Child and Youth Mortality Review Committee

Recreational Cannabis Referendum 2020: Summary and synthesis of evidence by the Child and Youth Mortality Review Committee

June 2020

Contents

Part 1: Introduction and overview 3

Our purpose 3

Introducing the referendum 4

Focus of this report 5

Understanding key words in this report 5

Overview of Aotearoa New Zealand's proposed Cannabis Legalisation and Control Bill ... 6

Part 2: Summary of evidence and themes 8

1. Key themes 8

2. Impacts on babies, children and young people 12

3. Regulatory systems in other countries 16

4. Evidence gaps 18

Conclusion 18

Part 3: Frequently asked questions 20

What happens after the referendum if more than 50 percent vote 'yes'? 20

How can the public make an informed decision about the referendum when they don't know details of the regulatory system and its impacts? 20

What could a legalised and regulated cannabis system look like in Aotearoa New Zealand? 20

What are the main areas for debate in the proposed regulatory system? 21

What happens if you break the law? 23

What trends might we expect with cannabis law change? 23

What areas is there general agreement on? 23

If the referendum result is 'no', how does the Crown propose to address the inequities that have resulted from the current system of cannabis prohibition? 23

On what topics is the evidence mixed, debated or controversial? 24

What equity, health, justice and economic benefits (personal and social) could legalisation bring? 24

What equity, health, justice and economic harms (personal and social) could legalisation bring? 25

References 26

Part 1: Introduction and overview

Our purpose

This report is the Child and Youth Mortality Review Committee's (CYMRC) summary and synthesis of evidence about Aotearoa New Zealand's upcoming cannabis referendum. It offers information to support the health, education, justice and social sectors in making their decisions to vote for or against the proposed cannabis reform. In developing this report, we examined evidence, cross-sector opinion and public discussion for themes relating to recreational cannabis use and its legalisation, control and regulation.

The CYMRC summary statement is underpinned by Te Tiriti o Waitangi, equity and harm-reduction principles. We acknowledge that the current legal, justice and health approaches to cannabis cause disproportionate harm to Māori. Mana whenua experience inequitable justice, health and social outcomes from illicit cannabis supply and use, including discriminatory policing, legal and imprisonment practices. Māori also have less access to treatment and harm-reduction methods such as mental health and addiction services, and to primary, secondary and tertiary health support (both kaupapa Māori and general services).

The report also focuses on outcomes for the unborn baby, young people and other groups who are vulnerable and disadvantaged by determinants such as developmental stage, structural inequity, colonisation, educational and economic status, and existing mental health issues. The CYMRC encourages people to ask two questions.

1. How can Aotearoa New Zealand reduce the inequities between Māori and non-Māori associated with recreational cannabis use?
2. How could changes to law, policy and practice reduce cannabis-related harm?

Drawing on a synthesis of governmental, organisational and academic knowledge and opinion, this report:

1. describes the rationale and details of Aotearoa New Zealand's proposed recreational cannabis reform Bill, including the proposed regulatory model for change
2. highlights the effects of prohibiting cannabis (the current system) and raises awareness about potential effects of liberalising cannabis (including through legalisation and regulation)
3. summarises themes on recreational cannabis use and its legalisation, control and regulation from the literature, government reports and expert opinion
4. describes cannabis harm for unborn babies, children and young people in particular
5. describes existing models of liberalising and legalising recreational cannabis
6. identifies gaps in the evidence about recreational cannabis use in Aotearoa New Zealand.

Introducing the referendum

The public of Aotearoa New Zealand will have the opportunity to vote 'yes' or 'no' on legalising the recreational use of cannabis for adults at the general election on 19 September 2020. The first draft of the Cannabis Legalisation and Control Bill ('the Bill') passed through Parliament and was released to the public in December 2019. The Minister of Justice Hon Andrew Little made the final Bill publicly available on 1 May 2020. The purpose of the Bill is to 'reduce cannabis-related harm to individuals, families/whānau and communities'.[1]

Supporters of recreational cannabis legal reform highlight that prohibition (the current system) has been both ineffective and inequitable in addressing cannabis use and associated harm, and that legalisation has the potential to reduce the harm associated with cannabis use and supply. In their view, reform is a harm minimisation approach.

In addition, in Aotearoa New Zealand and internationally support is strong for a paradigm shift in the approach to recreational drug use. Advocates for legislative change describe how reframing recreational cannabis through a public health approach could reduce organised crime, provide fair access to legal processes, and improve resources for and access to health care and education. Professor Khylee Quince noted in her 2019 presentation to the annual CYMRC workshop that legalisation of cannabis requires much **more** law than we currently have – not less. Quince also believes that prohibition has prevented research that could have told us more about the harms and benefits of cannabis. Some argue that prohibition stigmatises users and disrupts their education. We know that even low-level drug convictions restrict a person's employment, travel and voting.

On the other hand, supporters of the current system believe that we do not know enough about the unintended consequences of cannabis decriminalisation and legalisation, and the explanation of the proposed model for regulation is not detailed enough to base a decision on. They consider that staying with the current system is a precautionary approach and may prevent unintended harm.

Opposition to legalisation is also based on a strong and valid concern that it may increase the health and social harms caused by cannabis, especially for the most vulnerable groups. Young people, heavy and dependent users (who are more likely to be Māori and/or young and male), women and their unborn babies, and people with mental health concerns are more at risk from the harmful effects of cannabis.

Some people are concerned about the negative impacts of for-profit industries, aware of the power of corporate and industry influence in areas such as alcohol and tobacco. In their view, a 'big cannabis' industry may in effect promote regular cannabis use, as the alcohol and tobacco industries have done with their products. Some evidence from US states and Canada indicates that this occurred after they legalised cannabis.[2] People may remain hesitant to vote for change without clear information about how the regulatory regime will regulate industry influence, based on previous examples of poorly governed legal drug markets. A perspective from the US context is that:

> Unlike with alcohol and tobacco, with regard to cannabis regulation we have for now, what is effectively a clean slate: we do not have to retrofit well-established commercial markets with tighter controls, in the face of

industry resistance. It is up to policymakers to take advantage of this situation.[3]

Focus of this report

It may be difficult to identify what the net social benefit or cost of cannabis law reform in Aotearoa New Zealand will be. Māori experience disproportionately high imprisonment and criminal offence rates, with inadequate access to the legal system. So from an equity point-of-view, we know that criminalising cannabis is not a harm-reduction solution for Māori.

The evidence from other countries about the outcomes of legalisation is mixed. Ideally, if prohibition continues, the harms it causes would be reduced by changing the system to favour a public health rather than criminal justice approach. The design of any regulatory framework should respond to the context of Aotearoa New Zealand, using the evidence that has come from overseas models.

Our laws, and the policies and markets that flow from them, must be built on evidence-informed knowledge that is seeking equity and justice. In Part two, the CYMRC presents knowledge and views about the impacts of recreational cannabis use and its legalisation, especially as it relates to babies, children and young people. In Aotearoa New Zealand, where marked inequity exists for Māori in the context of cannabis prohibition, we focus on Crown obligations to uphold Te Tiriti o Waitangi, existing inequity and the promotion of mana-enhancing solutions that make a positive difference for Māori. We understand that protecting children from the harmful effects of drug use requires a whole-system focus on both direct and indirect influences on their wellbeing.

For some people, the information currently available raises as many questions as it answers. For this reason, we address some areas of uncertainty and confusion in Part three.

Understanding key words in this report

We have drawn on the 2019 report of Te Uepū Hāpai i te Ora – Safe and Effective Justice Advisory Group, *Turuki! Turuki!* (p 54) to clarify the meaning of three terms we use in this report.[4]

- **Decriminalisation** involves removing criminal status from a certain behaviour or action. *This does not mean the behaviour is legal.* This system may still involve confiscating drugs and applying non-criminal (civil) penalties.
- **Legalisation** makes a previously prohibited act lawful. Legalised drugs are typically subject to regulations governing sale, supply, consumption, promotion and tax – as alcohol and tobacco are.
- **Drug regulations** are written into law. Any action that does not conform to the regulations is illegal.

In addition, **liberalisation** of recreational cannabis use means softening prohibition law and regulation. The extent of the change can range from full legalisation or deregulation through to various forms of decriminalisation.[2]

Overview of Aotearoa New Zealand's proposed Cannabis Legalisation and Control Bill

> [The purpose of the Bill is] to authorise, regulate, and control the cultivation, processing, use, and sale of cannabis in New Zealand, with the intent of reducing harms, from cannabis to individuals, families, whānau and communities (p 7).[5]

The proposed Cannabis Legalisation and Control Bill takes a cautious, evidence-based approach to legalisation and regulation of personal recreational cannabis use for adults over the age of 20 years. It proposes decriminalising personal cannabis use and legalising supply to adults through a tightly regulated commercial market. Unregulated commercial supply would still be a criminal offence.

The referendum asks: 'Do you support the proposed Cannabis Legalisation and Control Bill?' Voters have the option of answering either yes or no. A vote for the current system (no) is a vote for continuing to prohibit recreational-use cannabis. Until recently, surveys consistently showed that two-thirds of respondents supported law reform. However, recent surveys by Newshub Reid Research and One News Colmar Brunton showed 48 percent would vote 'no' and 39 percent 'yes' for the reform.[80] If the Bill receives a yes vote, the incoming Government may introduce a further Bill for legalisation and control of cannabis after the election, which would include public consultation.[1]

The two primary policy objectives of the Bill are to:

1. minimise cannabis-related harm and address the wellbeing of the people of Aotearoa New Zealand
2. lower the overall use of cannabis (especially by young people) through education and addiction services.[6]

The Bill does not address the medical benefits of cannabis, its derivatives, or use of medicinal cannabis, which the Misuse of Drugs (Medicinal Cannabis) Regulations 2019 have already dealt with. The Ministry of Justice steered the work on an evidence-based regulatory regime for recreational cannabis use and offers detailed information in its most recent Cabinet paper.[7] Now 'the central location for all government sanctioned public information materials to support voters to understand the legislation'[8] is: www.referendum.govt.nz.

Further objectives of the Bill are to:

- take a health-based approach to recreational cannabis use that turns away from the current approach focused on the criminal justice sector
- uphold the Crown's statutory obligations under Te Tiriti o Waitangi to Māori
- address inequity through centralised policy development and decision-making
- resolve discriminatory policing of cannabis laws.

The Psychoactive Substances Act 2013 could be the legal mechanism for a centralised regulatory authority, in place of the current mechanism, the Misuse of Drugs Act 1975.[80]

The Bill provides a broad rationale for how harm could be minimised, while leaving the detailed elements of the legislation to be finalised after the referendum. It proposes:[1,5]

- exercising controls over the availability of cannabis and deterring its illegal supply
- introducing regulations for personal growing and 'social sharing' of cannabis
- raising public awareness about the risks associated with cannabis use
- restricting access to cannabis for and prohibiting advertising and promotion to those aged under 20 years
- improving access to health and social services, and other whānau supports
- licensing the whole supply chain through a central authority (with options for control by territorial authorities)
- controlling the potency (strength) and contents of licensed cannabis and cannabis products (minimising harm through regulating potency and portion size, pesticide testing and packaging)
- limiting the public visibility of cannabis use by confining use to private homes and licensed premises
- reducing criminal responses to breaches of the Act, which would involve using proportionate civil consequences and including a focus on overall harm reduction.

Part 2: Summary of evidence and themes

This part presents key themes and evidence that have emerged from research and discussion about the impacts of recreational cannabis use and its legalisation, especially as it relates to babies, children and young people. It includes evidence from countries after they have implemented reforms and identifies knowledge gaps that it is important to fill no matter what the result of the referendum is.

1. Key themes

Research and debate on recreational cannabis use have revealed the following key themes.

Address cannabis use as a matter of health and wellbeing, not criminal justice

Supporters of reform suggest that a legalised and tightly regulated industry would improve access to education and intervention for people who choose to use cannabis no matter whether the law allows it or not. Population-based evidence about the illicit use of cannabis supports the argument that prohibition is an ineffective tool for preventing cannabis use and makes criminals out of its users. Prohibition creates a black market while stigmatising users and preventing them from seeking and receiving the health and social support that they want.[10] In 2011, when discussing drug prohibition and regulation in a review of the Misuse of Drugs Act 1975, the Law Commission stated:

> Regulation and prohibition restrict that freedom of choice and must therefore be based on the need to protect others from harm and reduce the costs imposed on society as a whole as a result of an individual's choices. It is not generally appropriate for the State to intervene coercively to prevent individual citizens from harming themselves.[10]

No matter what their position was on law and policy reform, people were generally in favour of taking a harm-reduction approach with a focus on health and wellbeing, while wanting to be mindful of cannabis harms.

Cannabis causes harm, especially for Māori and younger people

Negative health, justice, education, employment and other psychosocial effects are associated with recreational cannabis use. It is common for people to compare the harms of alcohol and cannabis use as a way to justify the use of one drug over the other. However, the science is clear that both drugs cause harm in different domains, and their negative impacts on vulnerable people should not be underestimated.

> Some of the literature and advocacy for legalisation of cannabis has attempted to show that cannabis is no more harmful, or even less harmful, than alcohol … however, it is clear that: a) the harms of cannabis and alcohol cover quite different domains of functioning; and b) because cannabis is an illegal drug, the harms associated with it may have been underestimated, as use has been suppressed to some degree by its legal status.[11]

While the evidence is often mixed and debated,[12] known and suggested harms of cannabis use include the following.

- Short-term learning, memory, attention, motor skills and reaction time are all acutely impaired after use.[13]
- Adults who began using cannabis as teenagers experienced cognitive problems and neuropsychological decline.[13,14] Higher use was linked with greater decline.[14]
- Cannabis use in adolescence leads to long-lasting cognitive impairment,[15] decreases academic achievement and increases the likelihood of leaving school before the age of 15.[16]
- Chronic exposure to tetrahydrocannabinol (THC) is related to harms in brain health but researchers state these impacts are reversible with long-term abstinence.[32]
- Adolescents who use cannabis have a predisposition to dependency, are at increased risk of psychotic symptoms and developing them earlier, and are at increased risk of major depressive and mood-related disorders.[11,18]
- Mood disturbances, depression and mania are associated with chronic use.[19]
- Evidence suggests cannabis may have a role in causing schizophrenia.[15,20]
- Lower income, lower tertiary completion rates, more unemployment and need for economic assistance are associated with starting heavy cannabis use early in life.[21]
- Cannabis-impaired driving is a major public health concern.[13]
- One study suggested regular cannabis users are more likely to use other illicit drugs, especially if they were young when they started using cannabis.[16] A Canadian study challenged this conclusion, finding that street-involved youth who used cannabis were no more likely to start using intravenous opioids.[22]
- Regular cannabis use and cannabis-use disorders in adolescence (younger than 18 years) are linked to suicidality (ideation and attempts) in adults.[16,18,20]
- When unborn babies are exposed to cannabis, it affects their birth outcomes (low birthweight and more admissions to neonatal intensive care units).[15] A further suggestion is that it affects the brain development and function of unborn babies.[26]
- Being exposed to cannabis before birth changes neurotransmitter systems in the fetus, particularly for males, which may be linked to behavioural changes in babies after birth.[20,25]
- Mothers' cannabis use may be related to early cannabis use in their children.[26]
- Cannabis use increases the risk of respiratory disease.[13,28,29]
- Cannabis use increases the risk of testicular cancer.[29]
- Cannabis use increases the risk of stroke, atrial fibrillation and chronic obstructive pulmonary disease.[29]
- Cannabis users may increase their use over time: about 10 percent of people who ever try cannabis progress to daily use and another 20–30 percent become weekly users.[13]
- Cannabis dependence is most common in males aged 20–24 years. The risk is increased in people who smoked cigarettes or started cannabis use in early adolescence, or experienced an anxiety disorder.[29]

- Cannabis dependence is linked with a range of negative psychosocial outcomes in young adults. Its prevalence (9 percent of lifetime users and 15 percent of adolescent users) may be underestimated.[30]

Although heavy cannabis use and cannabis-use disorders are related to mental health, they have not yet been established as a cause.[16] People with cannabis dependence appear to have as many economic and social problems as those with alcohol dependence, emphasising that cannabis does do significant harm to certain groups.[28,30] Boden and Fergusson (2019) were concerned that the illegal status of cannabis could lead to an underestimation of its harm and cautioned against downplaying cannabis-related harm in comparison with alcohol: 'the harms of cannabis and alcohol cover quite different domains of functioning'.[11] Harms related to alcohol and cannabis are concerning for Māori, who are disproportionately represented in both areas. For this reason, greater investment in Māori governance and leadership in drug law reform is needed (see below).

Because babies, children and young people are developmentally vulnerable to cannabis-related harms, we examine the evidence about them in more detail in Section 2.

Drug law reform requires Māori governance and leadership

Te Tiriti o Waitangi is widely accepted as Aotearoa New Zealand's constitutional document. It requires that Māori as tangata whenua and equal Tiriti partners must be engaged to contribute their leadership in matters that affect Māori. A Māori response to the proposed regulatory framework for cannabis reform is therefore an essential part of its development.[31]

Reports of poor engagement with indigenous communities come from other countries too. For example, in Canada '… there are no specific mechanisms in the Cannabis Act 2018 [Canada] for indigenous involvement in the legal market … The priority now is to try to reform the Act so that it recognises First Nations jurisdiction' (p 26).[31] Poor engagement is also linked with inequities and unintended consequences in Aotearoa New Zealand.

- Discretionary policing of personal cannabis has been shown to be discriminatory. Māori who are caught in possession of cannabis are more likely to be charged than Pākehā and other non-Māori groups.[10]
- Criminalisation of cannabis use disproportionately affects Māori through various health, justice and social mechanisms, so addressing the issue requires structural and systemic change. This disproportionate effect is a consequence of colonisation and continues when the Crown does not meet its obligations under Te Tiriti o Waitangi.[10,27,33,34]

Commitment to Te Tiriti o Waitangi (Māori text) provides the framework for reducing such inequities.

- The Crown must place Te Tiriti o Waitangi at the centre of its work to address historical and ongoing inequities that have resulted in inequitable health, justice and economic outcomes for Māori.[33]
- The United Nations Declaration on the Rights of Indigenous Peoples should be included as a framework within policy development.[33]
- To achieve reform, a kaupapa Māori agency should provide Māori leadership and be involved in co-designing a regulatory model that prioritises mana motuhake, mana tangata and hauora Māori across sectors.[33]
- Māori communities who wish to participate in the legal cannabis market should have support from a favourable regulation system that prioritises their needs.[10,33]

The 2019 report commissioned for Stage 2 of the Waitangi Tribunal Health Services and Outcomes Kaupapa Inquiry (Wai 2575) states:

> The foundation [New Zealand Drug Foundation] also emphasised the importance of having a clear plan for how the government will meet its Treaty obligations to Māori in designing a proposed regulatory model for cannabis. (p 84)[35]

Different models of legal, regulatory and policy reform

Little longitudinal evidence on the impact of legalised cannabis markets is available, leading to a lack of information to base robust policy on[19] and poor monitoring of the impact of large-scale policy changes.[21] Sometimes implementation of cannabis law and regulation has created negative outcomes. For example, in Colorado:

> … subsequent under-regulation and over-regulation, inconsistently applied across issues such as retail licencing, chemical testing, cannabis derivatives, municipality approval for growers, and financing, have not only held back the industry in Colorado but also negatively impacted public health, oversight, and potentially increased the availability of illegal cannabis (p 63).[36]

Liberalisation of cannabis law and policy has happened through a range of government and commercial models. These experiences suggest the following general principles apply to law, policy and regulation in Aotearoa New Zealand.

- To be responsive to Māori, the goal of cannabis legalisation should be to achieve equity and justice.[33]
- Making cautious change requires involving Māori leadership and Te Tiriti o Waitangi in the governance of change processes, as well as using knowledge and experience from indigenous contexts where legalisation has already occurred.[33]
- Strategic planning should strike a balance between minimising the harm caused by prohibition and decreasing the unwanted consequences of full legalisation.[10]
- The needs of groups that have experienced disproportionate harm through recreational cannabis law and policy, and that potentially will continue to experience it in the future, must come first.
- Assumed benefits of legalisation, for example, increased health care use, are not always evident in the research[37] and require ongoing monitoring and evaluation.

For details on evidence from regulatory systems in other countries, see Section 3.

Lessons learnt from alcohol and tobacco law, policy, regulation and industry

- The alcohol industry has caused harm through commercialisation and liberalisation[4] that prioritises profit over the wellbeing of communities.[30] In Aotearoa New Zealand this harm disproportionately affects Māori and young people.[39]
- A concern is that vested cannabis industry interests, like ‘big tobacco’ and ‘big alcohol’, will dominate the market with high-profit models, leading inevitably to harm.[3,4]
- Researchers argue that modelling cannabis regulation on alcohol policy (rather than on stricter tobacco policy) is unlikely to reduce cannabis-related harm.[30]
- An emerging cannabis industry is likely to follow the example of alcohol industry by:[30]

- marketing cannabis as an ‘ordinary commodity’
- opposing a cannabis tax and minimum pricing
- encouraging the public taxpayer to pay for health and social issues created by problem cannabis use
- supporting the message of ‘consuming responsibly’, which shifts the blame from industry to individuals
- opposing education campaigns that give public health prevention messages.

Potential health, social and economic benefits of legalisation

Reported benefits after legalisation have centred on harm reduction through health measures such as: improved cannabis quality, potency and control of supply; increased access to treatment services; redirection of justice spend toward interventions; and preventative education.[2] Decreasing the power of an illegal market could potentially create economic opportunities for small business, while moving away from treating small-scale, recreational users as criminals should positively impact on social justice.

Specific potential benefits are that:

- small-scale growers could participate in the mainstream economy and contribute to local community development[10]
- resource would be freed up from convictions for petty crime (and the follow-on costs through the justice system) to apply to more serious criminal activity
- legalisation would weaken organised crime by removing its opportunity for profit[40]
- revenue from taxes and levies could fund cannabis education, research, prevention and treatment programmes
- cannabis users would experience less stigmatisation and discrimination
- people would be less likely to use more dangerous drugs such as synthetic cannabinoids.[41]

2. Impacts on babies, children and young people

The CYMRC is required to consider impacts on the mortality and morbidity of the children and young people of Aotearoa New Zealand aged between 28 days and up to their 25th birthday.[42] This focus makes recreational cannabis use and its multiple and diverse effects on young people an important topic to us. The New Zealand Youth’12 survey reported a decrease in tobacco, alcohol and other drug use across time in a large secondary school population. On cannabis in particular, it found:

- 23 percent of students have used it at least once in their lives
- 13 percent currently use it
- 3 percent use it at least weekly
- 21 percent of students who have ever used marijuana use it before or during school.[55]

This section draws on current knowledge and thinking to describe influences on young people’s cannabis use and the impact of that use, as well as how cannabis use affects unborn babies.

Social and cultural influences on youth drug culture

New Zealanders are among the highest cannabis users in the world.[41] Arguably, babies, children and young people grow up in an environment where cannabis use is common and somewhat normalised. Young users of cannabis are among the groups who are most vulnerable to its long-term negative neurological effects. However, research suggests they are largely unaware of these potential effects.

High rates of daily cannabis use are a significant issue for Australian youth with complex social difficulties who engage with addiction services.[43] In an Irish study of attitudes to and the perceived risk of cannabis use, teenagers aged 15–18 years believed that the risk to their mental and physical health was low (although not entirely risk-free). Furthermore, those who perceived the risk as low, such as teenage males and previous users, were more likely to consume cannabis in the future.[44] Findings were similar among Canadian young people: 'Canadian youth lack knowledge and have misconceptions about the effects of cannabis that contribute to favourable attitudes towards its use'.[15]

How recreational cannabis law and policy influence young people

> While the liberalisation of cannabis policy can have both collective and individual benefits … [a]dolescents and young adults are especially vulnerable to the consequences of cannabis use, in terms of both biological and social development … [P]olicies that involve the legalisation of recreational use of cannabis need to be accompanied by prevention efforts targeted towards young people.[45]

The full impact of cannabis liberalisation policy on young people remains unclear.[45] Population studies from the US and Canada, as well as studies across several countries, found that legalising recreational cannabis was associated with no or only a small increase in use by young people, and was possibly linked with starting use at a younger age.[45,46,47] However, it appeared that recreational cannabis use did increase among youth before Canada's 2018 change in legislation, possibly because it became more socially acceptable.

In research comparing youth behaviour in three different countries, cannabis use in the US and Canada, which have more permissive cannabis policies, was higher than in England.[48] Of particular note is the finding that weekly cannabis use by Aboriginal adolescents rose in the period before legalisation in Canada, combined with the evidence that this group, especially males, were already more likely to start younger and use more than their white peers.[49] In South Africa, one review described significant negative consequences of legalisation, with poor communities, children and youth carrying the brunt of the harm.[50]

Research has also shown that in places that have legalised recreational cannabis use, social media platforms such as Instagram have exposed young people to cannabis marketing, even though such marketing was prohibited. Advertising resulted in higher rates of recent cannabis use among those aged 15–19 years in four US states.[51]

These examples highlight the importance of informing young people, families, communities, policy-makers and government of the potential health and social harms to young people that may result from recreational cannabis use both under the current system and through legal reform.[52] From a public health perspective, the Government has an ethical responsibility to develop law and policy that puts extra protections in place for its citizens by applying the precautionary principle that:

> … in the case of serious or irreversible threats to the health of humans or the ecosystem, acknowledged scientific uncertainty should not be used as a reason to postpone preventive measures.[53]

Broader influences on cannabis use

> Childhood maltreatment history (including sexual abuse, physical abuse, emotional abuse and neglect) has been described as [an] important predictor of cannabis problems among young adults (p 64).[54]

Recreational cannabis use in adolescents is influenced by events in their environment that they cannot influence individually.[43] A study has found that three types of childhood adversity increase adolescent use of cannabis: the experience of physical and sexual abuse increased the chance of adolescents using cannabis in any way, while physical and sexual abuse, as well as witnessing violence, were all associated with marijuana abuse and dependence.[54]

Broad-scale stressors on children, families and whānau, such as colonisation and poverty, also have lifelong negative effects, including through substance abuse. Relationships between socio-political determinants such as historical and enduring racism and poverty are difficult to establish and are seen as more indirect, but that makes them no less important to examine.[56] Because of the Crown's obligations under Te Tiriti o Waitangi to Māori, it is a constitutional requirement for research and policy-making to address structural inequities for Māori as tangata whenua, which in turn are likely to impact on 'downstream' factors such as cannabis use in children and young people. This link is especially evident from the results of the 2007/08 New Zealand Alcohol and Drug Use Survey, which showed that Māori adolescents were more likely to try cannabis and were twice as likely to try it before the age of 14 years than their non-Māori peers.[57]

Recommendations in *Te Mauri The Life Force: Rangatahi Suicide Report* included that government policy give immediate attention to broader determinants of Māori youth health such as 'poverty, alcohol, racism, housing and unemployment' and work 'to influence the wider system to take a stricter regulatory approach to the sale and supply of alcohol' (p 43).[58] These recommendations should arguably apply to policy on recreational cannabis if it was legalised in Aotearoa New Zealand.

Crucial time for brain and behaviour development

The evidence on cannabis-related harm to brain development in the early life stages is mixed. Authors of one high-quality review in 2018 stated that '… previous studies of cannabis in youth may have overstated the magnitude and persistence of cognitive deficits associated with use' (p 585).[12] Yet it is prudent to consider this subject with the utmost caution given that some evidence indicates that cannabis use does affect brain development and function early in life, from unborn babies through to young adults.

Moreover, American evidence suggests that cannabis potency has tripled since 1995,[23] as liberalisation has failed to adequately regulate it.[2] High-potency THC particularly threatens outcomes for babies, children and young people because it can affect brain development. Adolescents with chronic and severe depression have a greater chance of developing cannabis-use disorder, which suggests it is important to provide interventions and cannabis use prevention strategies for this group.[61]

It is also worth noting that evidence suggests that cannabis and alcohol affect adolescents' brains differently from the brains of adults, and it is important not to judge the use of one substance as necessarily 'better' than use of another.[59,60]

Psychiatric opinion about the effects of adults' substance abuse on their children's development suggests that it has multiple negative effects on physical, intellectual, school and social development.[17] Globally, the percentage of children who have at least one parent or caregiver with a substance use disorder varies from 4.6 percent (Sweden) to 12.3 percent (US). The impact of this disorder on the child depends on their developmental stage. Cannabis-use disorder in adults is associated with decreased positive parenting and increased use of cannabis by their teenage children:

> … results from randomized controlled trials of interventions for this population [adults with cannabis-use disorders] indicate that those that focus on improving parenting practices and family functioning might be effective in reducing negative consequences in affected children (p 365).[17]

On balance, the general consensus is that the approach to cannabis use should be protective and preventive for young New Zealanders. If cannabis use is inevitable for young people, the later an individual can start it beyond adolescence, the better.[10]

Relationship between young people's behaviour and cannabis use

Two common public opinions are that: cannabis acts as a gateway to harder drugs including methamphetamine and opioids; and people often use legal substances such as alcohol and tobacco before using marijuana. The research literature provides evidence against these assumptions. For example, 'street-involved' youth in North America who used cannabis start using injectable drugs than others.[22] In addition, historical trends indicate that US adolescents who also use other drugs have increasingly used cannabis as their first substance and that among adolescents the rate of cannabis users is growing while the rate of smokers is declining.[22]

Suicide and suicidality among young people of Aotearoa New Zealand remains extremely concerning: our youth rate is the highest of all Organisation for Economic Co-operation and Development countries (double that of Australia) and rangatahi Māori are disproportionately affected, with the rate of suicide as a cause of death about 2.8 times higher than the non-Māori, non-Pacific rate.[58,62] While more data is available on the links between alcohol and youth suicide, in 2016 the Suicide Mortality Review Committee reported that cannabis was present in 10 percent of rangatahi Māori at their time of death but that, 'due to the high level of missing or unknown data, these statistics on alcohol and other drugs are likely to be significant undercounts' (p 65).[63] There is a strong argument in favour of more kaupapa Māori research into cannabis use among rangatahi Māori and non-Māori youth.

The issue of youth who drive under the influence of cannabis and youth who ride with them is a worldwide concern.[64] Although questions remain about the accuracy of interpreting positive THC levels through 'roadside testing',[13] there is clearly a need for surveillance of youth drivers, given the established link between THC impairment and teen driving crash statistics.[65] Where recreational cannabis use was legalised for adults, research about the effects of reform on youth driving has produced mixed results and the need for more research in this area is urgent.[47]

The recent increase in vaping is another concern in terms of how it relates to cannabis use. Although research in this area is currently limited, studies have observed a trend toward using cannabis in e-cigarettes. One US study found 'state-level [recreational cannabis] policies were potential risk factors for using cannabis in e-cigarette devices among youth' (p 3).[52] Another suggested that communities concerned about marijuana use among young people should consider the phenomena of tobacco, cannabis and e-vaporisers together in both research and policy.[66]

Pregnant women, their babies and cannabis

> Above all, care for pregnant women who use cannabis should be non-punitive and grounded in respect for patient autonomy (p 48).[67]

Cannabis reaches unborn babies across the placenta and through breastmilk and has been shown to have harmful effects on them. It is still unclear whether such use has negative health effects on pregnant women themselves.[23,24] Pregnant women who use cannabis (estimated as 3–30 percent of all pregnant women)[13] do so for both recreational and medicinal purposes. Babies may also be exposed to the drug when women are unaware they are pregnant, particularly in the first trimester.[23] Cannabis use during pregnancy is associated with low birthweight and increased admission to neonatal intensive care units.[23] To date, it has only suggested links to negative effects on brain development and function, although evidence for altered brain function appears to be increasing.[24,25, 67]

Researchers assert that whether or not cannabis is legal, all education and policy that affect pregnant women should be non-punitive, taking into account the heavy psychosocial penalties of criminalising mothers through child abuse and child protection law.[67] Any system should acknowledge that policy may influence cannabis-use patterns and recommend stopping all recreational drug-taking during pregnancy, where possible.[67] Research is needed to establish whether use patterns change for women following legalisation.[23]

3. Regulatory systems in other countries

Global liberalisation of recreational and medicinal cannabis has prompted countries to respond in a variety of ways through legal and policy reform. Two major models have emerged worldwide:

- a commercial regulatory model, which Canada and some of the US states follow, with some variations between them
- a state monopoly for regulation of all cannabis products, with no private for-profit market, such as in Uruguay.[41]

We know that a society's rules about drug decriminalisation, legalisation and regulation strongly influence the health and social outcomes of its citizens and their effects should be extensively reviewed when developing law and policy.[3] Knowledge in this area is limited, however, as global experts noted in the medical journal *The Lancet* in 2019, 'True public health effects of cannabis legalisation cannot yet be assessed … [and] the effect of legalising cannabis sales on use of alcohol, tobacco, opioids, and other drugs remains unknown' (p 1580).[2] With this limitation in mind, below we present some research findings from a range of countries that differ in their regulatory model for cannabis.

US states: 33 states had some form of legalised cannabis for adults aged over 21 by 2018[68]

Population-based data suggests that after cannabis legalisation:

- adult use (recreational and/or medicinal) and cannabis-use disorders both increased[36, 69]
- emergency department visits and fatal car crashes due to cannabis increased [13, 68,69]
- hospital admissions for motor vehicle accidents, alcohol abuse and overdose injuries increased[37]
- exposure of unborn babies and unintentional exposure of children increased[69]
- cannabis potency increased.[37]

Some evidence also shows that adolescent use increased slightly with legalisation of recreational (but not medicinal) cannabis.[45]

Canada: legalisation of cannabis for recreational use by adults aged over 19 in 2018

- Adult use (among males and those aged over 25 years) began to increase in the pre-legalisation period in 2018 and continued in 2019.[70]
- Findings on use among young people were mixed. One study found early indications that use did not increase in this age group.[47] Another showed that around the time of legalisation male youth started using cannabis at a younger age, females students used it more heavily, and black and Aboriginal students were more likely to use it weekly.[49]
- One study suggested that cannabis drug-driving behaviour did not significantly change.[70]
- The Canadian Psychiatric Association recommended restricting access to cannabis to those aged over 21 years and placing restrictions on quantity and THC potency for young adults aged between 21 and 25 years.[20]

South Africa: legalisation of recreational cannabis in 2018

- One literature review was particularly concerned about negative consequences for poor communities, children and young people. It did not give specific data or outcome details.[50]

Uruguay: first legal regulation of cannabis from 'seed to smoke' in 2013

- Uruguay's regulatory model is a state monopoly (rather than private commercialised business). Government-registered adults aged over 18 years can grow six plants at home, join cannabis social clubs or buy up to 40 grams from pharmacies.[71]
- Reported benefits included that this system prevents corporate and for-profit cannabis interests from operating and so also avoids their likely harm, particularly for youth and vulnerable groups.[41]

Portugal: decriminalisation of all personal drug use in 2001

- Portugal's drug policy focused on harm reduction, with an initial aim of reducing the spread of HIV/AIDS through intravenous drug use.
- Drug use did not increase in the general population.[21]
- Drug use among those aged 15–19 years decreased.[21]

Swedish drug policy: prohibition of all but limited medicinal cannabis use

- The Swedish Government and public consensus support a drug-free society through prohibition.[72,73]

- While cannabis is still the most commonly used illicit drug in Sweden, its use is among the lowest in Europe.[74]
- The national strategy on alcohol, drugs, doping and tobacco aims for harm minimisation and health equity, as well as focusing on prevention of drug use.[72]

4. Evidence gaps

Our review of knowledge about recreational cannabis use, including impacts of law and policy reform, showed that the global evidence base is limited, raising many more questions than it answers. Reports repeatedly described significant gaps in research and understanding at political, structural, systems and individual levels. More research is especially required to monitor and evaluate the effects of law and policy change on indigenous peoples, babies, children and young people, and people suffering disadvantage or distress due to poor mental health and drug dependence. Existing findings fail to describe in detail the relationship between cannabis use by these groups and structural determinants such as colonisation, poverty and housing. Likewise they provide little information on the effects of historical trauma, discrimination, social exclusion and family violence on cannabis use.

It is important to fill knowledge gaps, whether Aotearoa New Zealand goes ahead with recreational cannabis reform or stays with the current system. In particular, we need more evidence on:

- details of Crown plans to fulfil its obligations under Te Tiriti o Waitangi, reflected in law, policy and the regulatory system
- the likely impacts of legalisation on inequitable justice outcomes and the education sector
- details on monitoring and evaluation that would occur following reform, including whether regulation in this area would be written into the law
- the engagement plan for populations who are most heavily impacted by the current and proposed systems and how these populations would contribute to the design of law and policy[75]
- cannabis-related outcomes for indigenous youth – indigenous literature generally is limited on this subject
- the human rights implications of mandatory drug-testing in the workplace and for drivers, which is notoriously unreliable.

Common questions emerged from the literature, media and organisations with an interest in recreational cannabis reform. For answers to these questions, see Part three.

Conclusion

> The cultural, legal and political environment in which legal cannabis markets are developed is key.[3]

The upcoming referendum provides the opportunity for the voting people of Aotearoa New Zealand to think critically about the health and socioeconomic influences on cannabis-related harm, and how reform of cannabis law, regulation and control might make a difference. One question is whether the changes could lead to mana-enhancing experiences

that reduce cannabis-related harm through opportunities for equal access to, and treatment by, legal and health systems and structures.

The response to the cannabis referendum should centre on equity for Māori. More broadly, the citizens of Aotearoa New Zealand should expect that the Crown will honour the articles of Te Tiriti o Waitangi.[76] Māori, although they are tangata whenua and taonga of Aotearoa New Zealand, are more likely to experience the negative health, justice and social effects of both the current system (cannabis prohibition) and any future reformed cannabis system.[4] It is essential that Māori are engaged with the referendum, including through redesigning any potential law and policy, to prioritise their wellbeing by promoting:

- mana motuhake – autonomy, self-determination, sovereignty over one's own destiny
- mana tangata – intrinsic social and cultural dignity; a human right based on the spiritual view that inherited and gifted power comes from Atua God
- hauora Māori – wellbeing.[33]

A cautious approach to law change in the first instance may involve aligning strict legal and market regulations with those for the tobacco industry, rather than the alcohol industry. While legalisation of recreational cannabis use may offer potential public health benefits, babies, children and young people are more vulnerable to its negative effects. Therefore, even if the referendum results in a 'no' vote, it remains urgent to address the negative effects of recreational cannabis use these groups experience in relation to health, education, employment, transport and justice, within the existing system. If the result is a 'yes' vote, it should bring with it a collective societal will to target prevention efforts toward youth by decreasing exposure of young people to cannabis use and, for those who decide not to abstain, delaying their first use for as long as possible.

The Child and Youth Mortality Review Committee advocates for ongoing active inquiry and system improvement through youth-focused policy, no matter what the outcome of the 2020 recreational cannabis referendum is.

Part 3: Frequently asked questions

This part answers common questions that emerged from the literature, media and organisations with an interest in recreational cannabis reform.

What happens after the referendum if more than 50 percent vote 'yes'?

- Legalisation of recreational cannabis would not occur immediately.
- The incoming Government would introduce a further Bill for legalisation of recreational cannabis.
- A 'window of development' would follow, when the public would be able to 'share their thoughts and ideas on how the law might work'.[3]

How can the public make an informed decision about the referendum when they don't know details of the regulatory system and its impacts?

- The Ministry of Justice has produced resources explaining the issues to support voters with their decision-making and made them available on 1 May 2020 on the government website: www.referendum.govt.nz.
- Ministry of Justice resources include:
  - the draft exposure Bill,[5] setting out the regulatory regime
  - a guide-to the Bill, helping voters to interpret the legislation
  - a brief summary information sheet about the Bill
  - a brief plain-language summary of the key aspects of the Bill
  - a 'questions and answers' paper about the draft Bill.

What could a legalised and regulated cannabis system look like in Aotearoa New Zealand?

- One central authority would issue licences to sell retail cannabis.
- Territorial authorities would have the option of prohibiting retail outlets in certain areas. While some local alcohol policies have proved problematic and may have worsened inequity for Māori, they are considered important for community-led responses.
- People could use cannabis at home or licensed events only. The law would not allow for 'cannabis cafes'.
- Cannabis retail would operate separately from alcohol retail until more evidence is available about the effects of consuming both cannabis and alcohol together.
- New Zealand Drug Foundation (NZDF) recommends that the regulatory system:
  - requires child-proof packing, controls portion size, and includes messaging on harm minimisation and potency
  - sets a maximum potency level for raw cannabis (with higher potency concentrates kept behind the counter)
  - requires products to be guaranteed free from pesticides, moulds and fungicides
  - aligns rules with current alcohol laws to avoid confusion
  - sets minimum pricing based on THC content
  - bans advertising, including industry sponsorship, as the Government proposes

– allows for limited marketing at cannabis retail outlets to give customers information on products and health issues.

What are the main areas for debate in the proposed regulatory system?

The following issues involve choices that can be in conflict with each other. It would be necessary to find an appropriate balance between them in a new regulatory system.

Who to license for growing

- The issue: Should the system license many small-scale growers (limit maximum plot size) or a few large-scale growers?
- NZDF recommendations:[10] To redress the harms caused by criminalising recreational use, the new system should actively promote economic opportunities among the communities most damaged by prohibition. Hubs and cooperatives could be set up to deal with product testing, packaging and wholesaling.

Growing for personal use

- The issue: Should the system allow people to grow product for personal use and 'social sharing' (sharing with friends without selling)? If cannabis use is legalised, it will be impossible to justify penalising people for growing at home. As legal products, alcohol and tobacco have virtually no black-market issues.
- NZDF recommendations:[10] Allow home growing for personal use but make it illegal to sell it and carry a penalty for doing so (involving a civil rather than criminal charge).

Private commercialisation or government control

- The issue: The system should prioritise public health goals (for example, reducing cannabis-related harm; minimising and delaying first use; using taxes and levies from the industry to fund health) over profit motives (for example, strategies to maximise consumption, minimise health-focused regulations and use taxpayers' money to fund drug-related health spending).
- NZDF recommendations:[10] Tightly restrict the market to regulate what, when, where and to whom cannabis products can be sold, including what information must be provided with cannabis sales. Prohibit sponsorship and advertising. Keep as much of the supply chain as possible in the non-profit and governmental sector. Create systems to support small-scale community development.

Other cannabis products (edibles, concentrates, high-potency products)

- Issue: Should alternatives to smoking be allowed or restricted? Making alternative products available may encourage young users. People may also be more likely to over-consume these products because they are slower to take effect.
- NZDF recommendations: Because New Zealand does not have much of a black market for edibles, keep the range of products to an absolute minimum to reduce the chance of people trying products that they otherwise wouldn't. Retail outlets should store concentrates out of sight. All products should carry harm-related messaging and information on potency and dosage.

Licensed retail outlets: community-led vs control by central government

- The issue: Depending on the licensing arrangements, communities could potentially lose influence to government and for-profit market forces (as they have with the alcohol and tobacco industries).

- NZDF recommendations:[10] Ideally, legislation and centralised governance should support local council jurisdiction. A central authority would issue licences based on legislated rules. Councils could prohibit retail outlets in certain areas, where people could instead buy cannabis online. Admittedly, this model appears to have been poorly implemented with respect to alcohol, potentially leaving the industry with more power and influence than communities and individuals.

Physical or online retail outlets

- The issue: Should sales occur through licensed physical stores only, or centralised online and remote sales? Online sales could increase access, encourage economic development, and provide a way to track and monitor sales, as well as to educate buyers. The Government is not currently considering centralised, online sales.
- NZDF recommendations:[10] Online sales would allow full access to the legal market for both producers and consumers and should be encouraged. To check the age of the buyer, the Government could use 'RealMe' when they buy the product and registered couriers when they receive the delivery.

Setting the purchase age

- The issue: Good arguments have supported setting the purchase age at 18, 20 or 25 years. The Government has suggested 20 years (compared with 21 in the US and 19 in Canada). A high minimum purchase age is based on concerns about the impact of use on brain development and recognising that many young people will start using cannabis before the minimum age. Some argue that setting the purchase age lower would allow young people to receive the public health protections from a legal, regulated market, and avoid criminalising, penalising or stigmatising them.
- NZDF recommendations:[10] Raise the minimum legal drinking age back up to 20 years so that it is in line with the cannabis purchase age. Avoid punitive approaches with under-age youth who break the law, but heavily penalise retailers who sell to under-age people (fine, loss of licence) and ensure enforcement.

Consumption spaces

- The issue: By restricting access, it would be possible to avoid both normalising cannabis use and promoting alcohol use at the same time. On the other hand, creating more spaces to use cannabis may keep young people 'on the side of the law' and enhance equity.
- NZDF recommendations:[10] Using the precautionary principle, limit consumption to private spaces and licensed premises. Do not criminalise public users who break the law. Using cannabis at the retail outlet could be acceptable but avoid 'cannabis cafes' that may encourage and normalise drug use.

Cannabis pricing and taxing

- The issue: Pricing too high encourages black market production, whereas pricing too low may encourage consumption. However, lower pricing may lead some to choose regulated cannabis over more dangerous, unregulated alternatives such as methamphetamine, synthetic cannabinoids and opioids.
- Some recommend minimum unit pricing (MUP) or direct price-fixing to prevent commercial manipulation of pricing for profit. Modelling for alcohol MUP suggested that it would reduce consumption and related harm, especially for the heaviest drinkers.[15]

What happens if you break the law?

One of the principles of the proposed reform is to turn the system away from harsh and punitive punishments. The focus of 'serious' offences should be on supply of cannabis to minors (similar to alcohol regulations), with large fines and the power to revoke licences. Minimum civil (rather than criminal) penalties should apply to infringements based on personal possession, social supply and home cultivation. Harsh criminal penalties should be avoided if they would disproportionately affect youth, Māori or people with multiple disadvantage. For example, Canada has set a maximum 14-year prison sentence for cannabis supply to youth, which could affect a 19-year old social-supplying their 18-year-old friend. NZDF recommends avoiding this situation at all costs.

What trends might we expect with cannabis law change?

- Recreational use among adults is likely to increase because, for example, it would be more socially acceptable, more available and affordable[30] and seen as less harmful.[45]
- Research shows either no or a small increase in use by young people after legalisation of recreational use.[45, 49,77]
- One study suggests patterns of use may change from more serious class A drugs to cannabis, which some argue is a harm minimisation strategy.[13]
- Cannabis legalisation can increase cannabis-related harm, which has occurred in other countries.[5, 37]
- THC potency in regulated cannabis products has increased in the US since recreational legalisation. This may increase adverse health effects.[30, 38]

What areas is there general agreement on?

- Any reform should take a precautionary approach.
- A new recreational cannabis model for legalisation and regulation should not follow the usual Western model of alcohol legalisation and regulation.
- The Crown's obligations under Te Tiriti o Waitangi, including details of how it will enact those obligations, must be a central part of any recreational model.

If the referendum result is 'no', how does the Crown propose to address the inequities that have resulted from the current system of cannabis prohibition?

- The current system must address the effects on youth and other vulnerable populations as a priority.
- Policy should be consistent with recommendations from *He Ara Oranga*, the report of the Government Inquiry into Mental Health and Addiction. It should discourage cannabis use, avoid criminalising recreational users, centralise equity and treat cannabis-related harm as a health issue.[78]
- Policy should eliminate the adverse effects of prohibition while avoiding the possible adverse and unintended consequences of full legalisation (where possible).

On what topics is the evidence mixed, debated or controversial?

- Research has produced mixed evidence on whether adolescents use more cannabis after legalisation of recreational cannabis use.[45, 49, 77] Where they do, studies indicate the increase is small.
- Evidence on the effects of overseas legalisation on road safety is mixed and limited. For example, Colorado, Nevada, Oregon and Washington showed a link between legalisation of cannabis and an increase in road traffic accidents, but other places have not. No matter whether legalisation occurs in Aotearoa New Zealand, it is urgent that we address the public health issue of drug-driving. (Roadside impairment testing and public education campaigns are already under way, although presently they are unreliable as either preventative or intervention measures.)
- While it acknowledges that cannabis use is **not** harmless, particularly for Māori, youth and heavy users, the longitudinal Christchurch Health and Development Study provides evidence that prohibition of cannabis also causes harm.[21]

What equity, health, justice and economic benefits (personal and social) could legalisation bring?

- Improved justice for Māori: Māori drug convictions could fall by as many as 1,300 per year and fewer people could be 'trapped in endless cycles of reconviction' (p 11).[9]
- Māori could expect:[9]
  - better treatment rates (currently, they experience a disproportionately high rate of poor health outcomes)
  - to participate in designing the regulated cannabis market and to be part of that market, with accompanying financial benefits.
- The influence of organised crime would be weaker because illegal business would no longer be profitable.[40]
- There is some consensus that the regulation of THC levels, minimum purchase age, and access could minimise harm.
- One argument is that legalisation could have economic benefits if investment in health promotion occurred at the same time.[41] However, a contrasting view comes from an analysis of net social benefit that showed no difference in economic benefit between the current system and legalisation.[79]
- The Treasury (2016) projected an extra $150 million per year in tax revenue and savings of $400 million on drug prohibition enforcement per year.[81]
- Funds from cannabis taxes and levies could go towards prevention and education, harm reduction and treatment options for all drugs (particularly community and whānau-based services). They should also be used to research, monitor and evaluate the effects of the new law.
- Small-scale growers who are currently operating illegally could become part of the mainstream economy.
- Local economies, especially rural ones, could develop and grow.
- Centralised government could oversee supplier and product regulation (including online sales), ideally through a non-profit provider contract.

What equity, health, justice and economic harms (personal and social) could legalisation bring?

- Setting an appropriate price is important and needs to balance different concerns. Various mechanisms are available to achieve a suitable balance.
- Drug-driving would continue to be a concern (as it is currently).
- If the industry increases the range of cannabis products available, use of higher-potency products would probably increase. Young people in particular may be attracted by e-cigarettes and edibles such as gummy bears.[13]
- Colorado experienced an increase in cannabis-related hospitalisations, including poisoning (also due to unintentional exposure to children) after 2008. (It legalised medicinal cannabis in 2000 and recreational use in 2012.)
- Any increased cannabis use by young people may be associated with misuse of and dependence on alcohol, tobacco and illicit drugs, particularly when they start using cannabis in adolescence.[5,13]
- Cannabis is the most common and increasingly used illicit drug during pregnancy. Some pregnant women use it to relieve nausea and vomiting.[13] It is not known whether legalisation changes pregnant women's pattern of cannabis use.
- Already vulnerable groups, such as people with existing mental illness and suicidality, could potentially experience more harm.

References

[1] www.referendum.govt.nz/cannabis/index.html

[2] Hall W, et al. 2019. Public health implications of legalising the production and sale of cannabis for medicinal and recreational use. *Lancet* 394(10208): 1580–90. DOI: doi.org/10.1016/S0140-6736(19)31789-1.

[3] Rolles S, Murkin G. 2016. The commercial focus of US cannabis regulation models should not close our eyes to other options. *Addiction* 111(12): 2092–4. DOI: 10.1111/add.13383.2092–4.

[4] Te Uepū Hāpai i te Ora – Safe and Effective Justice Advisory Group. 2019. *Turuki! Turuki! Move together! Transforming our criminal justice system*. Wellington: Hāpai i te Ora – Safe and Effective Justice Advisory Group. URL: www.safeandeffectivejustice.govt.nz/assets/Uploads/28ce04fd87/Turuki-Turuki-Report-Interactive.pdf.

[5] Cannabis Legalisation and Control Bill 2019 (NZ) Consultation Draft. URL: www.referendums.govt.nz/materials/Cannabis-Legalisation-and-Control-Bill.pdf

[6] Ministry of Justice. 2019. Summary of current policy positions. In Proactive release – 2020 cannabis referendum material for public release. URL: www.justice.govt.nz/assets/Documents/Publications/2020-Cannabis-Referendum-Public-Release-April.pdf.

[7] Office of the Minister of Justice. 2019. *Proactive release – Cabinet Paper: Provision of Public Information for the 2020 Referendums.* Wellington. URL: www.referendums.govt.nz/materials/Provision-of-Public-Information-for-the-2020-Referendums.pdf.

[8] Personal communication (email) with Policy Manager – Cannabis, Ministry of Justice on 17 April 2020.

[9] New Zealand Drug Foundation. 2017. Whakawātea te Huarahi: A model drug law to 2020 and beyond. Wellington: New Zealand Drug Foundation. URL: www.drugfoundation.org.nz/assets/uploads/Whakawatea-te-Huarahi-July2017.pdf.

[10] New Zealand Drug Foundation. 2020. Taking Control of cannabis: a model for responsible regulation. URL: www.drugfoundation.org.nz/assets/uploads/2019-uploads/Taking-control-of-Cannabis.pdf (accessed 18 February 2020).

[11] Boden J, Fergusson D. 2019. Cannabis law and cannabis-related harm. *NZMJ* 132(1488). URL: www.nzma.org.nz/journal-articles/cannabis-law-and-cannabis-related-harm.

[12] Cobb Scott J, et al. 2018. *Association of* cannabis with cognitive functioning in adolescents and young adults. a systematic review and meta-analys*is. JAMA Psychiatry* 75(6): 585–95. URL: https://jamanetwork.com/journals/jamapsychiatry/fullarticle/2678214.

[13] Windle S, et al. 2019. Potential harms from legalization of recreational cannabis use in Canada. *Canadian Journal of Public Health* 110(2): 222–6. DOI: 10.17269/s41997-018-00173-1.

[14] Meier M, et al. 2012. Persistent cannabis users show neuropsychological decline from childhood to midlife. *Proceedings of the National Academy of Sciences* 109(40): e2657–65. DOI www.pnas.org/cgi/doi/10.1073/pnas.1206820109.

[15] George T, Vaccarino F (eds). 2015. *Substance abuse in Canada: The effects of cannabis use during adolescence.* Ottawa, ON: Canadian Centre on Substance Abuse. URL: https://ccsa.ca/effects-cannabis-use-during-adolescence-report.

[16] World Health Organization. 2016. *The Health and Social Effects of Nonmedical Cannabis Use.* Geneva: World Health Organization. URL: https://www.who.int/substance_abuse/publications/msbcannabis.pdf (accessed 10 March 2020).

[17] Straussner S, Fewell C. 2018. A review of recent literature on the impact of parental substance use disorders on children and the provision of effective services. *Curr Opin Psychiatry* 31(4): 353–67. DOI: 10.1097/YCO.0000000000000421.

[18] Gobbi G, et al. 2019. Association of cannabis use in adolescence and risk of depression, anxiety, and suicidality in young adulthood. a systematic review and meta-analysis. *JAMA Psychiatry* 76(4): 426–34. DOI: 10.1001/jamapsychiatry.2018.4500.

[19] Cohen K, Weizman A, Weinstein A. 2019. Positive and negative effects of cannabis and cannabinoids on health. *Clinical Pharmacology & Therapeutics* 105(5): 1139–47. DOI: 0(0). DOI:10.1002/cpt.1381.

[20] Tibbo P, et al. 2017. *Implications of Cannabis Legalization on Youth and Young Adults.* Canadian Psychiatric Association Position Statement. URL: www.cpa-apc.org.

[21] Greenwald G. 2009. *Drug Decriminalization in Portugal: Lessons for Creating Fair and Successful Drug Policies.* Washington, DC: Cato Institute. URL: https://norml.org.nz/downloads/Greenwald_Drug_Decrim_In_Portugal_Apr09.pdf.

[22] Reddon H, et al. 2017. Cannabis use is associated with lower rates of initiation of injection drug use among street-involved youth: a longitudinal analysis. *Drug Alcohol Review* 37(3): 421–8. DOI428. DOI: 10.1111/dar.12667.

[23] Singh S, et al. 2020. Prevalence and outcomes of prenatal recreational cannabis use in high-income countries: a scoping review. *BJOG* 127(1): 8–16.

[24] Sharapova S, et al. 2018. Effects of prenatal marijuana exposure on neuropsychological outcomes in children aged 1–11 years: a systematic review. *Paediatr Perinat Epidemiol* 32(6): 512–32. DOI: 10.1111/ppe.12505.

[25] Pinky P, et al. 2019. Prenatal cannabinoid exposure and altered neurotransmission. *Neuropharmacology* 149: 181–94. DOI: doi.org/10.1016/j.neuropharm.2019.02.018.

[26] Sokol N, et al. 2018. Maternal cannabis use during a child's lifetime associated with earlier initiation. *Am J Prev Med* 55(5): 592–602.

[27] Law Commission. 2011. *Controlling and Regulating Drugs: A review of the Misuse of Drugs Act 1975.* Wellington: Law Commission. URL: www.lawcom.govt.nz/sites/default/files/projectAvailableFormats/NZLC%20R122.pdf.

[28] Cerda M, et al. 2016. Persistent cannabis dependence and alcohol dependence represent risks for midlife economic and social problems: a longitudinal cohort study. *Clinical Psychological Science* 4(6): 1028–46. DOI: 10.1177/2167702616630958.

[29] Memedovich K, et al. 2018. The adverse health effects and harms related to marijuana use: an overview review. *CMAJ Open* 6(3). DOI: 10.9778/cmajo.20180023.

[30] Hall W. 2016. *Alcohol and cannabis: comparing their adverse health effects and regulatory regimes. International Journal of Drug Policy.* DOI: 10.1016/j.drugpo.2016.10.021.

[31] McDonald J. 2019. Lessons from the Canadian cannabis legalisation experience [online]. *Matters of Substance* 30(3): 26–27.

[32] Yucel M, et al. 2016. Hippocampal harms, protection and recovery following regular cannabis use. *Transl Psychiatry* 6: e710. DOI: 10.1038/tp.2015.201.

[33] Hāpai Te Hauora. 2019. *Call to Action. Transforming Māori outcomes through regulating cannabis.* URL: www.drugfoundation.org.nz/assets/uploads/2019-uploads/Kaupapa-Maori-statement-FINAL-with-signatures.pdf (accessed 19 February 2019).

[34] Webb-Liddall A. 2019. Drug law reform: balancing justice's racist scales [online]. *Matters of Substance* 30(3): 6–13.

[35] Walker K. 2019. *Issues of Tobacco, Alcohol and Other Substance Abuse for Māori.* Wai 2575, #B30. URL: https://forms.justice.govt.nz/search/Documents/WT/wt_DOC_155808738/Wai%202575%2C%20B030.pdf.

[36] Yates D, Speer J. 2018. Over and under-regulation in the Colorado Cannabis industry - A data-analytic perspective. *International Journal of Drug Policy* 59: 63–6. DOI: 66. 10.1016/j.drugpo.2018.06.001.

[37] Delling F, et al. 2019. Does cannabis legalisation change healthcare utilisation? A population-based study using the healthcare cost and utilisation project in Colorado, USA. *BMJ Open* 9: e027432. DOI: 1-/1136bmjopen-2018-027432.

[38] Webster, P. 2018. Debate over recreational cannabis use legalisation in Canada*. The Lancet* 391: 725–6.

[39] Ratu D. 2019. *Waitangi Tribunal Claim, Wai 2624. In the matter of The Sale and Supply of Alcohol Act 2012.* URL: https://forms.justice.govt.nz/search/Documents/WT/wt_DOC_148205985/Wai%202624%2C%202.5.003.pdf (accessed 11 March 2020).

[40] Global Commission on Drug Policy. 2018. *Regulation. The responsible control* of *drugs*. URL: www.globalcommissionondrugs.org/wp-content/uploads/2018/09/ENG-2018_Regulation_Report_WEB-FINAL.pdf (accessed 12 February 2020).

[41] Errington K, et al. 2020. *The case for YES in the 2020 referendum on cannabis.* The Helen Clark Foundation. URL: https://helenclark.foundation/wp-content/uploads/2019/09/the-case-for-yes-in-the-2020-cannabis-referendum.pdf.

[42] Child and Youth Mortality Review Committee Terms of Reference (February 2020). URL: www.hqsc.govt.nz/assets/CYMRC/CYMRC-TOR-Feb-2020.pdf.

[43] Reichelt A, et al. 2019. Assessing the impacts of daily cannabis versus alcohol and methamphetamines on young Australians in youth AOD treatment. *BMC Psychiatry* 19(416). DOI: 10.1186/s12888-019-2403-1.

[44] Barrett P, Bradley C. 2016. Attitudes and perceived risk of cannabis use in Irish adolescents. *Irish Journal of Medical Science* 185: 643–7.

[45] Melchior M, et al. 2019. Does liberalisation of cannabis policy influence levels of use in adolescents and young adults? A systematic review and meta-analysis. *BMJ Open* 9: 3025880. DOI: 10.1136/bmjopen-2018-025880.

[46] Yu B, et al. 2020. Marijuana legalization and historical trends in marijuana use among US residents aged 12-25: results from the 1979–2016 National Survey on drug use and health. *BMC Public Health* 20(156). DOI: 10.1186/s12889-020-8253-4.

[47] Rotermann M. 2020. What has changed since cannabis was legalized? *Health Reports* 31(2): 11–20.

[48] Wadsworth E, Hammond D. 2019. International differences in patterns of cannabis use among youth: prevalence, perceptions of harm, and driving under the influence in Canada, England & United States. *Addictive Behaviors* 90: 171–5.

[49] Zuckermann A, et al. 2019. Prelegalisation patterns and trends of cannabis use among Canadian youth: results from the COMPASS prospective cohort study. *BMJ Open* 9: e026515. DOI: 10.1136/bmjopen-2018-026515.

[50] Mokwena K. 2019. Social and public health implications of the legalisation of recreational cannabis: a literature review. *African Journal of Primary Health Care & Family Medicine* 11(1): a2136. DOI: 10.4102/phcfm.v11i1.2136.

[51] Whitehall J, et al. 2020. Exposure to cannabis marketing in social and traditional media and past-year use among adolescents in states with legal retail cannabis. *Journal of Adolescent Health* 66: 247–54.

[52] Nicksic N, Do E, Barnes A. 2020. Cannabis legalization, tobacco prevention policies, and cannabis use in e-cigarettes among youth. *Drug and Alcohol Dependence* 205(107730).

[53] World Health Organization. 2004. *The Precautionary Principle: Protecting public health, the environment and the future of our children.* Denmark: WHO Regional Office for Europe. URL: www.euro.who.int/__data/assets/pdf_file/0003/91173/E83079.pdf.

[54] Martinez-Mota L, et al. 2020. Influence of the type of childhood violence on cannabis abuse and dependence among adolescents: a systematic review and meta-analysis. *Addicciones* 32(1): 63–76.

[55] Clark T, et al. 2013. *Youth'12 Overview: The health and wellbeing of New Zealand secondary school students in 2012.* Auckland, New Zealand: The University of Auckland. URL: https://www.fmhs.auckland.ac.nz/assets/fmhs/faculty/ahrg/docs/2012-overview.pdf.

[56] Paradies Y, Harris R, Anderson I. 2008. *The Impact of Racism on Indigenous Health in Australia and Aotearoa: Towards a Research Agenda*. Discussion Paper No. 4. Darwin: Cooperative Research Centre for Aboriginal Health.

[57] Ministry of Health. 2010. *Drug Use in New Zealand: Key results of the 2007/08 New Zealand Alcohol and Drug Use Survey*. Wellington: Ministry of Health.

[58] Ngā Pou Arawhenua, Child and Youth Mortality Review Committee, Suicide Mortality Review Committee. 2020. *Te Mauri The Life Force: Rangatahi suicide report.* Wellington: Health Quality & Safety Commission.

[59] Aloi J, et al. 2018. Adolescents show differential dysfunctions related to alcohol and cannabis use disorder severity in emotion and executive attention neuro-circuitries. *NeuroImage: Clinical* 19: 782–92.

[60] Silins E, et al. 2015. Adolescent substance use and educational attainment: an integrative data analysis comparing cannabis and alcohol from three Australasian cohorts. *Drug and Alcohol Dependence* 156: 90–6.

[61] Rhew I, et al. 2017. Examination of cumulative effects of early adolescent depression on cannabis and alcohol use disorder in late adolescence in a community-based cohort. *Addiction* 112(11): 1952–60.

[62] Ministry of Justice. 2018. Annual provisional suicide statistics for deaths reported to the Coroner between 1 July 2007 and 30 June 2018. Wellington: Ministry of Justice. URL: https://coronialservices.justice.govt.nz/assets/Documents/Publications/2017-2018-Annual-Provisional-Suicide-Statistics-Final.pdf.

[63] Suicide Mortality Review Committee. 2016. *Ngā Rāhui Hau Kura: Suicide Mortality Review Committee Feasibility Study 2014–2015. Report to the Ministry of Health.* Wellington: Suicide Mortality Review Committee.

[64] Minaker L, et al. 2017. Under the influence: examination of prevalence and correlates of alcohol and marijuana consumption in relation to youth driving and passenger behaviours in Canada: a cross-sectional study. *CMAJ Open* 5(2). DOI: 10.9778/cmajo.20160168.

[65] Pressley J, Arora A, Sarmah R. 2019. Marijuana use in US teen drivers: a comparison of a road-side survey of reported use and fluid tests for tetrahydrocannabinol (THC). *Injury Epidemiology* 6, Suppl. 1(25).

[66] McDonald E, Popova L, Ling P. 2016. Traversing the triangulum: the intersection of tobacco, legalised marijuana and electronic vaporisers in Denver, Colorado. *Tobacco Control* 25: i96–i102.

[67] Mark K, Terplan M. 2017. Cannabis and pregnancy: maternal child health implications during a period of drug policy liberalization. Preventive Medicine 104: 46–49.

[68] Bhandari S, et al. 2018. Recent trends in cyclic vomiting syndrome-associated hospitalisations with liberalisation of cannabis use in the state of Colorado. *Internal Medicine Journal* 49(5): 649–55.

[69] Hasin D. 2018. *US* epidemiology *of* cannabis use *and* associated problems. *Neuropsychopharmacology Reviews* 43: 195–212. DOI: 10.1038/npp.2017.198.

[70] Rotermann M. 2019. Analysis of trends in the prevalence of cannabis use and related metrics in Canada. *Health Reports* 30(6): 3–13.

[71] von Hoffman J. 2016. The international dimension of drug policy reform in Uruguay. *International Journal of Drug Policy*. DOI: 10.1016/j.drugpo.2016.04.015.

[72] Ministry of Health and Social Affairs. 2014. *Swedish Drug Policy: A balanced policy based on health and human rights.* Stockholm: Ministry of Health and Social Affairs. URL: www.government.se/496f5b/contentassets/89b85401ed204484832fb1808cad6012/rk_21164_broschyr_narkotika_a4_en_3_tillg.pdf.

[73] Rabbe H-C. 2010. Legalisation doesn't work. *BMJ* 341(c6138). DOI: 10.1136/bmj.c6138.

[74] European Monitoring Centre for Drugs and Drug Addiction. 2012. Statistical bulletin 2010. URL: www.emcdda.europa.eu/stats10.

[75] Lancaster K, Ritter A, Stafford J. 2012. Public opinion and drug policy in Australia: engaging the 'affected community'. *Drug and Alcohol Review*. DOI: 10.1111/j.1465-3362.2012.00497.x.

[76] Health Quality & Safety Commission. 2019. *He matapihi kit e kounga o ngā manaakitanga ā-hauora o Aotearoa 2019. A window on the quality of Aotearoa New Zealand's health care*. Wellington: Health Quality & Safety Commission. URL: www.hqsc.govt.nz/our-programmes/health-quality-evaluation/publications-and-resources/publication/3721/.

[77] Schinke S, et al. 2017. Is the legalization of marijuana associated with its use by adolescents? *Subst Use Misuse* 52(2): 256–8. DOI: 10.1080/10826084.2016.1223139.

[78] Ministry of Health. 2018. *He Ara Oranga. Report of the Government Inquiry into Mental Health and Addiction.* Wellington: Ministry of Health. URL: https://mentalhealth.inquiry.govt.nz/assets/Summary-reports/He-Ara-Oranga.pdf.

[79] Shanahan M, Ritter A. 2014. Cost benefit analysis of two policy options for cannabis: status quo and legalisation. *PLoS ONE* 9(4): e95569.

[80] #Health Not Handcuffs. 2019. Latest polls are cause for concern. URL: www.healthnothandcuffs.nz/latest_polls_are_cause_for_concern (accessed 10 February 2020).

[81] Treasury analysis prepared on improving public sector spending, relating to drug law reform. URL: https://assets.documentcloud.org/documents/2995244/Bill-English-Cannabis-OIA.pdf.