, while continuing relaxed enforcement of the current federal marijuana laws.

B. OPTION TWO: STRICT ENFORCEMENT

A second option, arguably at the other extreme, would be for the federal government to assert its supremacy over the states with regard to marijuana legislation. In this scenario, marijuana would remain in Schedule I of the Controlled Substance Act and illegal under federal statute. The guidance under the Cole memo, and the legislative mandates for federal non-interference in state

[231] Ibid.

marijuana lawmaking would be rescinded. Federal marijuana laws would be enforced as written. The biggest hurdle with implementation of this option would likely be state compliance.

C. OPTION THREE: RESCHEDULING

A hybrid option would be to reschedule marijuana and then mandate compliance with federal laws by all states and territories. This “middle-of-the-road” approach would begin with the moving of marijuana from Schedule I of the Controlled Substance Act to Schedule III. Rescheduling would allow marijuana to be prescribed and fall under the purview of all of the existing laws that govern the production, distribution, and use of prescription drugs, including their availability for more robust research.

D. CRITERIA: WHAT DOES AN EFFECTIVE POLICY LOOK LIKE?

An effective federal policy on marijuana legislation is one that addresses the conflicts that have been evidenced with regard to the four criteria explored through the research: legality, impact on law enforcement, medical impact, and marijuana’s health and safety risk. Effective federal policy is not one that states one thing statutorily and is executed in quite another in terms of enforcement and prosecutorial guidance. Rather, an effective policy is one that can be enforced the way that it is written.

As stated in the methodology, when defining the problems and exploring alternatives, we should first think in terms of deficit or excess. The research has clearly shown both. The purpose of proposing change to the existing federal marijuana strategy is to fill the void in effective enforcement guidance. A sound option is one that, to the extent possible, aligns with the desires of the states that have voted for change, as well as with the statutory compliance requirements that we share with the international community. It is one that balances personal freedom with the federal government’s responsibility to ensure public safety. By stressing medical use over recreational use, regulation over euphoria, and safety over freedom, there is a way to responsible change policy.

The literature review has also identified a deficit in marijuana research. The current federal marijuana prohibitions have a negative effect on the research that is needed to effectively further this discussion and to frame an effective policy. An effective federal policy is one that acknowledges the potentially positive medical impact that marijuana could have and allows for its robust clinical testing.

As for excess, we need only look to the states that have gone beyond medicinal use and into allowing the use of unregulated THC content for recreational purposes. The federal government has a public safety responsibility to inform the public of the proven risks of abusing marijuana and implement policies that mitigate those risks. There is evidence of the need for change in the sheer number of states that have opted to enact laws contrary to the federal policy; 45 out of 50 states now have marijuana laws that are in direct conflict with the current federal laws.

Lastly, effective policy would once and for all define nationally what "medicinal marijuana" is. As previously stated, very few of the states that have medicinal marijuana laws take the extra step of defining it terms of THC and CBD content. There are other drugs of abuse in categories of the Controlled Substance Act other than Schedule I. An effective policy is one that concedes that marijuana should join those listed elsewhere that are defined, regulated, prescribed, researched, and used responsibly.

E. CONSEQUENCES: PROJECTING OUTCOMES OF POLICY OPTIONS

In this chapter, the author has presented three federal policy options along with the criteria for gauging the problems and assessing potential benefits. The following discussion is a projection of the options as they relate to those criteria.

1. Option One: Status Quo (Legality)

The status quo option would do nothing to resolve the conflicts between state and federal laws, nor would it move us any closer to compliance with the

INCB mandates. Relaxing the enforcement of the standing federal laws does not offer a long-term solution. In fact, continuing the policies that stifle research and promote state autonomy would lead to further lack of alignment between federal and state law. The country is reaching a point where every state will have enacted some form of legislation that conflicts with the federal scheduling of marijuana; only five have not done so at this point. Changes to state legislation does nothing to reconcile the conflict between local marijuana legality and the illegality of using the banking system to deposit and move proceeds.

a. Impact on Law Enforcement

With more states opting for decriminalization of marijuana, there is increased disparity between federal and local law enforcement directives. The Cole memo provides federal law enforcement personnel and prosecutors with guidance. As the number of states that have their own marijuana laws increases, so increases the number of states that will enjoy relaxed federal enforcement of the Title 21 laws.[232] Relaxed enforcement does not change the laws as they are written, and therefore leaves them open to new and different interpretation with changes of administration or political will.

b. Medical Impact

As evidenced by the current trend, public perceives that marijuana does in fact have medicinal value. Research has been presented to support this notion, but there is also a need for further exploration into the subject. With no change in federal marijuana policy, the availability of marijuana for testing purposes and research funding will remain limited.

c. Health and Public Safety Risk

Of the states that have opted for decriminalization or legalization of marijuana, only a few have passed restrictions on the chemical composition of

[232] Ibid.

the legalized substance. The status quo option, with its continued federal prohibition, does not offer the federal government any option for defining medicinal marijuana. Without these limits and regulations, states are free to allow the possession and use marijuana in potencies and compositions shown to pose a health and public safety risk.

2. Option Two: Strict Enforcement (Legality)

The legality option, with the assertion of current federal law over those enacted to their contrary by the states, would disenfranchise the voters in 90 percent of the states in this country. The biggest hurdle to implementation of this option would likely be state compliance. In addition to the potential constitutional debate that would ensue, there would be the issue of how practically to reverse 21 years of legislation. A path similar to that of the Minimum Drinking Age Act of 1984 would likely need to be followed, tying states' compliance with some significant federal funding. The Minimum Drinking Age Act (23 U.S.C. §158) requires that states prohibit "persons under 21 years of age from purchasing or publicly possessing alcoholic beverages" as a condition of receiving federal highway funds. Though this option would satisfy our legal requirements for compliance with the standing treaties, it would essentially end any debate on marijuana's medical value.

a. Impact on Law Enforcement

This legality option may provide the clearest guidance to state and local law enforcement and prosecution personnel, but it would impose enforcement guidelines that are not realistic given the current climate.

b. Medical Impact

Strict enforcement of marijuana's Schedule I classification in the Controlled Substance Act would indicate that the substance has no legitimate medical purpose. The findings of researchers that reviewed reports highlighting over 30 purported medical uses of marijuana yielded two main points. One, there

is scientific data to support a medical benefit to the use of marijuana and THC; two, researchers recommend clinical trials continue in order to develop safer and more consistent methods of delivery than smoking.[233] This creates the first point of contention for the states and essentially the same fodder that led to the passage of Proposition 215, dating back to 1996 in California.

c. Health and Public Safety Risk

By continuing the federal prohibition on marijuana and mandating the same from the states, there would likely be a reduction in its use by those that have begun using the drug only since its legalization. This policy option, though intended to end the use of all marijuana, would have the effect of limiting the availability of medicinally beneficial marijuana in favor of black market marijuana that may increase the potential risks to the users.

3. Option Three: Rescheduling (Legality)

The moving of marijuana from Schedule I to Schedule III of the Controlled Substance Act would allow marijuana to be prescribed and to fall under the purview of all of the existing laws that govern the production, distribution, and use of prescription drugs. Along with the other INCB-listed dangerous drugs that are classified as Schedule III, marijuana would no longer be allowed for other than medical use and conform squarely with all of the international treaties to which the United States is party. To facilitate the repeal of state laws that allow for marijuana's use recreationally, as mentioned above, the federal government would likely have to tie state compliance to some significant federal funding, such as that allocated for transportation projects.

a. Impact on Law Enforcement

Moving marijuana to Schedule III and giving states clear guidance as to its allowable uses would allow federal, state, local, and tribal law enforcement

[233] Joy, Watson, Jr., and Benson, Jr., *Marijuana and Medicine*.

entities to align their protocols and finally coordinate efforts. As a Schedule III substance, proceeds and profits associated with marijuana's production and sale would no longer be subject to the prohibitions set forth in the Banking Secrecy Act for Schedule I drugs. This means these monies would no longer be precluded from entering and using the legitimate banking system.

b. Medical Impact

The research has shown that marijuana may be a dangerous drug worth banning. The research has also shown the potential for marijuana to provide medical relief to millions of individuals. If marijuana were a Schedule III substance, it would allow for this medical use and facilitate the defining and quantifying of "medicinal marijuana."

c. Health and Public Safety Risk

Moving marijuana to Schedule III moves the debate from one centered on medical value to one around the issue of potency, consistency, and amount. Marijuana, as the whole plant, with all of its varied and increasingly more psychoactive strains, one could argue is not supposed to have been the subject of an informed discussion about scheduling or classification at all. Rather, as shown by the evidence, the discussion should instead focus on where to properly schedule *THC* in relationship to CBD and at what levels. If the goal of the Controlled Substance Schedule is to rate the likelihood of abuse, level of physical and psychological dependence, and medical value, then the proper subject of the schedule is narrowly defined "marijuana;" marijuana defined by the very things that affect those values, the THC and CBD content. As a Schedule III drug, another allowance for the production and use of marijuana is research. It is through the much needed research that we can answer the questions of potency and risk that affect health and public safety.

F. TRADE-OFFS: BUILDING POLITICALLY FEASIBLE OPTIONS

The least politically feasible option would be for the federal government to leave the current federal laws in place and begin to vigorously enforce them. A more politically feasible, but ineffective policy choice, would be to continue the current relaxed enforcement and wait until something forces change. Since April of 2015, the country has been without an administrator appointed to the DEA. There is new presidential administration and with it comes an opportunity for leadership and policy change.

To reschedule marijuana as a Schedule III substance would be a move that I believe would be seen as the federal government seeking to better align itself with the will of the states. Not only would it provide an opportunity for people to legally possess and use marijuana, but it would allow steps to ensure its safe use, as well as to further the research into its dangers and benefits.

G. DECISIONS: MAKING POLICY RECOMMENDATIONS

My advice to the new administration would be to look at the issue of marijuana legislation with a fresh eye as well as through the lens of all that we have learned over the last few years. With all that we have learned about marijuana and its components, and all that we are learning about the desires of the voting populous, we can move forward with policy recommendations are for the future. I believe the future requires the federal government to acknowledge that marijuana's placement in Schedule I of the Controlled Substance Act was not meant to be permanent. The first federal policy recommendation for marijuana actually came with its initial classification. Dr. Egeberg, stated himself that "our recommendation is that marijuana be retained within Schedule I at least until the completion of certain studies now underway to resolve the issue."[234] Though the research did not identify what these "studies currently underway" may have been, it can logically be asserted that they have not been ongoing since 1970.

[234] Ibid.

The next appointed DEA administrator will be expected to make a decision on the subject, as will the newly-appointed attorney general. As described as part of the review of literature, the process by which marijuana can be moved from Schedule I to Schedule III is not a complicated one. The systems for regulating, approving, and producing THC and the other components of marijuana are already in place, as in the case of synthetic THC, which already has a place outside of Schedule I.

On the question of state compliance, it is important for the federal government to work quickly to ensure access to marijuana as a legitimately prescribed drug. The key to popular acceptance is framing the new policy to closely resemble what the voters have voted in favor of that the states comply for their own political well-being. Remember that most of the 45 states, the District of Columbia, and Guam have passed laws allowing for the medicinal use of marijuana. That is precisely what marijuana as a Schedule III drug will provide, along with treaty compliance, and the ability to use the banking system in connection with marijuana as legitimate business.

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APPENDIX: STATE LAWS AS OF NOVEMBER 9, 2016

Table 2. State Medical Marijuana/Cannabis Program Laws[235]

State	Statutory Language (year)	Patient Registry or ID cards	Allows Dispensaries	Specifies Conditions	Recognizes Patients from other states	State Allows for Retail Sales/Adult Use
Alaska	Measure 8 (1998) SB 94 (1999) Statute Title 17, Chapter 37	Yes	No	Yes		Ballot Measure 2 (2014) Not yet operational
Arizona	Proposition 203 (2010)	Yes	Yes	Yes	Yes	
California	Proposition 215 (1996) SB 420 (2003)	Yes	Yes (cooperatives and collectives)	No		
Colorado Medical program info Adult-use info	Amendment 20 (2000)	Yes	Yes	Yes	No	Amendment 64 (2012) Task Force Implementation Recommendations (2013) Analysis of CO Amendment 64 (2013) Colorado marijuana sales and tax reports 2014 "edibles" regulation measure
Connecticut	HB 5387 (2012)	Yes	Yes	Yes		
Delaware	SB 17 (2011)	Yes	Yes	Yes	Yes	
District of Columbia	Initiative 59 (1998) L18-0210 (2010)	Yes	Yes	Yes		Initiative 71 (2014) Pending congressional review and not yet operational
Guam	Proposal 14A Approved in Nov. 2014, not yet operational.	Yes	Yes	Yes	No	
Hawaii	SB 862 (2000)	Yes	No	Yes		
Illinois	HB 1 (2013) *Eff. 1/1/2014* Proposed rules as of April, 2014	Yes	Yes	Yes	No	

[235] Source: National Conference of State Legislatures, "State Medical Marijuana Laws."

State	Statutory Language (year)	Patient Registry or ID cards	Allows Dispensaries	Specifies Conditions	Recognizes Patients from other states	State Allows for Retail Sales/Adult Use
Maine	Question 2 (1999) LD 611 (2002) Question 5 (2009) LD 1811 (2010) LD 1296 (2011)	Yes	Yes	Yes	Yes	
Maryland	HB 702 (2003) SB 308 (2011) HB 180/SB 580 (2013) HB 1101- Chapter 403 (2013) SB 923 (signed 4/14/14) HB 881- similar to SB 923	Yes	Yes	Yes		
Massachusetts	Question 3 (2012) Regulations (2013)	Yes	Yes	Yes		
Michigan	Proposal 1 (2008)	Yes	Not in state law, but localities may create ordinances to allow them and regulate them.	Yes	Yes	
Minnesota	SF 2471, Chapter 311 (2014)	Yes	Yes, limited, liquid extract products only	Yes		
Montana	Initiative 148 (2004) SB 423 (2011)	Yes	No**	Yes	No	
Nevada	Question 9 (2000) NRS 453A NAC 453A	Yes	No	Yes		
New Hampshire	HB 573 (2013)	Yes	Yes	Yes	Yes, with a note from their home state, but they cannot purchase or grow their own in NH.	
New Jersey	SB 119 (2009) Program information	Yes	Yes	Yes		

State	Statutory Language (year)	Patient Registry or ID cards	Allows Dispensaries	Specifies Conditions	Recognizes Patients from other states	State Allows for Retail Sales/Adult Use
New Mexico	SB 523 (2007) Medical Cannabis Program	Yes	Yes	Yes		
New York	A6357 (2014) Signed by governor 7/5/14	Yes	Ingested doses may not contain more than 10 mg of THC, product may not be combusted (smoked).	Yes		
Oregon	Oregon Medical Marijuana Act (1998) SB 161 (2007)	Yes	No	Yes		Measure 91 (2014) Not yet operational
Rhode Island	SB 791 (2007) SB 185 (2009)	Yes	Yes	Yes	Yes	
Vermont	SB 76 (2004) SB 7 (2007) SB 17 (2011)	Yes	Yes	Yes		
Washington	Initiative 692(1998) SB 5798 (2010) SB 5073 (2011)	No	Yes, approved as of Nov. 2012, stores opened in July, 2014.	Yes		Initiative 502 (2012) WAC Marijuana rules: Chapter 314–55 WAC

Table 3. Limited Access Marijuana Product Laws (Low THC/High CBD—Cannabidiol)[236]

State	Program Name and Statutory Language (year)	Patient Registry or ID cards	Dispensaries or Source of Product(s)	Specifies Conditions	Recognizes Patients from other states	Definition of Products Allowed	Allows for Legal Defense	Allowed for Minors
Alabama	SB 174 "Carly's Law" (Act 2014–277) Allows University of Alabama Birmingham to conduct effectiveness research using low-THC products for treating seizure disorders for up to 5 years. **Not operational as of April, 2015.**		Only the Univ. Alabama Birmingham is allowed to dispense FDA-approved trial products with the proper permissions.	Yes, debilitating epileptic conditions or life-threatening seizures.	No	Extracts that are low THC= below 3% THC	Yes	Yes
Florida	Compassionate Medical Cannabis Act of 2014 CS for SB 1030 (2014) Patient treatment information and outcomes will be collected and used for intractable childhood epilepsy research	Yes	Yes, 5 registered nurseries across the state by region, which have been in business at least 30 years in Florida.	Yes, cancer, medical condition or seizure disorders that chronically produces symptoms that can be alleviated by low-THC products	No	Cannabis with low THC= below .8% THC and above 10% CBD by weight		Yes, with approval from 2 doctors
Georgia	HB 1 (2015) (signed by governor 4/16/15)	Yes	Law allows University System of Georgia to develop a lot THC oil clinical research program that meets FDA trial compliance.	Yes, end stage cancer, ALS, MS, seizure disorders, Crohn's, mitochondrial disease, Parkinson's, Sickle Cell	No	Cannabis oils with low THC= below 5% THC and at least an equal amount of CDB.	Yes	Yes

[236] Source: National Conference of State Legislatures, "State Medical Marijuana Laws."

State	Program Name and Statutory Language (year)	Patient Registry or ID cards	Dispensaries or Source of Product(s)	Specifies Conditions	Recognizes Patients from other states	Definition of Products Allowed	Allows for Legal Defense	Allowed for Minors
				disease				
Iowa	SF 2360, Medical Cannabidiol Act of 2014 (Effective 7/1/14)	Yes	Doesn't define or provide in-state methods of access or production.	Yes, intractable epilepsy	No	"Cannabidiol, a non-psychoactive cannabinoid" that contains below 3% THC, no more than 32 oz, and essentially free from plant material.	Yes	Yes
Idaho **VETOED BY GOVERNOR**	SB 1146 **(VETOED by governor 4/16/15)**	No	Doesn't define.	The possessor has, or is a parent or guardian of a person that has, cancer, amyo-trophic lateral sclerosis, seizure disorders, multiple sclerosis, Crohn's disease, mitochondrial disease, fibro-ymyalgia, Parkinson's disease or sickle cell disease;	No	Is composed of no more than three-tenths percent (0.3%) tetrahydrocannabidiol by weight; is composed of at least fifteen (15) times more cannabidiol than tetrahydrocannabidiol by weight; and contains no other psychoactive substance.	Yes	Yes

State	Program Name and Statutory Language (year)	Patient Registry or ID cards	Dispensaries or Source of Product(s)	Specifies Conditions	Recognizes Patients from other states	Definition of Products Allowed	Allows for Legal Defense	Allowed for Minors
Kentucky	SB 124 (2014) Clara Madeline Gilliam Act Exempt cannabidiol from the definition of marijuana and allows it to be administered by a public university or school of medicine in Kentucky for clinical trial or expanded access program approved by the FDA.	No	Universities in Kentucky with medical schools that are able to get a research trial. Doesn't allow for in-state production of CBD product.	Intractable seizure disorders	No	No, only "cannabidiol."		
Mississippi	HB 1231 "Harper Grace's Law" 2014		All provided through National Center for Natural Products Research at the Univ. of Mississippi and dispensed by the Dept. of Pharmacy Services at the Univ. of Mississippi Medical Center	Yes, debilitating epileptic condition or related illness	No	"CBD oil"—processed cannabis plant extract, oil or resin that contains more than 15% cannabidiol, or a dilution of the resin that contains at least 50 milligrams of cannabidiol (CBD) per milliliter, but not more than one-half of one percent (0.5%) of tetrahydrocannabinol (THC)	Yes, if an authorized patient or guardian	Yes
Missouri	HB 2238 (2014)	Yes	Yes, creates cannabidiol oil care centers and cultivation and production facilities/ laboratories.	Yes, intractable epilepsy that has not responded to three or more other treatment	No	"Hemp extracts" equal or less than .3% THC and at least 5% CBD by weight.	Yes	Yes

State	Program Name and Statutory Language (year)	Patient Registry or ID cards	Dispensaries or Source of Product(s)	Specifies Conditions	Recognizes Patients from other states	Definition of Products Allowed	Allows for Legal Defense	Allowed for Minors
				options.				
North Carolina	HB 1220 (2014) Epilepsy Alternative Treatment Act- Pilot Study	Yes	University research studies with a hemp extract registration card from the state DHHS or obtained from another jurisdiction that allows removal of the products from the state.	Yes, intractable epilepsy	No	"Hemp extracts" with less than three-tenths of one percent (0.3%) tetrahydrocannabinol (THC) by weight. Is composed of at least ten percent (10%) cannabidiol by weight. Contains no other psychoactive substance.	Yes	Yes
Oklahoma	HB 2154 (2015)	Yes	No in-state production allowed, so products would have to be brought in. Any formal distribution system would require federal approval.	People under 18 (minors) Minors with Lennox-Gastaut Syndrome, Dravet Syndrome, or other severe epilepsy that is not adequately treated by traditional medical therapies	No	A preparation of cannabis with no more than .3% THC in liquid form.	Yes	Yes, only allowed for minors

State	Program Name and Statutory Language (year)	Patient Registry or ID cards	Dispensaries or Source of Product(s)	Specifies Conditions	Recognizes Patients from other states	Definition of Products Allowed	Allows for Legal Defense	Allowed for Minors
South Carolina	SB 1035 (2014) Medical Cannabis Therapeutic Treatment Act- Julian's Law	Yes	Must use CBD product from an approved source; and (2) approved by the United States Food and Drug Administration to be used for treatment of a condition specified in an investigational new drug application. The principal investigator and any subinvestigator may receive cannabidiol directly from an approved source or authorized distributor for an approved source for use in the expanded access clinical trials. Some have interpreted the law to allow patients and caregivers to produce their own products.	Lennox-Gastaut Syndrome, Dravet Syndrome, also known as severe myoclonic epilepsy of infancy, or any other form of refractory epilepsy that is not adequately treated by traditional medical therapies.	No	Cannabidiol or derivative of marijuana that contains 0.9% THC and over 15% CBD, or least 98 percent cannabidiol (CBD) and not more than 0.90% tetrahydrocannabinol (THC) by volume that has been extracted from marijuana or synthesized in a laboratory	Yes	Yes

State	Program Name and Statutory Language (year)	Patient Registry or ID cards	Dispensaries or Source of Product(s)	Specifies Conditions	Recognizes Patients from other states	Definition of Products Allowed	Allows for Legal Defense	Allowed for Minors
Tennessee	SB 2531 (2014) Creates a four-year study of high CBD/low THC marijuana at TN Tech Univ. _____ HB 197 (2015)	Researchers need to track patient information and outcomes _____ No	Only products produced by Tennessee Tech University. Patients may possess low THC oils only if they are purchased "legally in the United States and outside of Tennessee," from an assumed medical cannabis state, however most states do not allow products to leave the state. _____ Allows for legal defense for having the product as long as it was obtained legally in the U.S. or other medical marijuana state.	Yes, intractable seizure conditions. _____ Yes, intractable seizure conditions.	No _____ No	"Cannabis oil" with less than .9% THC as part of a clinical research study _____ Same as above.	Yes	Yes
Texas	SB 339 (2015) Texas Compassion-ate Use Act	Yes	Yes, licensed by the Department of Public Safety.	Yes, intractable epilepsy.	No	"Low-THC Cannabis" with not more than 0.5 percent by weight of tetrahydroca nnabinols; and not less than 10 percent by weight of cannabidiol	Yes	Yes

State	Program Name and Statutory Language (year)	Patient Registry or ID cards	Dispensaries or Source of Product(s)	Specifies Conditions	Recognizes Patients from other states	Definition of Products Allowed	Allows for Legal Defense	Allowed for Minors
Utah	HB 105 (2014) Hemp Extract Registration Act	Yes	Not completely clear, however it may allows higher education institution to grow or cultivate industrial hemp	Yes, intractable epilepsy that hasn't responded to three or more treatment options suggested by neurologist	No	"Hemp extracts" with less than .3% THC by weight and at least 15% CBD by weight and contains no other psychoactive substances	Yes	Yes
Virginia	HB 1445	No	No in-state means of acquiring cannabis products.	Intractable epilepsy.	No.	Cannabis oils with at least 15% CBD or THC-A and no more than 5% THC.	Yes	Yes
Wisconsin	AB 726 (2013 Act 267)	No	Physicians and pharmacies with an investigational drug permit by the FDA could dispense cannabidiol. Qualified patients would also be allowed to access CBD from an out-of-state medical marijuana dispensary that allows for out-of-state patients to use their dispensaries as well as remove the products from the state. No in-state production/ manufacturing mechanism provided.	Seizure disorders		Exception to the definition of prohibited THC by state law, allows for possession of "cannabidiol in a form without a psychoactive effect." THC or CBD levels are not defined.	No	Yes

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