The Acceptance of Medicinal Marijuana in the U.S.

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ABSTRACT. Medical use of cannabis has become increasingly widespread due to state laws sanctioning its use. The extent of use was estimated by surveying official patient registries, private patients' groups, and physicians specializing in cannabis medicine. As of May, 2002, five states with official registration programs reported a total of over 3,400 patients, ranging from a high of 79 patients per 100,000 population in Oregon to a low of 3 per 100,000 in Colorado. California, which lacks a statewide registration system, has the highest concentration of patients, estimated at 30,000 (89 per 100,000). The rate of usage varies widely between different regions. Some 1% of the population in Mendocino County, California, are legal cannabis patients, while Canadian surveys suggest illegal usage as high as 2%-4%. As many as 5% of registered physicians have recommended marijuana in Oregon. The widespread acceptance of medical cannabis by physicians and patients suggest that marijuana's current Schedule I classification is obsolete.

KEYWORDS. Cannabis, medical marijuana, epidemiology

Cannabis has become increasingly accepted in medical use in the U.S. pursuant to state laws legalizing its use. These are currently operative in

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eight states: California, Oregon, Washington, Alaska, Nevada, Maine, Colorado and Hawaii. The population of legal medical cannabis patients and their physicians can be estimated from information supplied by state and local patient registration programs and by patients' groups. The following report is based on a telephone survey of such groups conducted by the author in April and May 2002 for California NORML (National Organization for the Reform of Marijuana Laws), one of the original sponsors of California's medical marijuana law, Proposition 215. The results show that medical marijuana is now used legally under state (though not federal) law by tens of thousands of patients and recommended by thousands of licensed physicians. The extent of known usage varies widely among different localities, suggesting considerable potential for further expansion in areas where it is now relatively underutilized.

The question of whether marijuana has "accepted medical use" is relevant to its legal status under federal law. Under the Controlled Substances Act, marijuana is presently classified as a Schedule I drug, which cannot be legally prescribed for medical use. Schedule I is defined to include drugs with "a high potential for abuse" and "no currently accepted medical use in the United States" (21 U.S.C. Section 812(b)(1)). Drugs that do have "accepted medical use" are classified in Schedule II or below and can be legally prescribed. In 1991 the Drug Enforcement Administration rejected a rescheduling petition by the Alliance for Cannabis Therapeutics and NORML, in which it was argued that marijuana did have accepted medical use. The DEA overturned the findings of its own administrative law judge, Francis Young, who, based on hearings from medical experts, had determined that marijuana did in fact have "accepted medical use." In overruling Judge Young, the DEA adopted new regulations re-defining "accepted use" to require "adequate and well-controlled studies of efficacy." The DEA's decision was upheld by the U.S. Court of Appeals on the grounds that the agency had a "reasonable basis" to exercise its regulatory powers in this fashion. Since that time, the medical use of marijuana has greatly expanded following its recognition under state law, beginning in California in November, 1996. A reconsideration of its scheduling status would therefore seem to be in order, though it remains to be seen whether the DEA's regulations will be bent to acknowledge the broader, public acceptance of medical marijuana use in the United States.

The most precise data on medical cannabis usage come from those states that have a mandatory patient registration system, namely Oregon, Alaska, Nevada, Colorado, and Hawaii. In these states, patients who register are protected from criminal laws against possession and cultivation of small amounts of marijuana. In order to register, patients must obtain a

valid recommendation from a licensed physician for a condition covered under the law. Typically, the latter include cancer, AIDS, glaucoma, and diseases involving muscle spasticity or chronic pain.

Although the law presents a strong incentive for patients to register, not all choose to do so. Many are mistrustful of revealing their names to the government out of fear that they will be targeted by local law enforcement or investigated by federal officials. An even greater obstacle to patients' registration can be the difficulty of obtaining a physician's recommendation. Many patients who find marijuana helpful for otherwise intractable complaints report that their physicians are fearful of recommending it, either because of ignorance about medicinal cannabis, or because they fear federal punishment or other sanctions. This is especially true in regions where the use of marijuana is less familiar and accepted.

As shown in Table 1, the rate of registration in medical marijuana programs ranges by over an order of magnitude among different states, from a low of 3.2 per 100,000 in Colorado to 79 in Oregon. Oregon has the most active patients' support network of these states, with a half dozen organizations devoted to helping patients meet registration requirements, teaching them to use and cultivate medical marijuana, or sharing or providing medicine.

The patient population is harder to gauge in states without an official registration system. The most important example is California, the first state to legalize medical marijuana, which has the largest patient population in the nation. California also has the most liberal law, being the only one to allow recommendations for any serious medical condition for which marijuana provides relief. In particular, these include psychiatric problems (e.g. post-traumatic stress disorder, bipolar disorder, attention deficit disorder and substance abuse problems), which are not covered by

TABLE 1. States with Mandatory Patient Registration

	# Patients Registered (May 2002)	# MDs	# Patient Groups	Patients/ 100,000 pop.	Year Program Started
Oregon	2695	> 434	6	79	1999
Alaska	170			27.1	1999
Colorado	138	106	0	3.2	Mar. 2001
Nevada	161	88	0	8.1	Oct. 2001
Hawaii	~300		2	~25	Jan. 2001

other state laws. The California patient population can be roughly estimated from two sources: (1) registration in voluntary patient ID card programs operating in certain localities, and (2) enrollment in various known patients' groups that maintain their own separate membership lists. The problem is considerably complicated by the fact that many patients belong to multiple ID programs or patient groups while many others belong to none at all.

Table 2 summarizes the patient registration programs that were active in California as of May 2002. By far the largest in the state is the Oakland Cannabis Buyers' Cooperative (OCBC) card program. OCBC cards are officially recognized by the city of Oakland as well as by many patients' clubs and dispensaries throughout the state. The OCBC has validated and enrolled some 15,800 patient members since its inception in 1997. Some 6,000 are current members, meaning that they have enrolled or renewed in the past 12 months. The remainder have moved on to other groups, dropped out of the scene to grow by themselves, or ceased using. The OCBC accepts members from around the state, though the great majority are from the greater San Francisco Bay Area.

The next biggest patient identification program is that of the San Francisco Health Department. Unlike the OCBC, San Francisco accepts patients only from San Francisco and four neighboring counties. There are currently some 3,300 registrants in the San Francisco program, 1 in 8 of whom are caregivers, the rest patients. The San Francisco program is rela-

TABLE 2. California Voluntary Patient Registration Programs

	# Patients	# Physicians	Patients per 100,000	Service Area
Oakland CBC	15,800 total/ 6,000 current	1,150	47 (statewide)	Statewide–esp. Bay Area, N. Cal.
S.F. Health Dept.	2,900	75	75	S.F., Sonoma, Marin, San Mateo, Santa Clara counties
Humboldt Co.	232		184	Humboldt only
Sonoma Med. Assoc.	253		55	Sonoma Co. only
Marin Co.	91		37	Marin only
Mendocino Co.	1,030 (patients and caregivers)		1,193	Mendocino only

tively new, dating from 2000, and overlaps with territory served by the OCBC. Many patients are registered in both programs.

There are several other county registration programs that serve only patients who are resident in the county. All are in Northern California counties that are relatively sympathetic to marijuana. (A new registration program was recently enacted in San Diego, but was not yet in operation at the time of this survey.) Mendocino County, a rural county in the heart of California's marijuana-growing "Emerald Triangle" district, has by far the highest known concentration of registered medical marijuana patients, over 1% of the entire population. Humboldt County, a neighboring Emerald Triangle county, ranks a distant second at 0.2%. The Mendocino program enjoys a higher degree of trust from local patients because it is run by a Sheriff who has been openly supportive of marijuana reform. The Humboldt County program, though run by the Health department, is not as popular, as patients remain deeply distrustful of local law enforcement. Marin County has an identification card program, but it has been plagued by mistrust from the patient community and has especially low participation. (The Marin program was substantially revised in June 2002 to accommodate patients' concerns.) Sonoma County has a unique medical peer review program run by the Sonoma Medical Association. Unlike other programs, the Sonoma program does not offer identification cards to protect patients from arrest. Instead, it validates patients' recommendations based on a peer review of their medical records. The Sonoma program appeals specifically to a minority of local patients who have concerns about obtaining a valid physician's recommendation.

Only a portion of California's legal patient population is counted in local registration programs. Many patients have no official identification card but belong to private clubs or patients' groups that have their own separate enrollment procedures and membership lists. Others simply grow for themselves. California NORML identified 55 patient groups that were active in California as of May 1, 2002. They ranged from purely educational self-help groups to patient cultivation collectives to proprietary dispensaries offering medicine for sale to qualified patients. Slightly more than half of the groups actually dispensed medicine to patients.

Southern California has a notable lack of medical marijuana organizations even though it has two-thirds of the state's population. Only a half-dozen patient groups are presently active there. Since the closure of the Los Angeles Cannabis Research Center (LACRC) by a DEA raid in October, 2001, there remain only two small dispensaries in Southern California serving a couple hundred patients. When the LACRC was operating, it had 960 active members and a total enrollment of 1,300, but it had to

routinely reject many applicants due to lack of capacity. Another club in San Diego with some 400 to 700 enrollees was closed by the police in 2000. The political climate in Southern California has been generally adverse to the formation of active patients' groups.

The San Francisco Bay Area has a heavy concentration of medical marijuana groups. There are a dozen dispensaries in San Francisco alone, plus another dozen in neighboring cities such as Berkeley and Oakland. Most rely on San Francisco or OCBC cards and do not maintain separate membership lists of their own. There are also scattered patients' groups and dispensaries serving outlying, rural areas in Northern California. Patients outside the Bay Area commonly complain about the lack of convenient access to medicine.

Table 3 summarizes the major known patients' groups in California. Included are the number of registered patients reported by groups that enroll members themselves. In order to minimize double-counting, Table 3 excludes the membership figures for clubs that rely on identification cards provided by outside agencies such as OCBC or S.F., since their numbers are included in Table 2 above. A large but unknown number of patients are enrolled in more than one group or program, so there remains considerable overlap in the memberships of different groups. Because a few groups declined to disclose their patient population, the information in Table 3 is incomplete, but may nonetheless serve as a rough gauge of the patient population.

Combining Tables 2 and 3, we see that the gross total of patients reported by local identification programs and private patient groups in California is on the order of 25,000 to 35,000 or more. Of course, a great many of these are duplicates, while an unknown number of other patients are not counted in either table. Overall, an estimate of 30,000 appears reasonable, a figure which is consistent with the number of known physician recommendations, as we shall see below. This works out to 89 patients per 100,000 population. This is a bit higher than the rate in Oregon, perhaps reflecting the fact that the Oregon program is more restrictive.

A striking disparity emerges if we consider California as two states. Over 90% of all the patients in Tables 2 and 3 are registered in Northern California. It should be noted that this group does include a few Southern California patients who have traveled north to register. Interviews with physicians and patients' groups suggest that some 20% of patients may be from Southern California. If we estimate that some 25,000 patients reside in Northern California and 5,000 more in the South, we find a rate of 200 patients per 100,000 population in the North versus only 23 per 100,000 in the South. This regional variation is similar to that between different states

TABLE 3. California Patients Groups by Region

	# Groups	#Patients Enrolled
San Francisco Bay Area		
San Francisco	**13**	**> 3,000**
Oakland/E. Bay	**12**	**> 1,800**
Santa Cruz/South	**3**	**> 280**
Sonoma/Marin	**6**	**~ 900**
North State		
Coastal (Humb./Men.)	**7**	**> 1,500**
(not inc. Humboldt MCC closed 2001:		*1,500 enrolled/400 active)*
N. Valley and Sierras	**7**	**> 950**
(not inc. El Dorado clinic closed 2001		*> 6,000 intakes*
not inc. Sacramento center closed 2001		*1,000-1,500 enrolled/ 200 active)*
South State		
Los Angeles	**3**	**~ 400**
(not inc. LA Cannabis Resource Center closed by DEA raid 10/25/01:		*1,682 enrolled/960 active):*
San Diego	**1**	
(not inc. Cal Alt Med Center: closed April 2000		*700 enrolled/300-400 active)*
Other S. Cal.	**3**	

and appears to reflect differences in patient and physician education, organization, and local politics and culture.

Like California, Washington state and Maine lack official registration systems (Table 4). Washington has a couple of patient groups. The leading one reports that it has seen over 2,200 patients and dealt with over 440 physicians since its founding in 1997. However, not all are necessarily current, legally qualified residents. A more detailed estimate by Martin Martinez, an informed expert on medical cannabis in Washington, puts the number of *current* medical marijuana users *known to patients' groups* at 1,900+ (Martinez 2002). He estimates that only 600+ of these are fully compliant with state law, while the remainder are "qualifiable" but lack valid recommendations. This does not include a large number of patients unaffiliated with any group. In this connection, Martinez notes that 2/3 of all medical marijuana arrests and police incidents involve patients unknown to any group. He also says that one particular medical institution

TABLE 4. States Without Mandatory Registration

	Est. # Patients	# MDs	#Patient Groups	Patients/ 100,000 Pop.	Year Program Started
California	30,000		55	89	Nov. 1996
(N. Cal.)	25,000	1,150+	48	200	
(S. Cal.)	5,000	382+	7	23	
Washington	2,300+	250-440	2	39	1999
Maine	---	---	none	---	2000
British Columbia, Canada	1,750-2,000	~700-1,000	3	45-51	

has signed more than 1,000 recommendations, 400 more than the 600+ valid patients attributed to groups. On this basis, it seems reasonable to estimate that there are at least 2,300 patients using medical marijuana in Washington, not all of them in strict accordance with state law. Martinez estimates the total number of qualified recommending physicians (excluding naturopaths, chiropractors, nurses, etc.) at 250+.

In Maine, there are no known patient groups and no good way to estimate the patient or physician population.

Canada presents a similar situation with regards to medical cannabis. Although Canada has a different legal and medical system from the U.S., its cultural and geographical proximity militate for similar patterns of cannabis use. Although there are no provincial laws regarding medical cannabis, the national government has been constrained to recognize its use under a court decision. Like the U.S. West Coast, the western province of British Columbia has been on the forefront of medical marijuana in Canada. Canada's largest patients' group is the Vancouver Compassionate Use Society, which has been in operation for five years and has registered some 1,800 patients, mostly from British Columbia but also other provinces and the U.S. A number of smaller "compassion clubs" are in operation elsewhere in B.C. and Canada.

Pursuant to the court decision, the Canadian government has moved to establish a national medical marijuana program. In May, 1999, the government established a registration program whereby selected patients could be exempted from marijuana laws. The regulations were revised and made more restrictive in July 2001. Health Canada reports that as of April 2002, 657 exemptees had been registered under the old regulations

and another 205 under the new regulations. Participation has been limited by the fact that the current regulations are quite restrictive (e.g., requiring multiple physicians' notes in most cases). In addition, the incentives for registering are less compelling insofar as criminal enforcement of marijuana law is weaker in Canada than the U.S. As a result, patient groups report that the overwhelming majority of their clients remain outside the system.

Canadian surveys indicate a surprisingly high potential demand for medical marijuana. A poll by Toronto's Centre for Addiction and Mental Health found that 2% of Ontario adults reported using marijuana for medicine (Ogborne 2000). A more recent poll by Health Canada found that fully 4% of the population over age 15 used cannabis for medical purposes without government permission (Ottawa Citizen 2002). Extrapolated to the U.S. population, these figures would imply a potential user population of 4 to 8 million.

It is interesting to compare the current rate of medical cannabis usage to that in the historical legal market pre-1937. Though data from this period are generally lacking, there happens to exist a report on U.S. production of medical cannabis in 1918 by W.W. Stockberger of the U.S. Department of Agriculture (Stockberger 1919). Although the U.S. had relied on foreign imports of *Cannabis indica* up to World War I, a domestic industry developed in response to the disruption of supplies caused by the war. By 1918, the annual U.S. production of pharmaceutical cannabis had reached 59,650 pounds. Assuming a low average potency of 1%, this works out to enough to supply 74,000 patients with a daily oral dose of 10 mg (equivalent to two medium-strength oral THC dronabinol capsules)! Of course, it is by no means clear what proportion of patients used cannabis on a daily basis. The early twentieth century was an era of fading interest in cannabis medicine, and its most common patent medicine indications were for coughs and corns. If, as seems likely, cannabis was most commonly used on an occasional basis, the number of actual users could have easily exceeded 100,000. On a per capita basis, this would be 100 in 100,000 Americans, higher than in any state that currently recognizes medical marijuana.

PHYSICIAN ACCEPTANCE

A growing number of physicians are recommending marijuana for their patients under the terms of state laws, despite the fact that many have been deterred by fears of reprisals from federal drug authorities. Because fed-

eral law specifically bars doctors from "prescribing" marijuana, state laws provide that they issue a "recommendation" or "approval" for patients' medical marijuana use. After California's medical marijuana law was passed, the federal government threatened to punish doctors for recommending marijuana, but the U.S. District Court in Northern California issued an injunction protecting doctors' right to do so on First Amendment grounds of freedom of speech (*Conant v. McCaffrey*). Despite this decision (which is currently in appeal), many physicians and professional medical societies remain nervous about recommending marijuana.

Two states, Colorado and Nevada, provided data on the number of different physicians recommending marijuana (Table 1). In both, the number of patients per physician was less than two, implying that few physicians have extensive experience with medical marijuana. Similar results were reported by the British Columbia Compassionate Use Society, which estimates some 700 to 1,000 physicians for its 1,800 patients. It thus appears that most of these patients are obtaining recommendations through their regular personal physicians.

The situation is considerably different in California, where a number of physicians have taken up the practice of specializing in medical cannabis. Eleven leading specialists were interviewed by the author, all but two of them from Northern California. Altogether, they reported a clientele totaling over 31,900 patients. This figure includes duplicates since many patients see more than one physician. Also included are "inactive" patients who have gone more than 12 months without an examination. The number of cannabis specialists has been growing in the last couple of years with expanding awareness of the medical benefits of cannabis in the medical community. However, many patients still complain of a lack of physicians willing to recommend cannabis even for severe, intractable conditions, especially in the southern part of the state.

Aside from specialists, the OCBC reports that over 1,132 California physicians have provided recommendations, mostly from the Bay Area. In Southern California, the Los Angeles Cannabis Resource Center reports 382 different doctors in its files of 1,682 applicants. From this it can be reasonably estimated that there are over 1,500 physicians recommending marijuana in California, or nearly 2% of the state's resident licensed physicians. This works out to a ratio of 20 patients per physician, higher than other states due to the widespread availability of medical cannabis specialists.

In Oregon, 434 different doctors had written recommendations for medical marijuana as of February 19, 2002 (Colburn 2002). More than 40% of the state's patient population was accounted for by a single spe-

cialist, Dr. Philip Leveque, who had written over 1,000 recommendations. Dr. Leveque was subsequently sanctioned with a license suspension for unprofessional conduct (Kramer 2002, Christie 2002). Despite this, Oregon has the highest known rate of physician recommendations for medical cannabis, amounting to 5% of the state's licensed physicians. The rate in Northern California is probably similar, ignoring the southern state. Washington appears to have a comparably high rate of participation, based on the 440 physicians reported by the Green Cross patients' group in Seattle.

REPORTED USES

The popularity of medical marijuana is to a large extent due to the versatility of its use. Major indications cover a panoply of conditions, including: (1) appetite loss and nausea due to cancer chemotherapy, HIV, hepatitis, etc.; (2) muscle spasticity and seizure disorders from multiple sclerosis, spinal trauma, epilepsy, etc.; (3) chronic pain from neuralgia, migraines, arthritis, injuries, and innumerable other disorders; (4) glaucoma; (5) mood disorders, including depression, post-traumatic stress disorder, bipolar disorder, and attention deficit disorder, and (6) as a "harm reduction" substitute for more dangerous drugs, especially opiates and alcohol.

In examinations of 2,480 California patients, Dr. Tod Mikuriya recorded over 250 distinct ICD-9 indications, all of them for chronic conditions resisting conventional pharmacotherapy (Gieringer 2002). The largest category (46%) used cannabis for analgesia, 27% for mood disorders, 9% for spasms and convulsions, 5% for harm reduction/substitution, and 5% for nausea and cachexia. Because Dr. Mikuriya is a psychiatrist, his practice tends to include more mental disorders and fewer acute physical illnesses such as cancer and AIDS.

Other patient surveys show heavy use for chronic pain. A survey of 965 OCBC patients by Jerry Mandel found 36% with chronic pain and spasticity, 29% with HIV, 15% with mood disorders, and 6% with cancer (Gieringer 2002). The Colorado patient registry reports 57% with chronic pain, 35% with muscle spasms, 23% nausea, and 11% HIV/AIDS (Colorado Medical Marijuana Registry Program Update, April 29, 2002). The British Columbia Compassionate Use Society reports HIV, followed by chronic pain, hepatitis, cancer, and harm reduction patients.

Medical marijuana has been used to relieve a wide variety of rare and obscure diseases with no known effective treatment, among them

nail-patella syndrome, eosinophilia-myalgia syndrome, pseudo-pseudo hyperparathyroidism, Henoch-Schoenlein purpura, osteochondrosis, Meniere's disease, Tietze's disease, patellar chondromalacia, etc. (Gieringer 2002).

Marijuana is also widely used for a number of everyday complaints that are not typically classified as "serious," including insomnia, lower back pain, anxiety, pre-menstrual syndrome, and occasional nausea and pains. While a certain number of patients with these conditions are included in state medical marijuana programs, the great majority are not because they do not meet the standard of "serious illness" necessary to qualify under the law.

CONCLUSION

By any reasonable definition, marijuana has "currently accepted medical use in treatment in the United States." Eight states have officially legalized its medical use. A minimum of 35,000 patients are currently using medical marijuana in accordance with state law in the U.S. Over 2,500 different physicians have recommended it for use by their patients. As many as 5% of all registered physicians have recommended marijuana in Oregon and Northern California. Usage rates vary greatly among different regions. The average usage rate in the general population ranges from 80 to 90 per 100,000 in California and Oregon, where there are numerous patient support groups, to fewer than 10 per 100,000 in Colorado and Nevada, where cannabis medical practice is still underdeveloped. As many as 1% of the population in Mendocino County, California, are legal medical marijuana users, while Canadian surveys suggest illegal medical usage as high as 2%-4% in the general population.

The widespread and growing popularity of medical marijuana and its potential for treating a wide range of conditions indicate a growing role in American medicine. These facts refute marijuana's current Schedule I misclassification as a drug lacking "currently accepted medical use."

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