



the
Canadian Journal
of **Addiction**

VOLUME 4 NUMBER 3

an official publication of the Canadian Society of Addiction Medicine

**Special Edition: MEDICAL MARIJUANA:
FURTHERING AN OBJECTIVE DEBATE**



FEATURED ARTICLES

A National Voice for the Field
NADY EL-GUEBALY, MD

Marihuana: Medicine, Addictive Substance, or Both? A Common-Sense Approach to the Place of Cannabis in Medicine..... 4
HAROLD KALANT, MD, PhD

Implementing regulatory change on cannabis: a call for the engagement of health professionals..... 9
MARK A. WARE MBBS, MRCP, MSc

How physicians should respond to the new cannabis regulations..... 13
MELDON KAHAN MD, SHERYL SPITHOFF MD

Medical Marihuana: More Knowledge and Clinical Guidance Needed 21
ANNA REID, MD, CCFP-EM
PRESIDENT CANADIAN MEDICAL ASSOCIATION

the Canadian Journal of Addiction

SCOPE & MISSION OF THE CJA

The Canadian Journal of Addiction is the official publication of the Canadian Society of Addiction Medicine. It is a new publication whose goal is to provide a unique Canadian forum for presentation of evidence-based, peer-reviewed clinical information and scientific materials, to clinicians working in the field of Addiction Medicine.

SUBMISSIONS TO THE JOURNAL

Instructions to Authors for submission to the journal are located on the CSAM webpages (www.csam-smca.org) on the Home page: **CSAM Journal & Weekly Bulletin**.

DISCLAIMER:

The statements and opinions contained in the articles of the Canadian Journal of Addiction are solely those of the individual authors and contributors and not those of the Canadian Society of Addiction Medicine, its board or staff. The appearance of advertisements in the journal is not a warranty, endorsement, or approval of the products or services advertised or of their effectiveness, quality, or safety. The Canadian Society of Addiction Medicine, its board and staff disclaim responsibility for any injury to persons or property resulting from any ideas or products referred to in the articles or advertisements.

ETHICAL POLICY AND REGULATIONS

Respecting the Farmington Consensus, the peer-review process will screen for attempted or actual instances of duplicate publication, plagiarism or scientific fraud. When the above is brought to our attention post-publication, the Editorial Board will review the allegations and publish an appropriate disclaimer. A link to the Farmington Consensus can be found on the CSAM home page.

PERMISSION TO PHOTOCOPY ARTICLES:

This publication is protected by copyright. Copyright ©2013 Canadian Society of Addiction Medicine. Permission to reproduce copies of articles for noncommercial use may be obtained from the Canadian Society of Addiction Medicine, at the corporate head office address: 47 Tuscany Ridge Terrace NW, Calgary AB, T3L 3A5. Tel: 403-813-7217

Listed in Canadiana and entered in AMICUS, the Library & Archives of Canada's database as well as in the EBSCO Academic Search Complete

ARTICLE REVIEW POLICY:

All articles for publication by this journal are peer-reviewed by two or more peers.

CSAM WEBSITE:

All contents and materials found in this and every issue of the Canadian Journal of Addiction can also be found on the CSAM web site at www.csam-smca.org

MANUSCRIPT SUBMISSION:

All materials for submission and manuscripts must be submitted to the CJA Editorial Board at admin@csam-smca.org. Online manuscript submission will be made available in future issues of the CJA.

EDITORIAL BOARD:

Editor in Chief: Nady el-Guebaly MD

Managing Editor: Michael Varenbut MD

Editorial Board:

Joseph Cox, MD Jeff Daiter, MD

Meldon Kahan, MD David Crockford, MD

Alice Ordean, MD Bhushan Kapur, PhD

Suzanne Brissette, MD

Peer-Reviewers:

Sharon Cirone, MD Jeff Hans, MD

Brian Fern, MD Wilna Wildenboer-Williams, MD

Editorial Assistant: Marilyn Dorozio, BA

The Canadian Journal of Addiction

A NATIONAL VOICE FOR THE FIELD!

At its June meeting, the Board of CSAM agreed to expand the mandate of our Canadian Journal of Addiction Medicine (CJAM) to a Canadian Journal of Addiction (CJA) while continuing to be a sponsor of that Journal. Our pioneering experience with CJAM taught us that a journal with an expanded pool of contributions and authors would improve the scientific quality of the journal and better serve CSAM's membership, as well as a potential broader audience.

The field of Addiction in Canada does not have a national journal. Canadian authors regularly publish in American or international publications as well as the Canadian Journal of Public Health and Canadian Journal of Psychiatry. National issues with an addiction focus may or may not be prioritized in these otherwise worthy publications.

If we still wonder whether this national voice is required, the new regulations from Health Canada addressing medical marijuana, the involvement of medical professionals and the need for an informed, objective debate is a good case in point in favor of the Journal. This special edition entitled "Medical Marijuana: Furthering an Objective Debate" aims to present an empirically based update of relevance to the evolving regulations in our country. We are privileged to have gathered on short notice, a small group of outstanding contributors. First, an editorial from Harold Kalant. Dr. Kalant, an icon of the field in our country and internationally, agreed to provide us with a synopsis of the debate and a call for reason! Dr. Kalant's unique lifetime work has been awarded the most prestigious awards in our field. They include the Jellinek Award, Isaacson Memorial Award, Nathan B. Eddy Memorial Award, ASAM Distinguished Scientist Award, FRSC, and First Honorary Fellow of British Society for Study of Addiction. This year he was awarded the Order of Canada to the unanimous pleasure of all his colleagues and coworkers. Second, Dr. Mark Ware, Director of Clinical Research at McGill's Pain Management Unit, has been a prized speaker at our conferences and has always impressed us with his empirically based advocacy for the care of his patients. Third, Dr. Mel Kahan, a tireless promoter of safe practices in our field initiated a response to our Minister of Health recommending practical guidelines for the safe prescription of medical marijuana and is contributing a related article with Dr. Spithoff. They are both on the staff of the Women's College Hospital, Toronto. Fourth, Dr. Anna Reid has kindly submitted a response to the new medical marijuana legislation on behalf of CMA. Fifth, we have included as a reference for our readers the current CSAM position on medical marijuana with the hope that this edition will generate further improvement of this position.

Lastly this June, at the annual meeting of the College on Problems of Drug Dependence in San Diego, there was a symposium entitled "What do we really know about the impacts of medical marijuana?" This was in my opinion the first dispassionate, objective discussion I attended in the US on the impact of the decisions "vox populi" legalizing medical marijuana in 18 US states. The presentations included data on the recent impact of the use of recreational marijuana in Colorado, i.e. a sharp increase in reports of use was noted for high school and general population data since the vote in November 2013. Will it be maintained? The experience from other States may be yes!

There is also a longer term analysis of the ever increasing availability of storefront medical marijuana dispensaries as well as delivery services in California. An interesting recommendation was to compare the evolving patterns of use of recreational versus medical users. The Rand Corporation began to compare the nuances of the 18 State legislations regulating medical marijuana. The early results were that one could not dichotomize overall legislations into good and bad. Policies had both potentially good as well as detrimental impacts and the current national experiment in various States was an ideal laboratory to tease out the best elements of the law from worrisome ones.

The debate about the safety of the liberalization of our societal attitudes towards marijuana is far from over (1). A decreased perception of risk is resulting in the reported use of marijuana and "synthetic" marijuana overtaking smoking nicotine in the recent "Monitoring the Future" surveys (2). The prospective longitudinal study of Dunedin, New Zealand has identified that the cohort of marijuana users at age 13 had an average IQ 7 points lower at age 38 compared to their peers (3). Evidence of disrupted axonal fibre connectivity has been recently reported (4) and the association of psychosis among vulnerable marijuana users remains a point for debate (5,6,7). Indeed, a benefit of the current national debate is that there is not a week where new evidence is added to the scientific and or public domain.

In conclusion, the hope of this issue is to further an empirical debate. The range of ongoing research projects reassures me that the knowledge base is expanding. Hopefully, some of that debate within our readership will occur in the pages of that Journal.

Yours truly,
Nady el-Guebaly MD
Editor-in-Chief, CJA



REFERENCES:

1. El-Guebaly N. Forum: For a balanced and integrated legislated control of cannabis, *Current opinion in psychiatry* 2008; 21: 116-121.
2. Johnston L. D., O'Malley P. M., Bachman J. G., & Schulenberg J. E. (2013). *Monitoring the Future: National Survey Results on Drug Use, 1975-2012. Volume I: Secondary school students.* Ann Arbor: Institute for Social Research, The University of Michigan, 604 pp. Available from: http://www.monitoringthefuture.org/pubs/monographs/mtf-vol1_2012.pdf
3. Meier M. H., Caspi A., Ambler A., Harrington H., Houts R., Keefe R. S. et al. Persistent cannabis users show neuropsychological decline from childhood to midlife, *Proceedings of the National Academy of Sciences of the United States of America* 2012; 109: E2657-2664.
4. Zalesky A., Solowij N., Yucel M., Lubman D. I., Takagi M., Harding I. H. et al. Effect of long-term cannabis use on axonal fibre connectivity, *Brain : a journal of neurology* 2012; 135: 2245-2255.
5. van der Meer F. J., Velthorst E., Meijer C. J., Machielsen M. W., de Haan L. Cannabis use in patients at clinical high risk of psychosis: impact on prodromal symptoms and transition to psychosis, *Current pharmaceutical design* 2012; 18: 5036-5044.
6. Evins A. E., Green A. I., Kane J. M., Murray R. M., Sr. Does using marihuana increase the risk for developing schizophrenia?, *The Journal of clinical psychiatry* 2013; 74: e08.
7. Bloomfield M. A., Morgan C. J., Egerton A., Kapur S., Curran H. V., Howes O. D. Dopaminergic Function in Cannabis Users and Its Relationship to Cannabis-Induced Psychotic Symptoms, *Biological psychiatry* 2013 Jun 29. PubMed PMID: 23820822. Epub 2013/07/04. Eng.

Marihuana: Medicine, Addictive Substance, or Both? A Common-Sense Approach to the Place of Cannabis in Medicine

Harold Kalant, MD, PhD

University of Toronto and Centre for Addiction and Mental Health

The earlier plebiscite results in a number of American states that legalized use of “medical marihuana”, and the more recent votes in favour of outright legalization of marihuana in Colorado and Washington, have naturally raised the question of whether the United States is moving inevitably towards full legalization, and whether Canada will be carried along by a tide of generational change. Speculation is further stimulated by the intention of Health Canada to change the ground rules of the Medical Marihuana Access Programme in a way that, superficially at least, looks like a move toward treating cannabis in the same way as other controlled medications. The proposal is to remove Health Canada from the business of controlling access to marihuana for medical use, and to allow physicians to write prescriptions that would be filled by licensed suppliers who would produce the drug in accordance with potency and purity standards laid down by Health Canada.

A large majority of Canadian physicians appear to be very uneasy about this prospect, on the grounds that they lack sound scientific evidence about the therapeutic value

of cannabis for different indications, about appropriate dosage, and about the balance of benefits and risks. Many also appear to be uneasy about the possibility of being exploited by non-medical users seeking to obtain the drug free of legal risks by pretending to have medical complaints requiring its use. This is an understandable fear, because experience in several American states that set up “medical marihuana” programs has shown that the most common complaint used to justify the issuance of marihuana access cards has been chronic back or neck pain in otherwise healthy young males.^{1,2} Nevertheless, there is indeed scientific evidence that cannabis, and some of the pure cannabinoids, do have potentially beneficial effects in certain disease processes. It is therefore important for physicians to have access to that information, and to know when they can justifiably use these agents therapeutically, and when they can or should not.

Crude cannabis had a long history of use as a medication in many parts of the world, but was perhaps best documented in India, where the Indian Hemp Drugs Commission examined its role in folk medicine in great detail.³ From the mid-19th century onward, standardized extracts of cannabis found their way into the British and US Pharmacopoeias and were widely used in western

medicine, often as components of multidrug mixtures prescribed as sedatives, anxiolytics, “tonics”, cough syrups and other remedies. However, from the early 20th century on, such mixtures were soon displaced by new synthetic drugs of many kinds, with more selective actions, longer shelf life, and more accurately controllable dosage. Cannabis fell out of use in western medicine, and was eventually banned in most countries as part of the growing reliance on national and international drug control legislation that was originally designed to control traffic in opiates but was extended to include a broad range of other psychoactive agents.

The world-wide adoption of cannabis as part of the youth culture of the early 1970s was based on its mood and perception altering properties, which made it the “recreational drug” of choice for those who rejected conventional society and its use of alcohol. However, even though this was, and remains, the acknowledged principal role of cannabis, a significant percentage of those who became regular users claim that they use it at least in part for its beneficial effects on various physical or mental complaints.⁴ There was a notable similarity between the symptoms or diseases for which it had been used by mouth in Indian traditional medicine and those for which present-day marihuana smokers say they use it medically. Among both populations it was reported to relieve nausea and vomiting, pain, convulsive disorders, spasticity of both skeletal and smooth muscle, fever, depression, anxiety, sleeplessness and other symptoms, related to such diverse diseases as multiple sclerosis, glaucoma, epilepsy, HIV/AIDS and cancer.⁵ These claims were met with considerable skepticism by most medical practitioners, both because they were based largely on undocumented subjective claims by users, and because it was very difficult to conceive of a mechanism of action that could explain such widely differing therapeutic effects.

Such a mechanism has become scientifically validated only in recent years. After the discovery of the CB₁ and CB₂ cannabinoid receptors in the late 1980s, endogenous ligands that attached to these receptors were soon discovered and were named endocannabinoids, even though they are chemically different from the true cannabinoids found in the cannabis plant (phytocannabinoids). Additional receptors, such as GPR55, GPR18 and TRPV1, were later found to bind not only endocannabinoids but also a variety of phytocannabinoids and synthetic analogs. The endocannabinoids, the enzymes that

synthesize and degrade them, and the receptors to which they bind, are extremely widely distributed throughout the brain and most other tissues and organs of the body. They alter the movement of calcium and potassium ions across presynaptic membranes, and function as rapid but short-acting inhibitors of release of the conventional neurotransmitters from axon terminals, including those of glutamate, GABA, glycine, acetylcholine, noradrenaline, dopamine and serotonin neurons.⁶⁻⁷ The extremely widespread distribution of the endocannabinoid system throughout the body, and its action on so many different neurotransmitters, explain how the cannabinoids are able to affect such a broad range of physical and mental functions, with both therapeutically useful and potentially harmful effects.

The harmful effects have in the past been studied and documented more thoroughly than the therapeutically useful ones.⁷⁻⁸ Probably most physicians are aware of the impairment of learning, memory, alertness, reaction speed and judgment that are characteristic of acute intoxication with cannabis, and that result in impairment of school and work performance and of operation of aircraft and motor vehicles. Less well known is the inhibitory effect of chronic cannabis exposure on the maturation of neuronal pathways in the fetus and in childhood and early adolescence, with resulting mild but long-lasting impairment of so-called executive functions such as problem solving, comparative evaluation of alternative options, and working memory.⁹ Chronic smoking of cannabis, as distinct from the actions of cannabinoids *per se*, is also known to give rise to chronic inflammatory changes in the airways, with chronic cough and wheezing, and precancerous histological changes in the bronchial epithelium. It is important to note that most of the information about adverse effects has come from studies of heavy non-medical use of cannabis, not from therapeutic use of smaller amounts of cannabis or of pure cannabinoids. As with any drug therapy, therefore, it is necessary to think in terms of dose-response functions, and in the margin of safety that separates dose-response curves for the beneficial effects from those for harmful effects.

A number of the potentially useful effects have been well studied and confirmed scientifically in both experimental animals and human volunteers and patients.^{7, 10} One of these is the moderately good analgesic action, principally against chronic musculoskeletal and neuropathic

pain. Several clinical studies such as J. Elikkottil's¹¹ have shown that combining smaller doses of cannabinoid and opioid can give good analgesic effect and fewer side effects than a larger dose of either drug alone. Cannabis, or pure Δ^9 -tetrahydrocannabinol (THC), can prevent or relieve nausea and vomiting induced by cancer chemotherapy or radiotherapy, and by drug treatment of HIV/AIDS. Stimulation of appetite and food intake in cachectic patients has also been demonstrated, but is of somewhat limited usefulness because cannabinoids increase mainly carbohydrate and fat intake, and not intake of protein that is needed for tissue regeneration. A moderate amount of scientific research on the role of the endocannabinoid system in the induction of REM and slow-wave sleep is also consistent with the long history of use of cannabis as a sedative and hypnotic. These therapeutic effects are usually, though not always, attainable with relatively small doses of cannabis or cannabinoids that do not result in serious adverse effects. In patients who have not had previous experience with cannabis, however, the margin of safety may be small. For example, in several studies of antiemetic and analgesic actions in cancer patients, a significant number of patients discontinued therapy because the desired effects were outweighed by unpleasant and disturbing effects such as mental clouding, anxiety and sense of unreality.

Other potential therapeutic effects of cannabis and certain pure cannabinoids have not proven to be clinically useful because the margin of safety has been clearly too small. This is true, for example, of the cannabis-induced lowering of intraocular pressure in glaucoma,¹² and the immunosuppressant action of cannabis and of Δ^9 -THC that might otherwise have been useful in the treatment of autoimmune diseases or to prevent organ transplant rejection. An anticancer effect, consisting of inhibition of tumor cell growth *in vitro*, and of tumor vascularization, invasiveness and metastasis in a variety of animal models, is seen only at cannabinoid concentrations that are much higher than those attained systemically by even very heavy cannabis smokers.

Several other possible therapeutic applications still require more clinical study to determine whether they are practical, and if so, within what limits. One such possible use is in the treatment of spasticity in patients with multiple sclerosis. The prevailing opinion until recently was that cannabis relieves the subjective discomfort but does not alter objective measures of muscle spasticity.¹³ However, a recent study¹⁴ found both subjective and objective improvement; clearly, further clinical trials are required. Inflammatory reactions, including osteoarthritis, chronic intestinal inflammatory disease, and the inflammatory component

of posttraumatic or toxic brain damage (neuroprotective action), appear to be a promising target for cannabis/cannabinoid therapy, because the anti-inflammatory effect can also be produced by cannabinoids that do not act through the CB₁ receptor and therefore do not produce the undesired cognitive and psychomotor disturbances.¹⁵ Another possible application may be as an anticonvulsant agent in the treatment of some types of epilepsy. One early clinical study found that addition of cannabidiol (which is devoid of the unwanted psychoactive effects of THC) to the treatment regimen improved the seizure control in patients in whom conventional antiepileptic drugs had not given a satisfactory response.¹⁶ However, other studies have given contradictory results, and more well-designed clinical trials are needed to establish whether cannabinoid therapy represents a useful addition, and if so, in which types of patient. There is a similar lack of sufficient evidence at present to support a number of other claimed uses of cannabis or cannabinoid therapy in such motor disorders as Parkinson's disease, Huntington's disease and Tourette's syndrome.

What positions can physicians reasonably adopt, therefore, when patients inquire about, or request, treatment with cannabis? A number of points can usefully be borne in mind that can help to differentiate appropriate from inappropriate use. The first is that medical use and non-medical use have nothing whatever to do with each other. Heroin can be legally prescribed in Canada for relief of suffering in terminally ill cancer patients, yet no one suggests that heroin should therefore be available for non-medical use. There is no rational basis for thinking differently about cannabis. By prescribing it only for those who have a legitimate medical indication, and only in amounts appropriate for that indication, physicians should not fear that they are furthering the spread of illicit drug use. Health Canada¹⁰ provides detailed online information that can aid the physician in deciding what are the legitimate indications.

A second point is that cannabinoids are not the drugs of first choice for any of the medical complaints for which they may be used. For example, ondansetron and similar agents have more potent and longer-lasting anti-nauseant effect than THC, although smoking cannabis delivers a more rapid onset of action.¹⁷ However, some patients who fail to respond adequately to the preferred agents for a given indication may benefit from cannabis or cannabinoid therapy. Therefore, if a patient requests cannabis for what appears to be a legitimate medical reason, a preferred agent can be tried first and cannabis can be added or substituted only if the first agent does not give satisfactory results.

A third (and related) point is that the great majority of clinical studies have been done with THC or other pure cannabinoids given by mouth rather than with crude cannabis given by smoking. Though smoked cannabis has a more rapid onset of action, oral cannabinoids have a more even and longer sustained effect, and are therefore more convenient with respect to dosing schedule, as well as avoiding the risks of respiratory damage. They also produce lower peak concentrations which, in addition to their slower onset of action, contribute to their being less likely to give rise to dependence. In addition, pure THC (Marinol)* and nabilone (Cesamet) for oral use, and Sativex (a standardized extract containing equal amounts of THC and cannabidiol) for sublingual spray, can be prescribed legally and dispensed by pharmacies in Canada, so that the physician need not fear being in contact with illegal substances. The claims frequently made by zealous users for the superior merits of one strain or another of cannabis for the treatment of different symptoms or diseases have no basis in scientific research, and can be disregarded by the physician.

A fourth point is that research on the endocannabinoid system is rapidly yielding new knowledge of its workings, and new agents for selectively modulating its activity in specific sites in the body.¹⁸ It seems highly likely that in the near future a range of new drugs will become available that will provide desired cannabis-like effects in specific tissues and disease processes, without the unwanted side effects and problems that can be created by smoking crude cannabis. Therefore the physician can prescribe cannabis or cannabinoid therapy at present

for those who can benefit from it, as an interim measure until superior agents become available. This may ease the professional concerns of those who are justifiably uneasy about the use of a crude product with much too broad a spectrum of effects. At the same time it will be incumbent on the physician to keep up to date with the evolving clinical literature, so that the interim measure can be replaced by the new agents as they arrive.

Finally, the physician has an obligation to screen carefully those patients who request cannabis therapy. For the developmental reasons described above, it should not be given to children or adolescents, nor to pregnant women. The experience in several American states cited above does indeed demonstrate the risk that many users of cannabis for non-medical purposes may request medical prescription of cannabis for highly dubious complaints. The physician who encounters such requests must probe carefully into the applicant's previous history of drug use (including alcohol and tobacco as well as illicit drugs), as part of the process of assessing which claims are truly medical, and which patients are most likely to use the medication as prescribed, and only for medical purposes. This is fundamentally no different from the care that physicians must take in prescribing opioids, benzodiazepines and other drugs that carry a risk of dependence, and need not deter the physician from using cannabis or cannabinoids when medical evidence suggests that they may be beneficial.

* *Marinol*[®] was recently withdrawn from the Canadian market by the manufacturer, for unstated reasons. It is not clear whether this is a temporary or a permanent withdrawal.

REFERENCES

1. Nunberg H., Kilmer B., Pacula R. L., Burgdorf J. An Analysis of Applicants Presenting to a Medical Marihuana Specialty Practice in California, *Journal of drug policy analysis* 2011 Feb;4(1). PubMed PMID: 23750291. Pubmed Central PMCID: PMC3673028. Epub 2011/02/01. Eng.
2. Reinarman C., Nunberg H., Lanthier F., Heddleston T. Who are medical marihuana patients? Population characteristics from nine California assessment clinics, *Journal of psychoactive drugs* 2011; 43: 128-135.
3. Kalant O. J. Report of the Indian Hemp Drugs Commission, 1893-94: a critical review, *The International journal of the addictions* 1972; 7: 77-96.
4. Ogborne A. C., Smart R. G., Adlaf E. M. Self-reported medical use of marihuana: a survey of the general population, *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne* 2000; 162: 1685-1686.
5. Russo E. B. History of cannabis and its preparations in saga, science, and sobriquet, *Chemistry & biodiversity* 2007; 4: 1614-1648.
6. Pertwee R. G. Emerging strategies for exploiting cannabinoid receptor agonists as medicines, *British journal of pharmacology* 2009; 156: 397-411.
7. Kalant, H. Effects of cannabis and cannabinoids in the human nervous system. In: *The Effects of Drug Abuse*

on the Human Nervous System; B. Madras and M.J. Kuhar (Eds.), 2013 (in press), Elsevier, Amsterdam.

8. Kalant H. Adverse effects of cannabis on health: an update of the literature since 1996, *Progress in neuro-psychopharmacology & biological psychiatry* 2004; **28**: 849-863.
9. Smith A. M., Longo C. A., Fried P. A., Hogan M. J., Cameron I. Effects of marihuana on visuospatial working memory: an fMRI study in young adults, *Psychopharmacology* 2010; **210**: 429-438.
10. Health Canada. Author: H. Abramovici. Cannabis (marihuana, marihuana) and the Cannabinoids. February, 2013 (pdf version) at [www.hc-sc.gc.ca, Drugs & Health Products> Information for Health Care Professionals](http://www.hc-sc.gc.ca/Drugs%20&%20Health%20Products/Information%20for%20Health%20Care%20Professionals).
11. Elikkottil J., Gupta P., Gupta K. The analgesic potential of cannabinoids, *Journal of opioid management* 2009; **5**: 341-357.
12. Green K. Marihuana smoking vs cannabinoids for glaucoma therapy, *Archives of ophthalmology* 1998; **116**: 1433-1437.
13. Zajicek J. P., Apostu V. I. Role of cannabinoids in multiple sclerosis, *CNS drugs* 2011; **25**: 187-201.
14. Corey-Bloom J., Wolfson T., Gamst A., Jin S., Marcotte T. D., Bentley H. et al. Smoked cannabis for spasticity in multiple sclerosis: a randomized, placebo-controlled trial, *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne* 2012; **184**: 1143-1150.
15. Guindon J., Hohmann A. G. Cannabinoid CB2 receptors: a therapeutic target for the treatment of inflammatory and neuropathic pain, *British journal of pharmacology* 2008; **153**: 319-334.
16. Cunha J. M., Carlini E. A., Pereira A. E., Ramos O. L., Pimentel C., Gagliardi R. et al. Chronic administration of cannabidiol to healthy volunteers and epileptic patients, *Pharmacology* 1980; **21**: 175-185.
17. Machado Rocha F. C., Stefano S. C., De Cassia Haiek R., Rosa Oliveira L. M., Da Silveira D. X. Therapeutic use of Cannabis sativa on chemotherapy-induced nausea and vomiting among cancer patients: systematic review and meta-analysis, *European journal of cancer care* 2008; **17**: 431-443.
18. Baillie G. L., Horswill J. G., Anavi-Goffer S., Reggio P. H., Bolognini D., Abood M. E. et al. CB(1) receptor allosteric modulators display both agonist and signaling pathway specificity, *Molecular pharmacology* 2013; **83**: 322-338.

Implementing regulatory change on cannabis: a call for the engagement of health professionals

Mark A. Ware MBBS MRCP MSc

Associate professor in Anesthesia and Family Medicine, McGill University; Director of Clinical Research, Alan Edwards Pain Management Unit, McGill University Health Centre, Montreal, Quebec, Canada

There have been calls for many years for regulatory approaches to cannabis to be based more on health perspectives than legal ones. Canada is about to take another step in this direction, and it is appropriate at this point in time to consider the engagement of the health profession in this process as it unfolds. In this essay, I take the position that regulatory change regarding medical cannabis is a reality, that there are informative and progressive solutions, and that refusing to engage is irresponsible and an abdication of our responsibilities as health professionals.

The most pertinent issue in the medical cannabis debate in Canada today is the implementation of the Marihuana for Medical Purposes Regulations (MMPR)(1). The issue of legalizing cannabis for recreational purposes will doubtless surface from time to time, at which time the debate becomes more of a public health issue than one of direct patient care, but for now the dominant issue is unquestionably the access and provision of cannabis for medical purposes. The MMPR presents a new approach to regulating medical cannabis, and there is considerable activity underway by many stakeholders in preparing for the coming changes in 2014. This includes the preparation and submission of new Licensed Commercial Production (LCP) applications, the development of health professional education, the creation of trade associations, the demand for independent laboratories and the organization of physician services to meet the needs of patients. How should health professionals engage?

In widely publicized statements, the Canadian Medical Association (2) and the Federation of Medical Regulatory Authorities of Canada (FMRAC) (3) have reacted strongly and negatively to the MMPR. The advice that these agencies are sending to Canadian health professionals is that Health Canada is (and always has been) wrongly using Canadian physicians as gatekeepers to access to cannabis, in the absence of evidence of safety and efficacy, and that the new MMPR framework is unacceptable. Let us

begin by exploring the underlying reasons for such a visceral reaction.

Under the new MMPR, the role of Health Canada in the approval of requests for licenses to possess cannabis for medical purposes is being eliminated. Under the previous Medical Marihuana Access Regulations (MMAR), signing physicians were asked to state a patient's diagnosis (or a symptom-disease complex), daily dose and mode of administration, as well as a statement that cannabis was not an approved drug and awareness that cannabis use is being considered. As long as the information was complete and accurate, Health Canada approved the application. Health Canada's role was not to judge the clinical appropriateness of the application. The new MMPR approach is more like a prescription, in which the prescription is replaced by a 'medical document'. A diagnosis or statement is no longer required, but daily dose and period of validity must be stated. Upon receipt of a valid, original medical document, LCPs will send cannabis directly to the patient in much the same way that authorized patients now receive product from Health Canada's contracted supplier.

The 'medical document' approach is simpler, and while there is still a statement of dose, there is no more bureaucratic intermediary 'licensing' step. Why then is the reaction from CMA and FMRAC so hostile? The question of how to estimate cannabis dose is an ongoing challenge, but this problem was present under the previous MMAR. Data on safety and efficacy are still not at the level of approved pharmaceutical drugs, but since the MMAR was first launched in 1999 there have been tremendous advances in cannabinoid science, new clinical trials, new cannabinoid drugs approved, and new data on safety. Efforts are desperately needed to get transfer this knowledge to those who need it. Health Canada's 'Information for Health Care Professionals' document (4) is a step forward but needs to be packaged and delivered in a meaningful, pragmatic and balanced manner.

Is the removal of the bureaucratic licensing step a problem for health professionals? It should certainly speed up the process for patients. This would appear therefore more of a liability issue; if the act of Health Canada issuing a license to the patient is perceived to provide health

professionals with some legal indemnity, this should be articulated. The response of the Canadian Medical Protective Association (CMPA) to the earlier MMAR was to issue a template waiver of indemnity that MDs could ask patients to sign; the CMPA has been silent so far on the new MMAR. To my knowledge, the main issues faced by the CMPA to date have been physicians allegedly abusing the MMAR system, not patients; the best way to prevent legal issues is surely to practice good medicine and follow standards of care.

Canadian health professionals are ultimately responsible for the delivery of health care. It is not clear to me why this role of 'gatekeeper' is seen so negatively in the context of cannabis. If cannabis is to be a medical issue, surely health professionals would want or need to have a role to play? Incorporating cannabis into medical practice could be seen as an interesting, albeit challenging, addition to our therapeutic armamentarium. This could have impact on the practice of addiction medicine, pain management, oncology, palliative care, psychiatry and others, not to mention enhancing communication with patients and families around cannabis in primary care. In many ways, working with cannabis now is akin to working with complementary therapies for which evidence is also modest; informed and holistic clinicians have found ways to at least be aware of such practices, if not to actually refer patients to them, and in some cases incorporating them into their own practice.

In his paper in this edition, Kalant states that "a large majority of Canadian physicians appear to be very uneasy..." and "many ...appear to be uneasy about the possibility of being exploited by non-medical users". The CMA upholds these views based on a survey of members in an e-panel (2). This report deserves closer attention. The e-panel consists of 2249 physician volunteers who were asked their views; the response rate was only 607 (27%). Of those, 28% had never been asked about medical cannabis, 69% were seldom or sometimes asked, and 4% reported being asked 'often'. This does not seem to be an overwhelming load. Of those asked, 35% stated they would 'never' support a request, while 65% would do so 'seldom or sometimes'. The majority of respondents showed an openness to support. Three main factors affecting their decision are cited: concerns that requests are really for recreational purposes (64%), and need for information on risks and benefits (57%) and appropriate use (56%). Liability protection was a stated concern.

We should interpret these data with caution, given the potential biases inherent in generalizing data from only 27% of the e-panel. Are these statistics reflective of the true views of Canadian MDs? If they are, it does not appear that most MDs would refuse to participate;

they want liability protection (we need to hear from the CMPA), they want more data (and they probably don't have access to what data there is), but only a third would 'never' support a patient's request. In fact, over 3000 Canadian MDs signed MMAR applications in the first ten years of its existence. Rather than advising MDs not to participate, the CMA should work proactively to support those members who choose to monitor patient's cannabis use, to help them through the transition from MMAR to MMPR, to ensure that they are well informed and well protected. If the message to MDs is not to engage at all, this opens the way for 'pot doctors' to set up sketchy practices whereby cannabis prescriptions are sold without due screening or monitoring. This situation must be avoided at all costs.

The fact that the most common complaint for which patients seek cannabis is pain says as much about our difficulties with pain management as it does about struggles with cannabis. Patients also struggle with spasticity, anxiety, insomnia, nausea, which are all symptoms reportedly helped by cannabis. Most, if not all, of these symptoms may be addressed with existing pharmaceutical treatments, often in young and otherwise functional people. However we cannot ignore the fact that not all these treatments are effective or tolerated. What is the reason why we cannot consider cannabis in those situations? Perhaps the main fear is unknown safety factors.

It is perhaps not surprising that we know more of the harmful effects of cannabis than the beneficial ones, since cannabis research in the past 40 years has been conducted in a climate of prohibition. This has made access to accurate use data, legal herbal cannabis supplies, funding and credibility for clinical trials extremely difficult. Safety concerns such as psychosis and heart disease may be addressed by appropriate patient screening and monitoring; concerns about the lung may be addressed by alternative delivery systems. There are ways to work with safety concerns, as with any drug, and this is what makes the role of the health professional so critically important in the process. We need informed and engaged clinicians to engage, not turn and run.

The new regulatory environment offers an opportunity for this to change. There will be several licensed producers offering several strains of cannabis. This raises the possibility for several new lines of research to be conducted. The hypothesis that different strains may be effective for different conditions may be tested in focused as well as population-based studies. If cannabis strains are adequately characterized with respect to active ingredients such as cannabinoid, terpenes and flavonoids, we may learn more about the impact such profiles may have on different conditions. This would

inform the producers, health professionals and may improve patient satisfaction.

Perhaps this single biggest obstacle facing health professionals is the issue of dose. Herbal cannabis is not currently dispensed in single dose forms but rather as a bulk herbal material that needs to be prepared by the user prior to administration. Typically, cannabis is standardized on the content of delta-9-tetrahydrocannabinol (THC), the main psychoactive ingredient, but under the new MMPR it may be possible to have access to the levels of other cannabinoids such as cannabidiol (CBD). In the longer term, development of dose forms of herbal cannabis that can be inhaled by vapourisation may provide a cleaner, safer and more standardized delivery. Allowing licensed producers to work towards such approaches may also improve the status quo, particularly if such work is closely linked to the needs of patients and health professionals.

The need to screen patients for non-medical use of cannabis is strongly reminiscent of the current opioid prescribing framework, whereby known risk factors for abuse are explored prior to prescribing and careful monitoring processes are aimed at detecting aberrant behaviours (5). It seems reasonable to suggest that similar approaches could be implemented for medical cannabis use, although currently the existence and nature of 'red flags' for cannabis abuse and divergence are not well known. This is where the addictions community could provide a needed voice.

Harnessing the endocannabinoid system for new medications is a worthy goal. Thus far, with the exception of cannabinoid receptor agonists like THC and nabilone, new approaches such as the inhibition of endocannabinoid metabolic enzymes and peripherally restricted cannabinoids have progressed the furthest but are not without their own pitfalls (6, 7). The health professional needs to be aware of the endocannabinoid system and its role; this is the fundamental basis for understanding any of the actions of cannabis and its constituents. Learners looking for further knowledge can look to opioid-cannabinoid receptor interactions (8), cannabinoid-vanilloid

interactions (9), and imaging studies (10) for some indications of where the field is going; a warning though that once one begins to learn the intricacies of the cannabinoid system, there is no turning back. It is truly fascinating. While the pharmaceutical fruit of these preclinical labours is years away, an educated clinical audience should be ready for such approaches if and when they arrive.

The reality in Canada is that a new regulatory approach is coming, and we, as health professionals, members of the public, and patients, need to be prepared. Many of the details of the new MMPR are still unclear and will no doubt be identified and addressed in the coming months and years. How it will play out will depend on the willingness of all the stakeholders to work together to establish uniform industry standards, support independent testing, monitoring and research, and contribute to the education of health care professionals, the public and the patients themselves.

Debate on the quality and quantity of scientific evidence of medical cannabis is healthy and necessary, but let us hold everyone to the same standards of evidence. Evidence of benefit is present but modest; the same could be said of much of the evidence of risk. Clinical medicine is fundamentally about balancing risk and benefit, even in the face of limited evidence on which to base a decision, to help the individual patients we meet in our everyday practice. I would argue that this is what makes medicine such a rich and rewarding profession.

What is so often lost in discussions around cannabis regulations are the needs and wishes of our patients. Their suffering is the impetus to explore the medical use of cannabis. Let us ensure that those health professionals who choose to work with their patients in this way have up-to-date, high quality evidence, a framework of support, and let us ensure that what is done and learned enlightens us all as we go into the future.

TABLE 1. RESEARCH AND EDUCATION PRIORITIES UNDER THE NEW MMPR

Development of medical cannabis dosing framework
Development and implementation of monitoring program for long-term safety and effectiveness
Investigation of cannabis strain differences and effects
Independent validation of cannabis quality
Development of medical cannabis practice guidelines for health care professionals
Development of public health education

REFERENCES

1. Health Canada. Marihuana for Medical Purposes Regulations. [updated 2013; cited 25 July 2013]; Available from: <http://gazette.gc.ca/rp-pr/p2/2013/2013-06-19/html/sor-dors119-eng.php>.
2. Canadian Medical Association. (CMA) Statement from the Canadian Medical Association on new regulations on Medical Marihuana June 10, 2013 [updated 2013; cited 1 August 2013]; Available from: http://www.cma.ca/multimedia/CMA/Content/Images/Inside_cma/Media_Release/2013/Statement_Medical_Marihuana_regulations_en.pdf
3. Federation of Medical Regulatory Authorities of Canada. Consultation on the Proposed Marihuana for Medical Purposes Regulations as per the Canada Gazette, Vol. 146, No. 50-15 December, 2012. [cited 1 August 2013]; Available from: <http://www.fmrac.ca/SubmissiononMedicalMarihuana.pdf>.
4. Health Canada. Information for Health Care Professionals. [updated 2013; cited 1 August 2013]; Available from: <http://www.hc-sc.gc.ca/dhp-mps/marihuana/med/infoprof-eng.php>.
5. Furlan A. D., Reardon R., Salach L. The opioid manager: a point-of-care tool to facilitate the use of the Canadian Opioid Guideline, *Journal of opioid management* 2012; **8**: 57-61.
6. Huggins J. P., Smart T. S., Langman S., Taylor L., Young T. An efficient randomised, placebo-controlled clinical trial with the irreversible fatty acid amide hydrolase-1 inhibitor PF-04457845, which modulates endocannabinoids but fails to induce effective analgesia in patients with pain due to osteoarthritis of the knee, *Pain* 2012; **153**: 1837-1846.
7. Kalliomaki J., Annas P., Huizar K., Clarke C., Zettergren A., Karlsten R. et al. Evaluation of the analgesic efficacy and psychoactive effects of AZD1940, a novel peripherally acting cannabinoid agonist, in human capsaicin-induced pain and hyperalgesia, *Clinical and experimental pharmacology & physiology* 2013; **40**: 212-218.
8. Desroches J., Beaulieu P. Opioids and cannabinoids interactions: involvement in pain management, *Current drug targets* 2010; **11**: 462-473.
9. Maione S., Costa B., Di Marzo V. Endocannabinoids: A unique opportunity to develop multitarget analgesics, *Pain* 2013 Mar 15. PubMed PMID: 23623250. Epub 2013/04/30. Eng.
10. Lee M. C., Ploner M., Wiech K., Bingel U., Wanigasekera V., Brooks J. et al. Amygdala activity contributes to the dissociative effect of cannabis on pain perception, *Pain* 2013; **154**: 124-134.

How physicians should respond to the new cannabis regulations

Meldon Kahan MD, Sheryl Spithoff MD

Abstract: The new Health Canada regulations on medical marijuana would allow patients to purchase dried cannabis from a licensed distributor with a medical prescription. Yet available evidence does not support the safety and efficacy of smoked cannabis as an analgesic. The controlled trials on smoked cannabis were very brief and had small sample sizes. The subjects had severe neuropathic pain syndromes, whereas most medical marijuana users have fibromyalgia, low back pain and other conditions commonly seen in primary care. None of these trials compared smoked cannabis to oral cannabinoids, which may be as or more effective than smoked cannabis for chronic pain. Oral cannabinoids are also far safer than smoked cannabis, which produces very high plasma THC levels, and toxic chemicals that are carcinogenic and atherogenic.

In addition, studies show that the population that uses medical marijuana for chronic pain is at higher risk for cannabis-related harms. Compared to pain patients in primary care, medical cannabis users are more likely to be younger, male, and to have a history of addiction or mental illness. This puts them at high risk for cannabis related harms such as addiction, psychosis, depression, poor school and work performance, and motor vehicle accidents. It is unsafe to prescribe cannabis to such patients, and also often unnecessary, since the majority of medical cannabis users have benign pain conditions for which numerous effective and safe treatments are available.

We propose that, for patients who are at low risk of harms from smoked cannabis, physicians sign a declaration rather than a prescription. A cannabis prescription endorses the therapeutic use of a substance which lacks medical evidence of benefit, and is much less safe than existing treatments. In contrast, a declaration affirms that the physician does not oppose, on medical grounds, the patient's decision to use a substance from which he or she is at low risk of harm. Thus, a declaration maintains honesty and integrity in our interactions with our patients, directs physicians' attention towards assessment and intervention for cannabis-related harms, and encourages patients and physicians to consider other treatments, ones with proven benefit.

HOW PHYSICIANS SHOULD RESPOND TO THE NEW CANNABIS REGULATIONS

The new Health Canada regulations on medical marijuana, which go into effect in March 2014, would allow patients to purchase dried cannabis from a licensed distributor with a signed medical prescription. The official newspaper of the Government of Canada (1) describes the prescription as follows: "The medical document would contain information similar to that on a prescription. The authorized health practitioner would have to indicate their licence information, the patient's date of birth and name, location of the assessment, and amount of dried cannabis authorized per day, for a period of up to one year."

Both the Canadian Medical Association and the Federation of Medical Regulatory Authorities of Canada have expressed concern about the regulations. In a news release, Dr Anna Reid, president of the Canadian Medical Association, stated (2):

"Asking physicians to prescribe drugs that have not been clinically tested runs contrary to their training and ethics...Patients would not want us to prescribe drugs for heart disease, cancer or any other illness without the scientific evidence to back those drugs up. Why does the federal government want us to do so with marijuana?"

The College of Family Physicians of Canada has issued a position statement in opposition to the proposed regulations (3):

"In our view, Health Canada places physicians in an unfair, untenable and to a certain extent unethical position by requiring them to prescribe cannabis in order for patients to obtain it legally...Physicians cannot be expected to prescribe a drug without the safeguards in place for other medications – solid evidence supporting the effectiveness and safety of the medication, and a clear set of indications, dosing guidelines and precautions..."

A prescription indicates that the physician believes that the medication will be safe and beneficial for the patient if taken as directed. Physicians can have confidence in their prescriptions, because Health Canada has reviewed the evidence on the medication's safety and effectiveness, and has approved its therapeutic use for the indications and at the doses stated in the drug monograph. Yet Health Canada has not approved smoked cannabis for therapeutic use, and the available evidence on safety and effectiveness falls far short of the standards it uses to approve other prescription medications.

EFFICACY OF SMOKED CANNABIS AS AN ANALGESIC

To date, according to the 2013 Health Canada information bulletin on cannabis (4), five controlled trials have examined smoked cannabis in the treatment of chronic pain (5-9). These trials do not support making cannabis available as a prescription analgesic. All five trials enrolled subjects with neuropathic pain due to HIV, multiple sclerosis, or surgery. Yet observational studies have shown that medical marijuana users have similar diagnoses to the primary care pain population – fibromyalgia, back pain and arthritis (10). Participants were administered smoked cannabis for periods of between one to fifteen days, which is far too brief a period to detect potentially serious long-term side effects or to demonstrate improvements in functional capacity, which is the most important outcome of analgesic trials. Furthermore, the total sample of the five trials was 182, and subjects smoked cannabis under tightly controlled, artificial conditions.

To illustrate how weak this evidence is, a 2006 meta-analysis of opioid analgesic medications reviewed 41 controlled trials, involving over 6,000 subjects, with a mean trial duration of 5 weeks (11). Multiple opioid trials have been conducted on common primary care conditions such as osteoarthritis and low back pain. Despite this, the long-term safety and effectiveness of opioids remains a topic of considerable controversy.

Of equal concern, none of the trials compared smoked cannabis to currently available cannabinoids, ie oral nabilone (Cesamet) or the buccal spray Sativex. Smoking delivers THC to the central nervous system more quickly and efficiently than oral ingestion. However, higher plasma levels are not necessarily associated with better pain control. In a study of capsaicin-induced pain, volunteers reported reduced pain with a 4% cannabis cigarette, and increased pain with an 8% cigarette (12). In the only controlled study (to our knowledge) that directly compared smoked to oral cannabis (14), subjects

administered the cold pressor test had equal intensity but shorter duration of analgesia with smoked cannabis than with oral dronabinol. This result is not surprising, since oral cannabinoids are metabolized to an active metabolite, 11-hydroxyTHC, which prolongs the duration of analgesia (4).

SAFETY OF SMOKED CANNABIS

Not only is smoked cannabis possibly less effective than oral cannabinoids, it is also far less safe. The difference in peak plasma levels between smoked cannabis and oral cannabis are striking. An average peak THC plasma level of 162 ng/ml is reached after smoking seven puffs of a 3.55% THC cigarette (4). In contrast, a standard 2 mg dose of oral nabilone produces a peak plasma concentration of 10 ng/ml. The onset of action of smoked cannabis is 30 seconds, whereas nabilone's onset of action is 30 minutes. In other words, compared to a 2 mg nabilone tablet, a single low-potency joint has an onset of action 60 times faster and a peak plasma level 16 times higher than a 2 mg nabilone tablet. The THC concentrations associated with euphoria are only 50-100 ng/mL, or 1.5-3 times lower than that produced by a single joint (4). And these figures underestimate the plasma levels produced by current street cannabis, which has average THC concentrations of 10% (4).

The controlled studies do not provide information on the long term safety of smoked cannabis because of their short duration, but the limited evidence available is not reassuring. A systematic review of adverse events in trials on medical cannabis (15) found a higher rate of non-serious adverse events in the intervention group, including psychiatric events. However, studies on smoked cannabis were excluded from this review because they did not adequately report data on adverse events. Also, the median duration of the studies was only two weeks. Another systematic review of 18 controlled trials on both smoked and oral cannabis (16) estimated that the odds ratio and numbers needed to harm (NNH) for three adverse reactions were as follows: alterations to perception, OR 4.51, NNH 7; altered motor function, OR 3.93, NNH 5; and altered cognitive function, 4.46, NNH 8. In the long term, these adverse reactions could lead to serious complications such as trauma and impaired work performance.

Besides the acute and chronic effects of intoxication, smoking creates hundreds of toxic products of combustion. Some of these products are carcinogenic. Epidemiological studies on the association between smoking cannabis and various types of cancer have had conflicting results (4). However, a recently published

study provides the strongest epidemiological evidence to date that smoked cannabis is a risk factor for lung cancer. In this 40-year retrospective cohort study of 50,000 Swedish male conscripts, regular cannabis smoking was associated with a 2-fold risk of lung cancer, even after controlling for tobacco use and other factors (42). Smoking also creates byproducts that are atherogenic and may precipitate angina or myocardial infarction (23).

The byproducts of combustion can be minimized by mixing cannabis in food, or by ‘vaporizing’ cannabis (heating the dried plant until the cannabis on the plant’s surface vaporizes). A preliminary study (17) demonstrated that vaporizing produces much lower concentrations of exhaled carbon monoxide than smoking. However, while vaporization and oral ingestion are probably safer than smoking, physicians who prescribe the dried cannabis plant cannot control how the patient uses the cannabis, and smoking remains the most popular delivery route.

LONG-TERM HARMS OF SMOKED CANNABIS

Of greater concern is the risk cannabis prescribing presents to higher risk patients. Evidence suggests that medical cannabis users are at higher risk than the general pain population for cannabis addiction and other harms, because they tend to be young and male (established risk factors), and they have higher rates of concurrent mental illness and concurrent opioid and illicit drug misuse. A study of 457 fibromyalgia patients attending a tertiary care pain center (19) found that patients who used cannabis were more likely to be male and had significantly higher rates of current unstable mental illness and opioid drug-seeking behavior compared to patients who did not use cannabis. A systematic literature review found that chronic pain patients on opioids have a higher prevalence of aberrant opioid-related behaviours if they use cannabis than if they do not (20). Another study found that chronic pain patients who had a positive urine drug screen for cannabis were much more likely to have a positive UDS for cocaine (21). Prescribing cannabis to such patients puts them at risk for mental illness, addiction, poor school and work performance, accidents, and other serious harms (see section below).

Conversely, if physicians decline to prescribe cannabis to higher risk patients, it may create tension in the

patient-physician relationship. This situation already exists with prescription opioids. In a random survey of primary care physicians in Ontario (22), 57.6% of physicians reported they were somewhat or very concerned about disagreements with patients over opioids.

MEDICAL CANNABIS POLICY AND PUBLIC HEALTH

It is important to distinguish the impact of policies on medical marijuana from social policies on legalization or decriminalization. National drug policies that emphasize strict enforcement instead of prevention, harm reduction and treatment are clearly harmful. Portugal, recognizing this, decriminalized possession of cannabis and other illicit drugs in 2002. While drug trafficking remains a criminal offense, drug possession is an administrative offense resulting in fines, community service or referral to treatment. Portugal’s policy has been associated with a marked decline in the use of cannabis and other drugs, and in drug-related harms such as overdose and infection (13). In contrast, in the US, states which allow the use of marijuana for medical purposes have higher rates of cannabis use, and cannabis dependence, than states which do not authorize it (18). This may be because states which allow medical marijuana also tend to have more liberal attitudes to cannabis use.

This demonstrates that a increasing access to medical marijuana provides none of the social benefits of decriminalization. It does not protect young cannabis users from incarceration, and it does not promote prevention, harm reduction or treatment. On the contrary, making smoked cannabis available by prescription reinforces the public’s perception that it is harmless, which could increase cannabis use and cannabis-related harms. The dramatic increases in opioid overdose deaths and addiction rates reflect, in part, the public’s perception that opioids must be safe if they are so widely prescribed by doctors.

As well, increasing access to smoked medical marijuana without addressing the wider prohibition of cannabis makes little sense as public policy. The large majority of cannabis smokers do not have chronic pain and will thus remain vulnerable to criminal charges. Medical prescriptions will likely increase cannabis use and cannabis-related harms in high-risk patients, and could well give a significant boost to the illicit drug market.

DECLARATION VERSUS A PRESCRIPTION

We propose that physicians sign a declaration rather than a prescription (Table 1). The declaration would state that the patient has a medical condition requiring treatment, and that the patient believes that medical marijuana relieves these symptoms. The declaration would further state that the patient is not, to the physician's knowledge, suffering from or at high risk for cannabis-related harms. It would also state that the patient has been informed of the risks of cannabis use, and of alternative therapies for his or her medical condition. We also recommend that patients be required to sign a document indicating that they understand that the declaration is not a prescription and that the physician does not necessarily endorse their use of cannabis (Table 3).

There are several advantages to this approach. Unlike a prescription, a declaration does not mean that the physician has directed the patient to smoke cannabis as a treatment for the patient's medical condition. It merely affirms that this particular patient is at low risk for harms related to cannabis use. And physicians will be able to focus on managing the patient's chronic pain, without ongoing disagreements about cannabis prescriptions. This is similar to a physician discussing alcohol use with a patient whose alcohol consumption is within the low risk drinking guidelines. The physician is not advising the patient to drink, but is simply offering an opinion that the patient's alcohol consumption does not pose a high risk for harm.

The declaration does not contain all the elements of a prescription. For example, it does not specify the amount of dried cannabis authorized per day, and it does not list the physician's medical licence number. Therefore it might not be sufficient to authorize the licensed cannabis distributor to sell cannabis to the patient. This is an issue for Health Canada to rectify. Health Canada cannot expect physicians to sign prescriptions for smoked cannabis without first approving it for therapeutic use, and specifying its indications, dose and precautions.

If Health Canada refuses to accept a declaration in lieu of a prescription, then we recommend that only physicians with a special license be authorized to write a cannabis prescription. To obtain such a license, physicians should be required to pass a training course, organized by a national medical organization. Cannabis distributors would only be authorized to dispense cannabis for prescriptions signed by physicians with a cannabis license. This would be similar to the Health Canada authorization for prescribing methadone for

pain. Physicians with a special cannabis licence would be expected to prescribe it only for evidence-based indications, such as intractable vomiting, anorexia caused by cancer or HIV, or severe HIV neuropathy. Even with these conditions, oral or buccal cannabinoids should be tried first.

The most important advantage of a declaration over a prescription is that it directs physicians' attention towards assessment and intervention for cannabis-related harms. While most people smoke cannabis without any evidence of harm, for some it poses a major health hazard. Physicians can play an important role in identifying and intervening with such patients, just as they do with alcohol and other substances. .

LOW RISK CANNABIS USE

Low risk use of cannabis is not as well defined as low risk use of alcohol. Therefore these recommendations may change as more research is conducted. As well, the daily dose of THC used by a patient is difficult to estimate because of wide variations in inhalation patterns and in the weight and THC content of cannabis "joints".

Physicians should screen all patients who request medical marijuana for a cannabis use disorder, and for factors that put them at risk for developing a cannabis use disorder. Risk factors include a younger age, current or past problem with cannabis or other substances, and an active mental illness. Patients who are at high risk for developing a cannabis use disorder should be advised to use cannabis with caution, and to avoid daily use. They should not be given a declaration for smoked marijuana. Patients with an active cannabis use disorder should be offered counselling (27), follow-up, and possibly medication to relieve withdrawal symptoms and cravings (31). Those who are not able to reduce or quit should be offered a referral to an addiction medicine physician and a psychosocial treatment program.

Another group at high risk of harm are those with a current, past or family history of psychosis. Cannabis use is a well established risk for psychosis and for the development of schizophrenia (25). This group should be advised to abstain completely from cannabis, and should not be prescribed cannabis in any form.

Although a causal relationship has not been established, cannabis use is associated with mood and anxiety disorders, and an increased risk of suicide in both psychotic and non-psychotic samples (32,35). Patients with active mood and anxiety disorders or suicidal ideation should be counseled to reduce or abstain from any cannabis use.

Oral cannabinoids are likely safer for patients with cardiovascular or respiratory illness. Patients who decline oral forms and continue to smoke marijuana should be advised to use a vaporizer. If they continue to smoke, they should be advised to avoid tobacco, and to avoid deep inhalation and breath-holding.

Women who are pregnant, planning to become pregnant or at high risk for unplanned pregnancies should be counseled not to use cannabis. Preliminary evidence links maternal cannabis use to subtle neurodevelopmental abnormalities in infants (28).

And finally the under 25 population appears to be a very vulnerable group. The age at which cannabis use becomes safer is unclear; some sources suggest 18, some 21, others 25. While the life-time prevalence of cannabis dependence among regular smokers is estimated to be 9% (36), a substantially higher proportion of regular adolescent smokers report symptoms of dependence (41), and early cannabis use is associated with problematic use of other illicit drugs (34,38,39). Besides substance use disorders, adolescent users appear to be at risk for long-term cognitive impairment, social dysfunction, impaired work and school performance, anxiety and depression, and psychotic disorders (25, 26,30,37,40). And finally this population is the most likely to ride in a vehicle with a driver under the influence of cannabis. Cannabis use prior to driving increases the risk of accidents (29).

A recent publication reviewed these harms and has proposed lower risk use guidelines (summarized in Table 2). This publication occurred before the publication of the 2012 study that demonstrated the persistent 8 point IQ drop in adolescents who smoked marijuana regularly (33). Physicians should provide all patients who use or are considering the use of smoked cannabis with information on how to lower their risk of harm.

CONCLUSION

There is not enough evidence to support the safety and effectiveness of smoked cannabis as an analgesic. Oral cannabinoids may be more effective than smoked cannabis for chronic pain, and are almost certainly safer. Many medical cannabis users are also at high risk for cannabis related harms, including mental illness, addiction, poor work and school performance, and trauma. Prescribing cannabis to such patients will increase their risk of

serious harm. Furthermore, most medical cannabis users have common pain conditions for which there are effective and safe treatments.

We propose that physicians sign a declaration rather than a prescription. The declaration would state that the patient is not suffering from or at high risk for cannabis-related harms, and that the physician has informed the patient of the risks of cannabis use. The declaration affirms that the patient is at low risk for harm from cannabis use. is not likely to cause serious harm. The declaration maintains honesty and integrity in our interactions with our patients as it does not endorse a medically unestablished treatment. Additionally, the declaration directs physicians' attention towards assessment and intervention for cannabis-related harms; evidence suggests that medical cannabis users are at greater risk for cannabis addiction and other harms than the general pain population. If Health Canada is unwilling to change the new regulations, then cannabis prescribing should be restricted to physicians who have completed a training course.

TABLE 1: SAMPLE PHYSICIAN DECLARATION

I declare that:

- This patient has a medical condition requiring treatment.
- The patient reports that cannabis relieves the symptoms caused by this medical condition.
- To my knowledge, the patient is not suffering from, and is not at high risk for, harms related to cannabis.
- The patient has been informed of the potential risks of medical cannabis
- The patient has been informed of alternative therapies for the patient's medical condition.

TABLE 2. RECOMMENDATIONS TO MINIMIZE THE RISK OF CANNABIS-RELATED HARMS (ADAPTED FROM FISCHER ET AL, REFERENCE 24)

Cannabis use should be delayed until early adulthood (eg 18+ years).

Users should not use cannabis daily, and should avoid or limit their use of higher-potency cannabis products.

Frequent users who experience problems related to cannabis use and/or have difficulty controlling their use should attempt to abstain, and if necessary should seek professional help.

Use vaporizers rather than smoking joints, blunts or water pipes.

If unwilling to stop smoking, avoid smoking cannabis with tobacco, and avoid deep inhalation or breath-holding.

Do not drive for at least 3-4 hours after use (longer if larger doses are used or acute impairment persists).

The following groups should abstain from cannabis use:

- Pregnant women
- Middle-aged or older patients with cardiovascular illness
- Individuals with a history of psychosis, or a first-degree relative with a history of psychosis.

TABLE 3. SAMPLE INFORMED CONSENT DOCUMENT FOR PATIENTS TO SIGN

1. I understand that this declaration does not imply that my physician has advised me to use medical cannabis. I will not hold my physician liable for any harms I might suffer as a result of my cannabis use.
2. My physician has informed me of the health risks associated with smoked cannabis.
3. My physician has informed me of alternative medical treatments available for my condition.
4. I understand that the risk of harm increases with the amount smoked, and that vaporization and oral ingestion of cannabis may be less harmful than smoking.
5. I promise not give or sell medical cannabis to others, as this is both illegal and dangerous.

Signed: _____ Date: _____

Witness: _____

REFERENCES

1. The Canada Gazette, Dec 15 2012
2. Laura Eggertson, Canadian Medical Association Journal 109, p 4528, June 27, 2013. NEWS: “New medical marihuana regulations shift onus to doctors to prescribe”
3. The College of Family Physicians of Canada. Statement on Health Canada’s Proposed Changes to Medical Marihuana Regulations, February 2013
4. Controlled Substances and Tobacco Directorate at Health Canada, February 2013. Information for Health Care Professionals: Cannabis (marihuana, marihuana) and the cannabinoids.
5. Abrams D. I., Jay C. A., Shade S. B., Vizoso H., Reda H., Press S. et al. Cannabis in painful HIV-associated sensory neuropathy: a randomized placebo-controlled trial, *Neurology* 2007; **68**: 515-521.
6. Wilsey B., Marcotte T., Tsodikov A., Millman J., Bentley H., Gouaux B. et al. A randomized, placebo-controlled, crossover trial of cannabis cigarettes in neuropathic pain, *The journal of pain: official journal of the American Pain Society* 2008; **9**: 506-521.
7. Ellis R. J., Toperoff W., Vaida F., van den Brande G., Gonzales J., Gouaux B. et al. Smoked medicinal cannabis for neuropathic pain in HIV: a randomized, crossover clinical trial, *Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology* 2009; **34**: 672-680.
8. Corey-Bloom J., Wolfson T., Gamst A., Jin S., Marcotte T. D., Bentley H. et al. Smoked cannabis for spasticity in multiple sclerosis: a randomized, placebo-controlled trial, *CMAJ : Canadian Medical Association journal = journal de l’Association medicale canadienne* 2012; **184**: 1143-1150.
9. Ware M. A., Wang T., Shapiro S., Robinson A., Ducruet T., Huynh T. et al. Smoked cannabis for chronic neuropathic pain: a randomized controlled trial, *CMAJ : Canadian Medical Association journal = journal de l’Association medicale canadienne* 2010; **182**: E694-701.

10. Aggarwal S. K., Carter G. T., Sullivan M. D., ZumBrunnen C., Morrill R., Mayer J. D. Characteristics of patients with chronic pain accessing treatment with medical cannabis in Washington State, *Journal of opioid management* 2009; **5**: 257-286.
11. Furlan A. D., Sandoval J. A., Mailis-Gagnon A., Tunks E. Opioids for chronic noncancer pain: a meta-analysis of effectiveness and side effects, *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne* 2006; **174**: 1589-1594.
12. Wallace M., Schulteis G., Atkinson J. H., Wolfson T., Lazzaretto D., Bentley H. et al. Dose-dependent effects of smoked cannabis on capsaicin-induced pain and hyperalgesia in healthy volunteers, *Anesthesiology* 2007; **107**: 785-796.
13. Greenwald, G. Drug decriminalization in Portugal: Lessons for creating fair and successful drug policies. White paper report for CATO Institute, April 2, 2009.
14. Cooper Z. D., Comer S. D., Haney M. Comparison of the analgesic effects of dronabinol and smoked marijuana in daily marijuana smokers, *Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology* 2013; **38**: 1984-1992.
15. Wang T., Collet J. P., Shapiro S., Ware M. A. Adverse effects of medical cannabinoids: a systematic review, *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne* 2008; **178**: 1669-1678.
16. Martin-Sanchez E., Furukawa T. A., Taylor J., Martin J. L. Systematic review and meta-analysis of cannabis treatment for chronic pain, *Pain medicine (Malden, Mass)* 2009; **10**: 1353-1368.
17. Abrams D. I., Vizoso H. P., Shade S. B., Jay C., Kelly M. E., Benowitz N. L. Vaporization as a smokeless cannabis delivery system: a pilot study, *Clinical pharmacology and therapeutics* 2007; **82**: 572-578.
18. Cerda M., Wall M., Keyes K. M., Galea S., Hasin D. Medical marijuana laws in 50 states: investigating the relationship between state legalization of medical marijuana and marijuana use, abuse and dependence, *Drug and alcohol dependence* 2012; **120**: 22-27.
19. Ste-Marie P. A., Fitzcharles M. A., Gamsa A., Ware M. A., Shir Y. Association of herbal cannabis use with negative psychosocial parameters in patients with fibromyalgia, *Arthritis care & research* 2012; **64**: 1202-1208.
20. Reisfield G. M., Wasan A. D., Jamison R. N. The prevalence and significance of cannabis use in patients prescribed chronic opioid therapy: a review of the extant literature, *Pain medicine (Malden, Mass)* 2009; **10**: 1434-1441.
21. Pesce A., West C., Rosenthal M., West R., Crews B., Mikel C. et al. Marijuana correlates with use of other illicit drugs in a pain patient population, *Pain physician* 2010; **13**: 283-287.
22. Wenghofer E. F., Wilson L., Kahan M., Sheehan C., Srivastava A., Rubin A. et al. Survey of Ontario primary care physicians' experiences with opioid prescribing, *Canadian family physician Medecin de famille canadien* 2011; **57**: 324-332.
23. Singla S., Sachdeva R., Mehta J. L. Cannabinoids and atherosclerotic coronary heart disease, *Clinical cardiology* 2012; **35**: 329-335.
24. Fischer B., Jeffries V., Hall W., Room R., Goldner E., Rehm J. Lower Risk Cannabis use Guidelines for Canada (LRCUG): a narrative review of evidence and recommendations, *Canadian journal of public health = Revue canadienne de sante publique* 2011; **102**: 324-327.
25. Fergusson D. M., Horwood L. J., Swain-Campbell N. R. Cannabis dependence and psychotic symptoms in young people, *Psychological medicine* 2003; **33**: 15-21.
26. Fergusson D. M., Horwood L. J., Swain-Campbell N. Cannabis use and psychosocial adjustment in adolescence and young adulthood, *Addiction (Abingdon, England)* 2002; **97**: 1123-1135.
27. Fischer B., Jones W., Shuper P., Rehm J. 12-month follow-up of an exploratory 'brief intervention' for high-frequency cannabis users among Canadian university students, *Substance abuse treatment, prevention, and policy* 2012; **7**: 15.
28. Wong S., Ordean A., Kahan M. Substance use in pregnancy, *Journal of obstetrics and gynaecology Canada : JOGC = Journal d'obstetrique et gynecologie du Canada : JOGC* 2011; **33**: 367-384.

29. Mann R. E., Adlaf E., Zhao J., Stoduto G., Ialomiteanu A., Smart R. G. et al. Cannabis use and self-reported collisions in a representative sample of adult drivers, *Journal of safety research* 2007; **38**: 669-674.
30. Dragt S., Nieman D. H., Schultze-Lutter F., van der Meer F., Becker H., de Haan L. et al. Cannabis use and age at onset of symptoms in subjects at clinical high risk for psychosis, *Acta psychiatrica Scandinavica* 2012; **125**: 45-53.
31. Levin F. R., Mariani J. J., Brooks D. J., Pavlicova M., Cheng W., Nunes E. V. Dronabinol for the treatment of cannabis dependence: a randomized, double-blind, placebo-controlled trial, *Drug and alcohol dependence* 2011; **116**: 142-150.
32. Serafini G., Pompili M., Innamorati M., Rihmer Z., Sher L., Girardi P. Can cannabis increase the suicide risk in psychosis? A critical review, *Current pharmaceutical design* 2012; **18**: 5165-5187.
33. Meier M. H., Caspi A., Ambler A., Harrington H., Houts R., Keefe R. S. et al. Persistent cannabis users show neuropsychological decline from childhood to midlife, *Proceedings of the National Academy of Sciences of the United States of America* 2012; **109**: E2657-2664.
34. Lynskey M. T., Vink J. M., Boomsma D. I. Early onset cannabis use and progression to other drug use in a sample of Dutch twins, *Behavior genetics* 2006; **36**: 195-200.
35. Cheung J. T., Mann R. E., Ialomiteanu A., Stoduto G., Chan V., Ala-Leppilampi K. et al. Anxiety and mood disorders and cannabis use, *The American journal of drug and alcohol abuse* 2010; **36**: 118-122.
36. Danovitch I., Gorelick D. A. State of the art treatments for cannabis dependence, *The Psychiatric clinics of North America* 2012; **35**: 309-326.
37. Degenhardt L., Coffey C., Romaniuk H., Swift W., Carlin J. B., Hall W. D. et al. The persistence of the association between adolescent cannabis use and common mental disorders into young adulthood, *Addiction (Abingdon, England)* 2013; **108**: 124-133.
38. Fergusson D. M., Boden J. M., Horwood L. J. Cannabis use and other illicit drug use: testing the cannabis gateway hypothesis, *Addiction (Abingdon, England)* 2006; **101**: 556-569.
39. Fischer B., Rehm J., Irving H., Ialomiteanu A., Fallu J. S., Patra J. Typologies of cannabis users and associated characteristics relevant for public health: a latent class analysis of data from a nationally representative Canadian adult survey, *International journal of methods in psychiatric research* 2010; **19**: 110-124.
40. Horwood L. J., Fergusson D. M., Coffey C., Patton G. C., Tait R., Smart D. et al. Cannabis and depression: an integrative data analysis of four Australasian cohorts, *Drug and alcohol dependence* 2012; **126**: 369-378.
41. Nocon A., Wittchen H. U., Pfister H., Zimmermann P., Lieb R. Dependence symptoms in young cannabis users? A prospective epidemiological study, *Journal of psychiatric research* 2006; **40**: 394-403.
42. Callaghan R. C., Allebeck P., Sidorchuk A. Marijuana use and risk of lung cancer: a 40-year cohort study, *Cancer causes & control : CCC* 2013 Jul 12. PubMed PMID: 23846283. Epub 2013/07/13. Eng.
 "Big Marijuana Lobby Fights Legalization Efforts - Byron Tau." *POLITICO*. Accessed August 20, 2013. <http://www.politico.com/story/2013/07/big-marijuana-lobby-fights-legalization-efforts-94816.html>.
 "War on Drugs: REPORT OF THE GLOBAL COMMISSION ON DRUG POLICY JUNE 2011." REPORT OF THE GLOBAL COMMISSION ON DRUG POLICY, June 2011. http://www.globalcommissionondrugs.org/wp-content/themes/gcdp_v1/pdf/Global_Commission_Report_English.pdf.

Medical Marijuana: More Knowledge and Clinical Guidance Needed

Anna Reid, MD, CCFP-EM
President, Canadian Medical Association

Since 2001, following an Ontario Court of Appeal ruling that banning marijuana for medicinal purposes violated the *Canadian Charter of Rights and Freedoms*, Health Canada has struggled to find a way to allow Canadians access to therapeutic use of an otherwise illegal product. So far, its solution has been to make access to medical marijuana dependent on a physician's authorization, despite the grave concerns expressed by the medical community because of the general expressed uncertainty and lack of hard knowledge about the drug.

As a physician, I understand the desire of patients with chronic pain and other symptoms of severe illness to find relief from their predicament. Some patients claim that marijuana gives them the relief they seek, where conventional therapies have failed. In some cases, patients may be unable to access more specialized treatment. For example, specialists and specialty clinics to treat chronic pain, the condition for which medical marijuana is most frequently requested, are in short supply in Canada. In many parts of the country they do not exist; if they are available, the patient may spend months or years on a waiting list for their services.

I acknowledge that some health professionals believe marijuana has therapeutic value. However, many physicians have expressed concern about the risks of marijuana use, such as addiction or psychotic episodes, and the lack of knowledge about long term health consequences such as lung disease. Theoretically marijuana, when used for medicinal purposes, is regulated under the *Food and Drugs Act (FDA)*. However, because of its unique legal position, Health Canada has exempted it from the applications of the *FDA* and its regulations over prescription drugs, and therefore it has not undergone the scrutiny required of prescription drugs, approved for use in Canada. If marijuana was regulated as a prescription medication under the *FDA*, clinical trials would have been required before it could be approved for use; following approval it would have been subject to real-world monitoring for adverse reactions and other potential risks. By exempting marijuana from the *FDA's* requirements, the medical marijuana industry

was not required to develop clinical knowledge of the drug's therapeutic uses nor was it subject to the checks and balances of the *FDA* review processes. This places physicians in the role of "prescriber" for marijuana despite the shortage of clinical research regarding its use. I believe this is akin to asking doctors to prescribe while blindfolded.

Relatively few clinical trials of medical marijuana have been published. While some have shown therapeutic benefits for the patients, these published clinical trials are few in number, of short duration with small numbers of study subjects involved and therefore fall short of the standard of research normally required for a prescription pharmaceutical regulated under the *FDA*. Even those in the research community recognize that more study is needed (1-3).

Canadian physicians expressed these concerns to CMA in the spring of 2012 when we surveyed members of our physician "e-panel" to obtain more information about their attitudes and needs regarding medical marijuana. The 613 respondents to the survey told CMA the following (4):

- About 70% of respondents had been asked by patients to approve medical marijuana, though only 4% said they were asked to do so "often". Of those who were asked, one-third reported that they "never" supported such requests, while 18% "usually" did so.
- 64% of respondents were concerned that patients who request medical marijuana may actually be using it for recreational purposes;
- Over three-quarters of respondents said they would find more information on the appropriate use of marijuana for medicinal purposes, and on its therapeutic benefits and risks, useful or very useful; and
- About two-thirds agreed that they would feel more comfortable if physicians wishing to use medical marijuana in their practices were required to undergo specific training and licensing programs.

The public shares physicians' view that more research and information on medical marijuana's safety and effectiveness is required (5).

The most recent regulatory amendments to the

medical marijuana program focused on addressing serious concerns about the safety of home grow-ops and the establishment of good manufacturing processes. The CMA strongly urges the federal government to focus on improving patient care by advancing clinical knowledge of marijuana as a medical treatment.

Health Canada has produced a document entitled "Information for Health Care Professionals" (6), a lengthy and densely written compilation of knowledge available to date. Unfortunately, it does not fulfill the standards of a clinical guidance document (7) and is therefore of limited use as guidance to physicians. In particular, the medical community needs guidance that has been distilled into clinical advice a physician could use when deciding whether to recommend medical marijuana to a patient sitting in the office at that moment. CMA and other medical and health professional associations have recommended to Health Canada that it, or some other authoritative body:

- Support and fund scientific research on the clinical risks and benefits of marijuana;
- Undertake knowledge translation activities to convert this research into accessible, user-friendly tools for education and practice;
- Develop best practice guidelines in the therapeutic use of marijuana. Though this guideline would of necessity be based on "C" level evidence, it would be an improvement on what now exists; and
- Develop a compulsory training and licensing program for physicians wanting to authorize marijuana for medicinal purposes.

We also hope that through publications like this special *CJA* issue and through other journals and communication channels, physicians will continue to advocate for the tools and knowledge they need, develop an evidence base around marijuana as therapy and ensure that this knowledge is appropriately communicated to physicians, patients and all Canadians.

REFERENCES:

1. Comeau P. New dosage limits for medical marijuana: but where's the science?, *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne* 2007; **177**: 556-557.
2. Ware M. A., Wang T., Shapiro S., Robinson A., Ducruet T., Huynh T. et al. Smoked cannabis for chronic neuropathic pain: a randomized controlled trial, *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne* 2010; **182**: E694-701.
3. Degenhardt L., Hall W. D. The adverse effects of cannabinoids: implications for use of medical marijuana, *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne* 2008; **178**: 1685-1686.
4. Canadian Medical Association. Response to Health Canada's Medical Marijuana Regulatory Proposal, February 28, 2013. Accessed at http://www.cma.ca/multimedia/CMA/Content/Images/Inside_cma/Submissions/2013/Proposed-Medical-Marihuana-Regulations_en.pdf.
5. Online survey of 1,000 Canadians conducted by Ipsos-Reid for the Canadian Medical Association. Summary report of the poll can be accessed at http://www.cma.ca/multimedia/CMA/Content/Images/Inside_cma/Media_Release/2013/Medical-marihuana-poll_en.pdf.
6. See http://www.hc-sc.gc.ca/dhp-mps/alt_formats/pdf/marihuana/med/infoprof-eng.pdf.
7. See <http://canadiantaskforce.ca/methods/methods-manual/>.

Medicinal Use of Cannabis: CSAM Perspective and Policy Statement

CSAM acknowledged and carefully monitors the interest of the scientific community and the public in the therapeutic potential of Cannabis and Cannabinoids.

Cannabis is the most widely used illicit drug in Canada. A Canadian general population survey in 2004 reported that 14% of Canadians 15 years and older used Cannabis in the past year of which close to one third attributed their use to treating a medical condition.

Cannabis contains more than 460 known chemicals, more than 60 of which are grouped under the name Cannabinoids sharing a common chemical structure. Using Cannabis may negatively impact mental and physical health, cognitive functioning, the ability to drive a motor vehicle and pre and post natal development among offspring.

So far only a few controlled clinical studies of adequate size and duration have investigated the use of cannabis or cannabinoid products in specific therapeutic contexts. It is also noted that the pace of the clinical research is increasing.

There is sound evidence from animal and human data

that cannabis and cannabinoids are effective for the relief of nausea/vomiting and certain types of pain as well as for the stimulation of appetite but the evidence to date does not indicate that they are the best drugs to use for these purposes. There is also an ever increasing list of proposed therapeutic uses for which the evidence of efficacy is less clear.

Physicians as potential gatekeepers of patient access to cannabis are at a disadvantage due to the relative lack of information on the quality/composition of the cannabis materials and data on their efficacy/safety.

Of importance, according to the Marijuana Medical Access Act (MMARS), physicians do not prescribe the use of marijuana, they simply certify that patients have medical complaints that might benefit from the use of marijuana.

CSAM rejects smoking as a means of drug delivery since it is not safe. The uses of oral cannabinoid preparations (dronabinol and nabilone) as well as an oromucosal spray are under extensive investigation and may provide a safer alternate route of administration to smoking.

REFERENCES:

1. ASAM's policies listed above
2. Kalant H, Porath-Waller AJ. Clearing the smoke on Cannabis Medical Use of Cannabis and Cannabinoids, Canadian Centre on Substance Abuse, Ottawa, 2012.
3. Adlaf EM, Begin P, Sawka E (Eds.). Canadian Addiction Survey (CAS), Canadian Centre on Substance Abuse, Ottawa, 2005.

Approved by Standards Committee June 2012

CSAM SMC A

CSAM BOARD OF DIRECTORS

President

Dr. Brian Fern

Past President

Dr. Don Ling

Secretary/Treasurer

Dr. Ron Lim

BC Regional Director

Dr. Paul Sobey

AB Regional Director

Dr. Samuel Oluwadairo

SK Regional Director

Dr. Wilna Wildenboer-Williams

MB Regional Director

Dr. Nichole Riese

Ontario Regional Directors

Dr. Jeff Daiter

Dr. Melanie Willows

Quebec Regional Directors

Dr. Joseph Cox

Dr. Charles Mackay

New Brunswick Regional Director

Dr. Jeff Hans

Nova Scotia Regional Director

Dr. Ramm Hering

Newfoundland & Labrador

Regional Director

Dr. Wael Shublaq

Members at Large

Dr. Nady el-Guebaly

Dr. Sharon Cirone

CORPORATE SPONSORS

CSAM would like to acknowledge the support of OATC and their 2012 Conference Exhibitors.



Ontario Addiction
Treatment Centres

