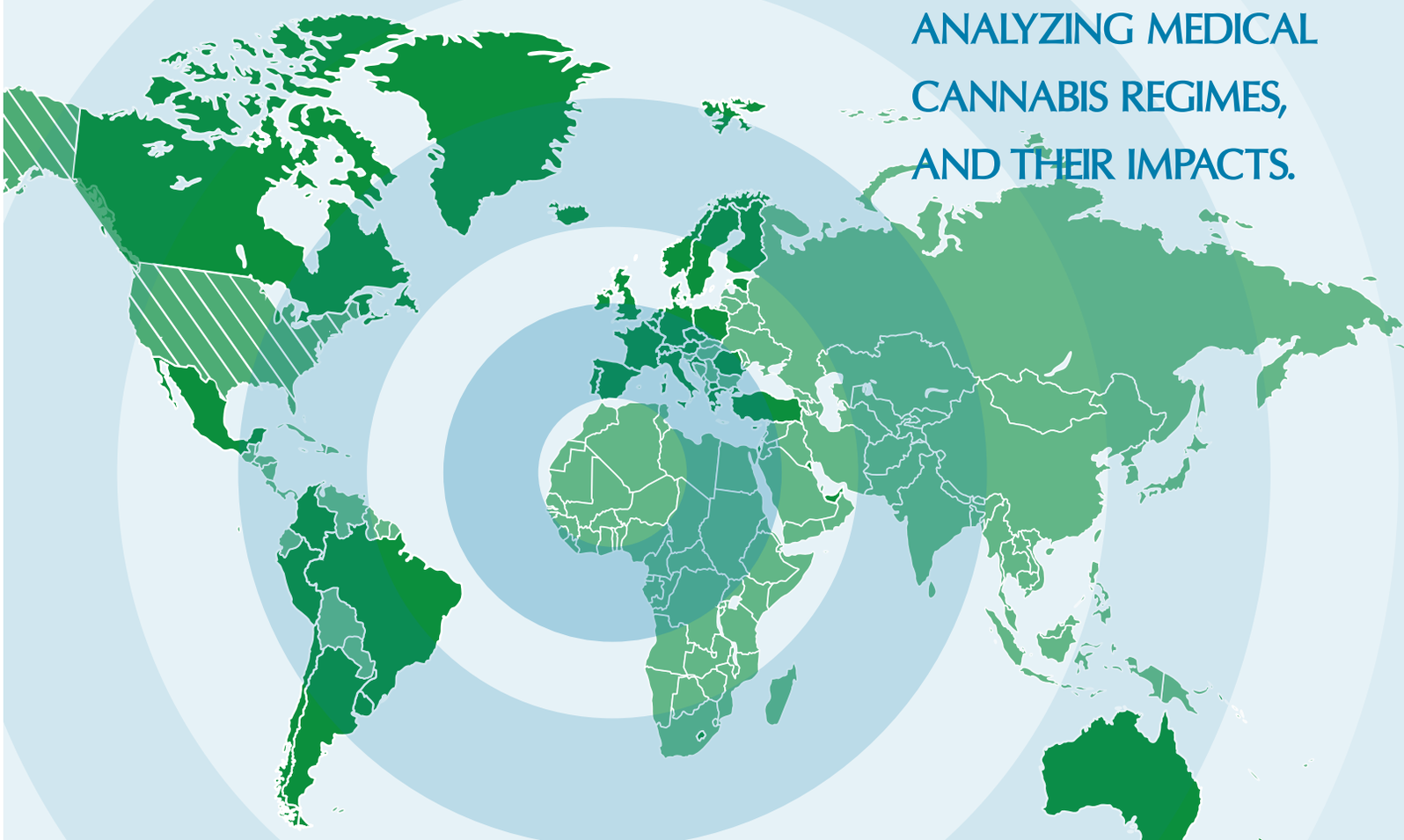
# MCANZ MEDICAL CANNABIS AROUND THE WORLD:

## A HANDBOOK GUIDE ANALYZING MEDICAL CANNABIS REGIMES, AND THEIR IMPACTS.



# CONTENTS



# INTRODUCTION

Cannabis remains a prohibited drug throughout much of the world. However, countries throughout the developed world are grappling with how to regulate medical cannabis and the compromises that must be made to ensure patient access. This guide is designed to inform the public on the various regimes that have been set up worldwide, and the positive and negative aspects of each.

Despite the growing pool of countries that have regulated medical cannabis, there is no consensus on which method offers a gold standard for other countries to follow. Even at an international level, there has been a lack of discussion of this burning issue. The United Nations General Assembly Special Session (UNGASS) on the "world drug problem" in 2016 was effectively silent on the issue.

It should be noted that at the international level, medical cannabis is not prohibited. The 1961 Single Convention on Narcotic Drugs restricts medical research and use, but does not ban it. In effect, until very recently, most countries banned medical use despite the fact that it has been allowed under international treaties since 1961.



# QUALITY ISSUES

# ISSUE 1:

## PRODUCT QUALITY

A key consideration that all jurisdictions face is defining an acceptable quality standard for cannabis products and/or raw cannabis. At the most expensive end of the spectrum are the pharmaceutical GMP (Good Manufacturing Practice) standards, as adhered to by GW Pharma, the manufacturers of Sativex; the Dutch company Bedrocan; and top tier Canadian manufacturers who have recently attained or are pursuing these standards, such as Tilray, CanniMed and Canopy Growth. The GMP standard requires a significant investment of time and money to attain. It is the standard most closely aligned with our current pharmaceutical model. However, the impact on the cost to patients is immense.

At the other end of the scale, as an early legaliser of medical cannabis, California initially had no product standards for its medical regime, allowing dangerous pesticides and plant growth regulators to be used. However, decent product standards were recently enacted via the adult use law in California.

As a compromise solution, Canada has set up a regime known as GPP (Good Production Practices) [1], where products are made to a high standard. Under GPP, variation between batches based on the potency of the plants is allowed, so long as each batch is labelled accurately. This has enormous benefits for production costs, as batches that vary in potency no longer need to be discarded. Multiple products made to this GPP standard have been accepted and approved for individual patients in New Zealand. We term this standard 'near pharmaceutical'.

Many American states set safety standards for products in lieu of defining an industry standard regime. The safety standards define tolerable levels of contaminants to ensure that the product is safe to consume, without demanding proof of efficacy.

# ISSUE 2: CONTAMINANTS

There are three types of contaminants that can be a cause for concern with cannabis: pesticides and other additives; moulds and associated toxins; and heavy metals.

## *Heavy metals*

Cannabis is a bioaccumulator, and in fact, industrial hemp has been researched and trialled for site remediation benefits such as removing contaminants such as heavy metals like lead from soils. This novel property of cannabis may not be as problematic in New Zealand as it is in other post-industrial countries. For example, hemp grown in a country with a history of environmental exploitation is more likely to accumulate high levels of lead or cadmium, posing a severe health risk. The risk on many New Zealand soils is likely to be lower; but risks can still exist here based on land use, including past use of agrichemicals.

## *Moulds and toxins*

Cannabis flowers, which harbour the plant's concentrated medicinal compounds, can succumb to mould if grown in damp conditions. Some types of mould give off toxins that pose a harm to health. Aspergillus moulds, for example, give off ochratoxin (a suspected carcinogen which is toxic to the kidneys) and aflatoxin (a known carcinogen that can cause liver damage) [2]. The mould-susceptibility of cannabis means that the largest legal medicinal cannabis producers tend to cultivate either indoors or in high-tech greenhouses, in order to control the variables that allow moulds to develop. This is in stark contrast to opium poppies, which are hardy in comparison and lend themselves to massive outdoor fields. This is why cannabis-based products are likely to always cost more than opium-based medicines.

## *Pesticides*

When cannabis is cultivated on a larger scale, there is an increased risk of pest infestations such as spider mites. While a personal grower with a handful of plants can generally keep on top of such things, larger operations, such as the enormous greenhouses currently being put into production, can much more easily harbour an infestation. To combat this, some commercial growers turn to pesticides. There are some pesticides that are safe to use on cannabis; however most are not, particularly due to the breakdown of the chemicals once cannabis is heated and inhaled. [3]

## *Infographic*

One pesticide that should be banned for use on cannabis is myclobutanil, which is freely available in New Zealand. It is banned in most medical cannabis jurisdictions, as when heated under flame it degrades to hydrogen cyanide.



# COMPARING OVERSEAS JURISDICTIONS

## *Scoring system*

In order to compare different overseas medical cannabis regimes, we propose the following scoring system by which to compare different jurisdictions. Each jurisdiction is given a score between 0 and 5 for the following parameters, with a score of 5 being optimal.

Prescriber freedom: This score represents the potential barriers that prescribers face, either from regulations or from formal medical bodies, and the level of support and education provided to prospective prescribers to ensure that they feel comfortable to prescribe as appropriate.

Patient access: This speaks to the cost to the patient and the range of options available to patients through legal channels. Every patient has different preferences, whether it is oil capsules or raw dried cannabis to be used with a vaporiser.

Product quality: The various states and nations that have implemented medical cannabis regimes have all been forced to confront the issue of product quality and the impact that quality standards have on price for patients. Set the standards too high, and businesses struggle, costs remain high, and patients are left resorting to the black market as before. Set the standards too low, and patient safety is put at risk.

Support for research: Various countries have regulations that either support or inhibit research. The ability for private companies and universities to conduct research is critical to furthering our knowledge on cannabis, both medically and otherwise.

Diversion: As with other drugs such as opioids, some people may try to game the system and receive prescriptions for conditions that are not genuine. This criterion assesses how frequent and widespread diversion could be within a regulatory regime, and what controls the regulators have over this.

Industry development: How supportive is the regime of industry development? Is there competition and innovation? What is the bar for entry to newcomers?

# THE UNITED STATES:

## A PATCHWORK OF STATE SUCCESSES, HAMPERED BY FEDERAL LAW

Currently, 29 of the 50 US states have legal medical cannabis regimes. However, these regimes are constrained in some ways by a prohibitionist federal law.

At the federal level, in the United States cannabis is a Schedule 1 controlled drug. Schedule 1 is designated for drugs that have a high potential for abuse and no accepted therapeutic purpose. This is an archaic designation as far as cannabis is concerned. To compare, methamphetamine, which is available on prescription, is Schedule 2.

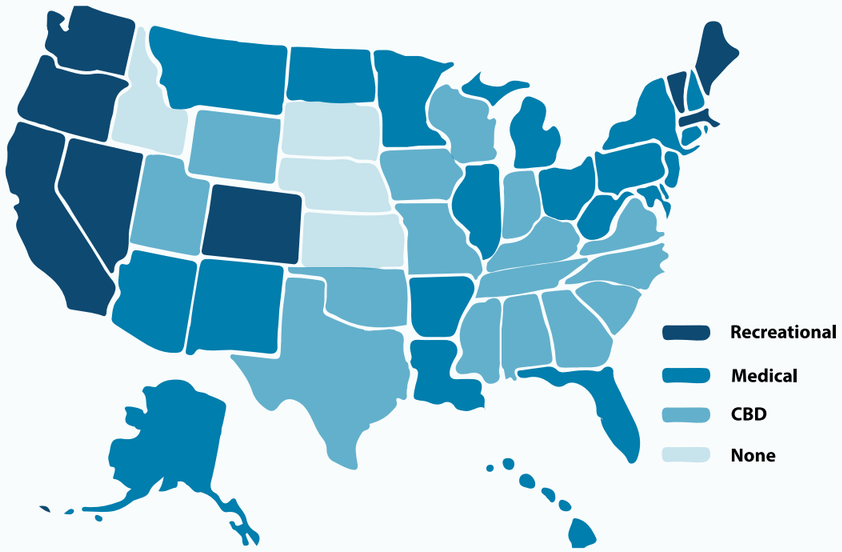
Various attempts have been made to reschedule cannabis through the US courts. To date, many court decisions have accepted that cannabis does not belong in Schedule One, but the courts haven't had jurisdiction to force the Drug Enforcement Agency to reschedule.

Because of the federal scheduling, many state regulations get around doctors prescribing cannabis by stipulating that doctors can instead "recommend" cannabis to patients. This impacts on patients, in that prescribers are constrained from providing advice and support and directing patients as to which products to use. This leaves the patient advice role to the staff at medical cannabis dispensaries, who are not trained medical professionals. These dispensary staff do however tend to have a significant knowledge of the various strains of cannabis available, and the therapeutic effects and side effects of different strains – a type of hands-on knowledge that medical professionals would rarely develop.

Since 2014, the US Congress has forbidden the use of federal funds to prosecute state-compliant medical cannabis businesses and patients. This means that the federal ban on medical cannabis is not enforced in states which have passed their own medical cannabis laws.

However, due to the federal ban, many traditional national financial institutions are unable to serve the cannabis industry, forcing cannabis businesses to transact in cash and find new ways of trading.

Below, we present case studies of three different US states, showing the spectrum of diversity that exists in the US medical cannabis space.




# CALIFORNIA:

## FIRST TO REFORM

California first introduced medical cannabis in 1996, after a voter-initiated referendum called Proposition 215, the Compassionate Use Act, passed with 56% of the vote. The bill allowed for the use, possession and cultivation of cannabis on a physician's recommendation for patients with a list of severe conditions, as well as including the catch-all clause, "any other illness for which marijuana provides relief".

Because this bill was so early, there were large holes in the regulations. Initially, there were no quality standards set for medical cannabis, as it was not intended for commercial production to occur. The lack of quality standards was remedied two decades later with the passing of the adult use cannabis bill.

California's product range, price and quality control is now going from strength to strength. However, some regulations are now squeezing out the smaller, longer-established medical growers.

An additional concern until recently was the access process; a single 10-minute consult with a physician specialising in cannabis was enough for a patient to get a recommendation and medical cannabis access card, with no follow-up required. This led to perhaps the easiest access a patient could dream of; however this also opened the door to a significant number of individuals gaining access for minor professed complaints. Now that adult use of cannabis is legal for all California residents, obviously this is no longer an issue.

At this point in time, California patients and their carers can grow their own cannabis, designate someone to grow for them, join a compassion club for communal cultivation, or purchase from a dispensary. Patients in California have access to perhaps the widest range of products anywhere in the world, with regular oils, tinctures and raw cannabis flower, and even obscure products such as nasal sprays, [4] oral dissolvable wafers and suppositories [5]. Because much of the industry is not vertical, many of the well-established brands have overengineered their quality control and testing in order to be competitive in the marketplace [6], and as such could meet pharmaceutical guidelines such as the EU pharmacopoeia, a set of standards for manufactured medicines which includes standards for herbal drug preparations.

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| **Prescriber freedom** | ★★★★★ | Prescribers can do what they want; medical bodies are set up to support prescribers in this space with knowledge, training, resources and shared case studies. |
| **Patient access** | ★★★★☆ | California has the best range of product types of any jurisdiction, but includes an excise tax, increasing costs for patients. |
| **Product quality** | ★★★½☆ | Product quality has rapidly improved in the last few years. |
| **Support for research** | ★★☆☆☆ | State law supports businesses conducting research in an attempt to counter federal scheduling. |
| **Industry support** | ★★★★☆ | California has a strong industry; however, smaller cultivators are now being squeezed out. |
| **Diversion** | ★★★☆☆ | California was formerly the prime example of a loose market open to abuse. However, with adult use laws now allowing access for all, there is little incentive to apply for a medical licence for casual use. |

# ARIZONA:
## MASSIVE PATIENT UPTAKE

Arizona's medical cannabis law was passed in 2010 by the slimmest of margins, with 50.13% of voters in support. (Arizona is one of the more politically conservative states in the US.) Under Arizona law, patients and their caregivers may cultivate up to a dozen plants if they live at least 25 miles away from the nearest dispensary [7]. This solution prevents indoor growing in the cities, but still allows those living rurally to have relatively easy access. Arizona's quantity of medical cannabis patients is massive, with over 170,000 qualifying patients to date.

The quantity of patients with chronic pain using medical cannabis in Arizona is about 85% (150,000) [8], much higher than what is being reported by Israeli and Canadian producers. This suggests a potential that diversion could be taking place, but also suggests a strong trend towards cannabis being used as a first-line treatment for pain conditions in preference to opioids, a positive public health effect in a country gripped by an opioid epidemic [9].

The majority of patients, however, are men, with almost double the amount of men having access compared to women in the 18-40 age bracket, suggesting some degree of diversion [8].

The manufacturing and dispensing regime is effective. However, testing is only required for raw cannabis at the end of cultivation. Further down the manufacturing chain, there is no required testing for manufactured products [10]. Fortunately, there is a robust recall procedure for cultivators; however, this does not follow through to dispensaries in law. Most of the dispensing and manufacturing regulations are oriented around product tracking, storage and sanitary conditions. There are no legal requirements around testing facilities, which leads to multiple testing facilities using different protocols and standards. Different facilities can produce varied results while testing identical products on potency and purity.

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| **Prescriber freedom** | ★★★☆☆ | There is a list of qualifying conditions which can be challenged and amended, while the list of conditions is short, broad symptomologies are covered such as "chronic pain", allowing prescribers a decent degree of freedom. |
| **Patient access** | ★★★★☆ | Patients are routinely able to access cannabis for their conditions. |
| **Product quality** | ★★★☆☆ | Products are typically tested, but it is not mandated in law, and the testing facilities have no laws governing them either. |
| **Support for research** | ☆☆☆☆☆ | There are no requirements for clinical research. |
| **Industry support** | ★★★☆☆ | Arizona has no industry in the field at this point in time. |
| **Diversion** | ★★★☆☆ | With such widespread access, there may be a portion of the population who game the system to obtain legal access. Counter to this, the large pool of patients accessing cannabis for chronic pain is likely to offer significant public health benefits during the opioid crisis. |

# ALABAMA:
## CBD ONLY

Alabama has two main legal routes for patients to possess CBD. Prescribing was originally under "Carly's Law", initially restricted to the Department of Neurology at Alabama University for severe epilepsy, as part of a trial. This observational study demonstrated that half of patients experienced some improvement in symptoms [11], a remarkable number considering the treatment-resistant status of the patients involved.

In 2016, another law was passed which extended the ability of CBD to be prescribed by other specialists for other severe conditions [12]. To this day, Alabama is possibly one of the worst states, even with a law purporting to improve access [13]. There is also still no legal access to THC, which is needed by many patients instead of or in addition to CBD.

Alabama's first law was implemented off the back of strong lobbying from parents, and was coined "Carly's law" Carly pictured far right, had 2 years free of Tonic Clonic Seizures and an almost complete elimination of complex partial seizures while trialing Cannabidiol.

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| **Prescriber freedom** | ★☆☆☆☆ | CBD is able to be prescribed, but with no industry supplying products, in practice access is almost impossible. |
| **Patient access** | ☆☆☆☆☆ | Barely better than prohibition. |
| **Product quality** | ☆☆☆☆☆ | With no industry, it is impossible to score this. |
| **Support for research** | ★☆☆☆☆ | State law demanded an observational trial. |
| **Industry support** | ☆☆☆☆☆ | No domestic production in the state. |
| **Diversion** | ☆☆☆☆☆ | Virtually impossible access to CBD-only products leaves no room for diversion. |

# UNITED KINGDOM:
## HYPOCRISY ABOUNDS

The UK treats cannabis as a Schedule 1 drug, the most severely restricted. Hypocritically, Sativex is freely available and isnt scheduled. A single medical cannabis company, GW Pharma, was given a licence to cultivate cannabis for research in 1998. The culmination of that research was the product Sativex, which is the first cannabis-based pharmaceutical product to gain market approval. In the UK, the only legal product with a usable THC content is this product. There is however an aspect of postcode lottery in that the cost of Sativex is covered by the NHS for multiple sclerosis in certain regions.

Unlike New Zealand, Sativex is able to be freely prescribed for off-label uses for conditions such as pain, and prescribing is solely the physician's responsibility.

A key issue that has been in the British media recently is the impossibility of importing other cannabis products. While GW Pharma works on its pure CBD pharmaceutical product and is nearly ready to go to market [14], the families of severely ill epileptic children have been bringing back products from Canada and the Netherlands and having them seized at customs, resulting in children being denied their most effective medicine and putting their lives in jeopardy. Due to enormous public pressure, an interim scheme has been set up, and the laws and scheduling is being amended so that Cannabis will not be schedule 1, allowing prescribing of other products, with particular emphasis on Canadian products.

CBD products are allowed in the UK as over-the-counter health food supplements, so long as they contain no more than 1mg of THC per unit [15]. This has allowed a market to flourish for CBD products; however, the Health Ministry has moved to recognise CBD as a medicine, which may stifle this industry if dispensing is put back into the hands of prescribers. It should be noted that there has been no discernible negative effect from the free availability of CBD.

### THE COST OF A REVIEW FOR A SPECIAL MEDICAL CANNABIS PRESCRIPTION:

**£3,655** [16]

**Prescriber freedom** ★★★☆☆
Prescribers are not constrained in the conditions they prescribe for, but are confronted with a single choice of product.

**Patient access** ★★☆☆☆
Patients are free to pursue CBD products themselves, however if THC is required the only legal option is Sativex, which can be funded for MS in certain parts of the country.

**Product quality** ★★★★☆
Sativex is made to a pharmaceutical standard, however there are no laws governing the quality of CBD products.

**Support for research** ★★★★☆
Worldwide, GW Pharma is at the pinnacle of success with clinical trials, thanks to their licence to cultivate. Financing of clinical trials has not been done by central government, however.

**Industry support** ★★☆☆☆
A single company is allowed operate, and has had a monopoly since the 1990s.

**Diversion** ☆☆☆☆☆
The high cost of Sativex precludes any real risk of diversion.

# ISRAEL:
## POWERHOUSE OF RESEARCH

Israel has a long history of researching cannabis, with universities involved in research since at least 1960. Dr Raphael Mechoulam, considered the godfather of medical cannabis science, is Israeli; he made many of the early groundbreaking discoveries around isolating the active ingredients in cannabis and identifying various components of the endocannabinoid system [17]. Medical cannabis has been permitted in Israel for patients with severe conditions such as Parkinson's, multiple sclerosis and Crohn's disease since 1992, predating even California.

Domestic production is restricted to several established companies of varying sizes. These are overseen by an agency for medical cannabis which ensures that companies comply with an established set of health standards.

Patient access is via applications to the Israeli equivalent of the Ministry of Health, with the exception of doctors who are licensed cannabis practitioners, where no application is required. Due to limited access to prescribers, uptake is generally lower than in other jurisdictions [18], despite Israel being a more established regime. Access is restricted to patients with a specific list of medical conditions.

Many clinical trials of small sizes and scopes have been conducted in Israel, both in the preclinical laboratory phase and in early human trials across a broad range of conditions. For this reason, Israel is considered the most supportive country for clinical research on medical cannabis.

Israel has grappled with the idea of exporting medical cannabis. The closest potential neighbouring markets are far more socially regressive and are unlikely to accept medical cannabis in the short term. Additionally there are perception issues in the region, leading Israel to be cautious about exporting drugs. However, the country is overcoming this, and it is expected that Israel will make its mark on the international cannabis markets in 2019.

**Prescriber freedom** ★★★☆☆
Prescribers can make applications on a per-patient basis, or become licensed cannabis prescribers to remove the barrier. In effect this has created a new specialty in cannabis prescribing, which has become lucrative, as only a handful of doctors routinely prescribe.

**Patient access** ★★★☆☆
Patients have access to a good a range of products, but are limited by the restricted methods of access.

**Product quality** ★★★★☆
Products are made to high standards and are transitioning to pharmaceutical grade in anticipation of exports.

**Support for research** ★★★★★
With a well established university research culture, multiple companies and even public money available for research, Israel has long been regarded as the place to conduct medical cannabis research.

**Industry support** ★★★★☆
Israeli industry has received robust support in general, but the government wavered on allowing exports, and Canadian companies now have a better global reach.

**Diversion** ★☆☆☆☆
Theoretically possible, but there is no literature to support abuse of the Israeli system. With a conservative prescribing regime, and adult cannabis use already decriminalised, there is little incentive to pursue the medical route as a means for non-medical use.

# CANADA:
## EXPORTER EXTRAORDINAIRE

Canada has a robust judicial system which allows citizens to challenge the laws of Parliament. This has led to three phases in Canada's medical cannabis regime. In the landmark court case R v Parker, cannabis prohibition itself was ruled unconstitutional, as it did not contain an exemption for medical use [19]. This triggered the setup of the Medical Marijuana Access Regulations (MMAR) in 2001, which licensed a single grower to supply raw cannabis flowers (buds).

The Conservative government of Stephen Harper then tried to remove the ability for patients to grow their own medicine under a new regime, the MMPR. This was struck down as unconstitutional, leading to the third and final set of regulations, the "Access to Cannabis for Medical Purposes Regulation".

This final legal framework allows for patients to grow their own cannabis when licensed by Health Canada, and also allows many seed-to-sale manufacturers of cannabis products to operate successfully.

With the exception of Sativex, which is a prescribed product, Canadian physicians will "authorise" a quantity of cannabis to be consumed per day [20]. Patients are then able to register with their preferred producer and order a monthly supply equivalent to the daily limit imposed by their physician. This would mean that a stage IV cancer patient could be given significantly more cannabis than a patient battling with mild arthritis. This system has led to oils being rated as equivalents of raw cannabis; typically a bottle of oil is equivalent to five or 10 g of raw cannabis [21]. The average quantity consumed per day by patients in Canada is a little over 2g.

With the daily limit set by a physician, patients are able to grow their own. There are formulas available for both outdoor and indoor growing to ensure that patients are able to have a justifiable amount of plants for cultivation. These limits are set in terms of the number of plants grown, which has invariably encouraged growers to develop larger plants and grow an excess. That excess reportedly often ends up for sale in dispensaries serving other patients.

**Despite the industries headstart, Canada does have some significant production cost disadvantages due to climate...**

Under Canadian law, licensed producers distribute cannabis to patients by post, and retail dispensaries are not allowed; however, dispensaries do flourish [22]. Typically, the Canadian police turn a blind eye to such dispensaries if they are serving legitimately licensed patients. (New Zealand police have proven incapable of exercising such discretion.) Dispensaries provide a retail front, allowing patients to browse products and talk to a "bud tender" who knows about the various strains. This service is sorely missed in the mail order licensed producer model.

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| **Prescriber freedom** ★★★★½ | Prescribers can make applications on a per-patient basis, or can become licensed cannabis prescribers to remove the barrier. In effect this has created a new specialty in Cannabis prescribing, which has become lucrative. |
| **Patient access** ★★★★½ | Patients have access to an incredible range of producers and products, can visit tolerated dispensaries, and have the right to grow their own. The only thing missing is the ability of licensed producers to make "medibles" (medicated food products). |
| **Product quality** ★★★★½ | Canadian products are legislated to a "near pharmaceutical" standard; however, the larger players are voluntarily transitioning to pharmaceutical standards. |
| **Support for research** ★★★★½ | Canada is poised to deliver on clinical trials in humans to the affordable phase 2 level of research. Multiple phase 2 studies are underway or announced across a broad range of medicine, from sleep to arthritis to Tourette's syndrome. |
| **Industry support** ★★★★½ | One of the few things Canada could do more of would be to dedicate more public funding for clinical research. Otherwise, the execution could almost be described as flawless, with over 100 licensed producers, and multiple companies exporting and conducting serious clinical research. |
| **Diversion** ★★ | There may be a portion of patients abusing the process to get access to cannabis for non-medical purposes. However, excess cannabis grown by patients often ends up reaching other patients through dispensaries. Canada is now in the process of legalising cannabis use for all adults, making diversion of medical products unlikely. |

# AUSTRALIA:
## CART BEFORE THE HORSE

Australia has been plagued by low uptake by prescribers and patients, due to excessive bureaucratic hurdles [23]. With many businesses already set up and operating in this space, it seems that cannabis businesses have better support than patients.

The Australian federal government announced that they would legalise the growing of cannabis for medical and scientific purposes in October 2015. Legal amendments were then made in February 2016 to facilitate the licensing of cannabis businesses. The first research licences were approved in February 2017, but to date, no domestically produced product has been supplied to patients.

Currently there are 20+ businesses [24] heavily involved in this new industry sector, yet with significant reluctance from prescribers and only imported products available, only about 600 patients had been legally supplied with imported products as at May 2018.

CannPal has focused on Veterinary medical Cannabis, with the restricted access for humans, it is forseeable that mans best friend could have easier access across the ditch in the near future.

Part of the delay in domestic supply is due to the high cost of entry, which virtually demands pharmaceutical-grade products. It is likely that with so many businesses in this space and so few patients, some of these companies won't survive. Some of these businesses are moving towards veterinary products due to the issues with human supply; as a result, it is foreseeable that dogs may have better access than human patients in the near future [25].

Access for patients has been notoriously slow due to the dual set of approvals required at the state and federal level. The federal regime has recently been overhauled, promising a two-day turnaround. However, this has not happened in practice, and some patients have become refugees, leaving Australia for the likes of Canada or the United States [26] to gain more affordable and rapid access.

New South Wales has a compassionate use scheme, which enables New South Wales residents aged 18 or over with a terminal condition to have a degree of protection from police for what would otherwise be illicit use.

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| **Prescriber freedom** ★★☆☆☆ | Prescribers can make applications on a per-patient basis, or can become "authorised prescribers" to remove the barrier. The dual level approval requirements are a barrier to prescribers. |
| **Patient access** ★☆☆☆☆ | Patients have access to a handful of imported products and are typically limited by costs involved. |
| **Product quality** ★★★★★ | Australia has amongst the most stringent requirements for cannabis-based products in the world. |
| **Support for research** ★★★★☆ | Australia has placed a strong emphasis on clinical trials, and state governments have funded several trials to date |
| **Industry support** ★★★☆☆ | The support for industry appears robust on paper. However, the mid-term viability of these companies is at the mercy of the government as to whether patient access becomes easier. |
| **Diversion** ☆☆☆☆☆ | Theoretically possible, but with high costs and low support from prescribers, this is incredibly unlikely and has not been reported. |



# MCANZ'S COMPREHENSIVE SOLUTION

Our proposed policy builds on the the most recent regulations set out for Canada, and improves on them in several areas. This policy is described in detail in our booklet, available online and in hard copy from www.mc2018.co.nz.

A first proposed change, which would reduce the diversion potential, is that patients or caregivers who are licensed to cultivate should be given a cultivation limit based on a square metre growing area rather than on a fixed number of plants. This would limit the risk for oversupply on an individual patient basis, in comparison to fixed plant counts, which encourage the development of tree-sized cannabis plants.

Additionally, under our proposed system, prescribers would not prescribe simply a daily quantity of cannabis, but instead would prescribe products based on potency level and THC/CBD ratios. This would ensure that prescribers have more visibility and control around what their patients consume, while still preserving a degree of patient choice.

Our policy also proposes that tax revenues generated from a domestic medical cannabis industry are recycled back into a patient funding scheme administered by Pharmac, which would ensure that severe patients have a government funding pathway.

The final significant part of our policy is to define a specialty in cannabis prescribing, so that supportive but otherwise unknowledgeable physicians can refer their patients to known experts in this area of medicine. This is in recognition of the trend internationally for a small set of prescribers to dominate, and mitigates overprescribing by defining a specialty which would have obligations around responsible prescribing.

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| **Prescriber freedom** ★★★★★ | Prescribers will have the freedom to prescribe just as for any other controlled drug, and can refer difficult patients on to designated experts. |
| **Patient access** ★★★★☆ | Patients will have access to an incredible range of producers and products, similar to Canada, and will have the right to cultivate their own cannabis. However, fewer patients may have access to the strongest high-THC cannabis. |
| **Product quality** ★★★★☆ | New Zealand products will be made to a near-pharmaceutical standard, much like Canada. |
| **Support for research** ★★★★☆ | New Zealand has lower costs than most developed countries for medical research, and could become a leader in this field, with appropriate regulatory and funding support. |
| **Industry support** ★★★★☆ | New Zealand has no industry in the field at this point in time. |
| **Diversion** ★☆☆☆☆ | With lower setup costs for producers, easier prescribing and a single level of government to deal with, New Zealand could be in a position to compete on the global stage and eclipse the Australian companies. |

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