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A Decade of Marijuana

Currently there are 16 states and the District of Columbia that have legalized marijuana for medicinal purposes. Eight of those states now have a decade-long perspective on the impacts of these laws.

In this edition three specific states will be examined, as subject matter experts outline the trials and tribulations related to medical marijuana and the affects it has had over time in their states. Some pertinent points that will be addressed are marijuana dispensaries and marijuana "grow" operations that have developed to meet the demand of individuals seeking to use marijuana as a medicine. A close examination of the impacts on crime, public safety, the environment, businesses, the treatment industry, law enforcement, addiction rates, children, and the communities of these states will be undertaken.

The first state to implement a law to recognize marijuana as a medicine was California. Since the law did not require any state agency to provide oversight or require users to register with the state, it is impossible to obtain statewide data on how many individuals are using marijuana as medicine, what conditions are being treated, what age groups are most commonly using, and what statewide impacts are being seen. Some cities and counties collect data and some do not. None collect it exactly the same. For a better idea of California's laws on using marijuana as a medicine and the impacts that are being seen in various parts of the state, visit California Police Chiefs Association.

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Mile High Macaroons: The Medicalization of Marijuana in Colorado

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Abstract

Since the passage of Amendment 20 in November 2000, over two percent of Colorado's population has registered with the state to possess and use marijuana for medical purposes. Entry to the registry requires the recommendation of a physician for any of eight conditions, but 94 percent of users are registered for severe pain. The average age of registrants is 40 years old, and 69 percent of registrants are male. The registry requires the recommendation of a physician, and while more than 1,200 of the state's physicians have signed a medical marijuana registry form, 49 percent of all users were registered by one of just fifteen physicians. To service this demand, Colorado is now home to more than a third of America's marijuana dispensaries. Colorado's embrace of medical marijuana is due to high preexisting use of marijuana, minimal barriers to amending the state's constitution, difficulties regulating the medical marijuana industry, and entrepreneurial physicians. The social effects of the medicalization of marijuana remain impressionistic, but preliminary data are concerning.

Keywords

Cannabis, Colorado, legalization, medical marijuana, patient-doctor relationship, substance abuse

The city of Denver, Colorado's capitol and largest city, has more marijuana dispensaries than public schools, liquor stores, or even Starbucks coffee shops, an oft-cited statistic that suggests the extent of the state's medical marijuana industry (1). The city's many dispensaries advertise on street corners and in local newspapers, offering discounts and free samples of marijuana strains with evocative monikers ("Bruce Banner," "Dirt Weed," "White Widow," and "Stevie Wonder") along with sodas, ice creams, pizzas, and baked goods like "Mile High Macaroons," all prepared with marijuana.

The Mile High City is home to the nation's fastest-growing medical marijuana industry and capitol of the state with the largest per capita use of medical marijuana in the country. In this article, we review the use of marijuana by Coloradans before medicalization, the development of the medical marijuana registry, attempts to regulate medical marijuana, the demographics of its use, the medical marijuana industry, the relationships between physicians and patients, the available mental health and substance abuse services, and the still-developing effects of medical marijuana on the state's communities.

Pre-Medicalization Use of Marijuana

The use of marijuana was quite prevalent in Colorado before the legalization of medical marijuana. In the 2000 *National Household Survey on Drug Abuse*, Colorado was one of seven states ranked in the top fifth for past month marijuana use among both adolescents and adults. The survey estimated that 10.89 percent of Coloradans 12 to 17 years old, 20.49 percent of 18 to 25 year olds, and 5.21 percent of adults 26 years or older had used marijuana in the past month, well above the national average in every age group. Further, the survey found that Coloradans were far less likely than other Americans to perceive that smoking marijuana once a month posed a great risk to their health, with only 27.20 percent of Coloradans 12 to 17 years old, 20.28 percent of 18 to 25 year olds, and 34.44 percent of adults 26 years or older believing it constituted a great risk (2).

The federal survey of substance abuse treatment, the *National Survey of Substance Abuse Treatment Services*, that was conducted in October 2000 did not include questions specific to marijuana abuse. However, investigators identified Colorado as second only to the District of Columbia in the percentage of its population enrolled in substance abuse treatment. The survey found that for every 100,000 Americans aged 12 or older, 428 of them were in substance abuse treatment. Simultaneously, for every 100,000 Coloradans aged 12 or older, 825 of them were in substance abuse treatment, a figure almost twice the national average (3). This occurred despite Colorado ranking last among American states in per capita state funding for substance abuse treatment, prevention, and research in a 2001 survey (4).

In the year preceding Colorado's medicalization of marijuana, two large, federally-funded surveys identified Colorado as a state where a large proportion of the population was in treatment for substance abuse, where marijuana was widely used, and its use was less often perceived as a significant health risk.

Amendment 20 Medicalizes Marijuana

Colorado's constitution has been characterized as the easiest in the nation to amend because citizens can place an amendment on the state ballot with only a small number of signatures, and an amendment

requires only a simple majority to pass (5). The advocacy group Coloradoans for Medical Rights spent \$248,013 in support of Amendment 20, a citizen-initiated amendment that was on Colorado's November 2000 ballot (6).

Amendment 20 passed with 54 percent of the vote; while it did not legalize either the use or possession of marijuana, the Amendment provided an affirmative defense for the use or possession of marijuana by a patient and their caregiver if a physician recommended its use (7). In Colorado, the relationship between these three parties—the patient, the caregiver, and the physician—are critical to understanding the medicalization of marijuana and the development of the medical marijuana industry.

Amendment 20 describes a patient as someone with one of eight qualifying "debilitating" conditions that include both specific diseases (cancer, epilepsy, HIV/AIDS, glaucoma) and non-specific symptoms (cachexia, muscle spasms, severe nausea, severe pain) who would like to use marijuana to alleviate these conditions. The amendment has no exclusion criteria, so a history of mental illness, substance abuse, or adverse response to marijuana is no obstacle to registering with the state to use marijuana. Patients may grow their own marijuana, or they may designate someone else to grow it on their behalf.

Amendment 20 defines a "caregiver" as "a person, other than the patient and the patient's physician, who is eighteen years of age or older and has significant responsibility for managing the well-being of a patient who has a debilitating medical condition" (8). The caregiver can legally possess or grow marijuana on behalf of a patient, but the amendment does not specify any training or regulations for these caregivers, even though possessing or growing marijuana remains a violation of federal law, as marijuana remains a Schedule I substance that is illegal to possess or use under federal law. As we will see, in practice a caregiver often means an industrial-scaled and for-profit business.

Amendment 20 does not specify that the recommending physician be trained in the medical use of marijuana or even have an unrestricted DEA license, just a Colorado medical license. The physician need only agree that a registrant has a "serious or chronic illness" and "might benefit from medical use of marijuana." The amendment does not explain how a physician determines who "might benefit from medical use of marijuana," does not require the performance of any examination or medical records to confirm the existence of the qualifying conditions, does not require the failure of other treatments, does not require communication with a person's other physicians, and does not require an ongoing patient-physician relationship (8).

Attempts to Regulate Medical Marijuana

Colorado's Department of Public Health and Environment (CDPHE) is the state agency responsible for managing the medical marijuana registry. CDPHE has struggled with the tensions between federal law, where possession of marijuana remains illegal, and state law, which was altered by Amendment 20 to include an affirmative defense in favor of the possession of marijuana. Over the past decade, the CDPHE has attempted to refine the ambiguous relationships between a medical marijuana patient, caregiver, and physician that Amendment 20 enacted.

In June 2001, the CDPHE began accepting applications to its medical marijuana registry, initially requiring a \$140 fee; the current fee is \$90 to register and an additional \$90 to renew each year but can be waived if a patient qualifies under the state's indigent care program (9). In 2004, the Colorado Department of Public Health and Environment began issuing registry cards to caregivers, the people who could possess or grow marijuana on behalf of registrants. However, this effectively put the state in the business of licensing marijuana growers, and the CDPHE concluded they did not have authority to issue caregiver cards because that implied state approval of an act that was illegal on a federal level. Instead, after examining the home health care programs and medical marijuana systems in other states, the CDPHE designed a regulatory system for the relationship between caregivers and their patients. In their model, caregivers would, like home-health aides, provide a range of services to patients and could provide these services to no more than five people. In November 2007, this model and the patient limit were struck down in Denver District Court for altering state law without public input (10). At the time, medical marijuana remained a marginal activity because at the end of 2008, eight years after the passage of Amendment 20, fewer than 9,000 Coloradoans had registered with the state to use and possess marijuana for a medical condition (11).

In 2009, the landscape shifted considerably. First, in March 2009, the newly-appointed United States Attorney General Eric Holder announced that the administration would give low priority to the prosecution of the use and possession of marijuana in states where use and possession were legal, reducing fear of federal prosecution, a significant deterrent to operating a business that sells a federally-prohibited substance (12). Second, the state's CDPHE again attempted to define a caregiver as someone who helped patients with their daily activities like a home health aide and to limit the number of patients who could be associated with an individual caregiver to no more than five people. During a public hearing attended by five hundred medical marijuana advocates in July 2009, the Colorado Board of Health dismissed these limits by a 4-3 vote (13). The vote effectively defined a caregiver minimally as an entity whose sole responsibility was to provide marijuana to a registrant, despite the more expansive definition in the state constitution that was quoted above, and opened the Colorado market to large-scale dispensaries.

The Demographics of Medical Marijuana Use

Freed from the threats of federal prosecution and involved relationships to registrants, the medical marijuana registry has experienced dramatic growth since 2009.

In the applications processed by the CDPHE by the end of March 2011, the average age of registrants is 40 years old, and 69 percent of registrants are male. The CDPHE has received 137,556 applications and issued 123,890 registry cards. Only forty of the registrants are under the age of 18 (14). More than 2 percent of the state's population is now registered to use medical marijuana, and, on a per capita basis, Colorado has twice as many medical marijuana users as California (7). Analyses of this data reveal that medical marijuana registration is highest in Colorado's ski counties, which has the state's highest median income and educational levels (15).

In the applications processed by the CDPHE by the end of March 2011, 94 percent of Colorado medical marijuana registrants are qualified for severe pain. [Figure 1](#) enumerates the medical conditions for which users are qualified to take medical marijuana; note that users can be qualified for more than one condition (14). The average medical marijuana user in Colorado is a middle-aged man that was registered by one of fifteen physicians for severe pain.

Growing the Medical Marijuana Industry

A recent summary of the nation's medical marijuana markets by the American Cannabis Research Institute hailed Colorado "as the fastest growing and most business-friendly market." The report, based on voluntary surveys of medical marijuana dispensary owners, concluded that together California and Colorado constitute 92 percent of all medical marijuana sales in the United States' \$1.7 billion medical marijuana industry (16). While it is difficult to evaluate the accuracy of this claim because it is based on survey data, the implication is clear—medical marijuana is a growing industry in Colorado.

The CDPHE reports that by the end of March 2011, sixty-three percent of the state's medical marijuana registrants had designated a specific caregiver (14). It is unclear from the CDPHE how many of those caregivers are dispensaries, but it is clear that dispensaries, establishments where medical marijuana can be purchased, have become the public face of medical marijuana in Colorado. By presenting a Colorado medical marijuana registry card, a person can purchase up to two ounces, or more if medically necessary, from a dispensary. In August 2009, a medical marijuana patient was acquitted for possession of two pounds of marijuana after arguing that he needed more medicine because of the severity of his illness (17). Until 2010, people could use marijuana in the dispensaries, so many of them resembled a coffee shop or bar more than a pharmacy, a business where the substance was both purchased and consumed, but it has now become illegal for a patient to use their marijuana onsite. Despite this change, as recently as April 2011, marijuana dispensary employees were themselves complaining that some dispensaries were giving out free marijuana for public consumption at conventions (18). Dispensaries compete for patrons as vigorously as the bars of Colorado, taking out advertisements in local newspapers and offering incentives like free joints on birthdays and discounted prices on weekdays.

In 2010, the Drug Enforcement Administration announced the results of criminal background checks it conducted on the owners of medical marijuana dispensaries. The DEA found that 18 percent of owners had felony convictions, 28 percent had been arrested in connection with drug crimes, and four owners had been arrested on murder or involvement with a homicide charge (19).

In June 2010, in response to the concern of legislators that the dispensaries were poorly regulated, Colorado House Bill 1284 was signed by then-governor Bill Ritter. House Bill 1284 created a medical marijuana licensing authority within the state's Department of Revenue, prohibited non-residents and transplants of less than two years from operating a dispensary, prohibited people convicted of drug-related felonies or of any felony in the past five years from operating a dispensary, required dispensaries to grow a minimum of 70 percent of the marijuana they sell, allowed local municipalities to ban dispensaries and associated marijuana-growing operations in their town, placed a one-year moratorium on new dispensaries, and specifically distinguished between dispensaries and caregivers. In short, the law regulated dispensaries at the state level while increasing local control, denied dispensaries the constitutional protections afforded to caregivers by Amendment 20, and effectively required grow operations to affiliate with a dispensary (20). As a result, municipalities have begun shutting down dispensaries and grow operations that operate in violation of these new regulations (21).

House Bill 1284 requires the dispensaries to report their business to the state's Department of Revenue, allowing for a better approximation of the scope of the industry. While we were unable to locate a comprehensive portrait of this revenue for this publication, we know that as of September 2010, 809 dispensaries were registered in Colorado, more than a third of all the nation's dispensaries (7). The state requires dispensaries to pay annual licensing fees of \$7500 to serve 300 or fewer patients, \$12,500 to serve 301 to 500 patients, and \$18,000 to serve 501 or more patients, along with additional fees to cultivate marijuana or manufacture edible products containing marijuana (22). In the fiscal year ending June 30, 2010, the state collected \$8.2 million in licensing fees. The state received 818 applications to operate dispensaries, 321 applications to make products containing marijuana, and 1,237 applications to cultivate marijuana (23). Many of the state's municipalities are similarly assessing licensing fees on dispensaries and grow operations. The state is also collecting sales tax on the purchase of medical marijuana. By November 2010, the state had collected \$2.2 million in sales tax from medical marijuana sales, and the cities of Denver and Colorado Springs collected, respectively, an additional \$2.2 million and

\$380,000 in local sales taxes (24). In all, the state of Colorado itself is estimated to annually receive \$20 million in registration fees, dispensary and grow-operation licenses, and sales tax (25).

Effects on Substance Abuse and Treatment

Since the majority of medical marijuana registrants joined the registry since 2008, it is difficult to know the precise impact of medicalization on the prevalence of substance abuse and treatment. Anecdotally, we note that at the public safety-net hospital where we practice, the routine urine drug screen no longer includes cannabis because its use is believed to be so prevalent. We hear frequently from patients in substance abuse treatment that they will not discontinue marijuana because a doctor recommended it.

A recent survey of adolescents admitted to a Denver substance abuse treatment program found that, while none of them were themselves registered to use medical marijuana, 81.3 percent of them knew someone registered to use medical marijuana and that 48.8 percent of these adolescents had obtained marijuana from someone registered to use (26). At least one adult, a fifty-one year old high school cafeteria manager, has been arrested for diverting marijuana to adolescents (27). We are conducting a survey about use and diversion among adults but are unable to report data at this time.

Unfortunately, the effects, if any, of medical marijuana on substance abuse in Colorado are not fully reflected in the federally-funded surveys that are the best measure of statewide trends in substance use, abuse, and treatment. As of this writing, data from the National Household Survey on Drug Abuse is available only through the year 2008, when medical marijuana use began to accelerate and marijuana dispensaries became publicly visible. According to these surveys, the estimated percentage of Coloradoans who had used marijuana in the past year does not appear to have varied from 2003 through 2008, as shown in [Figure 2](#). Colorado ranks fourth among American states in per capita use of cannabis, with 9.24 percent of residents using cannabis in the preceding thirty days. As shown in [Figure 3](#), the estimated percentage of Coloradoans who had initiated marijuana use does appear to have accelerated among 18 to 25 year olds from 2006 to 2008, but we do not know if the trend is significant. More suggestive, as shown in [Figure 4](#), is the gradually eroding percentage of Coloradoans who perceived that smoking marijuana once a month posed a great risk over the period 2003 through 2008 (28). However, the Treatment Episode Data Set (TEDS) Report of Substance Abuse Treatment Admissions includes data through the year 2010. As shown in [Figure 5](#), which summarizes the primary drug at admission to substance abuse treatment during the years 2004 to 2010, there was an increase in the percentage of Coloradoans entering substance abuse treatment that identified cannabis as their primary substance of abuse during 2010 (29). We present this data to suggest trends but acknowledge that additional data and analysis is required before significant observations can be made. The effect of medical marijuana on substance abuse and treatment in Colorado needs additional study, especially given the recent expansion of the medical marijuana registry and industry in the state, but appears to decrease the perception that smoking marijuana poses a great risk to health and may be associated with both increased use among 18 to 25 year old Coloradoans and increased percentages of the admissions to substance abuse treatment.

Unfortunately, Colorado has very limited substance abuse and mental health services, and those services are concentrated in the state's urban corridor. Among American states, Colorado ranks thirty-fifth in per capita mental health expenditures and fiftieth in the number of inpatient psychiatry beds, after losing 71 percent of its psychiatric hospital beds over the last two decades (30). Colorado's suicide rate has long ranked above the national average, but the CDPHE recorded a dramatic increase in 2009 with 940 suicides, a suicide rate of 18.4 deaths per 100,000 residents that is almost double the national average (31). As a state, Colorado has a high rate of substance abuse and a limited rate of services; the effects of medical marijuana on substance use, abuse, and treatment deserve rigorous investigation.

Crime and Education

Similarly, the effects of medical marijuana on crime and education remain unclear.

There have been several reports of crimes in which medical marijuana was involved, including two separate fatal car accidents in which the drivers appear to have been intoxicated on medical marijuana (32). The Colorado Department of Transportation reports that the percentage of the state's driving fatalities in which the driver was impaired by drugs increased every year between 2005 and 2009. By 2009, the Department of Transportation described 48 percent of the state's driving fatalities as impaired driving and says that in half of those fatalities, marijuana was the impairing substance (33). In response, the state's House of Representatives recently passed House Bill 1261, which limits drivers to no more than five nanograms of THC per millimeter of blood; a version of the bill is considered likely to become law later in 2011 (33).

Dispensaries themselves are associated with a number of crimes, but the nature of the association remains unclear. At this point, the evidence remains mostly anecdotal: reports of burglaries and homicides at dispensaries have featured prominently in the state's newspapers, but analyses by the Denver and Colorado Springs Police Departments found no significant difference in the incidence of crimes around dispensaries, and an analysis by *The Denver Post* even found a decrease in crime in the city's neighborhoods with the most dispensaries (34).

Authorities are increasingly concerned that dispensaries, and their associated grow operations, will divert marijuana to the criminal market. A registrant can possess up to two ounces of marijuana and up to six marijuana plants—three mature plants, three production plants. However, a mature plant can produce up

to a pound each. In February 2011, a South Dakota couple was arrested with ten pounds of marijuana, much of it labeled with the name of a Denver dispensary (35). Authorities have reported diversion of medical marijuana to the neighboring state of Nebraska (36).

With regards to the state's public school system, the Colorado Department of Education reported that during the 2009-2010 school year, the number of students suspended statewide for drug-related offenses spiked 31 percent from 3,202 to 4,205 in the year following the increased use of medical marijuana. Similarly, the number of students expelled statewide for drug-related offenses increased 40 percent from 534 to 749. While these are only associations, this rise in the expulsion rate ended a decade of declining expulsions for drug-related offenses (37).

We need additional data to better ascertain the relationships between the expanding use of medical marijuana and the state's criminal and education systems.

The Marijuana Patient-Physician Relationship

Less frequently acknowledged is how medical marijuana is altering the relationships between patients and physicians in Colorado. Unlike a traditional patient-physician relationship, where a physician has multiple responsibilities to a patient, in Colorado's medical marijuana system a physician was, until June 2010, responsible for simply "recommending" marijuana to a person whom they believed could benefit from its use. Marijuana remains a restricted Schedule 1 substance with limited evidence to suggest its indication, contraindication, dosage, and adverse effects. In this context, physicians willing to recommend marijuana seemingly ought to be extraordinarily scrupulous. However, the amendment requires only a diminished version of standard medical care. Physicians recommending marijuana are not required by the amendment to conduct a diagnostic examination, physical, mental, laboratory, or otherwise. Further, the amendment does not require coordination of care with a registrant's other physicians or even review of past records. Since enrollment on the medical marijuana registry is confidential, the information is excluded from the state's controlled substance monitoring program, which allows other physicians to see which controlled substances have been dispensed to a patient.

Dispensaries often advertise their relationships with recommending physicians, and some physicians see medical marijuana registry applicants in offices adjacent to or even within dispensaries. Under the original arrangement, physicians were often employed by a dispensary. They did not have to provide ongoing care or to be available if complications arose. Patients pay out-of-pocket for physician approval with advertised rates averaging \$100 and the state registry fee of \$90 (38). The medicalization of marijuana in Colorado includes a narrowed account of the relationship between a patient and a physician, in which a physician gives permission to use an otherwise illegal substance without the usual fiduciary responsibilities of a physician.

In this setting, a small number of entrepreneurial physicians have dominated the medical marijuana registry. According to data generated by the CDPHE in December 2010, 1,241 Colorado physicians had signed medical marijuana registry forms, but 911 of these physicians have signed fewer than six registry forms (11). In an update through the end of January 2011, the CDPHE found that of the approved medical marijuana registrations, 49 percent had been signed by one of fifteen physicians, and 10 percent of all registration forms in the state had been signed by a single physician, as illustrated in [Figure 6](#) [personal communication, Apr 2011].

The identity of these frequent recommenders is confidential, and most members of this small group of physicians responsible for the majority of the recommendations to the state's medical marijuana registry have avoided publicity, but two physicians have had actions taken against their license in response to recommending medical marijuana. Dr. Paul Bregman, a radiologist who describes himself as an expert in depression and bipolar disorder, has spoken publicly about recommending medical marijuana (39). Dr. Bregman's license was briefly suspended in the last year for an undisclosed reason by the state's Medical Board but was recently reinstated (40). In addition, Dr. Manuel De Jesus Aquino surrendered his Colorado medical license in December 2010 after the office of the state's attorney general office filed a complaint for violating the state's Medical Practice Act. Dr. Aquino recommended marijuana to a twenty year old woman he saw at a dispensary without conducting an examination, taking a medical history, or counseling the young woman on the risks marijuana posed to her twenty-eight week pregnancy. The woman subsequently delivered a child who tested positive for marijuana, triggering the complaint against Dr. Aquino. Dr. Aquino first obtained his Colorado medical license in 2007. Before surrendering his license in February 2011, Dr. Aquino described his specialty as medical marijuana and his employer as a Denver-area dispensary (41).

To redress these situations, the governor signed Senate Bill 109, which regulates the marijuana patient-physician relationship, into law in June 2010. Senate Bill 109 requires physicians to take a complete medical history, to conduct an appropriate physical examination, and to be available for follow-up care. Physicians are now required to have valid, unrestricted licenses from both the DEA and the state of Colorado. Physicians who recommend medical marijuana are now prohibited from having an economic interest in a medical marijuana dispensary or grow operation and from being paid by a dispensary to write recommendations (42). As a result of these regulations, eighteen physicians who were specializing in medical marijuana were no longer allowed to recommend medical marijuana because they did not possess valid and unrestricted DEA and Colorado licenses (43). At least two of these physicians, Dr. Janet Dean and Dr. James Satt, have publicly complained that physicians with restricted licenses should

be allowed to recommend medical marijuana (44). Despite these regulations, the CDPHE recently reported to the authors that of the 36, 319 recommendations received from July 1, 2010 to January 31, 2011 (after the passage of Senate Bill 109), 49.3 percent of the recommendations were again from one of fifteen physicians [personal communication, Apr 2011].

While medical marijuana recommendations remain the province of a small group of entrepreneurial physicians, little is known about the physicians in the state who are recommending medical marijuana to a small number of patients as part of their regular practice. We are aware of surveys currently being conducted of these physicians, but no data is publicly available at this time. We look forward to learning more about the Colorado physicians who do and do not recommend medical marijuana.

Future Developments and Regulations

As Colorado's medical marijuana system continues to mature, we anticipate additional regulation and ballot initiatives, while hoping for additional research into the effects of medical marijuana on Colorado's communities with regards to substance abuse, mental health, education, and crime.

We discussed several of the state's regulatory efforts above, but the situation is changing rapidly. As part of the House Bill 1284 that was signed into law in June 2010, the state established a Medical Marijuana Enforcement Division within the Department of Revenue that will regulate the medical marijuana industry. These rules will be fully enforced beginning July 1, 2011 and will constitute the country's most stringent regulation of medical marijuana (45). We also anticipate more local regulation, which is allowed under House Bill 1284; as of this writing, thirty-two municipalities have banned medical marijuana dispensaries and industries (46).

Meanwhile, we expect additional citizen-initiated ballot measures. In 2006, marijuana advocates placed Amendment 44, which would have legalized possession of up to an ounce of marijuana by an adult twenty-one years or older without a medical marijuana card, on the ballot (47). While that measure was decisively defeated and possession of marijuana remains illegal in Colorado, several municipalities have decriminalized the possession of less than an ounce (48). Marijuana advocates are publicly discussing a new ballot initiative in 2012 that would amend the state's constitution to decriminalize the use and possession of marijuana, legalizing recreational use (49).

Finally, we hope our account reveals the need for high-level evidence on the use of medical marijuana, its effects on substance abuse and treatment, adolescent use, the education system, criminal behavior, and the relationships between patients and physicians.

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Conflict of Interest

I declare that I have no proprietary, financial, professional or other personal interest of any nature or kind in any product, service and/or company that could be construed as influencing the position presented in, or the review of, the manuscript entitled Mile High Macaroons: The Medicalization of Marijuana in Colorado except for the following: employment at Denver Health.

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Date: April 20, 2011

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Date: April 20, 2011

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requires only a simple majority to pass (5). The advocacy group Coloradoans for Medical Rights spent \$248,013 in support of Amendment 20, a citizen-initiated amendment that was on Colorado's November 2000 ballot (6).

Amendment 20 passed with 54 percent of the vote; while it did not legalize either the use or possession of marijuana, the Amendment provided an affirmative defense for the use or possession of marijuana by a patient and their caregiver if a physician recommended its use (7). In Colorado, the relationship between these three parties—the patient, the caregiver, and the physician—are critical to understanding the medicalization of marijuana and the development of the medical marijuana industry.

Amendment 20 describes a patient as someone with one of eight qualifying "debilitating" conditions that include both specific diseases (cancer, epilepsy, HIV/AIDS, glaucoma) and non-specific symptoms (cachexia, muscle spasms, severe nausea, severe pain) who would like to use marijuana to alleviate these conditions. The amendment has no exclusion criteria, so a history of mental illness, substance abuse, or adverse response to marijuana is no obstacle to registering with the state to use marijuana. Patients may grow their own marijuana, or they may designate someone else to grow it on their behalf.

Amendment 20 defines a "caregiver" as "a person, other than the patient and the patient's physician, who is eighteen years of age or older and has significant responsibility for managing the well-being of a patient who has a debilitating medical condition" (8). The caregiver can legally possess or grow marijuana on behalf of a patient, but the amendment does not specify any training or regulations for these caregivers, even though possessing or growing marijuana remains a violation of federal law, as marijuana remains a Schedule I substance that is illegal to possess or use under federal law. As we will see, in practice a caregiver often means an industrial-scaled and for-profit business.

Amendment 20 does not specify that the recommending physician be trained in the medical use of marijuana or even have an unrestricted DEA license, just a Colorado medical license. The physician need only agree that a registrant has a "serious or chronic illness" and "might benefit from medical use of marijuana." The amendment does not explain how a physician determines who "might benefit from medical use of marijuana," does not require the performance of any examination or medical records to confirm the existence of the qualifying conditions, does not require the failure of other treatments, does not require communication with a person's other physicians, and does not require an ongoing patient-physician relationship (8).

Attempts to Regulate Medical Marijuana

Colorado's Department of Public Health and Environment (CDPHE) is the state agency responsible for managing the medical marijuana registry. CDPHE has struggled with the tensions between federal law, where possession of marijuana remains illegal, and state law, which was altered by Amendment 20 to include an affirmative defense in favor of the possession of marijuana. Over the past decade, the CDPHE has attempted to refine the ambiguous relationships between a medical marijuana patient, caregiver, and physician that Amendment 20 enacted.

In June 2001, the CDPHE began accepting applications to its medical marijuana registry, initially requiring a \$140 fee; the current fee is \$90 to register and an additional \$90 to renew each year but can be waived if a patient qualifies under the state's indigent care program (9). In 2004, the Colorado Department of Public Health and Environment began issuing registry cards to caregivers, the people who could possess or grow marijuana on behalf of registrants. However, this effectively put the state in the business of licensing marijuana growers, and the CDPHE concluded they did not have authority to issue caregiver cards because that implied state approval of an act that was illegal on a federal level. Instead, after examining the home health care programs and medical marijuana systems in other states, the CDPHE designed a regulatory system for the relationship between caregivers and their patients. In their model, caregivers would, like home-health aides, provide a range of services to patients and could provide these services to no more than five people. In November 2007, this model and the patient limit were struck down in Denver District Court for altering state law without public input (10). At the time, medical marijuana remained a marginal activity because at the end of 2008, eight years after the passage of Amendment 20, fewer than 9,000 Coloradoans had registered with the state to use and possess marijuana for a medical condition (11).

In 2009, the landscape shifted considerably. First, in March 2009, the newly-appointed United States Attorney General Eric Holder announced that the administration would give low priority to the prosecution of the use and possession of marijuana in states where use and possession were legal, reducing fear of federal prosecution, a significant deterrent to operating a business that sells a federally-prohibited substance (12). Second, the state's CDPHE again attempted to define a caregiver as someone who helped patients with their daily activities like a home health aide and to limit the number of patients who could be associated with an individual caregiver to no more than five people. During a public hearing attended by five hundred medical marijuana advocates in July 2009, the Colorado Board of Health dismissed these limits by a 4-3 vote (13). The vote effectively defined a caregiver minimally as an entity whose sole responsibility was to provide marijuana to a registrant, despite the more expansive definition in the state constitution that was quoted above, and opened the Colorado market to large-scale dispensaries.

The Demographics of Medical Marijuana Use

Freed from the threats of federal prosecution and involved relationships to registrants, the medical marijuana registry has experienced dramatic growth since 2009.

In the applications processed by the CDPHE by the end of March 2011, the average age of registrants is 40 years old, and 69 percent of registrants are male. The CDPHE has received 137,556 applications and issued 123,890 registry cards. Only forty of the registrants are under the age of 18 (14). More than 2 percent of the state's population is now registered to use medical marijuana, and, on a per capita basis, Colorado has twice as many medical marijuana users as California (7). Analyses of this data reveal that medical marijuana registration is highest in Colorado's ski counties, which has the state's highest median income and educational levels (15).

In the applications processed by the CDPHE by the end of March 2011, 94 percent of Colorado medical marijuana registrants are qualified for severe pain. [Figure 1](#) enumerates the medical conditions for which users are qualified to take medical marijuana; note that users can be qualified for more than one condition (14). The average medical marijuana user in Colorado is a middle-aged man that was registered by one of fifteen physicians for severe pain.

Growing the Medical Marijuana Industry

A recent summary of the nation's medical marijuana markets by the American Cannabis Research Institute hailed Colorado "as the fastest growing and most business-friendly market." The report, based on voluntary surveys of medical marijuana dispensary owners, concluded that together California and Colorado constitute 92 percent of all medical marijuana sales in the United States' \$1.7 billion medical marijuana industry (16). While it is difficult to evaluate the accuracy of this claim because it is based on survey data, the implication is clear—medical marijuana is a growing industry in Colorado.

The CDPHE reports that by the end of March 2011, sixty-three percent of the state's medical marijuana registrants had designated a specific caregiver (14). It is unclear from the CDPHE how many of those caregivers are dispensaries, but it is clear that dispensaries, establishments where medical marijuana can be purchased, have become the public face of medical marijuana in Colorado. By presenting a Colorado medical marijuana registry card, a person can purchase up to two ounces, or more if medically necessary, from a dispensary. In August 2009, a medical marijuana patient was acquitted for possession of two pounds of marijuana after arguing that he needed more medicine because of the severity of his illness (17). Until 2010, people could use marijuana in the dispensaries, so many of them resembled a coffee shop or bar more than a pharmacy, a business where the substance was both purchased and consumed, but it has now become illegal for a patient to use their marijuana onsite. Despite this change, as recently as April 2011, marijuana dispensary employees were themselves complaining that some dispensaries were giving out free marijuana for public consumption at conventions (18). Dispensaries compete for patrons as vigorously as the bars of Colorado, taking out advertisements in local newspapers and offering incentives like free joints on birthdays and discounted prices on weekdays.

In 2010, the Drug Enforcement Administration announced the results of criminal background checks it conducted on the owners of medical marijuana dispensaries. The DEA found that 18 percent of owners had felony convictions, 28 percent had been arrested in connection with drug crimes, and four owners had been arrested on murder or involvement with a homicide charge (19).

In June 2010, in response to the concern of legislators that the dispensaries were poorly regulated, Colorado House Bill 1284 was signed by then-governor Bill Ritter. House Bill 1284 created a medical marijuana licensing authority within the state's Department of Revenue, prohibited non-residents and transplants of less than two years from operating a dispensary, prohibited people convicted of drug-related felonies or of any felony in the past five years from operating a dispensary, required dispensaries to grow a minimum of 70 percent of the marijuana they sell, allowed local municipalities to ban dispensaries and associated marijuana-growing operations in their town, placed a one-year moratorium on new dispensaries, and specifically distinguished between dispensaries and caregivers. In short, the law regulated dispensaries at the state level while increasing local control, denied dispensaries the constitutional protections afforded to caregivers by Amendment 20, and effectively required grow operations to affiliate with a dispensary (20). As a result, municipalities have begun shutting down dispensaries and grow operations that operate in violation of these new regulations (21).

House Bill 1284 requires the dispensaries to report their business to the state's Department of Revenue, allowing for a better approximation of the scope of the industry. While we were unable to locate a comprehensive portrait of this revenue for this publication, we know that as of September 2010, 809 dispensaries were registered in Colorado, more than a third of all the nation's dispensaries (7). The state requires dispensaries to pay annual licensing fees of \$7500 to serve 300 or fewer patients, \$12,500 to serve 301 to 500 patients, and \$18,000 to serve 501 or more patients, along with additional fees to cultivate marijuana or manufacture edible products containing marijuana (22). In the fiscal year ending June 30, 2010, the state collected \$8.2 million in licensing fees. The state received 818 applications to operate dispensaries, 321 applications to make products containing marijuana, and 1,237 applications to cultivate marijuana (23). Many of the state's municipalities are similarly assessing licensing fees on dispensaries and grow operations. The state is also collecting sales tax on the purchase of medical marijuana. By November 2010, the state had collected \$2.2 million in sales tax from medical marijuana sales, and the cities of Denver and Colorado Springs collected, respectively, an additional \$2.2 million and

\$380,000 in local sales taxes (24). In all, the state of Colorado itself is estimated to annually receive \$20 million in registration fees, dispensary and grow-operation licenses, and sales tax (25).

Effects on Substance Abuse and Treatment

Since the majority of medical marijuana registrants joined the registry since 2008, it is difficult to know the precise impact of medicalization on the prevalence of substance abuse and treatment. Anecdotally, we note that at the public safety-net hospital where we practice, the routine urine drug screen no longer includes cannabis because its use is believed to be so prevalent. We hear frequently from patients in substance abuse treatment that they will not discontinue marijuana because a doctor recommended it.

A recent survey of adolescents admitted to a Denver substance abuse treatment program found that, while none of them were themselves registered to use medical marijuana, 81.3 percent of them knew someone registered to use medical marijuana and that 48.8 percent of these adolescents had obtained marijuana from someone registered to use (26). At least one adult, a fifty-one year old high school cafeteria manager, has been arrested for diverting marijuana to adolescents (27). We are conducting a survey about use and diversion among adults but are unable to report data at this time.

Unfortunately, the effects, if any, of medical marijuana on substance abuse in Colorado are not fully reflected in the federally-funded surveys that are the best measure of statewide trends in substance use, abuse, and treatment. As of this writing, data from the National Household Survey on Drug Abuse is available only through the year 2008, when medical marijuana use began to accelerate and marijuana dispensaries became publicly visible. According to these surveys, the estimated percentage of Coloradoans who had used marijuana in the past year does not appear to have varied from 2003 through 2008, as shown in [Figure 2](#). Colorado ranks fourth among American states in per capita use of cannabis, with 9.24 percent of residents using cannabis in the preceding thirty days. As shown in [Figure 3](#), the estimated percentage of Coloradoans who had initiated marijuana use does appear to have accelerated among 18 to 25 year olds from 2006 to 2008, but we do not know if the trend is significant. More suggestive, as shown in [Figure 4](#), is the gradually eroding percentage of Coloradoans who perceived that smoking marijuana once a month posed a great risk over the period 2003 through 2008 (28). However, the Treatment Episode Data Set (TEDS) Report of Substance Abuse Treatment Admissions includes data through the year 2010. As shown in [Figure 5](#), which summarizes the primary drug at admission to substance abuse treatment during the years 2004 to 2010, there was an increase in the percentage of Coloradoans entering substance abuse treatment that identified cannabis as their primary substance of abuse during 2010 (29). We present this data to suggest trends but acknowledge that additional data and analysis is required before significant observations can be made. The effect of medical marijuana on substance abuse and treatment in Colorado needs additional study, especially given the recent expansion of the medical marijuana registry and industry in the state, but appears to decrease the perception that smoking marijuana poses a great risk to health and may be associated with both increased use among 18 to 25 year old Coloradoans and increased percentages of the admissions to substance abuse treatment.

Unfortunately, Colorado has very limited substance abuse and mental health services, and those services are concentrated in the state's urban corridor. Among American states, Colorado ranks thirty-fifth in per capita mental health expenditures and fiftieth in the number of inpatient psychiatry beds, after losing 71 percent of its psychiatric hospital beds over the last two decades (30). Colorado's suicide rate has long ranked above the national average, but the CDPHE recorded a dramatic increase in 2009 with 940 suicides, a suicide rate of 18.4 deaths per 100,000 residents that is almost double the national average (31). As a state, Colorado has a high rate of substance abuse and a limited rate of services; the effects of medical marijuana on substance use, abuse, and treatment deserve rigorous investigation.

Crime and Education

Similarly, the effects of medical marijuana on crime and education remain unclear.

There have been several reports of crimes in which medical marijuana was involved, including two separate fatal car accidents in which the drivers appear to have been intoxicated on medical marijuana (32). The Colorado Department of Transportation reports that the percentage of the state's driving fatalities in which the driver was impaired by drugs increased every year between 2005 and 2009. By 2009, the Department of Transportation described 48 percent of the state's driving fatalities as impaired driving and says that in half of those fatalities, marijuana was the impairing substance (33). In response, the state's House of Representatives recently passed House Bill 1261, which limits drivers to no more than five nanograms of THC per millimeter of blood; a version of the bill is considered likely to become law later in 2011 (33).

Dispensaries themselves are associated with a number of crimes, but the nature of the association remains unclear. At this point, the evidence remains mostly anecdotal: reports of burglaries and homicides at dispensaries have featured prominently in the state's newspapers, but analyses by the Denver and Colorado Springs Police Departments found no significant difference in the incidence of crimes around dispensaries, and an analysis by *The Denver Post* even found a decrease in crime in the city's neighborhoods with the most dispensaries (34).

Authorities are increasingly concerned that dispensaries, and their associated grow operations, will divert marijuana to the criminal market. A registrant can possess up to two ounces of marijuana and up to six marijuana plants—three mature plants, three production plants. However, a mature plant can produce up

to a pound each. In February 2011, a South Dakota couple was arrested with ten pounds of marijuana, much of it labeled with the name of a Denver dispensary (35). Authorities have reported diversion of medical marijuana to the neighboring state of Nebraska (36).

With regards to the state's public school system, the Colorado Department of Education reported that during the 2009-2010 school year, the number of students suspended statewide for drug-related offenses spiked 31 percent from 3,202 to 4,205 in the year following the increased use of medical marijuana. Similarly, the number of students expelled statewide for drug-related offenses increased 40 percent from 534 to 749. While these are only associations, this rise in the expulsion rate ended a decade of declining expulsions for drug-related offenses (37).

We need additional data to better ascertain the relationships between the expanding use of medical marijuana and the state's criminal and education systems.

The Marijuana Patient-Physician Relationship

Less frequently acknowledged is how medical marijuana is altering the relationships between patients and physicians in Colorado. Unlike a traditional patient-physician relationship, where a physician has multiple responsibilities to a patient, in Colorado's medical marijuana system a physician was, until June 2010, responsible for simply "recommending" marijuana to a person whom they believed could benefit from its use. Marijuana remains a restricted Schedule 1 substance with limited evidence to suggest its indication, contraindication, dosage, and adverse effects. In this context, physicians willing to recommend marijuana seemingly ought to be extraordinarily scrupulous. However, the amendment requires only a diminished version of standard medical care. Physicians recommending marijuana are not required by the amendment to conduct a diagnostic examination, physical, mental, laboratory, or otherwise. Further, the amendment does not require coordination of care with a registrant's other physicians or even review of past records. Since enrollment on the medical marijuana registry is confidential, the information is excluded from the state's controlled substance monitoring program, which allows other physicians to see which controlled substances have been dispensed to a patient.

Dispensaries often advertise their relationships with recommending physicians, and some physicians see medical marijuana registry applicants in offices adjacent to or even within dispensaries. Under the original arrangement, physicians were often employed by a dispensary. They did not have to provide ongoing care or to be available if complications arose. Patients pay out-of-pocket for physician approval with advertised rates averaging \$100 and the state registry fee of \$90 (38). The medicalization of marijuana in Colorado includes a narrowed account of the relationship between a patient and a physician, in which a physician gives permission to use an otherwise illegal substance without the usual fiduciary responsibilities of a physician.

In this setting, a small number of entrepreneurial physicians have dominated the medical marijuana registry. According to data generated by the CDPHE in December 2010, 1,241 Colorado physicians had signed medical marijuana registry forms, but 911 of these physicians have signed fewer than six registry forms (11). In an update through the end of January 2011, the CDPHE found that of the approved medical marijuana registrations, 49 percent had been signed by one of fifteen physicians, and 10 percent of all registration forms in the state had been signed by a single physician, as illustrated in [Figure 6](#) [personal communication, Apr 2011].

The identity of these frequent recommenders is confidential, and most members of this small group of physicians responsible for the majority of the recommendations to the state's medical marijuana registry have avoided publicity, but two physicians have had actions taken against their license in response to recommending medical marijuana. Dr. Paul Bregman, a radiologist who describes himself as an expert in depression and bipolar disorder, has spoken publicly about recommending medical marijuana (39). Dr. Bregman's license was briefly suspended in the last year for an undisclosed reason by the state's Medical Board but was recently reinstated (40). In addition, Dr. Manuel De Jesus Aquino surrendered his Colorado medical license in December 2010 after the office of the state's attorney general office filed a complaint for violating the state's Medical Practice Act. Dr. Aquino recommended marijuana to a twenty year old woman he saw at a dispensary without conducting an examination, taking a medical history, or counseling the young woman on the risks marijuana posed to her twenty-eight week pregnancy. The woman subsequently delivered a child who tested positive for marijuana, triggering the complaint against Dr. Aquino. Dr. Aquino first obtained his Colorado medical license in 2007. Before surrendering his license in February 2011, Dr. Aquino described his specialty as medical marijuana and his employer as a Denver-area dispensary (41).

To redress these situations, the governor signed Senate Bill 109, which regulates the marijuana patient-physician relationship, into law in June 2010. Senate Bill 109 requires physicians to take a complete medical history, to conduct an appropriate physical examination, and to be available for follow-up care. Physicians are now required to have valid, unrestricted licenses from both the DEA and the state of Colorado. Physicians who recommend medical marijuana are now prohibited from having an economic interest in a medical marijuana dispensary or grow operation and from being paid by a dispensary to write recommendations (42). As a result of these regulations, eighteen physicians who were specializing in medical marijuana were no longer allowed to recommend medical marijuana because they did not possess valid and unrestricted DEA and Colorado licenses (43). At least two of these physicians, Dr. Janet Dean and Dr. James Satt, have publicly complained that physicians with restricted licenses should

be allowed to recommend medical marijuana (44). Despite these regulations, the CDPHE recently reported to the authors that of the 36,319 recommendations received from July 1, 2010 to January 31, 2011 (after the passage of Senate Bill 109), 49.3 percent of the recommendations were again from one of fifteen physicians [personal communication, Apr 2011].

While medical marijuana recommendations remain the province of a small group of entrepreneurial physicians, little is known about the physicians in the state who are recommending medical marijuana to a small number of patients as part of their regular practice. We are aware of surveys currently being conducted of these physicians, but no data is publicly available at this time. We look forward to learning more about the Colorado physicians who do and do not recommend medical marijuana.

Future Developments and Regulations

As Colorado's medical marijuana system continues to mature, we anticipate additional regulation and ballot initiatives, while hoping for additional research into the effects of medical marijuana on Colorado's communities with regards to substance abuse, mental health, education, and crime.

We discussed several of the state's regulatory efforts above, but the situation is changing rapidly. As part of the House Bill 1284 that was signed into law in June 2010, the state established a Medical Marijuana Enforcement Division within the Department of Revenue that will regulate the medical marijuana industry. These rules will be fully enforced beginning July 1, 2011 and will constitute the country's most stringent regulation of medical marijuana (45). We also anticipate more local regulation, which is allowed under House Bill 1284; as of this writing, thirty-two municipalities have banned medical marijuana dispensaries and industries (46).

Meanwhile, we expect additional citizen-initiated ballot measures. In 2006, marijuana advocates placed Amendment 44, which would have legalized possession of up to an ounce of marijuana by an adult twenty-one years or older without a medical marijuana card, on the ballot (47). While that measure was decisively defeated and possession of marijuana remains illegal in Colorado, several municipalities have decriminalized the possession of less than an ounce (48). Marijuana advocates are publicly discussing a new ballot initiative in 2012 that would amend the state's constitution to decriminalize the use and possession of marijuana, legalizing recreational use (49).

Finally, we hope our account reveals the need for high-level evidence on the use of medical marijuana, its effects on substance abuse and treatment, adolescent use, the education system, criminal behavior, and the relationships between patients and physicians.

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Conflict of Interest

I declare that I have no proprietary, financial, professional or other personal interest of any nature or kind in any product, service and/or company that could be construed as influencing the position presented in, or the review of, the manuscript entitled Mile High Macaroons: The Medicalization of Marijuana in Colorado except for the following: employment at Denver Health.

Author: Abraham M. Nussbaum

Date: April 20, 2011

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Date: April 20, 2011

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Medical Marijuana, Nevada's Big Gamble

Todd Raybuck

Abstract

Nevada's gamble on legalizing marijuana as medicine has been putting its citizens in the hole in many ways. Grow operations have been abusing regulations and unscrupulous doctors have been exploiting the loose guidelines put in place in 2001. Law enforcement has seen an increase in drug-related violence and environmental costs from cleaning up marijuana grows. Now the state has been targeted for legalization efforts, but its citizens are fighting back.

We, the people of the State of Nevada, do establish that "[a]ll men are by [n]ature free and equal and have certain inalienable rights among which are those of enjoying and defending life and liberty...pursuing and obtaining safety and happiness..." and possessing and using marijuana.(1) Yes, you read that correctly, the possession and use of marijuana for medical purposes is protected under the Constitution of the State of Nevada.(2)

This year will mark the tenth anniversary of Nevada's implementation of the use of marijuana for medical purposes. Since the acceptance of marijuana as medicine in Nevada, the state has seen multiple attempts at full marijuana legalization as well as increases in marijuana-related businesses, marijuana cultivation and marijuana-related crime.

Nevada Medical Marijuana Program

In 1998 and again in 2000, Nevadans voted on a ballot initiative to amend the Nevada Constitution and allow the use of marijuana (cannabis) "for the treatment or alleviation of certain illnesses." (3) Nevada requires amendments to the state constitution via the ballot initiative process to pass by a majority of voters in two consecutive general elections. The ballot measure passed in 1998 and again in 2000 with 59% and 65% of the vote respectively.

Assembly Bill 453 was subsequently presented by then Nevada Assemblywoman Chris Guinchigliani which was enacted into law on October 1, 2001 by the Nevada Legislature, permitting the medical use of marijuana. Assembly Bill 453 also included provisions to reduce the penalty for possession of one ounce of "non-medical" marijuana to a misdemeanor punishable by a fine of up to \$600. Persons arrested or cited with one ounce or less of "non-medical" marijuana only face the potential of jail time after two prior convictions.

Guinchigliani initially proposed for the state to cultivate medicinal marijuana;(4) however, that provision was removed after she spoke with Drug Enforcement Administration officials.(5) The new Nevada law adopted the "Oregon model" over California's medical marijuana model regarding the state's setting parameters for "registered cardholders being allowed to have a certain number of plants and quantity of usable marijuana." (6) Chapter 453A of the Nevada Revised Statute and Nevada Administrative Code Chapter 453A establish the guidelines for the use of marijuana as medicine.

Oversight of the Nevada Medical Marijuana Program (NMMP) was originally assigned to the State Department of Agriculture, presumably due to the initial proposition of state cultivated marijuana, but now the Nevada Department of Health and Human Services administers the state registry for those persons who qualify and are accepted into the NMMP. Under Nevada law only a person who has obtained a valid NMMP card can ingest marijuana and avoid state prosecution. Nevada's law, however, allows for an "affirmative defense" which may protect a person arrested for marijuana possession without a NMMP card from conviction if the court finds that the subject suffers from one of the approved medical conditions provided within the NMMP. Application fees for NMMP registration total \$200, and the cards are valid for one year from the date of issue. A NMMP cardholder can designate one primary caregiver who cannot also be a NMMP cardholder and who can only be a designated primary caregiver to one NMMP cardholder. Nevada does not recognize other states' medical marijuana cards.(7)

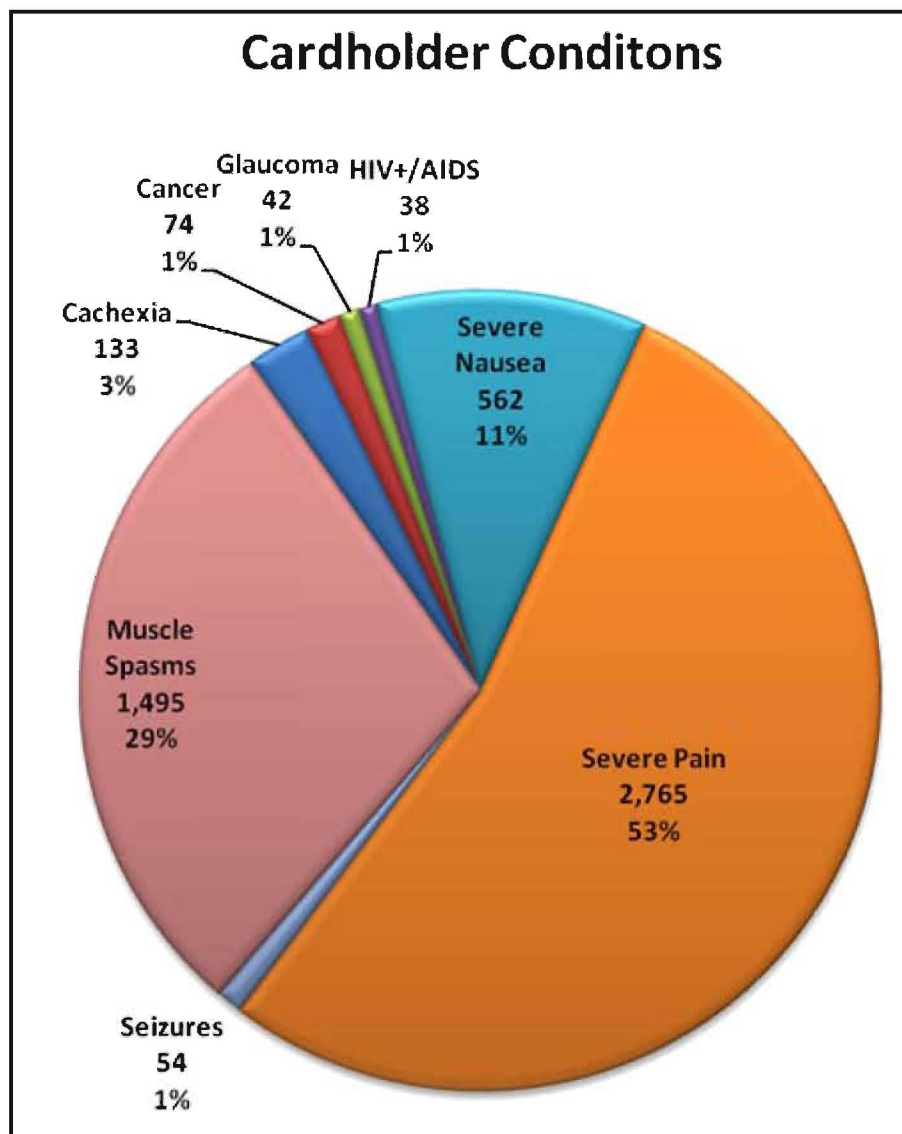
Valid NMMP cardholders or their designated primary caregivers are allowed to possess up to one ounce of usable marijuana, three mature marijuana plants and four immature marijuana plants. The sale of marijuana, even to a NMMP cardholder, is illegal in the state of Nevada. There are no provisions for marijuana cooperatives or dispensaries, and Nevada is a "grow your own" state.(8)

According to the most recent information provided by the Nevada State Health Division, as of February 12, 2011, there were 3,264 NMMP cardholders, fifty-six caregivers and 205 licensed Nevada physicians who

have signed applications for NMMP applicants. This is nearly a 17% increase over the reported estimate of 2,800 reported in February 2010.(10) The influx of new people applying for the NMMP has created a backlog of pending applications resulting in a request for the addition of three state workers to keep up with the demand.(11) The increases in applications are likely the result of increased attempts by persons arrested or cited by law enforcement for possession of marijuana to use the NMMP card as an affirmative defense.

Additionally, some supporters of the medical marijuana program believe that by enrolling larger numbers of patients into the program they will create greater support for the outright legalization of marijuana in the state. According to a Health Department official who wished to remain anonymous, a Las Vegas medical marijuana referral business owner stated his goal was to flood the Nevada Medical Marijuana Program with so many patients that the state would be forced to legalize marijuana for everyone.(12)

During the campaign to pass Nevada's medical marijuana program voters were led to believe that support for the measure would be assisting the "severely ill." Less than five percent of NMMP enrolled patients however, suffer from serious medical conditions including HIV+/AIDS, cancer and the wasting syndrome known as Cachexia. The overwhelming majority of current "patients" have generalized medical conditions such as severe pain (53%), muscle spasms (29%) and severe nausea (11%). (See Cardholder Conditions Chart)



*A Patient may have more than one diagnosed qualifying medical condition

Prior to 2001, Nevada's marijuana laws were some of the strictest in the nation. Mere possession of one marijuana cigarette could potentially result in a felony conviction. The two successful medical marijuana ballot initiatives, implementation of the NMMP and the reduction in penalties for possession of one ounce of "non-medical" marijuana from a felony to a misdemeanor planted the seed in some outsiders' minds that Nevada was ripe for marijuana legalization.

In 2002 a Washington D.C. based pro-marijuana organization seized on what appeared to be a growing movement in Nevada towards the relaxation of marijuana laws. The group, funded in large part by insurance magnate Peter Lewis, spent nearly two million dollars to place a ballot initiative before Nevada voters to once again amend the constitution and legalize up to three ounces of marijuana for all adults 21 and older.

The initiative initially showed positive signs of passage when the spokesperson for a statewide police organization and a Nevada state legislator spoke out in favor of the initiative. Nevada Conference of Police and Sheriffs President Andy Anderson and then State Assemblywoman Guinchigliani both spoke publicly and appeared in commercials in favor of the measure. Anderson was removed from his position less than a week after announcing his support. (13) Guinchigliani became a paid consultant for the campaign and is currently a Clark County Commissioner and Las Vegas mayoral candidate. Despite the early indications of possible victory, a small but determined statewide coalition of community activists and law enforcement officers soundly defeated the initiative by a margin of 61 percent to 39 percent.

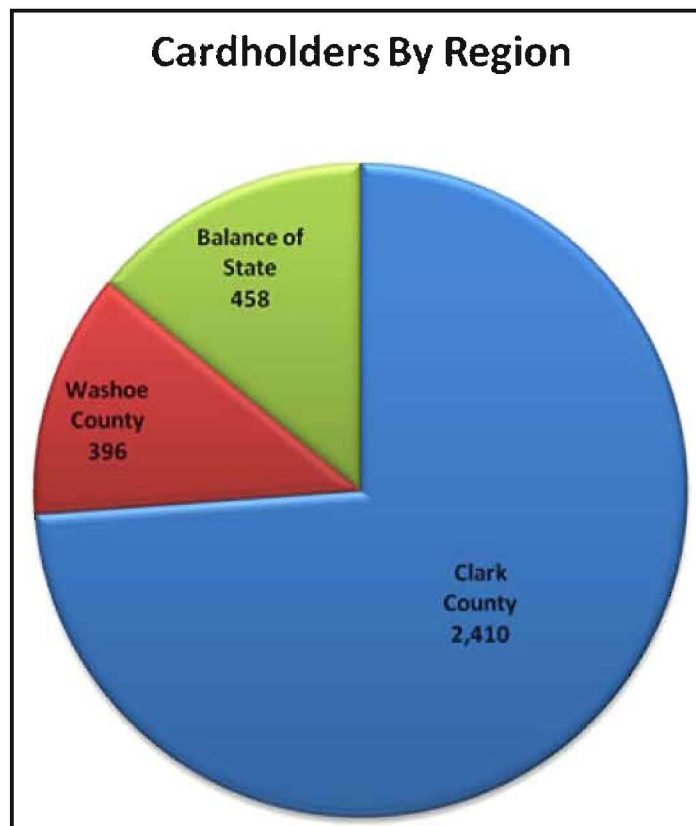
Undeterred however, the pro-marijuana group returned in 2004 but failed to qualify for the ballot and returned then again in 2006, successfully qualifying "Question 7" for the 2006 statewide ballot. The initiative proposed to amend the Nevada Revised Statutes to allow for the sale, use and possession of one ounce or less of marijuana by persons at least 21 years or older. The initiative failed by garnering only 44 percent of the vote.

In 2010, the same pro-marijuana organization once again attempted to gather enough petition signatures to place another marijuana legalization measure on the 2012 Nevada ballot. The initiative sought approval from voters to legalize one ounce of marijuana, authorize 120 retail marijuana outlets and 50 wholesale growers. It also proposed a \$50 per ounce excise tax at the wholesale level and included sales tax on retail transactions. Unlike initial polling in the earlier efforts to legalize marijuana in Nevada, early media polling showed the measure wasn't popular among Nevada voters with 42 percent in support and 52 percent opposed. (14) The group failed to obtain the signatures needed to qualify for the 2012 ballot when national funding for the project was cut off. (15)

A Budding Enterprise

Despite the relatively small percentage of Nevadans enrolled in the NMMP program and state laws that prohibit the sale of marijuana, pot growers and medical pot pushers are seeing green. In recent years, Nevada has seen an increase in marijuana cultivation, businesses offering NMMP doctor referrals and application submittals, and the introduction of marijuana dispensaries, despite the fact that state law prohibits marijuana cooperatives and dispensaries.

The state of Nevada is home to more than 2.6 million residents of which nearly three-fourths live in the Las Vegas metropolitan area within Clark County. Marijuana grows and dispensaries are located in communities throughout the state; however, like the population, the large majority of marijuana-related activity is also located in the Las Vegas area. Seventy-four percent of the NMMP participants also live in the Las Vegas area. (See Cardholders By Region Chart)



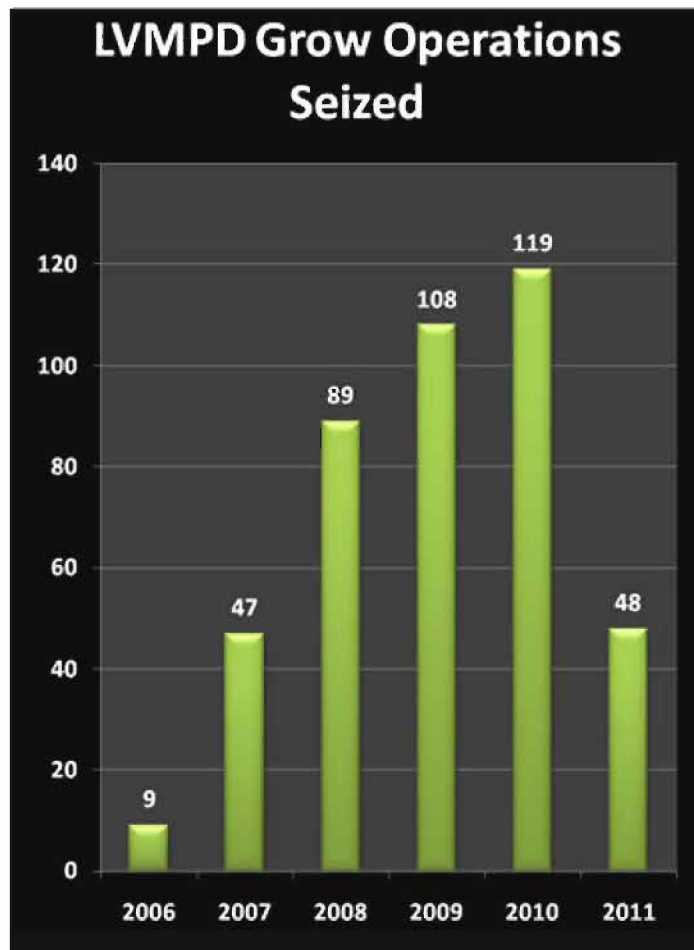
As was previously stated, Nevada is a "grow your own" state, and the sale of marijuana is prohibited. According to police estimates, however, there are more than 60 marijuana dispensaries operating in the Las Vegas community. Many of the dispensaries are located inside strip malls adjacent legitimate businesses. The owner of a martial arts studio located next door to a marijuana dispensary feared the illegal activity placed the children attending his gym in danger.⁽¹⁶⁾ While many of the dispensaries are low key operations that discreetly advertise their services via internet chat rooms and word of mouth to avoid police detection, others blatantly advertise their activities.

Las Vegas area residents and tourists driving along Interstate 15 next to the Las Vegas Strip are greeted during their commute by a 20x60 roadside billboard that advertises one such Las Vegas marijuana dispensary. The billboard is covered by a giant marijuana leaf along with the acronym "THC" and is an advertisement for "The Happiness Consultant" (THC) marijuana dispensary. While the THC billboard is the most blatant advertisement for the sale of marijuana, it is not the only advertising related to the medical marijuana industry in Nevada.

Several other billboards around Las Vegas advertise the website and telephone numbers for "DrReefer," a business that claims to assist applicants for the NMMP program to "Get legal today." These billboards are also covered by a large marijuana leaf emblazoned over the top of a white medical cross.

A chain of Las Vegas tattoo parlors has chosen radio ads to promote its services and assistance in obtaining medical referrals and NMMP registry cards. An undercover investigation conducted by one local news program found an employee of the tattoo parlor who informed the undercover "applicant" he could see one of three doctors on site for a medical marijuana referral. If the "applicant" had his medical records, the doctor's referral would cost \$500; without medical records the referral would cost \$600. The employee stated one of the doctors was "more lenient," suggesting the doctor would create false medical records.⁽¹⁷⁾

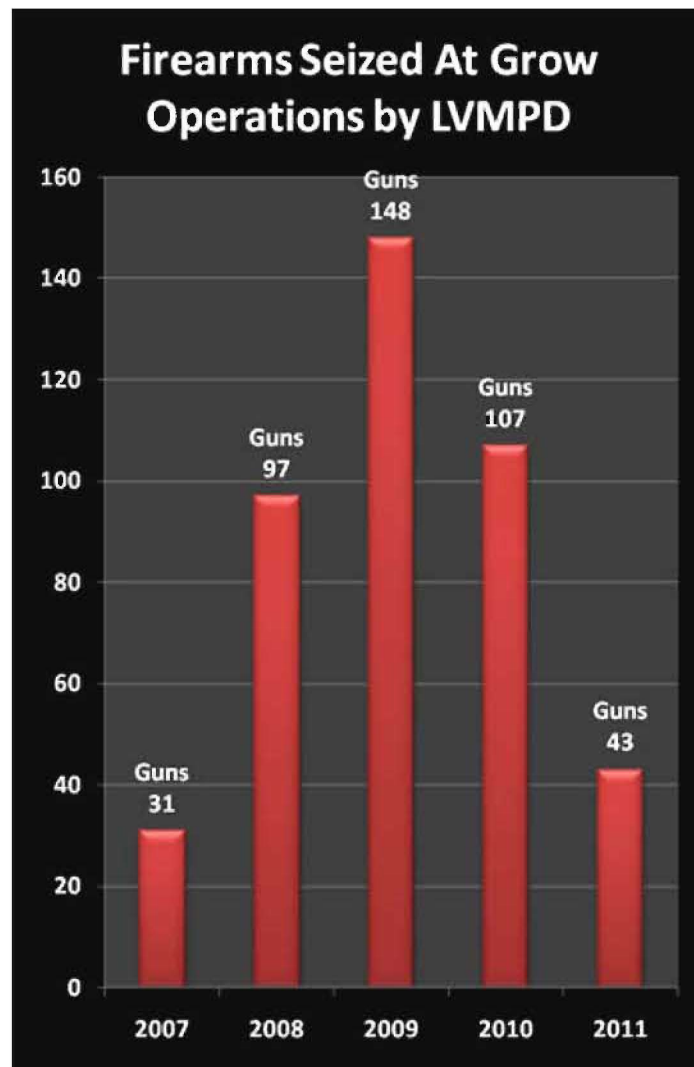
Since 2006, the Las Vegas community has seen marijuana grow sites increase each year. The Las Vegas Metropolitan Police Department (LVMPD), which is responsible for police services in the greater Las Vegas area, recorded a staggering 1,200 percent rise in grow site seizures between 2006 (9) and 2010 (119).



Police investigations have linked several marijuana grow operations to marijuana dispensaries operating in Las Vegas. Clean up costs expended by the LVMPD associated with the marijuana grow sites from 2007 – 2010 total more than \$573,000 of non-reimbursable funds.(18)

Sadly many marijuana grow operations place young children at risk. One such grow operation was discovered during the investigation of a domestic disturbance call involving two brothers. Las Vegas police located 100 hydroponic marijuana plants and chemicals inside the house, including some plants in a bedroom surrounding the bed where an 8 year old girl and 9 year old boy were sleeping. The marijuana had a reported street value of \$150,000. The children's mother was arrested on drug-related charges and child endangerment charges. Her two adult sons were also arrested on drug and domestic violence charges, and the two younger children were placed in the custody of Child Protective Services.(19)

Those working in law enforcement know all too well that where there are drugs, there are most often guns; and where there are drugs and guns, there is often violence. During the 2007-2010 time period, there has been a 245 percent increase in the number of firearms seized at marijuana grow operations. In 2010 firearms seized at marijuana grows accounted for 29 percent of the total number of firearms seized that year by the LVMPD.(20)



Just as the number of guns seized has increased so have drug related homicides. There were seventeen drug-related homicides in the Las Vegas area in 2009, a 142 percent increase from the seven drug related homicides in 2007 and seven in 2008. Eight of the seventeen were marijuana-related, and four of those were directly related to marijuana grows. In 2010 four of the thirteen drug-related homicides were marijuana related.(21) Tragically, one of those homicides resulted in the fatal shooting of 15 year old high school student Alexis Postorino.

William Postorino told police that he had an ongoing dispute with Norman Belcher over a debt he owed to Belcher. During the early morning hours of December 6, 2010, Belcher kicked in the front door of Postorino's residence, looking to collect on the debt and leave behind no witnesses. The outstanding debt was reportedly drug-related. Alexis Postorino and Nicholas Brabham, 31, were both shot multiple times by the thirty-five year old Belcher. Alexis Postorino died from her gunshot wounds, and Brabham was critically injured. In a recent court appearance Postorino stated that "seven ounces of weed, \$750, and \$200 of Xanax"(22) were taken from the home during the robbery. Homicide detectives classified Alexis Postorino's death as "collateral damage" resulting from her father's drug trafficking activities.(23)

Pushing Back Against the Weed

In the ten years since the implementation of the Nevada Medical Marijuana Program, it is increasingly being misused as a shield for illegal marijuana activity and a springboard to push an agenda toward marijuana legalization.

More than 60 marijuana dispensaries operate in the Las Vegas area alone, even though they are illegal under the NMMP statutes. The proliferation of these businesses has not gone unnoticed by law enforcement. Beginning in September 2010, the Drug Enforcement Administration and the LVMPD Narcotics Bureau began conducting joint investigations into the marijuana dispensaries. As of this writing, more than two dozen search warrants have been executed on various dispensaries and related locations, and numerous arrests have been made. According to Lt. Laz Chavez of LVMPD's Narcotics unit, "we are

now treating these dispensaries as what they are: drug trafficking groups. We are targeting them; we are actively going after all the businesses that are nothing more than a storefront."(24)

The increase in illegal marijuana activity and continued attempts to legalize the drug has caught the attention of more than just law enforcement in the state. It is a bit ironic, if not fitting, that the implementation of the NMMP was based on "the Oregon model" as it is a different "Oregon model" that is helping to educate Nevadans about the impact of marijuana in our communities and the abuses within the program.

In April 2010 representatives from each of Nevada's twelve statewide community coalitions attended the 2010 Oregon Summit "The Impact of Marijuana." The mission of the summit was to bring together a diverse group of enforcement agencies, business leaders, elected officials and community leaders and activists to help educate and develop an action plan to address the impact of marijuana in Oregon. The summit did not disappoint!

Shortly after attending the Oregon Summit, the Nevada coalitions began preparing for their own Summit, and in January 2011, the Nevada Marijuana Summit was held in Las Vegas. Nevada Attorney General Catherine Cortez-Masto gave the opening address, and State Senator Shelia Leslie provided closing remarks. Representatives from treatment and prevention organizations, law enforcement and district attorney's offices, judges, business and community leaders and elected officials attended the conference. The attendees received valuable information about marijuana's impact in Nevada. Those who attended the conference left empowered and have already begun efforts to push back against the spread of marijuana in our communities and the abuses within the NMMP.

Since 2000, \$12 million has been spent trying to legalize marijuana in Nevada.(25) Despite being outspent nearly 24 to 1, hard working and dedicated Nevadans have defeated every legalization measure. The spokesperson for the pro-marijuana group responsible for legalization efforts in Nevada has said, "we poured cement in the state,"(26) and so it is likely that the marijuana legalization efforts in Nevada will continue in the coming years.

It is hard to predict what lies in store for Nevada over the next ten years, but there is one thing you can count on - don't bet against the house, 'cause in the end the house always wins!

Author Information

Todd Raybuck is a nineteen year veteran and Sergeant with the Las Vegas Metropolitan Police Department (NV). During his police career, in addition to various uniform assignments, he has worked undercover in Vice, Narcotics, and Criminal Intelligence. While assigned to the Narcotics unit, Todd was responsible for creating the Demand Reduction Section. Todd has provided drug and substance abuse training across the nation to law enforcement, businesses and civic groups. He has debated against marijuana legalization efforts across the state of Nevada and on national television. He has appeared as a guest on the Oprah Winfrey Show, CNN's Crossfire and Primetime News programs, Court TV, and was featured in the documentary "Grass Roots: The Marijuana Initiative." Todd is the co-author of the book *Involved; Parents' Connection to Drug Prevention*. LVMPD Detective Ryan Kraft contributed to this article.

Conflict of Interest

I declare that I have no proprietary, financial, professional or other personal interest of any nature or kind in any product, service and/or company that could be construed as influencing the position presented in, or the review of, the manuscript entitled: Medical Marijuana, Nevada's Big Gamble

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The Impact of Oregon's Marijuana Program

Shirley Morgan

Abstract

In 1998 many Oregon voters approved the Oregon Medical Marijuana Program through a state ballot initiative and believed, because of misleading campaign ads, that it was for a small percentage of people who were sick and dying. Now 12 years later, as of April 1, 2011, there are over 40,000 marijuana cardholders of which more than 35,793 or 90% of those cards have been issued for chronic pain and 35% of the cards were issued by one doctor and an additional 59% by ten doctors. This article will review Oregon's marijuana program, which is being used to promote marijuana as medicine and is in direct conflict with federal laws which have never deemed smoked marijuana as medicine, as well as reveal impacts to the environment, businesses, the treatment industry, law enforcement, youth attitudes, addiction rates, children, and the community.

Overview of Program

The Oregon Medical Marijuana Act was established by Oregon Ballot Measure 67, in 1998, passing with 54.6% support. It modified state law to allow the cultivation, possession, and use of marijuana by recommendation for patients with certain medical conditions. The Act does not affect federal law, which still prohibits the cultivation and possession of marijuana.

In 2005 the Oregon legislature passed Senate Bill 1085, which took effect on January 1, 2006. The bill raised the quantity of cannabis that authorized patients may possess from seven plants (with no more than three mature) and three ounces of usable cannabis to six mature cannabis plants, 18 immature seedlings, and 24 ounces of usable cannabis. The bill also changed the penalty for exceeding the amount allowed for state-qualified patients. The new guidelines no longer give patients the ability to argue an "affirmative defense" of medical necessity at trial if they exceed the allowed number of plants. But patients who are within the limits retain the ability to raise an affirmative defense at trial even if they fail to register with the state.

The Oregon Medical Marijuana Program is a state registry program within the Public Health Division called the Oregon Health Authority. Their role is to administer the Act as approved by the voters. Patients can get a recommendation from their doctor for a number of approved debilitating medical conditions such as cancer; glaucoma; agitation due to Alzheimer's disease; positive status for human immunodeficiency virus or acquired immune deficiency syndrome or treatment for these conditions; or a medical condition or treatment for a medical condition that produces, for a specific patient, one or more of the following: cachexia; severe pain; severe nausea; seizures, including but not limited to seizures caused by epilepsy; or persistent muscle spasms, including but not limited to spasms caused by multiple sclerosis; or any other medical condition or treatment for a medical condition adopted by the authority by rule or approved by the authority pursuant to a petition submitted pursuant to ORS 475.334. (1)

It is important to note that doctors are not allowed to prescribe marijuana because it is not a Food and Drug Administration (FDA) approved medicine; they may only recommend it. Further data indicates in Oregon that it is not the mainstream of professional doctors that are recommending marijuana, but doctors whose only focus is marijuana and are involved in the marijuana movement. In Oregon one doctor has written 35% of the recommendations for cardholders, and 10 others have written 59 %.(2)

Doctors as well are required to explain the risk and benefit of marijuana, but they do not provide a dosage amount, unlike when doctors write FDA approved prescriptions for a certain quantity for a limited time period. With marijuana, a doctor recommends it, and the cardholder grows the allowed amount of marijuana by law or has his/her caregiver or grower provide the marijuana. There are also no standards set for growing marijuana with inspections for quality, cleanliness, or the chemicals and pesticides used. Oregon's program also sets no standards on how it may be used - whether it is smoked, put into food, or vaporized.

Section 475.309 of the law allows cardholders who are 18 years and under with parent or legal guardian written permission. Currently there are over 40 children under the age of 18 in the program, 19 under 17, 12 under 16, and 9 under the age of 15.(3)

The attending physician is required to discuss the risks and benefits of the use of marijuana. The parent or legal guardian must agree to serve as the designated primary caregiver for the child and control the amount, dosage, and frequency of use.

One of the most alarming sections of the Oregon Medical Marijuana Program is that when Senate Bill 1085 took affect in 2006, it created a section in which the Oregon Health Authority would appoint an Advisory Committee that would consist of 11 members to include persons who possess registry identification cards, designated primary caregivers of persons who possess registry identification cards and advocates of the Oregon Medical Marijuana Program. This advisory committee is comprised of only designated proponents of the marijuana program and has excluded both physicians from the field of drug addiction recovery and members of law enforcement who are responsible for dealing with the compliance and illegal activities resulting from this program. (4)

A registry identification cardholder or the designated primary caregiver of the cardholder may possess up to six mature marijuana plants, 18 immature plants, and 24 ounces of usable marijuana. Another one of the loopholes in the Oregon law is that there is no designated maximum number of patients for which caregivers can grow marijuana. Below is a look at the top 10 caregivers with multiple patients revealing the amount of usable marijuana they may legally have in their possession at any given time based upon the number of registered cardholders they reportedly serve.(5)

1. 58 # of patients	87 lbs of Marijuana
2. 25 # of patients	37.5 lbs of Marijuana
3. 20 # of patients	30 lbs of Marijuana
4. 18 # of patients	27 lbs of Marijuana
5. 17 # of patients	25.5 lbs of Marijuana
6. 15 # of patients	22.5 lbs of Marijuana
7. 12 # of patients	18 lbs of Marijuana
8. 11 # of patients	16.5 lbs of Marijuana
9. 10 # of patients	15 lbs of Marijuana
10. 10 # of patients	15 lbs of Marijuana

A person authorized to produce marijuana at a marijuana grow site may produce marijuana for no more than four registry identification cardholders or designated primary caregivers concurrently. In essence, one grower could have on their property 24 mature plants, 108 immature plants, 144 ounces or 6 lbs of marijuana in their possession.

Currently there are 9,516 marijuana grow sites in Oregon that have more than one cardholder application linked to the site. Below is a look at the top 10 multiple patient grow sites. (6)

1. 60 cardholder applications	90 lbs and 1440 plants
2. 51 cardholder applications	76.5 lbs and 1224 plants
3. 34 cardholder applications	51 lbs and 816 plants
4. 30 cardholder applications	45 lbs and 720 plants
5. 23 cardholder applications	34.5 lbs and 552 plants
6. 21 cardholder applications	31.5 lbs and 504 plants
7. 20 cardholder applications	30 lbs and 480 plants
8. 17 cardholder applications	25.5 lbs and 408 plants
9. 16 cardholder applications	24 lbs and 384 plants
10. 15 cardholder applications	22.5 lbs and 360 plants

Impacts to the Environment from Grow Operations

The impacts to Oregon communities have been overwhelming because of the misuse of the program, according to Sgt. John Koch of Washington County Sheriff's Office, noting that, "the law did not define any boundaries on where this marijuana could be grown, other than it cannot be visible to the public. Therefore, in communities across Oregon, innocent neighbors have cardholders, caregivers, and marijuana site growers who are growing a federally illegal drug in their backyards, homes, apartments, attics, closets, bedrooms, garages, basements, out buildings, and land lots all providing easy access for burglars, children, and animals." (7)

According to the Oregon Health Authority there are over 40,000 cardholders scattered around 36 counties in Oregon. Below is a review of Oregon's 36 counties and how the cards are distributed across the State. (8)

Baker	119
Benton	524
Clackamas	2,835
Clatsop	401
Columbia	678
Coos	1,310
Crook	194
Curry	506

Deschutes	1,732
Douglas	1,581
Grant	78
Harney	60
Hood River	213
Jackson	5,136
Jefferson	161
Josephine	3,136
Klamath	780
Lake	95
Lane	4,324
Lincoln	677
Linn	1,019
Malheur	147
Marion	1,872
Multnomah	6,796
Polk	460
Tillamook	332
Umatilla	333
Union	194
Wallowa	68
Wasco	347
Washington	2,735
Yamhill	700
Combined total patient cardholder count for: Gilliam, Morrow, Sherman, and Wheeler Counties*	97

*Note: To protect the confidentiality of patients, the responses for these counties have been combined. This practice is consistent with DHS policy and HIPAA requirements



What are overwhelming about the impacts to Oregon communities are the large amounts of marijuana that are being grown throughout the State as well as the large amounts of marijuana being provided to individual cardholders. Using the number of cardholders that Oregon currently has (40,000) and multiplying it by the number of allowed marijuana plants per cardholder provides the over total amount of marijuana that is spread throughout Oregon. 40,000 cardholders = 240,000 thousand mature marijuana plants, 720,000 thousand immature plants, and 960,000 thousand ounces (60,000 pounds) of dried usable marijuana.

In an experiment, this author rolled 79 joints with one ounce of dried mint leaves. This translates into 75,840,000 million joints or 1,896 marijuana joints per cardholder. Each cardholder would have to smoke 5.2 joints per day each day of the year for 365 days to use them all. As well, these totals do not include the marijuana that is grown illegally over the amount allowed by law. According to Detective Ray Meyers from the City of Grants Pass in Southern Oregon who works on the Interagency Narcotics RADE team, "this over abundance of marijuana is being illegally trafficked to non-cardholders, sold to other states, and on occasion freely being given away to other cardholders." (9)

Sgt. John Koch of Washington County Sheriff's Office indicates that "many of these grow sites are set up in garages, apartments, attics, and homes. The people setting up these grows will run a series of wiring for the lights, ventilation, and watering timers. The growers are not required to pull county or city permits or have their grow sites inspected for safety. As a result many fires have occurred due to indoor marijuana grows where the culprit has been over heated lights or poor wiring. Property owners are common victims as well. As with meth labs in the past, when a renter moves out and leaves the remnants of a large marijuana grow behind, the owner is frequently left with a huge clean up cost. This is partly due to the fact that these grows require a greenhouse type environment and are kept humid where dangerous mold spores thrive. Other costs to owners include correcting of the wiring, water damage, soil left in residence, and deadly pesticide disposal."(10)

An official with Network Environmental Systems indicates that, "indoor marijuana grow operations have caused significant structural, environmental, and electrical systems damage in the homes that they have been found in, not to mention the chemical residues which remain as a hidden health hazard for future occupants. Marijuana Grow Houses present serious hazards to law enforcement personnel. A number of officers have become ill and been electrocuted dismantling indoor marijuana grows. Studies conducted in Canada and the U.S. demonstrate specialized training is needed to safely take down grow house operations." (11)



Kitchen filled with marijuana growing chemicals and rooms filled with marijuana grow operation equipment, as well as holes cut in a bedroom wall and mold and moisture forming on the walls seeping through to the outside making the home a dangerous and hazardous location for occupants to reside in.

(Photo's provided by Northwest Environmental Services).

Impacts to Businesses

When the Oregon Medical Marijuana Program was passed, businesses were concerned about workplace safety issues arising from employees attempting to use an illegal drug in the workplace as well as failing federal drug-free workplace program tests, many of which are required federally. The Oregon Medical Marijuana Act (ORS 475.340) states that nothing in the law shall be construed to require "an employer to accommodate the medical use of marijuana in any workplace."

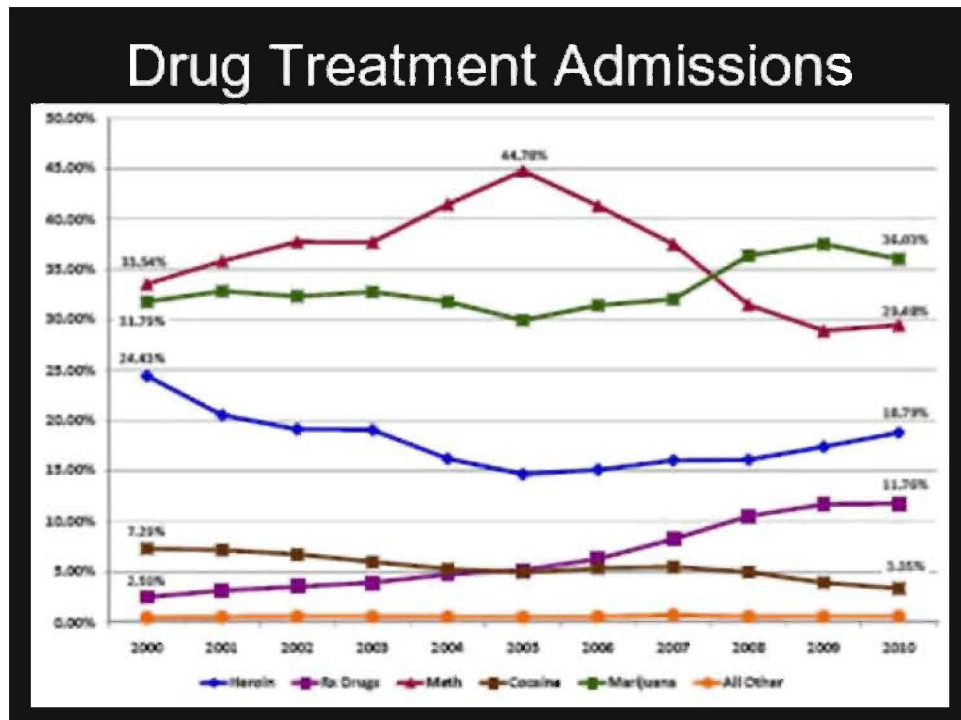
Dan Harmon, Executive Vice President of Hoffman Construction, one of the largest commercial construction companies in Oregon noted that their company has experienced 90 accidents in the last 10 years involving marijuana, resulting in property damage, equipment loss, and injury to individuals and co-workers. Providence Managed Care Organization (MCO) reports that there have been several injuries to so-called medical marijuana cardholders. Hoffman also indicates that lost work day rates fell .80/100k man-hours from 1996-2000 (prior to the effective date of Oregon's Medical Marijuana Program) but have fallen only .25/100k man-hours since. Incident rates have also slowed dramatically since the implementation of Oregon's Medical Marijuana Program and like the lost work day rate, improvement has slowed to a near stall while fatalities spiked during the initial inception of Oregon's Medical Marijuana Program and have not improved. (12)

In 2003 Emerald Steel in Oregon hired a temporary employee who was an approved user under the state program. He used the drug daily, but reportedly never on the company's property. A few weeks later he was offered a full time job which required him to take a company drug test. At that time he told the company that he was a marijuana user under the Oregon Medical Marijuana Program and was not hired. The employee sued and this case made its way to the Oregon Supreme Court. As a result of the court's ruling, no Oregon employer is required to accommodate a medical marijuana user regardless of where he uses the drug, and no Oregon employer is required to engage in an interactive process about modifying a substance abuse program. (13)

Although Emerald won the case, it cost them a lot of money to defend it. As other employers are sued for comparable reasons, they can expect similar expensive experiences.

Impacts to the Treatment Industry

Since the Oregon Medical Marijuana Program was initiated in 1998, the Oregon Health Authority statistics have revealed an increase in marijuana addiction and treatment rates in the State over a ten year period of time. Marijuana addiction and treatment rates in comparison to methamphetamine, heroin, prescription drugs, and cocaine continue to climb above all other abused drugs in the state with marijuana climbing from 14.4% in 2000 to 34.03% in 2010, compared to Methamphetamine at 15.34% to 14.18%, Heroin at 11.17% to 9.04%, and Cocaine at 3.34% to 1.61% in the same time period. (14)



Graph derived from client admission data from Addictions and Mental Health Division of the Department of Health and Human Services, March 2011

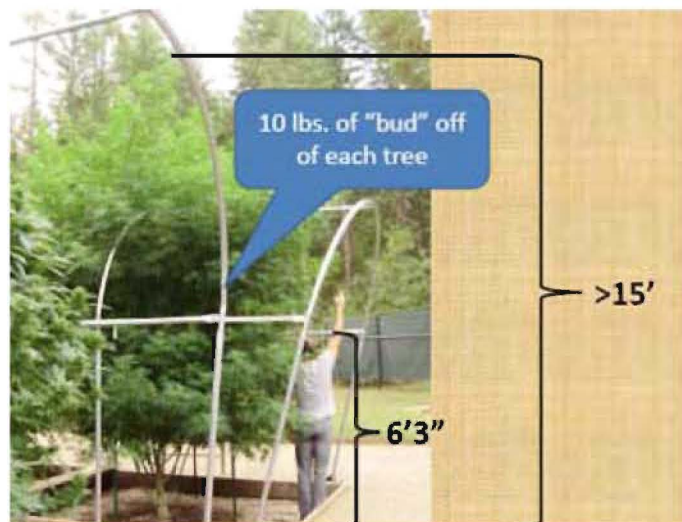
Oregon has a high rate of marijuana addiction and treatment rates and it is highly likely that the Oregon Medical Marijuana Program has helped influence these rate increases.

Impacts to Law Enforcement

Law enforcement officials are burdened with having to divert their resources to deal with the illegal impacts of the Oregon marijuana program. In 2008 Washington County Sheriff's Office indicated that they have seen a rise in the number of reported crimes associated with Oregon's Medical Marijuana Program grow sites. Some of these crimes include armed take-over robberies and serious assaults. (15)

According to the 2010 Oregon HIDTA (High Intensity Drug Trafficking Assessment) approximately one-third of law enforcement surveyed in Oregon reported that the number of out-of-compliance medical marijuana grows identified increased in 2008 compared to previous years. (16)

Deputy District Attorney Rafael Caso of Josephine County District Attorney's Office notes, that over 99% percent of the complaints coming in are in relation to the Medical Marijuana Program and that it is 75% of his caseload with 90% being related to the program. In addition, marijuana plants being grown in the Josephine County area are as large as 15' high and can yield as much as 10 lbs of marijuana off of each tree, which is leading to an over abundance of marijuana that is being sold and trafficked to others not in the program, individuals in other states and the black market. (17)



(Photo provided by Josephine County District Attorney's Office)

Detective Ray Meyers from Southern Oregon works on the Interagency Narcotics RADE team and Meyers indicates that since the team's inception, in September of 2008, the overwhelming majority of cases they have worked on involving marijuana sales are directly related to medical marijuana cardholders growing and selling marijuana, which is not allowed under Oregon's law. Myers noted that one of the subjects he arrested has since pled guilty to unlawful delivery of marijuana who harvested at least 100 lbs of marijuana to sell in a co-op situation. The subject admitted that "every person" with a card cheats. (18)

Sheriff John Trumbo of the Umatilla County Sheriff's Office, a 38 year law enforcement veteran, brings to light that there are many more questions than answers for law enforcement when it comes to dealing with Oregon's Medical Marijuana Program. Trumbo remarked that, at a January 26, 2011 Safe Schools meeting, the Vice Principal of a local high school stated there has been an increase in the use of marijuana by high school students and that two students had recently been suspended for marijuana possession. The students were from different families yet both students had parents that held valid medical marijuana cards. (19)

Impacts to Children

Sgt. John Koch of the Westside Interagency Narcotics Team of the Washington County Sheriff's Office notes that "a common claim is 'drugs are a victimless crime. In dealing with drugs and drug abuse at any level, it is clear this is not true. The most important victims are the children. Often the drugs and chemicals are left in reach of kids residing in many of these homes and as with any drug use, homes frequently have parents lying around 'stoned,' leaving kids to fend for themselves. Children's respirations are faster than adults, thus they potentially take in more of this secondhand smoke, affecting their developing bodies. There are no regulations in the Oregon Law restricting the use of this substance around children." (20)



Found in Oregon medical marijuana program grow where children lived in the home. This was labeled by the suspect.
(Photo's provided by Washington County Sheriff's Office and Douglas County Sheriff's Office)

In November of 2008, Washington County Sheriff's Office released details of an in home invasion robbery of a licensed medical marijuana grow site in which four people were tied up and three were physically assaulted. Detectives discovered that the victim ran a licensed medical marijuana grow site that was out of compliance with the amount that the law allows. They found two guns, a stolen motorcycle, and over \$5000 in cash. They also found three children in the house in conditions that caused concern for their well being and 13 pit bulls in poor health. The Oregon Department of Human Services Child Welfare Division (DHS) took a four month old child into protective custody and the other two children were placed with family members. Washington County Animal Control responded to evaluate the dogs to make sure that they received better care. (21)



(Photo's provided by Washington County Sheriff's Office)

Oregon's foster care program reflects an increase in children served, as well as foster care homes needed over a 5 year period of time. The top reason for children entering foster care is due to drug abuse by parents. From 2003 to 2006, the numbers of children removed from drug homes climbed from 2,715 or 54.9% to 3,208 or 60.6%. Many of the children in foster care have been emotionally, physically, and sexually abused. (22)

Clackamas County Mental Health has also seen an increase in youth marijuana addiction rates. From January 2009 to December 2010, of all the youth under the age of 18 who entered county addiction centers, marijuana was the leading reason, ranging from 50.0% to 81.7% over all other drugs such as Meth, Heroin, Opiates and other/unknown. (23)

Children, and in some instances animals, have become innocent victims of Oregon's marijuana program.

Conclusion

Marijuana is a Schedule 1 drug, according to the Drug Enforcement Administration (DEA), meaning it has a high abuse potential and no recognized medical value. Marijuana advocates have tried to circumvent the Food and Drug Administration (FDA) through voter ballot initiatives and legislative ballots. What medicine have voters ever voted for? What medicine have citizens ever smoked? What medicine have citizens grown in their backyard without any controls, dosage amounts, and safe delivery methods?

There are a few employees at the Oregon Health Authority (OHA) who diligently try to manage the paperwork involved in the program. Other than that, there is little to no oversight. Legitimate drugs manufactured in the United States must be approved by the Food and Drug Administration (FDA) and are required to be subject to rigorous regulations as are the drug manufacturers and dispensers. The Oregon Medical Marijuana Program has no such oversight. Once a card is issued to an individual there is no one to inspect the grow site to assure quantity compliance, quality control, or to approve chemicals and pesticides used at the grow site. Law enforcement has no authority to enter into grow sites to make sure they are in compliance. This is the only drug manufacturing system in the United States allowed to operate solely on the "honor system."

This honor system has lead to massive abuses of the Oregon Medical Marijuana Program and has allowed shady caregivers and marijuana growers to easily traffic and sell their abundance of marijuana to the black market and other states rather than to provide to the ailing individuals who have requested their assistance to help them grow their allowed amount. According to Sergeant John Koch of Washington County Sheriff's Office, of the more than 40,000 individuals currently in the program, many have been previously arrested or involved in the manufacture, delivery and possession of controlled substances. He reports that many of the individuals with which law enforcement have come in contact are admitted long time cannabis users/abusers, utilizing the program to legitimize their drug use, addiction and sales. (24)

Marijuana advocates complain that program applicants do not have access to their marijuana because of these shady growers and caregivers and have twice tried, unsuccessfully, through voter ballot initiatives to convince Oregon voters to approve state-authorized marijuana grow sites and marijuana distribution centers to help regulate and supply marijuana as a technique to try and reign in the out-of-control law they turned loose on voters in 1998. Their attempted ballot initiatives are drafted in ways that do not rid the current law of its existing loopholes but rather adds other layers of state government controlled bureaucracies.

Attempts, as well, have been made through the legislature to create state regulated marijuana grow sites and marijuana supply centers with no success. These types of strategies have caused many to believe that the true intention of the marijuana-for-medicine movement is actually full legalization of marijuana for non-medical purposes.

As of April 1, 2011, out of the over 40,000 individuals in the program, less than 1,671 (less than 4%) are in it due to cancer. Over 35,573 (89%) of the people in the program utilize cannabis for purported chronic pain. With pain being very subjective and difficult to gauge it opens the program for a potentially large amount of abuse. (25)

Marijuana advocates have also created what they call membership collectives, cooperatives, and cannabis cafés in which medical marijuana individuals for a yearly membership fee, can share between themselves free marijuana plants and donated marijuana, and in essence show up at these facilities to learn more about the trade, medicate themselves, listen to music, play pool, and then drive home. Marijuana clinics have sprouted up around the state and have solicited on-site doctors who solicit potential individuals and their prior medical records to review to see if they qualify for one of the approved medical conditions. Attempts by marijuana advocates are also being made to create non-profit collectives or cooperatives in which they take donations from medical marijuana individuals in exchange for marijuana, which in essence is the sale of marijuana, but from their perspective is deemed reimbursement for the costs for supplies to grow the marijuana.

Most recently there have been attempts to open dispensaries and cafés to sell marijuana to cardholders although this is illegal both federally and under Oregon's law. One marijuana advocate indicates he plans to open a café in a local community strip mall. The café will be open only to cardholders over 18 years of age and his plans include selling marijuana at \$10 a gram. Oregon's Interim United States Attorney Dwight Holton when interviewed noted, "I'm struck by the brazenness of recent dispensaries who seem to think they are above the law." He added, "It's drug trafficking. Period. End of story." (26)

Many drug policy experts agree that, from a common sense perspective, it is appropriate to demand that our legislators and government officials not allow illegal substances that have not been approved by the FDA into our states.

It is reasonable to question why, if marijuana advocates really believe that marijuana is an effective medicine, do they not push for the valid research that follows the proper procedures to obtain FDA approval. The answer is obvious as Dr. Robert Dupont noted, "there is only one reason the advocates for "medical marijuana" do not use this new openness of the FDA to fulfill their hopes, and that is the difficulty they face in proving that smoked marijuana is an effective and safe way to treat any illness." (27)

Author Information

Shirley Morgan is the founder of Oregonians against the Legalization of Marijuana. For the past 12 years she has voluntarily traveled the nation, helping communities mobilize and build partnerships with county, state, and federal officials to help deal with the infiltration of illegal drugs within their community.

She has been the recipient of an "Oregon Hero" award presented by the Oregon House Majority Leader for her outstanding contributions as a nationally recognized advocate against illegal drug crime, a "Local Hero" award from Oregon Partnership, a public service award from Clackamas County Sheriff's Office, the Federal Bureau of Investigation Director's Leadership Award, was highlighted in President Bush's 2004 National Drug Control Strategy for developing effective community coalition building strategies, and was highlighted in the 2004 Communities Anti Drug Coalitions of America (CADCA) 2004 annual report as one of America's most effective communities in dealing with methamphetamine and other drugs. She has received numerous community grants to help build strategies that support removing illegal drug dealers and crime.

Morgan has a Bachelor of Arts in Human Communications from Marylhurst University/Oregon (1999), a Master of Arts in Whole System Design/Organizational System Renewal from Antioch University/Seattle, Washington (2003), and a Master of Science in Community & Economic Development from Southern New Hampshire University/Manchester, New Hampshire (2008).

Conflict of Interest

I declare that I have no proprietary, financial, professional or other personal interest of any nature or kind in any product, service and/or company that could be construed as influencing the position presented in, or the review of, the manuscript entitled: The Impact of Oregon's Marijuana Program.

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The Many Problems and Consequences of Marijuana Use: Marijuana Use is a Serious Threat to Public Health

Dr. Bob DuPont

Abstract

In recent decades there have been many challenges to the longstanding bipartisan, restrictive drug policies in the United States, most of which focus on marijuana. In 1996, California became the first US state to legalize marijuana for "medical" uses through a state ballot initiative. Fifteen states and the District of Columbia followed California's lead, passing "medical marijuana" initiatives. "Medical marijuana" has proven to be the stepping stone to efforts to legalize marijuana for personal use.

Supporters of "medical marijuana" and legalization ignore the serious damages that marijuana use causes each year to Americans of all ages and the fact that both measures will increase rates of marijuana use. The assumption in these pro-marijuana efforts is that prohibition causes serious problems and that marijuana use is benign. The fact is that marijuana use is a serious threat to public health, and in particular, to the health of young people.

"Medical Marijuana" and Marijuana Legalization Efforts Send the Wrong Messages to Youth: They Support the View that Marijuana is Not Only Safe, But That It Is a "Medicine"

- ▶ Marijuana is a primary cause of substance abuse and dependence. Of Americans aged 12 and older suffering from substance abuse or substance dependence, 60.5% are suffering because of marijuana use -- more than any other drug and nearly as many as all other illegal drugs combined, including heroin, cocaine, methamphetamine and Ecstasy. (1)
- ▶ Early marijuana use is especially dangerous. Adults who first started using marijuana use at age 14 or younger are most likely to have abused or been dependent on illicit drugs in the past year. (2) Adults who first used marijuana at or before age 14 were six times more likely to meet the criteria for abuse or dependence than those who initiated marijuana use at age 18 or older (12.6% vs. 2.1%) and two times more likely than those who initiated marijuana use between the ages of 15 and 17 (12.6% vs. 6.6%).
- ▶ Currently, 16 states and the District of Columbia have legalized "medical marijuana." Based on available figures, advocacy of medical marijuana laws in these states has had dramatic effect on increasing youth use. For states with "medical marijuana," youth use rates tend to remain above the national averages following passage. (3)
- ▶ Youth who use marijuana are more likely to have higher rates of other illegal drug use.(4) This is most evident for heavy users. It is even more pronounced for adolescents than for adults.
- ▶ Early initiation of marijuana use reduces educational attainment of youth. (5)
- ▶ Students who smoke marijuana regularly are more likely to drop out of high school.(6) Students who smoked marijuana within the past year were more than twice as likely to have cut class as students who did not.(7) Health problems associated with using marijuana can keep students from attending school due to illness.
- ▶ Heavy marijuana use may damage developing brains in teens and young adults.(8) Research has also shown that the human brain goes through the most growth during the adolescent years. Marijuana can affect proper development of the brain, which could not only cause learning problems in high school, but also in the future.(9)
- ▶ Marijuana use is a major cause of highway crashes, injury and death.(10) A study in Maryland found that half of the seriously injured drivers aged 20 and younger tested positive for recent marijuana use.(11) Nearly one quarter (23.2%) of high school seniors reported that they drove or rode with a driver after he or she used marijuana in the past two weeks.(12)

Marijuana Use Negatively Impacts Mental Health

- ▶ Prevalence of depression and anxiety increases with higher rates of cannabis use.(13) This pattern has been shown clearest in young women who use cannabis daily. They had more than a fivefold increase in the odds of depression and anxiety compared to non-users. In addition, young people who use marijuana weekly have double the risk of depression later in life.
- ▶ Teens who smoke marijuana at least once a month are three times more likely to have suicidal thoughts than are non-users.(14)
- ▶ Using marijuana may increase the chance of psychosis.(15) Even infrequent marijuana use could raise the small but real risk of this mental illness by 40%. In an analysis of 35 studies of marijuana users, the risk for psychosis for heavy marijuana users (daily or weekly) was 50% to 200% higher than for nonusers.
- ▶ Heavy marijuana users are more likely to be diagnosed with schizophrenia later in life. (16)

Marijuana is Addictive

- ▶ In 2009, 1.1 million youth aged 12 to 17 needed treatment for an illicit drug problem; of this, only 115,000 (10.5%) received treatment at a specialty facility.(17) This is roughly equal to the 1.2 million youth aged 12 to 17 who needed treatment for an alcohol use problem in 2009.
- ▶ More teens are in treatment with a primary diagnosis of marijuana dependence than all other illicit drugs combined. (18)
- ▶ Frequent marijuana use results in high risk of dependence. Rates of cannabis dependence are estimated at 20% to 30% among those who have used at least five times, and even higher estimates (35%-40%) are reported among those who report near daily use. (19)
- ▶ The marijuana sold today is far more powerful than the marijuana used 30 years ago. From 1992 to 2006, there was a 175% jump in the potency of marijuana that was seized. (20)
- ▶ Heavy use of marijuana creates physical dependence, including tolerance and withdrawal.(21)
- ▶ Signs of marijuana withdrawal include anxiety, depressed mood, decreased appetite, irritability, restlessness, difficulty sleeping, stomach pain, aggression and anger. Withdrawal symptoms due to marijuana use run similar courses to withdrawal symptoms due to other drugs in terms of magnitude and duration.(22)

Smoked Marijuana is NOT "Medicine"

- ▶ Smoking marijuana causes changes in the brain that are similar to those caused by long-term use of cocaine and heroin. (23)
- ▶ Smoking is not a safe or sensible way to deliver a drug. There is no way to control dose. No medicine used anywhere in the world is prescribed by smoking because smoke is harmful to lungs.
- ▶ Marijuana is more harmful to lungs than tobacco.(24) Smoking one joint is as harmful to lungs as having up to 5 cigarettes in succession.(25) Marijuana smoke has ammonia levels that are 20 times higher than tobacco smoke. Marijuana contains hydrogen cyanide, nitric oxide and aromatic amines at 3-5 times higher than tobacco smoke.
- ▶ Marijuana smokers face faster deterioration of lungs – 20 years ahead of tobacco smokers. (26)
- ▶ The FDA does not approve of smoked marijuana as medicine.(27) Delta-9-tetrahydrocannabinol (THC) is approved by the FDA only in a synthetic, tested form called dronabinol ("Marinol") which is used to treat nausea in cancer and AIDS patients. It is not smoked crude marijuana. This medicine, approved by the FDA 20 years ago, can be prescribed by any licensed physician.
- ▶ Some marijuana is laced with cocaine, PCP and dangerous chemicals including formaldehyde. (28)

Provided by the Institute for Behavior and Health, Inc.: www.ibhinc.org.

More information on the negative effects of marijuana can be found at the following websites:

The Anti-Drug.Com: www.theantidrug.com

Drug Enforcement Administration: www.justice.gov/dea

National Institute on Drug Abuse: www.nida.nih.gov

The White House Office of National Drug Control Policy: www.whitehousedrugpolicy.gov

Author Information

For more than 30 years, Robert L. DuPont, M.D. has been a leader in drug abuse prevention and treatment. Among his many contributions to the field is his leadership as the first Director of the National Institute on Drug Abuse (1973-1978) and as the second White House Drug Chief (1973-1978). From 1968 to 1970 he was Director of Community Services, for the District of Columbia Department of Corrections, heading parole

and half-way house services. From 1970 to 1973, he served as Administrator of the District of Columbia Narcotics Treatment Administration (NTA), the city-wide drug abuse treatment program that was the model for the federal government's massive commitment to drug abuse treatment in the early 1970s. Following this distinguished public career, in 1978 Dr. DuPont became the founding president of the Institute for Behavior and Health, Inc.

Dr. DuPont has written for publication more than three hundred professional articles and fifteen books and monographs on a variety of health-related subjects. His books include *Getting Tough on Gateway Drugs: A Guide for the Family*, *A Bridge to Recovery: An Introduction to Twelve-Step Programs* and *The Selfish Brain: Learning from Addiction*. In 2005, Hazelden, the nation's leading publisher of books on addiction and recovery, published three books on drug testing by Dr. DuPont: *Drug Testing in Drug Abuse Treatment*, *Drug Testing in Schools*, and *Drug Testing in the Criminal Justice System*.

Throughout his decades of work in addiction prevention, Dr. DuPont has served in many capacities. His activities in the American Society of Addiction Medicine (ASAM) include chairing the forensic science committee and he is a Life Fellow. He is also a Life Fellow of the American Psychiatric Association (APA) and was chairman of the Drug Dependence Section of the World Psychiatric Association (WPA) from 1974 to 1979. In 1989 he became a founding member of the Medical Review Officer Committee of ASAM.

A graduate of Emory University, Dr. DuPont received an M.D. degree in 1963 from the Harvard Medical School. He completed his psychiatric training at Harvard and the National Institutes of Health in Bethesda, Maryland. Dr. DuPont maintains an active practice of psychiatry specializing in addiction and the anxiety disorders and has been Clinical Professor of Psychiatry at the Georgetown University School of Medicine since 1980. He is vice president of Bensinger, DuPont and Associates (BDA), a leading national consulting firm dealing with substance abuse, founded in 1982 by Dr. DuPont and Peter Bensinger, former Director of the Drug Enforcement Administration.

Dr. DuPont's signature role throughout his career has been to focus on the public health goal of reducing the use of illegal drugs.

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