

Medicinal Cannabis: A Survey Among Health Care Providers in Washington State

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Abstract

Introduction: Washington State allows marijuana use for medical (since 1998) and recreational (since 2012) purposes. The benefits of medicinal cannabis (MC) can be maximized if clinicians educate patients about dosing, routes of administration, side effects, and plant composition. However, little is known about clinicians' knowledge and practices in Washington State. **Methods:** An anonymous online survey assessed providers' MC knowledge, beliefs, clinical practices, and training needs. The survey was disseminated through health care providers' professional organizations in Washington State. Descriptive analysis compared providers who had and had not authorized MC for patients. Survey results informed the approach and content of an online training on best clinical practices of MC. **Results:** Four hundred ninety-four health care providers responded to the survey. Approximately two-third were women, aged 30 to 60 years, and working in family or internal medicine. More than half of the respondents were legally allowed to write MC authorizations per Washington State law, and 27% of those had issued written MC authorizations. Overall, respondents reported low knowledge and comfort level related to recommending MC. Respondents rated MC knowledge as important and supported inclusion of MC training in medical/health provider curriculum. Most Washington State providers have not received education on scientific basis of MC or training on best clinical practices of MC. Clinicians who had issued MC authorizations were more likely to have received MC training than those who had not issued MC authorization. **Discussion:** The potential of MCs to benefit some patients is hindered by the lack of comfort of clinicians to recommend it. Training opportunities are badly needed to address these issues.

Keywords

medicinal cannabis, medical marijuana, medical education, chronic pain, palliative care

Introduction

Chronic pain is an emerging public health challenge aggravated by an aging US population. The Institute of Medicine reports that 100 million Americans have chronic pain conditions.¹ A subset of this population is afflicted by intractable pain, which is often inadequately managed with available opiates, antidepressants, and anticonvulsant drugs.^{2,3} Opiate-based medications have been associated with a sizable number of deaths in the United States and particularly in the state of Washington.⁴ Meanwhile, there is a growing body of evidence demonstrating the efficacy of cannabis in treating neuropathic pain, muscle spasms, cancer pain, and fibromyalgia, among other pain-associated conditions.⁵⁻⁷ Cannabis and its active ingredients, cannabinoids, may be a safer therapeutic option⁴ with potential to benefit many patients.⁸

In 1998, Washington State voters approved the medical use of cannabis for various conditions "unrelieved by standard treatments or medications."⁹ These conditions include intractable pain, multiple sclerosis, and spasticity disorders; diseases that result in cramping, seizures, muscle spasms, spasticity, nausea, vomiting, wasting, and appetite loss; chronic renal failure; cancer; HIV; epilepsy or other seizure disorder; glaucoma; and Crohn disease.

The law⁹ also specifies the types of clinicians allowed to write a medicinal cannabis (MC) recommendation (also referred as MC authorization): medical doctors (MDs), physician assistants (PAs), osteopathic physicians (DOs), osteopathic physician assistants (OAs), naturopathic physicians (NDs), and advanced registered nurse practitioners (ARNPs).

Currently, MC and the endocannabinoid system are rarely if ever part of health care providers' graduate or postgraduate training, and Continuing Medical Education (CME) opportunities exist but are scarce. Thus, health care providers may be reluctant to discuss cannabis use with their patients, due to lack of knowledge and training,¹⁰ uncertainty about legal issues,¹¹ and concern about abuse or dependence.^{11,12} Likewise, patients

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may be hesitant to ask their health care providers about safe and effective cannabis use for medicinal purposes. Although some research have been conducted to characterize MC patients in Washington State,¹³ no study to date has addressed health care providers' knowledge, beliefs, and practices.

In 2013, the Washington Attorney General's Office awarded our team a grant to develop and deliver a comprehensive training program for Washington State health care providers regarding the scientific basis, clinical implications, and legal ramifications for using MC to treat/manage chronic pain.

The present article reports the results of an online survey conducted among Washington State clinicians in 2014. It assessed Washington State clinicians' knowledge, beliefs, clinical practices, and training needs as it relates to MC. To the best of our knowledge, this is the only MC survey conducted in a state after approval of cannabis use for recreational purposes (Initiative-502, in 2012).

Survey results presented in this article informed the approach and content of an online training that offers 2.0 AMA PRA Category 1 Credits for health care providers. The training, available at <http://adai.uw.edu/mcacp/>, has 2 modules: the first module is a basic primer on the mechanism of action of MC, its medical uses, and Washington State law. The second module focuses on the best clinical practices associated with the recommendation of MC for the management of chronic pain. The training also provides tools that health care providers can use in their discussion with patients about the use of MC in the treatment of chronic pain.

Methods

This study was reviewed and approved by the University of Washington Institutional Review Board.

Instrument

We utilized a 47-item questionnaire based on instruments developed in 2 similar studies,^{11,12} adapted to Washington State-specific needs. It assessed clinicians' knowledge, beliefs, clinical practices, and training needs as it relates to MC and responders demographics. Specifically, respondents were asked to rate their knowledge of the endocannabinoid system and of cannabinoid-based medications and the importance of understanding each of these areas on a 10-point slider scale. They were then asked to identify their sources of information about MC from a list of 10 options, including an opportunity to write in an "other" source.

To indicate opinions and beliefs, respondents indicated the extent to which they agreed with the following statements on a 5-point scale from "strongly disagree" to "strongly agree": (1) "clinicians should be able to prescribe cannabis as medical therapy without fear of legal action," (2) "the Food and Drug Administration (FDA) should reclassify cannabis so it is no longer a schedule I drug," (3) "cannabis can be addictive," (4) "using MC can result in serious physical health risks, even when used as directed," (5) "using MC can result in serious mental health risks, even when used as directed," (6) "there are

Table 1. Providers Who are Eligible to Authorize MC and Most Frequent Health Conditions Reported.^a

Providers eligible to write MC authorizations (N = 282 ^b)	
Have not written an MC authorization	204 (72.0)
Have written an MC authorization	76 (27.0)
Did not respond	2 (1.0)
MC authorizations per health condition (n = 76, more than 1 condition allowed)	
Intractable pain	58 (76.3)
Cancer	44 (57.9)
Multiple sclerosis	31 (40.8)
Anorexia	31 (40.8)
Fibromyalgia	24 (31.6)
Crohn disease	24 (31.6)
HIV/AIDS	22 (28.9)
Spasticity disorder	22 (28.9)
Hepatitis C	20 (26.3)
Osteoarthritis	19 (25.0)
Epilepsy or other seizure disorder	19 (25.0)
Glaucoma	17 (22.4)
Insomnia	14 (18.4)
Anxiety	14 (18.4)
ALS	9 (11.8)
Depression	9 (11.8)
Cerebral Palsy	6 (7.9)
Other	13 (17.1)

Abbreviations: ALS, amyotrophic lateral sclerosis; MC, medicinal cannabis.

^aValues are presented as n (%).

^bExcluded 212 survey participants who are not allowed to write an MC authorization.

significant physical health benefits to using MC when used as recommended by a health care professional," (7) "there are significant mental health benefits to using MC when used as recommended by a health care professional," (8) "MC helps people who have chronic debilitating medical conditions," (9) "CME about MC should be available to clinicians," (10) "training about MC should be incorporated into undergraduate/graduate training," and (11) "clinicians should have formal training about MC prior to recommending." They were then asked to indicate what they felt were the main limitations of MC from a list of 12 options (check all that apply), with an option to write in an "other" response.

Practice questions included whether or not their practice has a policy prohibiting authorizing MC and whether they had recommended MC, either verbally or in writing, and if so, for which conditions (see Table 1 for a list of conditions). Finally, respondents were asked to rate their comfort level recommending MC, either verbally or in writing, on a 4-point scale from "not comfortable at all" to "very comfortable." Demographic information included age, gender, counties in which they practice, type of health care professional (eg, MD, ARNP, etc), and specialty.

Study Participants

Participants were practicing health care professionals in Washington State, including MDs, PAs, DOs, OAs, NDs, ARNPs, registered nurses (RNs), licensed nurses (LNP), and pharmacists.

Survey responses from those who indicated not being a health care professional or not practicing in the state of Washington were excluded. Only actively submitted responses (ie, participant clicked the “submit” button) were considered valid.

Data Collection

Study data were collected and managed using Research Electronic Data Capture (REDCap) hosted at The Institute for Translational Health at the University of Washington. The REDCap is a secure, Web-based application designed to support data capture for research studies.¹⁴ Data were collected between March 1, 2014, and May 30, 2014.

Recruitment

Recruitment was done via professional organizations and social media. Twenty-five Washington State-based professional associations and health care organizations were contacted with a request to disseminate the survey announcement via newsletters, Web site, or directly to members via e-mail lists (Listservs). Twelve agreed to disseminate the survey, and 8 of them sent the announcement to their Listservs. It is possible that other organizations contacted also disseminated the survey, since only 1 actively refused to share the survey with its members. Appendix A has a list of the organizations contacted.

We also disseminated the online survey via numerous Web sites and blogs managed by the University of Washington Alcohol and Drug Abuse Institute Library (ADAI). The Health Evidence Resource for Washington State (HEAL-WA) also posted the survey link in its Facebook account and Web site. We purposely avoided disseminating the survey through community or professional organizations that focused on MC, either in favor or opposed to its use.

Analysis

Descriptive statistics were used to summarize results of respondents, divided into 3 categories of health care providers: (1) eligible to write MC authorizations and reported having done so, (2) eligible to write MC authorizations and reported never doing so, and (3) not eligible to write an MC authorization. In order to assess differences in sample characteristics between groups of health care providers, χ^2 tests were performed for categorical variables, and *t* tests were performed to compare continuous variables.

Results

A total of 494 respondents submitted the survey and reported being a health care provider in practice in Washington State. The majority of the 494 respondents were clinicians between the ages of 30 and 60 years (69.1%) and women (68.7%) with specialties in family (54%) or internal medicine (14%). More than half of the respondents (57%) were clinicians legally allowed to write MC authorizations per WA law. They included 132 ARNPs, 73 NPs, 53 MDs, 21 PAs,

Table 2. Clinical Practices, Comfort Level, and Organization Policy Reported by 274^a Clinicians Authorized to Issue Written MC Recommendations in Washington State, 2014.

	Have written an authorization (N = 76), %	Have not written an authorization (N = 198), %	χ^2
Made verbal suggestion to patients to use MC	68.0	29.6	34.8 ^b
Comfortable recommending or suggesting MC ^c	66.0	6.5	132.3 ^b
Work policy prohibits MC authorization	6.6	21.6	37.3 ^b

Abbreviation: MC, medicinal cannabis.
^aEight providers did not respond these questions and are not included here.
^b*P* < .001.
^c“Comfortable” or “Very comfortable.”

and 3 OPs. Respondents not legally allowed to write MC authorizations were mostly pharmacists (n = 118) and RNs or LNPs (n = 72).

Clinical Practices, Comfort Level, and Organization Policy of MC

Clinical practices were assessed among providers allowed to write MC authorizations in Washington State. About a quarter (27%) reported having issued written MC authorizations (Table 2). About three-fourth of the authorizations were for patients having intractable pain, followed by cancer, multiple sclerosis, anorexia, fibromyalgia, and Crohn disease (Table 2).

Clinical practices were highly correlated with the degree of comfort with issuing an MC authorization—66% of clinicians who had written authorizations said they felt comfortable/very comfortable doing so, whereas the same was reported by only 6.5% of providers who had never issued an MC authorization (Table 1). When respondents not comfortable recommending MC were asked what would increase their level of comfort, the most frequent responses were “education programs for health care providers,” “more clinical data,” “more research proving effectiveness,” “algorithms for recommending MC,” “endorsed clinical guidelines,” and “change in cannabis federal legal status.”

Clinicians who have never written an MC authorization were more likely to work in organizations that prohibited them to do so (21.6% vs 6.6%; Table 1) and less likely to have made a verbal suggestion to their patients to consider MC when compared with providers who had written an MC authorization (29.6% vs 68%).

Knowledge Level, Perceived Importance, and Training

Respondents rated their knowledge and perceived importance in 2 areas: knowledge about the endocannabinoid system and

Table 3. Self-Reported Knowledge About MC Among Health Care Providers in WA—Level and Perceived Importance.^{a,b}

	Eligible to authorize MC			Total (N = 436)
	Written authorizations (n = 67)	Not written authorizations (n = 180)	Not eligible to authorize MC (n = 189)	
Knowledge level—rating 1 (none) to 10 (high)				
Endocannabinoid system	4.7 (2.4)	3.1 (2.3)	3.6(2.6)	3.6 (2.5)
FDA-approved cannabinoid medications	4.6 (2.8)	3.0 (2.5)	5.0 (2.9)	4.1 (2.9)
Perceived importance of knowledge—rating 1 (not at all) to 10 (very important)				
Endocannabinoid system	8.0 (2.1)	7.2 (2.3)	7.4 (2.2)	7.4 (2.2)
FDA-approved cannabinoid medications	6.7 (2.4)	6.7 (2.6)	7.4 (2.1)	7.0 (2.4)

Abbreviation: MC, medicinal cannabis; WA, Washington State.

^aFifty-eight of the 494 survey participants did not respond to these questions (9 providers who authorized MC, 26 providers who have not authorized MC or did not respond to this question, and 23 who are not allowed to authorize MC).

^bValues are presented as mean (standard deviation).

Table 4. Sources of Information and Opinions About MC Training Among Health Care Providers in WA State, 2014.^a

	Eligible to authorize			Total, N = 484
	Has authorized, N = 75	Has not authorized, N = 201	Not eligible to authorize, N = 208	
Sources of information				
News media	54.7	53.2	62.0	57.0
Patients	70.7	56.7	44.7	53.5
Other providers	76.0	53.7	44.2	53.1
Medical journals	67.1	49.5	48.1	51.7
Friends/family	26.7	25.4	38.9	31.3
Lectures	36.8	25.5	17.0	23.6
CME	32.9	24.0	20.8	23.6
Dispensary owners	22.7	4.0	10.6	9.7
Legal counsel	13.3	1.5	4.3	4.7
Practice administrators	4.0	1.0	7.2	4.1
Other	10.7	6.0	8.7	8.0
Opinions about MC training				
MC should be included in undergraduate medical curricula	80.0	75.7	77.9	77.3
MC should be included in graduate medical curricula	92.0	88.1	84.6	87.2
CME on MC should be available	92.0	94.0	97.6	96.1
Clinician should receive training prior to recommending MC	73.3	86.1	91.4	86.4

Abbreviations: CME, Continuing Medical Education; MC, medicinal cannabis; WA, Washington State.

^aValues are presented as percentage.

the FDA-approved cannabinoid medications. Knowledge on both topics were low (3.6 and 4.1, respectively, with 10 = high knowledge). As might be expected, providers who had issued MC authorizations reported higher knowledge about the endocannabinoid system than other respondents ($t = 64.9, P < .001$; Table 3). Knowledge about the FDA-approved cannabinoid medications was highest among those not eligible to authorize MC, a group with a high number of pharmacists. The importance of obtaining knowledge on these 2 topics was rated very high, with no significant variation among providers (7 and 7.4, with 10 = very important).

Table 4 shows that most respondents obtained information about MC through news and media, followed by patients, other clinicians, and medical journals. The great majority of

respondents (77%-96%) agreed that clinicians should receive training on MC through CME, graduate, or undergraduate curricula and that MC-specific training should precede having the ability to write an MC recommendation (Table 4).

Attitudes, Beliefs, and Opinions

Attitudes, beliefs, and opinions were assessed among all respondents and are presented in Table 5. About three-fourth of the respondents were in favor of federal rescheduling of cannabis and agree with the statement that clinicians should not fear legal action when authorizing MC.

The most frequently endorsed benefits were “MC can help people who have chronic debilitating conditions” (73.7%),

Table 5. Beliefs About MC Among 469 Clinicians^a in Washington State, 2014.

Percentage who agree or strongly agree with the statements below	Eligible to authorize MC		Not eligible to authorize MC ^b , N = 202	Total, N = 469 ^a
	Have authorized, N = 71	Have not authorized, N = 196		
Policy/legal				
Clinicians should be able to authorize MC without fear of legal action	88.8	64.8	72.3	71.7 ^c
Cannabis should be rescheduled so is no longer a schedule I drug with no medical benefits	88.8	63.8	73.2	71.7 ^c
Cannabis should be included in the WA State Prescription Monitoring Program	45.0	76.0	63.9	66.1 ^c
MC benefits and risks				
Helps people who have chronic debilitating conditions	90.2	67.9	73.7	73.7 ^c
Cannabis can be addictive	50.7	67.8	59.4	61.6 ^d
There are significant physical health benefits to using MC as recommended by a health care professional	77.5	52.5	59.4	59.3 ^c
Using MC can result in serious mental health risks, even when used as recommended by a health care professional	42.2	49.5	42.1	45.2
Using MC can result in serious physical health risks, even when used as recommended by a health care professional	31.0	46.0	37.6	40.1
There are significant mental health benefits to using MC as recommended by a health care professional	59.2	28.0	42.1	38.8 ^c
Limitations of MC				
Legal issues				
Limited clinician knowledge of available products and where to get them	56.3	69.4	62.4	64.4
Uncertain dosing	70.4	64.3	56.9	62.0
Risk of abuse/dependence	42.3	63.8	43.5	51.8 ^c
Stigma associated with recreational use of marijuana	54.9	42.3	48.0	46.7
Limited evidence of effectiveness	35.2	48.0	39.6	42.4
Route of delivery	39.4	34.7	33.2	34.8
Side effects	29.6	34.2	31.2	32.2
Interactions with other medications	22.5	29.1	38.1	32.0 ^d
Mechanism of action	22.5	21.4	16.8	19.6
Need for monitoring	7.0	20.9	20.8	18.8 ^d
Narrow therapeutic window	7.0	10.2	8.9	9.2

Abbreviation: MC, medicinal cannabis.

^aTwenty-five of the 494 survey participants did not respond to these questions (5 providers who authorized MC, 10 providers who have not authorized MC or did not respond to this question, and 10 providers who are not allowed to authorize MC).

^bMostly pharmacists and nurses (registered nurses and licensed nurses).

^c $p < .001$.

^d $p < .05$.

followed by “there is significant physical health benefits of using MC as recommended by a health care provider” (59.3%). The most endorsed risk was “cannabis can be addictive,” (61.6%) followed by “using MC can result in serious mental health risks, even when used as recommended by a health care professional” (45.2%) (Table 5).

Regarding MC limitations, the most frequently endorsed were “legal status” and “limited clinician knowledge of available products and where to get them.” Other perceived limitations included uncertain dosing, risk of abuse, stigma associated with its use, and limited evidence of effectiveness.

Clinicians who had issued MC authorizations were more likely to agree with statements highlighting MC benefits and less likely to endorse limitations or risks, when compared to clinicians who had not written authorizations (Table 5).

Discussion

The results of this study indicate that Washington State-based health care providers generally do consider it important to obtain knowledge on MC and demonstrate strong support for educational opportunities at graduate and undergraduate levels. The results also indicate that providers would be more comfortable authorizing MC if training was made available, including clinical algorithms, guidelines for dosing, and best clinical practices. These findings are consistent with previous surveys conducted among physicians in the state of Colorado¹² and in a national sample in Canada.¹⁰

The clinicians surveyed are mostly getting information about MC through informal channels such as media, patients, and other clinicians. This is consistent with a previous study

in Colorado.¹² Continuing Medical Education trainings developed by reputable organizations and experts should be disseminated among professional organizations to increase the chances that providers can make informed scientifically sound clinical decisions in this area. Thus, this survey revealed 2 important issues. First, it appears that physicians and other health care providers generally have poor understanding of how MC works, including very limited knowledge of the endocannabinoid system. Secondly, it appears they are obtaining a significant amount of “knowledge” about cannabis from non-peer-reviewed sources (news media, patients, and other providers).

In our study, we found high levels of support for changing the legal status of cannabis at the federal level (schedule 1) and high agreement with the statement that “MC can help people who have chronic debilitating conditions.” These opinions are similar to the ones found by Uritsky et al¹¹ in a 2011 national survey with hospice health professionals and are in stark contrast with a 2011 survey with family physicians in Colorado.¹²

These differences are most likely due to multiple factors and are hard to interpret, given the methodological limitations of the United States-based studies conducted so far: convenient samples, anonymous participation, and online data collection.

Some factors to consider when attempting to explain clinicians’ beliefs are MC state policy and regional and specialty subcultures. Our study is the only one where data were collected after marijuana legalization in the state where the study was conducted—this may explain MC clinicians’ relatively supportive views and/or level of comfort on expressing them. Regional¹⁵ and specialty subcultures^{16,17} play an important role on determining clinicians’ opinions and clinical practices as identified in studies on topics such as opioid therapy,¹⁶ diabetes management,¹⁷ and referral to specialist.¹⁵ It is possible that the same factors explain some of the differences identified in the case of MC. Uritsky et al suggest that hospice care workers might be more supportive of alternative methods of palliative medicine than clinicians working in other settings. A survey conducted decades ago¹⁸ detected a contrast of opinions between 2 physician specialties: addiction medicine physicians were less likely to support MC than obstetrician/gynecologists. Studies using representative samples of clinicians and stronger data collection methods can shed light on the reasons behind these differences.

Pain was the most frequent condition reported for an MC authorization in our study, consistent with previous surveys.^{11,12,18} Health care providers who have authorized MC were generally more convinced of MC benefits, less concerned about its risks and limitations, and reported higher levels of education and training on the topic. Similar results have been described elsewhere.¹²

In this study, the majority of responders were women, and a study with MC patients has documented that the great majority of legitimate patients are also women.¹⁹ The strong female presence in both groups might be only a reflection of the demographics of the populations surveyed. It may also be that women are more open to discuss and utilize MC. More research

is needed to better understand the role of gender on using and recommending MC.

The study results should be interpreted with caution and cannot be generalizable to health care providers in Washington State as a whole. Data were obtained via anonymous online survey and its dissemination depended on the willingness of health professional organizations to support the study. It was also not possible to prevent someone from responding to the survey more than once, given that participation was anonymous.

Even with these limitations, this study provides valuable information to inform trainings and policy discussions. It is the first study that includes a wide array of health professionals and should be taken into account when new legislation and regulations are being considered.

Appendix A

Organizations that disseminated survey announcement

American Association of Nurse Practitioners*
 ARNPs United*
 Neighborcare Health Clinic*
 Spokane County Medical Society
 University of Washington Department of Anesthesiology and Pain Medicine*
 Washington Academy of Pain Management*
 Washington Association of Naturopathic Physicians*
 Washington State Pharmacists Association*
 Washington Poison Center*
 Washington State Medical Association
 Washington State Nurses Association

Other organizations contacted

Group Health Cooperative
 Pacific Lutheran University School of Nursing
 University of Washington Medex PA Program
 University of Washington Medical Centers
 University of Washington Physicians
 University of Washington School of Public Health and Community Medicine
 VA Puget Sound
 Virginia Mason Medical Centers
 Washington Academy of Family Physicians
 Washington Association of Community and Migrant Health Centers
 Washington Association of Physician Assistants
 Washington Psychiatric Association
 Washington Society of Addiction Medicine
 Whatcom County Medical Society

*Sent announcement directly to members via e-mail list.

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