Far From a Policy Green Zone:
Canada's Medical Marijuana Access Regulations

by

Kaleigh Nadine Johnston

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Name:	**Kaleigh Nadine Johnston**
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Title of Thesis:	**Far From a Policy Green Zone: Canada's Medical Marijuana Access Regulations**
Examining Committee:	**Chair: Nancy Olewiler** Director, School of Public Policy, SFU

Dominique M. Gross
Senior Supervisor
Professor, School of Public Policy, SFU _____

Jonathan Rhys Kesselman
Professor, School of Public Policy, SFU _____

Doug McArthur
Internal Examiner
Professor, School of Public Policy, SFU _____

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Abstract

This study investigates how medical marijuana can be made more accessible to Canadians in need of an exemption from the illegality of cannabis. Prior research suggests that medical marijuana users in Canada face numerous barriers to safe and meaningful patient access available through the exemption outlined in Marihuana Medical Access Regulations. Barriers affecting access include the onerous application process, the role of medical practitioners as gatekeepers, the lack of a legal effective supply, and the absence of a cost coverage model. An examination of international comparisons is used to identify where other jurisdictions' medical marijuana policies alleviate some of the barriers apparent in Canada's regulations. A series of elite interviews validate which options are politically feasible for Canada. Results from this research indicate that reducing the complexity of the application for an authorization to possess is the most favourable short-term option for improving access to medicinal cannabis in Canada.

Keywords: marijuana; medical; regulations; Canada; access; international comparison

When science and evidence based research,
especially in this day and age,
takes a back seat to cruel and punishment-based
ideologies, we not only have bad policy, we have a
direct threat to the very values of
compassion, humility, and respect for one another
that have made this country a great example to the
world for so long.

Author Unknown

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List of Acronyms

AIDS	Acquired Immunodeficiency Syndrome
AAMC	Association of American Medical Colleges
BCCLA	British Columbia Civil Liberties Association
BCM	Bureau voor Medicinale Cannabis (the Netherlands)
BCSC	British Columbia Supreme Court
CBD	Cannabidiol
CDPHE	Colorado Department of Public Health and Environment
CDSA	Controlled Drugs and Substances Act (Canada)
CMA	Canadian Medical Association
CMMED	Colorado Medical Marijuana Enforcement Division
DPPL	Designated Person Production Licence (Canada)
FCA	Federal Court of Appeal (Canada)
GST	Goods and Services Tax
HIV	Human Immunodeficiency Virus
MCP	Medical Cannabis Program (Israel)
METC	Medical Expense Tax Credit (Canada)
MMAD	Marihuana Medical Access Division (Canada)
MMAR	Marihuana Medical Access Regulations (Canada)
MMC	Medical Marijuana Center (the State of Colorado)
MMIPM	Medical Marijuana Infused Product Manufacturer (the State of Colorado)
MMOPC	Medical Marijuana Optional Premises Cultivation (the State of Colorado)
MMR	Medical Marijuana Registry (the State of Colorado)
MOH	Ministry of Health (Israel)
MOHWS	Ministry of Health, Welfare and Sports (the Netherlands)
NCSM	Nederlandse Associatie voor legale Cannabis en haar Stoffen als Medicatie (the Netherlands)
OECD	Organization for Economic Co-operation and Development
ONCA	Ontario Court of Appeal
ONDCP	Office of National Drug Control Policy (United States)
ONSC	Ontario Superior Court of Justice
PPS Inc	Prairie Plant Systems Inc.

PUPL	Personal Use Production Licence (Canada)
SoC	State of Colorado
THC	Tetrahydrocannabinol
UN	United Nations
USA	United States of America
USD	United States Dollar

Glossary

Cannabidiol	is a cannabinoid found in cannabis. Cannabinoids are a class of diverse chemical compounds that activate cannabinoid receptors.
Cannabis	in its literal form, refers to the hemp plant, *Cannabis sativa*.
Dispensaries	otherwise known as ‘compassion clubs,’ provide medicinal cannabis products to legitimate patients with a valid medical need.
Marijuana (Marihuana)	refers to the dried leaves and female flowers of the hemp plant, *Cannabis sativa*, when used in the form of a narcotic or hallucinogen. Health Canada uses the term and spelling of ‘marihuana’. For this research the spelling ‘marijuana’ is favourable as this is how the word is commonly recognized in Canada.
Medical	refers to something of, or relating to, the study or practice of medicine.
Medicinal	refers to something of, relating to, or having the proprieties of medicine.
Tetrahydrocannabinol	is the principal psychoactive constituent in the cannabis plant.

Executive Summary

Marijuana is a psychotropic drug that contains numerous compounds and can be produced in a variety of forms from one of three cannabis plants. The concept of medical marijuana comes from applying the beneficial side effects of cannabis' medical compounds to an individual, for the purpose of minimizing the undesirable side effects occurring in that patient's life. The precise number of Canadians that currently use marijuana for medicinal purposes is unknown; however, it is estimated to be in the range of 436,324 to one million users.

Since cannabis is an illegal substance, the Medical Marihuana Access Regulations (MMAR) set out a scheme for Canadians to legally have the right to marijuana for medical purposes. These regulations were initiated in 2001 based on a series of court cases that assessed the constitutional dimensions of an individual's choice to use an illegal substance to lessen their health effects from serious medical conditions and symptoms. The boundaries of these regulations are continually assessed through court cases which question the validity of the federal medical cannabis program. Recently, the federal government has proposed changes to the program; however, such policy amendments are in draft form, and have not been accepted.

As of December 2013, the government authorized 28,115 Canadians to possess dried marijuana legally. This is dramatically different from estimated numbers of medical marijuana users, which vary between one in every fifteen users and one in every thirty-five users who have access to legal supply.

The policy problem I examine is that Canadians in need of medical marijuana face numerous barriers to accessing it. Specifically, these include four limitations, focusing on supply barriers to accessing medical marijuana. First, the onerous application process that a prospective applicant of the program must complete. Second, that medical practitioners have unwillingly been placed in the role of gatekeepers to the program. Third, the lack of a legal supply that is permitted by Health Canada to meet user needs. Fourth, that there is no cost coverage associated with medical marijuana use.

Hence, I address the research question of how medical marijuana can be more accessible to Canadians in need of an exemption from the illegality of cannabis through a case study analysis comparing international policies on medical marijuana. I use Jacobs et al. (2012) analytical framework, which outlines supply-side barriers of accessibility, availability, affordability and acceptability to accessing health services, as a tool to guide the international policy comparisons. Sixteen key attributes for improving access to medical marijuana emerge from the Netherlands, Israel and the State of Colorado's medical marijuana policies. These key attributes narrow down to seven when compared to what Canada does not already have implemented. These seven key findings are supported through a secondary methodology of informant interviews. Each of the informants interviewed discuss effective ways to improve access to medical marijuana in Canada.

Four policy alternatives derive from the seven key findings. The objective of the proposed options is to eliminate supply-side barriers to medical marijuana. These alternatives are put forth to achieve the appropriate balance of needs between providing patients with reasonable access to a legal source of dried marijuana and the need to regulate marijuana. The proposed options that address the shortcomings of Canada's current policy are analyzed using the following five criteria: effectiveness, federal government acceptability, cost, administrative feasibility, and group equity. The four alternatives are as follows:

1. *Reduce the Complexity of an Application* for medical marijuana use. It is likely that a reduction in application complexity will reduce processing wait times;

2. *Increase the Number of Strains and Varieties* supplied to medical marijuana patients;

3. *Increase the Number of Access Points* where medical marijuana can legally be obtained from; and,

4. *Collect Revenue* from the sale of medical marijuana. Such an option could incorporate both private and public sector revenue.

In assessing each of the four alternatives against the five criteria the trade-offs between the options are identified. The option that is the best fit for the immediate future of improving access to medical marijuana in Canada is Alternative 1, decreasing the

application complexity. This option favours individual users in being able to complete the application, health care practitioners in having a reduced role in the application, and the federal government in decreasing the application assessment time. In the short-run this option will improve some of the barriers to access currently existing in the program.

My long-term recommendation is to assess the political and public culture of Canada to determine if any major drug reform may occur with marijuana. At which time, I recommend the adoption of Alternative 3, increasing the number of strains and forms of medical marijuana, or a completely different strategy around legalization and regulation.

1. Introduction

In Canada, cannabis is a regulated substance subject to the Controlled Drugs and Substances Act (1996). This act prohibits the possession; cultivation; trafficking; possession for the purpose of trafficking; importation; and, exportation of marijuana. In 2001 the federal government created Marihuana Medical Access Regulations (MMAR) to meet constitutional obligations. Through this legislation, Health Canada grants access to marijuana for medical use to individuals suffering from grave and debilitating illness. Despite the development of MMAR more than a decade ago and several amendments, large policy gaps continue to exist. As of December 2012, there are 28,115 authorized people in Canada to use cannabis legally. This number is drastically different from the one million Canadians who reported using cannabis for self-defined medical reasons.

This study aims to address the following research question: how can medical marijuana be more accessible to Canadians in need of an exemption from the illegality of cannabis outlined in the Controlled Drugs and Substances Act? The goal of the research is to eliminate supply-side barriers to medical marijuana improving, access for everyone who needs medicinal cannabis in Canada. Research for this capstone is based on the analysis of international comparisons and findings from elite interviews.

Creating an effective policy and set of procedures for safe and meaningful patient access to medical cannabis has proven to be a challenge in Canada. In this paper, I outline Canada's current legislation on access to medical marijuana and four primary supply-side limitations of MMAR. These limitations specifically focus on supply barriers to accessing medical marijuana. The first barrier is the onerous application process that prospective applicants of the program must complete. Second, is the position that medical practitioners have unwillingly been placed as gatekeepers to the program. Third, Health Canada permitted supply does not meet users' needs and demand. Finally, the cost of medical marijuana is not covered.

This paper is organized in the following way: Section 2 defines medical marijuana and describes its use. In Section 3, Canada's medical marijuana regulations are outlined. Data is provided on Canadian users of medical marijuana in Section 4. Section 5 outlines the limitations of MMAR. Section 6 outlines the societal motivation necessary for improving Canada's medical marijuana policy. Section 7 summarizes the policy problem and provides an overview of stakeholders involved. Section 8 describes the methodology of this research. In Section 9, the research findings are described. In Section 10, the policy objectives are defined, criteria and measures specified, and four policy alternatives are proposed. Section 11 addresses the policy analysis of each of these alternatives against the criteria and measures outlined in Section 10. Section 12 proposes a policy solution and Section 13 concludes with final remarks.

2. Medical Marijuana

This section identifies the multiple definitions of medical marijuana,[1] and examines marijuana's medical use. The terms 'medical' and 'marijuana' are defined; then, the cannabis plant and its active medical ingredients are briefly described. The medical use of marijuana is analyzed by outlining the number of users and their rationale for using marijuana.

2.1. Defining Medical Marijuana

To understand what medical marijuana is, it is useful to break these two terms apart. 'Medical' means related to the science of medicine, i.e., treatment of illness and injuries, and is similar to the term 'medicinal' that is defined as having healing properties relating to medicines or drugs.[2] The word marijuana is commonly used, but the scientific classification is cannabis,[3] which refers to a plant (Oxford English Dictionary, 2012).

Hall and Solowij (1998) describe in detail what the cannabis plant is and how it is used as a psychotropic drug. There are three varieties of cannabis plant: cannabis sativa, cannabis indica, and cannabis ruredalis. The most commonly used is the female cannabis sativa plant. Cannabis' primary component is tetrahydrocannabinol (THC), which is highest in the flowering tops of the plant. THC is just one of 400 compounds in the plant, including other cannabinoids. The tops of the plant are dried and can be inhaled or ingested, whereby THC and other cannabinoids are absorbed into the blood system. The primary effects are psychoactive, neurological, and somatic. There is no

1 Throughout this research, I use the spelling 'marijuana', as this is how the word is commonly recognized in Canada. However, Health Canada uses the spelling 'marihuana'.

2 Although defined differently, throughout this research the terms 'medical' and 'medicinal' are used interchangeably.

3 Throughout this research the terms 'cannabis' and 'marijuana' are used interchangeably.

confirmed published case worldwide of human death from cannabis (Hall and Solowij, 1998). In fact, cannabis is the most popular illicit substance. In 2009, it was consumed by between 125 and 203 million people worldwide (United Nations Office on Drugs and Crime, 2011). The global breakdown of recreational, medicinal and spiritual usage is unclear.

There are many ways to define medical marijuana, depending on the context. The federal government of Canada defines medical marijuana through identifiable terms outlined in the Controlled Drugs and Substance Act (CDSA) and Marihuana Medical Access Regulations (MMAR). Under MMAR it is defined as the substance referred to as *'*cannabis*'* in the CDSA. Here, cannabis is defined as its preparations, derivatives, and similar synthetic preparations, including cannabis resin, cannabis, cannabidiol (CBD), nabilone, pyrahexyl, and THC; it does not include non–viable cannabis seed, with the exception of its derivatives and mature cannabis stalks that do not include leaves, flowers, seeds or branches and fiber derived from such stalk (Government of Canada, 1996, Schedule II, Section 1(2)). The medical purpose of marijuana is defined as when a person uses cannabis to mitigate a Category 1 or 2 symptom (MMAR, 2001, Section.1). Category 1 includes specific symptoms and conditions that are listed in a schedule, while Category 2 includes symptoms that are not included in the Category 1 listing, but are associated with a medical condition or treatment (MMAR, 2001).

Given that definitions of medical marijuana are complex, I have chosen the following two definitions. First, I define 'medical marijuana' as applying the beneficial side effects of cannabis, in one of its various forms, to an individual patient, for the purpose of minimizing the undesirable side effects occurring in that patient's life. Second, I refer to 'legal medical marijuana' when an authorization to possess marijuana has been approved by Health Canada, for an individual suffering from a grave and debilitating illness.

2.2. Medical Use of Marijuana

The exact number of medical marijuana users is difficult to identify in Canada due to the illegality of possessing cannabis. In a 2004 survey, four percent of Canadians

aged 15 and older reported using cannabis for self-defined medical reasons at least once in the year prior to the survey (Canadian Centre on Substance Abuse, 2007). In another analysis, based on a population-level survey of Canadians aged 15 years and over, the Government of Canada reported that in 2011 the number of people who used marijuana for medical purposes was approximately 450,000 (Government of Canada, 2012b). Furthermore, the Canadian Association for HIV Research suggests that 14 to 37 percent of the 58,000 people in Canada living with a human immunodeficiency virus (HIV) use cannabis to treat medical symptoms (Costan, 2008). Similar figures exist for individuals with various medical conditions: 14 to 16 percent of people with multiple sclerosis, 10 percent of people with chronic pain, and 21 percent of people suffering from epilepsy (Clark et al., 2004; Gross et al., 2004; Ware et al., 2003).

There are a variety of therapeutic uses for medical marijuana, some of which have been documented for millennia.[4] Hence, numerous qualitative reports and a growing amount of quantitative clinical research recommend a valid case for cannabis' use for hunger stimulation in illnesses associated with weight loss; anti-emetic and anti-nausea properties in HIV/acquired immunodeficiency syndrome (AIDS) or cancer chemotherapy; antispasmodic properties for multiple sclerosis, epilepsy and other neurological dysfunctions; reducing intro-ocular eye pressure in glaucoma; and analgesic properties in a large number of chronic pain conditions such as arthritis or spinal cord injury or disease (Belle-isle, 2006; Ben Amar, 2006; Grotenhermen, and Russo, 2002; Hazekamp and Grotenhermen, 2010; Lucas, 2012a). In addition, patients may also use it for relaxation, reduced stress and anxiety, improved mood, coping with depression, better sleep, energy, exercise, recreation, and as harm reduction method (Belle-Isle and Hathaway, 2007; Lucas, 2012b).

Despite the historic medical use of cannabis and research in support of its useful proprieties, only a few nations have introduced policies allowing legal access to medical cannabis (Lucas, 2012b). Canada is one of them.

[4] The first known mention of cannabis as a medicine appears in the world's oldest known medical text, the *Pen Ts'ao Ching* composed around 2800 B.C (as cited in Lucas, 2008).

3. Medical Marijuana Access in Canada

This section outlines Canada's current legislation on access to medical marijuana. First, the history of legislation is reviewed. Second, the present regulations are outlined focusing on the application process, role of medical practitioners, access to supply, and the costs associated with medical marijuana. Finally, future potential changes to these regulations are briefly discussed.

3.1. History of the Regulations

Until the end of the twentieth century, there was no legislation in Canada regulating medical marijuana. During the late 1990's, legal decisions led to the foundation of such laws. Primarily, the argument put forth before the court is based on the Canadian Charter of Rights and Freedoms, more specifically an individual's "right to life, liberty, and security of the person" (Government of Canada, 1985, Section 7).

In 1997, the first Canadian constitution case over the right to use marijuana laid the foundational arguments for later medical marijuana court cases (ONSC, 1997). In 1999, Wakeford faced cannabis related charges for attempting to grow a medical marijuana supply to treat his symptoms associated with AIDS (ONSC, 1999). The court recognized Wakeford's right to accessing his medicine without fear of arrest. To comply, Health Canada amended Section 56 of the CDSA (1996) to allow qualified applicants federal exemptions from the cannabis possession law (Lucas, 2009). In the 2000 Parker ruling the Section 56 program was deemed unconstitutional, striking down Section 4 of the CDSA, the law relating to cannabis possession (ONCA, 2000). In response, in 2001 the Marihuana Medical Access Regulations (MMAR) was promulgated as an annex to the CDSA.

Numerous constitutional arguments emerged from the creation of these regulations. The 2003 Hitzig ruling upheld the right for patients to have access to a safe,

legal source of cannabis and, once again, found the federal program unconstitutional (ONSC, 2003). Based on this, Health Canada began a contract with Prairie Plant Systems Inc. (PPS Inc.) creating a supply of medical cannabis for federally registered users (Lucas, 2008). In the appeal of the Hitzig case, the court declared further sections of MMAR invalid, concluding that the requirement of Category 3 patients to obtain the declarations of two specialists violated Section 7 Charter rights (ONCA, 2003). In response, the number of symptom categories was reduced from three to two, merging the previous Categories of 1 and 2 together (Health Canada, 2006b). Applicants in the new Category 1 no longer need to see a specialist for the sole purpose of having their application signed. Applicants under the new Category 2 have to have their case assessed by a specialist, but the treating physician can sign the application form. In addition, the amendments also revised the applicant's declaration, clarifying the acceptance of risks associated with marijuana use. Also, the medical practitioner's declaration was revised.

In 2008, the Sfetkopoulos case ruled that the one producer to one user ratio unjustifiably limited the ability of authorized persons to access medical marijuana (FCA, 2008). In 2009, the Beren and Swallow case struck down the limit of three producers per location (BCSC, 2009). In response, Health Canada raised the limit on the number of production licenses from one to two and the number of producer locations from three to four.

3.2. Current Regulations

In the following section, I explain four components of the current regulations. These are: the application process, the role of medical practitioners, how the supply of marijuana is accessed, and costs involved.

3.2.1. Application Process

A step-by-step overview of requirements for an application of medical marijuana authorization are outlined in Appendix A. Below I discuss specific elements of this process.

Under MMAR, Canadian residents can submit a request for an authorization to possess dried cannabis for medical purposes to the Minister of Health.[5] This application requires a declaration of the applicant and a declaration of the medical practitioner treating the applicant.[6] The declaration of the applicant lists personal information and indicates if the medical marijuana being sought is going to be produced by the applicant, a designated person, or obtained from the federal government's licensed dealer.[7] If approved, the Minister issues an authorization to possess for medical purposes. The authorization granted to the patient indicates personal information about the applicant, the name of his/her medical practitioner, the maximum quantity of dried marijuana that the holder may possess,[8] the date of issue, and the date of expiry. Applications to possess medical marijuana are refused if the applicant is not an individual who ordinarily resides in Canada, or if any information in the application is false or misleading. The authorization is valid for 12 months, or less, if a shorter period is specified in the application. The application to renew requires a new applicant's declaration and a new medical declaration.

If applicants wish to produce marijuana for their own medical purposes, then they must complete a second application for a Personal Use Production Licence (PUPL). This application includes a declaration by the applicant and, if the proposed production site is not owned by the applicant, a declaration by the owner of the site. Outside of the generic information, this declaration includes the address of the proposed production site, the proposed indoor location where dried marijuana will be kept, and a description of the security measures that will be implemented at both sites. If approved, the Minister issues

5 In April 2012 the Supreme Court of British Columbia (BCSC, 2012) rendered a decision removing the word 'dried' from the MMAR. This allows for the possession and production of manual and chemical extractions of THC from marijuana (for example, hashish, hash oil, resin, and oil). This decision is applicable only in British Columbia and not the rest of Canada (Health Canada, 2012c).

6 Details on the declaration of the medical practitioner are addressed in Subsection 3.2.2.

7 Details on the supply of medical marijuana are addressed in Subsection 3.2.3.

8 The maximum quantity of dried marijuana is thirty times the daily amount of dried cannabis advised by an applicant's medical practitioner.

the applicant a PUPL for 12 months after its date of issue, or earlier if the date of expiry of the authorization to possess held by the licence holder comes first. [9]

If applicants want someone else to produce marijuana for their medical purpose, then their second application is for a Designated Person Production Licence (DPPL). People are eligible to be issued a DPPL if they ordinarily reside in Canada, are at least 18 years of age, and have not been found guilty, as an adult, within the 10 years preceding the application, of a designated drug offence in or outside of Canada. This application requires a declaration of the applicant, a declaration by the designated person, a declaration by the owner of the site consenting to the production of marijuana, and a document issued by a Canadian police force establishing no previous designated drug convictions. If all requirements are met, then the Minister issues the applicant a DPPL. Grounds for refusal and expiry dates are similar for DPPL and PUPL.

The MMAD has a service standard, which aims to process complete applications within 10 weeks of receiving the submission. This service standard is for new applications, renewals, or amendments to existing authorizations. Applications from people with symptoms being treated within the context of compassionate end-of-life care are given Health Canada's immediate priority (Health Canada, 2012b).

3.2.2. Role of Medical Practitioners

As mentioned in the previous section, the application for an authorization to possess includes a declaration by the medical practitioner treating the applicant. In this application, he/she indicates the applicant's medical condition, the symptom(s) associated with that condition, whether the symptom belongs to Category 1 or 2 and what conventional treatments have been tried and deemed to be ineffective or inappropriate.

Symptoms recognized through these regulations are broken into two categories. Category 1 includes symptoms treated within the context of compassionate end-of-life

[9] The maximum number of marijuana plants that may be under production at any time and the maximum quantity of dried marijuana that may be kept at the site authorized is based on a formula, which is dependent on if the production location is indoors, or outside.

care or symptoms set out in a list as an annex of the regulations (MMAR, 2001). Symptoms and associated medical conditions in this schedule include: severe nausea associated with cancer or AIDS/HIV infection; cachexia, anorexia and weight loss associated with cancer or AIDS/HIV infection; persistent muscle spasms associated with multiple sclerosis and spinal cord injury or disease; seizures associated with epilepsy; and, severe pain associated with cancer, AIDS/HIV infection, multiple sclerosis, spinal cord injury or disease, and severe forms of arthritis. Any debilitating symptom that is associated with a medical condition or a medical treatment of a condition not listed in Category 1 is known as a Category 2 symptom. The medical declaration for a Category 2 symptom requires that a medical specialist assess the applicant's case (MMAR, 2001, Schedule).

The medical practitioner is also required to determine the total amount of dried marijuana a patient is authorized to possess: a quantity that is thirty times the daily amount approved by the doctor. Also, the medical practitioner must indicate how the applicant will administer the marijuana. This decision includes discussing with the applicant the potential benefits and risks of using marijuana and ensuring the applicant is aware that no notice of compliance has been issued[10] concerning the safety and effectiveness of marijuana as a drug. The doctor must also indicate the anticipated time period of usage (MMAR, 2001, Section 6).

Under a Category 2 symptom, the application must indicate if the medical practitioner making the declaration is a specialist, his or her area of specialization, and how his or her area of speciality is relevant to the treatment of the applicant's medical condition. If the medical practitioner completing the medical declaration is not a specialist, then the application must indicate that a specialist has assessed the case. This would include the name of the specialist, his/her area of expertise, the date of the specialist's assessment, an indication that the specialist concurs that conventional treatments for the symptom are ineffective or medically inappropriate, and that the specialist is aware that marijuana is being considered as an alternative treatment for the applicant (MMAR, 2001, Section 6).

[10] The notice of compliance would be issued under the Food and Drug Regulations (Government of Canada, 2012a).

To summarize, medical practitioners' play a significant role including completing a declaration, and interpreting and applying federal legislation in terms of a patient's medical symptoms and conditions, the maximum quantity of dried marijuana to be authorized, the daily amount of dried marijuana suitable, the form of marijuana, how it will be administered, and the anticipated period of usage.

3.2.3. Access to Supply

Canadians can access a legal supply of marijuana in three different ways: an applicant can produce it themselves, a designated person can produce it, or it can be obtained from the licensed dealer producing cannabis under contract with the federal government of Canada (MMAR, 2001). In December 2000 Health Canada contracted with Prairie Plant Systems Inc. to cultivate and produce a supply of marijuana (Government of Canada, 2012b). They produce one strain of medical marijuana.[11]

Individuals that have an authorization to possess or a licence to produce marijuana have the option of accessing a supply of dried marijuana or marijuana seeds. Both require another application submission to either obtain dried marijuana or marijuana seeds. If the application is accepted, an approval letter is provided to the patient along with information regarding payment, order, and shipment. As a service standard, Health Canada supplies orders to program participants within 14 days of receiving the order (Health Canada, 2012b).

3.2.4. Costs

When accessing the federal government's supply of dried marijuana, the cost to patients for medical purposes is $5 per gram. The cost for marijuana seeds is $20 for a package of 30 seeds (Health Canada, 2012a).

Health Canada pays for the production of the marijuana supplied to authorized persons. The supply contract for 2013-2014 fiscal year has an estimated value of

[11] This line produces dried marijuana that has a THC level of 12.5 ± 2 percent and moisture content of approximately 14 percent (Health Canada, 2008).

approximately $9.7 million. In the 2011–2012 fiscal year, the government collected approximately $1,686,600 in revenue from sales of dried marijuana and seeds (Government of Canada, 2012b). Thus, supplying medical marijuana is costing the government approximately $8 million per year

3.3. The Future

In December 2012, the Minister of Health announced that the federal government intends to make changes to accessing medical marijuana. Under the proposed changes, the government will no longer produce and distribute medical cannabis; rather, companies that meet strict requirements will take on this role. Home growth will no longer be an option for patients, as personal-use and designated-person production licences will not be issued after October 2013. Patients will not apply to Health Canada for authorization to use medical marijuana; rather, medical practitioners will complete a prescription that patients will take to a licensed producer. The definition of 'authorized health care practitioner' will be expanded to include nurse practitioners. Categories of symptoms and conditions will be eliminated. Also, there will no longer be a requirement for some individuals to obtain the support of a medical specialist (Government of Canada, 2012b; Health Canada, 2012d).

Health Canada states the proposed modifications are intended to decrease red tape. The government also indicates there will be a reduction in program costs for the public under these changes. This is due to both decreasing Health Canada's administrative responsibilities and removing the current subsidies on marijuana sold by the government. The changes are intended to reduce criminal activity surrounding marijuana cultivation and increase safety for all Canadians. The proposed modifications will also make it easier for local municipalities to pass zoning bylaws on medical marijuana production (Government of Canada, 2012b; Health Canada, 2012d).

There are many concerns with these proposed changes. Medical practitioners will be forced to take an even greater role as gatekeepers for patient access to medical marijuana (CMA, 2012a). Also, the sale of medical marijuana will no longer be subsidized and privatization will mean higher costs for patients. In an analysis done by

Health Canada, it is assumed that the price of medical marijuana will increase to about $8.80 per gram, with a corresponding average annualized loss to consumers of approximately $166.1 million (Government of Canada, 2012b). It is the government's stated intention to fully implement this new system by March 31, 2014 (Health Canada, 2012d). However, to date, the policy changes are at the draft stage only.

To summarize, under the current Canadian regulations, legal access to medical marijuana includes four key elements; a person applying for an authorization to possess medical marijuana; a medical practitioner supporting of the applicant; the applicant applying for a source of marijuana supply; and submitting a completed application to Health Canada. In addition to this, a patient using medical marijuana must consider which, if any, of the legal supply methods and products work with their personal circumstances and health status, as well as the cost associated with these options.

4. The Number of Medical Marijuana Users in Canada

In this section, I outline the number of legally authorized medical marijuana users in Canada. Next, I briefly discuss some the demographics of Canada's authorized users and their reasons for using cannabis.

As of December 2013, the government has authorized 28,115 Canadians to possess dried marijuana legally.[12] This is the highest number of authorized individuals ever recorded under Canada's program since its implementation in 2001. The largest share belongs to British Columbia (48 percent), followed by Ontario (31 percent). Among authorized patients, 21,468 persons are allowed to produce marijuana for medical purposes. Eighty-four percent held a personal-use production licence and the remaining 16 percent hold designated-person production licences. Also among the total authorized users, 5,283 individuals indicated they accessed Health Canada's supply of dried marijuana or marijuana seeds (Health Canada, 2013).

In 2007, Lucas conducted an on-line survey on the personal experiences of patients in the federal cannabis program.[13] Survey responses were received from 100 federally-authorized users representing approximately five percent of the patients then enrolled in the program. The majority of this admittedly small sample was Caucasian males, over the age of 35. The bulk of the survey's respondents' highest education was secondary school or technical and non-university education with incomes ranging between $10,000 and $30,000. Pain relief was cited by the largest number of survey

[12] As of January 2010, Health Canada authorized 4884 people in Canada to use cannabis legally. When I asked Health Canada's Bureau of Medical Cannabis about the dramatic increase in the past two years, Client Services indicated that any increase in the number of authorizations issued was the result of an increase in the number of applications received that meet the requirements of the MMAR (personal communications, December 4, 2012).

[13] The survey was titled The Quality of Service Assessment of Health Canada's Medical Cannabis Policy and Program (Lucas, 2012b).

respondents as the reason for using medical marijuana (Lucas, 2012b). Appendix B outlines more details from the survey (Lucas, 2012b).

The 2004 Canadian Addiction Survey indicated that approximately one million Canadians use cannabis for medical reasons (Canadian Centre on Substance Abuse, 2007). The Government of Canada reported that in 2011 the number of people who indicated they used marijuana for medical purposes was approximately 450,000 (Government of Canada, 2012b). Using estimated number of patients with particular health conditions and estimated usage indicated by these patients, I approximate the number of patients that use medical marijuana in Canada. That number is nowhere near the number of legally authorized users. See Table 1 whereby it is calculated that there are somewhere between 436,324 and 454,023 HIV/AIDS, multiple sclerosis, chronic pain, and epilepsy[1] patients that use medical marijuana in Canada.

Table 1. Number of Medical Marijuana Users by Specific Health Condition

Health Condition	Number of Medical Marijuana Users	Percentage of Medical Marijuana Users	Population
HIV/AIDS	9982 - 26,381	14 – 37% [a/]	71,300 (Canadians living with HIV/AIDS) [b/]
Multiple Sclerosis	9100 - 10,400	14 – 16% [c/]	65,000 (55,000 to 75,000 Canadians living with Multiple Sclerosis) [d/]
Chronic Pain	344,828	10% [e/]	3,448,277 (10% of the Canadian population live with chronic pain) [f/]
Epilepsy	72,414	21% [g/]	344,827 (1% of the Canadian population has epilepsy) [h/]
Total	**436,324 and 454,023**		

[a/] Costan, 2008, [b/] Public Health Agency of Canada, 2012, [c/] Clark et al., 2004, [d/] Multiple Sclerosis Society of Canada, n.d., [e/] Ware et al., 2003, [f/] Canadian Institute for the Relief of Pain and Disability, 2010, [g/] Gross et al., 2004, and [h/] BC Epilepsy Society, 2009.

Thus, regardless of what the real number of medical marijuana patients in Canada is (somewhere in the range of 436,324 to 1,000,000), the 28,115 legally authorized users is not representative of the number of Canadian's needing medical marijuana for health purposes. On the lower end of the scale only one in every fifteen users have accessed this legal supply and protection. Higher estimates suggest only one in every thirty-five users are authorized under the federal program.

5. Limitations of Medical Marijuana Access Regulations

In this section, I address problems with Canada's medical marijuana legislation that have been raised in the literature. The focus is on supply-side barriers to accessing medical marijuana (i.e. policy gaps) including the onerous application process, a medical practitioner's role as the gatekeeper to the program, the lack of a legal supply of medicinal cannabis, and the absence of a cost coverage model.

5.1. Onerous Application Process

The application process for a license to use medical marijuana is lengthy and complicated for patients to navigate. An individual's application is a cumulative thirty-three pages long. There are eight different forms that patients may have to fill out, depending on their circumstance. A complete application could involve the coordination of over five individuals in addition to the applicant, including: an appointed representative, medical practitioner, a medical specialist, a designate person willing to grow marijuana, and consent of a property owner. Furthermore, Health Canada recognizes the lack of clarity with the application in its website by stating: "there are different application forms; depending on the type of access that you are applying for … it may seem confusing at first" (Health Canada, 2011). The Canadian Medical Protective Association (CMPA) has also developed a release from liability form for a medical practitioner's patient to sign referencing that the signee will not make any claim or complaint or commence any proceedings against the medical practitioner who is assisting the patient with an application for medical marijuana (Health Canada, 2011). From Health Canada's website, it is not fully clear if and when this release form is required. Health Canada claims that completing this form is not a requirement for obtaining an authorization to possess marijuana (Health Canada, 2006a). However, it also mentions that some doctors may require that the form be completed (Health

Canada, 2006a). To add to this lack of clarity, the release form is not located with the application, or on Health Canada's website, but can be found on CMPA's website.

Despite several amendments, applicants continue to describe the application process for medical marijuana as onerous and confusing. For example, the 2007 survey of legal medical marijuana users asked participants about the application process and 71 percent disagreed that the application process was simple and uncomplicated (Lucas, 2012b).

5.2. Medical Practitioners as Gatekeepers

Another policy gap regarding access to MMAR is that medical practitioners are unwillingly the gatekeepers to medicinal cannabis and often potential patients are unable to obtain the support required from a doctor.

The diversity and unpredictability of support was recently demonstrated in the Canadian Medical Association's e-Panel Survey focusing on their members'[14] attitudes on medical marijuana.[15] Over half of the members reported that they never support, or seldom support, a patient's access to medical marijuana (CMA, 2012b). Such figures are consistent with the 2007 survey where 50 percent of participants indicated that they had difficulty finding a medical practitioner to support their application (Lucas, 2012b).

The reason this is occurring is because the government has removed Health Canada as the only arbiter in approving or rejecting potential applicants to possess cannabis for medical use. Thus, medical practitioners are the ultimate deciders whether patients should be eligible to apply for a licence to use medicinal cannabis (Canadian Drug Policy Coalition, 2012). This idea is rejected by doctors who assert that Health Canada's responsibility is being off-loaded on them without the appropriate support for the medicinal properties of cannabis (Canadian Drug Policy Coalition, 2012). In fact, on July 15, 2003, the President of the Canadian Medical Association (CMA) wrote to the Minister of Justice stating:

[14] The CMA's members range from medical students to retired physicians.

[15] For more information, Appendix C summaries the 607 responses received.

> Physicians should not be the gatekeepers for a substance that has not gone through the established regulatory review process, as required by all other drugs. CMA has strongly recommended that the physicians of Canada not participate in dispensing marihuana under existing regulations, and warns that those who do, do so at their own professional and legal peril. (ONSC, 2011, line 152)

Although the CMA does accept that physicians who feel qualified recommend medical marijuana in accordance with the regulations, they firmly oppose the medical use of marijuana and recommend that physicians do not participate in the program because of failure by governments and manufacturers to provide adequate information regarding safety (Canadian Medical Association, 2011).

This limitation was highlighted in April 2011 by the Ontario Superior Court which ruled that ailing people are often unable to access medical cannabis through appropriate means and must find alternative illegal sources, risking arrest and criminal charges (ONSC, 2011). The ruling suggests that doctors' decisions to not support medical marijuana are based on the stigmatized view of marijuana, the lack of knowledge about the drug, and the disproval of the CMA. This ruling mandated the government to address such legislative flaws. If not, the criminal law against the possession and production of cannabis contained in Sections 4 and 7 of the CDSA would be constitutionally invalid (ONSC, 2011, line 345).[16]

5.3. Lack of a Legal Effective Supply

Lack of access to a legal supply of medicinal cannabis is another issue. As explained in Section 3.2.3, there are three ways to access medical marijuana legally; however, for some users these options are not effective ways. For example, with regards to licenses to grow, some patients suffering from serious medical conditions do not have the time, means, energy, or knowledge required to grow cannabis, or are unable to find another person willing to do so. When considering the Health Canada supply, Lucas'

[16] The federal government appealed this ruling. On February 1, 2013, the court upheld the Crown appeal and overturned the previous ruling, ordering a new trial. Thus, current cannabis laws and regulations remain in place.

2007 survey identified that only 8 of percent authorized cannabis users obtain it from Health Canada (although nearly half stated that they had tried the federal supply).

This may be because only one strain of cannabis is available for purchase from the government in the form of dried marijuana or seeds and it may not meet medical needs. See Lucas' 2007 survey where 88 percent of participates indicated that they smoke cannabis, 71.6 percent eat it, 52 percent use vaporizers, and 18.2 percent use tinctures.[17] Also, 90 percent of respondents stated they would prefer to have access to raw cannabis as well as other methods of ingestion like baked goods, tinctures, and hashish, compared with 9.8 percent who would prefer a cannabis-only outlet. In terms of patient preferences and treatment efficacy, 90.9 percent reported that not all strains are equally effective at relieving their symptoms. This resulted in 97.6 percent of respondents preferring to obtain cannabis from a source that offers a large selection of different strains rather than 1 or 2 strains. More than half of the respondents reported that they frequented dispensaries and 22 percent claimed they obtain cannabis from an illegal source (Lucas 2012b).[18] A focus group facilitated by the Canadian Aids Society confirms this result when one participant stated "many people are in a situation where they have to break the rules to be able to supply themselves" (Belle-isle, 2006, p. 47).

Hence, the three ways of legally accessing medical marijuana in Canada are not meeting the needs of patients; neither is Health Canada's single strain of dried cannabis. This is because all legal avenues to obtain medical marijuana (an individual license to grow, a designated licence to grow, and through courier from the federal governments contracted supplier) come down to obtaining the seeds or dried marijuana from government. This supply is only one strain of cannabis which does not meet all users' medical needs. Thus, Canadians are resorting to illegal ways of treating their illnesses such as the black market where thousands of strains and varieties of marijuana are available.

[17] Survey respondents were able to cite multiple ways of using medical marijuana.

[18] It is illegal for dispensaries to sell or provide marijuana to those who have authorization from Health Canada to possess marihuana for medical purposes (Health Canada, 2010).

5.4. No Cost Coverage

Unlike other medications prescribed by a doctor, medicinal cannabis is not covered under any provincial government drug program or private insurance. Lucas' 2007 survey reported that 46 percent of respondents stated that they could not afford enough cannabis to relieve their symptoms (Lucas, 2012). Costs of using medical marijuana vary depending on the amount used and the source of obtaining it. If an individual smoked 1-gram per day of Health Canada's marijuana this would cost over $150 per month, and 5-grams per day would cost them over $750 per month (Health Canada, 2012a). Many users find that the one strain of medical marijuana supplied by federal governments is not effective in meeting their medical needs and go elsewhere to obtain effective marijuana for their symptoms. The estimated black-market price for 1-gram of marijuana is $15.3 (See Table 2 in Easton, 2004). Thus, using 1-gram per day of black-market marijuana would cost users approximately $450 a month while 5-grams per day would cost over $2,250 a month. Belle-isle (2006) further describes how the initial costs of setting up a home garden for cannabis acts as a barrier for individuals to start producing for themselves, or for someone else. The Medical Expense Tax Credit (METC) is granted to those who are authorized to possess medicinal cannabis (Canada Revenue Agency, 2013). However, to be eligible cannabis has to be purchased from Health Canada, or from a designated grower. Thus, authorized persons who grow their own cannabis are ineligible for the tax credit (Belle-isle, 2006).

To summarize Canada's medical marijuana regulations are inhibiting access for patients who have serious medical symptoms and health conditions. In particular the application process is too lengthy and complex for patients to navigate; medical practitioners are unwillingly the gatekeepers leaving potential patients unable to obtain the support required; the current supply mechanisms do not allow for patients to obtain the medication they require, and there is no cost coverage available leaving users with these potentially high costs.

6. Why is Access to Medical Marijuana Important?

This section outlines why access to medical cannabis is important to Canadians. This includes arguments on human rights, public cost, and social harm. It also considers the political context as to why these changes not have occurred.

6.1. Human Rights

Canadian Courts have established that individuals who have demonstrated a medical need for marijuana have a right under the Canadian Charter of Rights and Freedoms[19] to possess and access a legal supply of marijuana (ONSC, 2011). Since the Canadian Constitution does not explicitly state that Canadians have a guaranteed right to health, arguments for access to health services have always been put forth as a violation of Charter rights. Due to the numerous limitations in MMAR that impact a person's ability to obtain medical marijuana, individuals are being deprived of their Charter right to make medical decisions of fundamental personal importance (the "liberty interest") and to make autonomous decisions about their bodily integrity (the "security of the person interest"; Betteridge, 2003; Government of Canada, 1985, Section 7). Liberty interest includes the right to the choice of medication to alleviate the effects of an illness with life-threatening consequence (ONSC, 2011). Security interest refers to preventing someone from using marijuana to treat a condition, by threat of criminal prosecution, as it constitutes an intrusion with an individual's physical and psychological integrity (ONSC, 2011). Thus, the Charter protects the right of Canadians to make choices concerning their own body where control over individual physical and psychological choices must occur free from criminal prosecution (ONCA, 2000).

[19] Otherwise known here on as "the Charter".

6.2. Public Costs and Social Harm

In the use of marijuana in general (not specifically medical marijuana), there are associated public costs. The majority of the costs are related to enforcement of this controlled drug. Based on 2002 data, government expenditures for marijuana cost the public $1,167.8 million in enforcement and $73 million in health care. Hence, the enforcement costs are $328 per user and health care costs $20 per user. This illustrates that the health care concerns for medical marijuana may be relatively small with low costs and that the real costs lie in enforcement (Thomas and Davis, 2009).

When the general health care costs of marijuana are compared with the health costs associated with tobacco or alcohol, they are dramatically smaller. For example, in 2002 Canadian health care costs associated with tobacco use were $4,360.2 million and for alcohol use were $3,306.2 million (Thomas and Davis, 2009). In comparison, in the same year, Canada's marijuana health care costs were less than 2 percent of tobacco health care costs and 3 percent of alcohol health costs.

Nolin et al. (2002) argues that some of the greatest potential harms associated with cannabis use are not health based, but relate to its illegal status, including arrest or the vagaries of the black market. Although there are no numbers attached to how a better medical marijuana policy could impact enforcement costs, it seems plausible that such a policy could minimize some of these costs for the Canadian public. A medical marijuana policy where users are able to access the needed product may reduce some of these costs. For example, if people were able to overcome the onerous application process and find a medical practitioner willing to support their application, they would be more likely to be an authorized individual possessing marijuana rather than an individual committing an illegal crime. Also, if a suitable legal source of supply were easy to find then there would be no need to access the black market for marijuana. Finally, a program with fewer gaps would reduce the harm associated with medical marijuana, including arrest and those that arise from the illegal sale of marijuana.

Another potential public cost savings is using medical marijuana as an alternative to another substance. There is a growing body of evidence to support the use of medical marijuana as an adjunct or substitute for prescription opiates. Using medical marijuana

as a substitute to prescription opiates can prevent the development of tolerance to, and withdrawal from, pharmaceutical medications. Considering that opiates are one of the most widely prescribed treatments for chronic pain, and come with the potential for serious side effects including death, medical marijuana seems like a possible positive alternative. Unlike opiates, medical marijuana has a low potential for individual harm, abuse, and minimal impacts on public health costs, thereby creating a reduction in social harms for Canadians and an opportunity for public cost effectiveness (Lucas, 2012a).

6.3. Political Considerations

Proper access to medical marijuana is an important policy problem. It is an issue that is legally supported by the Canadian Charter and human rights, creating costly Supreme Court hearings. Also, there are opportunities to reduce public costs and social harm produced by the current ineffective medical marijuana regulations. However, despite these strong arguments for improving access to medical marijuana in Canada it is not a topic that has been well received by the federal government despite being pushed so strongly by the courts. Some reasons why this may be occurring are negative externalities on the federal government putting forth policy changes for medical marijuana. I highlight two of these externalities.

First, as with most political issues, there is not consistent support in public opinion for medical marijuana in Canada. For example, in response to the federal government's proposed policy changes in December 2012 a survey was conducted with over a thousand Canadians. Results indicate that 79 percent agreed that Health Canada has a responsibility to maintain its role and continue to authorize the use of medical marijuana for patients (Ipsos Reid, 2013). This result directly opposes the premise of Health Canada's December 2012 proposed changes to the program. This particular survey is broken down by gender, age and education where different voter attitudes

towards the issue can be determined. On the topic of marijuana in general, geographic public opinions also differ across Canada. [20]

The second negative externality is the adverse effects that come from managing a substance with blurred recreational and medical boundaries. In the 21st century, cannabis is the most widely used illicit drug in the world, with the United Nations estimating that up to 203 million people consumed cannabis in 2009 (United Nations Office on Drugs and Crime, 2011). As recreational use continues to be endemic and medical use burgeons, it becomes increasingly clear that the two are not distinct from each other, with implications medically for both seasoned and naive users (Bostwick, 2012). So it is challenging to determine what proportion of marijuana users is recreational, and thus illegal under Canada's Criminal Code, and what proportion is medical, and thus should have the support of the government. This overlap between medical users and recreational users is demonstrated in Furler et al. (2004) which shows that among 104 HIV positive adults, 43 percent reported cannabis use in the previous year. Two-thirds of the study's participants endorsed medical indications; 80 percent of this group also used it recreationally (Furler et al., 2004). In such a situation it is likely that some medical users may not be able to use legally this medication while some recreational users may obtain an exemption from marijuana's illegality despite not medically requiring it.

Despite these plausible negative externalities to improving Canada's medical marijuana policy the issue remains that somewhere in the range of 436,324 to 1,000,000 individuals are using marijuana to treat their medical symptoms and conditions. On the lower end only 7 percent of users have accessed to the legal supply and protection offered by the federal program. Thus, even with recognition of Canada's political considerations and the adverse effects that may occur from improvements to the policy such outcomes should be viewed as tolerable when so many Canadians face barriers to meaningful medication.

[20] In 2010 the majority of Canadians (53 percent) supported the legalization of marijuana. People in British Columbia (61 percent), Alberta (59%) and Ontario (57%) hold the highest level of support for the legalization of cannabis (Angus Reid, 2010).

7. Policy Problem and Stakeholders

The policy problem being addressed is**:** Canadians in need of medical marijuana face numerous barriers to safe and meaningful access to medical marijuana. I focus on the supply-side barriers to accessing medical marijuana, specific to Canada's regulations, as opposed to the demand-side barriers specific to consumers of medical marijuana. Major supply barriers include the onerous application process, the role of medical practitioners as gatekeepers to the program, the lack of a legal type and source of marijuana, and the absence of a cost coverage model. Addressing such barriers is important, as Canadians legally have the right to access medical marijuana. As well, accepting Canadian's Charter right to medical marijuana reduces public costs and social harm associated with marijuana.

The major stakeholders in this policy problem include: the federal government, Canadian users of medical marijuana, health care practitioners and advocates of medical marijuana use. The federal government's department of Health Canada is an important stakeholder as it is the authority that grants access to marijuana for medical use to those suffering from debilitating illnesses. Canadian users of medical marijuana are the targeted beneficiaries of this policy, thus, are important to the policy debate. Medical practitioners are also significant stakeholders, as their support for a patient through a medical declaration is necessary prior to any individual being authorized to use medical cannabis. Finally, historically, advocates of medical marijuana use have been the leading avenue of change, promoting challenges to Canada's medical marijuana regulations by supporting individuals attempting to access this substance through numerous ways, most notably the Canadian courts.

Minor stakeholders in this policy problem include those who distribute medical marijuana such as designated persons, commercial manufacturers, compassion clubs, and pharmacies. These groups are important as they represent both the legal and illegal ways that patients obtain their supplied remedy. Also, associations that medical

practitioners are organized under, or insured by, are important actors in this policy problem, as many of these organizations insure physicians or advocate on their behalf, thus, influencing the decisions that they make. Medical associations are separated stakeholders from medical practitioners as they are a body of collective interests, which can be fundamentally different from the individual choices of health care practitioners. Finally, municipal governments, provincial and territorial ministries of health, provincial and territorial ministries of public safety and justice and law enforcement officials are important participants that support and enforce the regulations set out by the federal government.

8. Methodology

This section outlines the research question and both the primary and secondary methodologies used to identify the causes of the problem. The primary methodology is case study analysis comparing international policies on medical marijuana using a framework inspired from Jacob et al. (2012). The secondary methodology is elite interviews to assess feasibility concerns of potential solutions that arise from my analysis. The research question addressed through these methodologies is: how can medical marijuana be more accessible to Canadians in need of an exemption from the legal constraints on cannabis.

8.1. Selection Criteria for International Comparisons

In an assessment of previous research studies on Canada's medical marijuana policy, academic international comparisons have been done only to a limited degree. Most of the Canadian research focuses on the legal arguments and court cases regarding the medical use of cannabis, interviews, surveys or focus groups of legal or illegal medical marijuana users, and the scientific, medical efficacy of marijuana.

When Canada's medical marijuana policy is compared to other jurisdictions, there seems to be a mix of jurisdictional choices. For example, Belle-isle (2006) briefly examines the Dutch policy that allows for medical cannabis to be dispensed through pharmacies, determining if such an approach would be effective in Canada. Lucas (2012b) illustrates Oregon's medical marijuana program's two-page application process as a positive example to learn from when highlighting Canada's burdensome and difficult application process. Lucas also highlights California's compassion clubs as a way to facilitate access to a safe supply of cannabis for medical users (2012b). As a result, I believe that contrasting international comparisons with Canada's medical marijuana policy is a methodology that should expand findings.

I developed a set of characteristics to identify relevant international comparisons. I look at cases with established medical marijuana regulations that have similar societal, jurisdictional and economic traits to Canada. As there are few countries that have medical marijuana regulations, the criteria remained somewhat general. The jurisdiction: is, or belongs to, a country within the Organization for Economic Co-operation and Development (OECD); is, or belongs to, a country that is a member of United Nations (UN) Single Convention on Narcotic Drugs from 1961[21]; is a democracy; has a national law whereby marijuana is a controlled substance; regulates medical marijuana; and is viewed as a leader in the medical marijuana field.

My chosen cases are the Netherlands, Israel, and the State of Colorado in the United States of America (USA). Comparison of the selection criteria to each of these cases is outlined in Table 2. Each of the chosen cases is, or belongs to, an OECD country, with Israel being the most recent to join. Each of these jurisdictions is a member of, or belongs to a country that is a member of UN Single Convention on Narcotic Drugs. All three have democratic governments. In each of the jurisdictions, marijuana is a controlled drug, and regulated as a medical substance. For clarity purposes, the policy, program, and authority are outlined for each of the medical marijuana regulations. Finally, the number of medical marijuana users is indicated for each of the three jurisdictions. Statistics showing the Netherlands having between 1000 to 1500 medical marijuana users, Israel 9300 and Colorado 107,666 suggest that these cases are examples of leaders in the medical marijuana field.

[21] This is an international treaty that prohibits the production and supply of specific drugs. The treaty makes exceptions for particular substance use when done under licence for specific purposes, such as medical treatment and research. In order for such exceptions to occur, the treaties obligate a country to establish a national agency (United Nations, 1961).

Table 2. International Comparison Selection Criteria

	The Netherlands	Israel	State of Colorado (USA)
OECD Country	As of November 13, 1961	As of September 7, 2010	Belongs to USA which has been since April 12, 1961
A member of the UN Single Convention on Narcotic Drugs	Yes	Yes	Belongs to USA which is a member
Government	Representative Democracy	Parliamentary Democracy	Representative Democracy
Marijuana as a Controlled Substance	Opium Act	Dangerous Drugs Ordinance (New Version)	Controlled Substances Act
Medical Marijuana Policy	Opium Act	Dangerous Drugs Ordinance (New Version)	Colorado Constitution Article XVIII Regulation 5 CCR 1006-2 Medical Use of Marijuana Colorado Medical Marijuana Code
Program	Bureau voor Medicinale Cannabis Program	Medical Cannabis Program	Medical Marijuana Registry
Authority	National, Ministry of Health Welfare and Sports (MOHWS)	National, Israeli Ministry of Health (MOH)	State, the Colorado Department of Public Health and Environment (CDPHE)(Patient Registry) State, the Department of Revenue (Medical Marijuana Center (MCC))
Number of Medical Marijuana Users	1000 to1500 (November 2012)	9,300 (September 2012)	108,526 (December 2012)

8.2. Evaluation Framework

To my knowledge, no specific model exists for evaluating access to medical marijuana programs. Therefore, I describe an analytical framework to identify barriers to accessing health services and select appropriate interventions to overcome such obstacles. Since I am examining ways to improve Canada's current medical marijuana access, Jacobs et al. (2012) analytical framework is a suitable evaluation model, as it specifically outlines supply-side barriers to accessing health services and has the details necessary to be used as an evaluation tool.

Jacobs et al. (2012) identify health service barriers according to two criteria. First, the dimensions of health service access, which are categorized into four groups: geographic accessibility, availability, affordability, and acceptability; and, second, a categorization of barriers to the supply-side or demand-side of health services. In Table 3, I adapt Jacobs et al.'s analytical framework. Since the focus of this paper is on supply side barriers I retain Jacob et al.'s supply-side classification that focus on aspects inherent to the health system, hindering service uptake by individuals, households or community. I eliminate the demand-side barriers of the framework, as these are attributed to consumer characteristics, elements that are not a focus of this paper. When using Jacob et al.'s categorization of health service access, I broaden the category of 'geographic accessibility' to 'accessibility.' I define accessibility as a service that can be reached or entered. For the other three categories of health service access, I use the definitions used by Jacob et al (2012).

Table 3. Overview of Supply-Side Barriers to Medical Marijuana, Along Four Dimensions of Access

Accessibility
Type of regulator Type of service providers Geographic locations Number of providers
Availability
Decision maker determining if supply should occur Criteria for determining supply Types and quality of supply offered
Affordability
Costs and prices of services for patients Private-public dual practices
Acceptability
Complexity of applications process

Adapted from Jacobs et al. (2012).

Table 4 outlines the framework of analysis for medical marijuana policies and defines the measures to identify the best practices. Accessibility is assessed by first examining the type of regulator, i.e., the government jurisdictional levels that control

marijuana and regulate medical marijuana; and, second, the type, number, and geographic dispersion of service providers responsible for supplying medical marijuana to patients. Availability is characterised by the decision maker and criteria used for determining if supply will occur to a patient, and the type of supply offered. It is measured by how many different types of decision makers there are, the total number of decisions makers available in the jurisdiction and if there is criteria used for making a decision. Supply is measured by the number of varieties and strains available and if quality assurance standards are in place. Affordability is measured by the price per gram of medical marijuana in United States Dollars (USD); if cost coverage is available; if revenue is obtained from this industry, and where the revenue goes. Finally, acceptability deals with the application process and is measured by the number of steps necessary for an application of medical marijuana, as well as the length of time, in weeks, for an approved application to be assessed.

Table 4. Supply-Side Barriers, Characteristics and Measures

Characteristic	Measure
Accessibility	
Type of regulator	What level of government regulates medical marijuana?
	Are the laws controlling marijuana under the same level of government as the laws regulating medical marijuana?
Type of service provider	Who provides medical marijuana to patients?
Number of providers	How many different types of service providers are there?
	How many service provider locations are there?
Geographic service locations	Is medical marijuana equally accessible to those in urban and rural or remote areas?
Availability	
Decision maker determining if supply should occur to a patient	Who makes the decision if a patient should be permitted to use medical marijuana?
	How many different types of decision makers determine if a patient should be permitted to use medical marijuana?
	How many decision makers are there in total that determine if a patient should be permitted to use medical marijuana?
Criteria for determining if supply should occur	How is the decision determined about who should or should not obtain medical marijuana?
Types of supply offered	How many varieties (forms) of medical marijuana are available?
	How many different strains of medical marijuana are available?
	Are procedures in place to determine the quality of the supply offered?
Affordability	
Costs and prices of services for patients	How much does one gram of medical marijuana cost the patient?
	Is any cost coverage available for the medical marijuana user?
Private-public dual practices	Is revenue obtained from selling medical marijuana?
	Who obtains the revenue from selling medical marijuana?
Acceptability	
Complexity of applications system	How many steps are involved in an application for medical marijuana?
	How long does it take for someone to be approved to use medical marijuana?

These criteria are used to compare the jurisdictions and identify key attributes in policy that improve access to those that need medical marijuana.

8.3. Selection of Interview Informants

Representation of each of the stakeholders groups identified in Section 7 is attempted in the selection of interview informants. However, this is not possible due to minimum responsiveness received from the interview requests. I sent out twenty-two requests for interviews, received six declines, nine non-responses and seven acceptances for interviews. Many of my interview participants have more than one stakeholder viewpoint. Thus, for my sample I secured seven informants representing the following categories: two legal users of medical marijuana; two health care practitioners (outpatient psychiatrist for cancer patients and a registered psychologist); six advocates for medical marijuana (an individual activist, the policy director for a legal civil liberties organization, the chair for a drug policy coalition of non-government organizations, a program consultant from a national coalition of health organizations, a principle investigator for a not-for-profit organization promoting a community-based approach to medical cannabis access, and a director of a not-for-profit alliance for medicinal cannabis patients); three distributors of medical marijuana (two authorized designated persons and a commercial manufacture), a municipal government mayor; and, a provincial government representative (former Attorney General of British Columbia). It is important to state that all informants were from western Canada.

First, I sent potential informants an invitation to participate in the interview where I described my research. Once an invitation was accepted, the interview guide and consent statements were sent. All interviews occurred over the phone or electronically. I asked informants questions about whether access to medical marijuana was an issue in Canada and, if so, how it should be improved. Appendix D contains a copy of the interview questions used.

9. Research Findings

This section provides an overview of the medical marijuana programs in the three selected jurisdictions: the Netherlands' Office of Medicinal Cannabis program, Israel's Medical Cannabis Program, and the State of Colorado's Medical Marijuana Registry.[22] The summary of my comparative analysis appears in Table 5. From such an analysis, I determine barriers that are addressed systematically in the three cases and are absent, or inadequately addressed, in Canada's medical marijuana program. This is presented in Table 6. Next, I use interview data to determine the feasibility of international comparison findings as potential policy improvements in Canada. Interview data is presented in Table 7.

9.1. International Comparison Analysis

When summarizing the international comparisons, it was very rare for all three jurisdictions' medical marijuana policies to have a consistent answer for any one measurement of a characteristic. Despite the limited uniformity between all three jurisdictions, there were numerous examples where two jurisdictions' policies had consistent responses to a measurement. These key findings are discussed below.

9.1.1. Accessibility

In both the Netherlands and Israel, the federal government regulates medical marijuana, which is the same level of government that controls marijuana use. However, in Colorado medical marijuana is regulated by the State, as federally marijuana is

[22] Appendix E describes the specific details of each of the medical marijuana policy for the jurisdictions being examined and outlines how each address the supply-side access barriers of accessibility, availability, affordability, and acceptability.

viewed as having no accepted medical use and is an illegal substance subject to criminal prosecution (ONDCP, n.d.).

There is no consistency between cases in which service providers are used in supplying medical marijuana. The Netherlands use pharmacies (Sandvos, 2009); Israel uses hospitals and a storefront distribution centre (personal communications with Bedrocan Israel Ltd., January 7, 2013); and, Colorado has Medical Marijuana Centres (MMC) and allows for personal growing (Colo. Const. Art. XVIII, 2012, Section 14). There is uniformity between Israel and the State of Colorado in providing two different types of service providers. Also, a large number of service provider locations are provided in both the Netherlands (1850 pharmacies, as of December 2012) and the State of Colorado (528 MMCs, as of December 2012) (personal communications with NCSM, December 11, 2012; personal communications with CMMED, December 18, 2012). Equitable geographic accessibility to the service providers of medical marijuana varied considerably between the three jurisdictions.

9.1.2. Availability

In all three regions, a doctor was one, if not the sole, decision maker in determining if a patient should have access to marijuana. In Israel and the State of Colorado, a government authority was an additional decision maker in determining if supply of medical marijuana should be provided to a patient. Thus, in these two jurisdictions, two decision makers were necessary to determine if supply should occur. In all three cases there were numerous medical professionals available to determine if the supply of medical marijuana should occur. This number ranged from 13,250 to 59,000. However, although these individuals were available, data was not found on the number of decision makers that actually participated in granting medical marijuana to patients (except in Colorado where as of November 2012, approximately 900 different physicians have signed authorizations for patients) (State of Colorado, 2012a). In Israel and the State of Colorado there was a list of conditions that set criteria for determining if supply should occur, while in the Netherlands this decision was left to the discretion of the health care practitioner.

In Israel and the State of Colorado, the supply of medical marijuana was available in numerous forms and strains. The Netherlands have four types of medicinal cannabis with two routes of administration available (BMC, n.d.). In the Netherlands and in the State of Colorado, procedures are in place to determine the quality of supply offered.

9.1.3. Affordability

Both the Netherlands and the State of Colorado have an average price of approximately $11 USD per gram for medical marijuana. In comparison, Israel charges a set price of $100 USD per month, regardless of quantity (averaging $2.20 USD per gram) (Natan, 2012). None of the programs examined provided uniform cost coverage for medical marijuana patients; however, through private insurance in the Netherlands and government funding for people injured in vehicle accidents and military servants in Israel, examples emerged that some levels of cost coverage are occurring (BMC, n.d.; Natan, 2012). In all three international comparisons reviewed, revenue was obtained from selling medical marijuana. In each circumstance at least some, if not all, of this revenue benefit for the private sector.

9.1.4. Acceptability

Both Israel and the State of Colorado have four steps, or less, involved in an application process. The applications for these two jurisdictions were assessed within six weeks or less. The Netherlands could also be considered positively under acceptability, as there was no application process necessary for patients to be accepted to use medical marijuana, thus, application processing times were not applicable.

Table 5. International Comparison Summary of Medical Marijuana Programs [23]

		The Netherlands	Israel	State of Colorado (USA)	Key Attributes
Accessibility					
Type of regulator	Level of government regulating medical marijuana	Federal	Federal	State	Federal
	Same level of government for the control of marijuana and regulating medical marijuana?	Yes	Yes	No	Yes
Type of service provider	Provider of medical marijuana to patients	Pharmacies	Hospitals Storefront distribution center	Personal Growth MMCs [a/]	-
Number of providers	Number of different types of service providers	1	2	2	Two different types
	Number of service provider locations	1850 [b/]	4 [c/]	528 [d/]	525 +
Geographic service locations	Equally accessibility in urban and rural areas	Yes	Somewhat	No	-

[23] All data found in this table is outlined in detail in Appendix E. Appropriate sourcing of this data can be found there.

		The Netherlands	Israel	State of Colorado (USA)	Key Attributes
Availability					
Decision maker determining if supply should occur to a patient	Decision maker determining if patients should be permitted to use medical marijuana	Licensed Health Care Practitioner	Specialists; and, General manager of the MOH [e/] or one of six approved oncologists	Licensed Physician; and, CDPHE [f/]	A licensed doctor Governmen t authority
	Number of different types of decision makers necessary to determine if a patient should be permitted to use medical marijuana	1	2	2	Two different types
	Number of decision makers there are that determine if a patient should be permitted to use medical marijuana	59,000 [g/] Licensed health care practitioners	28,000 [h/] Specialists 7 (the general manager of the MOH or one of six approved) oncologists)	13,243 [i/] Licensed Physicians 1 CDPHE	-
Criteria for determining if supply should occur	Criteria for determining if supply should occur	No set criteria Doctor's discretion	A list of conditions	A list of conditions	A list of conditions.
Supply offered	Number of varieties (forms) of medical marijuana available	2	Numerous	Numerous	Numerous
	Number of strains of medical marijuana available	4	Numerous	Numerous	Numerous
	Procedures to determine the quality of the supply offered	Yes	No	Yes (minimal)	Yes

		The Netherlands	Israel	State of Colorado (USA)	Key Attributes
Affordability					
Costs and prices of services for patients	Cost of one gram of medical marijuana in USD	$10.97	Set price of $100 per month regardless of the quantity	$11.56	Average $11 USD per gram
	Cost coverage available for the medical marijuana users	Not through the program Some coverage available through private insurance	No, only for people injured in a vehicle accident or those with military service	No	-
Private-public dual practices	Revenue obtained from selling medical marijuana	Yes	Yes	Yes	Yes
	Private or public revenue obtained	Private	Private	Private and Public	Private sector
Acceptability					
Complexity of applications system	Number of steps involved in an application for medical marijuana	No application process	3	4	Less than 4 steps
	Length of time in weeks for someone to be approved to use medical marijuana	N/A	3 weeks	4 - 6 weeks	Less than 7 weeks

[a/] Medical Marijuana Centers, [b/] As of December 2012; [c/] As of December 2012, [d/] As of December 2012, [e/] Ministry of Health, [f/] Colorado Department of Public Health and Environment, [g/] As of December 2010, [h/] As of December 2008, [i/] As of December 2010.

From the analysis of these three cases a series of key attributes for medical marijuana policies are apparent. For accessibility these include that federal government regulate medical marijuana; laws controlling marijuana are under the same jurisdiction as laws regulating medical marijuana, there are two different types of service providers available for the supply of medical marijuana; and there are over five hundred service provider locations where medical marijuana can be obtained. Best practices for availability include that a doctor is one of the decision makers determining if supply should occur; a government authority is an additional decision maker determining if supply should occur; that two different types of decision makers are included in the

process of determining if supply should occur; a list of conditions are used as criteria for determining if supply should occur; the supply of medical marijuana should be offered in numerous strains and forms; and procedures are in place for determining the quality of supply. Best performance in the affordability criterion included charging an average price of $11 USD per gram; collecting revenue from the sale of medical marijuana; and, more specifically, that this revenue is obtained from the private sector. Acceptability key attributes include that there are less than three steps involved in the application process and that applications were assessed in seven weeks or less.

9.1.5. Comparison with Canada

The key attributes of medical marijuana policies are summarized in Table 6, where each is compared to Canada's Medical Marihuana Access Regulations.

Table 6. Comparing Canada to the Key Attributes from International Comparisons

Key Attributes from International Comparisons	Canadian Comparison
Accessibility	
Federal Government regulates medical marijuana	Yes
Laws controlling marijuana are under the same level of government as laws regulating medical marijuana	Yes
Two different types of service providers are available for the supply of medical marijuana	Yes
Over 500 service provider locations to obtain medical marijuana	No
Availability	
A doctor is one of, if not the sole, decision maker in determining if supply of medical marijuana should occur	Yes
A government sanctioned approving authority is an additional decision maker in determining if supply of medical marijuana should occur	Yes
Two different types of decision makers determine if a patient should be permitted to use medical marijuana	Yes
A list of conditions is used as criteria for determining if supply should occur	Yes
The supply of medical marijuana is offered in numerous varieties (forms)	No
The supply of medical marijuana is offered in numerous strains	No
Procedures are in place for determining the quality of the supply	Yes
Affordability	
One gram of medical marijuana costs on average $11 USD, or less	Yes
Revenue is obtained from the sale of medical marijuana	No
Private sector obtains revenue from the sale of medical marijuana	No
Acceptability	
Less than three steps involved in an application for medical marijuana	No
Less than seven weeks for an application for medical marijuana to be assessed	No

Canada is doing many of the same things that the other three jurisdictions are doing in making marijuana accessible to patients. Like the Netherlands and Israel, Canada regulates medical marijuana federally, under the same jurisdiction of government that controls laws on non-medical marijuana use. Also, Canada's personal

production license, designated person production license and federal government supply provide different ways for patients to access a source of medical marijuana. Canada is similar to the other jurisdictions in having a patient's doctor involved in the decision of authorization. In addition to this, like Israel and the State of Colorado, for the time being Canada includes a second decision maker—the federal government—whose approval is also required for a patient to use medical marijuana; however, this is something subject to change under the proposed new regulations. Canada was consistent with the cases in having a list of approved conditions that act as criteria in determining if supply should occur as a result of a particular patient's circumstance. Canada also has procedures in place for determining the quality of medical marijuana supplied by the federal government.

There were particular areas where the international comparisons examined showed a level of consistency and Canada did not. For example, both in the Netherlands and in the State of Colorado a minimum of 525 service provider locations were available for people to access a supply of medical marijuana. This is not the case in Canada—patients either grow medical marijuana themselves, have someone else grow it for them, or access the federal government supply were it is provided by mail. In Israel and the State of Colorado, the supply of medical marijuana offered comes in numerous varieties combining different medical strains. However, in Canada the federal government licensed contractor only provides one strain of medical marijuana in the form of dried marijuana or marijuana seeds. Each of the three jurisdictions analyzed obtained revenue for selling medical marijuana. In two of three examples this revenue was obtained solely for the private sector. Canada has no legal means of collecting such revenue. Also, each of the three jurisdictions analyzed have four or less steps involved in their application process, with a processing time of six weeks or less, or did not have an application process at all. This is different in Canada where the application process is at least four key steps (depending on how you count them), all of which have multiple sub-items, actions and forms. Also, Health Canada states that the processing of complete applications occurs within ten weeks of the application being received.

9.2. Interview Informant Analysis

This section aims to support the above research. Seven interviews are conducted. Elite informants are asked to comment on if the positive elements that appear to eliminate supply-side barriers from the international medical marijuana comparisons would be effective in Canada. Examples from these results appear in Table 7.

Table 7. Elite Informants Summary of How Access to Medical Marijuana Should be Improved in Canada

Possible Key Attributes for Canada	Examples of Elite Informant Responses	Rank-ing
Accessibility		
Increase the number of service provider locations where medical marijuana can be obtained legally	*"There ought to be many regulated access points as well as allowing people to grow it for themselves."* *"Increasing the number of service provider locations where medical marijuana can be obtained legally is an important aspect of increasing access."* *"Including medical cannabis dispensaries as recognized locations where people could obtain cannabis for therapeutic purposes would improve access to cannabis . . . pharmacies, hospitals and clinics could also dispense cannabis for therapeutic purposes . . .."* *"More diverse options (i.e. dispensaries) would be helpful"* *"There are currently many cannabis "dispensaries" operating in Canada. A similar network of regulated and licensed outlets would be welcomed to improve access, if and when required. This should NOT be the sole source of medicine."*	1st
Availability		
Increase the number of varieties (forms) the supply of medical marijuana is provided to patients	*"This is an important aspect of increasing access, for all the reasons cited by the court in the Smith case . . . It is actually outrageous that Health Canada's stance on this issue amounts to requiring patients to smoke their medicine under threat of criminal sanction."* *"Many people draw great benefits from ingesting cannabis in baked goods, for example. Tinctures, sublingual sprays, even ointments provide people with options. Cannabis resin (hash) provides a concentrated form of cannabinoids and reduces the amount people have to smoke or vaporize to obtain the same benefits".* "Many patients find edibles, ointments, etc. to be helpful" "We cannot apply the dried flowers topically, ingested or in suppository form. This limits legal delivery methods to smoking or vaporizing (if an expensive vaporizer can be afforded). "Derivatives" should be allowed for those with Authorizations."	4th/ 5th

Possible Key Attributes for Canada	Examples of Elite Informant Responses	Rank-ing
Increase the number of strains the supply of medical marijuana is provided to patients	*"The strains which have much THC are bad medicine for people with anxiety disorder or PTSD. The strains which have a THC to CBD ratio of 1:2 to 1:20 are much better for people with any kind of mental disorder, any kind of inflammatory disorder and if one can ingest juiced whole plant, there is almost no THC and very high levels of CBD (up to 600 mg) making it an excellent anti-cancer agent."* *"This is an important component of increasing access. Everyone who works in this aspect of drug policy is familiar with the failure of Health Canada's designated grower to effectively supply appropriate medication to clients. This is in part due to the limited number of strains that are available through that channel."* *"The fact that Health Canada only provides one strain is one of the main reasons most medical users do not choose Health Canada as their source of cannabis for therapeutic purposes. There are hundreds of strains and people respond differently to different strains . . . "* *" Diverse strains are needed to meet the diverse needs of patients."* *"Access to many different strains of cannabis is key to effective therapy. Cannabidiol (CBD) is a cannabinoid that has been proven to be extremely important. Health Canada distributes product with <0.5% CBD. This is a clear indication of the inability of the "Program" to keep up with science and/or disinterest in making it effective."*	3rd
Affordability		
Provide an opportunity to create revenue from the legal sale of medical marijuana	*". . . medical cannabis dispensaries are self-revenue-generating organizations. If they were included in the regulations, they would operate legally. Designated producers also obtain revenue for the cannabis they produce. I do believe that there could be a better way to manage revenue generated from the sale of cannabis for therapeutic purposes. This revenue could be allocated to health services and research, and to compensate people for the cost of cannabis for therapeutic purposes . . ."* *The Canadian AIDS Society favours a community-based not-for-profit model for medical cannabis dispensaries whereby the revenue generated is reinvested into the services and perhaps the community, and where prices for cannabis can be kept to a minimum.*	4th/5th
Provide an opportunity to create private sector revenue from the legal sale of medical marijuana	*"If in a regulated commercial framework with licensing, a competitive market with standards, and accountability . . ."* *"Competitive businesses could be created"* *"I have grappled with this question for years . . . a private sector model would encourage competition and hopefully would assist in keeping costs down for medical users . . ."*	7th

Possible Key Attributes for Canada	Examples of Elite Informant Responses	Rank-ing
Acceptability		
Decrease the number of steps involved in an application for medical marijuana use	"*The process needs to be simpler .The biggest barrier, however, is still to find a physician that will support one's use of cannabis for therapeutic purposes."* *"It's more complex than just the number of steps. Patients report that the old application was cumbersome. That's a problem that needs to be addressed."* *"The current application process is totally prohibitive. If a person has had a medical diagnosis of any condition that SHOULD qualify them to use cannabis, it should be the only prerequisite."*	2nd
Decrease the number of weeks it takes for an application for medical marijuana use to be approved	*"The old regime was subject to truly outlandish delays. Even the current goal of processing applications within 10 weeks is a problem. Not only is the medical marijuana patient disadvantaged as compared to patients accessing other kinds of medications readily available through pharmacies; but in certain circumstances such delays are just unacceptable (i.e. palliative care)."* *"The processing time is particularly problematic for those waiting for their renewal for their licenses to produce. There have been unfortunate situations where a person's license had expired and the police confiscated their garden. There is also a risk of arrest during the waiting period."* *"The application process should be streamlined."* *"A waiting period of a minimum of 8 to10 weeks is entirely unacceptable. I have waited for 6 months to have a grower approved and my first application took 3 years to get through. Eight to ten weeks is a "best case scenario". It is entirely possible that people have died waiting for their Authorization. This is what we suffer in an effort to use it legally."*	6th

Since Interview informants' ranked the positive elements of the international jurisdictions' medical marijuana policies, I discuss the possible key attribute changes for Canada below, beginning with the most preferable.

The key informants' favour increasing the number of access points where medical marijuana could be obtained legally. There is general consensus that there ought to be many regulated access points for obtaining medical marijuana, or, as another interviewee described it, a "supply network." The second most favoured option is to decrease the number of steps involved in an application for medical marijuana use, as the burdensome application process is highlighted by the key informants interviewed. The third most supported option is to increase the number of medical marijuana strains provided to patients. Interviewees suggest that Canadians should be able to legally

access hundreds, if not thousands, of varieties of strains and hybrids of cannabis. The fourth and fifth options are to increase the number of varieties (forms) of medical marijuana provided to patients and to provide an opportunity to create revenue from the legal sale of medical marijuana. Similar to the strain discussion, the option of increasing the varieties of medical marijuana is linked to varying forms of cannabis having different effects on patients' unique medical circumstances. With regard to creating revenue, informants comment that collecting tax revenue could be an additional way to obtain funding for the public sector. Decreasing the wait–time for an application for medical marijuana use is ranked as the sixth option and providing an opportunity to create private sector revenue from the legal sale of medical marijuana is the seventh option.

Interview responses from all participating informants indicate that their least favoured option is the status quo. Aside from of these seven ways of eliminating supply-side barriers, other ways to improve access which emerged in the interviews, include: increasing medical practitioners knowledge about medical marijuana; including cannabinoid pharmacology and therapeutics in medical school and residency programs; including more health professionals such as naturopaths and Chinese medicine practitioners under the regulations to allow them to authorize cannabis for therapeutic purposes; providing authorizations for a minimum of 5 years; and including medical cannabis dispensaries in the distribution system. Another topic discussed in the interviews was marijuana legalization and how this could positively affect access for medical marijuana users.

A summary of the key findings from my two methodologies points to four key areas:

1. increase the number of strains accessible and supplied to medical marijuana patients. Such a focus could also include expanding access and supply regarding the varieties of cannabis available to patients;

2. increase the number of access points where medical marijuana can be obtained legally;

3. collect revenue from the sale of medical marijuana. Such an option could incorporate both private and public sector revenue; and,

4. decreasing the number of steps involved in an application for medical marijuana use. It is likely that a reduction in application complexity will reduce processing wait times.

The next section proposes the analysis of policy options to address these four points.

10. Policy Objectives, Criteria, and Measures

For Canada's medical marijuana program to be a success, it is essential that both short-term and long-term objectives be met. Policy alternatives that address these shortcomings are analyzed using criteria and measures.

10.1. Objectives

The long-term goal is to eliminate supply-side barriers to medical marijuana. Ideally, everyone who needs medical marijuana in Canada would be able to access it legally, meaningfully, and safely. To achieve this long-term goal, a short-term goal with a timeline of two to three years for attainment is necessary. The short-term goal is to reduce supply side barriers in order to decrease the difference between the reported number of medical marijuana users in Canada and the number of federally authorized legal medical marijuana users. This would occur by making some form of improvement along each of the four dimensions of access (accessibility, availability, affordability, and acceptability).

10.2. Criteria and Measures

Policy alternatives are compared based on five criteria: effectiveness, federal government acceptability, cost, administrative feasibility, and group equity. Each criterion is defined and given a specific measure. Each measures has an index, where a value is determined based on how well each alternative ranks. The possible scores are low (1), moderate (2), and high (3). To balance the interests of stakeholders, each of the five criteria holds the same weight on the index, allowing for no criterion to weigh more than another. Table 8 outlines the five criteria, definitions, measures, and indexes that each policy alternative is assessed by. The total maximum score is 15. The policy alternative with the highest total score is viewed as the most favourable option.

Table 8. Criteria and Measures of Policy Alternatives

Criterion	Definition	Measure	Index
Effectiveness			
The extent to which the policy improves access to medical marijuana	The average ranking (out of 8) of interviewed key stakeholders on whether a proposed option is an effective way of improving access to medical marijuana in Canada	Average ranking of 1st or 2nd choice Average ranking of 3rd, 4th or 5th choice Average ranking 6th, 7th, or 8th choice	High (3) Moderate (2) Low (1)
Federal Government Acceptability			
The extent to which the policy supports the interest of federal government	The degree to which a proposed option can operate within Health Canada's proposed changes to the medical marijuana program	Can fully operate within the proposed new program Can operate to some degree within the proposed new program Cannot operate within the proposed new program	High (3) Moderate (2) Low (1)
Cost			
The public funding required to implement the policy	The degree to which the amount of public funding required for implementation of a proposed option (minus any monetary benefits received from the policy) changes from the 2011-2012 program costs	Less than 5% of the status quo (< $22.89 million) Within + / - 5% to the status quo ($22.9 to $25.3 million) Greater than 5% of the status quo (>$25.4 million)	High (3) Moderate (2) Low (1)
Administrative Feasibility			
The ease of which the policy can be coordinated and successfully implemented	The number of additional agencies required for a proposed option to provide the everyday supply of medical marijuana	Less than or equal to the current contractor Addition of one or two agencies Addition of three or more agencies	High (3) Moderate (2) Low (1)
Group Equity			
The degree of fairness for all Canadians that need medical marijuana achieved through the policy	The number of equity concerns addressed (geographic, income, and health status) through a proposed option	All three equity issues addressed One or two equity issues addressed None of the equity issues addressed	High (3) Moderate (2) Low (1)

10.2.1. Effectiveness

Effectiveness measures the ability of a proposed policy option to meet the long-term objective where everyone who needs medical marijuana in Canada is able to access it. This is determined based on interview responses from stakeholders where they were asked "to rank order … policy options as ways to improve access to medical marijuana in Canada, where [one is] the most effective and [eight is] the least effective." An average ranking score from all of the elite informants interviewed is determined for each of the possible solutions proposed during the interview. If a policy approach combines two possible solutions then an average score will be determined from these two scores. If the policy option was ranked as the first or second choice (out of eight) as a way to improve access, it is assessed as having high effectiveness. Moderate effectiveness is when the average ranking of the proposed option was third, fourth, or fifth while low effectiveness is when the policy option is ranked sixth, seventh or eighth.

10.2.2. Federal Government Acceptability

Federal Government acceptability is assessed on whether the policy alternative fits within Health Canada's proposed changes to the medical marijuana program that is intended for full implemented by March 2014.[24] If a policy option can fully operate within Health Canada's proposed new program, it ranks as highly acceptable from the federal government's viewpoint. If the proposed option can operate to some degree within the new program then it will be considered moderately acceptable. Finally, if an option cannot operate within the proposed new program then it will be assessed as having low federal government acceptability.

10.2.3. Cost

The cost criterion examines the financial resources required for a proposed policy option compared to the status quo. For the purposes of this criterion, status quo

[24] See Section 3.3 for details.

includes operating costs[25] and the cost of producing and distributing dried marijuana[26] for a total program cost of $24.1 million. To determine the costs for proposed options, the additional cost of implementing an option is estimated and monetary benefits received from the policy are subtracted. If this number is within plus or minus 5 percent of the status quo ($22.9 to $25.3 million) then it is considering moderately cost effective. If cost are lower than the 5 percent of the status quo (less than $22.89 million), then it is considered highly cost effective. If the cost for the proposed option is approximately 5 percent greater than the option of status quo (greater than $25.4 million), then it is considered low on the cost effectiveness index.

10.2.4. Administrative Feasibility

The criterion of administrative feasibility looks at how easily a policy option can be coordinated; thus, implemented successfully. The evidence for this criterion comes from the number of new agencies involved in the daily supply of medical marijuana, under a proposed policy, in comparison to the status quo; hence, the requirement for additional coordination efforts and a more challenging implementation process. In the status quo, there is just one contractor that needs to be coordinated with, Prairie Plant Systems Inc (PPS Inc.). If the number of service providers required for a policy option is less than or equal to the status quo then high administrative feasibility is assumed. If a policy option requires the addition of one or two agencies then the option is assessed as having moderate administrative feasibility. If the addition of three or more service providers is required for a policy option then the ease by of which services can be coordinated is ranked as low.

[25] The full cost of operating the Marihuana Medical Access Program in 2011-2012 was $16.3 million dollars (personal communication with Health Canada, February 11, 2013).

[26] The current supply contract has a value of approximately $9.7 million per year. In the 2011–2012 fiscal year, the government collected approximately $1,686,600 in revenue from sales of dried marijuana and seeds. Thus, supplying medical marijuana is costing the government approximate $7.8 million per year (Health Canada, 2012d).

10.2.5. Group Equity

This criterion aims to capture whether a proposed policy option is 'fair' in considering access to medical marijuana for those that need it in Canada. This is measured by examining if there is an increase in the number of relevant populations with access to medical marijuana relative to the status quo. The following equity issues are considered: geographic, income, and health status. If a policy option improves all three areas then equity is considered high; if one or two of the equity issues are improved, equity is considered moderate; and, if none of the equity issues are improved equity is low.

10.3. Policy Alternatives

The policy alternatives are supplementary to one another. Although they are not mutually exclusive each is analyzed independently to identify the trade-offs between options. Analysis of the four individual policy changes assists decision makers in determining if minor adjustments or a fundamental reform to Canada's medical marijuana system is required. This individualized approach prioritizes the best fit option for the immediate future, as well as develops a plan for the long-term. Moderate policy modifications, as opposed to systemic program reform are a more feasible opportunity for a government that historically has been reluctant to make changes. The four alternatives are discussed below.

10.3.1. Policy Alternative 1: Reduce the Complexity of an Application

Currently in Canada, an individual's application for medical marijuana is thirty-three pages long. There are eight different forms that patients may have to complete, depending on their circumstance.[27] This policy option proposes to decrease the complexity of an application for medical marijuana use. Colorado's application is used as an example, as it is eight pages long with one page completed by the applicant, one

[27] These are highlighted in Appendix A.

page by the physician and the remaining six pages are instructions. In comparing Canada and Colorado's applications, the removal of 17 elements from the Canadian application would decrease the level of complexity. The items for removal are outlined in detail in Appendix F and include reducing the application from eight forms to one and eliminating the need for repetition in the documents. Also, removing unnecessary information such as an applicant's fax number, whether the applicants address is a private or not a private residence, the mode of production, the security measures for growing and storing marijuana, as well as, the address where the marijuana will be stored dramatically reduce the length of the application. In addition, removing the method and form of administration for marijuana use, as well as the duration, from the declaration form reduces medical practitioners' work.

Along with improving the complexity that applicants and medical practitioners feel in regard to the current application for medical marijuana, it is likely that removing items noted in Appendix F would also reduce the processing times for applications, as Health Canada would have less content to review.

10.3.2. Policy Alternative 2: Increase the Number of Strains and Varieties

Currently there is only one strain of medical marijuana available. This alternative proposes that Health Canada supplies to patients a variety of strains from both indica and sativa cannabis plants and hybrid combinations of these two plants offering medical marijuana with different THC and CBD levels to meet a variety of patients' health needs. In addition, this alternative proposes that marijuana be offered in several forms such as pre-rolled, powder, ground, dried, flowers, seeds, edibles, drinks, tincture, topical, oils, waxes, etc.

10.3.3. Policy Alternative 3: Increase the Number of Access Points

Currently, in Canada authorized patients can access medical marijuana by growing it themselves, have someone else grow it for them, or by using the federal government's supply. Under this proposed option, the supply options of individual

licenses to grow, and designated licences to grow continue. This alternative proposes to increase the number of supply avenues following a model comparable to the State of Colorado, where access is provided through Medical Marijuana Centers (MCC). Similar to Colorado, these centers would be private retail operations licensed by government to sell medical marijuana to patients with a current authorization to possess. The MMC's supply of medical marijuana would be obtained from locations where cannabis can be cultivated.[28] Like the MMC, the Premises Cultivation Centres will be licensed by the federal government to produce various supplies of medical marijuana. The price of medical marijuana will be regulated by the federal government but not subsidized. This allows for profit to be made by retailers and producers at a standard and consisted cost to buyers. Patients will be able to obtain their medicine from any MMC. Under Alterative 3, applications for medical marijuana must still be supported by a patient's medical practitioner and approved by Health Canada.

10.3.4. Policy Alternative 4: Collect Revenue

Currently, in Canada no profit is made legally from the sales of medical marijuana except in the contract with Prairie Plant Systems Inc. This alternative creates a profiting regulated system for the distribution of medical marijuana. If the sale of medical marijuana is privately licensed, the government would collect revenue by taxing part of the profit. The federal government would apply the 5 percent Goods and Services Tax (GST) on transactions of medical marijuana. Later, if more public revenue was deemed necessary a federal excise tax could also be imposed similar to alcohol or tobacco. Revenue collected from taxation would offset some of the high administrative costs of the program, such as those incurred through application processing. Public revenue could also be reinvested into research and innovation pertaining to medical marijuana.

The price of medical marijuana would not be regulated under this option. Rather, market price would occur through supply and demand. Competition between retailers would ensure that consumer needs are met with a variety of product strains and types.

[28] In Colorado they are known as Premises Cultivation Centres.

Under a perfectly competitive market the supply produced would meet the demand required by the consumers, and medical marijuana would sell at a market price.

The private sector revenue would need to adhere to proper business practices, such as the Colorado's MMCs manufacture and cultivation licensing process. In Colorado, one of two types of premises produces medical marijuana, both of which require a business license. The first license allows for the growth, harvesting, and processing of raw medical marijuana product (SoC 2012c). The second license allows for the production of medical marijuana infused products such as edibles, tinctures, and beverages (SoC, 2012c). Both of these facilities sell their products to licensed MMCs. Medical marijuana cannot lawfully be grown and infused products may not be produced within, or on the premises of, licensed MMC's (SoC, 2012c). Opportunities are available at each of these three levels for private sector revenue to be obtained.

In the next section the four policy alternatives are evaluated based on the five criteria defined in Table 8.

11. Policy Analysis

Each policy alternative is ranked based on the five criteria. Table 9 summarizes the results of analysis.

11.1. Policy Alternative 1: Reduce the Complexity of an Application

Effectiveness - Decreasing the number of steps involved in an application for medical marijuana, on average, was ranked as the second most favoured option by the key stakeholders interviewed for opinions on improving access to medical marijuana in Canada. Therefore, a score of high is assigned, (3 points).

Federal Government Acceptability - The government is unlikely to see this option as favourable because under the proposed changes patients would no longer apply to Health Canada for authorization to use medical marijuana. Rather, medical practitioners would complete a prescription that patients would take to a licensed producer. Thus, Alternative 1, changes to the application, do not fit with the federal government's proposed changes of eliminating the application. Federal government acceptability for this option is assessed as low, (1 point).

Cost - The cost of reducing the complexity of an application for medical marijuana is not likely to be high. Although additional administrative cost would be required to change the necessary elements of the applications, and resources would be required to make the two minor regulation changes, these costs are assumed to balance with the benefits received from Alternative 1. The simpler application would reduce operating costs for the program through the time saved in processing applications. The costs of Alternative 1 would be within plus or minus 5 percent of 2011-2012 program budget of $24.1 million. Cost is ranked as moderate, (2 points).

Administration Feasibility - There are no additional agencies required for the daily operation of this option. Since the number of service providers is less than or equal to the status quo a score of high is allocated, (3 points).

Group Equity - Alternative 1 relative to the status quo would improve on one of three chosen equity dimensions. Reducing the complexity of the application process would have no effect on improving equity concerns for those in different geographic areas or income classes. However, reducing the complexity of the application process would positivity affect those with poor health. This would occur in two ways. First, a complex application that involves thirty-three pages, eight possible forms and the coordination of five possible individuals can be daunting and challenging for individuals with serious illnesses. Any reduction in complexity is helpful for those with such health concerns. Second, a simplified application means a decrease in application processing time whereby seriously ill Canadians will receive their approval faster. Thus, relative to the status quo one, of the three equity issues would be improved. Group equity receives a moderate ranking, (2 points).

11.2. Policy Alternative 2: Increase the Number of Strains and Varieties

Effectiveness - Two different options covered by the interviews are considered here. First, increasing the number of strains of medical marijuana is for patients, on average, was as the ranked third most favoured way to improve access to medical marijuana in Canada. Second, increasing the number of varieties (forms) of medical marijuana supplied had a tied average ranking, as the fourth and fifth most effective way to improve access. Thus, with an average ranking of fourth (3.75) Alternative 2 receives an index ranking of moderate, (2 points).

Federal Government Acceptability - Under the proposed changes individuals would be able to obtain marijuana of any strain commercially available. Authorized users would be able to select the licensed producer of their choice based on published information on Health Canada's website. Also, if an individual wishes to purchase a strain that is not available from one licensed producer, the proposed program changes

would permit the individual to do so by obtaining a new medical document (Government of Canada, 2012b). Thus, under the new programs avenues are in place supporting legal access to an increased number of strains. However, the federal government is not supportive of the addition of more varieties of medical marijuana i.e., it is not within the proposed changes to the medical marijuana program. As in the current program, dried marijuana would be the only product permitted for production, sale and distribution. Health Canada states this is due to the unknown health risks associated with products such as cannabis oils, extracts, creams, and edibles (Health Canada, 2012e). Therefore, a ranking of moderate is assigned because Alternative 2 can operate only partially within the proposed new program, (2 points).

Cost - Increasing the number of strains and varieties of medical marijuana would raise production and distribution cost for the government from the 2011-2012 annual cost of approximately $7.8 million. It is estimated that this increased cost will be greater than 5 percent of the 2011-2012 total budget. Alternative 2 receives a cost ranking of low, (1 point).

Administration Feasibility - In order to increase the number of strains and varieties provided by the government it is likely that Health Canada would need to contract with additional providers outside of the current single contract with PPS Inc. This most likely could be done with one or two additional agencies. A precedent for such contracts has successfully been coordinated, and is currently in place with PPS Inc. It is assumed that future contracts would be similar to PPS Inc. Therefore, the administrative feasibility of such coordination is only somewhat challenging. Alternative 2 is ranked as moderate under administrative feasibility, (2 points).

Group Equity - Only one of the three equity issues is concerned. By increasing the number of strains and varieties of medical marijuana the equity issue of geography would not address simply because this option does not make any change to how or where patients access medical marijuana. Further, this alternative also would not address income equity in regards to how much this product costs. However, this alternative would address the varying needs of individuals with different health statuses. Not all ill people receive relief from the same strain of marijuana. Further, not everyone seeking this medical relief can ingest marijuana in the same way to produce the most

beneficial effects. Allowing for different strains and varieties of marijuana to be obtained improves health equity concerns where those with different health statuses would receive equal treatment under the policy. Alternative 2 receives a moderate group equity ranking score, (2 points).

11.3. Policy Alternative 3: Increase the Number of Access Points

Effectiveness - Increasing the number of service provider locations where medical marijuana can be obtained legally, on average, was ranked as the most favoured option for improving access to medical marijuana in Canada. Thus, it is assessed as highly effective, (3 points).

Federal Government Acceptability - Increasing the number of access points would not fit within the proposed changes to the medical marijuana program. Under the recommended changes, distribution of dried marijuana would occur directly from the licensed producer to the registered client using secure shipping methods. The proposed program changes would not allow for storefront or retail distribution centers (Government of Canada, 2012b). Hence, although it may appear that there is an increase in access points, as there is an increase in licensed producers, in fact access points would be reduced with the proposed new program. This is because individuals are no longer allowed to personally grow, or have a designated grower. Thus, medical marijuana would only supplied via courier from a licensed producer, the same way as it is under the current regulations from PPS Inc. The federal government's interest would not be met under Alternative 3 and therefore, federal government acceptability is ranked as low, (1 point).

Cost - Increasing the number of access points for medical marijuana to be obtained from will increase administrative costs for the government. This coordinating cost is predicted to be greater than plus 5 percent of the 2011-2012 costs (25.4 million). Hence, cost for Alternative 3 receives a low ranking, (1 point).

Administration Feasibility - If the government were to increase the number of access points where patients could obtain medical marijuana, it would mean expanding

the ways in which marijuana can legally be obtained beyond personal use licenses, designate use licenses and courier supply from Health Canada. An addition of more than three access points would be necessary to effectively enhance access to service in the large geographic area of Canada. Also, regardless of the number of additional access points created, coordination and effective implementation make this policy option administratively challenging. A score of low is assigned, (1 point).

Group Equity - Two equity issues would be improved relative to the status quo. Increasing the number of access points would improve geographic equity concerns, as more people will be able to access medical marijuana through the additional access points. Alternative 3 would not address income equity, because product costs although regulated are no longer subsidized under this option. Finally, it is likely that health equity would be improved under this option. Increasing access points give those with different health statuses increased avenues to seek their health remedies. Group equity for Alternative 3 receives a moderate ranking, (2 points).

11.4. Policy Alternative 4: Collect Revenue

Effectiveness - Providing an opportunity to create revenue from the legal sale of medical marijuana had a tied average ranking as the fourth and fifth most effective way to improve access. Specifically targeting the opportunity to create revenue in the private sector, on average, was ranked as the seventh most favourable way to improve access to medical marijuana in Canada. Thus, with an average ranking of sixth (rounding 5.75 up) Alternative 4's effectiveness receives an index ranking of low, (1 point).

Federal Government Acceptability - Under the proposed new program Health Canada would not regulate the price of marijuana. It would be up to licensed producers to set the price (Government of Canada, 2012b). Hence, there is a large opportunity for private sector revenue to be generated for the licensed producers. Also, the discussion of a potential imposition of tax on purchases in the commercial market was discussed briefly in the proposed regulations (Government of Canada, 2012b). Thus, the collection of both private and public sector revenue can be obtained under the proposed new

program. This makes the federal government acceptability of Alternative 4 high because it can fully operate within the proposed new program, (3 points).

Cost - This option is less than a five percent reduction in the 2011-2012 budget, as there will be a decrease in administrative cost for the government. It is also likely that the entire cost for production and distribution, from the perspective of public funding, will be eliminated. In addition, Alternative 4 provides the opportunity for monetary benefits for the private sector through profits on sales, and to the public sector through taxation. A cost score of high is allocated, (3 points).

Administration Feasibility - A fairly large processing change would need to occur if the government allowed for private sector revenue to be made off of the sale of medical marijuana. In order for private sector revenue to occur, new for-profit service centres would need to be selected. As discussed during Alternative 3, an addition of more than three access points would be necessary to effectively service the large geographic area of Canada. Hence, Alternative 4 receives a feasibility ranking of low, (1 point).

Group Equity - Alternative 4 relative to the status quo improves upon none of the equity concerns of geography, income, or health status. It is possible that allowing revenue to be made off the sale of medical marijuana could improve geographic or health status equity. However, this is not predefined in the policy option and, in fact, it could also decrease equity. For example, income equity would be worse under a for-profit model as cost concerns would be an issue for those in different earning groups. This is because the cost of medical marijuana will no longer be subsidized or regulated under federal government supply ultimately driving the market price up. It is not clear through this alternative how, or if, any of the equity concerns would be improved upon. Group equity for Alternative 4 receives a low, (1 point).

Table 9. Summary of Policy Analysis

Criteria	**Policy Alternative 1** Decrease Complexity of Application	**Policy Alternative 2** Increasing the Number of Strains and Forms	**Policy Alternative 3** Increase the Number of Access Points	**Policy Alternative 4** Collect Revenue
Effectiveness	3	2	3	1
Federal Government Acceptability	1	2	1	3
Cost	2	1	1	3
Administrative Feasibility	3	2	1	1
Group Equity	2	2	2	1
Total	11	9	8	9

12. Recommendation

My analysis of the four policy alternatives indicates that the proposed options rank differently when compared to one another. The results indicate that Alternative 3 is assessed at a relatively low level and Alternatives 2 and 4 are assessed with equal scores. Alternative 1 with one point above Alternative 2 and 4 and two points above Alternative 3 ranks the highest. To summarize, with the maximum allocation of points being 15 the total for Alternative 1 is 73 percent of the allocated points (11/15), Alternative 2 and 4 receive 60 percent of the allocated points (9/15), and Alterative 3 collects 53 percent of the possible allocation of points (8/15). The largest difference in scoring is three points, approximately 20 percent.

The four options rank quite differently in terms of effectiveness, which is interesting as this was the driver of the research – how to make the reported number of medical marijuana users and the number of federally authorized medical marijuana users closer in relation to one another. When considering federal government acceptability, decreasing the complexity of the application and increasing the number of access points puts the most burdens on the government. Obviously, collecting revenue is a positive cost outcome for the public sector in reducing its overall spending, especially when Alternatives 2 and 3 moderately increase the current government's medical marijuana budget. With regard to administrative feasibility all options required an increase in coordination from the status quo, except for Alternative 1 - decreasing the complexity of the application. There was no perfect policy option for group equity, where all equity concerns were addressed. However, Alternatives 1, 2 and 3 approached these concerns more than the pro-profit option.

Alternative 2 stands out as being the most neutral throughout the analysis. This option never produces a score on the high scale and just one score on the low scale. On the contrary, Alternative 4 is viewed as the most contentious having the most high and low scores and no moderate rankings. This speaks to the end result of this analysis.

With each of the trade-offs in mind my policy recommendation is to immediately implement Alternative 1. Allow a decrease in the application complexity. This would favour individual users in being able to complete the application, health care practitioners having a reduced role in the application, and the federal government in decreasing the application assessment time. In the short-run this option should remove some of the barriers to access currently existing in the program.

As for the long-run there are two distinct options I would recommend, both of which are contingent on the current political and public culture in Canada.

The first option considers possible policy changes that may occur in the future and is aligned with the frequent and unsolicited response to the issues raised during the interviews, whereby informants stated that regulation under the 'future' legalization of marijuana is the best solution for medical marijuana patients. Most of my interview informants openly state that they support the idea of marijuana legalization and believe that it will occur in the next decade. It is suggested that marijuana in Canada could be regulated in a similar way as marijuana in some legalized states in America. This is why many of my interview informants express that it is too late to be granting more access to medical marijuana. In fact it is described by one informant that the "house of cards is already falling." Others feel that the current regime and any modest improvements to it "seem like an awkward half-step that is intended to avoid us dealing with the real issue." The issue referred to here is legalizing marijuana. If this is where political and public culture in Canada is heading in the long-term then I support exploring legalized marijuana further. Unfortunately, it was beyond the scope of this research for me to assess how safe and meaningful patient access to medical marijuana could occur under a regulated system of legalized marijuana.

To the contrary, if this is not the political and public culture of Canada in the long-term then I recommend the adoption of Alternative 2 increasing the number of strains and forms of medical marijuana supplied. Although Alternative 2 was tied in the analysis with Alternative 4, collecting revenue from the sale of medical marijuana, I am recommending Alternative 3 as it ranks the higher of the two options in effectiveness, the goal of this research. The long-run adoption of Alternative 2 addresses the availability barriers to supply previously outlined in this research, while the short-run adoption of

Alternative 1 addresses the acceptability barrier. Although it still leaves some affordability and accessibility concerns, it is unlikely that any policy recommendation would address all four of the supply barriers to access.

13. Conclusion

Since the birth of Canada's Medical Marijuana Access Regulations, patients with serious medical concerns continue to fight for better access to their medication. This leads to the current program where 28,115 Canadians are authorized to possess dried marijuana legally. Although, the program is not reaching all of its targeted audience, small changes may improve accessibility immensely.

This study attempts to address how Canada can make medical marijuana more accessible to Canadians in need of this exemption. This occurs by understanding how other international jurisdictions manage the supply barriers of accessibility, availability, affordability and acceptability in their medical marijuana policies. The results of this analysis yield seven access strategies that Canada is not currently doing effectively. After consultation with key informants these inefficiencies are confirmed and organized into four policy alternatives. These options include: decreasing the complexity of the application process, increasing supply strain and varieties, increasing the number of access points to obtain medical marijuana, and creating a for-profit medical marijuana industry. Using five carefully selected criteria, I measure and analyze which of these options would be most effective in reducing barriers to accessing medical marijuana supply in Canada.

Findings indicate that decreasing the complexity of the application process ranks highest. This was followed by a tie between increasing the number of strains and forms and collecting revenue. Increasing the number of access points had the lowest ranking of the four alternatives. I recommend the immediate adoption of Alternative 1. My long-term recommendation is to assess the political and public culture of Canada, and determine if any major drug reform may occur to marijuana laws. This may allow, a long-term solution of increasing the number of strains and forms of medical marijuana, or a completely different strategy around legalization and regulation may emerge.

Medical marijuana patients, the Canadian courts, Health Canada and a range of other important stakeholders have been in conflict for years over improving access to medical marijuana in this country. The short-term and long-term recommendations from this research attempts to alleviate some of the supply barriers currently faced by medical marijuana patients in Canada by improving access to those that need it.

When considering next steps for this study I have four suggested areas for future research. First, to examine how the proposed changes to Canada's medical marijuana law (that are expected to be fully implemented by March 31, 2014) affect patients' access. This would include assessing whether the proposed changes reduce the supply barriers of accessibility, availability, affordability and acceptability. Second, a topic I did not fully examine was jurisdictional issues. The State of Colorado took on the issue of medical marijuana, despite the laws controlling marijuana being under federal jurisdiction. Other states in the USA have taken similar approaches. Could such an alternative occur in Canada through the provinces? What would this opportunity look like in Canada, and how would it affect individuals' access to medical marijuana considering each of the supply barriers. Third, I recommend the further examination of key informants' opinions about how medical marijuana can be more accessible. Unfortunately as addressed in Section 8.3 I was not able to interview a wide set of informants, especially across the country. The ones I did interview may not be representative as they are based in western Canada. Finally, I believe it is worth examining how decriminalization or legalization of marijuana could affect access for those that use medical marijuana, as this could be in Canada's, or some of the provinces' future.

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Appendices

Appendix A. Steps on How to Apply for Medical Marijuana in Canada

There are 5 steps when applying for an authorization to possess medical marijuana under Health Canada. Under each of these steps there are numerous additional tasks that must occur. These are outlined below.

1. Applicant's Information
    A. Complete an *Application for Authorization to Possess Marihuana for Medical Purposes*
        i. The applicant may appoint a representative to speak to Health Canada on their behalf

2. Medical Practitioner's Form
    A. Applicant consults with their medical practitioner
        i. Medical Practitioner agrees to complete one of the two medical practitioner forms
            a) Complete a *Medical Practitioner's Form for Category 1 Applicants*
            b) Complete a *Medical Practitioner's Form for Category 2 Applicants*
                i. Applicant consults with a medical specialist

3. Application for a Proposed Source of Marijuana
    A. Applicant Chooses a Supply Source by completing one of three forms
        i. Complete an *Application to Obtain Dried Marihuana*
        ii. Complete an *Application for Licence to Produce Marihuana by the Applicant*
            a) Complete an *Application to Obtain Dried Marihuana*
            b) Complete an *Application to Obtain Marihuana Seeds*
                i. Complete a *Consent of Property Owner* form *w*hen the proposed production site is not the ordinary place of residence of the applicant and is not owned by the applicant
        iii. Complete an *Application for Licence to Produce Marihuana by a Designated Person*
            a) Complete an *Application to Obtain Dried Marihuana*
            b) Complete an *Application to Obtain Marihuana Seeds*
                i. Complete a *Consent of Property Owner* form when the proposed production site is not the ordinary place of residence of the applicant and is not owned by either the applicant or designated person
                ii. Include an original copy of a Criminal Record Check from a Canadian Police Force for the Designated person
                iii. Enclosed two copies of current photographs signed by the applicant of the Designated Person

4. Photographs of Applicant
    A. Enclosed two copies of current photographs that clearly identify the applicant
    B. Have the medical practitioner who signed the medical declaration sign the back of one of the photographs certifying that it is a true likeness of the applicant

5. Submit the applicant to Health Canada

Appendix B. Survey Results from Canadian Authorized Medical Marijuana Patients

In 2007 Lucas launched an on-line survey titled the Quality of Service Assessment of Health Canada's Medical Cannabis Policy and Program addressing the personal experiences of patients in the federal cannabis program. Survey responses were received from 100 federally-authorized users which at the time of the survey represented approximately five percent of the patients enrolled in Health Canada's program. Table B1 outlines the demographic characteristics of the survey respondents. Table B2 summarizes participants reported reason for using medical marijuana.

Table B1. Demographics of Canadian Federally Authorized, Medical Marijuana Patients

Demographic Characteristic	Percentage
Males	78.6
Female	20.4
Caucasian	93
Metis	2
Black	1
Other	4
18-24	2
25-34	10.2
35-44	23.5
45-54	39.8
55-64	23.4
65-74	1
Elementary School	5.1
Secondary School	21.2
Technical and Non-University Education	33.3
University (Undergraduate, BA)	18.2
University (MA, PhD, post-doc)	5.1
Less than $ 9,999	8.2
$ 10,000 - 19,999	28.6
$ 20,000 - 29,999	24.5
$ 30,000 - 39,999	11.2
$ 40,000 - 49,999	5.1
$ 50,000 - 59,999	12.2
$ 60,000 and above	10.2

Adapted from Lucas (2012b)

Table B2. Canadian Federally Authorized Medical Marijuana Patients Reasons for Using

Reported Reason	Percentage
Pain relief	84.1
Relaxation	78.4
Appetite stimulation	61.4
Anxiety	60.2
Depression	58
Nausea reduction/vomiting	56.8
Mood improvement	55.7
To manage/gain weight	43.2
Reduction in spasticity/tremors	42
Side effects of other medications	23.9

Adapted from Lucas (2012b)

Appendix C. Survey Results of CMA Members' Attitudes on Medical Marijuana

Table C1 outlines the results from a June 2012 survey done by the CMA focusing on physician attitudes on medicinal marijuana. The survey was sent to 2,249 practising members who have signed on to participate in the CMA's Member e-Panel. Some 607 responses were received, a response rate of 27 percent (CMA. 2012b).

Table C1 - CMA's Survey Results of Attitudes on Medical Marijuana

Topic	**Responses**	**Percent-age**
How often physicians are approached by patients and their family members for medical marijuana	Seldom	42
	Never	28
	Sometimes	27
	Often	4
How physicians responded when asked about access to medical marijuana.	Support, at least some of the time	40
	Never Support	35
	Seldom	25
Top three factors that would affect physicians decision on medical marijuana for their patients	Concern that patients who request medical marijuana may actually want it for recreational purposes	64
	Insufficient information on the risks and benefits of marijuana when used for medical purposes	57
	Insufficient information regarding the appropriate use of marijuana for medical purposes	56
Information requested by physicians on …	Potential risks and benefits of marijuana	85
	Clinical guidelines to apply in specific conditions	83
	Therapeutic indications for marijuana	82
Assistance requested by physicians from Health Canada	Liability protection for physicians	66
	Specialized training	66
Which health professionals physicians felt should be authorized to approve marijuana for medicinal purposes	Physicians	80
	Nurse practitioners	30
	Pharmacists	14

Adapted from Canadian Medical Association (2012b).

Canadian Medical Association is not releasing the full results of this particular study. Thus, the above results have been taken from a summary of the survey. Further, this summary indicated that the percentages indicated do no always total 100 because some questions allowed for multiple responses.

Appendix D. Interview Guide

Ethics Application Number: 2012s0899
Title of Study: Far From a Policy Green Zone: Canada's Marihuana Medical Access Regulations

INTERVIEW GUIDE

When addressing the following questions please consider Canada's current Marihuana Medical Access Regulations and not any future proposed changes to the program.

1. Please briefly explain, what interaction you have (in your current position) with Canada's medical marijuana regulations.
2. Do you think we should improve access to medical marijuana in Canada?
3. How (if at all) do you think we should improve access to medical marijuana in Canada?
4. Do you think any of the following seven policy options would be effective ways to improve access to medical marijuana in Canada? If yes, please explain. If no, what would your concerns be?

   i. Increase the number of service provider locations where medical marijuana can be obtained legally.

   ⇒ Currently, in Canada legal patients can either grow medical marijuana themselves, have someone else grow it for them, or access the federal government supply, which is provided via the mail.

   ii. Increase the number of varieties (forms) the supply of medical marijuana is provided to patients.

   ⇒ Currently, in Canada the federal government's licensed contractor provides two varieties (forms) of medical marijuana (dried marijuana or marijuana seeds).

   iii. Increase the number of strains the supply of medical marijuana is provided to patients.

   ⇒ Currently, in Canada the federal government's licensed contractor provides one strain of medical marijuana to patients (MS-17/338 - THC level of 12.5 ± 2 percent and moisture content of approximately 14%).

   iv. Provide an opportunity to create revenue from the legal sale of medical marijuana?

   ⇒ Currently, in Canada no revenue is obtained legally from selling medical marijuana.

   v. Provide an opportunity to create private sector revenue from the legal sale of medical marijuana?

   ⇒ Currently, in Canada no revenue is obtained legally from selling medical marijuana.

   vi. Decrease the number of steps involved in an application for medical marijuana use.

   ⇒ Currently, in Canada the application process includes at least 4 key steps (depending on how you count them): (1) Applicant's Information (2) Medical Practitioner's Form (3) Application for a Proposed Source of Marihuana (4) Photographs of Applicant

   vii. Decrease the number of weeks it takes for an application for medical marijuana use to be approved.

   ⇒ Currently, Health Canada states that the processing of complete applications occurs within 10 weeks of the application being received.

6. Please rank order the following policy options as ways to improve access to medical marijuana in Canada (1 being the most effective and 8 being the least effective).

Option	**Numerical Ranking**
Status quo – no changes should be made to the current regulations	
Increase the number of service provider locations where medical marijuana can be obtained legally.	
Increase the number of varieties (forms) the supply of medical marijuana is provided to patients.	
Increase the number of strains the supply of medical marijuana is provided to patients.	
Provide an opportunity to create revenue from the legal sale of medical marijuana.	
Provide an opportunity to create private sector revenue from the legal sale of medical marijuana.	
Decrease the number of steps involved in an application for medical marijuana use.	
Decrease the number of weeks it takes for an application for medical marijuana use to be approved.	

7. Other Comments or Suggestions

Appendix E. International Comparison Specifics

This Appendix specifically addressed the details of: the Netherlands' Office of Medicinal Cannabis program, Israel's Medical Cannabis Program, and the State of Colorado's Medical Marijuana Registry. Described below are the medical marijuana policies for each of the jurisdictions being examined and outlines how each address the supply-side access barriers of accessibility, availability, affordability, and acceptability.

The Netherlands

In the Netherlands, medicinal users of cannabis obtain marijuana legally from two distinct sources: informally through the street market and formally through the pharmacy.

The less formal system is based on the Opium Act, which sets out drug related laws in the Netherlands. Two schedules are appended to this Act. Schedule I lists substances that entail unacceptable levels of risk and are considered 'hard drugs.' Schedule II lists 'soft drugs' that are considered less harmful. Cannabis is considered a soft drug. Possessing and selling Schedule II drugs are misdemeanours where prosecutions usually do not occur. Under the Dutch policy of tolerance, which pertains to Schedule II drugs, coffee shops may sell cannabis under strict conditions. The toleration criteria limit the amount of marijuana that can be purchased, per day, by an individual. Also, shops must not cause a nuisance, sell hard drugs, sell to minors or advertise the sale of drugs. There are approximately 700 coffee shops in the Netherlands. The number of coffee shops that can operate within a municipality's boundary is regulated by the local government (Government of the Netherlands, n.d; Nederlandse Associatie voor legale Cannabis en haar Stoffen als Medicatie (NCSM), 2011).

Under the formal system, medical marijuana is regulated nationally through the Bureau voor Medicinale Cannabis (BMC). The number of patients who use medicinal cannabis through the BMC is approximately 1000 to 1500 (personal communication with BMC, November 19, 2012). However, the total amount of patients that use cannabis for medical reasons is much higher, as many patients obtain cannabis through the coffee shops or the illegal circuit (Sandvos, 2009). From this point forward I will specifically analyze the BMC program.

Accessibility

Operating federally under the Ministry of Health, Welfare and Sports (MHWS), the BMC is responsible for cannabis for medical and scientific purposes. The BMC has a production and distribution chain for medical marijuana where there is a contracted grower and a packaging and distribution company. The law that defines marijuana as a controlled substance is under the same level of government as the regulations for medical marijuana, yet are administered by different ministries.

Globally, the Netherlands is the only country in the world where pharmacies currently provide patients with marijuana for medical use (Even, 2012). On September 2003, the BMC started delivering cannabis with a medicinal grade to patients through pharmacies (Sandvos, 2009). Pharmacies are the sole service provider of medical marijuana through the BMC program. Any pharmacy in the Netherlands can order medicinal cannabis directly from the pharmaceutical distributor (NCSM, 2011). Thus, if a pharmacy does not have the cannabis in store, it can be ordered and delivered within 24 hours (NCSM, 2011).

In December 2012, the Netherlands has approximately 1850 pharmacies. In very rural areas, doctors have a small pharmacy at their practice. These practise-pharmacies are not calculated in the 1850. A small minority of people are dependent on this type of pharmacy. Dutch policy

indicates that there must be a pharmacy accessible for every inhabitant within a certain distance (approximately 5-10 km) (personal communication with NCSM, December 11, 2012).

In addition to obtaining medical marijuana through pharmacies, one pharmacy has made it available by mail to patients throughout the country. This pharmacy is able to offer a lower price to patients because it purchases cannabis in bulk and packages it in-house, making the price lower than the standard five gram package from of the BMC. However, there are problems that have occurred through this process. Thus, this option of patients receiving medical marijuana through the mail will not continue after January 2013 (personal communication with NCSM, December 11, 2012).

Availability

Under the BMC program, licensed medical practitioners are the sole individuals who decide if a patient should be permitted to use medical marijuana. In 2010 there were 59,000 licensed medical practitioners in the Netherland (personal communications with NCSM, on February 6, 2013). Data is not collected on the number of medical practitioners that have prescribed medical marijuana. Pharmacies may only dispense medical cannabis to a patient with a prescription (BMC, 2012). In prescribing medical marijuana, doctors are not limited to a list of symptoms, conditions or predetermined criteria. It is up to doctors to determine what conditions would benefit from treatment with medicinal cannabis and the circumstances under which it would be right for the patient. As a general guideline, medicinal cannabis is only prescribed if the standard treatments and registered medicines are not having the required effect, or are causing too many side effects. The dosage varies from patient to patient (BMC, n.d.).

In the Netherlands the BMC has a monopoly on supplying medicinal cannabis to pharmacies. Thus, Bedrocan is the only company licensed by the MOHWS to produce cannabis (NCSM, 2011). Four types of medicinal cannabis are available through pharmacies: Bedrocan, Bedrobinol, Bediol, and Bedica. The composition and strength of each varies by the amounts of THC and CBD. For example, Bediol has a relatively low THC content, and a high CBD content which makes it particularly suitable for multiple sclerosis patients, as this combination can help relieve pain and spasms and reduce inflammation (BMC, n.d.).

All four strains can all be used to make tea or inhaled through an inhaler or vaporizer (BMC, n.d.). The BMC discourages smoking medicinal cannabis. Two forms of medical marijuana are available under this program (BMC, 2011). One, whole dried flower tips harvested from the female cannabis plants and, two, ground dried flower tips in powder form, which makes the product easier for the patient to use (BMC, n.d.).

The quality of the medical marijuana supply offered in the Netherlands is strictly enforced under the European Guideline for Good Agricultural Practice (Sandvos, 2009). After the marijuana is harvested, dried, processed and packaged, the BMC pharmacist checks the weight and appearance, recording all findings, and makes a sample container for the laboratory's records (BMC, 2012). Then the medicinal cannabis is sent to an independent laboratory and is tested for content stability, microbiology, moisture content, and the presence of unwanted substances (BMC, 2012; Sandvos, 2009). Every batch of medicinal cannabis comes with its own release certificate with all relevant information (Sandvos, 2009).

Affordability

The medical marijuana obtained from the pharmacies is sold in five gram bags. Each of the four types of medicinal cannabis available has a different price per bag. On average, when converted from Euros (EUR) to USD and scaled down to one gram, the price was $10.97 USD.[29] In addition to this, there are now two pharmacies in the Netherlands that can obtain 250 gram bags (as

[29] The following exchange rate was used 1.00 EUR equals 1.30546 USD.

opposed to 5 gram containers). These pharmacies then package the marijuana into smaller amounts. As a result, the price of medicinal cannabis is lower than in other pharmacies (NCSM, 2011). Independent of the quantity of medical marijuana received, each pharmacy may charge an additional administration fee of approximately six EUR (personal communication with NCSM, December 11, 2012).

There is no cost coverage for medical marijuana available through the BMC program. In 2003, the Dutch Health Care Insurance Board decided not to include marijuana as medication that could be reimbursed under the universal health care coverage plan (NCSM, 2011). However, in 2006 a new Healthcare Insurance Act was introduced that allowed private healthcare insurers to change their policies on reimbursing the cost of medicinal cannabis (BMC, n.d.). This provision is often determined on a case-to-case basis (NCSM, 2011). Often, only part of the total cost is covered by private insurance and patients have to pay the remaining costs (NCSM, 2011). Approximately 50 to 75 percent of Dutch private insurance companies do have some regulations for patients using medicinal cannabis (personal communication with NCSM, December 11, 2012). Every year, insurance companies do re-evaluate coverage so this may change in the future (personal communication with NCSM, December 11, 2012).

For those who are not covered under private insurance, the higher price of medicinal cannabis obtained from pharmacies when compared to coffee shop marijuana has proven to be a major drawback for medical patients in the Netherlands. According to the BMC, the higher costs of medicinal grade cannabis are the result of maintaining high quality standards (Hazekamp, 2006).

Revenue is obtained from selling medical marijuana in the Netherlands. This money goes directly to the company supplying the medical marijuana. Under the current arrangements, the government has no right to make any public profit (personal communication with NCSM, December 11, 2012).

Acceptability

Despite receiving a prescription from a patient's doctor, there is no additional application process for an individual to be allowed access to medical marijuana in the Netherlands.

In the Netherlands there is a group of doctor's that have concerns with prescribing cannabis. Thus, the fact that cannabis is legally available by prescription does not mean that every patient is provided access to this medicine. Currently, medical marijuana training for doctors is not available; however, the NCSM wants to set up a program for training professionals on medical marijuana (personal communication with NCSM, December 11, 2012).

Israel

In Israel[30], marijuana is illegal under the Dangerous Drugs Ordinance, 1973. Sections 6 and 7 of this law indicate that it is an offense for a person to cultivate, manufacture, produce, prepare, be in the possession of, use, or make extractions from a dangerous drug. All dangerous drugs are outlined in an annex; the cannabis plant and all its components are included in this addendum (Dangerous Drugs Ordinance, 1973).

There is no specific law for medical cannabis in Israel. However, the Dangerous Drugs Ordinance, 1973 includes exemptions that enable Israel's Medical Cannabis Program (MCP) to exist. Section 6 and 7 of this ordinance outline the illegality of cannabis in Israel, but also include a clause that such offenses are permitted under a license from the MOH's Director General or his

[30] All information obtained on the Israeli Medical Cannabis Program came from the translation of Hebrew documents and person communications with people that read Hebrew or were knowledgeable on the Israeli Medical Cannabis Program.

representative. Section 11 also states that the use of dangerous drugs is permitted if it is for curing purposes and it has been provided by a pharmacist, medical doctor, veterinarian, or supplied according to the license (Dangerous Drugs Ordinance, 1973).

The Health Ministry began Israel's MCP in the early nineties; however, it did not take off until the twenty-first century under the direction of Dr. Yehuda Baruch (Kloosterman, 2012). In 2000, two patients had permits. Currently, there are approximately 11,000 patients who have been granted authorization to use medical marijuana in Israel. This is the total amount of permits granted; however, all of these patients are not actively consuming cannabis. Approximately 17 percent of those with permits are not consuming the medical marijuana they are authorized to use (personal communications with Bedrocan Israel Ltd, December 13, 2012; Natan 2012).

Currently, the government of Israel is in the process of establishing a new distribution system for medical cannabis. In August 2011, a government decision occurred on regulating and supervising the source of providing cannabis for medical and research purposes. This decision included creating a government medical cannabis agency to comply with the UN drug conventions. This agency, the Israeli Office of Medicinal Cannabis, was recently created in late 2012. Remaining under the authority of the MOH, this office will be responsible for issuing permits, supervising distribution, and product quality assurance. The Ministry plans to regulate the collection of medical cannabis from the growers by Sharel Medical Services and Supply Inc. This company is explicitly mentioned in the government's decision as the body that will communicate with the growers, and purchase and hold imported or locally grown cannabis (Natan, 2012). Presently, there is a push towards providing cannabis through pharmacies in Israel; however, the lack of pharmaceutical-grade cannabis restrains the government from doing this (personal communications with Bedrocan Israel Ltd., January 7, 2013).

Accessibility

Israel's MCP operates federally under the Ministry of Health (MOH). The Dangerous Drugs Ordinance of 1973 is the federal law that both prohibits the use of marijuana and allows for its legal medical use. Thus, all regulations surrounding marijuana are under federal jurisdiction.

The distribution of medical cannabis to permit holders is done in four centers: Abarbanel Psychiatric Hospital in Bat-Yam (central western area), Haddasah General Hospital in Jerusalem (central eastern area), Western Galilee Hospital in Nahariya (northern district), and in a station in Tel Aviv (central western district) (Natan, 2012).The first three centres listed are hospitals and receive their supply from producers in Israel. The Tel Aviv center is a dispensary operated by a grower (Tikun Olam) and provides cannabis that is only produced by them (personal communications with Bedrocan Israel Ltd., January 7, 2013).

Permit holders also have the option of receiving medical cannabis directly to their home for an additional cost (Natan, 2012). This home delivery option is actively used in Israel; it is estimated that approximately 3000 patients use this service (personal communications with Bedrocan Israel Ltd., January 7, 2013).

Medical marijuana for the most part is equally accessible to those in urban and rural areas. Each of the above mentioned distribution centers are dispersed throughout the country in the north, east and west. This does leave the southern district of Israel less accessible to medical marijuana. This district is the largest in terms of geographic area, but is the most sparsely populated district of Israel. The people in the south, thus, are left with no choice but to travel, or pay for the home delivery service (personal communications with Bedrocan Israel Ltd., January 7, 2013).

Availability

There are two different stages of decision making that determine if a patient should be permitted to use medical marijuana in Israel. First, a specialist doctor must recommend the treatment of medical marijuana. A specialist is defined in the MOH's regulations as a physician that completed

training and education in a specific field and was awarded with a specialist certificate after meeting the required criteria. The number of specialists in Israel in 2008 was 28,000, approximately 50 percent of total doctors in Israel (personal communications with Bedrocan Israel Ltd, January 16, 2013).

The second stage of the approval process is that the application must be accepted by one of seven authorized people. The general manager of the MOH appointed Dr. Yehuda Baruch, the General Manager of the Psychiatric hospital of Abarbanel to examine all applications for those wanting a permit to use medical cannabis. In addition, Dr. Baruch has given permission to six oncologists in six different government hospitals to authorize permits for medical marijuana. [31] The six doctors that are allowed to give permits inform Dr. Baruch of every permit given. Most of the prospective medical marijuana patients in Israel (about 70 percent) receive permits directly from the official in charge, Dr. Yehuda Baruch, as only cancer patients can receive permits from their oncologists (i.e., in the ward or hospital they work in). Thus, in total there are currently seven doctors who can approve medical marijuana (Natan, 2012).

The MOH has given permission for the use of medical cannabis to patients with the following conditions: cancer, chronic pain, inflammation conditions, glaucoma, multiple sclerosis in the septic stage, HIV/AIDS, orphan disease according to the examination of each case, and post-traumatic stress disorder in very extreme cases. Of all the permit holders in July 2011, the most common condition for using medical marijuana was pain management (57 percent), followed by cancer (27 percent) (Natan, 2012). It is possible for a patient who has a medical condition that is not mentioned in the shortlisted conditions provided by the MOH to apply for a permit. To do so, the application must present research evidence on the efficiency of medical cannabis treating the condition for which they are applying for (Natan, 2012).

The supply of medical cannabis can be both imported and locally grown in Israel (personal communications with Bedrocan Israel Ltd., January 7, 2013). Despite this allowance, currently, only locally grown marijuana is supplied. This is a debated issue about which of the two options is preferable. Individual licenses to grow or import are required by the Dangerous Drugs Ordinance, 1973 and are provided by the general manager for the MOH or whomever he/she authorizes to do this. These licences are provided in coordination with the Israeli police (Natan, 2012).

There are eight local cannabis farmers with police permits under the supervision of the MOH. These farmers supply most of the demand for medical marijuana. Up until 2009, the Health Ministry also permitted the growing of medical cannabis at home by approved users, but these permits have been gradually phased out (Natan, 2012).

Currently, there are no limits on the varieties of medical marijuana that producers are allowed to make. Thus, medical marijuana is supplied in many forms including oils, edibles, extracts, capsules, and powdered cannabis. There is also no standardization on the strains of medical marijuana. Thus, there are many kinds of medical marijuana that can be obtained for patients from different types of plants with varying amounts of CBDs and THC levels (personal communications with Bedrocan Israel Ltd., January 7, 2013).

The medical marijuana that growers produce is not regulated and there are no set procedures for quality assurance. There are guidelines for these procedures, as well as a contract with designated laboratories for quality control and assurance, however, this was just recently developed. Prior to this development there were occasional tests, but no set requirement (personal communications with Bedrocan Israel Ltd., January 7, 2013).

[31] There are 11 government general hospitals in Israel. The MOH would like all hospital oncological doctors to have permission to prescribed medical marijuana; however, the Ministry of Law has provisions on the kinds of doctors allowed to give such permits to patients.

Affordability

Permit holders pay 370 Shekels per month regardless of the amount of cannabis they use (Natan, 2012). This is a fixed price by the MOH which converts to approximately $100 USD a month.[32] The average amount that every permit holder receives is 45.5 grams per month (Natan, 2012). Thus, the approximate USD price per gram is $2.20. Permits are not given for an amount of more than 100 grams per month, except to people who hold permits for a long time where on the original permit a larger amount was advised (Natan, 2012).

There are other fees that a permit holder may have to pay depending on the service they require. For example, there is an initial feel of 120 Shekels (approximately $32 USD) for a single training session for first time medical marijuana users (personal communications with Bedrocan Israel Ltd., January 7, 2013). Also, if receiving cannabis directly to a permit payer's home is a preferred option, this can be done for an additional payment of 100 Shekels per month (approximately $27 USD). Due to the requirements of Israeli police, permit holders that are allowed more than 50 grams of medical marijuana a month, and wish to receive 50 grams or more for an individual pickup, must arrive in person to the distribution center with a security escort. The security escort would constitute another fee the permit holder would need to pay (Natan, 2012).

There is no cost coverage currently available for medical marijuana patients in Israel. Although there has been a push for medical marijuana to be included in the medical services basket, it has not occurred yet.[33] There are two circumstances where medical marijuana treatment is covered fully by governmental insurance: when permit holders are traffic accident casualties or are military patients (Natan, 2012).

The Israel government does not make any direct revenue from the MCP. All the money paid by patients for the various products and services is paid to and remains within the privatized production and supply chain for medical marijuana (personal communications with Bedrocan Israel Ltd., January 7, 2013).

Acceptability

There are three major steps that must occur for patients in Israel to receive medical marijuana. First, a specialist must recommend treatment (recommendations from family doctors are not accepted). The request for a permit occurs in writing, by the specialist, and must indicate the patient's details, symptoms, all treatment options tried, the reason for recommending cannabis, the preferred method of intake, as well as the doctor's details. The recommendation is then sent to one of the seven approved doctors. The second step is when an authorized doctor reviews the recommendation, accepts it, and grants a license. The license will indicate the specific details of administration and usage, along with any other limits the patient has. For the final step, the original license is then sent to a designated producer. The producer contacts the patient and an instructional session is scheduled. The initial session covers usage as well as supervised administration. From this point forward, the patient can receive medical cannabis, in accordance with their license, at the relevant distribution centre (personal communications with Bedrocan Israel Ltd., January 7, 2013).

The first permit for medical use of cannabis is given to a patient for six months. It is renewed at the end of this six-month period. After this period, if it is still required by the permit holder, a new permit is issued for one year. The current waiting time for permits or renewal is three weeks. For

[32] The following exchange rate was used 1.00 Shekel equals 0.27 USD.

[33] Health care in Israel is universal whereby it is compulsory to participate in the medical insurance plan. The medical services basket includes all medical services, technological and medications that every resident has a right to receive.

cancer patients, or in cases where the doctor states that it is urgent, the request is sped up and can be received within days (Natan, 2012).

The State of Colorado (USA)

Marijuana laws in the USA are a complex topic of significant public discourse. Federally, marijuana is classified as an illegal substance under the Controlled Substances Act of 1970, where producing, selling, or possessing marijuana is an offense. As a Schedule I drug, marijuana is categorized as having a high potential for abuse, no currently accepted medical use in treatment, and a lack of accepted safety for use of the drug under medical supervision. The United States' Office of National Drug Control Policy (ONDCP) states that regardless of state laws to the contrary, there is no such thing as medical marijuana under federal law (ONDCP, n.d.).

Since 1996, 18 states and the District of Columbia, which include the State of Colorado, have passed laws allowing marijuana to be used for a variety of medical conditions (ONDCP, n.d). These state laws provide protection to patients using medical marijuana from state and local police, however, do not protect individuals from federal arrest and prosecution.

In November 2000, Coloradoans passed Amendment 20 establishing the Medical Marijuana Registry (MMR). The Colorado Department of Public Health and Environment (CDPHE) maintain a confidential database of patients who have a registry identification card for the use of medical marijuana. Since the registry began operating in June 2001, 204,312 new applications have been received.[34] Currently, 108,526 patients possess valid registry identification cards. Applicants are most likely male (68 percent) and of an average age of 41 (State of Colorado (SoC), 2012a).

In November 2012, voters in Colorado also passed a State initiative legalizing marijuana for adults 21 and older (ONDCP, n.d). The constitution of the State of Colorado's addition of a new section on the personal use and regulation of marijuana states that pervious medical marijuana provisions are unaffected by this amendment (Colorado Secretary of State, 2011). Thus, Colorado's medical marijuana program remains in effect despite the new legalization laws.

Accessibility

Colorado State regulates medical marijuana for patients and licensed suppliers. This is done between two different departments. The CDPHE is responsible for issuing registry identification cards to patients and maintaining the confidential MMR (SoC, 2012b). The Colorado Department of Revenue is responsible for Medical Marijuana Center (MMC) licensing, operations, and regulations. These two State departments are completely separate from the federal government's laws prohibiting marijuana.

Any person who has been issued a MMR identification card may possess no more than two ounces of marijuana and may cultivate no more than six marijuana plants *(*Colo. Const. Art. XVIII, 2012, Section 14). If cultivating one's own supply of medical marijuana is not a preferable option, then it can be purchased from a licensed MMC (SoC, 2012c). These retail operations are businesses licensed by the state and local governments to sell medical marijuana to patients with a current registry card. A patient may obtain their medicine from any MMC regardless of whether that patient has listed that center (Sensible Colorado, 2012). There are three types of MMC licenses that can be obtained, each depends on the number of registered primary patients allowed under each license: Type 1, 1 to 300 patients; Type 2 301 to 500 patients; and Type 3, 501 plus patients. With each type of license, the application fee and the annual business license fee increases.

[34] The statistical data in the following paragraph is relevant as December 2012.

As of December 2012, there are 528 MMCs in Colorado that have the necessary State paperwork in place to operate. Of the 528 centers, there are 488 Type 1, 26 Type 2, and 14 Type 3. There is not an equal distribution of licensed MMCs across the state. This is due to the Colorado Medical Marijuana Code enacted in 2010 that permits local governments to ban state licensed businesses. Thus, some areas have access to these services while other areas do not, dependent on decisions of local government, or voters having banned such businesses within their community (personal communications with CMMED, December 18, 2012).

Availability

In Colorado there are two separate decision makers who determine whether medical marijuana can be used by an individual: a patient's doctor making the recommendation, and the CDPHE that approves an application to the MMR.

The decision maker recommending if medical marijuana should be used by a patient must be a doctor who maintains, in good standing, a license to practice medicine in the State of Colorado. Based on Board of Health regulations, only physicians who have a bona fide physician-patient relationship may recommend that the patient has a debilitating medical condition which may benefit from the use of medical marijuana (Colo. Const. Art. XVIII, 2012, Section 14). In December 2010 there 13,243 licensed physicians in Colorado who could complete this recommendation (AAMC, 2011). As of November 2012, approximately 900 different physicians have signed for current patients in Colorado (State of Colorado, 2012a).

This recommendation, called the 'physician certification,' is put forward to the State of Colorado's MMR as part of the patient's application. It includes general information about the patient and the physician, what debilitating medical condition the patient has, the cause of this condition, and the amount of medical marijuana being recommended (CDPHE, 2012). If an application is approved by the CDPHE a medical marijuana registration card is provided to the patient allowing them legal possession of a limited supply of marijuana.

According to Section 14 of Article XVIII of the Colorado Constitution, the medical use of marijuana is permitted for persons suffering from debilitating medical conditions. These include: cancer; glaucoma; positive status for HIV, or AIDS syndrome, or treatment for such conditions; cachexia; severe pain; severe nausea; seizures, including those that are characteristic of epilepsy; or persistent muscle spasms, including those that are characteristic of multiple sclerosis; or any other medical condition, or treatment for such condition, approved by the state health agency *(*SoC, 2012d, Section 14). As of November 2012, severe pain accounted for 94 percent of all reported conditions and muscle spasms accounted for the second-most reported condition (16 percent) (SoC, 2012a).[35]

In Colorado there are two types of premises that produce supply of medical marijuana, both of which require a business license. There is an application process for both where a $1,250 application fee is required, followed by a $2,750 business license fee once an application has been approved. The first, a Medical Marijuana Optional Premises Cultivation (MMOPC) license allows for the growth, harvesting, and processing of raw medical marijuana product (SoC 2012c). As of December 2012 there were 234 licensed MMOPC and 505 applications pending (personal communications with CMMED, December 18, 2012). Second, is the Medical Marijuana Infused Product Manufacturer (MMIPM) license, which allows for the production of medical marijuana infused products such as edibles, tinctures, and beverages (SoC, 2012c). As of December 2012, there were 40 licensed MMIPM and 118 applications pending (personal communications with CMMED, December 18, 2012). Both of these facilities sell their products to licensed MMCs.

[35] Note that percentages do not add up to 100 percent because some patients have more than one condition (SoC, 2012a).

Medical marijuana cannot lawfully be grown and infused products may not be produced within, or on the premises of, licensed MMC's (SoC, 2012c).

The supply of medical marijuana produced by the licensed cultivation facilities and product manufacturers, and later sold by the licensed MMCs, is vast—covering a large array of preferences that may be of interest to patients. There are no State regulations on the forms or strains of medical marijuana that can be sold to patients in Colorado. A quick survey of the licensed MMCs suggests that each center offers a unique variety of products for their consumers. For example, the following forms of medical marijuana were noted: pre-rolled, powder, ground, dried, flowers, seeds, edibles, drinks, tincture, topical, oils, and waxes. Both the indica and sativa cannabis plants were available, as was a hybrid of these two plants. Every center offered numerous mixtures of marijuana with different THC and CBD levels.

There are basic sanitary standards at the State level and some local authorities (municipal or county) may have some quality standards in place regarding the supply of medical cannabis (personal communications with CMMED, December 18, 2012).

Affordability

There are no regulations on price that licensed MMCs in Colorado must follow. Records are not kept on the average price that medical marijuana is sold for in these centers (personal communications with CMMED, December 18, 2012). Thus, after a review of seven licensed MMCs (offering over 130 strains of medical marijuana), which had menus and prices listed online, the average price per gram was $11.56 USD.

To my knowledge, no cost coverage provisions or health insurance companies cover the costs for medical marijuana in Colorado. However, State statute does allow for individuals deemed indigent to be exempt from the application fee and to purchase their medicine without paying sales tax (personal communications with CMMED, December 18, 2012). This need is determined through an application.

In 2010, the Colorado Medical Marijuana Code was enacted, which created a for-profit state regulated system for distributing medical marijuana. Thus, the sale of medical marijuana is a for-profit industry in Colorado where both the public and private sectors gain revenue. Publically, revenue is generated through sales tax that the Colorado Attorney General ruled must be collected by the vendor on sales of medical marijuana (SoC, 2013). Privately, revenue is generated directly from the sale of medical marijuana.

Acceptability

There are approximately four steps involved in a patient's medical marijuana application in Colorado. The application package itself is eight pages long; however, both the application from the applicant and the physician's certification are each one page in length. In the first step, a physician certification is completed by the applicant's doctor, as discussed above. In addition to this, the patient has to complete an application that is submitted with the physician's certification. The third step is that the application packaged has to be signed and dated in front of a notary. The final step includes ensuring that the administration necessary for the application occurs, which includes a copy of the patient's Colorado identification and a form of payment for the application fee. This fee is $35 per application (CDPHE, 2012).

It takes approximately four to six weeks from the date the registry receives a patient's application for someone to be approved to use medical marijuana (CDPHE, 2012). A patient's MMR identification card expires one year from the date of issuance. The renewal process is the same as the application process for new patients.

Appendix F. Policy Alternative 1: Items for Remove from Canada's Application for Medical Marijuana

Colorado's application for a medical marijuana registration card was used as an example.. In comparing Canada's and Colorado's applications removing the elements of Canada's application out lined in Table 13 are put forward as ways to reduce the complexity of an application in for medical marijuana in Canada:

Table 13 - Items for Remove from Canada's Application for Medical Marijuana

	Form	Area in Application to be Removed	Rationale for Removal	Regulation Change Required
1	A	applicants fax number	Not relevant for an individual applicant in the twenty-first century	No
2	A	whether the applicants address is a private or not a private residence	This information is not necessary	No
3	A	the proposed source of marijuana	This is answered based on what further applications are completed	No
4	B1	the method and form of administration	This information is not necessary and creates more work for the medical practitioner	No
5	B1	the duration	This creates more unnecessary work for the medical practitioner	Yes, Health Canada to change regulations making all authorizations for one year
6	B2	the method and form of administration	This information is not necessary and creates more work for the medical practitioner	No
7	B2	the duration	This creates more unnecessary work for the medical practitioner. Make all authorizations for one year	Yes, Health Canada to change regulations making all authorizations for one year
8	C	the applicants prefix, full name, date of birth, telephone number, and e-mail	This is all included on Form A no need to repeat	No
9	C	mode of production	Distinction unnecessary	Yes, Health Canada to make the amount that is allowed to be produced the same for in door and outdoor growth.

	Form	Area in Application to be Removed	Rationale for Removal	Regulation Change Required
10	C	security measures for growing and storing marijuana	Health Canada does not monitor production sites thus, unnecessary to indicate it on the application.	No
11	C	address where the marijuana will be stored	Regulations indicate it must be stored at production site or applicants ordinary place of residence; thus, not need to write out address again.	No
12	D	the applicants prefix, full name, date of birth, address, telephone number, fax number and e-mail	This is all included on Form A no need to repeat	No
13	D	mode of production	Distinction unnecessary	Yes, Health Canada to make the amount that is allowed to be produced the same for in order and outdoor growth.
14	D	security measures for growing and storing marijuana	Health Canada does not monitor production sites thus, unnecessary to indicate it on the application.	No
15	D	address where the marijuana will be stored	Regulations indicate it must be stored at production site or ordinary place of residence for the designated person or the applicant; thus, not need to write out address again.	No
16	E1	the applicants prefix, full name, date of birth, address, telephone number, fax number and e-mail	This is all included on Form A no need to repeat	No
17	E2	the applicants prefix, full name, date of birth, address, telephone number, fax number and e-mail	This is all included on Form A no need to repeat	No