LESSONS LEARNED: DOS AND DON'TS IN CANNABIS REGULATION

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SUMMARY

The aim of this study is to identify areas requiring particular attention and good practices ("do's and don'ts") relating to the elaboration and implementation of a cannabis regulation model. To this end, around twenty individuals who have been or are currently involved in the development, introduction and evaluation of models for cannabis regulation in countries (Canada and Uruguay) or regions (US states and Canadian provinces) which have legalised this substance were interviewed, and their responses were analysed to determine cross-cutting issues.

The recommendations made by these experts concern three stages of regulation – design, implementation and monitoring. As regards the design of regulation, the key points raised concern the development of strategies which make it possible to counteract promotion of cannabis use on the part of economic actors. One such strategy is a public distribution/sales model. Another strategy is to restrict the range of cannabis-based products available and ensure that their properties are subject to consistent controls. Also important are restrictions on advertising and marketing, including packaging rules. In addition, it is important to provide information targeted at the population as a whole – and not just young people – concerning the risks and effects associated with cannabis use. Finally, it is particularly important – starting at the regulation design stage – to provide tools making it possible to prevent the industry from influencing the process whereby regulation is implemented and adapted.

With regard to the implementation of regulation, it important to include in this process, from the outset, all the administrative authorities (national and local) concerned. It is also essential to provide clear rules and definitions for market actors and for those responsible for enforcement. More generally, a "start low, go slow" approach is recommended for the implementation of regulation, as this allows the effects to be tested while retaining control of the situation. With a patient and careful approach, numerous errors can also be avoided. The main objection which may be raised to this approach is that it involves a risk of slowing down the replacement of the black market, but this is less important in countries, such as Switzerland, where the extent of illegal markets is limited.

Lastly, the monitoring of how regulation is implemented is also extremely important. Effective regulation is impeded by a lack of data, or by an inability to analyse and draw lessons from data. The same applies to a lack of administrative and financial resources for the implementation of regulation. An effective way of preventing these problems is to allocate the bulk or the totality of cannabis-related taxes to the steering and evaluation of regulation, as well as to efforts to reduce the social impacts of cannabis use (prevention, treatment, safety, etc.).

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INTRODUCTION

Since the first popular initiatives in favour of cannabis legalisation were passed by voters in Colorado and Washington state in 2012, a number of analyses and research studies have examined the question of (implementation of) cannabis regulation. Some authors first sought to show how policymaking could be aided by lessons learned from the regulation of alcohol and tobacco.[1] Thus, measures such as taxation and price setting, the adoption of a private or public sales model, restriction of the number of production or sales licences, the types of products authorised, marketing and advertising, consumption in public areas, or drug-impaired driving have been discussed in the light of experience with alcohol and tobacco.[2]

Washington state and, especially, Colorado then became the object of considerable attention and a growing scientific literature on cannabis-related policies.[3] One of the issues which rapidly emerged in Colorado was that of edible cannabis products, for which regulations soon had to be adjusted following media coverage of cases of overdose.[4] Other issues were then highlighted – in particular, increasing consumption, the development of new products with a higher THC content, the proportion of purchases accounted for by regular users, and falling prices.[5]

For some years, studies aimed at identifying lessons from cannabis regulation experiences have no longer been based solely on the results of population surveys on cannabis use, but have also sought to bring together more general observations for regulators. The diversification of regulatory models also makes it possible to refine our knowledge and to compare effectiveness in the area of cannabis regulation.[6] At the same time, the views and experience of regulators remain underrepresented in the scientific literature, even though they are in a position to describe the practical challenges of regulation and how these can be met.

To assist deliberation on the possible regulation of cannabis in Switzerland, it was decided to interview individuals who were involved in the development of cannabis regulation models in other countries and who interact on a daily basis with the stakeholders in this new political and economic

[1] R.L Pacula, B. Kilmer, A.C. Wagenaar, F.J. Chaloupka & J.P. Caulkins (2014), *Developing Public Health Regulations for Marijuana: Lessons From Alcohol and Tobacco*, American Journal of Public Health; and M. Haden & B. Emerson (2014), *A vision for cannabis regulation: a public health approach based on lessons learned from the regulation of alcohol and tobacco*, Open Medicine 8 (2).

[2] Pacula et al. (2014), *Developing Public Health Regulations for Marijuana: Lessons From Alcohol and Tobacco*, American Journal of Public Health.

[3] T. S. Gosh, D.I. Vigil, A. Maffey, R. Tolliver, M. Van Dyke, L. Kattari, H. Krug, J.K. Reed & L. Wolk (2017), *Lessons learned after three years of legalized, recreational marijuana: The Colorado experience*, Preventive Medicine, Vol. 104, pp. 4–6.

[4] This led to the introduction in 2016 of standardised edible servings of 10 mg THC per portion.

[5] T.S. Gosh, M. Van Dyke, A. Maffey, E. Whitley, L. Gillim-Ross & L. Wolk (2016), *The Public Health Framework of Legalized Marijuana in Colorado*, American Journal of Public Health, Vol. 106, No. 1, pp. 21–27; J. Hinckley, D. Bhatia, J. Ellingson, K. Molinero & C. Hopfer (2022), *The impact of recreational cannabis legalization on youth: the Colorado experience*, European Child & Adolescent Psychiatry.

[6] D. Hammond, S. Goodman, E. Wadsworth, T.P. Freeman, B. Kilmer, G. Schauer, R. L. Pacula, W. Hall (2022), *Trends in the use of cannabis products in Canada and the USA, 2018 – 2020: Findings from the International Cannabis Policy Study*, International Journal of Drug Policy, 105.

field, as well as individuals who are involved in the management of certain emerging issues associated with the existing regulation models. The aim was to determine what lessons can be learned for cannabis regulation today. What we asked our interviewees was essentially quite simple: to protect public health, what aspects of cannabis regulation as currently practised would you change and what would you preserve?

AIMS

The aim of this report is to identify areas requiring particular attention on the part of policymakers, especially if they are involved in deliberation concerning the introduction of a cannabis regulation model. The report also focuses on the lessons which can be learned at this point with regard to the regulation of this substance and certain regulatory measures.

Since the first cannabis regulation models were introduced, numerous lessons have been learned which have influenced, and continue to influence, the regulation models subsequently adopted. As part of this learning process, it is crucial to understand not only the epidemiological data which provide information on trends in behaviour, but also those aspects of regulatory frameworks which have proved effective, counterproductive or unenforceable, or which have produced unexpected effects, and also to identify certain elements of regulation which may prove to be important.

METHOD

The survey, conducted during the month of September 2022, involved a total of 21 interviews – 20 carried out by video call and 1 in writing. These interviews, lasting on average one hour, were conducted in accordance with an interview guide covering the various dimensions of regulation (governance, regulation of the market and consumption, and additional measures) and were then transcribed. The interviews began with open-ended questions, making it possible to obtain a general view of key components of the cannabis regulatory framework, followed by semi-open questions, permitting a more detailed examination of the main dimensions of the regulation model established in the interviewee's country/region. The interview focused systematically on those aspects which are important from a public health perspective.

This survey concerns the US, Canadian and Uruguayan contexts. In these three countries, cannabis regulation models have been in place for more than three years, providing the degree of distance required to identify the strengths and weaknesses of the measures adopted and of how they were implemented.

In the two federal countries (US and Canada), we selected states or provinces with different approaches and/or contexts (cf. the following section). For the US, these were the two states where cannabis was first legalised (Colorado and Washington state), in 2012 – providing a 10-year retrospective period – and California (2016). For Canada, we chose to examine different approaches with regard to sales and distribution models: Quebec (state monopoly), British Columbia (public-private), Ontario (private) and Saskatchewan (the most liberal model, similar to the US models). In addition, we also looked at the Canadian federal model.

In each case, we interviewed two to four individuals involved in cannabis regulation or the evaluation thereof. For recruitment of respondents, we approached in particular individuals responsible for the introduction of regulation models, but in some cases also individuals who had been directly involved in the legislative process.[7] To complement their perspective, we interviewed, where possible, individuals responsible for monitoring the introduction of the regulation within public health authorities, members of oversight committees, individuals involved in consultations or local experts in this field.[8]

The 21 interviewees selected – or the views reported – cannot claim to be representative of the entire political, administrative and scientific community specialising in the area of cannabis regulation. Our survey, conducted over a very limited period of time, sought above all to identify elements recurring frequently in regulatory discourse, problems which have appeared recently and comments important from a public health perspective.

To analyse the extremely varied material and bring together key elements in spite of the differences of viewpoint, we began by identifying the cross-cutting themes addressed in the interviews. These concern (1) the design of regulation and the role of the regulator, (2) the process of change/implementation and (3) the resources allocated to monitoring of this process. For each of these themes, we then identified a number of lessons which can be learned at this point. Even though this report is deliberately focused on the public health perspective, we have also sought to take account of the diversity of perspectives, emphasising, wherever possible, the particular aspects highlighted by the various interviewees.

[7] Cf. the list of interviewees in the Annex.

[8] To facilitate recruitment, we adopted the "snowball" method whereby interviewees recruit other subjects within their network.

REGULATION MODELS STUDIED

Before reporting the results of the study, we provide a brief outline of the regulation models considered. Only two relate to cannabis legalisation applicable throughout the national territory – Canada and Uruguay. In the US, cannabis is not yet legal at the federal level, despite various bills to this effect submitted to the House of Representatives (some have been passed but not yet been dealt with by the Senate).

Today, 19 US states have legalised cannabis for non-medical use, 37 states have regulations concerning medical use, and only 3 states have a total ban on cannabis. Colorado and Washington state were the pioneers of legalisation in 2012, following the approval by voters of popular initiatives. After just over a year of consultations and the development of regulatory measures, sales commenced in Colorado in January 2014. In the US, cannabis is sold in specialist shops (modelled on the "dispensaries" in which cannabis for medical use was already sold).

In US states, agencies for the regulation of recreational cannabis are attached to departments of finance, alcohol or commerce. The approaches adopted by Colorado and Washington state are similar, but they differ in certain regulatory elements, since in Washington the system was based on a model already applied to alcohol (horizontal but not vertical integration of industry, limits on the number of licences per territory, for example), which led to a system considered to be more restrictive than that of Colorado. California, for its part, differed by taking into account the problems raised when the first regulation models were implemented, particularly that of social equity in access to this new market, where numerous barriers arise for people who have produced or sold cannabis prior to legalisation. In these three models (as well as in the other states which have legalised cannabis), regulation provides for a competitive market with, for example, very few limits imposed on products (apart from maximum THC concentrations). Laboratory tests are mandatory, but vary from one state to another. Certain restrictions exist with regard to packaging and advertising.

In Canada, the federal government has established provisions which form the backbone of regulation and permit the pursuit of public health goals. These provisions include detailed rules concerning the production and packaging of cannabis, as well as advertising.[9] Provincial and territorial governments, for their part, can develop their own sales models. This has led to variety of models, ranging from a purely private sales and distribution system to a state monopoly (where only the government is authorised to sell cannabis, in state-run stores).

[9] For an overview of federal/provincial responsibilities, see the Annexes.

In Uruguay, legislation provides for access to cannabis via three routes – pharmacy sales, cannabis clubs (consumer associations) and self-cultivation. Controls are carried out by the IRCCA (Instituto de Regulación y Control del Cannabis), under the responsibility of the JND (Junta Nacional de Drogas) and the Ministry of Public Health. As regards pharmacy sales, the entire process is supervised by the government, which determines the varieties of cannabis grown (only dried flower is authorised for sale), as well as the approved THC concentrations and prices. Consumers registered for pharmacy access cannot obtain more than 10 grams of cannabis per week. It is also possible for Uruguayan consumers to form associations for the purpose of collective cannabis cultivation. Clubs may have from 15 to 45 members and, depending on this number, may cultivate up to 99 plants, which must not supply more than 480 grams per member per year; any surplus has to be handed over to the authorities. Clubs have autonomy with regard to the choice of varieties cultivated, THC concentrations and membership fees. Lastly, adults aged 18 or over may also grow up to six plants per household. Here again, total annual production must not exceed 480 grams.

The models considered for this study thus encompass a wide variety of regulatory approaches and experiences. In some cases (e.g. in Colorado and Washington state), a regulatory framework for the introduction of cannabis had to be developed from the ground up. Other authorities (e.g. in California and Canada) had the opportunity to develop such a framework in the light of the experience already gained in Colorado and Washington state. The regulatory approaches adopted by different countries and regions vary, sometimes widely, with some assigning greater importance to the regulatory role of the state (e.g. Quebec and Uruguay), and others leaving more room for the operation of market laws (e.g. Saskatchewan and Colorado).

MAIN RESULTS

The lessons learned are organised according to the various themes regularly addressed during the interviews. Even though our questions frequently invited respondents to comment on the specific characteristics of the regulation models examined, they often led to more general reflections on, for example, the position and role of regulators in the transition from an illegal to a legal market, the change process from the perspective of those responsible for the design, implementation or monitoring of the model, and finally the allocation of resources to ensure effective implementation.

1. THE DESIGN OF REGULATION AND THE ROLE OF THE REGULATOR

Considered to be of central importance – apart from the measures constituting the regulation models – was reflection on the position and role of the regulator in controlling an industry whose product poses health risks for consumers, with reference obviously being made to the examples of tobacco and alcohol. The comparison with alcohol has indeed often been deployed, either during public campaigns for legalisation (with the famous slogan "Regulate Marijuana Like Alcohol" used in the Colorado campaign in 2012[10]) or at the institutional level, with responsibility for the regulation of cannabis being assigned to authorities already responsible for handling the regulation of alcohol (e.g. the Washington State Liquor Control Board, which became the Washington State Liquor and Cannabis Board).

Lessons learned in relation to the regulation of alcohol and tobacco may prove useful in various respects when establishing the fundamental principles of cannabis regulation. Given the health risks posed by these two substances, a number of lessons from the regulation of the associated industries have been applied since the first cannabis regulation models were developed in 2012 (for example, in levying excise duties, restricting advertisements visible to young people, or adopting regulations introduced for tobacco concerning smoking in public areas). In addition, despite the diversity of cannabis regulation models – whether they are more monopolistic, as in Uruguay or Quebec, or more liberal, as in Saskatchewan or Colorado – measures have been adopted to protect the most vulnerable from the risks associated with excessive use of cannabis, indicating a recognition that a product such as cannabis cannot be wholly subjected to the general laws of the market, as these are based on profit maximisation, with the aid of tools such as marketing, advertising and innovation:

> when you can make money out of something, you are trying to minimize how much money you put into developing the product, and you're also trying to make people buy it as often as you can.

[10] This comparison is in fact also frequently made in Switzerland, particularly in connection with the Siegenthaler parliamentary initiative. The alcohol regulation model is then cited as an example to be followed for cannabis regulation.

> And unless you can make it more expensive, where it's 50 bucks a joint – but remember it's called "weed" because it literally grows like weed – the market is going to try to make it as cheap as possible. So that means they want people to buy it as much as they possibly can.

For this purpose, two techniques have been widely employed by the tobacco industry: (1) the targeting of regular users, regarded as the main source of revenue for the industry and (2) lobbying of regulators for the loosening of regulations. These strategies can be found today within the cannabis industry.[11] In order to counter such practices, two approaches are proposed: limiting any rise in consumption and reducing the industry's capacity to influence regulators. These two elements are discussed below.

PREVENTING OR LIMITING INCREASED CONSUMPTION

Despite the variety of regulation models considered in our study, the number and the diversity of limits placed on distribution/sales[12] testify to a shared desire to curb the natural tendency of companies to seek profit maximisation by encouraging consumption. These limits are also frequently inspired by lessons learned from alcohol and tobacco regulation:

> I think if you're watching for those unintended consequences, you cover a lot of the don'ts. I mean, I would say don't make it a for-profit market, that takes out a lot of risk right there. And you know, when I am in meetings with cannabis folks and I'll bring up something like, you know, we've learned from tobacco that not having branded packaging or having clear warning labels protects public health. And immediately the response is, well, we're not the tobacco industry. And I want to be like, yeah, well, cannabis is certainly at this point not tobacco. But just because you're not them now doesn't mean that this will be true in the future, and that you couldn't go down.

Thus, to counter the industry's desire to seek new customers, make them regular users and encourage them to consume more, various measures were mentioned: limiting distribution points so as to reduce access, standardising authorised products, reducing advertising and marketing-related practices, and improving public education.

Restricting availability

The scientific literature on tobacco and alcohol shows that greater product availability generally leads to an increase in consumption among the population. One of the strategies for limiting this rise is thus to restrict access to the product. To this end, several measures may be applied, particularly in relation to distribution points.

[11] T. Subritzky, S. Lenton, S. Pettigrew (2016), *Legal cannabis industry adopting strategies of the tobacco industry*, Drug and Alcohol Review, Vol 35 (5), pp. 511–3.

[12] This study focuses in particular on questions relating to distribution/sales rather than production, as the former are frequently more closely linked to the public health aspects of regulation.

The question of the distribution and sales model arose notably in Canada, with provincial proposals ranging all the way from a government monopoly through a hybrid public-private model to a competitive private market. Several years after legalisation, it was found that those provinces which adopted a hybrid or purely private model have on average 49% more stores per capita than provinces with public models; the private stores are also open 9.2 more hours per week and are located closer to schools; in addition, the density of cannabis stores is higher in the lowest-income neighbourhoods.[13] The commercial practices of state-run stores also appear to more responsible than those observed in the private systems.[14] This data thus argues for a public model, permitting more effective control.

This does not, however, necessarily mean that public health goals could not be pursued via a private model, which may also be subject to limits on the number of licences granted by regulators. Nor does a purely public model automatically ensure the prioritisation of public health goals, as it could be primarily driven by the pursuit of state revenues. Washington state, which introduced a private retail model, thus, from the outset – in line with its regulation of alcohol – adopted restrictions on the number of distribution licences:

> There's certainly fewer per capita cannabis retail operations in Washington versus in other states that have seen a very rapid market growth. And I think that that has been associated for us with some benefits, I think especially for use.

It should be noted, however, that restrictions on the number of licences granted may also be associated with certain problems. From a social equity perspective, barriers to market access, often very high, tend to increase with limitations on the number of licences:

> You want to create some limitations, but in practice we've seen numerous, both local governments and other state governments who have had challenges in rolling out a system with license caps in a fair manner.

In response to problems of social equity in contexts where licences are limited or difficult to access, microcultivation models[15] have been introduced so as to enable certain persons to switch from the illegal to the legal cannabis trade, often however with mixed results for microbusiness operators.

It should also be noted that online stores are authorised in numerous regulation models, in order to ensure that everyone – including people living in the most isolated regions – can access products on the legal market. Nonetheless, the existence of online stores poses certain challenges, particularly due to the difficulties faced by consumers in determining whether the sites they visit are legal or illegal.

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[13] D.T. Myran, C.R.L. Brown, P. Tanuseputro (2019), *Access to cannabis retail stores across Canada 6 months following legalization: a descriptive study*, CMAJ Open, Vol 7 (3).

[14] T. Stockwell, N. Giesbrecht, A. Sherk, G. Thomas, K. Vallance, A. Wettlaufer (2020), *Lessons learned from the alcohol regulation perspective*, pp. 223, in T. Decorte, S. Lenton, C. Wilkins, *Legalizing Cannabis*, London, Routledge.

[15] This is the case in Canada and in California, but also in Massachusetts and Michigan.

Standards for authorised products

The literature on tobacco shows that one of the strategies employed by the industry involves creating positive perceptions by diversifying products. Such practices are also identified in relation to cannabis, with the development of concentrated products, skin lotions or edible products (food, drinks). Product diversification is probably one of the thorniest and most sensitive issues, as there is no real consensus among regulators on this question and it is always possible for the industry to find weak points in existing regulatory frameworks. A recent study[16] shows, for example, that only a quarter of US consumers only use cannabis products of just one type, whereas half use three or more product types. When a diversity of products are available on the market, use also diversifies.

Since cannabis regulation models were first introduced in Colorado and Washington state, a fairly broad definition of cannabis has been adopted, thus enabling the industry to innovate with new products in an almost unlimited manner, while at the same time making it more difficult for regulators to effectively control the products placed on the market and the risks to public health. Even in those territories where a stricter definition of authorised products was adopted, such as Quebec, unanticipated diversifications of authorised products can be observed. For example, while Quebec's legal framework now permits edible products, it stipulates – as elsewhere – that these products must not be appealing to children, including in terms of taste, with a prohibition on chocolate- or sugar-based products. In response, new products such as THC-infused cauliflower, figs or beets have been placed on the market. These have been widely advertised on social media, where their healthy and vegan aspects have been emphasised. This has in turn led to more positive perceptions among the public with regard to these products, compared to combustible products. Quebec's cannabis oversight committee had in fact expressed its opposition to the distribution of these new products, but its recommendation was not followed by the Quebec Cannabis Corporation (SQDC) since, technically, they remain within the framework of the law.

Industry's capacity for innovation should ideally always be anticipated, as is also shown by the example of the THC content of products. For the states where cannabis has been legal for some years, the rapid increase in the average THC content of products, which had not been anticipated when the laws were written, is now a matter of concern. Washington state is currently considering ways of controlling this phenomenon:

> When this was promoted to be passed by the People's Initiative, people weren't thinking about it as much. That amount of THC has gone up so much so that the average product is nowhere close to what it was even when people were voting to legalize that, much less when those people potentially maybe used it in their younger years.

[16] D. Hammond, D. Corsetti, S. Goodman, M. Iraniparast, D. Danh Hong, R. Burkhalter (2022), International cannabis policy study – United States.

Cannabis with a high THC content is, however, known to be associated with increased risks of hospitalisation (overdose), daily consumption, dependence and mental health problems.[17] Maximum levels have only been specified in Uruguay (9% THC[18]) and Quebec (30% THC). Elsewhere, the products available on the market often have a very high THC content, without however necessarily being more expensive than lower-dose products. A report on sales of cannabis products in British Columbia thus concludes that it is now considerably less expensive to become intoxicated with cannabis than with alcohol.[19]

The only limitations relating to THC concern restrictions for edible products. There are, however, different approaches in this area, some of which call for vigilance. For example, several interviewees cited the case of edible products where the dose is indeed limited to 10 mg THC per serving, but which are still sold in packages and may thus lead to cases of overdose. This is true in particular of the chocolate bars or sweets sold in the US states selected for this study. As pointed out by one of the interviewees, it is illusory to believe that young (or less young) consumers can easily stop at one piece of chocolate when they have a whole bar available. Experts also observe that, in many places, cases of hospitalisation due to cannabis intoxication are more often a result of involuntary overdoses than of accidental cannabis consumption.[20] For this reason, Canada decided – on the basis of experiences in the US – to limit the THC content of edible products to just 10 mg.

According to a recent study,[21] however, the number of adverse effects reported by consumers is higher with dried flower than with edible products. If this number is expressed as a percentage for the various types of product used, the authors note that there is no significant difference (33% report adverse events with edibles, 28% with dried flower; the highest rate – 39% – is seen with concentrates). Modes of use may thus contribute to the occurrence of adverse events, but the very high THC content of products sold is also a contributory factor. Improved consumer education concerning THC concentrations and doses could help to reduce such incidents. In the same study, the authors also emphasise that only 19% of the US consumers surveyed consider 30% to be a high/very high THC content for dried flower cannabis,[22] compared to 39% of Canadian consumers.

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[17] M. H. Meier (2017), *Associations between butane hash oil use and cannabis-related problems*, Drug and Alcohol Dependence, vol. 179, pp. 25–31; J. P Caulkins. & M. L. Kilborn (2019), C*annabis legalization, regulation, and control: a review of key challenges for local, state, and provincial officials*, American Journal of Drug and Alcohol Abuse, vol. 45, pp. 689–97; C. L. Shover & K. Humphreys (2019), *Six policy lessons relevant to cannabis legalization*, American Journal of Drug and Alcohol Abuse 2019, vol. 45, pp. 698–706 ; T. P. Freeman, P. van der Pol, W. Kuijpers, J. Wisselink, R.K. Das, S. Rigter (2018), *Changes in cannabis potency and first-time admissions to drug treatment: a 16-year study in the Netherlands*, Psychological Medicine, vol 48 (14); pp. 2346–52.

[18] When the Uruguayan model was introduced, pharmacy-sold dried flower contained a maximum of 4% THC. By 2017, the maximum level had been increased to 9%.

[19] T. Naimi, K. Vallance, S. Churchill, R. Callaghan, T. Stockwell, & A. Farrell-Low (2021), *Sales and Revenue from Regulated Cannabis Products: British Columbia, October 2018 – December 2020*, BC: Canadian Institute for Substance Use Research, University of Victoria.

[20] In Quebec, which has stricter regulations concerning the diversity of products sold and THC levels, rates of hospitalisation due to cannabis intoxication are also lower than in other provinces.

[21] D. Hammond, D. Corsetti, S. Goodman, M. Iraniparast, D. Danh Hong, R. Burkhalter (2022), International cannabis policy study – United States.

[22] It should be noted that 30% is the maximum THC concentration which a plant can attain.

The counterargument to the restriction of products authorised on the legal market obviously concerns the question of the black market. Nonetheless, as one of the interviewees points out:

> One of the big questions is if you don't sell certain products, do people just go and buy them from the black market. And the answer is, actually what happens is just fewer people use them. So Quebec and the rest of Canada, about 60% of consumers will use edibles. in Quebec, it's like half. And so it's not just that people will use what they wanna use, and if you don't make it legal, they'll go to the black market. Actually people gravitate towards the products that are sold in legal stores. And so the industry always says you can't ban anything, or you're just gonna push people into the black market. There's some truth to that, but not a lot, actually what people will do is they'll just pick a different legal product.

A final element relating to product authorisation is the question of laboratory tests. Because of the federal status of legalisation in Canada, there is a standardisation of practices in this area, which does not yet exist in the US. In the territories that have introduced quality control regulations which are considered satisfactory (federal level in Canada, California), these regulations were modelled on those developed for food products:

> So that Good Production Practices (GPP) standard was developed some time ago and was applied to producers of cannabis for medical purposes. And it really drew from the Good Manufacturing Practices (GMP) standard and kind of modified that, right, to kind of make it cannabis specific. I think it's a strong framework. We don't have a lot of recalls; we don't have a lot of problems with production. We haven't seen metal contaminations in any cannabis products. We haven't seen things like that because the GPP standard meant that there was experience and expertise in the private sector already when it came to drug production, so that people could kind of come into the cannabis space and bring that experience from a pharmaceutical space and they knew what was required.

Other good practices were shared in the interviews, such as the performance of tests on finished products (and not while the plant is still growing). Certain difficulties were also noted concerning the reliability of the tests conducted, particularly with regard to THC concentrations. Against a background where consumers seek products with high THC concentrations and where industry is free to choose the laboratories where tests are carried out, a "lab shopping" phenomenon has developed, with producers favouring those which report THC measurements higher than the actual levels.

> There are some labs who use a methodology that will give you a higher THC number. And so companies will go to that lab because they know customers will look at that potency, particularly for dry cannabis.

Thus, according to several interviewees, improved standardisation of control methods would make it possible to ensure improved test validity. Another focus of attention is the shelf life for retail products, with the question of possible microbial growth during storage.

Restricting advertising and marketing

As underlined by studies carried out in the area of tobacco, marketing plays a key role in attracting new consumers, promoting continuous product use and creating brand loyalty.[23] Accordingly, as emphasised by one of the interviewees,

> if you have a for-profit industry with an addictive product, why should you be making the package attractive and appealing?

On the model of tobacco product control, Canada chose to integrate into its federal framework for cannabis regulation highly restrictive measures to control marketing and advertising, requiring all provinces to adopt a common approach in the areas of packaging and marketing.[24] This approach certainly represents one of the most widely acknowledged successes of the Canadian experience. A forthcoming study also shows that exposure to cannabis products in Canada is the same as in the US states where the substance has not been legalised. It is thus indeed possible to sell cannabis while limiting exposure to the product.

Another good practice, according to numerous interviewees, concerns the labelling and packaging of cannabis products in Canada. Specifically, labelling may only contain factual information. As a result, the information provided for consumers is clear and readily legible:

> We have better health warnings than in the US. They're bigger, they're more noticeable. In the US, they're very small and they're written like a legal disclaimer, if you buy a product, it gives you all the little information. In Canada, your brand can only be that big. So when you make the health information bigger, and then you take away some of the company logos and branding, people see them more, there's more information in the Canadian warnings. And then we switch the warning, we'll have one warning on pregnancy and cannabis, another warning on mental health and cannabis, another warning on smoking, that sort of thing. The bottom line is the more comprehensive the information, the more people see it, the more they read it, the more they believe it (…). And the great thing is that mandated warnings are low cost and sustainable means of communicating with consumers.

The clarity of messages is indeed very important, as underlined by an interviewee who had conducted a focus group with young people in one of the US states where cannabis is regulated:

> The warning labels might as well not have existed for young people, and even when they had their attention called to them, they were like, "what does that even mean?"

[23] E.A. Gilpin, M.M. White, K. Messer, J.P. Pierce (2007), *Receptivity to tobacco advertising and promotions among young adolescents as a predictor of established smoking in young adulthood*, American Journal of Public Health, vol. 97(8), pp. 1489–95; L.G. Pucci & M. Siegel (1999), *Exposure to brand-specific cigarette advertising in magazines and its impact on youth smoking*, Preventive Medicine, vol 29 (5), pp. 313–20; R. Hanewinkel, B. Isensee, J.D. Sargent, M. Morgenstern (2010), *Cigarette advertising and adolescent smoking*, American Journal of Preventive Medicine, vol. 38(4), pp. 359–66; C. Lovato , A. Watts, L. F. Stead (2011), *Impact of tobacco advertising and promotion on increasing adolescent smoking behaviours*, Cochrane Database Systematic Review, (10):CD003439.

[24] In particular, promotion is not permitted on packaging, advertising is prohibited and retailers must not be identifiable.

An effective packaging strategy thus makes it possible to address each consumer directly – much more so than public education campaigns. As noted by one of the interviewees, consumers are also eager to have information on the products they buy:

> And I will say this one lesson, if you hear from the industry, they will often say that, things are anti-consumer… Cannabis consumers, regular consumers, infrequent consumers, they are very curious and they want information on what's in the product. They want information on health, on health effects. And so, the vast majority of consumers actually support the requirements to provide that information. The companies don't like doing it, but consumers very much want it. And so, that's important for any government to know that this isn't something you're forcing on consumers. Cannabis is a very interesting area where many people overestimate the risks and many people underestimate the risks. You have false beliefs going both ways. And so, it's especially important that if you have a legal market, that you have accurate information that follows the products along.

According to certain interviewees, another point requiring attention in regulation concerns the problem of THC equivalents, which are unclear for Canadian consumers. Depending on the type of product, THC equivalents are in fact given as a percentage (dried flower), in milligrams (edible products) or in millilitres (vaping products). These three types of measurement may cause confusion, especially for new consumers.[25]

> As I often say, a well-regulated market is one where people can figure out how much to consume. And right now, I think that is actually the reason why we see adverse events across the country.

On the other hand, certain practices which may seem good in principle can sometimes prove to be counterproductive. This is the case with the requirement to sell cannabis products in child-resistant packaging. In certain US states, it has been observed that the external packaging in which the retail product is supplied is child-resistant, but once they are at home, purchasers get rid of this packaging, making the cannabis ultimately accessible for children.

Finally, it always possible for the regulations in force to be circumvented, even in contexts with a high level of control. For example, using social networks, it is easy to engage in (barely) concealed advertising for products, brands or distributors, including on the platforms most popular with young people, such as TikTok. This trend is observed in all the regions studied. Regulations may also be circumvented by other means, especially via blogs which review varieties of cannabis and promote them by evaluating their effects on health and well-being.

[25] T.P. Freeman & V. Lorenzetti (2019), *'Standard THC Units' : a proposal to standardize dose across all cannabis products and methods of administration*, Addiction, Vol. 115 (7), pp. 1207–1216.

Public education

In addition to product packaging and labelling regulations, education campaigns are another key element designed to enable the public to make well-informed choices with regard to cannabis consumption.

It is evident from the interviews that the efforts targeting young people are generally considered to be sound and satisfactory, but that other groups could be targeted to a greater extent by education campaigns. Since cannabis was legalised, significant increases have been observed in the prevalence of cannabis consumption among older sections of the population. These groups are particularly interested in the medicinal properties of cannabis, including products with a high cannabidiol (CBD) content:

> Public health organizations were to some extent surprised at the percentage of individuals interested in using cannabis for some kind of medical or health reason. And that's something that a country that's hoping to legalize cannabis might need to be aware of because that comes with its own sort of qualms… because cannabis is becoming more socially acceptable within Canada, there is this perception that cannabis and in particular CBD products can cure a whole variety of different health conditions. And that ends up leading to people who are using cannabis for health reasons, they're using it to cope with depression, anxiety, stress, sleep. They're more likely to develop a cannabis use disorder than people who are using it less frequently and for recreational reasons. So I think that's something that we sort of missed in the early years of legalization. And now we're catching up with our public health public education campaigns now.

For these new categories of consumers, additional efforts should be made in terms of education campaigns, including on the subject of drug-impaired driving. As underlined by one of the interviewees, people are frequently aware of how much alcohol they are allowed to consume before driving, but they do not understand the effects of cannabis on driving, and still less the combined effects of cannabis and alcohol:

> I think that's a gap in a lot of early legalization public education. We really targeted youth. So much of our attention was on protecting the youth, but we spent very little attention on older adults.

Another point requiring attention concerns social media, as noted by an interviewee. As already mentioned, circumvention of the rules on cannabis advertising can now be most frequently observed on these networks, but here the presence of public authorities and public health bodies is extremely limited:

> In public health we really are backwards in regard to using new technologies. Most public health departments don't have social media, some have started to use it… but young people aren't on Facebook, they're on Instagram, Snapchat, TikTok, and that we don't invest in at all. We need to do a lot more in our communications with social media.

These various strategies and points requiring attention may enable regulators to prevent certain undesirable consequences of the introduction of a cannabis regulation model. Another element, still

rarely mentioned in studies but alluded to by a number of interviewees, is the need to anticipate the influence of the industry – in decision-making and elsewhere.

PREVENTING REGULATORY CAPTURE[26]

Regardless of the contexts in which regulation models are introduced, numerous interviewees recognise ubiquitous efforts on the part of the cannabis industry to circumvent or extend the limits imposed on commercial practices. The vast majority of interviewees thus described situations where restrictions relating to advertising, marketing or product composition are rejected, criticised and disputed by industry actors, under either the most liberal or the most restrictive regulation models.

The approaches adopted to confront these pressures from industry vary. For some, industry has a necessary place in negotiations. This is the case particularly in Colorado, where the process of developing regulations is described as involving a "collaborative approach" or "partnership", in which each party has its place at the negotiating table.[27] Others, however, highlight and criticise the pernicious effects of certain advisory bodies, sometimes largely dominated by the industry, as in one US state:

> There's only one medical or public health person in the advisory committee and there's five or six people from the cannabis industry represented here. How can these voices weigh equally when voting on certain things? I tried to push for more representation from medicine and public health, and I got pushback saying that the composition of the committee was determined by what's written into the legalization law. In my opinion, what's written into the law is quite vague and leaves a lot of room for interpretation, and that's what happened.

Certain states, such as Quebec, established oversight committees made up of experts responsible for producing recommendations on regulation. The Quebec committee does not , however, have authority over the Quebec Cannabis Corporation (SQDC), the state company in charge of cannabis sales, and the recommendations formulated by the experts may be ignored by the Board of the SQDC, mainly composed of persons from the business sphere. A solution suggested by one of the interviewees would be to give greater weight to public health experts in decision-making bodies within regulatory agencies:

> The further we can anticipate, the more effective we are. So the first way is to be restrictive in the law, but another way is to have an authority within the top regulators that is led by someone coming from the public health, and who has real authority, not just a consulting presence. That would provide an additional level of control.

[26] The term "regulatory capture" generally refers to a situation in which a regulatory agency, established to act in the public interest, favours the concerns of industry. This phenomenon is observed especially in certain industrial domains involving a high level of technical expertise or where new developments lead to an imbalance of knowledge, making regulators dependent on the technical or legal knowledge which industry has at its disposal.

[27] T. Subritzky, S. Pettigrew, & S. Lenton (2016), *Issues in the implementation and evolution of the commercial recreational cannabis market in Colorado*, International Journal of Drug Policy, vol. 27, pp. 1–12.

Another recommendation is to assign responsibility for choosing the products placed on the market to an expert committee; another good practice to limit the influence of the industry concerns the choice of the authority responsible for cannabis regulation – the department of health rather than the finance department.

Even if consultation of industry representatives may sometimes be necessary and they should be able to submit proposals relating to the regulatory framework, situations of "regulatory capture" could be reduced in future since knowledge of cannabis and the associated industry is now more accessible for regulators and they are thus less dependent on industry expertise.

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The role played by regulators in connection with the opening of the market for a previously illegal product is complex, not only because of the nature of the product in question, which is associated with certain risks, but also because what is at issue is not the regulation of a completely new market but rather the creation of a new "category" of "legal" market. The transition from an illegal to a legal market will sometimes shift the balance of power between regulators and industry.

The prospect of an opening of the market is often perceived by entrepreneurs as an opportunity to generate new profits. As one of the interviewees suggested, a solution would perhaps be to define in advance the framework for the profitability of a cannabis regulation model:

> What is the goal of legalization? It's reducing the harms, that is the goal. It is not the goal to create a sector where people can make money. We're legalizing because we want to address some public health things. We want to get it out of the illicit market. We want to do all those things, but we're not doing it for people to get rich. And even though people will, we should remember that this is not our primary goal (…). And we did not put in a very strong kind of firewall against that pressure. And we're feeling it.. If we had a policy from the first words down in the legislation that said, that's not the goal, it is not the goal to give people an opportunity to make money, I think we'd be in a better place.

Thus, without rejecting the adoption of a commercial and profitable model, regulators should bear in mind the priority objectives of cannabis regulation, especially in situations involving pressures from industry.

2. THE CHANGE PROCESS: "START LOW, GO SLOW"

The second major cross-cutting theme emerging from the interviews concerns implementation of the law, and in particular the question of the timing of changes. Three main elements were discussed – preparation for change, the pace of implementation of measures, and the question of the definitions adopted in the regulatory framework.

PREPARATION FOR CHANGE

The success factors for the transition from an illegal (or semi-legal) to a legal market relate not only to the content of the measures proposed, but also to the involvement of all the actors potentially affected by such changes. And the implementation of a cannabis regulation model has implications for numerous areas of government activity:

> I think this is actually one of my biggest "do's". So the need to make sure that whoever is kind of at the controls in deciding the regulatory framework for cannabis is engaged in keeping other parts of government kind of in the loop of what's happening and making sure that those parts of government are reflecting and thinking about what this means for them.

Given the transition from illegality to legality, it is essential to identify the sectors which will be affected by the changes. As underlined above by this respondent, this means anticipating all the areas of regulation which may be concerned, including, for example, transport, insurance policies relating to plantations, consumption in specific socioprofessional groups, such as the army or police, etc. In order to be well-prepared for change, to avoid dysfunctions and to reduce friction within the new system, it is thus vital to maintain a dialogue with all the public authorities that may be affected, so as to determine the potential effects and changes which will need to be addressed within their areas of responsibility.

Another aspect of preparation for change concerns the provision of information for policymakers and the public. In Canada, for example, the provisions permitting cannabis self-cultivation (home cultivation) posed challenges at various levels. They gave rise to lively debates in parliament due to a lack of knowledge on the part of elected representatives concerning the constituents of the plant and its effects on the human body. According to those opposed to self-cultivation, this practice posed a risk to children, who, they believed, could be intoxicated by picking and then consuming cannabis flowers. In fact, the THC contained in cannabis is not active without a process of decarboxylation (requiring combustion), and this risk is thus minimal. Improved education of policymakers would thus have permitted better-informed debate.

Public education is an equally important element of the information efforts which need to be undertaken in advance. Thus, again with regard to the question of self-cultivation in Canada, the initial provisions specified a maximum height of one metre for cannabis plants. This proposal was made in response to public concerns, but it would have created enforcement problems for the police.

Preparation for change also concerns the education and prevention messages disseminated in advance. As emphasised by one of the interviewees, an unexpected effect of such information campaigns is a possible decrease in public support for the planned change!

REGULATION IS A PROCESS, NOT A SINGLE EVENT

The second lesson learned from the implementation of the change represented by cannabis regulation concerns its pace and (extended) duration. Several interviewees invoked a piece of advice frequently encountered in the medical domain – "start low, go slow". This approach recommends small, step-by-step changes in the dosage of medicines taken by patients so as to limit the risks of overdosage. Employed in numerous cannabis education and prevention campaigns (particularly concerning edible products), this slogan can also be applied to the way in which implementation of the new regulatory framework is approached.

The concept was developed by a Californian advisory body, the *Blue Ribbon Commission on Marijuana Policy*, in its 2015 report.[28] This commission puts forward the idea that cannabis legalisation is not a single event, but rather an evolving process calling for frequent re-evaluations and readjustments. Specifically, this means that the state needs to define clear policy objectives, deploy a set of measures, within the regulatory framework, allowing these objectives to be pursued, and then adjust the measures on the basis of the data collected throughout the implementation process.

With regard to cannabis legalisation, the adoption of a more restrictive approach than for tobacco and alcohol may prove controversial, for example on account of the data suggesting that cannabis could have less deleterious effects on health. The fact remains, however, that consumption of this substance is known to pose risks to health, including dependence, accidents due to drug-impaired driving, impairment of respiratory functions when inhaled, or adverse effects on psychosocial development and mental health in young people. Several interviewees thus mentioned questions which are currently at the centre of cannabis-related debate and concerns, particularly those of product diversification and increases in THC content. These developments are all the more worrying because they reveal the absence of limits in the original regulatory framework and because any plans for new restrictions are now met with fierce opposition from the industry:

> I think our problem is we've allowed so much it's harder to back it up. And so the states that are starting out with some of these data now, I think are going to have an easier time starting more conservative. Look at tobacco, it has taken us a hundred years to tighten tobacco laws. It's just infinitely easier to start tight and then to loosen, but to go the other way around, especially when you're talking about, let's say, a producer who's creating edibles and products, and they've put a lot of money into these products they're creating. And then all of a sudden, you're saying you don't want all these products anymore, it's going to create a lot of pushbacks. So, the last lesson I'll say is it is far easier to start off very strict, and then to loosen the laws than it is to go the other way around.

A solution recommended by several interviewees is thus to always start with a more restrictive framework, which may subsequently be loosened after evaluation. A counterargument to this

[28] Pathways Report (2015), Policy Options for Regulating Marijuana in California, Blue Ribbon Commission on Marijuana Policy.

recommendation, raised several times, is that one needs to be aware of the risks posed by excessively strict regulation, which could encourage the black market. However, this argument appears to require qualification, particularly considering the example of Quebec, which authorises a more limited variety of products than all other Canadian provinces but still exhibits a high level of consumer support for the legal market.

One point underlined by respondents which may help to reconcile the two arguments is the need to consider the size of the black market. In territories such as California or British Columbia, where highly developed and scarcely regulated medical cannabis markets have existed for many years, the implementation of a strict framework may indeed not be accepted by consumers. Conversely, the "start low, go slow" approach appears to be particularly well adapted to contexts where the extent of the black or grey market is still limited.

THE QUESTION OF DEFINITIONS

A final element of this cautious approach concerns the question of the definitions adopted within the regulatory framework. Two examples of these questions were mentioned several times during the interviews – the definition of cannabis as containing delta-9-THC and the definition of products which are "appealing to children".

The problem of the definition of cannabis as containing delta-9-THC is one which has only arisen recently. When referring to cannabis, two main constituents are now generally taken into consideration – CBD and delta-9-THC – because they are abundant and produce psychotropic (delta-9-THC) and/or calming/therapeutic effects (CBD). However, other compounds also interact with the body, such as delta-8-THC and delta-10-THC, which are essentially "cousins" (isomers) with potentially less potent effects than delta-9-THC. As cannabis is defined in most regulations as containing delta-9-THC, many regulators are now confronted with the spread of cannabis products which are not covered by any regulations.

> So one thing that we have done that I would really recommend you guys don't make the same mistake is the way we have defined THC in the Cannabis Act, defined specifically as Delta 9-THC. It's becoming a bigger issue, particularly in places where cannabis isn't legal because you can convert hemp-derived CBD into Delta 8 or 10 and then you've got a semi-legal intoxicating cannabis product. So for instance, you can sell a package with up to a thousand milligrams of THC. That only means Delta 9. But you can have an unlimited quantity of THC via Delta 8 or 10.

The second problem of definitional weakness concerns edible products. As emphasised by a number of interviewees, the definition of products which are "appealing to children" may be vague and thus easily circumvented, as has already been mentioned above:

> Recently I saw some examples where states were, rather than trying to define what's not allowed, they basically got very specific about it. Like, "only plain packaging is allowed", like "you can have a brown bag"... the only thing that can be on it is the name of the product. No graphics, no pretty decorative stuff that could be appealing honestly to anybody, but especially to children, no color stuff; a warning label, and the label that says what's in it that contains this and that, and then in terms of gummies or whatever, they basically said it can't have color in it. So essentially the gummies are like kind of a brownish color, and lozenges and stuff like that. And so they went the other direction. It just basically said, we are going to significantly limit how packaging can work and limit the coloring and that sort of thing, as opposed to having arguments about whether a red gummy is appealing to children. So that was kind of I thought that was a good way to do it.

In order to anticipate diversification towards new practices and products, one regulatory practice now involves reversing the law's definitional perimeters so as to delimit those practices and products which are permitted rather than those which are not permitted:

> We started out by telling people what they couldn't do. And so we did all these "you can't". It would have been easier, I think, if we could have somehow said, here's what you can do. And beyond that, we're not going to accept any products. And if you want to develop a new product, you have to prove that it's safe before we give approval for that.

3. ALLOCATION OF RESOURCES TO ENSURE EFFECTIVE IMPLEMENTATION

The third cross-cutting theme addressed during the interviews concerns the resources allocated to the implementation of a cannabis regulation model. This obviously involves the collection and analysis of data to permit evaluation of the implementation of the model, but also the administrative and financial resources allocated to ensure smooth operation of the regulation system.

DATA COLLECTION AND ANALYSIS

The capacity to collect data and to analyse the effects of the introduction of new regulations is a key element of the "start low, go slow" approach. Problems relating to data collection were among the first lessons learned from the regulation model implemented in Colorado. This state, for example, suffered from a lack of reliable data concerning cannabis-related road accidents, even though an increase in road safety issues was one of the points of concern. In addition, despite the existence of a youth population survey, including questions on cannabis consumption, Colorado sorely lacked data on consumption frequency, dosage, modes of use, product storage and cannabis-related risk behaviour.

States planning to legalise cannabis should therefore add cannabis-related tools and questions to their monitoring system ahead of any change in policy, with samples sufficiently large to permit monitoring of regional trends. One research group thus proposed that the health impact of cannabis

legalisation should be evaluated under five broad themes – public safety, cannabis use trends, other substance use trends, cardiovascular and respiratory health, and mental health and cognition.[29]

While quantitative data collection is a universally recognised requirement, one interviewee emphasised that there is also a lack of qualitative data:

> We do have large consumer surveys. Where I think we lack data is on the qualitative side, for example, everything that has to do with product diversification, which requires a much deeper understanding of the reasons for consumers' transfer, the reasons for consumption, the extent to which the creation of a new product attracts consumers, what would lead people to consume at lower risks… everything that has to do with a deeper understanding. We are very good at doing quantitative surveys, but we should combine them with qualitative components.

Other points requiring attention were noted in the interviews, particularly structural problems in the organisation of data collection. For example, even though the Canadian federal government aimed to gather precise data on the products sold or the ingredients they contain, there is no obligation for provincial companies to share their data:

> Another area for improvement is data access, which doesn't really make sense. We are not able to get access to sales data. The provincial distributor has very detailed data on what product is sold, when, etc… We've been pleading for years to have them but they just don't want, whereas they should at least be available to researchers.

This situation also limits the possibilities for comparing different regulation models. In addition, rather than ad hoc data comparison at the provincial level, the centralisation of research resources organised at the national level could facilitate comparison of the effects of cannabis legalisation based on various indicators.

Another structural problem identified concerns the ability of the regulatory agency to process the data collected by having a team capable of analysing it and bringing it to the attention of those responsible for policy.

> There was sort of a missing piece between the funding of the data and the specific data sources they're funding, a school-based survey and a young adult health survey. So those are both two good things to do, but there's nothing in the middle. So there was no mandate for funding to analyze and report systematically on the data and to use those with the regulatory agencies.

There is a need not only to collect and analyse data but also to transform the lessons learned into new measures. These are points requiring particular attention on the part of regulators.

[29] S. Lake, T. Kerr, D. Werb, R. Haines-Saah, B. Fischer, G. Thomas, Z. Walsh, M. A. Ware, E. Wood & M.J. Milloy (2019), *Guidelines for public health and safety metrics to evaluate the potential harms and benefits of cannabis regulation in Canada*, Drug and Alcohol Review, Vol 38 (6), pp. 606–21.

ADMINISTRATIVE AND FINANCIAL RESOURCES

A final point requiring attention concerns the resources allocated to implementation of the regulation. These comprise not only the administrative resources ensuring the consistency of the measures adopted and the monitoring of their implementation, but also the financial resources available.

One problem often encountered when deciding on measures to restrict the use of cannabis concerns the practicability of enforcement. The proposal already mentioned (and ultimately abandoned) to specify a maximum height of one metre for cannabis plants authorised for home cultivation could thus, because of its unenforceability, have undermined the credibility of the legal framework and its application. Other measures such as limits on quantities (sales, possession) may also be controversial since the maximum quantity can easily be purchased several times over in different stores (or even by returning to the same store) and the mission of the police is not to check whether individuals have in their possession a quantity above the 30 grams permitted. The imposition of a limit may in fact make sense in order to avoid certain risks of abuse, especially in a context where cannabis is still illegal in neighbouring regions, but certain interviewees noted that an increase in such limits could be envisaged so as better reflect real life.

The prohibition on consumption in public spaces is another contentious topic. This measure is in fact difficult to enforce and the reporting of offenders could lead to a new undesirable form of criminalisation. It is thus necessary not only to find provisions which are enforceable but also to collaborate in advance with the authorities responsible for enforcement:

> And from the beginning, law enforcement said, hey, you want to legalize that? We're not going to do anything with this.

There are other areas where dilemmas arise with regard to implementation. For example, restricting consumption to private spaces may lead to an increase in exposure to passive smoking and/or create problems in relations with neighbours. Conversely, permitting public consumption could lead to the normalisation of use (even if measures are adopted to prevent use near places frequented by children). Other solutions, such as "social consumption" (in dedicated venues, on the coffee-shop model) are then envisaged, but these present the risk of creating harmful exposure for staff and of increasing the risks associated with driving under the influence of cannabis. These dilemmas highlight the fact that cannabis regulation is a learning experience, but also the need to have available the resources required to carry out monitoring and develop measures as knowledge accumulates.

The involvement of the various authorities responsible for enforcement of the law is thus recommended not only in relation to controversial matters, but also more generally for the process as a whole, so as to ensure that each party assumes the control and learning responsibilities assigned

to them. In this connection, a problem which arose in Canada concerns the different levels of responsibility (federal and provincial), which may lead to situations of inertia:

> I think we do see challenges in that space where our law enforcement agency may not be enforcing the offense of respecting cannabis legislation as vigorously as some might hope and certainly not as vigorously as Canada would. And so I would say that's probably a main point of friction. And it can lead to a little bit of finger pointing, very like "you guys are the police. You should be doing this".

This problem is particularly clear for home cultivation: in Canada, the limit is set at four plants per adult but, for medical purposes, this number varies according to the amount of cannabis recommended by a physician. Consequently, if a physician recommends that a patient should use a given amount of cannabis per day, this person will be permitted to grow the corresponding number of plants:

> So law enforcement will say, "Okay, that person is actually consuming all that cannabis. Yes they're selling it out their back door, but they also have the permission to grow these plants". So even though under no circumstances are they allowed to distribute or sell that cannabis to anybody and they should be arrested then because that's illegal, it can definitely be an enforcement challenge.

These situations of paralysis due to conflicts concerning the scale of law enforcement may also give rise to abuses on the part of the cannabis industry, when it realises that laws are not being enforced:

> And so it's created a very challenging competitive environment because I'd say there are also some stores that have realized that law enforcement isn't doing anything. So they'll just go ahead. And the other stores, particularly smaller stores, then don't feel that they can risk the million-dollar fine that they could theoretically levy, whereas the well-funded, well-capitalized stores would say that's just the cost of doing business.

Finally, a last point raised by the interviewees concerns the question of the use of the financial resources arising from cannabis taxation. The smooth operation of the implementation of the regulation model and monitoring of compliance requires human and financial resources. Colorado thus hired 140 people for the Marijuana Enforcement Division, including staff responsible for licensing, officers responsible for monitoring compliance by companies,[30] but also – in response to the development of findings and needs – criminal investigators, financial examiners, and scientists for on-site management of testing and tracing requirements.

Regulators should also ensure that financing is balanced in relation to the social impact; in other words, the funds obtained from cannabis should finance research, law enforcement, public health surveillance, and prevention and education programmes. One good practice highlighted in California concerns the allocation of funds for the prevention of drug-impaired driving. As the identification and detection of THC levels compatible or incompatible with driving was still inadequate, the state

[30] Initially, with functions relating especially to the granting of licences and law enforcement on account of concerns about diversion or illegal market activity.

allocated funds designed to improve the tools available in this area. In parallel, it developed police training programmes providing instruction on how cases of drug-impaired driving can be detected solely on the basis of drivers' behaviour.

By contrast, in Washington state, the bulk of cannabis tax revenues go towards general state expenditures – making the latter, as is the case with tobacco-related revenues, increasingly dependent on revenues generated by cannabis sales.

Given the importance of the stability and durability of funds associated with the implementation of regulation, they should not be readily modifiable if there is a change of government:

> I would recommend for anything that can be done with the intent to support services, that there is some sort of buffer against being able to come back in a year later and say, no, we're just going to put that into our general bucket of money and not support prevention work or public education, or we're just going to fix our roads or whatever.

RECOMMENDATIONS

In the light of what was gleaned from the analysis of the twenty-odd interviews conducted, the following recommendations can be offered concerning the three areas examined: (1) design, (2) implementation and (3) monitoring of regulation.

- **Design**

The work of designing a cannabis regulation model requires reflection on the objectives of regulation and on the role of the regulator:

1) In general terms, the aim is to adopt strategies which make it possible to protect public health and to prevent the tendency of the market to encourage consumption, by limiting availability, restricting advertising and marketing, and educating the public.
2) A public distribution/sales model facilitates the implementation of controls on cannabis availability, even if certain controls may also be implemented with a private distribution model.
3) Limiting the variety of products authorised and their THC content are measures to be recommended, as is educating the public on THC concentrations and equivalents in milligrams.
4) Another important element in the design of regulation is the standardisation of laboratory test methods.
5) Also recommended is the adoption of packaging and advertising standards modelled on recognised good practices in the area of tobacco and alcohol (clear information, neutral packaging, no advertising or promotional offers).
6) Educational measures are to be developed for the whole population, not just for young people, and appropriate vehicles adapted to each of the target groups should be used (social networks for the young, newspapers for the older population).
7) Undue industry influence is to be prevented by introducing upstream safeguards, including the establishment and definition of the composition of a steering group.

- **Implementation**

The implementation of a cannabis regulation policy represents a major change, the success of which may be promoted as follows:

8) Identifying and involving all the regulatory authorities in the legislative change process, so as to anticipate possible dysfunctions and ensure effective collaboration among the parties concerned.
9) "Start low, go slow": adopting a cautious attitude, starting with a strict regulatory framework which may, if necessary and following evaluation, be subsequently loosened.
10) Anticipating the industry's capacity for innovation, in particular by adopting clear definitions concerning authorised products and practices.

- **Monitoring**

Finally, the introduction of a cannabis regulation model calls for consistency not only in the measures adopted but also in the resources allocated:

11) Anticipate the data collection required for the steering and evaluation of the regulatory framework *prior to* implementation of the model.
12) Ensure and develop the resources required to analyse the data collected and, if necessary, to introduce new regulatory measures based on the lessons learned.
13) Establish resource allocation deriving from cannabis taxes which allows for steering of measures but also compensation for the social impact of cannabis consumption.
14) Ensure consistency between the measures implemented and the resources available to monitor them.

ANNEXES

Table 1: Jurisdictional responsibilities in Canada

Activity	Authorities responsible		
	Federal	Provincial	Municipal
Possession limits	X		
Control of trafficking and production	X		
Production (cultivation and processing)	X		
Retail model		X	
Retail location and rules		X	X
Advertisement and packaging	X		
Impaired driving	X	X	
Workplace safety		X	
Medical cannabis	X		
Age limit	X	X	
Public health	X	X	
Education	X	X	X
Taxation	X	X	X
Home cultivation	X		
Regulatory compliance	X	X	
Public consumption		X	X
Zoning			X

Source: Government of Alberta[31]

Table 2: Overview of cannabis regulation measures

	US	Canada (federal)	Uruguay
Market structure			
Production	Private	Public	Public
Distribution	Private (cannabis stores)	At the discretion of the provinces	Pharmacies, cannabis social clubs
Home cultivation	Yes (except Washington state), generally 6 plants	Yes, 4 plants	Yes
Prices / taxes			
Price controls	No	No	Yes
Taxes	Varying by state	Federal tax + provincial and local taxes	10%
Products			
Variety of products	No restrictions	Certain provinces	Dried flower
THC limit	No	Only in Quebec (30%)	Yes (9%)

[31] https://www.alberta.ca/cannabis-legalization-in-canada.aspx

Edible products	Yes (per-package limit of 100 mg cannabis / 10 mg per serving)	Yes (per-package limit of 10 mg cannabis)	No
Advertising / marketing			
Packaging	Opaque packaging, marketing of authorised brands, small-print warnings	Opaque packaging, very limited marketing of brands (brand name), large-print warnings	Opaque packaging, no marketing permitted
Advertising	Authorised, state-level restrictions	No	No
Consumption			
Public consumption	No; aligned with tobacco control laws in states of New York and Rhode Island	Varying by province	Yes
Social consumption (lounges, clubs)	Possible in several states / localities	Planned in several provinces	Yes
Impaired driving	Between zero tolerance and blood THC of 5 ng/mL	Blood THC of 2 ng/mL	Zero tolerance

LIST OF INTERVIEWEES

Name	**State/ Province**	**Institution/Function**
John Clare	Canada (federal level)	Health Canada, Director General, Strategic Policy Directorate, Controlled Substances and Cannabis Branch
Glenn Davis	Colorado	Department of Transportation, Highway Safety Manager
Christiana Dempsey	California	Department of Cannabis Control, Deputy Director of Policy & Research
Julia Dilley	Washington	University of Washington, Epidemiologist
Robert Gabrys	Canada	Canadian Centre on Substance Use and Addiction, Senior Research and Policy Analyst
François Gagnon	Québec	INSPQ, scientific adviser
Harpreet Grewal & Hannah Trottier	Ontario	City of Ottawa, Supervisor, Public Health ; City of Ottawa, Public Health Nurse.
David Hammond	Canada	University of Waterloo, School of Public Health Sciences, Professor

Cameron McKay	Saskatchewan	Saskatchewan Liquor & Gaming Authority, Manager, Cannabis Policy and Analysis, Cannabis Licensing and Inspections Branch
Julie Loslier	Québec	Cannabis oversight committee, Québec, Chair ; public health director, Montérégie; full professor, faculty of medicine, University of Sherbrooke
Sarah Mariani	Washington	Washington State Health Care Authority, Section Manager, Substance Use Disorder Prevention and Mental Health Promotion Section
Elicott Matthay	California	California Cannabis Advisory Committee, member, social epidemiologist
Dominique Mendiola	Colorado	Marijuana Enforcement Division, Director
Michael John Milloy	British Columbia	University of British Columbia, Professor of Cannabis science
Justin Nordhon	Washington	Washington State liquor board, Director of policy and external affairs
Milton Romani	Uruguay	Junta Nacional de Drogas del Uruguay, Ex Secretario General
Sarah Ross-Viles	Washington	King County, Program manager (Youth focus groups) ; University of Washington, Clinical instructor
Mary Segawa	Washington	Washington State Liquor and Cannabis Board, Public Health Education Liason
Dylan Sherlock	British Columbia	British Columbia Cannabis Secretariat, Director, Policy
Dale Tesarowski	Saskatchewan	Ministry of Justice, chief implementation
Gerald Thomas	British Columbia	University of Victoria, Canadian Institute for Substance Use Research, Director Alcohol, tobacco, cannabis & gambling policy & prevention

INTERVIEW GUIDE

- Your country/state has recently legalised recreational cannabis and introduced a set of legal and regulatory provisions to regulate production, sales and use. Obviously, one of the issues involved in such regulation is public health. In your view, what elements of the regulations introduced in your country/region made it possible to protect or promote public health?

- And what elements of these regulations pose or could pose a risk to public health (or are unfavourable for public health)?

- We're going to review four main areas of regulation to see what are, in your experience, the points requiring attention and the do's and don'ts of regulation with regard to public health:
    - the objectives and the governance/steering of the cannabis regulation model;
    - market regulation (production and sales models, licences, taxation, types of product, quality control, advertising, etc.);
    - restriction of consumption (age for access, quantities authorised, prohibitions on use in certain places, use in relation to driving and occupational activities, etc.)
    - additional measures (education, prevention, treatment, risk reduction, public safety, etc.)

- In terms of the objectives and governance/steering of regulation, can you identify any points requiring attention and do's and don'ts of regulation with regard to public health?

  Points requiring attention:
  Do's and don'ts:

- In terms of market regulation (production and sales models, licences, taxation, types of product, quality control, advertising, etc.), can you identify any points requiring attention and do's and don'ts of cannabis regulation with regard to the protection of public health?

  Points requiring attention:
  Do's and don'ts:

- In terms of restriction of consumption (age for access, quantities authorised, prohibitions on use in certain places, use in relation to driving and occupational activities, etc.), can you identify any points requiring attention and do's and don'ts of regulation with regard to public health?

  Points requiring attention:
  Do's and don'ts:

- In terms of additional measures (education, prevention, treatment, risk reduction, public safety, etc.), can you identify any points requiring attention and do's and don'ts of regulation with regard to public health?

  Points requiring attention:
  Do's and don'ts:

- In general, what advice would you give to policymakers in other countries who are planning to legalise cannabis? To what should they pay particular attention with regard to public health?

- Finally, if you could legalise cannabis again in your country/region, starting afresh, what particular provisions or measures would you propose with regard to public health?