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# TENDANCES

# THE LEGALISATION OF CANNABIS IN NORTH AMERICA

# FROM A PUBLIC HEALTH PERSPECTIVE

## PART 2 - REGULATION IN PRACTICE: IMPLEMENTATION CHALLENGES AND EFFECTS

**ABSTRACT**

**Based on a research work coordinated by the OFDT, this issue shows that cannabis regulation raised both traditional drug policy implementation challenges (prohibitions that are only partially rejected, difficulty in influencing patterns) and unique challenges (due to the complexity of cannabis regulation, which is characterised by the multiplicity of products, modes of use, effects and consumption contexts). Feedback from six North American jurisdictions highlights the uncertainties of public health authorities about the effects of the commercialisation of cannabis (standardisation, difficulties in ensuring that public health prevails over economic interests). The interviews reveal a number of lessons to be learned about how to regulate cannabis in a way that prioritises public health.**

Between 2012 and 2023, several jurisdictions on the American continent legalised cannabis for non-medical use (often described as 'recreational'): 23 of the 50 federal states in the United States (+Washington DC) and two countries - Uruguay (in 2013) and Canada (in 2018). The cannabis 'regulation' regimes that have been implemented are characterised by two common objectives. Firstly, to prevent use among minors and reduce the risks associated with use, from a public health perspective. Secondly, to regain control of the cannabis market, by drying up trafficking and the associated criminal networks to improve public safety. This involves organising transition from a black market to the legal sector, which is supposed to guarantee access to a controlled product that limits the risks of intoxication and health damage for consumers. Public health issues therefore lie at the heart of the promises of legalisation, as do those relating to the protection of minors; one of the aims being to "keep cannabis out of the hands of young people", who are the most vulnerable to the risks related to consumption.

Experiments claiming to "regulate cannabis" are attracting particular attention, firstly because they challenge international conventions, but also because they call for vigilance when dealing with a product whose health risks are well documented[1]. As they are so recent, they are relatively unknown in their diversity, their nuances, and the uncertainties they create. In response to this need for knowledge, the OFDT has launched a study focusing on cannabis regulation practices to identify the implementation challenges and areas for vigilance following legalisation from a public health perspective.

This double issue of *Tendances*, dedicated to the legalisation of cannabis from the point of view of its implications for public health, presents the results of the ASTRACAN survey which aimed to draw up an initial assessment of North American experiences on an empirical basis and from a comparative perspective (see the "Methodology" section). The analysis is based on the review of the scientific literature, supplemented

1. Several systematic reviews provide a solid basis for understanding the potential health effects of cannabis [1, 2].

by a qualitative survey (based on interviews and direct observations) carried out in six North American jurisdictions: three in the United States (Washington State, Oregon, and California) and three in Canada (British Columbia, Ontario, and Quebec). Following on from the first part of the analysis, which described the scope, structure, and regulatory arrangements implemented for cannabis [3], the second part here focuses on two aspects: firstly, the conditions under which the reform was implemented, current regulatory practices, and the efforts made to promote public health objectives. Secondly, the initial effects of legalisation (including unintended consequences or even counter-productive effects) from the point of view of the players involved in regulation. A comparative table of the data used in the analysis can be consulted online, along with a set of monographs and summary materials (the ASTRACAN project is described on the OFDT website).

## Early feedback on what regulation was expected to achieve

All the key stakeholders of cannabis regulation interviewed in this study emphasised the difficulty in identifying the public health consequences of legalising cannabis in the first few years following its introduction. In addition to the well-known difficulty of attributing specific change to a legislative reform, it is often considered "premature" to assess its significant effect shortly after its implementation, especially as the particular context of the Covid-19 health crisis has shifted the order of public health priorities and the attention paid to cannabis reform, which some have described as a "non-issue once the emotion passed". On the other hand, there is insufficient hindsight to make a final statement on implementation challenges, even though some trends coincide.

### Bans partially complied with

The possible success of regulation obviously depends on the resources allocated to law enforcement and the ability of the public authorities to adapt the legislation to prevent breaches. The regulations introduced as the result of legalisation have, from the outset, been the subject of numerous and repeated attempts to circumvent them. Typically (as with alcohol), the first regulatory avoidance strategies targeted the ban on advertising with, in the United States, circumvention via the free press, disguised advertising or the display of brands on roadside billboards (visible to minors and aimed directly at them, for example by featuring pets with a slogan attributed to a purring kitten: "I'm so high right meow". Certain restrictions that are not very explicit have also been bypassed: the ban on images "attractive to minors" was challenged by the sale of cannabis-infused products in the shape of animals, in pastel-coloured packaging reminiscent of a children's drawing. The ban on using the graphics of popular food products among young people was breached by the launch of varieties that sound like confectionery (Skittles CBD, Zkittlez, Skittlz…), biscuits or cereals (Oreo Cookies, Frosted Flakes…)[2]. These recurring breakthroughs in the gaps between regulations have forced public authorities to be constantly vigilant and to refine enforcement measures, even in the most proactive states when it comes to controlling advertising (such as Washington State in the United States). In August 2017, Oregon's regulatory authority (OLCC) banned certain commercial names for variety of cannabis deemed too attractive to minors because they referred to children's books and games, or cartoon or fictional characters (the Incredible Hulk, Ewok from the Star Wars Universe, Doctor Who etc.). When breaches are detected, they are punished in a way that is intended to be exemplary. For example, after a wave of cannabis shop inspections in 2017 uncovered practices that systematically failed to check customers' ages, in 2018 Oregon stepped up the penalties applicable to legal vendors caught up selling to minor (aggravated fines, extended suspension of the sales licence or even revocation of the employee's work permit). Similarly, various attempts to promote the image of cannabis are regularly rejected by regulators. In May 2022, for example, CanFest - billed as "Quebec's first cannabis fair" - was cancelled after a warning from the Ministry of Health and Social Services (MHSS). According to the MHSS, the countermeasure could totally be expected, as it was explicitly included in Quebec law. Nevertheless, the organisers went public with their dissatisfaction, complaining that they were being treated "like criminals" when their objective was "above all educational".

The resources required to comply with regulations are a concern for both regulators and economic players in the cannabis sector. All the regulatory authorities interviewed in this study mentioned the need for constant and renewed vigilance and monitoring in the face of "marketing creativity" of the industry, which implies dedicating public resources to this. In Oregon for example, a position within the OLCC has been allocated entirely to the control of packaging, which must be approved before it is put on the shelves. At the same time, the head of a food and beverage company in Seattle, who is also a member of a cannabis industry trade body, deplored the excess obligations and standards applied to the sector, claiming that he wanted to be treated "like any other food business, no more, no less". Generally speaking, calls to order and sanctions imposed by regulators are often denounced as "obstacles to entrepreneurial freedom", "bureaucratic brakes" or "impediments", and are used as arguments to call for a "relaxation" of regulation [4]. These challenges maintain an ongoing dynamic on (re)negotiating regulation, which is played out in particular in parliamentary settings (at the legislature level in the United States, and the federal and provincial governments in Canada).

In Canada, public health participants are particularly critical of the lack of supervision to ensure monitoring and enforcement of the law. Despite restrictions on cannabis advertising and promotion, promotional activities are rife, especially online. In Canada, young people are exposed to cannabis advertising and a significant proportion of online promotion by licensees goes beyond information [5]. Similarly, effective compliance with restrictions on home cultivation is questioned, highlighting the potentially counter-productive effect of this "opening of right", which would not be conducive to the safe production of cannabis. More generally, regulatory oversight of production licence holders by the Canadian Ministry of Health (Health Canada) is weak and does not disclose the location of cultivation facilities due to privacy concerns, so the authorities can neither monitor home cultivation nor ensure that it is carried out in accordance with legal restrictions. In addition, given this limited capacity for inspection, home cultivation, although authorised, raises new types of risks, particularly in terms of the safety associated with indoor cultivation (risk of fire linked to electrical problems, risk of irradiation from ultraviolet lamps), or outdoor cultivation (environmental effects linked to the use of pesticides). Some Canadian provinces are therefore considering the need to introduce corrective measures to accompany the effective implementation of this authorisation.

2. Oregon Cannabis Regulation Agency website (https://www.oregon.gov/olcc/marijuana/Documents/Packaging_Labeling/Strain_Name_Attractiveness_Children.pdf).

### Contrasting effects of use by age

In all the jurisdictions that have legalised cannabis for 'recreational' use (which were among the world's biggest consumers), the campaign arguments promised improved protection for minors and optimisation of the costs and benefits for public health. On the other hand, opponents of legalisation feared that it would lead to an increase in use and a disqualification of public health objectives in favour of the commercialisation of cannabis. How can the situation be described after ten years of implementation?

Official data show a decline in the prevalence of cannabis use among minors in all these jurisdictions[3] except Oregon. This drop in use among minors, hailed by supporters of legalisation as evidence of a minimal effect of the reform on the determinants of use ("the sky has not fallen"), cannot be directly attributable to it, however, as it is found in other American states that have not amended their legislation. On the other hand, considering adults over the age of 25, the upward trend is clear in all jurisdictions. The increase in use during the year is particularly significant in certain age groups: 25–34-year-olds in Quebec (+41% between 2018 and 2022) and senior citizens in British Columbia (+36%). With the exception of Quebec, regular cannabis use also increased among young adults (18-25 year-olds)[4] in the first few years after legalisation, sometimes significantly: +17% more users in the last month in Washington State seven years after legalisation. In addition, use by certain vulnerable groups is tending to increase, particularly among pregnant women in Ontario [6]. Legalisation also appears to have contributed to a wider diffusion of cannabis among adults. Across Canada, more people are trying cannabis since legalisation, and these "neophytes" are generally older than those who experimented before legalisation (the over-45s). However, the interpretation of these trends needs to be qualified. As the substance has become legal, the assessment cannot be carried out with constant biases. Legalisation may have encouraged the reporting of the previously illicit, and therefore partly hidden, drug use in prevalence surveys. An increase in use has also been reported in states that have not legalised cannabis.

The effects of legalisation on the use patterns of minors are one of the main areas of concern. In this respect, those involved in regulation point to a paradoxical effect of legalisation. While the setting of a minimum age has limited minors' access to cannabis sold by legal retailers, under-age users are, in fact, led to obtain it by other means, either through family or friends, or on the black market via a dealer [7]. The illegal cannabis market therefore continues to represent a risk for minors, as long as they do not have access to the legal market.

### A "conversion" of users to the legal market?

One of the aims of legalisation was to eradicate the black market and steer consumers towards the legal market. While the black market is gradually shrinking in all countries where cannabis has been legalised, the pace of change varies. The strength of the black market remains marked in some states, such as California, where cannabis imported from Mexico remains cheaper than legally sold cannabis. However, the general trend is for users to switch to the legal market. In Canada, the percentage of users buying all their cannabis legally has risen from 40% in 2019 to almost 61% in 2021 [8]. However, the proportion of legal purchases varies greatly from province to province. According to Statistics Canada, Ontario and Quebec have some of the highest percentages of users who buy their cannabis legally. Nevertheless, the black market is still present, especially online or through illicit sales in American states where prices are lower than on the legal market, or where the legal market is poorly covered by sales outlets.

Regulators agree that the rise in consumption among adults is due to the expansion of supply, which has been accompanied by a broadening of the customer base and market segmentation. Cannabis is available in a variety of forms and at a variety of prices, targeting increasingly specific customer groups, with both entry-level ("mainstream") products and niche products (e.g. "premium cannabis", a market that is very present in California). A comparative survey conducted between 2018 and 2022 (International Cannabis Policy Study) shows that use habits and preferences have diversified in all North American states, as new products, flavours, and consumption accessories are discovered. While dried cannabis (weed) still dominates sales everywhere, users are tending to use a wider range of products, more often, and in larger quantities [9, 10]. In particular, edible forms and concentrates are growing steadily in all jurisdictions that have opened up a diversified cannabis market, especially in Ontario [11, pp 29-31]. In addition, daily or near-daily use is increasing among adults in British Columbia [4, pp. 50-51]. One area of particular concern is the rise of cannabis vaping among young people whose long-term health effects are still poorly understood.

Following legalisation, some jurisdictions have stepped up monitoring of use patterns and the resulting health risks. British Columbia and Quebec stand out for their constant concern to assess the impact of legalisation. They are the only Canadian provinces to have set up a representative survey dedicated to monitoring cannabis use behaviour and perceptions among adults at provincial level which complements the federal statistical information system.

## Uncertainties and fears: health consequences still difficult to assess

### Spikes in acute intoxication right after legalisation

In terms of public health, legalisation raises new issues. A joint increase in emergency room visits and hospital admissions is often reported in the early days of legalisation, resulting from acute intoxication linked to the consumption of edible cannabis by inexperienced users (who feel no immediate effects and therefore take more than one dose). This problem is directly linked to the sale of cannabis-infused food products. In Quebec, which has banned the sale of most of these products, the rate of accidental poisoning is considerably lower than in other Canadian provinces [12]. However, this recurring theme in the public debate following legalisation, which was widely reported in the media when it came to accidental poisoning of children or pets, disappeared with prevention campaigns. In both Canada and the United States, awareness-raising campaigns were conducted after legalisation, particularly to prevent accidental poisoning of children by edible cannabis products. For example, Health Canada has published a brochure entitled "How to help prevent poisoning in children" (2023).

3. Source: Substance Abuse and Mental Health Services Administration (SAMSHA) for the United States; Health Canada. The indicators chosen are use in the last year and use in the last month.
4. No distinction is possible between those under 21 (for whom access to legal cannabis remains theoretically prohibited) and those aged 21-25.

## A range of fears arising from an abundant supply

The fears of public health professionals are due to, above all, the prolific, varied, and incentivising legal offer (because it is based on the novelty effect, particularly in the United States), which boosts the desirability but also the accessibility of the product. The effect of abundance is combined with an extension of supply, with a sharp rise in the number of sales outlets, and their concentration in certain urban areas. Public health players point to research on alcohol, which has shown that enhanced accessibility and availability are associated with more consumption and harm.

The legal cannabis market has expanded rapidly, with growth in sales (particularly online sales), an increase in the number of products on sale and brands, and a raise in the density of retail outlets and therefore in the proximity of products. In all jurisdictions, the number of physical outlets has grown rapidly, reaching a record of 1 727 shops in Ontario (twenty times more than in Quebec, the second most populous province). California, in second place worldwide, has half as many. This expansion has been accompanied by a rise in the territorial coverage of the legal cannabis supply, which peaks at 19 shops per 100 000 inhabitants in Oregon (twice as many cannabis outlets than alcohol outlets), in contrast to jurisdictions that limit the number of outlets (Washington, Quebec). As a result, cannabis supply has moved closer to users and city centres. For example, the average Ontario resident will live less than 4 km from a cannabis retail outlet in 2021, compared with 46 km in 2019 [11]. From a public health perspective, the challenge is to determine what constitutes sufficient access to cannabis to supplant the black market and reduce the health damage associated with use while minimising access to the product and young people's exposure to the risk of using it. There are also glaring inequalities in access to legal cannabis. As a result of zoning restrictions that do not allow cannabis shops to be located in certain urban zones, although there is no limit on the density of outlets, many cannabis shops are concentrated in 'authorised zones' that are, in effect, neighbourhoods of low socio-economic status. For example, some deprived urban areas have a high concentration of sales outlets which goes together with the reinforcement of social inequalities in exposure to the product, while others have no legal supply at all. In Washington State, two years after the market was opened up, 30% of the population lived in a town where retail sales were banned [13]. This phenomenon is reported in all North American jurisdictions, given than municipalities can prohibit the establishment of any cannabis business (local bans).

Furthermore, the supply of legally accessible cannabis overlaps the illicit supply. In California, for example, there were more than 800 legal shops in 2020, but three times as many illegal operators (physical or online sales)[5]. While legal production reached record levels in 2022 (614 tonnes in Oregon, 577 in California), illicit supply remained at a high level, resulting in a fall in prices after legalisation [14]. While the general fall in prices on legal cannabis markets may help reduce the illicit market, it may also lead to an increase in use [14]. Furthermore, in those American states where legal production far exceeds local demand, given the impossibility of interstate transport or export due to federal and international bans, it is diverted to the black market, which is now partly fed by the diversion of legal overstocks. In Oregon, for example, the overproduction is one of the main counter-productive effects of legalisation. By 2019, supply covered seven years of local demand. The black market, by its very nature, escapes the regulatory and tax constraints imposed on the legal sector, has a de facto competitive advantage, and helps to drive down prices, forcing the legal market into line and stimulating demand [1].

Furthermore, public health practitioners stress that, despite the increasing number of reforms to the legal status of cannabis, the effects of cannabis use on health remain poorly documented [2], which makes it difficult to develop evidence-based policies and calls for the precautionary principle to be applied. In their view, regulation that is fully mindful of public health would require a better understanding not only of the potential health risks, but also of the impact that certain regulatory parameters may have on access to cannabis and cannabis use behaviour. Generally speaking, all those involved emphasised the lack of knowledge about the effects of the various cannabinoids (cannabidiol/CBD), particularly over the long term (lack of cohort studies) and in the case of products with a high concentration of Delta-9-THC. Local public health players feel that the knowledge available is still too incomplete to enable them to take informed public action on the long-term effects of the various cannabinoids. Furthermore, the proliferation of various cannabinoids on the market has been exacerbated by the unexpected effects of the legalisation of hemp at federal level in the United States. Since the 2018 Farm Bill legalised the cultivation of hemp containing less than 0.3% THC, companies have developed an expanded range of products containing minor cannabinoids deemed non-psychoactive (cannabigerol/CBG, cannabinol/CBN, etc.), but also other cannabinoids with psychotropic effects, notably Delta-8-THC, which is far less common than Delta-9-THC (commonly known as THC), but which, for its part, is not classified as a narcotic. Although the Food and Drug Administration (FDA) prohibits the marketing of synthetic cannabinoids, the popularity of Delta-8-THC, presented as a 'milder' psychotropic, has grown rapidly since 2021, and promises new developments around other cannabinoids (Delta-10 and Delta-11). Several of our interviewees referred to the Delta-8 issue as "the elephant in the room", referring to the practical impossibility of controlling all the products extracted from the cannabis plant or synthesised in the laboratory. This has led some states to introduce prohibition measures. Oregon was the first US state to ban synthetic cannabinoids from July 2022, with the regulatory authority (OLCC) raising concerns about the chemicals used in their manufacture. As new types of cannabis-derived products emerge that are effectively unregulated and unmonitored, policymakers are faced with new challenges, particularly when it comes to cannabis products that resemble traditional medical products (metered dose inhalers, nasal sprays, suppositories, etc.).

## Normalising cannabis and renormalising smoke in public

Beyond the direct health consequences, the legalisation of cannabis has had the effect of 'normalising' the product, particularly among younger generations, as can be seen from three indicators. Firstly, the health risks associated with cannabis have been euphemised among the youngest age groups, and the product is portrayed in a more favourable light. Analysis of official sources shows a drop in the perceived risk associated with cannabis use among young people under 18 (NSDUH, perception of great risk from smoking marijuana once a month). An increase in cases of driving after cannabis use has also been reported in some US jurisdictions (most often in association with alcohol)[6], but this is not the case

5. According to the converging results of several audits carried out by different economic operators, who are not free from direct interests (United Cannabis Business Association, Arcview Market Research, BDS Analytics).
6. Source: Fatality Analysis Reporting System (National Highway Traffic Safety Administration).

in Canada, where the proportion of cannabis users who took the wheel less than two hours after using cannabis has fallen in some provinces (British Columbia). Finally, legalisation seems to go along with a decline in requests for short-term treatment, particularly among the youngest users [15] (in Washington State, for example)[7]. Public health practitioners have also noted that the commercialisation of cannabis has gone hand-in-hand with an increase in the product's visibility in Canada and the United States, where advertising is partially authorised, which, combines with the general fall in prices brought about by legalisation, has led to an increase in the product's availability. Lastly, the legalisation of cannabis has prompted fears among health professionals involved in the fight against smoking that smoking will be re-normalised in public spaces, given that the predominant method of cannabis consumption remains smoking, often including tobacco (blunts, spliffs). This concern is all the more salient given that the jurisdictions that have so far legalised the 'recreational' use of cannabis are among the most advanced in terms of tobacco control policies, which have led to firm public measures and conclusive results in terms of reducing smoking (Canada, California, etc.). Health professionals point to the paradox created by seemingly contradictory policies, despite their claims to be progressive (one aimed at eradicating tobacco, the other authorising cannabis).

### Public health versus industry and lobbies

Among the public health stakeholders, the implementation of a commercial model for the sale of cannabis based on private operators seems to be widely considered as a model not to be followed. They denounce the risks associated with privatising the legal supply of cannabis citing the lessons learned from the privatisation of alcohol sales (particularly in Washington State) [16]. More generally, they express fears about the industrial concentration of the emerging cannabis sector with the risk of the emergence of a de facto monopoly in favour of private consortium. In view of the international movement of mergers and acquisitions underway in the cannabis production sector, they evoke the possible prospect of a "Big Marijuana" (after Big Tobacco and Big Pharma). This concern echoes that of local economic players, who say they are being squeezed out by restrictive access to the legal market (requiring a substantial financial contribution and human resources to meet bureaucratic requirements and cope with procedural delays) and competition from "big players" (senior players). They are calling for regulation that is more favourable to local economic operators, particularly those from the grey or black market of yesterday who would like to convert to the legal market (British Columbia, California, etc.).

In addition, the emerging cannabis market, which is gradually becoming part of the legal North American economy, is increasingly being linked to other industrial sectors as new products are developed. This has led to the inclusion of cannabis in the business plans of companies marketing other types of products. For example, shortly after legalisation, tobacco and alcohol multinationals entered the cannabis industry, raising the prospect of new products combining cannabis and tobacco (blunts and spliffs) or cannabis and alcohol (THC-infused beers). At present, all North American jurisdictions where cannabis use is legal for adults prohibit the mixing of THC products with tobacco/nicotine or alcohol, and tobacco/nicotine and alcohol products cannot be sold in retail cannabis shops.

## Lessons from cannabis regulation

### The very specific complexity of cannabis regulation

When it comes to cannabis, the regulatory authorities interviewed emphasised the specific control issues involved, compared with alcohol or tobacco, for several reasons. Firstly, the diversity of forms and methods of use. While up until ten years ago most of the cannabis was consumed by smoking, in the form of joints and pipes (dab), its legalisation has led to a transformation in the types of products marketed and consumed by the general population, in favour of edibles, vaping products, and concentrates. The regulation of these new products is problematic because of the lack of knowledge about their health effects (short-, medium-, and long-term), particularly in the case of products with high THC content, which is exacerbated by the rapid renewal of supply. Cannabis regulation is complicated by the multiplication of forms and methods of use, and the different effects they have on the body. The public authorities are therefore obliged to adapt their prevention messages according to the type of product and the route of administration in order to take account of the differing temporality of the effects (bio-availability[8]). Therefore, for example, when communicating about the risks associated with cannabis use, a prevention campaign must, unlike tobacco, take into account the time depending on the route of administration. While Delta-9-THC is absorbed rapidly by inhalation (joint, pipe, or vaporiser), producing psychoactive effects after a few seconds or minutes, the effects of oral consumption (cakes, edible oils, pills) are largely delayed (30 minutes to 2 hours after ingestion). The effects also vary according to the characteristics of the subject (age, sex, weight, consumption habits, etc.), the product (concentration of active ingredient, including THC) and the circumstances of consumption.

Targeting prevention campaigns is also complicated by the diversity of motivations for use. Unlike tobacco, for example, which has relatively standardised motivations and forms of use, cannabis is characterised by a wide variety of factors and social contexts of use. Use may be aimed at rapidly achieving a state of intoxication, disinhibition, or relaxation ("hedonic" or "festive" motives"). It may also be perceived as a strategy for regulating anxiety and stress, or even as a "reasoned" form of self-medication, to sleep better or to suffer less [2]. Lastly, cannabis may be used to correct or exacerbate the effect of another substance (for example, to 'come down' from heave alcohol consumption).

Finally, the concerns of setting-up a regulating framework are linked to the reliability and validity of the psychometric thresholds used to determine fitness to drive among cannabis users. In the case of cannabis, although legal thresholds have been set (at 2 ng and 5 ng/ml of blood), the effects on road driving are more difficult to estimate and measure than for alcohol, where a legal blood alcohol level has been defined on scientific grounds [17]. One of the difficulties is that THC remains detectable by biological tests for up to a month after use (especially in the case of regular use). In other words, a positive test does not necessarily mean that the user was under the influence of the drug when driving the vehicle. However, in some jurisdictions, criminal penalties for "driving under the influence" may apply ("impaired driving" in Canada). In the absence of a scientific consensus on a validated threshold, the jurisdictions that have legalised cannabis have introduced different thresholds, which above all reflect a degree of heterogeneity in the level of tolerance and social acceptability of use.

7. Source: NSDUH, SAMSHA.
8. A technical term in pharmacology that describes the degree and speed of absorption of a bioactive compound of the human body.

## Legalisation and regulation: public health benefits

### Allocation of tax revenue

One of the promises of legalisation was that tax revenues would provide a financial windfall that would boost support for public health programmes, in particular prevention and treatment for drug users, as well as monitoring the impact of legalisation on drug use behaviour and its consequences for health. What does this mean in practice?

In the United States, the tax revenues generated by legalisation have been allocated primarily to funding the administrative costs of regulation, public health (in our three jurisdictions), mental health and substance abuse treatment programmes (California, Oregon), and research (California, Washington), but also to basic healthcare (Washington), school renovation (Oregon, Washington), and local government funding (California). Tax revenues from the legalisation of cannabis can therefore support under-resourced public sectors and, in some cases, supplement the general government budget.

In addition to the province of Quebec in Canada, where 100% of the profits from cannabis sales are earmarked for prevention, harm reduction, care and research, Washington State in the United States stands out for its emphasis on funding public health. Half of the resources generated by the legalisation of cannabis are used to fund addiction treatment and prevention programmes. In 2022, $590 million dollars were allocated to programmes for the treatment for drug user, including the replenishment of a health insurance fund for the poorest households. In other jurisdictions, however, the tax revenues earmarked for healthcare expenditure are either much more limited or difficult to trace. In Oregon, for example, the tax proceeds from legalisation are mainly earmarked for the education sector (school construction, scholarships, etc.), law enforcement, the renovation of public buildings, and the upkeep of hostels.

Generally speaking, tax revenues earmarked for public health represent a small proportion of all tax revenues collected by governments (except in Quebec) and are not secure earmarked funds. They often displace, or even replace, other funds initially allocated for public health. Generally, this surplus tax revenue is used to monitor and collect data on cannabis and for prevention and risk education campaigns. In Canada, the principle of apportioning tax revenues remains far less transparent. Federal law provides for a distribution of tax revenues of 75% to the provincial and territorial governments and 25% to the federal government, but the actual allocation of these revenues is being regarded as unclear in some provinces. Furthermore, in some provinces such as British Columbia, municipalities are mobilising to demand the financial support they have been waiting for since 2018 to cover the additional costs generated by cannabis regulation.

### Recommendations from professionals for regulation that prioritises public health

Despite their limited involvement in the construction of the regulatory framework (except in Quebec), public health authorities continue to demand a more assertive role in steering the reform, particularly with regard to four aspects - surveillance and monitoring; education for the general population and specific sub-populations (awareness of the law, campaigns to prevent driving under the influence, information aimed at minors and their parents, specific prevention for vulnerable people, for example on the risks of cannabis use during pregnancy and breast-feeding, campaigns aimed at adults on 'responsible consumption'); contributing to research (on the effects of cannabinoids, the health consequences on product use); and finally, a role in raising awareness among public decision-makers to help them become accustomed to the specific issues raised by cannabis.

The feedback from experience has produced a web of "recommendations" for regulating cannabis as closely as possible to public health. Noting a major contradiction between the commercial approach and public health objectives, these recommendations point out the need for a central role given to public health authorities in the regulation and governance of the cannabis market. They also emphasise the importance of using taxation to prevent cannabis use as well as to provide financial resources for prevention and to reduce the negative externalities of legalisation. The recommendations then focus on strictly regulating the scope of authorised products: defining a standardised packaging unit (serving size), capping THC levels, banning products that could appeal to minors or could be confused with everyday consumer goods; limiting additives; banning the addition of nicotine or alcohol to cannabis-derived products; compulsory testing of products before they go on sale (with a state-licensed reference laboratory). The fourth set of recommendations emerging from the interviews is related to product packaging and labelling, such as mandatory plain packaging, a universal symbol indicating a high-risk product, visible health warnings, and a ban on therapeutic claims. The public health recommendations also address the structure of the market, validating the effectiveness of restrictions on access to the product, the ban on home cultivation and discounts or products on sale in specialist shops, and zoning, while highlighting the need for sales assistant training. A penultimate recommendation deals with authorised consumption areas and protected zones, ruling on the public health benefits of banning cannabis smoking or vaping in enclosed spaces. A final set of recommendations targets advertising rules, advocating limiting the scope of authorisation in order to minimise exposure to minors; visible warnings on advertisements; restrictions on social networks (banning "brand ambassadors"); public health funding for prevention campaigns subject to effectiveness evaluation.

## The increased complexity of regulatory objectives

While the legalisation of cannabis potentially has an impact on almost every aspect of public health (from acute risk prevention to food inspection, chronic diseases, maternal/child health, environmental health, occupational health, mental health, and the simultaneous use of substances, as well as the health of adolescents), it also raises other public health issues that have not always been integrated into the regulatory framework. For example, environmental and sustainable development issues are largely underestimated or even non-existent in regulatory schemes. The cannabis industry is reputed to consume a lot of water and electricity (in the case of indoor cultivation) and its ecological footprint (waste sorting, effects of pesticides on the soil) is mentioned in the interviews as an area of concern. Legalisation activists themselves agree, particularly when it comes to large-scale production, as one interviewee spoke of the "huge footprint of the big industry", which is said to be creating an "environmental nightmare" in the absence of sufficient federal control in Canada (and any federal control in the United States). Hence the importance, in their view, of stepping up inspections of production site and introducing standards and

good manufacturing practices (GMP standards). Particularly strict testing and control rules for cannabis-derived products could, however, leave the industry vulnerable, especially when outdoor cannabis crops are located in areas where less-controlled crops are grown. For example, one of the British Columbia production plants visited during this survey was controlled and sanctioned by the federal authorities, despite its good practices, simply because of the abundant spread of pesticides through the subsoil from a nearby blueberry field.

Similarly, social equity issues were considered late in the regulation of cannabis but have recently become an issue in their own right in the public debate on the legalisation of cannabis in the United States. The social equity issue aims to include in the legal market the social groups most penalised by the "war on drugs" in the 1970s, on the grounds that they suffered not only the increased risk of incarceration but also from the aggravated health damage. In the United States, the municipality of Oakland[9] (California) was the first to set up a professional licensing programme giving priority to people convicted of a cannabis-related offence or living in a neighbourhood where there was a racial disparity in arrests (in line with positive discrimination). Similarly, in Oregon, a specific programme has been developed to accelerate market access for women-owned cannabis businesses (The Initiative).

## Conclusion

Although there is some encouraging survey data in Canada [8, 18], long-term studies are still lacking to determine whether current protective measures are having a lasting effect in restricting young people's access to cannabis (against a backdrop of increasing promotion on the Internet). Pending impact studies, the ASTRACAN survey provides some insight into the dynamics at work from the point of the regulatory authorities and public health professionals. It reveals a very active process of ongoing adjustment as the market unfolds, testing regulatory provisions or producing unforeseen effects. Cannabis regulation is a highly complex public policy issue. Firstly, because it is structurally bound up with objectives of a different nature (economic development, social justice) whose rationale and needs may be at odds with the recommendations of public health specialists. But also, because the regulatory framework, far from creating a market ex nihilo, must organise a genuine transition process for both supply-side players and consumers, based on markets that are already well established (medical cannabis and, above all, the black market) and willingly innovative. This regulatory challenge, which requires policymakers to be highly responsive and creative, is currently giving rise to constant adjustments to the framework, with this ongoing reform process likely to redefine the priorities, including public health.

## Methodology

The ASTRACAN (Pour une Analyse STRAtégique des politiques de régulation du CANnabis or "For A Strategic Analysis of Regulatory Cannabis Policies) research project examines, from the point of view of local players, the regulatory procedures and practices in six North American jurisdictions that have legalised cannabis for 'recreational' use: Washington State, Oregon, California (United States), British Columbia, Ontario, Quebec (Canada). Coordinated by the OFDT, the study was conducted in partnership with political science academics from the Université Paris 1 Panthéon-Sorbonne and the Université de Québec à Montréal (UQAM).

The analysis is based on three types of sources and empirical material collected between 2019 and 2023, which are: an analysis of official data (regulatory texts, reports by regulatory authorities, epidemiological surveys, etc.); a review of the literature; and lastly, an original qualitative survey in each of the six jurisdictions, comprising a corpus of 71 interviews (individual or group, i.e. 115 people interviewed face-to-face), supplemented by direct observations that provided an insight into local contexts and stakeholder rationales. These included, for example, visits to several industrial cultivation or processing sites for cannabis-derived products, informal discussions with managers of sales outlets and their customers and even, in California, direct observation of five monitoring visits by inspectors from the regulatory authority (for further information, the ASTRACAN project is described on the OFDT website).

The choice of panel was made to diversify the profiles of the jurisdictions (demographics, date of entry into force of the reform, choice of regulation, etc.). The interviews (at least 10 per jurisdiction, 1.5 hours on average) were conducted in English (except in Quebec), following a common framework, with the key players in the implementation of the reform, such as regulatory authorities, local health administrations, public health experts and academics. Several economic and industrial operators were also interviewed in order to gain an understanding of the conditions under which the regulation was received.

9. The criteria for entering the 'fair' programme are as follows: to have been arrested after 5 November 1996 and to have been convicted of a cannabis-related offence, or to have lived in one of the 21 neighbourhoods in East or West Oakland where cannabis-related arrests had the highest statistics. You must also earn less than 80% of the city's median income, or $52,650 for a single person (Department of Race and Equity).

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