

A Strategy to Assess the Consequences of Marijuana Legalization

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Preface

A Strategy to Assess the Consequences of Marijuana Legalization from the Institute for Behavior and Health, Inc. was made possible by initial funding from the Rocky Mountain and Northwest High Intensity Drug Trafficking Areas (HIDTAs) located in the states of Colorado and Washington. It builds on the series of annual reports, *The Legalization of Marijuana in Colorado: The Impact*ⁱ released by the Rocky Mountain HIDTA, and on a comprehensive summary of the research on the health consequences of marijuana use written by the leaders at the National Institute on Drug Abuse and published in the *New England Journal of Medicine*.ⁱⁱ At the project's onset a group of leaders in substance abuse policy met for a day to discuss the challenges and the opportunities in assessing the consequences of marijuana use and marijuana legalization. Follow-up conversations and a sharing of drafts of this *Strategy* continued the process.

ⁱ Rocky Mountain High Intensity Drug Trafficking Area. (2013, August). *The Legalization of Marijuana in Colorado: The Impact. Volume 1*. Retrieved December 9, 2014 from:

<http://www.rmhidta.org/html/FINAL%20Legalization%20of%20MJ%20in%20Colorado%20The%20Impact.pdf>;

Rocky Mountain High Intensity Drug Trafficking Area. (2014, August). *The Legalization of Marijuana in Colorado: The Impact. Volume 2*. Retrieved December 9, 2014 from:

<http://www.rmhidta.org/html/August%202014%20Legalization%20of%20MJ%20in%20Colorado%20the%20Impact.pdf>

ⁱⁱ Volkow, N.D., Baler, R.D., Compton, W. M. & Weiss, S. R. (2014). Adverse health effects of marijuana use. *New England Journal of Medicine*, 370(23), 2219-2227.

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Executive Summary

With the passage in several states of ballot and state legislative initiatives to legalize the production, sale and use of marijuana, the United States has become the first country in the world with a legal market for marijuana. Throughout the US, many additional states, to varying degrees, permit the production, sale and use of marijuana for medical uses. The states of Colorado and Washington in 2012, and Alaska, Oregon and the District of Columbia in 2014 passed ballot initiatives to legalize marijuana for those 21 and older. It is likely that there will be continued expansion of marijuana legalization to additional states. This historic development exists in the context of a fragmented patchwork of disputed information about the health, safety and social consequences of marijuana use and the impact of marijuana legalization. All legal marijuana, including “medical” marijuana exists in a wide range of legal and regulatory schemes making the understanding of their consequences more complex.

As the movement supporting marijuana legalization gathers strength, there is a pressing need for a formal repository of information related to the public health, safety and other consequences, both of marijuana use and of marijuana legalization itself, as well as changes in public attitude about marijuana use and policies. This requires a sustained and repeated systematic annual collection, analysis and reporting of these data to the public.

Several options for a national monitoring system are considered; however it is concluded that a federal initiative is necessary. Because of the burdens imposed and the controversies sure to result from managing an annual report on the consequences of marijuana use and legalization, it is likely that no federal agency will step forward on its own to systematically collect, analyze and report these data. For this reason this *Strategy* calls on the US Congress to require a comprehensive annual report and to adequately fund this effort. Congressional mandate is essential in order to ensure that this information is vetted by and the responsibility of administrators at the highest levels and made widely available. Credible data is essential to the creation of sound drug policies and establishment and maintenance of programs that protect the public’s health and safety.

This *Strategy* urges that this Congressional mandate designate and appropriate the necessary funds for the management and coordination of this work using data and research from new and currently existing federal sources. The White House Office of National Drug Control Policy (ONDCP) is the best equipped office to do this work specifically because since its creation by Congress in 1987 the office has lead the federal government’s drug policy efforts, including law enforcement, treatment and research. This effort must coordinate information from other federal agencies including the National Institute on Drug Abuse (NIDA) the Substance and Abuse and Mental Health Services Administration (SAMHSA), the Department of Justice (DOJ), the Centers for Disease Control and Prevention (CDC), the Department of Transportation (DOT) and additional departments and offices within the federal government.

In addition to the general coordination of data sets from federal agencies, this *Strategy* encourages reinstating with substantial funding two federal data collection programs: the Drug Abuse Warning Network (DAWN) collecting Emergency Department visit data, and the Arrestee Drug Abuse Monitoring (ADAM) program collecting drug test data from local arrestees. It also encourages the systematic testing of seriously injured drivers in at least six sites to collect evidence on the roles of marijuana, alcohol and

other drugs in highway safety. Finally, this *Strategy* recommends ongoing study of the role of marijuana and other substance use on academic achievement and dropout using established national surveys and new studies.

There is a relevant precedent for the proposed Congressional mandate requiring annual reports on marijuana. During the first five years following NIDA's establishment in 1973, Congress mandated an annual report titled *Marijuana and Health*. Those reports summarized the emerging research on the effects of marijuana use, seeking to bring science to bear on what was then, as it is now, a highly politicized issue. The release of these reports was a significant media event each year. Congress should once again require an annual government report, focused on the full range of consequences of marijuana use and the legalization of marijuana. A commitment of funds must be made to support this process for at least a decade.

Now is precisely the right time for a renewed Congressional mandate. This dramatic change in drug policy is new and is likely to be emulated not only in more states, but also in other countries. Moreover, there is potential for legalizing other drugs of abuse.

It is clear from the current deluge of often-conflicting claims made by supporters and opponents of marijuana legalization about the consequences of such policies that the sources of data now available are inadequate and that the data are in dispute. The national commitment to this ongoing data collection and reporting must include the development of new and improved data sources to supplement those that are currently available.

In addition to a federally mandated reporting system, the creation of state-based reporting systems is strongly recommended. These would be similar to the systems currently developed in Colorado, led by the Rocky Mountain High Intensity Drug Trafficking Area (RM-HIDTA) and by the Office of the Governor. State-based reporting systems are needed particularly in the states that have legalized marijuana, in the states permitting the use of medical marijuana and also in the states adjacent or nearby because the impact of marijuana policies extends beyond state borders.

In addition to federal and state efforts this *Strategy* urges private organizations and foundations to become involved. Currently, there is a deep suspicion about the government's role in marijuana policy which could affect public reactions to government-funded findings. A non-political, non-governmental organization could develop and systematically issue additional useful and credible reports.

I. The Context

On January 1, 2014, the sale of marijuana to adults age 21 and older began in Colorado. The summer of that year marijuana sales began in Washington State followed on November 6, 2014 by the passage of ballot initiatives legalizing marijuana in Oregon, Alaska and the District of Columbia. Sales in Oregon began on July 1, 2015. Similar legislative action is now being considered in several additional states, although marijuana legalization bills and ballot initiatives have been rejected recently in many other states.

The state-based legalization of marijuana is the extension of a process that began with efforts to decriminalize marijuana in the early 1970s. Possession of marijuana was formally decriminalized in 11 states by 1978 and another state followed suit in 1996.¹ This effort was followed by the legalization of marijuana for medical uses in California in 1996, a step that has now been taken by 22 additional states and the District of Columbia. Throughout this time a handful of additional states decriminalized possession of marijuana.

The precedence of alcohol and tobacco as legal drugs throughout the United States provides perspective for the assessment of the consequences of marijuana use and legalization as new initiatives are passed state-by-state. Alcohol and tobacco are two leading causes of preventable illness and death² and it has taken a century to develop a reasonably satisfactory understanding of the health and safety consequences of the sale and use of these legal drugs – an evaluation that was for decades characterized by fragmentary evidence, conflict and disputed facts. It must not take a century, or even many decades, to document and understand the consequences of the use and legalization of marijuana. Documenting the consequences of marijuana use is essential to inform the debate about the extension and the shape of marijuana legalization.

¹ Pacula, R. L., Chriqui, J. F., & King, J. (2003). Marijuana decriminalization: What does it mean in the United States? National Bureau of Economic Research Working Paper Series, Working Paper 9690. Retrieved December 9, 2014 from: http://www.rand.org/content/dam/rand/pubs/working_papers/2004/RAND_WR126.pdf

² Centers for Disease Control and Prevention. (2014). Smoking and tobacco use: fast facts. Atlanta, GA: Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention. Retrieved December 9, 2014 from:

http://www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/;

Centers for Disease Control and Prevention. (2014). Alcohol deaths: CDC features. Atlanta, GA: Centers for Disease Control and Prevention. Retrieved December 9, 2014 from: <http://www.cdc.gov/features/alcohol-deaths/>

II. A National Strategy to Assess the Consequence of Marijuana Legalization

Creating a national monitoring strategy to identify and report the impact of marijuana use and marijuana legalization (including for medical uses) on the nation's health, safety, education and productivity is a significant challenge that must be met. Today there are limited summaries in the research literature about the many negative consequences of marijuana use.^{1 2} Likewise, there is no ongoing comprehensive reporting from an independent credible organization about these significant consequences. The evidence now available to inform the national debate on marijuana policy about marijuana use and legalization is a fragmented and hotly disputed patchwork that reduces complex issues to bumper sticker arguments about marijuana use and marijuana legalization.

What now is needed is a consistent, systematic review and analysis of the consequences of marijuana use and marijuana legalization followed by regular reports that are made widely available. This information is essential to inform current and future public policy decisions about marijuana.

In 2013 the Department of Justice announced the suspended enforcement of the Controlled Substances Act (CSA) related to state-approved uses of marijuana in those states. In a statement released by then-Deputy Attorney General James M. Cole, the Department of Justice outlined eight factors to be assessed in deciding the future direction of federal enforcement of drug laws. His memorandum of August 13, 2013 stated:³

...the Department in recent years has focused its efforts on certain enforcement priorities that are particularly important to the federal government:

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

¹ Volkow, N.D., Baler, R.D., Compton, W. M. & Weiss, S. R. (2014). Adverse health effects of marijuana use. *New England Journal of Medicine*, 370(23), 2219-2227.

² Hall, W. (2014). What has research over the past two decades revealed about the adverse health effects of recreational cannabis use? *Addiction*, 109. doi: 10.1111/add.12703

³ Cole, J. M. (2013, September 10). Deputy Attorney General James M. Cole Testifies Before the Senate Committee on the Judiciary. Department of Justice. Retrieved December 9, 2014 from:

<http://www.justice.gov/opa/speech/deputy-attorney-general-james-m-cole-testifies-senate-committee-judiciary>

On September 10, 2013 Deputy Attorney General Cole summarized the policy of the Department of Justice on the state-based experiments with marijuana legalization in Colorado and Washington in his prepared statement before the Senate Committee on the Judiciary:⁴

The Department of Justice is committed to enforcing the CSA [Controlled Substances Act] in all states, and we are grateful for the dedicated work of our Drug Enforcement Administration agents, our federal prosecutors, and our state and local partners in protecting our communities from the dangers of illegal drug trafficking. The Administration also remains committed to minimizing the public health and safety consequences of marijuana use, focusing on prevention, treatment, and support for recovery.

As our updated guidance reflects, we are continuing our practice of targeting conduct that implicates federal priorities and causes harm, regardless of state law. We expect our state and local partners to continue to do so as well. In those jurisdictions that have enacted laws that legalize and seek to regulate marijuana for some purposes, this means that strong and effective regulatory and enforcement systems must address the threat those state laws could pose to public safety, public health, and other law enforcement interests.

These statements reflect a departure from long-established federal law with respect to drugs. As a result, there is a significant legal conflict between state-based marijuana legalization and the US Controlled Substances Act and international treaty obligations. This fundamental conflict makes the eight points outlined by the Department of Justice a useful baseline for the much-needed assessment of the consequences of marijuana legalization. To-date there have been no further reports or updates issued by the Department of Justice on the status of these eight critical points.

Developing a strategy to monitor the consequences of marijuana legalization and marijuana use begins, but does not end, with the eight points released by the US Department of Justice in 2013. Drug policy decisions in the next few years must be made with a firm knowledge of the effects of current policy decisions.

Federal Leadership

At present no organization has stepped forward to take on the large and important task of monitoring the consequences of marijuana use and legalization. Because there are several existent large important federal databases containing information on marijuana use, it is logical that the federal government would be best suited to take on this challenge. The natural leader for this large enterprise is the White House Office of National Drug Control Policy (ONDCP). ONDCP coordinates the entire federal drug policy and has done so since the White House drug office was in 1971. The annual release by ONDCP of the *National Drug Control Strategy* outlines the President's review of policies and programs on which the Administration is focusing to reduce the national public burden of substance use and of illicit drug trafficking. Mandated by Congress, the *National Drug Control Strategy* is the most important report on drug abuse and the government's policies to deal with this problem. Presently, to track the legalization of marijuana, ONDCP plans to provide briefings and summary reports to Congress and the International Narcotics Control Board (INCB) as data from a variety of sources become available. The Congressional

⁴ Ibid.

mandate necessary to develop and sustain the proposed comprehensive annual report will require substantial additional funding to ONDCP. Presently, there is no available funding for ONDCP to manage the process involved in compiling, analyzing and distributing such a report.

There is a precedent for this recommendation for a comprehensive, integrated report on the topic of marijuana. In the early 1970s the newly formed National Institute on Drug Abuse (NIDA) was mandated by law to report annually on the state of research on marijuana's health effects. Submitted to the US Congress by the Secretary of Health Education and Welfare, a report, titled simply *Marijuana and Health*, was released each year from 1974 to 1978. Those reports summarized the emerging research on the effects of marijuana use, seeking to bring science to bear on what was then, as it is now, a highly politicized issue. The release of these reports was a significant media event each year.

Now is the time for Congressional mandate and funding for this annual report for at least a decade. This new annual report on the consequences of marijuana use and marijuana legalization needs to function in the same manner as annual reports on tobacco use and consequences formally issued by the Surgeon General. These reports not only improved federal understanding of the problem and guided subsequent actions, but also provided a foundation for national efforts to understand the consequences of tobacco use and the policies needed in response to protect the public health.

The proposed comprehensive annual report would reflect the contributions of the many federal organizations regarding the consequences of marijuana legalization. It should include scientific and social science research, criminal justice information including information about the illegal markets for marijuana, health and safety concerns including highway safety, and education and productivity. The process for developing the report would require ONDCP to coordinate the capabilities, knowledge and skills of all relevant federal offices in support of the collection, harmonization and analysis of large amounts of data. Most of these data sets already exist. Many federal offices currently collect and aggregate data sets about marijuana and develop reports on an annual basis. At the very least, harmonization of these databases into a large congruent data set with a corresponding annual report to Congress is advised. These data sets reside within the National Institute on Drug Abuse (NIDA), the Substance Abuse and Mental Health Services Administration (SAMHSA), the US Centers for Disease Control and Prevention (CDC), the Department of Justice (DOJ), and the US Department of Transportation (DOT). Oversight for all of these activities is already the responsibility of ONDCP. Beyond data, however, there is a range of federal activity across departments that involve research and information gathering about marijuana and marijuana activity. These too must be gathered and included. The resulting report should be a comprehensive annual statement of how marijuana legalization is impacting the nation over time.

Specific Federal Organizations

Several federal organizations operate under the umbrella of the Department of Health and Human Services (DHHS). The National Institute on Drug Abuse, (NIDA) studies the consequences of marijuana use and the legalization of marijuana. NIDA has funded studies of marijuana's effects on health and behavior for more than four decades and is the organization that supports about 80 percent of the global research on marijuana and other drugs. A recent publication by NIDA authored by its Director and other NIDA experts presents a broad overview of the currently available research on the adverse

health effects of marijuana use.⁵ Another organization operating under DHHS is the Substance Abuse and Mental Health Services Administration (SAMSHA). SAMSHA leads the federal government's substantial substance abuse prevention and treatment efforts. Together, for a period of more than four decades, NIDA and SAMSHA have conducted annual surveys of drug use. NIDA funds the Monitoring the Future study which collects self-reported data on drug use and behaviors among 8th, 10th, and 12th grade students and for a decade thereafter. SAMSHA conducts the National Survey on Drug Use and Health which collects self-reported data on drug use and behaviors of Americans age 12 and older. These two surveys provide the most useful national data about marijuana, other drug use and treatment need. These annual surveys are nationally representative, providing a continuous series of results which permit sophisticated analyses.

Data from these two national studies are essential to understanding complex biology and behavior that is interwoven with adolescent marijuana use in particular and with all illegal drugs:

1. Almost all drug use, including marijuana use, begins in adolescence, when the brain is still developing and is at high risk.⁶ The earlier the initiation of marijuana use, and the heavier that use, the greater the risk for long-term negative consequences, including addiction and the use of other illicit drugs.⁷
2. The dramatic periodic shifts in the prevalence of marijuana use among youth since the late 1970s are linked to the perception of the risk of harm from smoking marijuana. The more youth perceive significant risk of harm from marijuana use, the less likely they are to use it. Conversely, the less harmful youth perceive marijuana use to be, the greater the prevalence of marijuana use (See **Figure 1**. Past Year Marijuana Use and Perceived Risk of Harm of Occasional Marijuana Use Among 12th Graders, 1975-2013).

These national surveys contain abundant and rich data on hundreds of variables. Monitoring the Future has already added questions on attitudes and behaviors related to marijuana legalization for 12th grade students.⁸ Both national surveys provide some data on substance use at the state level which is useful in exploring issues related to marijuana legalization. In the future, further questions can be added. In particular, these two surveys can be mined for correlates of marijuana use, particularly heavy use, to various areas of importance (e.g., school failure among youth).

Two other federal health organizations that must be mentioned are the CDC and the Surgeon General's Office. At present, the CDC oversees the Youth Risk Behavior Surveillance System (YRBS) which monitors health-risk behaviors among youth that contribute to the leading causes of death and disability, including alcohol and other drug use and tobacco use. The Surgeon General's Office does not currently

⁵ Volkow, N.D., Baler, R.D., Compton, W. M. & Weiss, S. R. (2014). Adverse health effects of marijuana use. *New England Journal of Medicine*, 370(23), 2219-2227.

⁶ National Institute on Drug Abuse. (2010). *Drugs, Brains and Behavior: The Science of Addiction*. NIH Pub No. 10-5606. Rockville, MD: National Institute on Drug Abuse, National Institutes of Health, US Department of Health and Human Services. Retrieved December 9, 2014 from: <http://www.drugabuse.gov/sites/default/files/sciofaddiction.pdf>

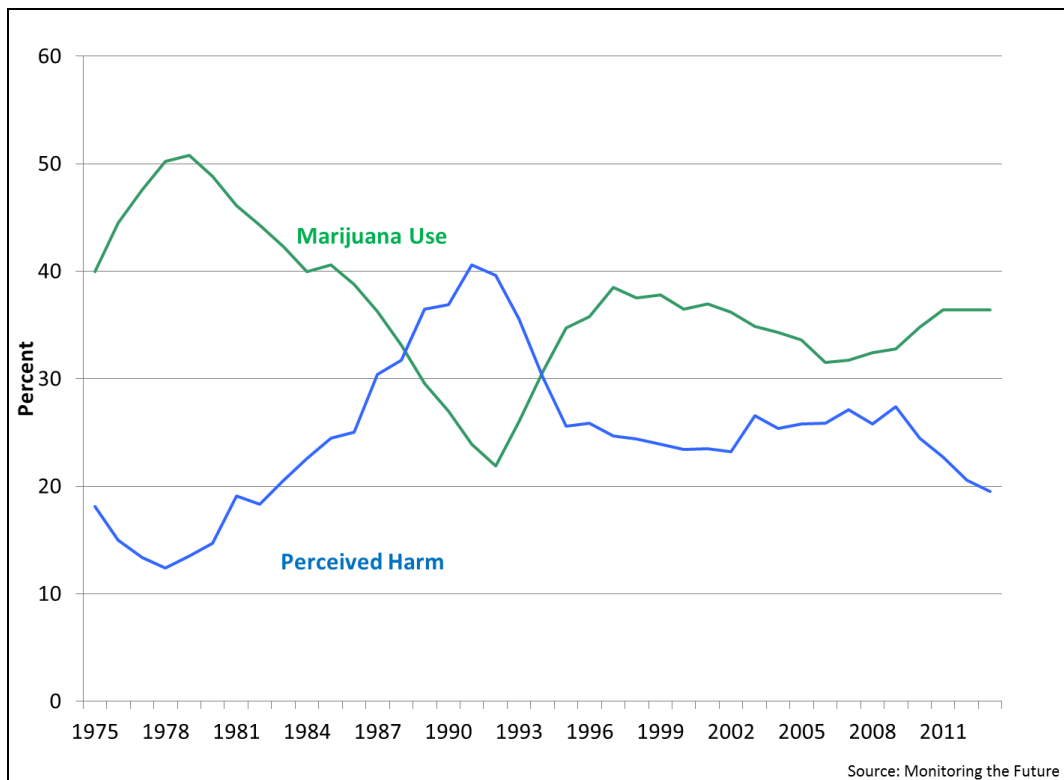
⁷ Hall, W., & Degenhardt, L. (2007). Prevalence and correlates of cannabis use in developed and developing countries. *Current Opinion in Psychiatry*, 20, 393-397.

⁸ Ibid.

study the drug issue specifically, but has a long and distinguished role in dealing with tobacco and health. Further engaging these organizations in the study and reporting of the consequences of marijuana use and marijuana legalization could be pivotal because of the high level of public respect that accrues to these two organizations.

The US Department of Justice (DOJ) is also a critical source of knowledge about the consequences of marijuana legalization and marijuana use. Within the DOJ, the principal drug law enforcement agency is the Drug Enforcement Administration (DEA) which has been in the forefront of studying the illegal trafficking of marijuana and other drugs since it was established in 1973. The DOJ has announced its toleration of state-based legalization contingent on satisfactory performance when judged against eight specific points. There is no mechanism at present for measuring performance, but it is essential that there be a systematic assessment of those points, with annual reporting by that Department.

Figure 1. Past Year Marijuana Use and Perceived Risk of Harm of Occasional Marijuana Use Among 12th Graders, 1975-2013⁹



⁹ Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E. & Miech, R. A. (2014). *Monitoring the Future national survey results on drug use, 1975–2013: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, The University of Michigan.

Non-Federal Assessments and Reports

State Reporting Initiatives

In addition to taking a national approach to monitoring the consequences of marijuana use and marijuana legalization, it is critical for states to collect and report data that are parallel to federal data. Beyond that, state-specific studies are needed that show the consequences of marijuana legalization. Early state evaluation efforts have focused mostly on the regulations and their deployment and execution. Important as these evaluations of new regulations are, they are no substitute for careful assessments of the effects in the states of the use of marijuana and the additional, broader effects of marijuana legalization. In particular, states that have legalized marijuana should fund critical data collection about state trends in marijuana use and the regional impact of legalization. These states are serving as laboratories of these varied policy experiments and thus should be responsible for their evaluations.

The states of Colorado and Washington are at the forefront of marijuana legalization, with robust medical and nonmedical marijuana markets. A number of data resources currently are available and can be improved upon. The Office of the Governor in Colorado has funded the development of a report on the available relevant data and gaps, making a series of recommendations for improving and extending data collection.¹⁰ Moreover, since 2013 the Rocky Mountain High Intensity Drug Trafficking Area has been issuing comprehensive reports on the impact of marijuana in Colorado.^{11,12,13}

Private Organizations

There is a widely held belief that the federal government is not to be trusted on drug policy. For decades the fear of federal anti-marijuana bias was seen as favoring “prohibition” and discouraging drug policy “reform.” More recently, a similar skepticism has come from the opposite side of the marijuana debate. This shift has occurred in the wake of the decision by President Barack Obama and former Attorney General Eric Holder to withhold enforcement of the current federal laws to permit state experiments in marijuana legalization. Doubts from both sides of this contentious debate combine to make clear that there is an urgent need for a national review of the facts and a reporting of conclusions from a trusted non-political organization outside the federal government.

In 1972, at the dawn of contemporary federal drug policy there was also a highly politicized debate and widespread skepticism about the trustworthiness of the federal government on drug policy. A group of

¹⁰ Rebound Solutions. (2014, September 4). *Marijuana Data Discovery and Gap Analysis Summary Report*. Denver, CO: Rebound Solutions.

¹¹ Rocky Mountain High Intensity Drug Trafficking Area. (2015). *The Legalization of Marijuana in Colorado: The Impact. Volume 3, Preview 2015*. Retrieved July 6, 2015 from: <http://www.rmhidta.org/html/2015%20PREVIEW%20Legalization%20of%20MJ%20in%20Colorado%20the%20Impact.pdf>

¹² Rocky Mountain High Intensity Drug Trafficking Area. (2013, August). *The Legalization of Marijuana in Colorado: The Impact. Volume 1*. Retrieved December 9, 2014 from: <http://www.rmhidta.org/html/FINAL%20Legalization%20of%20MJ%20in%20Colorado%20The%20Impact.pdf>

¹³ Rocky Mountain High Intensity Drug Trafficking Area. (2014, August). *The Legalization of Marijuana in Colorado: The Impact. Volume 2*. Retrieved December 9, 2014 from: <http://www.rmhidta.org/html/August%202014%20Legalization%20of%20MJ%20in%20Colorado%20the%20Impact.pdf>

leading private foundations came together in a consortium to create the Drug Abuse Council explicitly to be a voice in drug policy entirely separate from the government. This entity functioned until 1980. It may be desirable today for a similar, entirely independent, group of foundations and organizations to issue annual reports to the public on the consequences of marijuana use and marijuana legalization.

Institute of Medicine

Faced with similar controversy and mistrust, in 1998 the Director of ONDCP turned to the prestigious and independent Institute of Medicine (IOM) of the National Academy of Sciences (NAS) to provide an assessment of the potential medical uses of marijuana. In 1999, following an 18-month study, the IOM released *Marijuana and Medicine: Assessing the Science Base*.¹⁴ A year later a shorter summary of this distinguished work was published by the IOM, *Marijuana as Medicine? – The Science Beyond the Controversy*.¹⁵ While the IOM has the capability and expertise to conduct a similar investigation and broad analysis of the consequences of marijuana use and legalization, as a rule the organization does not actively collect, analyze and report on data for long periods of time, as would be required in the current situation. It is possible that such an undertaking could be taken on if it were supported by federal funding, although there is no precedent for annual reports from the IOM.

Reinstating and Creating New Essential Data Collection Programs

In recent years two important data collection programs previously overseen by federal agencies have been suspended. The Drug Abuse Warning Network (DAWN), first established by the Drug Enforcement Administration in 1972 and most recently overseen by the Center for Behavioral Health Statistics and Quality (CBHSQ) of the Substance Abuse and Mental Health Services Administration (SAMHSA), provided Emergency Department visit data from metropolitan areas in 37 states, covering one third of the US population. The other program, Arrestee Drug Abuse Monitoring (ADAM), collected drug test data from arrestees at the local level in major metropolitan areas. If reinstated with adequate funding, staff support, and improvements, these programs could provide useful data specific to individual jurisdictions across the country and could be further aggregated for national data sets to monitor the impact of marijuana use and marijuana legalization.

There are two new areas of data collection particularly relevant to monitoring the impact of marijuana use and legalization. First is identifying the role of marijuana use in traffic safety, specifically injured drivers. Testing seriously injured drivers for recent marijuana use (and the use of alcohol and other drugs) will inform policies and focus enforcement while providing the information needed to educate the public about marijuana's crucial role in highway safety. A 2005 study that tested seriously injured drivers admitted to a Maryland shock trauma center showed high prevalence of drugs and alcohol among this population, with 26.9% of all drivers positive for marijuana and half of drivers age 16 to 20 positive for recent use.¹⁶ Replicating the procedures used in this study in at least six sites will provide

¹⁴ Institute of Medicine. (2003). *Marijuana and Medicine: Assessing the Base*. Washington, DC: National Academy Press. Retrieved December 9, 2014 from: <http://iom.edu/Reports/2003/Marijuana-and-Medicine-Assessing-the-Science-Base.aspx>

¹⁵ Mack, A., & Joy, J. (2000). *Marijuana as Medicine?: The Science Beyond the Controversy*. Washington, DC: National Academy Press. Retrieved December 9, 2014 from: <http://www.nap.edu/catalog/9586/marijuana-as-medicine-the-science-beyond-the-controversy>

¹⁶ Walsh, M., Flegel, R., Atkins, R., Cangianelli, L.A., Cooper, C., Welsh, C., & Kerns, T.J. (2005). Drug and alcohol use among drivers admitted to a Level-1 Trauma Center. *Accident Analysis and Prevention*, 37(5), 894-901.

affordable and close to real-time evidence on the roles of not only marijuana but also alcohol and other drugs and drug combinations in serious-injury crashes. This is particularly important for understanding the consequences of marijuana use for highway safety.

The second area in need of specific ongoing investigation is the routine study of the role of marijuana use in academic performance and high school and college dropout.¹⁷ New research shows that after controlling for other factors, college-enrolled marijuana users were more likely to skip classes, achieve lower grade point averages (GPAs) and take longer to graduate.¹⁸ As marijuana use increased in frequency and use, GPAs declined and as marijuana use decreased, GPAs improved. The role of marijuana and other drug use in on core academic goals in high schools and colleges can be monitored continuously using the currently established national surveys (i.e., Monitoring the Future and National Survey on Drug Use and Health) and also with new sentinel studies in selected schools.

¹⁷ DuPont, R. L., Caldeira, K. M., DuPont, H. S., Vincent, K. B., Shea, C. L. & Arria, A. (2013). *America's dropout crisis: The unrecognized connection to adolescent substance use*. Rockville, MD: Institute for Behavior and Health, Inc. Available: <http://www.preventteendruguse.org/pdfs/AmerDropoutCrisis.pdf>

¹⁸ Arria, A.M., Caldeira, K.M., Bugbee, B.A., Vincent, K.B., O'Grady, K.E. (2015). The academic consequences of marijuana use during college. *Psychology of Addictive Behaviors*. 29(3), 564-575.

III. Conclusion

The drug policy debate and the new policies to which it will lead require comprehensive and widely accepted assessments of the consequences of the use of marijuana and of marijuana legalization. Sound data that support such assessments are essential. To achieve this end, it is imperative that there be the will to fund, the determination to cast the net broadly, the steadiness of consistent data collection over a period of many years, the discipline to report the data annually, and the intelligence to develop resulting sound public policy strategies. This can be achieved through a Congressional mandate that designates and authorizes substantial new funding for the management and coordination of a comprehensive, integrated national monitoring strategy. This *Strategy* identifies the White House Office of National Drug Control Policy as the federal agency best equipped to take on this leadership role in concert with the National Institute on Drug Abuse, the Substance Abuse and Mental Health Services Administration, the Department of Justice, the Centers for Disease Control, and the Department of Transportation and other agencies.

Mandating annual reports on the consequences of marijuana use and marijuana legalization will be difficult, expensive and controversial. Congress as well as federal agencies may recoil from this challenge for political and bureaucratic reasons. Nevertheless, the current push to make marijuana a legal drug is a momentous step in the nation's history and in the history of the world. This is not just a national, but a global priority. The two current legal drugs of abuse, alcohol and tobacco, are two of the leading causes of preventable illness and death. Marijuana may very well become the third. The gravity of the current push to legalize marijuana is unmistakable. Research is beginning to provide sound data about the health consequences of its use. But it is difficult to make sound public policy decisions absent supporting scientifically valid and reliable data about patterns of use. To support these important policy decisions in the future, it is imperative that Congress accept its burden of responsibility today to protect the public's health and safety.