Methamphetamine in New Zealand: What is currently known about the harm it causes?

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NEW ZEALAND POLICE
Ngā Pirihimana o Aotearoa

A cross-agency evidence-based view of the methamphetamine context in New Zealand, 2021

EVIDENCE — BASED — POLICING • CENTRE • • •

We would like to thank the agencies above as well as Associate Professor Rebecca McKetin (National Drug & Alcohol Research Centre, University of New South Wales, Australia), and New Zealand Drug Foundation for the feedback and literature provided to this report.

1. Findings presented in this stocktake of literature refer to specific periods of time as per release dates of reports and literature referred to in it. Thus, updated information should be sought by readers as needed.
2. The language used in this stocktake replicates the language used in the source reports and literature. In this sense, words such as 'likely' may have different meanings depending on whether the reference cited is research or intelligence based. Please see footnote 41 on page 58 for more information.
3. This report consolidates predominantly grey literature (supported where applicable by academic literature) from contributing agencies specifically on the harm caused by methamphetamine to communities in New Zealand. This report acknowledges but does not focus on a) social and economic determinants of methamphetamine use and harm such as socio-economic status and access to basic needs; and b) confounding factors affecting outcomes related to methamphetamine use such as other substance use. However, where appropriate, the report discusses limitations of findings considering these factors. Please see the Government Inquiry into Mental Health Addiction (2018) and Spooner & Hetherington (2004) for more information on determinants of drug use and addiction.

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Summary of findings methamphetamine harm in New Zealand

Purpose

This report summarises what is already evidenced about the harm methamphetamine causes to New Zealand communities from a combination of cross-agency grey literature and relevant academic literature. It is the first product published under the auspices of the Methamphetamine in New Zealand Research Programme.

Method

Methamphetamine in New Zealand Steering Group members were asked to provide relevant literature and reports from their agencies to the Evidence Based Policing Centre (EBPC) to inform a stocktake of existing evidence. In all, 279 documents were gathered by EBPC and the most relevant literature was summarised.

Conclusion

Methamphetamine is used in communities all over New Zealand; this drug can cause extreme harm to people who use it, their families, their whānau, and the community in which they live. These include (but are not restricted to) negative health effects to individuals using the drug, break-up of significant relationships, and crimes both under the influence of methamphetamine, or to sustain use. The documents reviewed suggest that more research is needed in the New Zealand context on the extent of the harm caused by methamphetamine in order to fully understand the magnitude of the issue.

Key insights

Harm caused to people

- Wastewater drug testing results estimate the amount of methamphetamine consumed nationally per week fluctuated between 11.3 and 16.9 kilograms between November 2018 and February 2020.[1] This represents a stable average consumption of 14.1 kilograms (standard deviation = 1.5 kilograms).
- Since testing began, methamphetamine has been detected in wastewater for every community tested during every day of the week in New Zealand. About 50% (range 41.1%–57.2%) of methamphetamine consumed nationally between November 2018 and February 2020 was consumed in the Auckland region, however, use per capita in Bay of Plenty, Eastern, and Northland generally ranks higher than in the Auckland region.
- In 2020, wastewater mass loads[2] were compared across 27 countries. Considering the seven days sampled during the collection week, New Zealand ranked high, only ranking lower than Australia, United States, and Czech Republic.
- Statistics for methamphetamine use prevalence in New Zealand vary depending on the study and method being used. Thus, it is important to consider multiple data sources when estimating methamphetamine use in New Zealand as all studies have limitations. The 2016 Drug Harm Index estimated that only 5.5% of those who use methamphetamine are dependent on it. Thus, it is likely most people using the drug, use it less than frequently. Continuous, reliable prevalence studies are required in the New Zealand context to improve our understanding of prevalence and dependence.
- Continued use of methamphetamine is extremely harmful to the individual; negative effects include (but are not restricted to) skin irritation, hallucinations, paranoia, methamphetamine-induced psychosis, methamphetamine-induced suicide attempts, aggression, organ damage, and permanent psychological problems.
- Continued use of methamphetamine is also associated with difficulty in sustaining jobs, risky sexual behaviour, break-up of significant relationships, children being taken into others' care, neonatal and infant negative outcomes, and involvement in crimes both under the influence of methamphetamine, or to sustain use.

1 This timeframe was chosen for comparison due to 1) the wastewater drug testing programme being expanded in November 2018 to include results for 75% of the population; and 2) the first COVID-19 case being detected in New Zealand in February 2020. It is expected that the information presented for this timeframe is less affected by the impact of COVID-19 on drug use and trafficking.

2 Mass load refers to the normalised concentration of methamphetamine or metabolite in the wastewater by population.

- Chronic methamphetamine use has also been associated with long-term health effects which may persist after use.
- The number of patients hospitalised due to methamphetamine use in New Zealand is increasing.
- People who use methamphetamine are likely to use other drugs. The use of stimulants in conjunction with other substances is associated with serious health hazards such as overburdening of the cardiorespiratory system, higher risk of overdose, and higher chance of contracting blood borne diseases.
- Methamphetamine and amphetamine-type stimulants negatively impact not only those who use them, but also the family, whānau, and community in which use takes place. Methamphetamine use has been shown to deeply impact children, harming them both physically and mentally.
- Children residing in methamphetamine manufacturing laboratories are at increased risk of fires and explosions, poisoning, injury, accidental death, burns, hypodermic needles, razor blades, among others.
- The 2016 New Zealand Drug Harm Index estimated the total harm of the use of amphetamine-type stimulants in New Zealand, including both personal and community harm, to be $347.8 million in 2014/2015. Each kilogram of amphetamine-type stimulants was equated to $1.18 million of personal and community harm and $56,000 of intervention costs.
- Data from New Zealand Police, and research conducted by the Department of Corrections, highlight the association of methamphetamine use in prisoners and methamphetamine-related criminal charges with violent offending, family harm, acquisitive crimes, and involvement in road trauma. It is important to note that behaviours of both using a drug, and committing a crime, are impacted by multiple social and economic factors such as one's socio-economic status and access to basic needs. In this sense, multiple common determinants can impact both the likelihood of using the drug and being associated with other crimes.

The meth business

- From 2013 to 2019 there was a gradual decrease in the number of methamphetamine manufacturing laboratories dismantled. However, 2020 has seen a sharp increase in the number of laboratories dismantled in New Zealand. These are now commercial, and able to produce larger quantities of methamphetamine than the methamphetamine manufacturing laboratories previously detected in the country.
- There are several non-controlled methamphetamine precursor chemicals which can be used in the manufacturing process. Intelligence feedback to this report describes the importation of pre-precursors to New Zealand as an emerging trend.
- The volume of methamphetamine being imported into New Zealand has generally increased since 2012. Two large methamphetamine manufacturing regions, Mexico and the Golden Triangle (i.e. Myanmar Shan State, western Laos, and northern Thailand), supply methamphetamine to the New Zealand market.
- The oversupply of methamphetamine in the Golden Triangle is likely to lead to further expansions of the methamphetamine market, attracting more people to use the drug due to its cheaper price and higher availability. In this sense, syndicates based in Mexico are also a risk to New Zealand.
- The competition between suppliers is bringing the wholesale price of the drug down and this can lower the price at retail point, expanding markets in New Zealand to include lower socio-economic communities. The typical price of one kilogram of methamphetamine in New Zealand dropped from between $230,000 and $250,000 in 2016 to $140,000 in 2019. Still, the New Zealand market is acknowledged as highly profitable.
- Intelligence holdings describe that organised crime groups in New Zealand are increasingly armed and likely to be more willing to carry out serious attacks and violence. It is likely that increases in violence and firearm-related charges are associated with members protecting themselves from other gangs and more violent tactics, and protecting their drug market.

Education, prevention, harm reduction, staff training, and partnerships

- Education and prevention strategies should be considered when addressing the harm caused by methamphetamine to New Zealand communities. They enable people who have not yet tried the drug to know more about its harmful effects, potentially avoiding use.
- Six different initiatives including education and prevention strategies being used in New Zealand were included in documents gathered – *CAYAD, Stand Up!, Amplify!, What Can I Do? and Did You Know?* series, and *New Zealand Peer Crowd Projects*. However, it is likely that there are further initiatives in place.[3]
- New Zealand harm reduction strategies include the *Needle Exchange Programme, High Alert* website, *Festival Drug Checking*, and the *DrugHelp* and *MethHelp* initiatives.

3 In this report, we describe prevention strategies in the broader alcohol and other drug space (which also includes methamphetamine), strategies targeting specifically methamphetamine, and strategies targeting other substances which could be adapted to target methamphetamine. All of these strategies were mentioned by Steering Group members or listed in documents provided by them.

However, this is unlikely to be an exhaustive list of harm reduction strategies in place in New Zealand.[4]

- There was limited information available about the general training of frontline staff working to address methamphetamine use, dependence, and treatment in New Zealand. However, the *Bridging the Gap* resource and the *Addressing Methamphetamine Use in Primary Care* resource noted training and resources which could be used to train frontline staff.
- There are multiple initiatives in New Zealand that involve partnerships between police and other agencies to support harm reduction and reduce methamphetamine use. These include *Non-court Action, Alcohol and Other Drugs Treatment Court, Custody Unit Screening, Custody Mental Health Nurses*, the *Te Ara Oranga* project, and *Tūturu*.

Withdrawal management and treatment

- Methamphetamine withdrawal management is usually supported by out-patient services in New Zealand, as withdrawal symptoms are not life threatening. The literature suggests withdrawal management should be associated with ongoing treatment which addresses core issues and stressors associated with substance use.
- Support before, during, and after treatment is necessary when aiming to decrease methamphetamine use and sustain abstinence, and this seems to be especially lacking in New Zealand, both before people who use the drug can access treatment, and after they have been through standard treatment.
- As at 2017, there were three main treatment approaches being used in New Zealand – Brief Intervention, Community Based Out-Patient Programmes, and Residential Programmes.
- Individual barriers which prevent people who use methamphetamine from seeking treatment in New Zealand are problem denial, positive effects of the drug, pressure from peers to keep using the drug, not having correct information or having limited information about treatment options, perceived inability to stop using the drug, belief that one does not deserve to recover, shame, stigma, and lack of trust.
- Barriers to treatment in New Zealand at the system level include unavailability of services, funding scarcity, lack of resourcing, limited access hours of services, limited awareness of services, and big physical distance between services available and the client.

4 In this report, we describe harm reduction strategies in the broader alcohol and other drug space (which also includes methamphetamine) and strategies targeting specifically methamphetamine.

Full Summary of Findings

Full Summary of Findings

Background and Purpose

Given the extreme harm caused by methamphetamine to communities in New Zealand, a methamphetamine research brief was presented by the Evidence Based Policing Centre at the Organised Crime Coordination Committee (OCCC) meeting on the 27th February 2020. The methamphetamine research brief outlined the proposed research programme and governance structure for research exploring the impact of methamphetamine on New Zealand communities.

The research programme is led by the Evidence Based Policing Centre (EBPC) in collaboration with key stakeholders. As endorsed by the OCCC, the programme consists of a multilevel governance structure and multi-agency representation. A multi-agency Steering Group including representatives from academia, Iwi, and New Zealand government and non-governmental organisations has been convened to provide advice on the research programme.

Across agencies, there is existing knowledge and research that can contribute to filling knowledge gaps about the harm methamphetamine causes to New Zealand communities, however there is no single document that summarises and consolidates these findings. Thus, the first step in this research programme, as proposed by the Steering Group, was to evaluate which perceived knowledge gaps might have already been closed in the academic literature, or through work conducted in partnering organisations. This report compiles this information, summarising what is already evidenced about the harm methamphetamine causes to New Zealand communities.

It is important to reiterate that this report consolidates predominantly grey literature (supported where applicable by academic literature) from contributing agencies specifically on the harm caused by methamphetamine to communities in New Zealand. This report acknowledges but does not focus on a) social and economic determinants of methamphetamine use and harm such as socio-economic status and access to basic needs; and b) confounding factors affecting outcomes related to methamphetamine use such as other substance use.[5] However, where appropriate, the report discusses limitations of findings considering these factors.

Method

Methamphetamine in New Zealand Steering group members were asked to provide relevant literature and reports from their agencies to the EBPC. In all, 160 documents were provided by members of the Steering Group and brief targeted searches of literature were also conducted to find documents mentioned by group members.

A further 119 documents were gathered, and the most prominent/comprehensive literature was summarised. This report describes findings from this stocktake of existing literature based on documents provided and mentioned by Methamphetamine in New Zealand Steering Group members.

5 Please see the Government Inquiry into Mental Health Addiction (2018) and Spooner & Hetherington (2004) for more information on determinants of drug use and addiction.

Chapter Highlights

People Who Use Methamphetamine

- Wastewater drug testing results can be used to estimate methamphetamine consumption in New Zealand. Considering the period prior to COVID-19 affecting New Zealand, the amount of methamphetamine consumed nationally per week fluctuated between 11.3 and 16.9 kilograms.[6] This represents a stable average consumption of 14.1 kilograms (standard deviation = 1.5 kilograms). Since testing began, methamphetamine has been detected in wastewater for every community tested during every day of the week in New Zealand. About 50% (range 41.1%–57.2%) of methamphetamine consumed nationally between November 2018 and February 2020 was consumed in the Auckland region, however, use per capita in Bay of Plenty, Eastern, and Northland generally ranks higher than in the Auckland region [Section 3.1];
- In 2020, wastewater mass loads[7] were compared across 27 countries. Considering the seven days sampled during the collection week, New Zealand ranked high, only ranking lower than Australia, United States, and Czech Republic [Section 3.1];
- Statistics for methamphetamine use prevalence in New Zealand vary depending on the study and method being used. Thus, it is important to consider multiple data sources when estimating methamphetamine use in New Zealand as all studies have limitations. The 2016 Drug Harm Index estimated that only 5.5% of those who use methamphetamine are dependent on it. Thus, it is likely most people using the drug, use it less than frequently. Continuous, reliable prevalence studies are required in the New Zealand context to improve our understanding of prevalence and dependence [Section 3.1];
- Findings from the 2019/20 New Zealand Health Survey including a sample of the overall New Zealand population showed that Māori were only 1.18 times more likely to report having used amphetamine in the previous year than non-Māori; although the proportion of Māori offenders proceeded against in court for possession, use, and utensils for methamphetamine increased from 32% in 2010 to 45% in 2020, while the proportion of European offenders proceeded against in court for the same offences during the same period dropped from 57% to 45%. More research is needed in order to specify more accurately the harm caused by methamphetamine to those of different ethnicities in New Zealand [Section 3.1];
- People who use methamphetamine in New Zealand have reported being first introduced to the drug by friends, acquaintances, family, and partners. People who use the drug have also reported first trying the drug for free when offered by dealers [Section 3.2];
- People who use methamphetamine in New Zealand have reported that prior to using it they were unaware of its negative effects, or did not have specific knowledge about the drug [Section 3.2];
- Awareness of negative health impacts, losing social connection with others, and financial instability have been identified by people who use methamphetamine as reasons for reducing use. Moreover, people who use the drug tend to seek help to decrease use when their partner or families leave, their children are removed from their care, they have legal, financial or health issues, the criminal lifestyle associated with methamphetamine use is causing them harm, and they 'hit rock bottom'. They also seek help when their desire for a 'normal' life and future is stronger than their addiction [Section 3.4];
- Profile and life-trajectory studies conducted overseas have distinguished profiles based on frequency, length, and mode of use (i.e. people who inject versus people who smoke methamphetamine). The literature suggests that the frequency of use is likely to increase with prolonged methamphetamine use, but that there might still be different profiles of people who use the drug. Furthermore, mode of use might be an important feature when distinguishing different profiles [Section 3.6.1];
- Profile and life-trajectory studies conducted in New Zealand are limited by either restricted sample sizes or focus on a specific sub-group of the population (e.g. prisoners) [Section 3.6.2];
- A New Zealand study with prisoners indicates the average age of first use of methamphetamine was 21.8 years, while the age of onset of methamphetamine dependence was 22.9 years. These findings suggest that methamphetamine use can escalate quite rapidly towards dependence [Section 3.6.2];
- People who use methamphetamine are likely to use other drugs. The use of stimulants in conjunction with other substances is associated in the literature with serious health hazards such as overburdening of the cardiorespiratory system, higher risk of overdose, and higher chance of contracting blood borne diseases [Section 3.6.2];
- Continued use of methamphetamine is extremely harmful to the individual; negative effects include disrupted sleep patterns, skin irritation, nausea, hallucinations, paranoia, methamphetamine-induced psychosis, methamphetamine-induced suicide attempts, short-term memory loss, irritability, aggression, organ damage, permanent psychological problems, weight loss, cardiovascular issues, dental issues, neurological complications, and lowered general immunity. Moreover, continued use of methamphetamine is also associated with difficulty in sustaining jobs, risky sexual behaviour, break-up of significant relationships, children being taken into others' care, neonatal and infant negative outcomes, 'feeling down' due to use, and involvement in crimes both under the influence of methamphetamine,

6 This finding is based on data recorded from November 2018 (when the wastewater drug testing programme was expanded to include results for 75% of the population living in New Zealand) to February 2020 (when the first COVID-19 case was detected in New Zealand).

7 Mass load refers to the normalised concentration of methamphetamine or metabolite in the wastewater by population.

or to sustain use. Chronic use has been associated with long-term health effects which may persist after use. The number of patients hospitalised due to methamphetamine use in New Zealand is increasing [Section 3.7];

- Methamphetamine and amphetamine-type stimulants impact not only those who use them, but also the family, whānau, and community in which use takes place. Methamphetamine use has been shown to deeply impact children, harming them both physically and mentally. Foetal methamphetamine exposure has been linked to negative outcomes in children [Section 3.7];
- The 2016 New Zealand Drug Harm Index estimated the total harm of the use of amphetamine-type stimulants in New Zealand, including both personal and community harm, to be $347.8 million in 2014/2015. Each kilogram of amphetamine-type stimulants was equated to $1.18 million of personal and community harm and $56,000 of intervention costs [Section 3.7];
- Motivations given by dealers for dealing methamphetamine in New Zealand were covering the cost of their own methamphetamine use, ensuring they had methamphetamine available for their own use, making money, and enjoying the 'lifestyle' connected to selling methamphetamine [Section 3.9];
- Motivations given by manufacturers for manufacturing methamphetamine in New Zealand were making money, addiction, coercion by organised crime groups, financial difficulties, and financial gain [Section 3.9];
- Members of gangs in New Zealand might have become increasingly involved in the methamphetamine market, with reports that methamphetamine trafficking is being prioritised over cannabis trafficking [Section 3.9];
- An average of 30 children were found in methamphetamine manufacturing laboratories every year between 2013 and 2015. Children residing in these laboratories are at increased risk of fires and explosions, poisoning, injury, accidental death, burns, hypodermic needles, razor blades, among others [Section 3.9]; and
- The violence associated with both dealing and manufacturing methamphetamine has been acknowledged in several reports, studies, and books. An intelligence report highlights that threats, violence, and thefts are some of the repercussions of methamphetamine-related debt, in particular owing money to gangs, in New Zealand [Section 3.9].

Association with Other Crimes and Incidents

- Data from New Zealand Police, and research conducted by the Department of Corrections, highlight the association of methamphetamine use in prisoners and methamphetamine-related criminal charges with violent offending, family harm, acquisitive crimes, and involvement in road trauma. Although, at times, low-level methamphetamine-related offences can be the most serious offences committed by offenders [Section 4.1];
- According to an intelligence report from 2016, there were 9,910 offenders in New Zealand who received methamphetamine charges from 2010 to 2015. Of these, 68% had been associated with family violence incidents, 37% had been victims of a violence offence, 13% had alerts for carrying or using a weapon, 11% had used a firearm against a police officer or assaulted law enforcement staff, and 6% had been offender, suspect, or victim of a sexual attack [Section 4.2];
- Analyses including longitudinal data from the Christchurch Health and Development Study showed that a history of methamphetamine use was associated with increases in violence perpetration, intimate partner violence perpetration, and violence victimisation when compared to no history of methamphetamine use. Findings also showed that using methamphetamine more frequently was associated with a higher likelihood of being involved in violence episodes [Section 4.2];
- Level of spending on methamphetamine/amphetamine has been associated with level of income from property crime and drug dealing, with those spending more on methamphetamine/ amphetamine reporting a higher income related to property crime and drug dealing than those who did not spend any money on methamphetamine/ amphetamine [Section 4.3];
- Statistics from New Zealand Police showed that 40% of the unsatisfactorily completed roadside Compulsory Impairment Tests[8] in 2019 were connected to amphetamine use, which included mainly methamphetamine. Also, methamphetamine was found in 13% of the blood samples of fatally injured drivers (when tested) between 2016 and 2018. This value represents a 160% increase when considering the average of 5% observed between 2013 and 2015. It is estimated that 40 to 45 road deaths per year are associated with the use of methamphetamine since 2016, which represents a social cost of $182-$205 million per year. In this sense, methamphetamine is the second most harmful substance in the promotion of road trauma (after alcohol) given its level of increased risk of crash involvement and prevalence in severe crashes on New Zealand roads [Section 4.4];
- In 2019, it was estimated that the biggest groups laundering money domestically were associated with drug offending. The Financial Intelligence Unit estimated that these groups laundered $1.35 billion annually in the country [Section 4.5];
- Behaviours of using a drug and committing a crime are impacted by multiple social, environmental, contextual, cultural, and economical factors. It could be that multiple common determinants are impacting both the likelihood of using the drug and being associated with other crimes and incidents [Section 4.6]; and
- It is important to consider the co-occurring dependence on other substances when considering the association between methamphetamine use and offending as it has been acknowledged in the literature that many people who use methamphetamine also use other substances, and that

8 The Compulsory Impairment Test (CIT) is the standardised field sobriety test used in New Zealand. An unsatisfactory CIT means that the driver was unable multiple times to perform the requirements of the test (van Lamoen, January 2021).

dependence on other substances, such as alcohol, also has a causal link with property and violence offending [Section 4.6].

Production, Importation, and Distribution

- From 2013 to 2019 there was a gradual decrease in the number of methamphetamine manufacturing laboratories dismantled. However, 2020 has seen a sharp increase in the number of laboratories dismantled in New Zealand. All laboratories are now commercial, and able to produce larger quantities of methamphetamine than the methamphetamine manufacturing laboratories previously detected in the country [Section 5.1];
- There are several non-controlled methamphetamine precursor chemicals which can be used in the manufacturing process. Intelligence feedback to this report describes the importation of pre-precursors to New Zealand as an emerging trend [Section 5.1];
- The volume of methamphetamine being imported into New Zealand has generally increased since 2012. Two large methamphetamine manufacturing regions, Mexico and the Golden Triangle (i.e. Myanmar Shan State, western Laos, and northern Thailand), supply methamphetamine to the New Zealand market [Section 5.2];
- The increased availability of methamphetamine in the Golden Triangle, the reduced wholesale price of the drug due to increased availability in this region, and the profitability of the New Zealand market put New Zealand at increased risk of being a target for transnational syndicates based in the Golden Triangle. The oversupply of methamphetamine in this region is likely to lead to further expansions of the methamphetamine market, attracting more people to use the drug due to its cheaper price and higher availability. In this sense, syndicates based in Mexico are also a risk to New Zealand. Additionally, the competition between suppliers is bringing the wholesale price of the drug down and this can lower the price at retail point, expanding markets in New Zealand to include lower socio-economic communities. The typical price of one kilogram of methamphetamine in New Zealand dropped from between $230,000 and $250,000 in 2016 to $140,000 in 2019. Still, the New Zealand market is acknowledged as highly profitable [Section 5.2];
- Mexico has increasingly been acknowledged as a source country for the methamphetamine imported to New Zealand. Mexican cartels use sophisticated and diverse methodologies, and have already successfully engaged with domestic distribution networks and money laundering infrastructure in New Zealand. This trend is likely to continue and be linked to further offending, although it is unlikely that Mexican cartels will seek to establish a physical presence in New Zealand, leading to the level of corruption and violence observed in Mexico [Section 5.2 and 5.3];
- There are different transnational syndicates involved in trafficking methamphetamine to New Zealand. These syndicates are not necessarily associated with gang members but do require criminal connections, often through Asian organised crime groups, to sell their product within New Zealand. Some members of domestic gangs will therefore maintain relationships with Asian Organised Crime representatives or middlemen to obtain product for domestic distribution. It is important to mention, however, that the association between members of transnational syndicates, international criminal business entities, and domestic criminal business entities is neither linear nor fixed in New Zealand, varying across different groups and periods of time [Section 5.3];
- Intelligence holdings describe that organised crime groups in New Zealand are increasingly armed and likely to be more willing to carry out serious attacks and violence. It is likely that increases in violence and firearm-related charges are associated with members protecting themselves from other gangs and more violent tactics, and protecting their drug market [Section 5.3];
- Adult gangs from both New Zealand and Australia are expanding to East and Southeast Asia to scale up the trafficking of drugs, especially methamphetamine and its precursors. According to intelligence holdings, it is likely that some of these gangs are collaborating in this space, which poses a high risk to New Zealand. The Pacific Islands are also vulnerable to the expansion of adult gangs from both New Zealand and Australia. New Zealand gang members establishing themselves in these locations might have the opportunity to network with international drug syndicates, what would facilitate direct drug importations between the Pacific Islands and New Zealand in the future [Section 5.3];
- Anecdotal evidence indicates that it is likely that organised crime groups in New Zealand fix the street price of methamphetamine in the country, maintaining its profitability [Section 5.3];
- Illicit drugs have been increasingly more available online in New Zealand, both in clearnet and darknet-hosted marketplaces [Section 5.4];
- The purity of the methamphetamine sold in New Zealand is averaged at 74% out of a maximum purity of 80% for solid (salt) form methamphetamine, and in 2016 people who frequently used the drug perceived to be 'easy' or 'very easy' to obtain it in New Zealand [Section 5.5]; and
- COVID-19 has had an impact on methamphetamine supplies in New Zealand, and as at May 2020, the drug continued to be more difficult to obtain than before the onset of COVID-19 in many parts of the country. Although an international methamphetamine shortage affecting New Zealand remained unlikely [Section 5.7].

Education, Prevention, Harm Reduction, Staff Training, and Partnerships

- Education and prevention strategies should be considered when addressing the harm caused by methamphetamine to New Zealand communities. They enable people who have not yet tried the drug to know more about its harmful effects, potentially avoiding use [Section 6.1];
- Six different initiatives including education and prevention strategies being used in New Zealand were included in documents gathered – *CAYAD, Stand Up!, Amplify!,*

What Can I Do? and *Did You Know?* series, and *New Zealand Peer Crowd Projects*. However, it is likely that there are further initiatives in place[9] [Section 6.1.2];

- Some harm reduction strategies implemented overseas have shown some promise, however proper assessments of harm reduction strategies to reduce risky stimulant use and overdose are lacking in the literature [Section 6.2.1];
- In New Zealand, common outcome measures of treatment success include harm reduction, as well as abstinence. However, nationally, there is no standardised outcomes evaluation system for the addiction sector as a whole [Section 6.2.2];
- New Zealand harm reduction strategies include the *Needle Exchange Programme*, *High Alert* website, *Festival Drug Checking*, and the *DrugHelp* and *MethHelp* initiatives. However, this is unlikely to be an exhaustive list of harm reduction strategies in place in New Zealand[10] [Section 6.2.2];
- There was limited information available about the general training of frontline staff working to address methamphetamine use, dependence, and treatment in New Zealand. However, the Bridging the Gap resource and the *Addressing Methamphetamine Use in Primary Care* resource noted training and resources which could be used to train frontline staff [Section 6.3];
- There are multiple initiatives in New Zealand that involve partnerships between police and other agencies to support harm reduction and reduce methamphetamine use. These include *Non-court Action, Alcohol and Other Drugs Treatment Court, Custody Unit Screening, Custody Mental Health Nurses*, the *Te Ara Oranga* project, and *Tūturu* [Section 6.4]; and
- A number of New Zealand Police operations targeting the supply of methamphetamine have also focused on directing people who use the drug to treatment services and providing prevention advice [Section 6.4.6].

Withdrawal Management and Treatment

- International literature is sparse regarding pharmacotherapy treatments for amphetamine and methamphetamine, and existing evidence is of poor quality [Section 7.1.2];
- Findings from different reviews of literature show that various psychosocial interventions are effective in reducing stimulant use and abstinence, but only the contingency management approach has been shown in the literature to consistently outperform other types of psychosocial treatment. Moreover, the literature suggests that it is also important to treat underlying issues connected to harmful substance use, and physical, psychological, and social effects arising from substance use when treating any substance use disorder [Section 7.1.3];
- A study from Australia showed that those who use methamphetamine and seek treatment are initially extremely successful in discontinuing use, but that after treatment is discontinued the relapse rate increases as time passes to be similar to the relapse rate of those who did not receive treatment after three years. In this sense, it is extremely important to provide support to clients after treatment is discontinued in the form of peer support, booster sessions, occasional phone calls, among others [Section 7.1.3];
- In the last 20 years there have been multiple advances in the New Zealand alcohol and other drug treatment space. One of these advances was the development and professionalisation of the addiction practitioner role [Section 7.2];
- Methamphetamine withdrawal management is usually supported by out-patient services in New Zealand, as withdrawal symptoms are not life threatening. The literature suggests withdrawal management should be associated with ongoing treatment which addresses core issues and stressors associated with substance use [Section 7.2.1];
- Support before, during, and after treatment is necessary when aiming to decrease methamphetamine use and sustain abstinence, and this seems to be especially lacking in New Zealand, both before people who use the drug can access treatment, and after they have been through standard treatment [Section 7.2.3];
- New Zealand follows a stepped care treatment logic when considering addiction services, with clients receiving care according to their level of need [Section 7.2.4];
- As at 2017, there were three main treatment approaches being used in New Zealand – *Brief Intervention, Community Based Out-Patient Programmes*, and *Residential Programmes* [Section 7.2.5];
- The Department of Corrections provides access to a number of treatment programmes to prisoners who have a methamphetamine use disorder, and these programmes are generally perceived by prisoners to be useful [Section 7.2.7];
- Individual barriers which prevent people who use methamphetamine from seeking treatment in New Zealand are problem denial, positive effects of the drug, pressure from peers to keep using the drug, not having correct information or having limited information about treatment options, perceived inability to stop using the drug, belief that one does not deserve to recover, shame, stigma, and lack of trust [Section 7.2.8];
- Barriers to treatment in New Zealand at the system level include unavailability of services, funding scarcity, lack of resourcing, limited access hours of services, limited awareness of services, and big physical distance between services available and the client [Section 7.2.8]; and
- COVID-19 was perceived by service providers to have increased difficulty in contacting clients enrolled in treatment, decreased the number of referrals to addiction treatment during lockdown, and as impacting withdrawal symptoms in people who use drugs [Section 7.2.9].

9 In this report, we describe prevention strategies in the broader alcohol and other drug space (which also includes methamphetamine), strategies targeting specifically methamphetamine, and strategies targeting other substances which could be adapted to target methamphetamine. All of these strategies were mentioned by Steering Group members or listed in documents provided by them.

10 In this report, we describe harm reduction strategies in the broader alcohol and other drug space (which also includes methamphetamine) and strategies targeting specifically methamphetamine.

Conclusion

Methamphetamine is used in communities all over New Zealand; this drug can cause extreme harm to people who use it, their families, their whānau, and the community in which they live. These include (but are not restricted to) negative health effects to individuals using the drug, break-up of significant relationships, and crimes both under the influence of methamphetamine, or to sustain use.

The documents reviewed suggest that more research is needed in the New Zealand context on the extent of the harm caused by methamphetamine in order to fully understand the magnitude of the issue. It is of prime importance to regularly collect reliable data about methamphetamine use prevalence rates in the New Zealand population and the harms associated with the drug, so information on the topic is 1) up to date; 2) can be used to portray a current picture of the issue at hand; and 3) to track changes over time in the methamphetamine space. Following this, the pathways to prevention and recovery may require further research to address the nuances of the New Zealand methamphetamine context.

The methamphetamine issue in New Zealand, though still to be fully understood, is clearly a multifaceted problem that requires a multi-agency approach to New Zealand-based future research methodology and response. A holistic view to reducing the harm caused to New Zealand individuals, whānau, and communities by the methamphetamine issue is paramount. The multi-agency Methamphetamine in New Zealand Steering Group will go some way to ensuring this approach is realised.

1. Background

1.1 Methamphetamine in New Zealand Research Programme

Methamphetamine causes a significant amount of harm in New Zealand communities. This extends not only to the personal harm each individual person who uses methamphetamine can experience, but also the social harm due to its association with organised crime and the repercussions of person-level behaviours and delinquency which it causes (Foulds, Boden, McKetin & Newton-Howes, 2020; McFadden, 2016).

It is estimated that the social harm caused from methamphetamine consumption in New Zealand costs $19 million a week or $1 billion annually (New Zealand Police, October 2019).[11] Given the extreme harm caused by methamphetamine to communities in New Zealand, a methamphetamine research brief was presented by the Evidence Based Policing Centre (EBPC; 2020) at the Organised Crime Coordination Committee (OCCC) meeting on the 27th February 2020.

The methamphetamine research brief outlined the proposed research programme and governance structure for research exploring the impact of methamphetamine on New Zealand communities.

The research programme is led by the EBPC in collaboration with key stakeholders. As endorsed by the OCCC, the programme consists of a multilevel governance structure and multi-agency representation. A multi-agency Steering Group including representatives from academia, Iwi, and New Zealand government and non-governmental organisations has been convened to provide advice on the research programme.

1.2 Research Tranche 1

The Methamphetamine in New Zealand Briefing to the Organised Crime Coordination Committee at New Zealand Police (EBPC, 2020) identified two knowledge gaps pertaining to the specific level of harm methamphetamine generates in communities in New Zealand:

a. The impact of methamphetamine across different contexts and domains of social wellbeing. This includes understanding the harm that methamphetamine causes in social, economic, criminal and health contexts and understanding its contribution to increasing victimisations across New Zealand Police drivers of demand such as family harm incidents, mental health incidents, road policing offending, and youth offending.

b. The role of methamphetamine in the macro-environment including drug-related other offending, the ongoing cost of rehabilitation due to methamphetamine use, the specific communities most prominently affected by methamphetamine use, and the financial networks related to methamphetamine. Specifically, the supply chain of methamphetamine and its links to domestic and international organised crime groups.

Across agencies, there is existing knowledge and research that can contribute to filling these knowledge gaps, however there is no single document that summarises and consolidates these findings. Thus, the first step in this research programme, as proposed by the Steering Group, was to evaluate which perceived knowledge gaps might have already been closed in the academic literature, or through work conducted in partnering organisations. This exercise will consolidate findings in one single document and allow later tranches of the research programme to focus on questions which have not been fully answered previously. This evaluation will constitute the first tranche of work and is presented on this report.

It is important to reiterate that this report consolidates predominantly grey literature (supported where applicable by academic literature) from contributing agencies specifically on the harm caused by methamphetamine to communities in New Zealand. This report acknowledges but does not focus on a) social and economic determinants of methamphetamine use and harm such as socio-economic status and access to basic needs; and b) confounding factors affecting outcomes related to methamphetamine use such as other substance use.[12] However, where appropriate, the report discusses limitations of findings considering these factors.

11 Estimates for the cost of the social harm caused by methamphetamine were based on estimations by the 2016 Drug Harm Index (McFadden, 2016), and included the cost of personal harm, community harm, and interventions.

12 Please see the Government Inquiry into Mental Health Addiction (2018) and Spooner & Hetherington (2004) for more information on determinants of drug use and addiction.

2. Method

Steering Group members were asked to provide relevant literature and reports from their agencies to the Evidence Based Policing Centre. Information/documents were received from representatives from agencies including: Department of Corrections, New Zealand Customs Service, National Drug Intelligence Bureau, University of Otago, University of New South Wales, Ministry of Health, National Organised Crime Group, Tūhoe Te Uru Taumatua, and New Zealand Drug Foundation.

In all, 160 documents were provided by members of the Steering group and brief targeted searches of literature were also conducted to find documents mentioned by group members. Further 119 documents were gathered, and the most prominent/ comprehensive literature was summarised.

In the interest of including all the relevant information on the report, while also making the report as succinct as possible, only the most relevant literature to the New Zealand context has been included in this report. Thus, this report does not include an exhaustive review of literature focusing on the harm caused by methamphetamine in New Zealand, describing instead findings from a stocktake based on documents provided and mentioned by Methamphetamine in New Zealand Steering Group members.

The report is divided into five main chapters including information and research about:

a. People who use methamphetamine;
b. Associations between methamphetamine use and other crimes and incidents;
c. Methamphetamine production, importation, and distribution;
d. Strategies in the education, prevention, harm reduction, staff training, and partnership spaces; and
e. Methamphetamine withdrawal management and treatment.

A short conclusion based on the information included in the report is presented after these sections.

3. People who use methamphetamine

3. People who use methamphetamine

This chapter presents findings from reports, studies, and reviews of literature focusing on people who use methamphetamine. In this sense, the chapter discusses prevalence rates of methamphetamine use in New Zealand, characteristics of the first use of methamphetamine, motivations to increase use and relapse using, motivations to decrease use and seek help, modes and patterns of use, profiles and trajectories of people who use methamphetamine both abroad and in New Zealand, negative effects of using the drug, health care and advice provided to people who use methamphetamine, how methamphetamine is purchased, and the trajectory from using the drug to dealing and manufacturing it.

This chapter does not discuss in depth social and economic determinants of methamphetamine use and harm, and confounding factors affecting outcomes related to methamphetamine use.[13] This is acknowledged as a limitation of this report.

3.1 Methamphetamine Use Prevalence in New Zealand

3.1.1 Prevalence in the Overall Population

Based on data from the New Zealand Health Survey[14] (2019/20), 1.1% of the New Zealand population had used amphetamine-type stimulants in the previous year (Ministry of Health, 2020a). The estimate of methamphetamine use prevalence in New Zealand is higher when considering findings from the Global Drug Survey[15] (2020) and from the Christchurch Health and Development Study[16] (CHDS; Foulds et al., 2019).

According to the 2020 Global Drug Survey, 3.0% of the 2,907 participants based in New Zealand who answered the survey had used methamphetamine in the previous year. According to a study by Foulds and colleagues (2020) including data from the CHDS, 28.2% of the 1,044 participants had used methamphetamine at least once between 18 and 35 years of age. Of these, 124 had not used the drug more than one to two times a year (42.3%); 118 (40.3%) had never used the drug more than monthly; and 51 (17.4%) had used the drug at least weekly during one of the reporting periods. If findings are generalised to New Zealand's population, they suggest that most people who use or have used methamphetamine in New Zealand do not use it regularly. The Drug Harm Index (2016) considers only 5.5% of the total number of people who use methamphetamine in New Zealand to be dependent on methamphetamine (NDIB, 2017d). The remaining 94.5% of people who use the drug would use the drug only 'casually'.

Wastewater drug testing results can also be used to estimate methamphetamine consumption in New Zealand. According to New Zealand[17] Police (November 2020), the average weekly consumption of methamphetamine decreased from 15.4 kilograms in the first quarter of 2020 to 9.9 kilograms in the second quarter of 2020. This decrease was likely due to restrictions in the border and of movement in the country associated with COVID-19 (Lyons, November 2020). Considering the period prior to COVID-19 affecting New Zealand, the amount of methamphetamine consumed nationally per week fluctuated between 11.3 and 16.9 kilograms (ESR, 2020).[18] This represents a stable average consumption of 14.1 kilograms (standard deviation = 1.5 kilograms).

Additionally, about half of the methamphetamine consumed nationally in the same period (between 41.1% and 57.2%) was consumed in the Auckland region. However, when considered methamphetamine use per capita, Bay of Plenty, Eastern, and Northland generally rank higher than the Auckland region (New Zealand Police, November 2020). In this sense, the Director of the National Organised Crime Group at New Zealand Police mentions that methamphetamine has been detected in wastewater drug testing results for every community tested during every day of the week (Williams, March 2019). This suggests that methamphetamine use is widespread in New Zealand (Williams, March 2019).

In 2020 the European network SCORE, facilitated by the EMCDDA (European Monitoring Centre for Drugs and Drug Addiction), collated wastewater results for 27 countries during a one-week period in March (NDIB, April 2021b). Prior to submitting results, each laboratory was required to participate in an inter-laboratory proficiency trial to ensure their methods were accurate and results suitable for comparison. ESR submitted wastewater data from five sites: Queenstown, Christchurch, Wellington (Moa Point), Wellington (Seaview), and Auckland Central.

13 Please see the Government Inquiry into Mental Health Addiction (2018) and Spooner & Hetherington (2004) for more information on determinants of drug use and addiction.
14 The New Zealand Health Survey is administered face-to-face to one adult and one child (if any) in each household selected (Ministry of Health, 2010). The survey includes a set of core questions and a set of rotating topic areas/ modules. Data for the survey has been continuously collected since April 2011.
15 The Global Drug Survey is an annual online survey conducted in ten different languages and hosted by partners in more than 20 countries which aims to explore the positive and negative effects of drug use and detect new drug trends as soon as they appear.
16 The CHDS is a birth cohort study including 1,265 children born in Christchurch (New Zealand) in 1977 (Fergusson & Horwood, 2001, as cited in Foulds et al., 2020; Fergusson et al., 1989; as cited in Foulds et al., 2020).
17 The wastewater testing programme includes 45 testing locations across New Zealand including approximately 75% of the population.
18 This finding is based on data recorded from November 2018 (when the wastewater drug testing programme was expanded to include results for 75% of the population living in New Zealand) to February 2020 (when the first COVID-19 case was detected in New Zealand).

Results, as presented as "mass loads" in mg/1000/day (normalised concentration of a drug or metabolite in the wastewater as opposed to the consumption estimate normally reported by New Zealand Police), when compared across the 27 contributing countries indicate New Zealand ranks high (NDIB, April 2021b). The United States, Australia, and Czech Republic were reported to have higher methamphetamine mass loads than New Zealand; most of the other European countries – such as Sweden, Finland, Austria, Portugal, Croatia, Belgium, Italy, and Greece – had very low methamphetamine mass loads.

3.1.2 Prevalence among Prisoners

Considering the prison population in New Zealand, in a study including 1,209 prisoners, Indig, Gear, and Wilhelm (2016; 2017) found that the prevalence of overall substance use and methamphetamine use is higher among prisoners than the overall population. Over half (56%) of prisoners in this study reported having ever used methamphetamine, and, of these, 58% indicated they had used methamphetamine in the past year. Additionally, the prevalence of methamphetamine use was found to be particularly high among younger prisoners. The New Zealand Drug Foundation (2019) reports that 2,450 prisoners received addiction treatment while in prison in 2018 and 70% of these had less than 30 years of age.

3.1.3 Prevalence among Different Ethnicities

Findings from the 2019/20 New Zealand Health Survey including 10,943 adults members of the New Zealand population (European/Other = 7,406; Māori = 1,906) showed that Māori were only 1.18 times more likely to report having used amphetamine in the previous year than non-Māori (Ministry of Health, 2020a; Ministry of Health 2020b).

Likewise, considering the prison population, Indig and colleagues (2017) found that the prevalence of methamphetamine use and disorders was similar for prisoners of European and Māori descent. The report also showed that prisoners of Pacific ethnicity were almost half as likely (34% versus 61% and 60%, respectively) to have ever used methamphetamine as prisoners of Māori and European descent, but those who had ever used it were more likely to have used it in the past year (65%) than any other ethnicity.

On the other hand, two reports from NDIB (2017d; 2020a) have highlighted that Māori are overrepresented when considering methamphetamine criminal charges and hospitalisations related to methamphetamine; and the National Organised Crime Group (2021b) described that while the proportion of Māori offenders proceeded against in court for possession, use, and utensils for methamphetamine increased from 32% in 2010 to 45% in 2020, the proportion of European offenders proceeded against in court for the same offences during the same period dropped from 57% to 45%.

More research is needed in order to specify more accurately the harm caused by methamphetamine to those of different ethnicities.

3.1.4 Prevalence among Young People

The Youth19 survey reported that 3.7% of the 7,374 year 9-13 students who answered the survey had used drugs such as "P",[19] "huffing",[20] and "synthetics"[21] (Flemming et al., 2020b). The frequency of students who had ever tried these drugs increased with age. The study did not detect significant differences between participants based on gender, school decile, neighbourhood deprivation level, and city landscape (i.e. small town, rural area, urban area). The report for the survey aggregated findings regarding the use of 'heavier' drugs such as "P", "huffing", and "synthetics", thus it is not possible to tell the exact percentage of students who had used specifically "P". Answers to one of the free-text questions included in the survey also showed that students were concerned about the easy access to drugs (Flemming et al., 2020a).

The previous sections show that estimates regarding methamphetamine use prevalence in New Zealand vary across sources and population subgroups. This might be due to three main factors: a) underreporting of methamphetamine use in some studies due to the unlawful nature of methamphetamine use; b) studies gathering non-representative samples of the population considered; and c) use prevalence varying across different socio-demographic groups. Thus, it is important to consider multiple data sources when estimating methamphetamine use in New Zealand as all studies have methodological limitations. Additionally, it is important to acknowledge that different subgroups within the population such as prisoners present a higher prevalence of methamphetamine use than the overall population.

3.2 First Use of Methamphetamine

Research suggests that people who use methamphetamine are likely to be first introduced to methamphetamine by friends, acquaintances, family, and partners (Bowman, Morrison & Bevan, 2019; NDIB, 2017d; Sheridan, Butler & Wheeler, 2009). Also, they are not likely to be seeking to specifically use methamphetamine when first using it. Thus, first use happens generally more on the 'spur of the moment' (NDIB, 2017d).

People who use methamphetamine (including those who both manufacture and use) have also reported receiving methamphetamine from dealers for free at first (Bowman et al., 2019; NDIB, 2019a). According to Williams (March 2019), this strategy is used by dealers to attract potential clients and can lead to people who become addicted to the drug becoming indebted.

People who use methamphetamine report feeling stimulated to use it due to some of its effects such as euphoria, alertness,

19 "P" is the term usually used to name methamphetamine which is locally made in New Zealand (https://www.cads.org.nz/assets/Documents/484d07b732/I-Methamphetamine-info-sheet-CADS-2016.pdf).
20 "Huffing" relates to volatile substances which can be used as drug when inhaled (https://www.drugfoundation.org.nz/info/did-you-know/volatile-substances/).
21 "Synthetics" or synthetic psychoactive substances are chemical substances manufactured to mimic the effect of traditional drugs such as cannabis (https://www.drugfoundation.org.nz/info/did-you-know/synthetics/).

sociability, lack of appetite, sexuality, and feeling more energetic and productive (both at work and at home, including childcare); to feel like they belong; to manage stressful moments in their lives such as the death of significant others and break-up of relationships; to 'numb' undesirable feelings such as 'not being good enough'; or in order to supress traumas (Bax, 2021; Bowman et al., 2019; NDIB, 2017d; O'Donnell et al., 2018). Findings from both NDIB (2017d) and Sheridan and colleagues (2009) also suggest that people who use methamphetamine can be unaware of its negative effects, or do not have specific knowledge about the drug when they first use it.

It is important to remember that drug use is usually a result of the interaction between multiple complex factors. Thus, there is no one factor that will fully explain the use of drugs by all individuals (Spooner & Hetherington, 2004). In New Zealand, individuals and organisations who expressed their views in the Government Inquiry into Mental Health and Addiction (2018) acknowledged mental health issues and addiction as symptoms of poverty, social exclusion, trauma, and disconnection. In this sense, poverty, social exclusion, trauma, and disconnection are seen as social and economic determinants of mental health issues and addiction.

The article by Bax (2021) investigated the life-course of people who had used methamphetamine frequently in New Zealand. Findings presented in the article were categorised across three life domains–school, friendship, and work history. Analysis of 35 semi-structured interviews showed that 20 adverse experiences, which had hindered progress in school and at work, and had contributed to drug use, were common between people who had been interviewed in the study. These adverse experiences included negative school transitions, significant turning point events, weak commitment to school, poor school attitude and performance, low academic achievement, low school and work ambition, low parental expectations, high levels of mental health issues, delinquency, delinquent peer behaviour, bullying victimisation, work victimisation, unstable careers, and illegal economic activities. Based on findings, the author discussed the importance of the school life domain in altering drug use trajectories.

3.3 Motivations to Increase Use and Relapse

Different studies have presented motivations for increasing methamphetamine use such as boredom, lack of routine, recapturing the initial 'high' caused by methamphetamine when first used, avoiding effects of 'coming down', and work and domestic pressures (Bowman et al., 2019; O'Donnell et al., 2018).

Bowman and colleagues (2019) found that having a job can be perceived as vital in preventing methamphetamine use relapse. On the other hand, people in the same social network using methamphetamine, and lack of routine and stable employment have all been cited as motivations to relapse using methamphetamine (NDIB, 2019a).

During the COVID-19 level 4 lockdown, NDIB and the New Zealand Drug Foundation conducted a survey including 60 drug treatment clients and 64 Alcohol and Other Drug (AOD) treatment providers (NDIB, May 2020). Findings showed that 56% of the clients and 48% of treatment providers reported an increase in the use of drugs, mostly explained by increases in use of cannabis and methamphetamine. Likewise, wastewater drug testing data showed a 41% increase in methamphetamine consumption in March 2020 when compared to March 2019 (NDIB, June 2020). As reasons for increasing use, treatment providers pointed to anxiety, boredom, dependence, and isolation.

3.4 Motivations to Decrease Use and Seek Help

As reasons for reducing the use of methamphetamine, people who use the drug have mentioned awareness of negative health impacts, losing social connection with others, and financial instability (O'Donnell et al., 2018). Some people who use methamphetamine might also not understand the extent of the issues caused by methamphetamine until they have been in contact with the Justice System (NDIB, 2019a).

The social network of people who use methamphetamine changes considerably through their trajectory of use, generally changing from using methamphetamine in a social setting at first to using it more alone or with significant others when addiction is an integral part of their lives (Bowman et al., 2019). In this sense, when their addiction is getting the best of them, people who use methamphetamine usually have a very restricted social network, lacking in social connection.

People who use methamphetamine have been found to seek help to decrease use when their partner or families leave, their children are removed from their care, they have legal, financial or health issues, the criminal lifestyle associated with methamphetamine use is causing them harm, and they 'hit rock bottom' (NDIB, 2017c). They also seek help when their desire for a 'normal' life and future is stronger than their addiction (NDIB, 2017d). In this sense, some people who use the drug acknowledge that quitting methamphetamine successfully requires a great deal of motivation and it is not possible to quit it successfully if who is using it is not ready (NDIB, 2017d).

3.5 Modes and Patterns of Use

According to a report by the Border Five Analysis Working Group (2019), 89% of the methamphetamine seized at the border in 2019 was in crystal form (1,048.9 kg), 11% was in powder form (131.1 kg), and 0.3% (3.1 kg) was in liquid form. This finding could either signal that crystal methamphetamine is used more in New Zealand than powdered and liquid methamphetamine, or that crystal methamphetamine has been detected more at the border than other types of the drug.

It is more likely, however, that crystal methamphetamine, followed by its powdered form, are the most used types of the drug in New Zealand as reports by people who use methamphetamine suggest smoking and snorting methamphetamine are still the most frequent methods. The report by Bowman and colleagues (2019) investigating prisoners' methamphetamine trajectory and how they perceived

treatment described that most of the 54 prisoners interviewed smoked crystal methamphetamine and just a minority injected it. In an internal communication, Williams (December 2020) observes that since methamphetamine started to be detected in New Zealand, its crystal form has been dominant.

However, the percentage of people who use methamphetamine injecting the drug in New Zealand may be increasing. Findings from the 2014 Illicit Drug Monitoring System (IDMS) showed that 53% of the people who frequently used methamphetamine had injected the drug in the past six months compared to 28% in 2013 (NDIB, 2017d). This increase was confirmed by staff from Auckland Hospital who observed that intravenous use of methamphetamine had increased in the two years before the report by NDIB was released.

The perceived increase in the frequency of people who use methamphetamine injecting the drug might be associated both with an increase in the availability of liquid methamphetamine in New Zealand, and with an increase in the frequency of people who use methamphetamine for longer periods of time in New Zealand (NDIB, 2017a; Bowman et al., 2019). In different studies, injecting methamphetamine has been associated with long-term use of the drug and seeking an 'increased meth experience' after trying other methods of use (NDIB, 2017d; Bowman et al., 2019). Injecting methamphetamine has been also associated with higher risks of contracting infections and blood borne diseases (NDIB, 2017d).

Taken together, findings suggest that smoking crystal methamphetamine is still the most frequent mode of methamphetamine use in New Zealand, but that methamphetamine injecting might be on the rise.

3.6 Profiles and Trajectories of People Who Use Methamphetamine

3.6.1 International Literature

3.6.1.1 Frequency and Length of Use

Two international studies [Hser, Huang, Brecht, and Evans (2008) in California, US, and McKetin, McLaren, and Kelly (2005) in Sydney, Australia] examined profiles and trajectories of people who use methamphetamine in regard to frequency and length of use. Together, the studies show that the frequency of use of methamphetamine is likely to increase with prolonged methamphetamine use, from experimental to chronic dependent use. The study by Hser and colleagues (2008), however, also suggests that there might be different profiles of people who use methamphetamine, even when considering the higher likelihood of increasing use over time.

The study conducted by Hser and colleagues (2008) investigated the life-long trajectory of people who primarily use methamphetamine, heroin, and cocaine. Findings showed that people who had used the three drugs for more than 10 years showed very frequent use, with people who use methamphetamine persistently using it on average 12 days per month (compared to people who use heroin using it from 13 to 18 days per month and people who use cocaine using it from eight to 11 days per month). Growth mixture models showed five different groups of people who use the drugs considering their first 10 years of use – consistently high use, increasing use, decreasing use, moderate use, and low use. People who used methamphetamine (along with people who used cocaine) were mostly in the moderate use group, while people who used heroin were overrepresented in the high use group and underrepresented in the low use group. The authors also found that people who used the drugs and were part of the high use group had started using and committing crimes earlier in life, had gone through longer prison sentences, and were more likely to be unemployed.

The study conducted by McKetin and colleagues (2005) investigated the impact of "ice"[22] and "base"[23] on Sydney's methamphetamine market, also assessing the impact of these forms of methamphetamine on health and social factors. Among the findings from a cross-sectional face-to-face study conducted with 310 people who used methamphetamine regularly, the authors found that there were three main groups of people who used methamphetamine (McKetin, Baker, Kay-Lambkin, & Lee, 2012):

a. Younger people who mostly snorted or swallowed powder methamphetamine, smoked ice, consumed "ecstasy" pills,[24] used methamphetamine in social settings, and had been using methamphetamine for less than five years;
b. People who used methamphetamine frequently, primarily injected the drug, presented high use of cannabis and alcohol and lower use of other drugs, used methamphetamine around fewer people, and had been using methamphetamine for five to ten years; and
c. People who had used heroin for a long period of time and also injected methamphetamine. People in this group used methamphetamine in a more private setting with fewer people around them and had been using methamphetamine for more than ten years.

22 Ice" or crystal methamphetamine is the form of methamphetamine with the highest levels of purity and has a white, crystalised appearance (https://www1.health.gov.au/internet/publications/publishing.nsf/Content/phd-npi-methamphetamine-report-feb09-l~context). A study including 309 participants who used methamphetamine regularly in Australia showed that those who had used crystal methamphetamine in the previous year were significantly more likely to be dependent on methamphetamine than participants who had used other forms of the drug in the same timeframe (McKetin, Kelly, & McLaren, 2006). After adjusting analyses for mode of use, frequency of use, and length of use, using crystal methamphetamine remained significantly associated with methamphetamine dependence. Please see McKetin and colleagues (2006) for an in-depth discussion of these findings.

23 "Base" is a form of methamphetamine which looks like a paste, having usually shades of brown and a 'toffee like' appearance (https://www1.health.gov.au/internet/publications/publishing.nsf/Content/phd-npi-methamphetamine-report-feb09-l~context).

24 "Ecstasy" pills are usually made from MDMA mixed with other drugs such as amphetamines and caffeine (https://www.drugfoundation.org.nz/info/drug-index/mdma/).

3.6.1.2 Mode of Use

Studies conducted in Australia have also investigated differences among people who smoke methamphetamine and people who inject the drug (McKetin et al., 2008; McKetin et al., in press; McKetin, Voce & Burns, 2017). This distinction seems to be an important feature between people who use the drug in Australia and can be explained by the recent increase in use of crystal methamphetamine in Australia, especially in rural areas (McKetin et al., 2017).

The study by McKetin and colleagues (2008) included 195 participants who had only injected methamphetamine in the past month, 90 participants who had injected and smoked methamphetamine in the past month, and 73 who had only smoked methamphetamine in the past month. Findings showed that participants who only smoked were generally younger, and more likely to be female, also use "ecstasy" rather than heroin, and be less dependent on methamphetamine when compared to participants who injected it. Participants who injected and smoked the drug used methamphetamine in similar frequency and had similar poor health (both physical and mental), high levels of psychological distress, psychotic symptoms, sexually risky behaviour, and involvement in crimes. Participants who injected the drug, and those who injected and smoked the drug, were similar in terms of their socio-demographic profiles, polydrug use, and symptomatology, but were different in some respects–with participants who injected and smoked the drug using methamphetamine and being involved in crimes more frequently.

Another study by McKetin and colleagues (in press) investigated the characteristics of those who smoke (n=97) and those who inject (n = 54) methamphetamine. Similar to the findings by McKetin and colleagues (2008), those who smoked methamphetamine were younger than those who injected methamphetamine. Those who smoked methamphetamine were also less likely to be unemployed, have prior prison sentences, and live alone, and had used methamphetamine for fewer years.

Contrary to the findings by McKetin and colleagues (2008), participants who smoked methamphetamine used it more frequently in the past month than those who injected it and did not differ regarding their drug dependence level from those who injected methamphetamine. Those who smoked and injected methamphetamine were not significantly different regarding withdrawal and polydrug use. When sociodemographic factors were controlled in the analyses, those who smoked methamphetamine presented lower craving, and were less likely to report psychiatric symptoms and using antidepressants.

McKetin and colleagues (2017) study included 183 participants who lived in the Australian Capital Territory (ACT) and had used methamphetamine at least monthly. The study was commissioned as the use of crystalline methamphetamine was increasing in Australia and there was limited data about methamphetamine use and health concerns within the ACT. Findings from the study showed that two different groups of people used methamphetamine: a) the first group included older people who had injected opioid for a long period of time; and b) the second group included younger people who had been using the drug for less time and usually smoked the drug.

Taken together, studies conducted overseas focusing on profile and trajectory of people who use methamphetamine have distinguished profiles based on frequency, length, and mode of use (i.e. people who inject versus people who smoke methamphetamine). Findings suggest that the frequency of methamphetamine use is likely to increase with prolonged use (from experimental to chronic dependent use), but that there might still be different profiles of people who use the drug even when considering this higher likelihood. Findings also suggest that mode of use might be an important feature when distinguishing different profiles of people who use methamphetamine.

3.6.2 New Zealand Literature

3.6.2.1 Profiles of People Who Use Methamphetamine

An NDIB report (2017d) including findings from a discussion forum with 10 clients from a residential care facility in New Zealand suggested the existence of three main groups of people who use methamphetamine:

a. People who experiment with methamphetamine, not using it frequently;
b. People who use methamphetamine socially to assist them socialising with others; and
c. People who use a considerable amount of methamphetamine daily.

Based on anecdotal evidence from drug forums, NDIB (2017d) also observed the existence of 'high functioning' people who use methamphetamine who can use it while minimising its harm, being able for instance to keep their use hidden from others and to secure jobs.

3.6.2.2 Characteristics of People Who Use Methamphetamine

The NDIB (2017d) report also suggested that people who use methamphetamine in New Zealand are usually aged between 16 and 34 years old; are more likely to be male than female; and belong to a range of occupational groups. A review of literature by Farrell and colleagues (2019) suggested that sex workers, and people who feel the pressure of being extremely productive at work, might be more prone to use stimulants than the overall population. The authors also detailed that groups such as MSM (men who have sex with men) might be more prone to using stimulants.

Findings from a study by Foulds and colleagues (2020) including data from the Christchurch Health and Development study (CHDS)[25] showed that the age bracket in which participants were more likely to report using methamphetamine was from 21 to 25 years old (22.4% of 1,044 participants), followed by the age

25 The CHDS is a birth cohort study including 1,265 children born in Christchurch (New Zealand) in 1977 (Fergusson & Horwood, 2001, as cited in Foulds et al., 2020; Fergusson et al., 1989; as cited in Foulds et al., 2020).

bracket from 25 to 30 years old (14.4%), and the age bracket from 30 to 35 years old (7.8%). Only 5.5% of the participants reported using methamphetamine at least once from 18 to 21 years old.[26] This finding suggests that a higher percentage of people are likely to be using the drug in New Zealand during their twenties.

People who use methamphetamine in New Zealand are also likely to use other drugs, using them to either counteract or prolong the effect of methamphetamine (Bowman et al., 2019; NDIB, 2017d). The study conducted by Indig and colleagues (2017) compared the mental health, comorbidity, treatment seeking, and other associated factors for prisoners with and without a methamphetamine use disorder. A total of 1,209 prisoners from 13 prisons in New Zealand were interviewed in the study. The study showed that prisoners who had a methamphetamine dependence were three times more likely to have another drug dependence than prisoners who did not have a methamphetamine dependence.

Farrell and colleagues (2019) suggest that polydrug use of stimulants as well as other drugs can incur serious health hazards. The use of stimulants and alcohol increases the risk of cardiotoxicity and violent behaviour. Likewise, the use of opioids along with stimulants can overburden the cardiorespiratory system. Injecting both methamphetamine and heroin can lead to a 2.8 times higher risk of overdosing when compared to only injecting heroin. Finally, injecting multiple types of drugs is also associated with a higher chance of contracting blood borne viruses, as more syringes are used and may be shared to enable injections.

3.6.2.3 First Drug Used and Trajectory of Use

In a study by Bowman and colleagues (2019) including 54 prisoners, methamphetamine was not generally the first drug used. This finding is consistent with findings from Sheridan, Butler, and Wheeler's (2009) study, in which 19 out of 20 New Zealand participants who had used methamphetamine in the past year, reported using other illicit drug before using methamphetamine. The most commonly used illicit drugs before methamphetamine in this study were cannabis and amphetamine.

Similarly, most prisoners in Bowman and colleagues' (2019) study reported starting to use alcohol and cannabis first in their early teens. Most of the interviewees reported starting to use methamphetamine later in life in their teens and twenties. The age of onset in this study is consistent with the age of onset in Indig and colleagues' (2017) study. In this study, the average age of first use of methamphetamine was 21.8 years and the average age of onset of methamphetamine dependence was 22.9 years. New Zealand European prisoners had the youngest average age of onset of methamphetamine abuse disorders (21.9 years), with those who became dependent presenting an even younger average age of dependence (21.6 years). Thus, according to this study, methamphetamine use escalated quite rapidly towards chronic abuse. Likewise, the use trajectory in the study by Bowman and colleagues (2019) was associated with progressing frequency of use towards dependence.

However, in some cases this progression was slow and in other cases fast. It is important to mention that the studies cited in this paragraph were conducted with prisoners; thus, the methamphetamine use trajectories observed in them cannot be generalised to the overall population of people who use methamphetamine in New Zealand.

Findings from the Illicit Drug Monitoring System (IDMS) and the New Zealand Arrestee Drug Use Monitoring (NZ-ADUM) are not reviewed here. Both studies collected data for the last time in 2016 and focused on gathering intelligence about the drug market. Furthermore, while the IDMS included only participants who used methamphetamine frequently, the NZ-ADUM included only arrestees. Finally, the studies conducted by Indig and colleagues (2017) and Bowman and colleagues (2019) reported in this section include more updated information regarding methamphetamine use by prisoners in New Zealand than the last wave of the NZ-ADUM study.

Taken together, the studies conducted within New Zealand focusing on profile and trajectory of people who use methamphetamine include either a limited sample of people who use methamphetamine or focus on a specific sub-group of the population (e.g. prisoners). Furthermore, to our knowledge, no study has investigated the different profiles and trajectories of people who use methamphetamine including a representative sample of the population using the drug in New Zealand.

3.7 Negative Effects of Use

Continued use of methamphetamine is extremely harmful to the individual; negative effects include disrupted sleep patterns, skin irritation, nausea, hallucinations, paranoia, methamphetamine-induced psychosis, methamphetamine-induced suicide attempts, short-term memory loss, irritability, aggression, organ damage, permanent psychological problems, weight loss, cardiovascular issues, dental issues, neurological complications, and lowered general immunity (Bowman et al., 2019; McKetin et al., 2008; National Institute of Drug Abuse, 2019; NDIB, 2017d; Rawson, 2013).

Moreover, continued use of methamphetamine is also associated with difficulty in sustaining jobs, risky sexual behaviour, break-up of significant relationships, children being taken into others' care, neonatal and infant negative outcomes, 'feeling down' due to use, and involvement in crimes both under the influence of methamphetamine, or to sustain use (Bax, 2021; Bowman et al., 2019; LaGasse et al., 2011; McKetin et al., 2008; National Institute of Drug Abuse, 2019; NDIB, 2017d; Oranga Tamariki, 2020; Smith et al., 2015).

Farrell and colleagues (2019) observed in their review of literature that people who use amphetamines are more likely to die prematurely due to suicide, drug poisoning, accidental injury, cardiovascular disease, and homicide when compared to the overall population. Likewise, people who use amphetamine are more likely to suffer non-fatal harm such as substance dependence, non-fatal overdose and poisoning, stroke and myocardial infarction, respiratory and lung disease, skin and soft

26 Findings included in the study referred to data collected in four waves from when participants where 21 years old (enquiring them about the previous three years) to when they were 35 years old.

tissue infection, depression, violence, HIV, Hepatitis C virus, non-fatal injury, neonatal negative outcomes, and Parkinson's disease.

Repeated administration of methamphetamine has also been associated with cumulative risk of cardiac and coronary artery disease (Darke, Kaye, McKetin & Duflou, 2008). In this sense, the long-term use of methamphetamine may substantially increase the risk of myocardial infarction as the person using it ages.

Research by Arunogiri, McKetin, Verdejo-Garcia and Lubman (2018), Ersche and Sahakian (2007), Rawson (2013), and Darke and colleagues (2008) suggests that continued use of methamphetamine is not only associated with health effects while using the drug, but can also cause long-term effects which accumulate and may persist over time.

A systematic review of literature also critically assessed the existing literature regarding the association between prior methamphetamine use and health and criminal justice system outcomes after an index episode of criminal justice contact (Cumming, Kinner, McKetin, Li & Preen, 2020). Findings from nine longitudinal studies showed that prior methamphetamine use was associated with hospitalisations for drug-induced psychosis, but not associated with hospitalisation for non-drug related psychosis and mortality after release.

3.7.1 Association between Methamphetamine Use and Cognition

According to Potvin and colleagues (2018), the association between methamphetamine use disorder and cognitive deficits is a contentious issue in the literature. The authors discuss that different meta-analyses and reviews of literature have found contradictory results due to limitations in the method adopted and studies included in their analyses. Trying to account for these issues, Potvin and colleagues (2018) conducted a new meta-analysis of literature including 44 studies. Findings showed large deficits in impulse-related functions and social cognition in participants with a methamphetamine use disorder (when compared to those without); moderate deficits in global cognition, attention, executive functions, language/verbal fluency, verbal learning and memory, visual memory, and working memory; and small-to-moderate deficits in speed of processing and visuo-spatial abilities. There were no significant differences in visual learning between participants with a methamphetamine use disorder and those without. Findings also showed publication bias, with small studies showing small effects of methamphetamine on cognition being underreported in the literature and the possibility that the association between methamphetamine use disorder and cognitive deficits was slightly over-estimated in Potvin and colleagues' (2018) study.

Potvin and colleagues (2018) also observed that it is not currently possible based on existing literature to assess whether some of the cognitive deficits observed in the literature precede chronic use of methamphetamine. According to the authors, it is also difficult to reliably estimate the duration of cognitive deficits associated with methamphetamine use disorder after methamphetamine use is discontinued. The authors list as a limitation of their study the potential influence of confounders, such as quantities of methamphetamine used by participants, the length of methamphetamine use history, the route of administration of methamphetamine, comorbid depressive symptoms, alcohol use, and cigarette smoking, on the association between methamphetamine use disorder and cognitive deficits.

Although findings in the literature have limitations, further literature has connected deficits in cognition to an increased likelihood of relapsing, taking risks, and poorer psychosocial outcomes (Arunogiri et al., 2018). Moreover, cognitive deficits have been connected to changes in the patterns of brain activation of people who use amphetamine and methamphetamine (Ersche & Sahakian, 2007; Lee, 2017; National Institute of Drug Abuse, 2019). Ersche and Sahakian (2007) discuss that possible cognitive deficits associated with amphetamine dependence should be considered during treatment so clients with cognitive deficits remain in treatment and benefit more from it.

In New Zealand, the Substance Addiction (Compulsory Assessment and Treatment) Act 2017 defines as one of the criteria for compulsory treatment of people with a severe addiction the severe impairment of the "person's capacity to make informed decisions about treatment for that addiction" (para. 7). The Act define as severe impairment, individuals unable to:

a. understand the information relevant to the decisions; or

b. retain that information; or

c. use or weight that information as part of the process of making the decisions; or

d. communicate the decisions. [Substance Addiction (Compulsory Assessment and Treatment) Act 2017, para. 9]

According to an unpublished evaluation of this Act by the Ministry of Health (May 2021b), there is evidence that clinicians are perceiving the legal test of capacity based on the Act as an assessment of cognitive functioning in terms of understanding and retaining information, problem solving, focusing attention, and communication. In this sense, addictive compulsivity, and the inability of the person to avoid severely damaging substance use are not being considered. According to the evaluation, this means that the legal test of capacity based on the Act is mainly applicable to those with long-term alcohol addiction (Ministry of Health, May 2021b). This has been confirmed by findings showing that alcohol was reported as the main substance of concern in 80% of cases in which a person was placed under the Act (Ministry of Health, May 2021b).

In this sense, those with addiction to other substances such as methamphetamine will often not be classified as cognitive impaired based on the Act, even though they show severe addictive compulsion (Ministry of Health, May 2021b). In these cases, people using the drug might be eligible for compulsory treatment too late in their addiction trajectory, at which point permanent damage to the brain and nervous system might have already happened (Ministry of Health, May 2021b).

3.7.2 Association between Methamphetamine Use and Mental Health Issues

Bowman and colleagues (2019) emphasise that a few of the prisoners interviewed in their study mentioned using methamphetamine to self-medicate pre-existing mental health conditions. Similarly, Indig and colleagues (2017) found among 1,209 prisoners in New Zealand that prisoners who had a methamphetamine dependence disorder had a significantly higher prevalence for all mental health disorders and comorbidities across both 12-month and lifetime than prisoners who did not have a methamphetamine disorder. These included most anxiety disorders (except for Generalised Anxiety Disorder), and mood disorders. Interestingly, the age of onset of anxiety and mood disorders was before the age of onset of methamphetamine use disorder (when considering prisoners with a methamphetamine use disorder). Additionally, prisoners with a methamphetamine dependence disorder were twice as likely to have an antisocial personality disorder, a narcissistic personality disorder, or a schizoid personality disorder than prisoners without a methamphetamine disorder.

Likewise, the systematic review of literature by Farrell and colleagues (2019) suggests that people who use amphetamine are more likely to suffer non-fatal harm such as depression and violence. Some studies also portray that the likelihood of experiencing psychosis is higher among those who use amphetamines. McKetin and colleagues (2019) found in their systematic review of literature and meta-analysis including 59 articles that use of amphetamine was associated with a higher likelihood of psychosis, suicidality, violence perpetration, and depression. Having an amphetamine use disorder was associated with a higher likelihood of psychosis and suicidality. No association between amphetamine use disorder and anxiety was found, but this may be due to the limited number of articles including anxiety as a health outcome. Darke and colleagues (2008) observe that psychosis symptoms might be accompanied by violent behaviours, thus both of these factors can be associated when using amphetamine.

In their systematic review of literature, Arunogiri, Foulds, McKetin, and Lubman (2018) assessed factors associated with psychotic symptomatology in adults using amphetamine and methamphetamine. Based on findings from 20 studies including 13 different populations, the authors found evidence that higher frequency of use, quantity of use, and methamphetamine/amphetamine dependence were associated with an increase in the likelihood of experiencing psychotic symptomatology. Polydrug use, especially considering alcohol dependence and cannabis use, were also associated with psychotic symptomatology, although more studies are necessary to verify if the use of other substances can predict psychotic symptomatology in people who use methamphetamine or amphetamine. Age, gender, and employment status were not associated with psychotic symptomatology, while the relationship between other risk factors (e.g. psychiatric comorbidity, family history of psychosis or psychiatric illness, and history of trauma) and psychotic symptomatology was inconclusive. The authors discussed that most of the studies presented low to moderate quality evidence and measured outcomes differently, making it more difficult to unify findings quantitatively.

The authors also discussed how psychotic symptoms associated with methamphetamine and amphetamine use could have the same risk factors for schizophrenia, presenting evidence that 30% of people who use methamphetamine or amphetamine and present psychotic symptomatology also present later in life persistent psychotic illness. In this sense, psychotic symptomatology associated with methamphetamine/amphetamine use could transition to persistent and long-term psychiatric illness (Arunogiri, et al., 2018; The Royal Australian & New Zealand College of Psychiatrists, 2019). Evidence suggests that different methamphetamine psychosis profiles characterised by different symptomatology might be related differently to persistent psychosis, with those who present negative symptoms or first-rank symptoms more likely to present persistent psychosis (Arunogiri et al. 2018).

The study by Kittirattanapaiboon and colleagues (2010) included 449 participants who had been hospitalised for methamphetamine-induced psychosis between January 2000 and December 2001. The study assessed long-term outcomes of patients diagnosed with methamphetamine-induced psychosis treated in a psychiatric hospital five years after the initial psychotic episode. Findings showed that 47.2% of the patients had clinically significant relapses of psychotic symptoms, 39.2% were re-hospitalised, and 55.7% reported experiencing a psychosis relapse after discharge. When researchers excluded patients who reported using methamphetamine at the time from the analyses, they found that 52.6% of the 410 patients had only one episode of psychosis after which they fully recovered and 38.8% were diagnosed with schizophrenia or a current psychotic disorder or were taking antipsychotic medication. Thus, patients who initially present methamphetamine-induced psychosis symptomatology might require long-term care and monitoring.

According to the review of literature authored by Arunogiri and colleagues (2018), multiple studies have also differentiated cognitive impairment in those who are dependent on methamphetamine and have presented psychotic symptoms from those who are dependent on methamphetamine, but have not presented psychotic symptoms. These studies have observed that those who have presented psychotic symptoms have greater impairment on verbal memory, verbal fluency, attention, processing speed, and executive control. Furthermore, the cognitive impairment of those who present persistent psychotic symptoms associated with methamphetamine dependence seems to be similar to the impairment in people diagnosed with schizophrenia.

3.7.3 Impact on Others

It is also important to acknowledge that methamphetamine and amphetamine-type stimulants negatively impact not only those who use it, but also the family, whānau, and community in which use takes place. The 2016 New Zealand Drug Harm Index estimated the total harm of the use of amphetamine-type stimulants in New Zealand, including both personal and community harm, to be $347.8 million in 2014/2015 (McFadden, 2016). Each kilogram

of amphetamine-type stimulants was equated to $1.18 million of personal and community harm and $56,000 of intervention costs (NIC, 2016). The 2016 index also reported that experts acknowledged methamphetamine as the single most harmful illicit drug for people who are dependent on it, and the second most harmful illicit drug for people who use it casually (after heroin/ homebake; McFadden, 2016). Likewise, New Zealand Police's Crime Harm Index[27] indicates that the harm associated with methamphetamine and amphetamine is higher than the harm associated with almost all of the other drug types, excluding temporary drug classes and fantasy drugs (NIC, 2016).[28]

Oranga Tamariki (2020) reports that methamphetamine was a key factor in 49% of cases in a random sample of babies who were aged under 30 days to be taken into care. According to NIC (2016), children are the main victims experiencing harm as a result of family members' drug lifestyle, reporting that children of people who misuse substances are three times more likely to suffer physical abuse and four times more likely to experience neglect. Likewise, they are more likely to misuse substances, exhibit criminal behaviours, and be neglectful parents themselves, and are more prone to anxiety, depression, and moodiness later in life. Foetal methamphetamine exposure is also linked to negative outcomes in children such as cleft lip, cardiac defects, reduced head circumference, cerebral haemorrhage, and delayed or incomplete development of mental and intellectual abilities during childhood (NIC, 2016).

Smith and colleagues (2015) presented findings from the Infant Development, Environment, and Lifestyle (IDEAL) study which investigated the effect of prenatal methamphetamine exposure on maternal outcomes and child growth and development. The study assessed outcomes for children from birth to 7.5 years and included samples from both the United States and New Zealand. Authors compared outcomes for a group of mothers/children exposed to methamphetamine with outcomes for a group of mothers/children not exposed to it. Given that previous literature has shown that the prenatal exposure of children to other substances such as tobacco and alcohol is associated with negative outcomes (albeit not as severe as those of methamphetamine),[29] these variables were entered as covariates in the analyses. Findings showed that methamphetamine exposure was associated with poor suck in new-born babies, smaller head circumference and height at birth, increased physiological stress within the first five days of life, increased anxious/depression problems and emotional reactivity at ages three and five, increased attention-deficit/hyperactivity disorder symptoms at age five, poorer executive functioning at ages five and a half and six and a half, among other negative outcomes. The authors discuss that although their analyses included exposure to alcohol and tobacco as covariates, more people in the group exposed to methamphetamine were also exposed to alcohol and tobacco than in the group not exposed to methamphetamine. Thus, negative outcomes observed for the group exposed to methamphetamine might have been impacted also by exposure to alcohol and tobacco.

3.7.4 Impact on Health Care and Advice

A report by NDIB (2020a) describes that the number of patients who were hospitalised due to methamphetamine use increased from below 300 in 2015 to 837 in 2019. The sharpest increase in this trend happened from 2018 to 2019, when the number of hospitalisations climbed from around 500 to 837.[30] According to Emergency Department specialists, patients hospitalised due to methamphetamine are likely to be people who just started using the drug and do not represent the overall population using methamphetamine (NDIB, 2017c).

Anecdotal evidence from Auckland Hospital also describes increases both in the number of patients who reported using methamphetamine in the previous two years, and patients who inject methamphetamine (NDIB, 2017d). Patients who use methamphetamine do not necessarily attend emergency departments due to methamphetamine use, attending it more due to side effects of methamphetamine use (NDIB, 2017d). In this sense, it is difficult to estimate the real percentage of people who use methamphetamine and seek health care due to use.

The Australasian College for Emergency Medicine (2020) recently published a report with findings from their 2019 Snapshot Survey which estimates the percentage of alcohol and methamphetamine-related presentations to Emergency Departments in both Australia and New Zealand. The survey estimates these percentages by assessing the percentage of patients being attended, waiting to be attended or in observation and/or short stay units due to alcohol and methamphetamine-related harm in a given December weekend night. Methamphetamine-related harm includes injuries and medical, mental, and behavioural conditions resulting from use; intoxication; underlying use; and indirect harm associated with use.

Findings from the 2019 survey showed that 1.9% (8 patients) of the 422 patients attending Emergency Departments in New Zealand were being seen due to methamphetamine-related harm. This percentage had increased from 2018 when 0.7% (n = 3) of the patients were being seen due to harm connected to the drug. Based on findings, The Australasian College for Emergency Medicine (2020) discusses that Emergency Departments have to start implementing a model of care where mental health, emergency medicine, and alcohol and drug specialists work together, describing that patients seen dueto methamphetamine-related harm require active care, greater resources, and longer Emergency Department stays. The organisation also discusses that the coding system currently used, and the frequency in which attendances related to alcohol and other drug use are correctly recorded have to be improved.

Data on a report by NDIB (2017c) also showed that the number of methamphetamine-related calls to the drug helpline

27 New Zealand Police's Crime Harm Index differentiates types of crimes based on the harm they cause, not focusing on volume or frequency of crimes. It is calculated based on sentencing data from the Ministry of Justice.
28 This comparison included only drug-related charges, not including other types of charges.
29 Please see Sowell and colleagues (2010) and Aliyu and colleagues (2009) for additional information.
30 Internal communication from the Ministry of Health (May 2021a) notes that this data is not collected reliably in the Health System and may be incomplete.

fluctuated in 2016 from 89 to 179 calls per month. The average number of calls per month related to methamphetamine use was 127. The number of methamphetamine-related calls in 2016 was just smaller than the number of alcohol-related calls. Methamphetamine-related calls accounted for about 19% of the calls per month. Likewise, methamphetamine-related calls in 2019 ranked only below calls for an unknown substance and alcohol-related calls (NDIB, 2020a).

3.8 Purchasing Methamphetamine

3.8.1 Face-to-Face Purchasing

The Illicit Drug Monitoring System (IDMS) was a study conducted between 2006 and 2016 with people who frequently used drugs in the three main centres of New Zealand – Auckland, Wellington, and Christchurch (Wilkins, Prasad, Romeo & Rychert, 2017). Among the 310 participants, 133 frequently used methamphetamine in the 2016 wave of the study. Findings showed that 72% of the participants could purchase methamphetamine in one hour or less; and 54% of the participants had purchased methamphetamine from their houses, 35% had purchased at an agreed public location, and 23% had purchased in a public area such as a park in the previous six months. Anecdotal evidence also suggests that dealers use trap houses (i.e. places where illegal drugs are sold) to sell methamphetamine (Waitemata West Intelligence Team, n.d.).

Additionally, the IDMS study showed that 46% of the participants had bought methamphetamine from a friend in the previous six months, 44% from a drug dealer, 37% from a social acquaintance, 34% from a gang member or associate, and 13% from a partner or family member (Wilkins et al., 2017). Findings from the report suggested that consistently more people who used the drug had been purchasing methamphetamine from a gang member or associate across the years, increasing from 26% in 2009 to 34% in 2016 (Wilkins et al., 2017).

3.8.2 Online Purchasing

Given that 41.7 kilograms of methamphetamine were seized at the International Mail Service Centre (IMSC) in Auckland in 2016, it is also important to consider how methamphetamine is purchased online (NDIB, 2017e). According to the report by NDIB, when purchasing drugs online, the method of payment used varies depending on whether the drug is purchased in darknet or clearnet websites (e.g. Facebook). When using clearnet websites, personal credit cards will generally be used to pay for the drug. On a smaller scale, pre-loaded prezzy cards also will be used if the purchaser is more security conscious. When using darknet websites, purchasers will generally have the option of using bitcoin to pay for orders, as payments using this mode are more difficult for law enforcement agencies to track.

People who purchase drugs have been found to mostly use their own name and address to order drugs online. However, purchasers who want to protect their identities also order drugs to P.O. boxes, vacant properties, and neighbouring addresses. Those purchasing drugs online in New Zealand are more likely to be in their late teens or twenties. Additionally, students, tourists, and seasonal workers are more likely to import drugs via online platforms and distribute them within New Zealand (NDIB, 2017e). The appeal of earning large amounts of cash quickly by onselling these drugs is significant, particularly when in a low paying job, or living off student allowances. According to an internal communication with Williams (December 2020), online methods are also being used by organised crime groups and members of gangs to import methamphetamine into the country.

3.8.3 Non-Cash Deals

Wilkins and colleagues (2004) found by interviewing 62 arrestees from New Zealand that 45% of the arrestees had obtained an illicit drug in a non-cash deal in the previous 30 days. Of these, 43% had shared the drug with someone else, 31% had received it as a gift, 13% had used credit for personal use to obtain it, 12% had traded it for stolen property, and 10% had traded it for personal property.

A report from NDIB (2015a) also described a qualitative study which established the link between underage prostitution with methamphetamine use in New Zealand. In the study, Thorburn interviewed ten underage sex workers in Auckland (McAllen, June 2015). Findings suggested that a lot of the sex workers interviewed attended school from 12 to 15 years old during the day but were also working as sex workers and using methamphetamine at night. It might be the case that sex work was either funding methamphetamine use or being traded for methamphetamine.

3.8.4 Origin Preference

Anecdotal evidence suggests that some people who use methamphetamine may prefer to purchase methamphetamine manufactured in New Zealand than abroad. This might be due to the risk of Customs intercepting it, supply and timeliness matters, and inferior quality of methamphetamine acquired abroad (NDIB, 2018c).

3.9 Dealing and Manufacturing Methamphetamine

Findings from Bowman and colleagues (2019) also identified that 40 out of the 54 prisoners they interviewed had dealt methamphetamine. Motivations given by participants for dealing methamphetamine included covering the cost of their own use, ensuring they had methamphetamine available for their own use, making money (while methamphetamine use did not consume all their profit), and enjoying the 'lifestyle' connected to selling methamphetamine.

Prisoners who had dealt methamphetamine reported being invited to deal by gang members or starting to deal by themselves after seeking advice from mates or partners, or being asked if they dealt by acquaintances or friends (Bowman et al., 2019). Many of the dealers reported being members of a 'club' and acknowledged that all gangs in New Zealand were involved with importing, manufacturing, and trafficking the drug. A report from NDIB (2018c) suggested that members of multiple gangs have been increasingly participating in the domestic methamphetamine market.

Some of the dealers also reported that selling methamphetamine was a natural transition from selling cannabis. Connected to this finding, Wilkins, Romeo, Rychert, Prasad, and Graydon-Guy (2018) have observed that methamphetamine is more likely to be perceived by people who use the drug as being available when they perceived cannabis as being less available. The same study also observed that methamphetamine is perceived to be more available in rural areas and towns in New Zealand than in cities. This finding might suggest that dealers are favouring dealing methamphetamine over cannabis, and that this change could be more readily observed in rural areas of New Zealand. The Royal Australian and New Zealand College of Psychiatrists (2019) suggests that rural and indigenous communities are more vulnerable to the harm caused by methamphetamine. Anecdotal evidence also suggests that some cannabis cultivators are turning to methamphetamine production due to its demand and how much money can be made (NDIB, 2017b).

Seven of the 54 prisoners interviewed by Bowman and colleagues (2019) also reported manufacturing methamphetamine. These interviewees identified that the main motivation for manufacturing methamphetamine was making money, and most reported selling the methamphetamine manufactured to gangs. Likewise, a report from NDIB (2019a) has found addiction, coercion by organised crime groups, financial difficulties, and financial gain to be the main motivations for manufacturing methamphetamine. According to the report, manufacturers of methamphetamine in New Zealand are usually male Europeans aged between 31 and 55 years old who keep the same manufacturing behaviours and patterns until they are forced to change them. The second most likely group are male Māori within a similar age range. Intelligence suggests most people who manufacture methamphetamine use the drug themselves (NDIB, 2019a). Methamphetamine manufacturing has been acknowledged by manufacturers as stressful and as hard work (NDIB, 2019a).

Regarding negative effects on children, those residing in methamphetamine manufacturing laboratories are at increased risk of fires and explosions, poisoning, injury, accidental death, burns, hypodermic needles, razor blades, among others (NDIB, 2015b; NIC 2016). An intelligence report describes that an average of 30 children were found in these laboratories every year between 2013 and 2015 (NIC, 2016).

The violence associated with both dealing and manufacturing methamphetamine has also been acknowledged in several reports, studies, and books (McKetin et al., 2005; Shukla, 2016). NIC (2016) reports that interviews with offenders suggest threats, violence, and thefts are some of the repercussions of methamphetamine-related debt, in particular owing money to gangs. There are also reports that methamphetamine manufacturers have been traded or kidnapped and forced to manufacture methamphetamine (NIC, 2016); and that people who use the drug have been forced to sell it in order to pay for their debt (Williams, March 2019).

Methamphetamine has been described by manufacturers in the United States to also lead to irregular behaviour which was not present before using the drug for the first time (Shukla, 2016). Decisions are centred on having access to the drug and being under its influence. Recent news reports in New Zealand illustrate the irregular and violent behaviour connected to methamphetamine use (Biddle, 2020; Flemming, 2020; Wellington higher courts reporter, 2020).

3.10 Summary

This chapter focused on different topics related to the use of methamphetamine, from characteristics associated with the first use of the drug to the trajectory from using methamphetamine to dealing and manufacturing it. In this sense, the section approached a lot of different topics, all centred on the perception that people who use the drug have of the methamphetamine experience and market.

Overall, findings presented in this chapter showed that:

- Wastewater drug testing results can be used to estimate methamphetamine consumption in New Zealand. Considering the period prior to COVID-19 affecting New Zealand, the amount of methamphetamine consumed nationally per week fluctuated between 11.3 and 16.9 kilograms.[31] This represents a stable average consumption of 14.1 kilograms (standard deviation = 1.5 kilograms). Since testing began, methamphetamine has been detected in wastewater for every community tested during every day of the week in New Zealand. About 50% (range 41.1%–57.2%) of methamphetamine consumed nationally between November 2018 and February 2020 was consumed in the Auckland region, however, use per capita in Bay of Plenty, Eastern, and Northland generally ranks higher than in the Auckland region;
- In 2020, wastewater mass loads[32] were compared across 27 countries. Considering the seven days sampled during the collection week, New Zealand ranked high, only ranking lower than Australia, United States, and Czech Republic;
- Statistics for methamphetamine use prevalence in New Zealand vary depending on the study and method being used. Thus, it is important to consider multiple data sources when estimating methamphetamine use in New Zealand as all studies have limitations. The 2016 Drug Harm Index estimated that only 5.5% of those who use methamphetamine are dependent on it. Thus, it is likely most people using the drug, use it less than frequently. Continuous, reliable prevalence studies are required in the New Zealand context to improve our understanding of prevalence and dependence;
- Findings from the 2019/20 New Zealand Health Survey including a sample of the overall New Zealand population showed that Māori were only 1.18 times more likely to report having used amphetamine in the previous year than non-Māori; although the proportion of Māori offenders proceeded against in court for possession, use, and utensils for methamphetamine increased from 32% in 2010 to 45% in 2020, while the proportion of European offenders proceeded against in court for the same offences during the same period dropped from 57% to 45%. More research is needed in order to specify more accurately the harm caused by methamphetamine to those of different ethnicities in New Zealand;
- People who use methamphetamine in New Zealand have reported being first introduced to the drug by friends, acquaintances, family, and partners. People who use the drug have also reported first trying the drug for free when offered by dealers;
- People who use methamphetamine in New Zealand have reported that prior to using it they were unaware of its negative effects, or did not have specific knowledge about the drug;
- Awareness of negative health impacts, losing social connection with others, and financial instability have been identified by people who use methamphetamine as reasons for reducing use. Moreover, people who use the drug tend to seek help to decrease use when their partner or families leave, their children are removed from their care, they have legal, financial or health issues, the criminal lifestyle associated with methamphetamine use is causing them harm, and they 'hit rock bottom'. They also seek help when their desire for a 'normal' life and future is stronger than their addiction;
- Profile and life-trajectory studies conducted overseas have distinguished profiles based on frequency, length, and mode of use (i.e. people who inject versus people who smoke methamphetamine). The literature suggests that the frequency of use is likely to increase with prolonged methamphetamine use, but that there might still be different profiles of people who use the drug. Furthermore, mode of use might be an important feature when distinguishing different profiles;
- Profile and life-trajectory studies conducted in New Zealand are limited by either restricted sample sizes or focus on a specific sub-group of the population (e.g. prisoners);
- A New Zealand study with prisoners indicates the average age of first use of methamphetamine was 21.8 years, while the age of onset of methamphetamine dependence was 22.9 years. These findings suggest that methamphetamine use can escalate quite rapidly towards dependence;
- People who use methamphetamine are likely to use other drugs. The use of stimulants in conjunction with other substances is associated in the literature with serious health hazards such as overburdening of the cardiorespiratory system, higher risk of overdose, and higher chance of contracting blood borne diseases;
- Continued use of methamphetamine is extremely harmful to the individual; negative effects include disrupted sleep patterns, skin irritation, nausea, hallucinations, paranoia, methamphetamine-induced psychosis, methamphetamine-induced suicide attempts, short-term memory loss, irritability, aggression, organ damage, permanent psychological problems, weight loss, cardiovascular issues, dental issues, neurological complications, and lowered general immunity. Moreover, continued use of methamphetamine is also associated with difficulty in sustaining jobs, risky sexual

31 This finding is based on data recorded from November 2018 (when the wastewater drug testing programme was expanded to include results for 75% of the population living in New Zealand) to February 2020 (when the first COVID-19 case was detected in New Zealand).

32 Mass load refers to the normalised concentration of methamphetamine or metabolite in the wastewater by population.

behaviour, break-up of significant relationships, children being taken into others' care, neonatal and infant negative outcomes, 'feeling down' due to use, and involvement in crimes both under the influence of methamphetamine, or to sustain use. Chronic use has been associated with long-term health effects which may persist after use. The number of patients hospitalised due to methamphetamine use in New Zealand is increasing;

- Methamphetamine and amphetamine-type stimulants impact not only those who use them, but also the family, whānau, and community in which use takes place. Methamphetamine use has been shown to deeply impact children, harming them both physically and mentally. Foetal methamphetamine exposure has been linked to negative outcomes in children;
- The 2016 New Zealand Drug Harm Index estimated the total harm of the use of amphetamine-type stimulants in New Zealand, including both personal and community harm, to be $347.8 million in 2014/2015. Each kilogram of amphetamine-type stimulants was equated to $1.18 million of personal and community harm and $56,000 of intervention costs;
- Motivations given by dealers for dealing methamphetamine in New Zealand were covering the cost of their own methamphetamine use, ensuring they had methamphetamine available for their own use, making money, and enjoying the 'lifestyle' connected to selling methamphetamine;
- Motivations given by manufacturers for manufacturing methamphetamine in New Zealand were making money, addiction, coercion by organised crime groups, financial difficulties, and financial gain;
- Members of gangs in New Zealand might have become increasingly involved in the methamphetamine market, with reports that methamphetamine trafficking is being prioritised over cannabis trafficking;
- An average of 30 children were found in methamphetamine manufacturing laboratories every year between 2013 and 2015. Children residing in these laboratories are at increased risk of fires and explosions, poisoning, injury, accidental death, burns, hypodermic needles, razor blades, among others; and
- The violence associated with both dealing and manufacturing methamphetamine has been acknowledged in several reports, studies, and books. An intelligence report highlights that threats, violence, and thefts are some of the repercussions of methamphetamine-related debt, in particular owing money to gangs, in New Zealand.

4. Association with Other Crimes and Incidents

4. Association with Other Crimes and Incidents

This chapter describes findings from different studies, reviews of literature, and reports which assessed the association of methamphetamine use and methamphetamine-related charges with violent offending, family harm, acquisitive crime, involvement in road trauma, and money laundering.

Importantly, it has been acknowledged in the literature that many people who use methamphetamine also use other substances (Bowman et al., 2019; Farrell et al., 2019; Indig et al., 2017; NDIB, 2017d) and that dependence on other substances, such as alcohol, has been shown to have a causal link with property and violence offending (Boden, Fergusson, & Horwood, 2013). Thus, the association between methamphetamine use and offending described in this chapter may also be affected by use and dependence on other substances (Boden, et al., 2013).

4.1 Prevalence of Other Crimes and Incidents

According to NIC (2016), methamphetamine-related offences increased in New Zealand from 1,808 in 2011 to 2,473 in 2015.[33] Among these, an average of 74% of the offences each year involved incidents or offences without a methamphetamine charge. Furthermore, frontline officers perceived the use of methamphetamine as a driver of family harm. These findings suggest that methamphetamine is one of the drivers of other types of incidents and offences in New Zealand (NIC, 2016). Methamphetamine-related crimes (i.e. crimes fuelled by, or committed by an offender under the influence of methamphetamine) may be undercounted in police data due to methamphetamine use not being often recorded in police systems as an offence when associated with other types of incidents and offences (NIC, 2016).

Moreover, Williams (March 2019) acknowledges that drug-related offences are more likely to be discovered through police activity, rather than being reported to police by the public. In this sense, the frequency of methamphetamine-related charges likely does not accurately reflect the harmful impact of methamphetamine in the community. Williams (March 2019) also reports that the number of offenders proceeded against for methamphetamine offences remained stable from 2010 to 2013, increasing sharply from 2014 onwards in all the 12 Police Districts. Furthermore, the data showed that offenders who were proceeded against for methamphetamine-related possession, use, and utensil offences from 2010 to 2018 were also proceeded against for another 139,000 offences, including theft, burglary, other dishonesty offences, driving offences, possession of weapons, selling drugs, violence offences, breaching bail, failing to appear in Court, and breaches of supervision orders. Some of the offenders also had family violence, mental health, suicidal tendency, gang affiliation, and weapon warnings in Police systems.

Findings presented in two reports by the New Zealand Department of Corrections also suggest that methamphetamine use and dependence are associated with other types of crimes and incidents (Bowman et al., 2019; Indig et al., 2017). Williams (March 2019) notes that these associated charges better reflect the harm caused by methamphetamine in New Zealand communities as they are reported by community members, rather than as a result of police-initiated law enforcement activities.

Bowman and colleagues (2019) interviewed prisoners who had been identified as using methamphetamine and showed that 29 out of 54 prisoners (54%) were in prison due to non-methamphetamine related lead offences. Of these, 13 (45%) had a violence charge as the lead offence, seven (24%) a burglary charge, three (10%) a dishonesty charge, two (7%) a sexual violence or a traffic charge, and one (3%) a weapons or other offence charge. Most prisoners, however, attributed their crime to methamphetamine use, disclosing that they either committed crime under the influence of methamphetamine, or to fund their use of the drug. Similarly, 6% of the 793 arrestees interviewed in the 2016 wave of the New Zealand Arrestee Drug Use Monitoring (NZ-ADUM) study reported they were using methamphetamine prior to being arrested (Wilkins, Prasad, Barnes, Parker & Asiasiga, 2017).

Indig and colleagues (2017) found when investigating drug dependence and mental health issues among 1,209 prisoners that 71% of the 127 prisoners who had a burglary charge as lead offence, and 54% of the 241 prisoners who had a violence charge as lead offence had used methamphetamine in the past year. Additionally, lifetime dependence on methamphetamine was more prevalent among prisoners who had been incarcerated earlier in life, had more custodial sentences, and had been in prison longer.

Considering just those who had been charged with methamphetamine manufacturing, NDIB (2019a) suggested that the top five offence types committed by offenders who have a methamphetamine manufacture-related charge are drug, traffic, theft, firearms, and breach of bail. Additionally, recidivism is acknowledged to be high among those who manufacture methamphetamine, at times even when they are still on bail (NDIB, 2015b).

33 A targeted multi-agency Action Plan on Methamphetamine to disrupt supply chains, reduce demand, and mitigate the harms of the drug was in place in New Zealand between 2009 and 2018 (Devlin, 2019; Ministry of Justice, 2011). In this sense, part of the increase in charges associated with methamphetamine may be a result of a tougher stance on methamphetamine based on legislation.

Furthermore, a systematic review of literature investigating the association between prior methamphetamine use and health and criminal justice system outcomes after an index episode of criminal justice contact found that pre-methamphetamine use was associated with increased risk of recidivism and higher crime costs after the initial criminal justice system contact (Cumming et al., 2020).

Even considering all the evidence reported in this section, it is important to remember that at times low-level methamphetamine-related offences can be the most serious offences committed by offenders, not being associated with any other more serious charges. The New Zealand Drug Foundation (2019) reports that the frequency of low-level methamphetamine convictions in cases in which this was the lead offence increased steadily between 2014 and 2018 from just below 1,000 to 1,949, overtaking the number of low-level cannabis convictions in 2018 (n = 1,791). These low-level methamphetamine-related offences are associated with the illegal status of using methamphetamine, not being associated with any other crime.

4.2 Violent Offending

A report by NDIB (2015a) evaluated the association between methamphetamine and violent offending. The report included violent crimes and incidents related to offenders who received a methamphetamine charge between 2010 and 2015. According to the report, there were 9,910 offenders who had received methamphetamine charges from 2010 to 2015. Of these, 68% had been associated with family violence incidents, 37% had been victims of a violence offence, 13% had alerts for carrying or using a weapon, 11% had used a firearm against a police officer or assaulted law enforcement staff, and 6% had been offender, suspect, or victim of a sexual attack. Furthermore, 475 (5%) of the offenders committed a methamphetamine offence before committing a violence offence, and 304 (3%) of the offenders committed a violence offence in the same day they were charged with a methamphetamine offence. Thus, having a methamphetamine charge can be associated with both prior and subsequent violence offending. Additionally, methamphetamine offending can take place in the same day of violence offending, and those with methamphetamine charges can also be victims of violence themselves. According to the report, violent offending associated with methamphetamine can occur due to the influence of the drug, due to the need to fund use of the drug, and as part of the drug distribution system (e.g. debt collectors).

NIC (2016) have also reported increases in weapon and assault-related charges associated with methamphetamine-related charges. NIC (2016) reports that offences involving a weapon had increased from 241 in 2011 to 408 in 2015; and offences involving assault had increased from 66 in 2011 to 110 in 2015. The report also discussed that considering the month of August in both 2015 and 2016, the mention of methamphetamine in the summary of cases had increased from 35 to 65 times in weapon offences, 17 to 32 times in firearm offences, 33 to 43 times in assault offences, five to 15 times in assault/ restrict/ obstruct police offences, eight to 11 times in domestic violence offences, two to five times in sexual offences, and zero to two times in kidnapping offences.

Likewise, Foulds and colleagues (2020) found using data from the Christchurch Health and Development Study that a history of methamphetamine use was associated with increases in violence perpetration, intimate partner violence perpetration, and violence victimisation when compared to no history of methamphetamine use. The authors also found that using methamphetamine more frequently was associated with a higher likelihood of being involved in violence episodes. These findings are similar to findings from Australian longitudinal studies which have shown that both using methamphetamine (versus not using it) and higher doses of methamphetamine are associated with increases in violent offending (McKetin et al., 2014; McKetin et al., 2020).

Morrison, Bevan, & Meredith (2020) conducted a study in 2017 focusing on family violence perpetration. The study included interviews with 48 New Zealand prisoners [36 male (75%); 35 Māori (73%); average age of 35 years] who had a family violence offence as a lead offence.[34] The authors observed in their study that around half of the participants indicated that alcohol and other drugs (typically methamphetamine) played a key role in their most recent family violence offending, although just a few reported being under the influence of these during the offence. In this sense, the key role of alcohol and other drugs in the family violence offence was more related to their own use or partner's use enhancing conflict in the relationship by taking people away from partner and family responsibilities; heightened concerns about infidelity while socialising apart; isolating effects of methamphetamine on people who use it making it difficult for them to look for support in their relationships and other stresses as they happened; and friction when household resources were limited.

Many participants did not see a causal link between using alcohol and other drugs and family violence offending (as many had been using these substances for a long time before perpetrating family violence offences). Thus, many did not see stopping alcohol and other drug use as a way to reduce violence. According to case notes (when they were available), the use of alcohol and other drugs was also a key factor in family violence reoffending. The authors discuss that this link should be better explored as well as the most effective treatment pathways for family violence offenders who use alcohol and other drugs.

Bowman and colleagues (2019) observed similar findings in their qualitative study with 54 prisoners in New Zealand, finding that methamphetamine was perceived to affect their relationship with partners, making family violence common. A rapid evidence assessment of the existing literature about the association between methamphetamine use and domestic violence confirmed this finding, showing that, when compared to people who do not use it, people who use methamphetamine

34 Morrison and colleagues (2020) discuss that the sample of participants included in their study is broadly comparable to other prison-based family violence offenders, although participants in their sample had often attended more treatment programmes than other prison-based family violence offenders. The authors also observe that the sample of participants included in their study is not representative of family violence perpetrators outside the prison context.

are more likely to perpetrate domestic violence (Dowling & Morgan, 2018). The authors discuss that this corresponds to a small number of all domestic violence offences, arguing that the use of methamphetamine generally happens among other risk factors, and that this use could exacerbate an already violent predisposition.

In another study evaluating the association between methamphetamine dependence and domestic violence among police detainees in Australia, findings showed that detainees who acknowledged themselves as dependent on methamphetamine were more likely to report violence against an intimate partner (61%) than detainees who used methamphetamine but did not acknowledge being dependent on it (37%) and those who did not use methamphetamine (32%) (Morgan & Gannoni, 2020).

4.3 Acquisitive Crimes

NIC (2016) reported that interviews with offenders suggest that offenders turn to burglary and other crimes to fund their methamphetamine use.

Wilkins & Sweetsur (2011) evaluated the association between spending on methamphetamine/ amphetamine and cannabis for personal use and earnings from acquisitive crime. The study included 2,125 police detainees interviewed as part of New Zealand's Arrestee Drug Abuse Monitoring (NZ-ADAM) study between April 2005 and September 2007. Findings showed that as the total spending on drugs in the past 30 days increased, earnings from property crime and drug dealing also increased. Spending on methamphetamine/ amphetamine was a significant predictor of involvement in a property crime and drug dealing during the previous 30 days, with those spending on methamphetamine/amphetamine three times more likely to commit a property crime, and six times more likely to have been involved in drug dealing than those who did not spend on methamphetamine/amphetamine. Level of spending on methamphetamine/amphetamine was also a predictor of level of income from property crime and drug dealing during the previous 30 days, with those spending more on methamphetamine/ amphetamine reporting a higher income related to property crime and drug dealing than those who did not spend any money on methamphetamine/amphetamine.

Goldsmid & Willis (2016) conducted a similar study in Australia, finding that detainees who reported using methamphetamine in the last 30 days reported generating a significantly higher proportion of their income from crime than detainees who reported not using it. Those who used methamphetamine were also more likely to report obtaining income from family and friends, welfare, sex work, shoplifting, drug dealing and drug-related crime, while those who did not use it were more likely to report working full-time. Detainees who used methamphetamine were about 4.5 times more likely to report income from acquisitive crime than those who did not use it. Those who reported using methamphetamine were also more likely to be linked to a drug or property crime lead offence than those who reported not using the drug.

4.4 Risk Factor in Road Trauma

Considering driving under the influence of methamphetamine, 48% of the 187 arrestees who drove and had used methamphetamine in the previous year reported driving at least sometimes under the influence of methamphetamine in the 2016 wave of the NZ-ADUM study (Wilkins et al., 2017).

Likewise, preliminary findings from an evidence review focusing on substance impaired driving described findings from two survey-based studies conducted in New Zealand and published in 2017 (van Lamoen, 2020). The first study was published by the New Zealand Transport Agency and showed that 28% of those who took drugs reported driving once a week or more in proximity of consuming amphetamines. The second study published by Malhotra, Starkey, and Charlton (2017) showed that 3% of the general population New Zealand drivers who answered the survey indicated that they had driven after consuming amphetamine or methamphetamine.[35]

According to van Lamoen's (2020) evidence review, based on existing case-control and meta-analysis studies, drivers under the influence of amphetamine are at a high increased risk (five times or more) of being seriously injured or killed in a crash in comparison to drivers who have not consumed the substance. van Lamoen (2020) argues that existing evidence shows that driving under the influence of amphetamines equates to driving with a blood concentration between 0.8 grams and 1.2 grams of alcohol per 100ml of blood. The current threshold for criminally charging drivers in New Zealand is 0.8 grams of alcohol per 100ml of blood.

van Lamoen (January 2021) discusses that although the existing literature estimates crash risk for only the amphetamine class of drugs, clinical assessments suggest that methamphetamine is likely to be the riskiest and most intoxicating substance in the amphetamine and stimulant classes; the crash risk for someone who is driving under the influence of methamphetamine may therefore be more than five to 14 times the crash risk of a sober driver. This estimate translates to driving with a blood concentration exceeding 0.8 grams of alcohol per 100ml of blood.

Regarding detection in road policing activities, statistics from New Zealand Police show that 40% of the unsatisfactorily completed roadside Compulsory Impairment Tests (CITs)[36] in 2019 were connected to amphetamine use, which included mainly methamphetamine, but also some methylenedioxy (van Lamoen,

35 This percentage is based on a survey focusing on the behaviour of driving within three hours of taking the drug (Malhotra et al., 2017). Thus, a larger percentage of drivers could have consumed amphetamine or methamphetamine and driven while they were under their influence (past the three hours threshold). Methamphetamine has an average half-life of 12 hours in the human body (i.e. 50% of the drug taken is removed from the human body within this timeframe; https://www.drugabuse.gov/publications/research-reports/methamphetamine/how-methamphetamine-different-other-stimulants-such-cocaine).

36 The Compulsory Impairment Test (CIT) is the standardised field sobriety test used in New Zealand. An unsatisfactory CIT means that the driver was unable multiple times to perform the requirements of the test (van Lamoen, January 2021).

2019; van Lamoen, January 2021).[37] Also, methamphetamine was found in 13% of the blood samples of fatally injured drivers (when tested) between 2016 and 2018 (van Lamoen, 2019). This value represents a 160% increase when considering the average of 5% observed between 2013 and 2015 (van Lamoen, 2019). van Lamoen (January 2021) estimates that 40 to 45 road deaths per year are associated with the use of methamphetamine since 2016,[38] arguing that this represents an estimated social cost of $182-$205 million per year (van Lamoen, May 2021; based on Ministry of Transport, 2020). In this sense, driving under the influence of the drug is a major road safety issue in New Zealand. van Lamoen's (2020) assessment found methamphetamine to likely be the second most harmful substance in the promotion of road trauma (after alcohol) given its level of increased risk of crash involvement and prevalence in severe crashes on New Zealand roads.

van Lamoen (January 2021) reports that the National Road Policing Centre has commenced a project with ESR to retest post-crash hospital blood samples with incomplete toxicology analysis (e.g. alcohol only) taken over October-December 2020 for all qualifying drugs. This analysis will provide the road safety sector with a complete and contemporary picture of the prevalence of impairing substances involved in casualty crashes in New Zealand.

According to van Lamoen (May 2021), the New Zealand Government is currently considering the introduction of legislation that would allow New Zealand Police to require random roadside oral fluid testing for the presence of drugs, including for amphetamines. van Lamoen (May 2021) discusses that the efficacy of roadside drug testing in reducing drug driving and associated traffic crash trauma is largely unknown in the literature, however a deterrent effect may be expected if evading detection is made substantially more difficult. Random breath testing (RBT) has already been shown in the literature to decrease alcohol-related traffic crash (ARTC). In a study in Australia, Ferris and colleagues (2013) found that for every 10% increase in the percentage of RBTs to licensed drivers, there was a 0.15 decrease in the rate of ARTCs per 100,000 licensed drivers.

van Lamoen (May 2021) discusses that the existing literature acknowledges that addiction treatment and rehabilitation programmes should be part of the sentencing and the relicensing process for drivers who are found to be impaired by alcohol or other drugs as these interventions prevent re-offending (please see Boets et al., 2008; Bukasa et al., 2008; and Bukasa et al., 2009 for more information on the DRUID research project). However, this systematic health-based approach for drug driving offenders is currently not in place in New Zealand, where the access to these interventions is often on a case-by-case basis or non-existent (van Lamoen, May 2021).

4.5 Money Laundering

According to the New Zealand Police Financial Intelligence Unit (2019), methamphetamine and other drugs generate significant illicit proceeds for domestic crime groups in New Zealand. The National Manager, Financial Crime Group discusses that this offending is driven by money, and money is the biggest vulnerability for these groups in terms of disruption and detection of offending by law enforcement agencies. In 2019, it was estimated that the biggest groups laundering money domestically were associated with drug offending (New Zealand Police Financial Unit, 2019). The Financial Intelligence Unit (2019) estimated that these groups laundered $1.35 billion annually in the country.[39]

An NDIB report from 2016 (NDIB, 2016b) described the profit made from methamphetamine importation, manufacture, and supply in New Zealand, and how this profit 'turned' into legal assets, was concealed, and left the country. According to the report, the profit generated illegally from methamphetamine sold in the New Zealand market was used to buy vehicles and properties, load 'travel' cards, among others. The profit could also be sent or transferred abroad, or concealed in trusts under the name of third parties (NDIB, 2016b). The National Organised Crime Group (NOCG; 2019) describes that drug importers are able to import drugs into New Zealand and move the profit from selling these drugs out of the country using money remittance services within days.

The Gang Intelligence Centre (GIC; 2019) describes that drug markets continue to be the primary source of income for New Zealand Adult Gangs, and they are using financial instruments and 'clean' businesses to launder the money from the drug market. Anecdotal evidence also suggests that businesspeople are investing money in the methamphetamine market, as it is such a lucrative business (Waitemata West Intelligence Team, n.d.).

The New Zealand Police Financial Intelligence Unit (2019) suggests that financial, legal, accounting, real estate, and retail or dealer services were the ones to offer more advantages to money launderers in 2019 in New Zealand. These services offered anonymity to offenders; were available to move large values and volumes of legitimate funds; were widely available internationally but had poor international controls; and were cash intensive so could be used to disguise drug proceeds. The same unit acknowledged that it was likely that professionals who provided these services were not aware of their role in laundering proceeds of illicit crime (The New Zealand Police Financial Unit, 2019). A recent court case illustrates, however, that although it is not common for professionals to be aware they are involved in money laundering, they are at risk of being enticed by organised crime groups to help laundering money from drug offending (Moger, February 2020).

The Border and Migration Five Heads of Intelligence (2020) discuss that professional money launders (PML) can facilitate

37 The crash statistic is based on blood sample tests requested by New Zealand Police and coronial blood samples tested by ESR matched to Crash Analysis System (CAS) records, not including records where a drug-positive driver killed a third-party driver.
38 Including combinations between methamphetamine and other substances.
39 This figure does not include transnational laundering of overseas proceeds and laundering the proceeds of domestic tax offending.

trade-based money laundering, and it is realistically possible that these organisations are responsible for arranging funds to pay for large drug shipments and for transferring illicit earnings out of New Zealand. Trade-based money laundering is not known to routinely occur in New Zealand (Border and Migration Five Heads of Intelligence, 2020).

Taken together, intelligence reports suggest that money laundering is an integral part of Organised Crime and this is true also for criminal business entities and syndicates involved in the methamphetamine market in New Zealand. From 2017 to January 2021, $458 million were restrained by New Zealand Police (Financial Crime Group, January 2021a). Of these, $245.25 million were related to money laundering and $81.25 million specifically to methamphetamine. Between the 2009-10 and the 2019-20 financial years, the value of assets restrained per year where methamphetamine is linked as the main offence fluctuated between $6.84 million (2010-11) and $39.44 million (2016-17; Financial Crime Group, January 2021b).

Further anti-money laundering and crime proceeds recovery measures were announced by the New Zealand government in 2011 as part of a plan to strengthen New Zealand's resistance to organised crime. These included monitoring international transfers and high value domestic transfers, increasing information sharing of financial intelligence with relevant organisations, and extending anti-money laundering measures to non-financial industry sectors (Ministry of Justice, 2011).

In 2013, more robust anti-money laundering measures were also applied to financial institutions and casinos, increasing the capability of financial institutions to detect money laundering financing (New Zealand Police Financial Intelligence Unit, 2019). This change in measures was associated with an increase in the frequency of transactions reported to the Financial Intelligence Unit. This change, along with the Organised Crime and Anti-Corruption Legislation Bill in 2015 and the establishment of dedicated Money Laundering Investigation Teams in 2017, led to a significant increase in money laundering charges from 2014 to 2017 (New Zealand Police Financial Intelligence Unit, 2019).

In 2009, a targeted multi-agency Action Plan on Methamphetamine was also put in place to disrupt supply chains, reduce demand, and mitigate the harms of the drug (Ministry of Justice, 2011). This plan was substituted by the New Zealand government for a broader alcohol and other drug approach in 2018 (Devlin, 2019). Currently, the Methamphetamine Manufacture Disruption Plan 2019-2022 is in place. This plan was designed by multiple New Zealand agencies and focuses on four key areas – collaboration between agencies, prevention and disruption, investigation and prosecution, and resources and strategy (NOCG, 2020c). This plan targets especially methamphetamine manufacturing in New Zealand.

Greg Williams, Director of the National Organised Crime Group, observes that during the past three years, the public sector has focused on better understanding how illicit commodities are trafficked and traded, how illicit proceeds from this trade enter the financial sector, and how communities are affected by organised crime so targeted interventions can be designed to make New Zealand resilient to it (NOCG, 2020c). Two significant multi-agency pieces of work have been developed in 2019 as a result of this focus.

The first – Resilience to Organised Crime in Communities (ROCC) work programme – focuses on strengthening communities, making them resilient to organised crime, and reducing the harm caused to them by organised crime (NOCG, 2020c). This work stream includes strong engagement with community and Iwi.

The second – the Transnational Organised Crime Strategy – is an all-of-government strategy created to guide the pursuit of a more strategic, coordinated, prevention-focused, and prioritised response to transnational organised crime in New Zealand (NOCG, 2020b). Williams highlights that the cross-agency response to transnational organised crime and the relationship with private sector and international agencies has been enhanced in recent years (New Zealand Police, December 2020b).

Finally, New Zealand Police are also renewing their Organised Crime Strategy and related control strategy to strengthen responses in order to prevent harm, promote enforcement, and build resilient communities (NOCG, 2020b).

4.6 Summary

This chapter described reports, articles and reviews of literature investigating the association between methamphetamine and other crimes and incidents.

Overall, findings presented in this chapter showed that:

- Data from New Zealand Police, and research conducted by the Department of Corrections, highlight the association of methamphetamine use in prisoners and methamphetamine-related criminal charges with violent offending, family harm, acquisitive crimes, and involvement in road trauma. Although, at times, low-level methamphetamine-related offences can be the most serious offences committed by offenders;
- According to an intelligence report from 2016, there were 9,910 offenders in New Zealand who received methamphetamine charges from 2010 to 2015. Of these, 68% had been associated with family violence incidents, 37% had been victims of a violence offence, 13% had alerts for carrying or using a weapon, 11% had used a firearm against a police officer or assaulted law enforcement staff, and 6% had been offender, suspect, or victim of a sexual attack;
- Analyses including longitudinal data from the Christchurch Health and Development Study showed that a history of methamphetamine use was associated with increases in violence perpetration, intimate partner violence perpetration, and violence victimisation when compared to no history of methamphetamine use. Findings also showed that using methamphetamine more frequently was associated with a higher likelihood of being involved in violence episodes;
- Level of spending on methamphetamine/amphetamine has been associated with level of income from property crime and drug dealing, with those spending more on methamphetamine/ amphetamine reporting a higher income related to property crime and drug dealing than those who did not spend any money on methamphetamine/ amphetamine;
- Statistics from New Zealand Police showed that 40% of the unsatisfactorily completed roadside Compulsory Impairment Tests[40] in 2019 were connected to amphetamine use, which included mainly methamphetamine. Also, methamphetamine was found in 13% of the blood samples of fatally injured drivers (when tested) between 2016 and 2018. This value represents a 160% increase when considering the average of 5% observed between 2013 and 2015. It is estimated that 40 to 45 road deaths per year are associated with the use of methamphetamine since 2016, which represents a social cost of $182-$205 million per year. In this sense, methamphetamine is the second most harmful substance in the promotion of road trauma (after alcohol) given its level of increased risk of crash involvement and prevalence in severe crashes on New Zealand roads; and
- In 2019, it was estimated that the biggest groups laundering money domestically were associated with drug offending. The Financial Intelligence Unit estimated that these groups laundered $1.35 billion annually in the country.

It is important to remember that we discuss in this chapter the association between methamphetamine use and methamphetamine-related charges and other crimes and incidents, not framing methamphetamine use as the cause of other crimes and incidents. This is because the behaviours of using a drug and committing a crime are impacted by multiple social, environmental, contextual, cultural, and economical factors. It could be that multiple common determinants are impacting both the likelihood of using the drug and committing a crime (Spooner & Hetherington, 2004).

It is also important to reiterate that it has been acknowledged in the literature that many people who use methamphetamine also use other substances (Bowman et al., 2019; Farrell et al., 2019; Indig et al., 2017; NDIB, 2017d) and that dependence on other substances, such as alcohol, has been shown to have a causal link with property and violence offending (Boden et al., 2013). Thus, the association between methamphetamine use and offending described in this chapter may also be affected by use and dependence on other substances (Boden et al., 2013).

Finally, it is important to acknowledge that the association between methamphetamine use and other crimes is likely to affect police operations, although the extent of the impact of methamphetamine-related crimes on police demand and how police works in New Zealand is not entirely known.

40 The Compulsory Impairment Test (CIT) is the standardised field sobriety test used in New Zealand. An unsatisfactory CIT means that the driver was unable multiple times to perform the requirements of the test (van Lamoen, January 2021).

5. Production, Importation, and Distribution

5 Production, Importation, and Distribution

This chapter presents findings from reports produced mainly by the Gang Intelligence Centre (GIC), the National Drug Intelligence Bureau (NDIB), the National Intelligence Centre (NIC), the National Organised Crime Group (NOCG), the New Zealand Customs Service (NZCS), and the Regional Intelligence Liaison Office for Asia and the Pacific (RILO AP) focusing on how methamphetamine is being produced, imported, and distributed in New Zealand. Findings presented in this chapter also discuss the purchasing of drugs online, criminal business entities connected to the methamphetamine market, availability and purity of methamphetamine in New Zealand, differences across Police Districts regarding the methamphetamine market, and the impact of COVID-19 on the New Zealand methamphetamine market.

The language used in this report, and especially in this chapter, mimics the language used in the source material. In this sense, words such as 'likely' may have different meanings depending on whether the reference cited is research or intelligence based.[41]

5.1 Domestic Production

Methamphetamine manufacturing laboratories are experiencing a resurgence in New Zealand[42] and more methamphetamine[43] is being imported and seized at the border. All laboratories being detected in New Zealand are now commercial, and able to produce larger quantities of methamphetamine than methamphetamine manufacturing laboratories previously detected in the country (Brunton, March 2019).

5.1.1 Methamphetamine Manufacturing Laboratories

Methamphetamine manufacturing laboratories or 'clan labs' have been known by law enforcement agencies to exist in New Zealand since 1996 (NDIB, 2018c). A report from NDIB suggests that there may be approximately 300 methamphetamine manufacturers in the country, which re-enforces data from the Department of Corrections (NDIB, 2019a).

Methamphetamine manufacturing laboratories continue to impact New Zealand society negatively with more than 2,000 **laboratories** being dismantled in New Zealand from 1996 to June 2018. NDIB (2018c) reports that the number of **laboratories** dismantled had trended downwards slightly between 2013 and 2018. This downward trend was confirmed by more recent findings presented in another NDIB (2020a) report, which depicted that in 2017 there were 79 **methamphetamine manufacturing laboratories** dismantled, in 2018 there were 71, and in 2019 there were 53. NOCG (2020b; 2021c) observes, however, that **methamphetamine manufacturing laboratories** are experiencing a resurgence in New Zealand, with the number of **laboratories** dismantled in 2020 being higher than in previous recent years (n = 87). According to NOCG (2021a), while 402 kilograms of ephedrine were seized by New Zealand Police and New Zealand Customs in 2019, 154 kilograms were seized in 2020. The group highlights that as more ephedrine is seized, less **laboratories** seem to be detected, what suggests that disrupting precursors is a key strategy in decreasing the number of **methamphetamine manufacturing laboratories** in New Zealand.

Two NDIB (2018c; 2020a) reports discuss that competing priorities, namely the decrease in methamphetamine precursor availability, changes in operational focus, resourcing, and offenders' increasing ability to adapt to law enforcement intervention might have impacted the decrease in methamphetamine manufacturing laboratories detection from 2013 to 2019. In consonance with this remark, a Border Five – Analysis Working Group (2019) report observed that purchasing methamphetamine from abroad is significantly cheaper than manufacturing it in New Zealand, but there is still a significant demand for methamphetamine manufactured in New Zealand due to it being considered purer, which allows it to be sold at a higher price. Thus, it might be the case that methamphetamine manufacturing laboratories continue to consistently operate in New Zealand due to market demand.

Regarding geographical location, laboratories are disproportionately located in the Auckland region, which accounted for 43% of the laboratories detected in 2020 (NOCG, 2021c). Additionally, a NDIB (2019a) report on the New Zealand methamphetamine manufacture scene discussed that manufacturers were moving away from the usual smaller, more disorganised laboratories located in domestic 'dwellings' to larger, more commercial operations which produce larger quantities of methamphetamine in 2019. Thus, laboratories detected currently are organised and have larger capacity than many of the older methamphetamine manufacturing laboratories previously detected (Brunton, March 2019). Many laboratories are also designed to be mobile and can be packed using a couple of chilly bins or bags (Brunton, March 2019).

41 Words used to estimate probability in intelligence reports produced by the National Drug Intelligence Bureau (NDIB) are: ALMOST CERTAIN = The event will occur in most circumstances (>95%); LIKELY = The event will probably occur in most circumstances (>65%); POSSIBLE = The event might occur at some time (>35%); UNLIKELY = The event could occur in some circumstances (<35%); and RARE = The event may occur in some exceptional circumstances (<5%; New Zealand Police Risk, Assurance and Governance Group, 2014).

42 The reports used to retrieve this information considered the period between 2013 and 2020.

43 The reports used to retrieve this information considered the period between 2012 and 2019.

5.1.2 Precursors

5.1.2.1 Seizures

Ephedrine and pseudoephedrine, key precursors used to manufacture methamphetamine, are predominantly seized at the border by the New Zealand Customs Service (NDIB, 2018c). The rescheduling of pseudoephedrine to a Class B drug in 2011 in New Zealand led to medications which included the drug to require medical prescription. This change meant that it was more difficult for criminal business entities to source it domestically to manufacture methamphetamine (Brunton, March 2019). This law change led to criminal business entities importing medication with pseudoephedrine from China.

However, a law change in 2015 in China restricted the sales of these products, which led to another change in the New Zealand precursor market – ephedrine and pseudoephedrine started to be imported in raw form (Brunton, March 2019). Not having to extract pseudoephedrine from medications meant that fewer chemical reactions were needed to manufacture methamphetamine, which reduced the solvent and chemical smell connected to methamphetamine manufacturing, and detection of the process by neighbours and landlords (Brunton, March 2019).

A report by NDIB (2018c) examining methamphetamine and methamphetamine manufacturing laboratories in New Zealand notes that the New Zealand Customs Service and the New Zealand Police registered increasing seizure volumes of methamphetamine precursor until 2017. Since then there has been a consistent decrease in ephedrine intercepts with New Zealand Customs Service reporting that the total intercepts for 2019 was only 23% of the total intercepted in 2016 (NZCS, 2020a). Correspondingly, methamphetamine seized at the border has significantly increased over the period 2016-2019 (NZCS, 2020a). Likewise, NDIB (2020a) reported in their annual illicit drug assessment a 53% decrease in the amount of ephedrine and pseudoephedrine seized by both the New Zealand Customs Service and New Zealand Police in 2019, when compared to the average from 2016 to 2018. According to the group, this was the third consecutive annual decrease since 2016.

Between 2015 and 2017, 99% of the ephedrine seized was destined for Auckland addresses, with over 182 intercepts. Christchurch was second with 11 intercepts and Hamilton third with four intercepts (NDIB, 2018c). A report on ephedrine importation by New Zealand Customs Service notes that the most common destination suburb in Auckland for intercepts is Auckland Central, closely followed by Flat Bush and Henderson (NZCS, 2020a). This finding supports intelligence gathering which suggests that Auckland is the hub for precursor importation and domestic manufacturing, distributing methamphetamine to the rest of the country (NDIB, 2018c).

5.1.2.2 Source Countries

A submission in support of the Border Five Analyst Working Group's Joint Intelligence Assessment (2019) described that powdered ephedrine was the most common methamphetamine precursor being detected in New Zealand. In 2019, the primary countries of concern for trafficking methamphetamine precursors to New Zealand were China, Hong Kong, and Germany (NZCS, 2020a).

Among these countries, the primary country of export for ephedrine was China, accounting for 52% of intercepts (NZCS, 2020a). The secondary country of export was Hong Kong, which accounted for approximately a quarter of all intercepts.

China remains a risk source nation due to being a key pharmaceutical manufacturer (NDIB, 2018c). While Customs did not seize any methamphetamine from China in 2018, the agency continued to seize precursors for methamphetamine (NZCS, 2019b). Based on consignor details, precursors from China came from Guangdong and Zhejiang provinces in 2017. Most precursors seized ex China, Hong Kong and Taiwan have come from China since 2018 (NZCS, 2019b).

Methamphetamine precursors might also be entering New Zealand via Western European countries, although it is unknown where these precursors are sourced from. For example, the United Kingdom and Ireland featured strongly in 2018 in seizure figures, but have not been commonly associated with precursor or methamphetamine manufacture (NDIB, 2018c). It is assumed that ephedrine arriving in New Zealand from the United Kingdom and Ireland is sourced from China or Southeast Asia (NZCS, 2018).

According to the Border Five – Analysis Working Group (2019), most of the precursor seizures from South Korea, South Africa, United States, and India are most likely to be of personal medication as they constitute a very small volume of the imports. However, increased seizures over 2017-2019 have identified India as an emerging source country of methamphetamine and its precursors. Although it is yet to feature strongly in seizure statistics, India is emerging as a risk source nation of methamphetamine precursor due to its strong pharmaceutical industry (NDIB, 2018c).

5.1.3 Pre-Precursors

There are several non-controlled methamphetamine precursor chemicals which can be used in the manufacturing process (NDIB, 2018b). New trends observed in China include an increase in designer precursors made to order such as 2-bromopropiophenone, a chemical not under international control but which can be used for the manufacture of ephedrine. These are made to circumvent legislation and often have no legitimate use (NZCS, 2019b). This highlights the difficulties in regulating the chemical and pharmaceutical industry's production of non-scheduled chemicals for methamphetamine precursor manufacture (NZCS, 2019b). Intelligence feedback to this report describes the importation of pre-precursors to New Zealand as an emerging trend; however it is too early to confidently say how extensive this trend is (NDIB, October 2020).

Pre-precursors are also being manufactured in Myanmar and trafficked through Southeast Asia to international markets in order to circumvent the prohibited goods and regulated medicines legislation of some countries (NZCS, 2019b).

As the use of pre-precursor chemicals becomes more common and widespread in overseas methamphetamine manufacturing

processes, it is also possible that criminal business entities manufacturing methamphetamine in New Zealand will import and use pre-precursor chemicals alongside, or instead of, traditional precursors (i.e. pseudoephedrine, ephedrine) (NZCS, 2019b).

5.2 Production Abroad

5.2.1 Seizures

The volume of methamphetamine being imported into New Zealand has generally increased since 2012. The Border Five – Analysis Working Group (2019) observes that the weight of methamphetamine seized in New Zealand significantly increased from 212.5 kilograms in 2018 to 1,183.1 kilograms in 2019. The group discusses that this might be a result of both increases in methamphetamine from Myanmar and Mexico arriving in New Zealand.

Likewise, NDIB (2020a) reported in their annual illicit drug assessment a 222% increase in the amount of methamphetamine seized by both the New Zealand Customs Service and New Zealand Police in 2019, when compared to the three-year average from 2016 to 2018. NDIB (2020a) also reported that the amount of methamphetamine seized in 2019 was four times the amount seized in 2018. A recent brief from NDIB (April 2021a) also showed that while 77.6 kilograms of powdered methamphetamine were seized in New Zealand between January and April 2020, 212.6 kilograms were sized in the same period in 2021. This represents almost a 300% increase in the amount of methamphetamine seized.[44]

5.2.2 Source and Transhipment Countries

Two large methamphetamine manufacturing regions, Mexico and the Golden Triangle (i.e. Myanmar Shan State, western Laos, and northern Thailand), supply methamphetamine to the New Zealand market. Southeast Asia along with South America have been classified in the Joint Strategic Threat Assessment produced by the Border and Migration Five Heads of Intelligence (2020) as high threat regions for large-volume trafficking of methamphetamine. Seizures of methamphetamine from both North America and Southeast Asia have been increasing since 2017 (NZCS, 2019b).

In 2019, according to the Border Five – Analysis Working Group, the primary countries of concern for trafficking methamphetamine to New Zealand were (by quantity seized) Thailand (493.8 kg), United States (191.8 kg), Mexico (158.5 kg), India (17.6 kg), and the United Kingdom (14.3 kg).

One other country of concern for New Zealand was Malaysia. There is evidence that methamphetamine in Malaysia is both produced locally and imported from the Golden Triangle. At this stage, it is unclear where the methamphetamine imported from India and the UK is produced, although increasing seizures suggest that India is emerging as a source country (Border Five – Analysis Working Group, 2019).

The greatest volume of methamphetamine imported into New Zealand in 2019 came from Southeast Asia (Border Five – Analysis Working Group, 2019). This most likely originates from Myanmar (particularly the Shan State) which is one of the leading global producers of methamphetamine after a major shift in production from China in recent years (NZCS, 2019b). According to the United Nations Office on Drugs and Crime (2019), the consumer cost competitiveness of methamphetamine manufactured in the Golden Triangle might be an attraction to transnational syndicates to base themselves in Myanmar.

The United Nations Office on Drugs and Crime (2019) also discusses that the lack of a regional control strategy, weak enforcement of existing laws, and the increasing demand for methamphetamine worldwide has enabled transnational syndicates to establish themselves in East and Southeast Asia. This has led to steady increases in the production of methamphetamine, with seizures of methamphetamine in East and Southeast Asia increasing from just under 40 tons of kilograms in 2013 to 120 tons of kilograms in 2018. Some of the methamphetamine manufacturing laboratories discovered in the region adjacent to the Golden Triangle suggest syndicates can produce large quantities of the drug at any given time (RILO AP & Korea Customs Service, n.d.). The surge in crystal methamphetamine production in this region has been linked to the relative stability the region reached after ceasefire agreements were signed between government and armed groups in the 2010's and to improvements in the roading infrastructure which enabled precursors and the drug produced to be moved more easily in the region.

The increased availability of the drug, the reduced wholesale price of the drug due to increased availability, and the profitability of the New Zealand market put New Zealand at increased risk of being a target for transnational syndicates based in the Golden Triangle (United Nations Office on Drugs and Crime, 2019). According to RILO AP and the Korea Customs Service (n.d.), the oversupply of methamphetamine in the region is likely to lead to further expansions of the methamphetamine market, attracting more people to use the drug due to its cheaper price and higher availability. Likewise, Williams (March 2019) observes a similar risk to New Zealand from syndicates based in Mexico. Furthermore, according to him, the competition between suppliers is bringing the wholesale price of the drug down and this can lower the price at retail point, expanding markets in New Zealand to include lower socio-economic communities. The typical price of one kilogram of methamphetamine in New Zealand dropped from between $230,000 and $250,000 in 2016 to $140,000 in 2019 (NDIB, 2016c; NDIB, 2020a). Still, the New Zealand market is acknowledged as highly profitable.

Other Southeast Asian countries have been used as transhipment points to New Zealand instead of importing the drug directly from Myanmar. Thailand is one country in the region that is used as a methamphetamine export country. Laos, Vietnam, and Malaysia are other major transit countries (Border

44 It is important to remember that the impact of COVID-19 on transportation and shipment of products might have more harshly affected the drug trade in 2020 than in 2021. Thus, part of the difference in the amount of drug seized might be related to this.

and Migration Five Heads of Intelligence, 2020; NZCS, 2018; NZCS, 2019a).

Methamphetamine imported from the United States, along with methamphetamine imported from Canada, is likely to have originated in Mexico, representing a deliberate attempt from organised crime groups to distance imports from their Mexican origin.[45] Still, a large proportion of methamphetamine is directly imported from Mexico to New Zealand (Border Five – Analysis Working Group, 2019). NOCG (2019) describes that available intelligence information suggests that substance seizure and the apprehension of drug couriers and transporters have had a negligible impact on Mexican cartel business given the large scale and compartmentalisation of cartel operations.

NOCG (2019) highlighted that Mexico has increasingly been acknowledged as a source country for the methamphetamine imported to New Zealand and this trend is almost certain to continue. Williams (March 2019) reported that in an investigation[46] conducted in 2019 the price of a kilogram of methamphetamine in Mexico was $5,000, while the profit made from it in the New Zealand Market was $115,000 per kilogram. This profit margin explains why New Zealand is such an attractive market to both groups based in Myanmar and Mexico.

In addition, it is possible to generate profit from trafficking methamphetamine throughout the trafficking chain (e.g. cartel, catcher, street level dealer; Williams, March 2019). This profit explains why members of criminal business entities based in New Zealand are willing to work with members of transnational syndicates based elsewhere to distribute methamphetamine in the country.

There is also growing concern about the role of the Pacific Islands in the international trade of illicit drugs. Of particular concern is their use as a transit point for drug coming from the Americas and Southeast Asia (NDIB, 2016a). Additionally, organised crime groups with Tongan and Fijian heritages have been linked to transnational syndicates based in Mexico (NOCG, 2019). According to NOCG (2020b), organised crime groups based in Fiji and Tonga have been operational for decades. Intelligence reports that large scale drug imports have been detected to be transported via the Pacific region mainly to Australia, although in some instances drugs directed to New Zealand have also been detected (NDIB, 2016a; NOCG, 2020b). There is a risk that more methamphetamine connected to Mexican and South American organised crime groups will start to come to New Zealand via the Pacific region, using routes previously used for cocaine trafficking (NDIB, 2016a).

Another recently established source country of methamphetamine is Afghanistan. An intelligence report from the New Zealand Customs Service (2020b) notes that the Oman Plant is now being used in Afghanistan to produce ephedrine. The production of ephedrine using a plant removes the need to acquire syrups and tablets in order to extract ephedrine to manufacture methamphetamine. This new method of ephedrine extraction has coincided with increases in methamphetamine seizures both in Afghanistan and Iran. In Afghanistan, 650 kg of methamphetamine were seized in the first half of 2019 compared to 180kg in 2018. Likewise, four tonnes of methamphetamine were seized between March and September 2019 in Iran.

The New Zealand Customs Service (2020b) discusses that recent increases in methamphetamine seizures in New Zealand coming from South Africa, Kenya, and Zimbabwe may reflect methamphetamine produced in Afghanistan reaching New Zealand via the Southern route (via Pakistan or Iran to India and to Africa), a route historically used to traffic heroin. The New Zealand Customs Service (2020b) adds that it was informed in October 2020 that 9.91 kg of methamphetamine produced in Afghanistan and destined for the New Zealand market was seized in Germany. Thus, it might become more common to detect methamphetamine produced in Afghanistan in New Zealand.

A recent brief from NDIB (April 2021b) has also discussed that Nigeria, among other African countries, has emerged as a significant producer of methamphetamine in the past decade. More methamphetamine shipped from Africa (both produced there and transhipped from the Middle East) has been seized in New Zealand in the past few years, and this is noted as an increasing trend in 2021.

5.3 Criminal Business Entities Engaged in the Market

Members of different criminal business entities are associated in different ways with the methamphetamine market in New Zealand. We present below how the association between these entities has been depicted in documents provided by the Gang Intelligence Centre (GIC), the National Drug Intelligence Bureau (NDIB), the National Organised Crime Group (NOCG), the New Zealand Customs Service (NZCS), and the Regional Intelligence Liaison Office for Asia and the Pacific (RILO AP) so readers can have a clearer understanding about how these groups are generally associated in the New Zealand context. It is important to mention, however, that the association between members of transnational syndicates, international criminal business entities, and domestic criminal business entities is neither linear nor fixed in New Zealand, varying across different groups and periods of time.

5.3.1 Domestic Production

According to an NDIB report (2018c), methamphetamine manufacturing laboratories are now almost exclusively commercial operations run by organised crime groups due to the prohibitive cost of purchasing kilogram lots of ephedrine. Domestic organised crime groups maintain dominance over both the production and distribution of methamphetamine in New Zealand (NDIB, 2019a). These groups are attracted to the New Zealand market due to the lucrative nature of the business,

45 Although Williams (December 2020) states in an internal communication that part of the methamphetamine arriving in New Zealand is being produced in Canada.
46 Further information about this investigation is available in the affidavit provided by Greg Williams to Court as an expert, but is not cited in this report as it is sensitive (Williams, March 2019).

providing incentive to coerce people into manufacturing the drug, and receiving more significant profits (NDIB, 2019a).

NDIB (2018c) discusses that the network involved in methamphetamine manufacturing is tightknit, with cooks knowing the people who use and purchase methamphetamine and vice versa, and gang members controlling the market by supplying the finished product. Historically, members of one New Zealand Adult Gang have been identified to control the domestic methamphetamine market, but this is rapidly changing to include members of multiple New Zealand Adult Gangs. A substantial growth in New Zealand Adult Gang activity has been detected by the Gang Intelligence Centre. Likewise, the centre has detected the continuing use of the drug market by members of these groups as the primary means to generate income (NDIB, 2018c).

Anecdotal reporting indicates that some cannabis houses are now turning into methamphetamine houses, and some cannabis cultivators have reported that they too are turning to methamphetamine manufacture because of the demand and lucrative gains it brings (NDIB, 2019a). This reporting suggests that part of the cannabis market might be in the process of being absorbed by the methamphetamine market.

5.3.2 Importation and Distribution

5.3.2.1 Transnational Syndicates

This type of criminal business entity undertakes crime coordinated across national borders, involving groups or markets of individuals working in more than one country to plan and execute illegal business ventures. Traditionally, the transnational syndicates of greatest risk to New Zealand have been based in the People's Republic of China, although currently these syndicates can be based in a number of other countries (NDIB, 2017f; NOCG, 2018). The 2017/18 National Organised Crime Group annual report (2018) described that in 2018 members of transnational syndicates already belonged to countries such as Ecuador, Poland, Croatia, Serbia, United States, Vietnam, Hong Kong, Korea, Australia, and Malaysia.

NDIB (2017f) described in 2017 that South American syndicates represented an emerging risk to New Zealand. Two Mexican cartels have been linked to methamphetamine imported to New Zealand (NOCG, 2019). These syndicates are not necessarily associated with gang members but do require criminal connections to sell their product within New Zealand. NOCG (2019) discusses that the connection between domestic organised crime members and Mexican cartels is largely based on social and/or familial ties rather than on gang affiliation.

NOCG (2019) describes that methodologies used by Mexican cartels are sophisticated and diverse, and that these cartels have been acknowledged to successfully engage with domestic distribution networks and money laundering infrastructure in New Zealand. According to the same report, this trend is likely to continue to develop and to be linked to further offending, although it is unlikely that Mexican cartels will seek to establish a physical presence in New Zealand, leading to the level of corruption and violence observed in Mexico.

RILO AP and the Korea Customs Service (n.d.) mention that syndicates based in the areas adjacent to the Golden Triangle are known to have traditionally controlled the drug trade in there, having close relationships with local armed groups, and profiting from the supply of precursors to manufacture drugs and even from contracting chemists from abroad.

According to intelligence, transnational syndicates are using 'super-facilitators' to foster a successful methamphetamine supply chain (NDIB, 2017f). A super-facilitator has links to a global network of manufacturers and supply and distribution chains to successfully import methamphetamine to New Zealand. The super-facilitator is usually based offshore and is never in direct contact with the shipment. NOCG (2020b) highlights that both Europe and parts of the Middle East are being used by transnational syndicates as a base for organised criminal brokers coordinating illicit trafficking of goods to New Zealand (NOCG, 2020b). More intelligence is needed regarding how super-facilitators work (NDIB, 2017f).

NOCG (2019) describes differential ways in which Mexican cartels smuggle illicit substances to New Zealand. In imports organised for specific customers, it is likely that the trade is made directly via an existing relationship with a member of the cartel or a broker tied to the cartel. In imports without a specified customer, it is likely that the trade happens via a non-cartel-member outsourced role, such as a controller sent to New Zealand to oversee couriers or catchers. Individuals connected to these cartels may be sent to New Zealand some time in advance of the drug operation in order to allow time for them to embed in the country, avoiding suspicion. These outsourced roles are usually responsible for facilitating supply to distribution networks and carrying out money laundering of proceeds from crime (NOCG, 2019; NOCG, 2020b). Other people connected to the drug operation may also reside in the country, providing business cover for imports (NOCG, 2020b).

Additionally, the Border and Migration Five Heads of Intelligence (2020) describe that the inclusion of well-positioned insiders, such as port workers and airport baggage handlers, in trafficking networks by criminal business entities is an emerging threat in New Zealand. In 2011, the threat of corruption and bribery of public and private sector insiders had already been described as an emerging threat from organised crime occurring in New Zealand (Ministry of Justice, 2011).

The National Organised Crime Group and New Zealand Customs Service dismantled 20 transnational organised crime group cells established primarily in Auckland between January 2017 and March 2019 (Williams, March 2019). These cells operated independently from New Zealand-based organised crime groups and were linked to a broad range of Asian, South and North American, and European crime syndicates.

5.3.2.2 International Criminal Business Entities Based in New Zealand

Intelligence reporting notes that transnational syndicates usually establish contact with the New Zealand market through foreign nationals who have moved to/from New Zealand (NDIB, 2017f). In this sense, Asian organised crime groups tend to be

significantly involved in the importation of both precursors and finished product, the bulk of which will enter New Zealand through Auckland in the first instance (NDIB, 2017f). Williams (March 2019) argues that the fluid, compartmentalised, and perpetual nature of Asian organised crime groups makes the sustained disruption of these groups by law enforcement agencies difficult.

Members connected to these Asian organised crime groups have been landed in New Zealand in order to facilitate large importations of methamphetamine (Border Five – Analysis Working Group, 2019). Thus, some members of domestic gangs will maintain relationships with Asian Organised Crime representatives or middlemen to be able to acquire and distribute the drug domestically (NDIB, 2017b).

Investigations suggest that several Asian organised crime group members are likely to have residency or citizenship status in New Zealand (NDIB, 2017f). In addition, Asian organised crime networks investigated in New Zealand are engaged in money laundering activity or acting as professional facilitators. According to NDIB (2017f), connections between members of criminal business entities are commonly developed in New Zealand prisons or via the deportee process, especially when gang members from Australia are deported to New Zealand. Australian deportees have been acknowledged by the National Organised Crime Group (2020b) to continue to influence the New Zealand crime environment. Criminals might have a larger and more influential network of contacts when they leave prison and this enlarged network might be used to coordinate more successfully methamphetamine distribution in New Zealand (NBID, 2017b).

Once the organised crime group has been established in New Zealand, they then define pre-arranged individuals ('catchers') who manage the pick-up of the drug imported (NDIB, 2017b). Once successfully imported, the catchers distribute the drug to domestic distributors (NDIB, 2017f).

The increasing average size of methamphetamine consignments from North America and Southeast Asia indicates an established network of supply from both regions being established between criminal business entities and domestic distributors in New Zealand which can facilitate larger methamphetamine consignments (NDIB, 2017b).

Methamphetamine precursors are primarily sourced from Asian organised crime groups (NDIB, 2018c). Reports note that almost every cook obtains their precursor using an 'Asian contact', with shipments of the product usually concealed in bulk amounts inside sea containers arriving in Auckland. The Border and Migration Five Heads of Intelligence (2020) report that bulk drug importations from Asia and the Americas have occurred in New Zealand through high volume sea cargo, air freight, and a variety of small marine craft transfers and routes. These have been increasingly placed in cover loads difficult to search (e.g. refrigerated goods).

Several Asian nationalities have been identified to be part of the New Zealand drug market, including Chinese, Korean and Cambodian. This finding suggests New Zealand is part of a competitive global market and the substantial influence Asian Organised Crime has in connecting transnational syndicates and domestic distributors in the New Zealand market.

5.3.2.3 Domestic Criminal Business Entities

NIC (2016) reported that the number of individuals reportedly selling methamphetamine in New Zealand was rapidly growing in 2016, and that intelligence holdings suggested that most dealers at the time were members of organised crime groups (or closely associated with these), and often used methamphetamine themselves.

Recent news stories suggest that a stronger control over the availability and price of methamphetamine and other drugs is being imposed by a gang leader in New South Wales, Australia (Morri, January 2021a; Morri, January 2021b; Morri, January 2021c; Morri & Dowsley, January 2021). It is possible that this practice could be used also in New Zealand. In an internal communication, Williams (December 2020) observes that it is likely that organised crime groups in New Zealand fix the street price of methamphetamine in the country, maintaining its profitability.

Despite their territorial dominance, members of domestic motorcycle and ethnic gangs have been acknowledged to cooperate in the New Zealand drug market (NDIB, 2017b). Members of these gangs also cooperate at the dealing point, where support is needed to conduct business at an individual level. Methamphetamine distributors are often not gang members and establish connections with gang members depending on who is able to supply them at the time.

According to NDIB (2017b), gang members are generally responsible for larger domestic distribution routes in New Zealand such as Auckland to Christchurch. On the other hand, individual or independent manufacturers are more likely to distribute either within their towns or between smaller towns. The drug is generally distributed within gang networks so their plans and processes are not known by a large amount of people. According to NOCG (2020b), organised crime groups transport methamphetamine from the main hub in the North Island to the South Island using varied methods such as air travel, ferries, motor vehicles, and transport workers.

In early 2016, New Zealand Police Intelligence sources claimed that a motorcycle gang, who police have described as utilising a 'business model' of 'direct selling of methamphetamine', was expanding southward into small towns down the country (NDIB, 2016b). It is plausible that in smaller towns a single gang could have the coercive power and criminal networks to exert some control over the local drug market. The New Zealand Gang Intelligence Centre (GIC; 2019) also highlighted in 2019 that North Island gangs were expanding to South Island communities, given their profitable drug markets. According to Williams (March 2019), recent investigations and work with partnering agencies made it evident that members of New Zealand gangs operating in rural areas were selling methamphetamine in their communities for profit using various techniques to market the drug and increase the number of people using it, such as targeting solo mothers.

According to the United Nations Office on Drugs and Crime (2019) adult gangs from both New Zealand and Australia are also expanding to East and Southeast Asia to scale up the trafficking of drugs, especially methamphetamine and its precursors. According to intelligence holdings, it is likely that some of these gangs are collaborating in this space, which poses a high risk to New Zealand (NOCG, 2020b).

NDIB (2016a) discusses that the Pacific Islands are also vulnerable to the expansion of adult gangs from both New Zealand and Australia. According to NDIB (2016a), a known gang from Australia has established two chapters in Fiji and some New Zealand gang members are currently living and working in the Cook Islands. New Zealand gang members establishing themselves in these locations might have the opportunity to network with international drug syndicates, what would facilitate direct drug importations between the Pacific Islands and New Zealand in the future.

A report from the GIC (2019) discusses that adult gangs in New Zealand have increased in size, with over 2,000 members joining them between December 2016 and August 2019. Gangs are also using a more horizontal structure of command instead of a deeply hierarchical one, and adjusting their recruiting methods to include social media, focusing on glamorising gang membership, and pro-community messaging. Members also continue to be recruited in prison (NOCG, 2020b). Although the frequency of dishonesty crime has decreased when considering gang members, the frequency of violence, drug, and firearm-related crime has increased (GIC, 2019).

NOCG (2020b) highlights that organised crime groups in New Zealand are increasingly armed and likely to be more willing to carry out serious attacks and violence. Significant numbers of illegal firearms [including substantial numbers of AK-47 assault rifles, AR-15 semi-automatic rifles, an MP38 sub-machine gun, shotguns (one pump action), Molotov cocktails, and a 'claymore' explosive device] have been seized from gang members in 2020 (NOCG, 2020b). Due to this heightened scenario, frontline staff currently routinely arm themselves when executing warrants for organised crime investigations, as firearms are often present at the scene (NOCG, 2020b). GIC (2019) discusses that increases in violence and firearm-related charges are likely to be associated with members protecting themselves from other gangs and more violent tactics, and protecting their drug market.

NOCG (2020b) anticipates it is likely there will be an increase in serious violence in the organised crime environment in New Zealand. The group also emphasises that it is possible that organised crime groups will be more involved in firearms trafficking and there will be more 3D printed firearms. In this scenario, drive-by shootings and targeted assassinations may also become more prevalent as gang tensions increase.

5.4 Online Drug Market

Illicit drugs have been increasingly more available online in New Zealand, both in clearnet and darknet-hosted marketplaces (NDIB, 2017e). According to the Border and Migration Five Heads of Intelligence (2020), varied drugs, including MDMA and methamphetamine, arrive in New Zealand via several small mail and fast parcel packages. The group discusses that more people are purchasing drugs online due to COVID-19.

Reports by NDIB (2017b; 2017e) outline the countries that act as source locations for illicit drugs that are ordered online and sent to New Zealand. Primary locations of concern are the Netherlands, the United Kingdom, and Canada. The vast majority of the drugs purchased online are believed to arrive in New Zealand at the International Mail Service Centre in Auckland.

Illicit drugs sent through international mail are generally imported in small volumes (usually 100g or less) (NDIB, 2017e). However, as some of the drugs purchased online are really potent in small quantities, the potential harm of purchasing and using these drugs remains significant. NDIB also discusses an increasing trend to import drugs in larger amounts, which is likely to be associated with further distribution of the purchased drug within the country using domestic postal and courier services (NDIB, 2017e).

The NDIB report from 2017 also notes that low-volume drug importation had grown in the previous five years across multiple Police Districts and this had almost certainly been influenced by the availability of drugs online. NDIB (2020a) reports that 61% of the methamphetamine seized in 2019 was detected in small volumes in the mail stream.

There are several New Zealand-based darknet suppliers advertising 'locally made' methamphetamine (NDIB, 2017e). Although it is unlikely that the seller would be able to compete with cheaper overseas-based methamphetamine suppliers, it is possible that New Zealand customers would prefer to purchase the drug sold locally in order to avoid the risk of having packages coming from overseas intercepted by the New Zealand Customs Service.

According to intelligence, increases in the availability of drugs online might have impacted the street pricing of some types of drug (NDIB 2017e). In New Zealand, the price of drugs sold down the street is significantly higher than of those sold in online marketplaces.

5.5 Availability and Purity of Methamphetamine

In 2019, ESR reported an average methamphetamine purity of 74% in samples of the drug in New Zealand (NDIB, May 2020). Purity can achieve 80% when considering pure methamphetamine salt so a purity of 74% is considered to be extremely high. A report from NDIB (2015) also suggested that methamphetamine, both produced domestically and abroad, remained readily available at the New Zealand market (NDIB, 2015b).

Wilkins and colleagues (2017) found in the 2016 wave of the Illicit Drug Monitoring System (IDMS) that participants acknowledged it was 'easy' or 'very easy' to obtain methamphetamine (as measured on a four-point type Likert scale varying from 'very difficult' to 'very easy'). The study also found that average methamphetamine availability significantly increased from 2006

to 2016 and 2015 to 2016. The strength of methamphetamine was acknowledged as 'fluctuating' or 'high' in 2016 (as measured on a three-point type Likert scale varying from 'low' to 'high). According to participants, the strength of methamphetamine had significantly decreased from 2015 to 2016.

NDIB (2020a) reports that from 2018 to 2019 the typical street price of a gram of methamphetamine decreased from $500 to $400 in New Zealand, and a gram of methamphetamine could be purchased for as little as $200 based on anecdotal evidence. These findings suggest high availability of the drug in the market.

5.6 Differences between Police Districts

5.6.1 Domestic Production

Regarding the methamphetamine manufactured in New Zealand, 957 kg or 99% of the ephedrine apprehended by the New Zealand Customs Service from the beginning of 2017 to June 2018 was destined for addresses in Auckland, although smaller quantities were destined for other areas in New Zealand, both urban and rural (NDIB, 2018c).

In 2017, 50% of the 79 methamphetamine manufacturing laboratories detected in New Zealand were located in the Auckland region. A report from NDIB published in 2019 (NDIB, 2019a) highlighted that most of the offences related to methamphetamine manufacturing then were concentrated in the Auckland region. These findings signal that Auckland is one of the biggest poles of methamphetamine manufacturing in New Zealand; this might be due to population characteristics, demand, accessibility, availability of precursors, infrastructure, and social network, but also due to the larger quantity of police resources available in this region to disrupt manufacturing (NDIB, 2018c; NDIB, 2019a).

5.6.2 Online Drug Market

A report by NDIB (2017e) suggests that people who use illicit drugs in New Zealand also order drugs online and that the frequency of illicit drug consignments seems to vary across Police Districts, with more illicit drug consignments directed to Auckland (n = 1,137), Canterbury (n = 494), Wellington (n = 348), and Southern (n = 307) being intercepted in 2016. The frequency of consignments per district including methamphetamine specifically was not reported in the NDIB report.

5.6.3 Use

Wastewater drug testing results can be used to estimate methamphetamine consumption across different Police Districts within New Zealand. Wastewater drug testing results can also be used to provide an indication of the amount of money that is being made by criminal business entities and the cost of the social harm[47] caused to communities in New Zealand (Williams, March 2019). Currently, this testing is conducted in 45 locations, which include around 75% of the New Zealand population (New Zealand Police, March 2020).

Findings for the second quarter of 2020 showed that the average methamphetamine consumption per week decreased from 15.4 kilograms in the first quarter of 2020 to 9.9 kilograms in the second quarter of 2020 (Lyons, November 2020).[48] This result captures the immediate effects of the national lockdowns associated with COVID-19, showing much lower consumption than usual, likely to both restrictions at the border and of movement inside the country (Lyons, November 2020). The prevalence per capita of methamphetamine was higher during the second quarter of 2020 in Bay of Plenty, Eastern, and Northland (New Zealand Police, November 2020).

The Wellington, Canterbury, and Southern districts presented a different pattern of drug use from other districts. While methamphetamine was the most detected drug in most districts, MDMA was the most detected drug in these three districts. MDMA is acknowledged to be the most consumed drug in the South Island, with the drug accounting for 55% of the average annual drug consumption (NDIB, 2020b). In the North Island, MDMA accounts for only 30% of the average drug consumption.

Even though MDMA is the most used drug in the South Island, further findings signal that the use of methamphetamine in the South Island might be increasing. While a 1% decrease in methamphetamine use was detected in wastewater drug testing results for the North Island between the quarters ending in May 2019 and February 2020, an increase of 11% was detected in methamphetamine use for the South Island.

5.6.4 Price and Availability

People based in the South Island pay significantly higher prices to acquire methamphetamine than those based in the North Island. This price difference is likely due to the risk and cost associated with transporting methamphetamine from hubs in the North Island to the South Island (NDIB, 2020b). The Illicit Drug Pricing Report describes that methamphetamine can be sold for up to $800 a gram, two times the national average, in the South Island. Still, given the higher amount of methamphetamine used in the North Island, the profitability of the drug is significantly higher in the North Island ($4.9 million a week) than in the South Island ($706,204 a week).

According to a report produced by NDIB in 2018, lower prices of methamphetamine imply more availability of the drug (NDIB, 2018c). According to the report, lower prices for the drug in Auckland, Northland, and Canterbury at the time signalled that methamphetamine was more available in these Police Districts.

The bulletin produced by Wilkins, Rychert, Romeo, and Graydon-Guy (2019) assessed the price of methamphetamine, cannabis, *ecstasy,*[49] and LSD in 2018/2019 across different regions of New Zealand. Analyses included data collected through the New Zealand Drug Trends Survey (NZDTS), which is an

47 Estimates for the cost of social harm caused by methamphetamine are based on estimations by the 2016 Drug Harm Index (McFadden, 2016), and include the cost of personal harm, community harm, and interventions.
48 Data for April 2020 was not included in the analyses as only three of the 45 testing sites provided samples during this time due to risks associated with COVID-19.
49 "Ecstasy" pills are usually made from MDMA mixed with other drugs such as amphetamines and caffeine (https://www.drugfoundation.org.nz/info/drug-index/mdma/).

anonymous convenience online survey with the main goal of assessing current drug market trends and issues associated with drug use. Overall, between 2017/2018 and 2018/2019 price assessments, the median price for a gram of methamphetamine dropped from $538 to $500. This variation was affected by record low prices for Auckland ($450), Wellington ($450), and Waikato ($450). The median prices for the gram of methamphetamine across regions in the South Island such as Tasman/Nelson/Marlborough ($650) and Southland/Westcoast ($600) were significantly higher than some of the median prices observed in the North Island, although these median prices had dropped from the 2017/2018 to the 2018/2019 assessment. The region of Manawatu-Whanganui seemed a case apart from the other regions as it was the only New Zealand region in which the median price of methamphetamine was higher in 2018/2019 than in 2017/2018.

5.7 COVID-19 and the Methamphetamine Market

5.7.1 Domestic Production

NDIB considers it unlikely that COVID-19 restrictions will lead to more methamphetamine being produced domestically or that this production will return to peak levels observed before 2015, as the supply and importation of precursors is also susceptible to supply chain disturbances caused by COVID-19. Different intelligence sources have identified that methamphetamine precursors are in shorter supply due to COVID-19 disruptions (NDIB, June 2020).

It is extremely likely that the production of methamphetamine precursors has not been disrupted in China by COVID-19 as production figures suggest that the March 2020 output for chemical and pharmaceutical industries in China was up 4.5 per cent in comparison to the March 2019 output (NDIB, June 2020). Furthermore, shipments of legal precursors into the United States had increased from January to April 2020 in comparison to the same period in 2019. This availability in China had not translated to an increase of precursors detected entering New Zealand. Law enforcement agencies did not detect any ephedrine entering the country during April and May 2020. Only very small quantities of pseudoephedrine-based medicines were detected entering the country in the same period. The findings suggest that large-scale precursor importation was not a commonplace then (NDIB, June 2020).

5.7.2 Importation and Distribution

According to the New Zealand Drug Foundation (2020), there was a 65% decrease in methamphetamine seizures by the New Zealand Customs Service during April and May of 2020.[50]

It is not likely, however, that this decrease in seizures, and likely decrease in the amount of methamphetamine reaching the New Zealand market, led to a shortage in the availability of methamphetamine in New Zealand. A report by NDIB (June 2020) assessing the effect of COVID-19 on the overseas supply of methamphetamine to New Zealand discussed that an international methamphetamine shortage affecting New Zealand during the COVID-19 pandemic remained unlikely. In line with previous global illicit drug shortages, the impacts of any disruption to the international methamphetamine trade were unlikely to materialise here in the short term. NDIB also suggested that it was almost certain that a temporary supply shortage would not affect New Zealand's demand for methamphetamine over the long term (NDIB, June 2020).

NDIB (June 2020) also highlighted that there had been no significant change in source countries for methamphetamine or their modus operandi for trafficking at that stage. Although, according to the Border and Migration Five Heads of Intelligence (2020), criminal business entities adapted to the COVID-19 scenario, continuing to operate by adapting their methods. In this scenario, it is possible that the negative economic impact of COVID-19 on the Pacific Islands might translate into the increased use of the region by organised crime groups and transnational syndicates (NOCG, 2020b). This risk should be considered further by law enforcement agencies. According to NOCG (2020b), more changes to organised crime group operations and business models might still occur as a result of the impact of COVID-19 in the world.

NOCG (2020b) also pointed out that gang members involved in organised crime continued to meet during lockdown. However, the stand-over incident rate in Auckland slowed during lockdown from approximately one incident every two days before lockdown to approximately one incident every four days during lockdown.

NOCG (2020b) also discussed that Asian organised crime groups who launder proceeds from crime using casinos and junket activity were disrupted by lockdown venue closures and travel restrictions during lockdown and while travel restrictions were in place in New Zealand.

Drug distribution is also acknowledged to have continued around the country during lockdown and while travel restrictions were in place, with drug houses maintaining operations, and ongoing distribution in carparks, hotels and street corners; from cars, pushbikes, backpacker hostels, and tradesperson vehicles; and to mailboxes (NOCG, 2020b).

5.7.3 Differences Across Districts

A report produced by NDIB (May 2020) suggested that lockdown restrictions would likely increase disparities in availability and pricing of methamphetamine across different regions in New Zealand at least in the short term. This finding was confirmed by an update to the original report in June 2020, which also highlighted that as soon as travel restrictions within the country were lifted, methamphetamine was being moved around, especially towards the South Island (NDIB, June 2020).

Wastewater drug testing results also suggested the ongoing effect of COVID-19 on the methamphetamine market. Results for May 2020 estimated that 10.3 kilograms of methamphetamine had been consumed in the country and that the amount of

50 The report by the New Zealand Drug Foundation with methamphetamine seizure data for April and May 2020 was released after the NDIB reports focusing on the effect of COVID-19 on the drug market.

methamphetamine consumed had decreased 46% if considered March 2020 (New Zealand Police, May 2020). The report explained that the magnitude of this reduction was likely impacted by the lack of sample collection in Auckland Central due to faulty equipment. If usual levels of methamphetamine consumption in Auckland Central are applied, national methamphetamine use would still have decreased, but at around a magnitude of 26% (and not 46%).

Consumption in Police Districts in the South Island had decreased even more than the national average. More specifically, decreases in consumption of 58% were observed in Tasman, 56% in Canterbury, and 74% in Southern. Considering the North Island, most Police Districts were back to use levels seen before COVID-19 impacted New Zealand. The only exceptions were Auckland (51% consumption decrease) and Wellington (48% consumption decrease).

5.7.4 Methamphetamine Availability, Purity, and Price

A report from NDIB (May 2020) identified that it was likely disruptions in the supply chain caused by COVID-19 would impact the availability, purity, and price of methamphetamine across New Zealand at least in the short term. The report also suggested that there was anecdotal evidence that less pure methamphetamine was being sold during lockdown. According to the New Zealand Drug Foundation (2020), while the purity and availability of methamphetamine decreased during lockdown, the price of methamphetamine increased over time, especially in the South Island.

An update to the original report (NDIB, June 2020) also suggested that more people who used methamphetamine were seeking treatment due to the difficulty in maintaining their use with increased drug prices. Methamphetamine prices were inflated even after COVID-19 restrictions were lifted, with prices increasing from Auckland to the South Island. Nevertheless, methamphetamine prices continue to be cheapest in Auckland, in comparison with the rest of the country. This increase in Auckland's pricing, combined with the relaxation of domestic travel restrictions infers domestic distribution is no longer the biggest determinant of price increases, but rather a wholesale-level supply shortage. In July 2020, NOCG (2020b) reported that drug prices continued to fluctuate in New Zealand, but were expected to stabilise over the long term.

Auckland's methamphetamine market is assessed to be controlled by a diverse group of importers and dealers (NDIB, June 2020). This diversity decreases the likelihood that a group of high-level dealers are able to coordinate in order to control pricing in 'cartel-like' style. Thus, it is more likely that the price of the drug is determined by availability. However, it is possible that continued New Zealand media stories of price increases and decreased availability could promote an artificial narrative of market scarcity. This perceived scarcity could influence higher level players in the market to increase methamphetamine prices over the longer term.

5.8 Summary

This chapter provided statistics and information regarding the production, importation, and distribution of methamphetamine in New Zealand. Moreover, it provided information regarding online purchasing of drugs in New Zealand, criminal business entities engaged in the market, availability and purity of methamphetamine in New Zealand, differences across Police Districts regarding the methamphetamine market, and impact of COVID-19 on the methamphetamine market.

Differently from the third chapter in this report which focused on how people who used methamphetamine perceived different factors connected to use, this chapter focused on what is known about the methamphetamine market, sometimes using the perspective of people who use methamphetamine surveyed during intelligence studies, but mostly using the perspective of law enforcement agencies.

Overall, findings presented in this chapter showed that:

- From 2013 to 2019 there was a gradual decrease in the number of methamphetamine manufacturing laboratories dismantled. However, 2020 has seen a sharp increase in the number of laboratories dismantled in New Zealand. All laboratories are now commercial, and able to produce larger quantities of methamphetamine than the methamphetamine manufacturing laboratories previously detected in the country;
- There are several non-controlled methamphetamine precursor chemicals which can be used in the manufacturing process. Intelligence feedback to this report describes the importation of pre-precursors to New Zealand as an emerging trend;
- The volume of methamphetamine being imported into New Zealand has generally increased since 2012. Two large methamphetamine manufacturing regions, Mexico and the Golden Triangle (i.e. Myanmar Shan State, western Laos, and northern Thailand), supply methamphetamine to the New Zealand market;
- The increased availability of methamphetamine in the Golden Triangle, the reduced wholesale price of the drug due to increased availability in this region, and the profitability of the New Zealand market put New Zealand at increased risk of being a target for transnational syndicates based in the Golden Triangle. The oversupply of methamphetamine in this region is likely to lead to further expansions of the methamphetamine market, attracting more people to use the drug due to its cheaper price and higher availability. In this sense, syndicates based in Mexico are also a risk to New Zealand. Additionally, the competition between suppliers is bringing the wholesale price of the drug down and this can lower the price at retail point, expanding markets in New Zealand to include lower socio-economic communities. The typical price of one kilogram of methamphetamine in New Zealand dropped from between $230,000 and $250,000 in 2016 to $140,000 in 2019. Still, the New Zealand market is acknowledged as highly profitable;

- Mexico has increasingly been acknowledged as a source country for the methamphetamine imported to New Zealand. Mexican cartels use sophisticated and diverse methodologies, and have already successfully engaged with domestic distribution networks and money laundering infrastructure in New Zealand. This trend is likely to continue and be linked to further offending, although it is unlikely that Mexican cartels will seek to establish a physical presence in New Zealand, leading to the level of corruption and violence observed in Mexico;
- There are different transnational syndicates involved in trafficking methamphetamine to New Zealand. These syndicates are not necessarily associated with gang members but do require criminal connections, often through Asian organised crime groups, to sell their product within New Zealand. Some members of domestic gangs will therefore maintain relationships with Asian Organised Crime representatives or middlemen to obtain product for domestic distribution. It is important to mention, however, that the association between members of transnational syndicates, international criminal business entities, and domestic criminal business entities is neither linear nor fixed in New Zealand, varying across different groups and periods of time;
- Intelligence holdings describe that organised crime groups in New Zealand are increasingly armed and likely to be more willing to carry out serious attacks and violence. It is likely that increases in violence and firearm-related charges are associated with members protecting themselves from other gangs and more violent tactics, and protecting their drug market;
- Adult gangs from both New Zealand and Australia are expanding to East and Southeast Asia to scale up the trafficking of drugs, especially methamphetamine and its precursors. According to intelligence holdings, it is likely that some of these gangs are collaborating in this space, which poses a high risk to New Zealand. The Pacific Islands are also vulnerable to the expansion of adult gangs from both New Zealand and Australia. New Zealand gang members establishing themselves in these locations might have the opportunity to network with international drug syndicates, what would facilitate direct drug importations between the Pacific Islands and New Zealand in the future;
- Anecdotal evidence indicates that it is likely that organised crime groups in New Zealand fix the street price of methamphetamine in the country, maintaining its profitability;
- Illicit drugs have been increasingly more available online in New Zealand, both in clearnet and darknet-hosted marketplaces;
- The purity of the methamphetamine sold in New Zealand is averaged at 74% out of a maximum purity of 80% for solid (salt) form methamphetamine, and in 2016 people who frequently used the drug perceived to be 'easy' or 'very easy' to obtain it in New Zealand; and
- COVID-19 has had an impact on methamphetamine supplies in New Zealand, and as at May 2020, the drug continued to be more difficult to obtain than before the onset of COVID-19 in many parts of the country. Although an international methamphetamine shortage affecting New Zealand remained unlikely.

6. Education, Prevention, Harm Reduction, Staff Training, and Partnerships

6. Education, Prevention, Harm Reduction, Staff Training, and Partnerships

This chapter presents findings from the literature gathered by EBPC focusing on education and prevention strategies used abroad and in New Zealand, harm reduction strategies used abroad and in New Zealand, frontline staff training initiatives working to address methamphetamine use, dependence, and treatment in New Zealand, and existing successful partnerships between police and other agencies to support harm reduction and prevent methamphetamine use.

Documents provided or described by Steering Group members are categorised below according to the type of strategy being described (e.g. education, harm reduction, frontline staff training), but it is important to acknowledge that some of the initiatives listed are part of bigger programmes of work, having a similar purpose, or encompass more than one type of strategy at a time. Ang and Andrews (2018), for instance, enlisted in their presentation to the addiction sector leadership a list of strategies in the alcohol and other drugs space aimed at young people which belonged to the same work programme – *Tūturu, Peer Crowd Projects, Bridging the Gap*, and *Brief Advice Pocket Cards*, among others. Thus, strategies presented below in different sections may be part of the same programme of work, having a similar purpose.

Also, we describe in this chapter education, prevention, and harm reduction strategies in the broader alcohol and other drug space (which also includes methamphetamine), strategies targeting specifically methamphetamine, and strategies targeting other substances which could be adapted to target methamphetamine. All of these strategies were mentioned by Steering Group members or listed in documents provided by them.

6.1 Education and Prevention

Education and prevention strategies should be considered when addressing the harm caused by methamphetamine to New Zealand communities. These strategies enable people who have not yet used the drug to know more about it and be aware of its negative effects and the harm that it could cause to them. It has been suggested in the literature that strategies which focus on multiple dimensions, are community-based, and responsive to the local context are generally more promising in terms of best practice principles and international models of population-level health promotion (Robertson, 2013).

Furthermore, as addiction to methamphetamine can settle in quickly after first use, continued use is associated with multiple negative effects, and it can take from five to 10 years for people to seek help to treat their addiction, it seems preferable for people to avoid using the drug for the first time (Farrell et al., 2019; Indig et al., 2017; NDIB, 2017d; New Zealand Drug Foundation, December 2020). In this scenario, education and prevention strategies could be paramount in providing more information about the drug to potential users, potentially decreasing drug intake and the harm caused by methamphetamine to New Zealand communities.

6.1.1 International Literature

A report and an article produced in the United States suggested some broad evidence-based strategies for successful prevention and education in the alcohol and drug space. The report by Robertson, David, and Rao (2003) described 16 research-based prevention principles which should be used by parents, educators, and community leaders:

1. Prevention programmes should enhance protective factors (e.g. parental or peer support) and decrease risk factors (e.g. aggressive behaviour or poor self-control);
2. Prevention programmes should address inappropriate use of both illegal and legal drugs;
3. Prevention programmes should address drug abuse issues in the local-community level (including risk factors and protective factors);
4. Prevention programmes should be targeted to the audience or population, addressing specific risks;
5. Prevention programmes using family-based approaches should focus on enhancing bonding between family members including goals such as improving communication between members;
6. Prevention programmes should start early, as early as preschool;
7. Prevention programmes should focus on improving academic and social-wellbeing during elementary school, addressing risk factors at that stage, and targeting self-control, emotional awareness, communication, social-problem solving, and academic support;
8. Prevention programmes should focus on increasing academic and social competence during middle, junior high, or high school, targeting study habits and academic support, communication, peer relationships, self-efficacy and assertiveness, drug resistance skills, reinforcement of anti-drug attitudes, and strengthening of personal commitments against drug abuse;
9. Prevention programmes can be effective when aimed at transition points (e.g. from elementary to middle school);
10. Community prevention programmes in different niches (e.g. school and family) can be more effective than a single programme;

11. When more than one community prevention programme is in place, it is important to consolidate the message across them so programmes do not contradict each other and are more effective;
12. When programmes are adapted to fit a specific community, they should keep core elements such as structure, content, and delivery;
13. Prevention programmes should be long term, including follow-ups with consistent messaging to increase their effectiveness;
14. Prevention programmes should include appropriate instructor training in order for these to display behaviours which foster attendees' positive behaviour;
15. Prevention programmes should be interactive in order to have increased effectiveness; and
16. Research-based prevention programmes are cost-effective if implemented appropriately.

Similarly, looking at 'what works' in the prevention space, the article by Kumpher (2002) suggested that there is no single best prevention programme, arguing that prevention programmes have to be fit to the population targeted based on risk and protective factors in that population; and the best approach is to start prevention earlier rather than later, reduce risk factors in different life spheres (e.g. school, family), and promote protective factors in different life spheres.

Kumpher (2002) also acknowledged that three levels of prevention programmes should be considered: universal prevention programmes (targeted to a whole population); selective prevention programmes (targeted to a specific group in the population – e.g. prisoners); and indicated prevention programmes (targeted to youth or adults with known antecedents of alcohol or drug abuse). The author also described that it is important to identify groups at risk in order to target them and that evidence-based approaches should be disseminated to the public and adopted by agencies. Furthermore, as socio-economic disadvantage has been acknowledged to impact drug-use behaviours, it is also important to consider this factor when implementing prevention strategies (Spooner & Hetherington, 2004).

6.1.2 New Zealand Literature

Robertson (2013) prepared for the Ministry of Education a review of the government-funded Alcohol and Other Drug (AOD) education programmes for young people. In the review, the author described that in New Zealand, AOD prevention/delay or reduction programmes are usually provided to young people during secondary school. Prevention (or delay-based) programmes aim to address substance use before it starts (Robertson, 2013).

Robertson (2013) discusses that these programmes have been criticised for both being available too late to young people (when some have already initiated substance use) and not showing to delay or prevent AOD use (either due to programme ineffectiveness or lack of evaluation).

According to Robertson (2013), education contributions to the prevention space need to include learning of knowledge, skills and understandings that contribute to broader development of protective factors and minimisation of risk factors. In this space, prevention strategies which focus on multiple dimensions, are community-based, and responsive to the local context are generally more promising in terms of best practice principles and international models of population-level health promotion. Programmes can therefore be effective in reducing AOD use by focusing on broader topics such as increasing cultural connectedness. Strategies focusing on overall wellbeing have also been suggested as promising in the AOD prevention space (Robertson, 2013).

Robertson (2013) identified in 2013 that results for the New Zealand-based programmes *Community Action Youth and Drugs (CAYAD), Community Action Alcohol Fund (CAAFS),*[51] *High on Life,*[52] *Stand Up!*, and *Amplify!* were positive and promising.

In total, six different initiatives including education and prevention strategies being used in New Zealand were identified in the current stocktake of literature and are include below; however it is likely that there are further initiatives in place.[53,54]

6.1.2.1 *Community Action Youth and Drugs (CAYAD)*

This programme is funded by the Ministry of Health and has the aim of reducing the harm young people experience from alcohol and other drugs (CAYAD, n.d.). More specifically, the programme aims to attain four outcomes: Increased informed community discussion and debate about issues related to illicit drugs; effective policies and practices to reduce harm adopted; increased local capacity to support young people in education, employment, and recreation; and reduced supply of drugs to young people (Ministry of Health, 2009).

The programme operates in 21 locations across New Zealand and is guided by the National Drug Policy 2015-2020. CAYAD coordinators work with the community by supporting leaders, organisations and young people to collaborate and create long lasting changes in their environment which promote wellbeing and reduce the risk of harm (CAYAD, n.d.). CAYAD projects are based on local, cultural, and academic evidence, focusing on improving policies, systems, and practices; initiating community

51 The *Community Action Alcohol Fund (CAAFS)* is not described in this chapter as updated information about it was not available.
52 *High on Life (HOL)* is not described in this chapter as updated information about it was not available.
53 In this report, we describe prevention strategies in the broader alcohol and other drug space (which also includes methamphetamine), strategies targeting specifically methamphetamine, and strategies targeting other substances which could be adapted to target methamphetamine. All of these strategies were mentioned by Steering Group members or listed in documents provided by them.
54 The *Life Education* programme (*'Healthy Harold'*) was mentioned by one of the Methamphetamine in New Zealand Steering Group members as a relevant prevention programme to be included in the current report. However, as it was considered by Robertson (2013) to 'not fit an understanding of a 'programme' or 'approach' that claimed to prevent or reduce AOD use', this programme has not been included in the current report. Robertson (2013) prepared for the Ministry of Education in 2013 a review of the government-funded Alcohol and Other Drug (AOD) education programmes for young people. More information about the *Life Education* programme can be found on: https://lifeeducation.org.nz/

action to reduce supply of alcohol and other drugs; and increasing opportunities for young people to be healthy and reach their full potential.

The website for the project (https://cayad.org.nz/) includes relevant resources produced by both CAYAD and other organisations, including information pieces, case studies, evaluations of projects within CAYAD, and an evaluation of the overall programme. The process and impact evaluation for the overall programme showed that in 2009 the programme was delivering against three of its four outcomes–increased discussion; changed policies and practices; and increased access for young people to education, recreation and employment (Ministry of Health, 2009). The evaluation emphasised the importance of delivering multiple initiatives targeted at all the four outcomes (increased discussion; changed policies and practices; increased access for young people to education, recreation and employment; and reduced supply of drugs).

6.1.2.2 *Stand Up!*

This programme is a youth development programme provided by Odyssey House (n.d.). It is aimed at young people whose lives are influenced by alcohol and other drugs. It includes working collaboratively with young people and their schools or education providers to explore and discuss a range of topics broader than alcohol and other drugs, such as future aspirations and academic performance, and develop life and social skills.

The programme offers counselling support to young people accessing the service, allowing them to determine the level of engagement desired and what they would like to achieve with the programme (Odyssey House, n.d.). Throughout the programme, progress and areas of strength are assessed and future areas for development are established. Trained alcohol and other drug (AOD) practitioners with varied cultural, life, and educational backgrounds provide the service, which enables different approaches to be used as required.

According to Robertson (2013), many of the participants who took part in the *Stand Up!* and *Amplify!* (please see Section 6.1.2.3 below) programmes reported increases in confidence, social skills without using substances, participation with school, and sense of pride in who they are; improvements in mood and relationships with their family; and a newly gained sense of direction. According to the author, Odyssey House has been evaluated by Counties Manukau District Health Board twice.

6.1.2.3 *Amplify!*

This programme is provided by Odyssey House and supported by Vodafone New Zealand Foundation (Amplify, 2011). *Amplify!* focuses on empowering young people to set challenging goals for themselves and reach their full potential. The programme is targeted at young people in secondary schools whose lives are influenced by alcohol and other drugs. Similarly to the *Stand Up!* programme, participants are stimulated to establish what they want to get out of the programme and then the programme of work is developed around their needs using a combination of research-based youth-friendly techniques. Work can be conducted both in individual and group sessions.

The programme's main goals are to empower participants to learn more about who they are and who they want to become; strengthen connections with their community and whānau; and learn and practice skills, such as using emotions in a positive way and cutting down substance use (Amplify, 2011). The programme is based on collaborative work between providers (two trained alcohol and other drug practitioners) and the school, and is able to deliver support to students according to their needs in the alcohol and other drug space.

6.1.2.4 *What Can I do?* and *Did you Know?* Series

According to the New Zealand Drug Foundation (November 2020), a comprehensive amount of work has been carried out by several organisations in New Zealand to develop products to help young people, their parents, and health professionals with alcohol and other drug issues, from prevention to early intervention and treatment.

The *What Can I do?* infographics and short-animated video detail what can be done by members of the community to help young people to improve their wellbeing and avoid problems with alcohol and other drugs (New Zealand Drug Foundation, November 2020). The resources provide information depicted in a clear and illustrative way about alcohol and other drug use among young people and the harm experienced by them, also providing strategies to communicate with young people on these issues.

As part of the *Did you know?* series, a short-animated video focusing on methamphetamine was also created (New Zealand Drug Foundation, November 2020). This video was designed by the New Zealand Drug Foundation and youth alcohol and other drug services based in New Zealand to share relevant facts about methamphetamine with young people. *The Did you know*? series includes videos in English and Te Reo, posters with the scripting of the video in different languages, and a conversation planner for parents to use with children before alcohol and other drug use issues appear. Print material is also available in Samoan and Tongan, via a partnership with Le Va, and Chinese (traditional), via a partnership with *Matua Raki*. Asian Family Services have taken the initiative onboard, distributing posters in Chinese to members of their community.

Finally, the *Did you know?* series is used as a resource when training health professionals to be confident and skilful when discussing alcohol and other drug issues with young people and has creative commons licensing, what means that they can be adapted by young people and health professionals to be relevant to a particular context.

6.1.2.5 *New Zealand Peer Crowd Projects (NZPCP)*

This series of projects has the goal of reducing alcohol-related harm and improving the wellbeing of specific groups of young people through targeted campaigns and programmes (Domett, Coker & Sinclair, 2020). The *New Zealand Peer Crowd Projects* involved multiple organisations and agencies. Although this methodology has been used in the prevention space focusing on alcohol in New Zealand, it is described here as it could possibly be used in the prevention space for methamphetamine.

A US-based social marketing agency presented on their method of doing segmentation into peer crowds to New Zealand public sector and community groups in 2015 as part of an information-sharing forum (Domett et al., 2020). In 2016, this agency was commissioned to conduct the first phase of the project in New Zealand which had the goal of identifying local teen and young people peer crowds, the role hazardous drinking plays in identity formation and maintenance, and patterns, trends, and behaviours related to the practice of hazardous drinking. Findings suggested four teen peer crowds (Hip Hop, Popular, Mainstream, and Alternative) and five young adult peer crowds (Hip Hop, Partier, Mainstream, Hipster, and Professional). Moreover, the Hip Hop and Popular/Partier peer crowds were identified as the ones at the highest risk for hazardous drinking.

Phase 1 was followed by phase 2 in 2017 which aimed to co-create how peer crowds can be used to target behaviour change (Domett et al., 2020). Three propositions emerged from phase 2: 1) a conversation starter for families during mealtime; 2) a challenge-based initiative for the Hip Hop and Popular/Party peer crowds; and 3) an immersive content experience for treatment providers.

Phase 2 was followed by phase 3 which aimed to co-produce pilot projects, tools, and proof-of concept trials (Domett et al., 2020). Based on findings from two workshops with parents and young people from Auckland, Curative designed *Kai Nights,* which challenges families to cook a meal together using what they have in the kitchen cupboard. A flip book was also designed to guide families during *Kai Nights*.

The second proposition from phase 2 led to a challenge-initiative for the Hip Hop peer crowd developed by Innovate Change after an initial co-design workshop with young people who fit the Hip Hop peer crowd. The initiative created from it was named *The Movement* and aims to be a safe space for play, relaxation, connection, and instagrammable content. This initiative was tested in Auckland in 2019 and has been granted funding for a further three years.

The third proposition from phase 2 led to the co-design of characters, scripts, and visuals to create an immersive video experience for professionals working with young people. Virtual reality videos were produced as part of the activity. The videos were trialled in 2019, receiving very positive feedback.

An additional review was commissioned to the Big Picture agency in 2019 to assess the use of peer crowds in New Zealand so far and how it could be applied to other contexts in the future. The agency suggested that the peer crowd framework should be adapted further to better represent New Zealand; a new iteration of peer crowds should be created; and a national survey including young people should be conducted to inform relevant agencies and organisations of trends and influences also at the regional level. Further investment would be necessary to put in practice these suggestions.

A formative evaluation of the *NZPCP* was published in May 2020 (Domett et al., 2020). Findings suggested that *NZPCP* was an excellent example of collaboration between multiple partners from different sectors; a successful trial of targeting young people in harm-reduction initiatives using something more specific than ethnicity; and produced new knowledge about co-designing projects with young people.

Findings also suggested future challenges for discussion. The first challenge was a query about whether a representative study of New Zealand young people needed to be completed before any further work was undertaken. The second challenge was that *NZPC* should investigate how to improve health services for the groups targeted. The third and fourth challenges related to survey questions in case a representative study of the target population was to be conducted within the project. The lack of ongoing funding for the initiative was also identified as a challenge. Based on the positive findings from the formative evaluation, it was recommended that *NZPCP* use existing resources to deliver the project and just then conduct an evaluation to confirm and validate the approach taken.

It is likely that there are more prevention strategies in place in New Zealand. The strategies described in this report are unlikely to constitute an exhaustive list of strategies in place in New Zealand.

6.2 Harm Reduction

6.2.1 International Literature

Harm reduction acknowledges that abstinence is not a realistic goal for everyone. Harm reduction services work with people who use drugs to avoid preventable drug-related harms, such as infection and death. There are several ways that harm can be reduced for people who use methamphetamine.

Lee (2017) discussed in her presentation at the 2017 Parliamentary Symposium that the focus on methamphetamine use prevalence and on the war on drugs in Australia has taken the focus away from how people use the drug and ways to minimise harm. As a result, the majority of the funding in Australia was directed at the time to law enforcement (66%) and treatment initiatives (22%), instead of being directed to harm reduction strategies (6%).

According to Lee (2017), this was not an effective strategy to solve the methamphetamine issue, as data showed that although the use prevalence of methamphetamine was decreasing in Australia at the time, the harm associated with it was increasing as exemplified by increases in treatment presentation, hospital separations, ambulance call outs, Emergency Department presentations, and drug induced deaths.

According to the professor, the lack of funding for harm reduction strategies also impacted the flexibility to respond to changes in harm such as the higher consumption of crystal methamphetamine instead of powdered methamphetamine. Moreover, according to this presentation, at the time, 70% of those who used methamphetamine in Australia just used it once a year, 15% used it once a month, and 15% used it once a week. Those who used it once a week were likely to interact with treatment services at some stage of their methamphetamine trajectory, but the 85% who used the drug less frequently were not likely to interact with the Health system at all. According to

Lee (2017) this opportunity to reduce the harm associated with methamphetamine use in Australia was missed. In this sense, the presenter argues that it is important to focus on different strategies, such as harm reduction ones, when trying to solve the methamphetamine issue.

A review of literature by Farrell and colleagues (2019) noted that harm reduction strategies to reduce risky stimulant use and overdose have not been assessed properly in the literature, although harm reduction strategies such as education about ways to administer the drug, reduce quantity and frequency of use, identify early signs of substance-based psychosis, risk assessment, general health, and awareness of drug strength have been shown to be implemented successfully. The authors also note that when considering reducing harm from blood borne viruses and sexually transmitted infections due to mode of drug use and sexually risky behaviour associated with drug use, effective approaches include providing sterile injecting equipment, materials for safer inhalation of drug, professionally supervised drug use rooms, HIV and Hepatitis C testing and treatment, and providing condoms and other pre-exposure apparatus.

Farrell and colleagues (2019) discuss that innovative strategies to prevent, treat, and reduce harm among people who use stimulants must be designed and that these strategies must include strong engagement from people who use stimulants, family, and community.

Finally, the Royal Australian and New Zealand College of Psychiatrists (2019) discusses that public health campaigns should be based on evidence and focus on minimising harm and stigma, instead of sensationalising substance use disorders.

6.2.2 New Zealand Literature

One consideration in harm reduction are the indicators of success in regard to treatment, as methamphetamine use disorders range in severity and there is no 'one-size-fits-all' (NDIB, 2017c). Common outcome measures in New Zealand include harm reduction as well as abstinence such as improved physical and mental health, reduced drug use, completion of treatment, improved relationships, employment, and reduced rates of crime, arrest and conviction. However, nationally, there is no standardised outcomes evaluation system for the addictions sector as a whole, including not only community outpatient-based programmes, but also other types of treatment interventions.

Several specific tools and resources are available to support harm reduction in New Zealand, although there are only two nationally funded harm reduction programmes – the *Needle Exchange Programme* and *Opioid Substitution Therapy* (New Zealand Drug Foundation, 2020). In this sense, the New Zealand Drug Foundation (2020) calls for more investment in harm reduction programmes in New Zealand.

Five strategies presented in the next four sections illustrate harm reduction strategies being used in the broader alcohol and other drug space or targeting specifically methamphetamine.

6.2.2.1 *Needle Exchange Programme*

The *Needle Exchange Programme* was established in the late 1980s by the Ministry of Health and makes needles, syringes, and other equipment available to support safe injecting practice and reduce harm to people who are injecting drugs, including methamphetamine (New Zealand Needle Exchange Programme, 2020). Currently, 21 dedicated exchanges and 197 pharmacies are part of the programme. The website for the programme describes that more than three million needles are distributed per year by the programme.

6.2.2.2 *High Alert* Website

Among the existing harm reduction services, the *High Alert* website (DIANZ, 2020) enables people who use illicit drugs to check alerts for dangerous drugs and anonymously report any unexpected drug effects. According to New Zealand Police (December 2020a), more than 30,000 people have visited the website since it was launched on the 26th June 2020. The website was designed by Drug Information and Alerts Aotearoa New Zealand (DIANZ), which is a Ministry of Health-based initiative which also includes other government agencies and non-governmental organisations to both assess and share information about drug use and harm.

6.2.2.3 Festival Drug Checking

The New Zealand Drug Foundation annual report (2020) notes that festival drug checking also successfully prevents drug harm. According to the New Zealand Drug Foundation, for six years the project has checked drugs during festivals, with drugs being checked in 22 different festivals in 2019/20. According to statistics from the report, 52% of people who tested their drugs have decided not to take a drug when the test showed that it was not the substance they thought they were about to use. The service is also provided outside of festivals in a clinic in Wellington, and a trial of the same service began to be conducted in Auckland in November 2020. On the 1st December 2020 emergency temporary legislation to legalise drug checking for the festival season was put in place in New Zealand. This enabled drug checking to be law-based.

6.2.2.4 *MethHelp* and *DrugHelp*

The *MethHelp* initiative is a sub-brand part of the broader *DrugHelp* initiative (https://drughelp.org.nz/a-bit-about-drugs/meth) designed initially for those who were almost ready to seek treatment. However, there is now a desire to redesign these products to reach people much earlier in their drug use journey when they have not yet acknowledged experiencing harm from their drug use.

A document recently released details insights, findings, and recommendations about how the *DrugHelp* website and suite of products should be redesigned (Curative, 2020). Some of the recommendations arising from this work were ensuring the website is mobile friendly; restructuring the website into four main sections (drug information, think about your use, get help, and support a loved one); ensuring content is judgement-free with a supportive tone; ensuring content is available in different media and is varied, acknowledging the spectrum of

drug-use experiences and different views about the subject; and disbanding the sub-brands *PotHelp* and *MethHelp* so website guests have a better user experience. A clear preference for New Zealand-based relevant information was also noted.

The booklet *MethHelp: How to stay in control* is a product associated with the *MethHelp* and *DrugHelp* initiatives. This booklet lists different ways in which people who use methamphetamine could reduce the harm the drug causes to them, describing how to keep well while using the drug; the importance of talking to trusted people about use; how methamphetamine acts on the brain; feelings and mental health issues associated with methamphetamine use; early signs of addiction; how relationships can be affected; and how people who use methamphetamine can evaluate their current use and opt for stopping, cutting down or maintaining use (New Zealand Drug Foundation, 2018). It also provides advice to whānau about how to interact with someone with a problem with methamphetamine.

It is likely that there are more harm reduction strategies in place in New Zealand. The strategies described in this report are unlikely to constitute an exhaustive list of harm reduction strategies in place in New Zealand.

6.3 Training of Frontline Staff

There is limited information on the general training of frontline staff working to address use, dependence, and treatment in New Zealand. However, the *Bridging the Gap* resource and the *Addressing Methamphetamine Use in Primary Care* resource noted training and resources which could be used to train frontline staff.

6.3.1 Bridging the Gap

The *Bridging the Gap* resource was created with the purpose of increasing the knowledge and confidence of staff working with young people in the primary care environment, such as youth workers and school counsellors, to address issues related to alcohol and other substance use (*Matua Raki*, 2017). According to the resource, it could also be used to train clinicians working in specialist alcohol and other drug services who train youth workers.

Besides including substance-specific content, the resource also provides tips for communicating with young people about the issues associated with methamphetamine use and content focusing on youth development, beliefs, and culture.

6.3.2 Addressing Methamphetamine Use in Primary Care

This resource includes guidelines for primary care professionals when interacting with patients who may be using methamphetamine (Best Practice Advocacy Centre New Zealand, 2018). The resource starts by explaining the effects of methamphetamine, how it is used, and health complications from methamphetamine use, discussing that methamphetamine use is likely to continue to be an issue in New Zealand in years to come. Furthermore, it describes how primary care professionals are able to reduce the harm associated with methamphetamine use by using the skills they already have. In this sense, the resource guides professionals on how to give advice on harm reduction to people who use the drug, how to discuss use with patients, how to direct patients to treatment during the consultation, how to advise patients on withdrawal symptoms, how to use motivational interviewing with patients, pharmacological treatments available to treat symptoms of withdrawal, and where to look for further help.

6.4 Partnerships between Police and Other Organisations

There are multiple initiatives in New Zealand that involve partnerships between police and other agencies to prevent use, support harm reduction, and reduce alcohol and other drug use. Some of these strategies are listed in this section. Among these, *Te Ara Oranga* is the only programme to specifically target methamphetamine use.

As discussed by Foulds and Nutt (2020), in 2019 the New Zealand Court of Appeal reviewed the sentencing given to people convicted for methamphetamine-related offences. As a result, prison sentences associated with lower-level methamphetamine-related charges were replaced by community-based sentences, and it was acknowledged that addiction, mental health issues, and social disadvantage should be taken into consideration when sentencing, as these decreased both moral culpability and the deterrent impact of prison sentences.

Furthermore, as problematic behaviours such as drug use and criminal offending are determined by multiple factors, it is important for different agencies to work collaboratively and with communities to strengthen their resilience not only to problematic behaviours, but also to the determinants of these behaviours, implementing preventative measures. Part of this commitment in New Zealand has included liaising more closely with communities and looking into data from these communities to better understand where resources are needed and how they should be provided.

Data from Wairoa, a region deeply affected by methamphetamine trafficking and addiction, showed, for instance, that both Wairoa district and township perform extremely poorly in multiple socio-economic deprivation indicators, including unemployment rate, percentage of benefit claimants in the population, and median household income when compared to other towns and districts in New Zealand (DOT loves data, 2019; The Gisborne Herald, July 2019). Furthermore, data showed that the crime rate in Wairoa started to increase drastically above the national rate between 2016 and 2017. Data also showed that the rate of mental health and attempted suicide calls to police in the district is above the national rate, similarly to the rate of fatal crashes. In this scenario, law enforcement measures alone are not likely to resolve issues, and long-term support from other agencies who work in the health and social spaces is necessary, as some of the issues afflicting the region are persistent and require continuous resourcing and support.

NDIB (2018a) reports that in 2018 there was no formal structure for detecting and responding to drug-related harm in New Zealand. This meant that when harm was observed in a given community there were no processes in place to guide how the harm should be addressed. This meant that organisations addressed the harm informally, whether coordinating their efforts or not, and then went back to 'business as usual' when the harm was addressed. NDIB (2018a) suggests that permanent regional drug-related harm response groups could be created to address drug-related harm in a more structured and quick way.

Based on a case study including an intervention to reduce the harm caused by synthetic cannabis in Porirua, NDIB (2018a) advises that initiatives focusing on decreasing drug-related harm should include: a) multi-agency approaches; b) address not only drug supply , but also demand reduction; c) coordinate communication with the community; d) share information between agencies and community so the issue is better understood; and e) include community members when designing responses to the issue at hand.

The strategies presented next reflect the understanding that there is more to methamphetamine charges than imprisonment, highlighting that methamphetamine-related offending has to be understood both as a health and a criminal justice problem, and the importance of adopting a multi-agency approach when mitigating drug-related harm.

6.4.1 Non-Court Action

This type of action can include therapy, warnings, iwi-community panels and youth aid referrals, diverting people with illicit drug charges from court action, helping them to avoid conviction, and offering help to address the underlying issues connected to illicit drug use (New Zealand Drug Foundation, 2019). According to the New Zealand Drug Foundation report (2019), there was an increase in the percentage of people with illicit drug charges being diverted from court action between 2017/2018 and 2018/2019, from 43% to 51%. However, the percentage of people being diverted varied across Police Districts from a little bit over 40% in Northland to over 60% in Southern and Auckland City.

6.4.2 Alcohol and Other Drugs Treatment Court (AODTC)

The first *AODTCs* were established as part of a five-year pilot in 2012 in the Auckland Central and Waitakere regions (NDIB, 2017c). In these courts, offenders affected by the use of alcohol and other drugs are given the option to go through treatment with judicial oversight before sentencing with their progress in treatment potentially reducing their sentence. According to an NDIB (2017c) report, the cost of running an *AODTC* is higher than the cost of a treatment package, but this additional cost might be offset by the cost of interactions between people who use alcohol or illicit drugs and the Corrections system when the *AODTC* is not used.

An evaluation of the *AODTC* was published in 2019 by the Ministry of Justice. Main findings from the quantitative outcomes evaluation showed that when compared to matched offenders, those who went through the *AODTC* had reductions over all reoffending measures and non-crime related incidents. These differences continued for the first two years and decreased in the third and fourth-year follow-ups. There were no significant differences between offenders who went through the *AODTC* and matched offenders regarding being on a benefit or not. Additionally, there were several improvements made to the *AODTC* during the evaluation period, but these were not assessed in the quantitative outcomes evaluation.

The main findings from the qualitative evaluation showed that the *AODTC* was perceived as improving the lives of graduates and exited members, and as being implemented well. The cost-benefit analysis showed that the cost-benefit ratio of the *AODTC* was 1.33, what signals a small to moderate return on investment when compared to standard Courts.

However, Farrell and colleagues (2019) summarise in their international review of literature that the overall evidence regarding the effectiveness of drug courts is unclear due to findings regarding reductions in the number of reimprisonments being potentially impacted by participant selection bias in evaluations of these programmes.

Kornhauser (2018) assessed the quantitative impact of drug courts in Australia on recidivism. This assessment included 12 impact evaluations of drug courts based in New South Wales, Queensland, South Australia, Victoria, and Western Australia published between 2002 and 2014. These impact evaluations included one randomised experiment and 11 quasi-experiments. Findings from this assessment suggested that drug courts reduced recidivism more than conventional sanctions, but this outcome was impacted by mixed results from different evaluations and methodological limitations such as lack of randomised experiments, weak quasi-experiments impaired by comparisons between inappropriate comparison and treatment groups, and short and poorly defined follow-up periods. Thus, according to the author, drug courts cannot yet be granted unequivocal endorsement in Australia, although overall findings suggest a reduction in recidivism. The author also discusses that drug courts in Australia are not all the same, using different processes, making it difficult to generalise findings regarding their impact.

Weatherburn, Yeong, Poynton, Jones, and Farrell (2020) addressed the short follow-up limitation pointed out by Kornhauser (2018) by assessing the long-term effect of the New South Wales Court on recidivism. The study compared outcomes for 604 offenders accepted in the Drug Court program and 306 offenders eligible for the program but not accepted on it (due mainly to being convicted for a violent offence or residing outside of the court area). Outcomes were evaluated for offenders from the date of their court appearance to the end of the study period (31/10/2019). Follow-up periods ranged from 122 days to 17.6 years and had an average of 13.5 years (standard deviation = 2.4 years). Findings showed that offenders who were accepted in the Drug Court program took 22% longer to reoffend for a person offence and had a 17% lower rate of reoffending than offenders who were not accepted in the program. Findings did not suggest any differences between the groups regarding overall time to the next offence or time to the next property

or drug offence. Differences between groups regarding person offence reoffending might be due to offenders who were convicted for a violent offence not being accepted in the programme, but being part of the comparison group. It might be the case that violent offenders are more likely to commit person offences.

Further rigorous evaluations of Drug Courts which address the limitations observed by Kornhauser (2018) are necessary to provide unequivocal endorsement of Drug Courts in Australia.

6.4.3 Custody Unit Screening

This was an initiative conducted by the Wellington Police Custody Unit in 2016 (NDIB, 2017c). As part of the initiative, detainees were screened for their alcohol and other drug use via an electronic survey. Those acknowledged to have a substance disorder were then contacted by a psychologist. During the initiative, 224 detainees (58%) were engaged in the screening (Quigley, 2016, as cited by NDIB, 2017c). Among these, 162 detainees (72%) were identified to have a substance use disorder and 67 detainees (30%) took part in treatment interventions. According to NDIB (2017c), the pilot showed that the screening tool works for police and was acceptable to most detainees. This programme could be implemented throughout New Zealand in all custody units and emergency departments, ensuring consistency of services and enabling a national dataset to be created.

6.4.4 Custody Mental Health Nurses

This was an initiative conducted by the Christchurch, Counties Manukau, and Rotorua Police Districts in 2008 (NDIB, 2017c). During the initiative, a nurse specialised in mental health was employed by the districts to assist detainees who had mental health or addiction issues, referring them to treatment services when necessary. According to the Canterbury District Health Board (2016 as cited by NDIB, 2017c), the initiative was perceived as positive by detainees and found to decrease the risk of harm to staff and detainees, indicating that the programme could be rolled out nationally.

6.4.5 Te Ara Oranga

This project involves input from both the Health sector and New Zealand Police, and has the aim of reducing the supply (through enforcement) and demand (by supporting people who use methamphetamine to stop using) for methamphetamine in Northland (Te Ara Oranga Evaluation Working Group, 2018). Thus, the programme aims to reduce both methamphetamine use and harm in the region. Moreover, *Te Ara Oranga* aims to engage both community and agencies to deliver a holistic approach to methamphetamine use, providing better outcomes for all of those involved. One of the goals of the initiative is to contact people who use the drug and offer them treatment within 48 hours of problematic use being detected by police.

The project also includes an education and prevention component, with 131 community events or meetings being conducted as part of the project between September 2017 and September 2020, and 23 schools being visited during the same period, reaching more than 3,000 students (Te Ara Oranga, 2020). The *Te Ara Oranga* Evaluation Working Group report (2018) also noted staff training specific to *Te Ara Oranga* delivery including that the Northland District Health Board strengthened alcohol and drug competency by engaging subject experts to deliver specialist methamphetamine education programmes for staff to increase capability and expertise.

The *Te Ara Oranga* pilot started in October 2017 and included the implementation of treatment options and a referral pathway, and hiring of Police and Health staff. Currently, the initiative publishes updates about the project including Police and Health actions achieved (Te Ara Oranga, October 2020). Based on the latest update (Te Ara Oranga, April 2021), since the beginning of the programme, there have been 779 referrals to treatment, 51 firearms seized, 340 drug tests of persons on bail, 53 Reports of Concern for 122 children, 976 referrals to Choice (a one-day brief intervention programme), 894 clients and whānau supported, 270 employment referrals, 114 people supported into new work, and 11 people at risk of losing their job were helped to stay in work. Given these indicators, *Te Ara Oranga* is described as a successful partnership between New Zealand Police and the Health sector.

6.4.6 Tūturu

This project aims to assist and support schools to implement school-wide changes to reduce the harm related to alcohol and other drugs by promoting student engagement, wellbeing, and critical thinking (Boyd & Overbye, 2020; New Zealand Drug Foundation, November 2020; https://www.tuturu.org.nz/). It focusses on five main areas: 1) positive school environment; 2) effective education; 3) school-based support; 4) professional treatment; and 5) policies and procedures. The ultimate goal of *Tūturu* is to support students to stay engaged and learning at school. In this sense, *Tūturu* facilitates the work between health services, social services, and secondary schools to create a supportive environment, which also fosters learning (New Zealand Drug Foundation, November 2020).

In order to achieve the goals of the project, a range of resources were made available to schools (Boyd & Overbye, 2020). Support from the New Zealand Drug Foundation and a local youth and community alcohol and other drugs (AOD) service provider was also made available. In this sense, schools are assisted from the reflection on their needs regarding alcohol and other drugs to actioning and reviewing their AOD plan. This approach enables initiatives to be tailored to each school. New tools and resources are developed and optimised continuously according to relevant expertise and feedback from schools and providers.

A total of 11 schools in five different New Zealand regions (West Auckland, South Auckland, Waikato, Bay of Plenty, and Dunedin) were included in the two-year evaluation of the project which started in 2017 (Boyd & Overbye, 2020). This evaluation had a formative and process focus, and assessed whether *Tūturu* processes were an effective way to support schools, *Tūturu* resources and models were likely to be effective in achieving their intended outcomes, and *Tūturu* was likely to be effective in supporting changes in schools and for students. The project pilot was overseen by the ministries of Health and Education, Health

Promotion Agency, and New Zealand Police (New Zealand Drug Foundation, November 2020).

Key findings showed that self-review tools and processes were perceived as supporting schools effectively; resources were received well by schools and perceived as helping the discussion about AOD; *Tūturu* was perceived as supporting initial changes for schools, students, and providers; and *Tūturu* was assisting schools to move away from a punitive to a preventative approach, supporting students as needed.

6.4.7 Partnership in Operations

A number of New Zealand Police operations targeting the supply of methamphetamine have also focused on directing people who use methamphetamine to treatment services and providing prevention advice (NDIB, 2017c; NDIB, 2017d). New Zealand Police has begun working alongside Ministry of Social Development, Ministry of Health, District Health Boards, Iwi, among others, to tackle the methamphetamine market. Going forward, this type of collaborative partnership is being developed under programmes such as *Te Ara Oranga* (please see Section 6.4.5). It is likely many communities would benefit from such partnerships, where different organisations and agencies engage with local communities and Iwi to support the long-lasting reduction of the harm caused by methamphetamine.

6.5 Summary

This chapter presented findings focusing on education, prevention, and harm reduction strategies considering the New Zealand context. Furthermore, it had the aim of listing frontline staff training initiatives working to address use, dependence, and treatment in New Zealand, and existing successful partnerships between police and other agencies to support harm reduction and reduce methamphetamine use.

Overall, findings presented in this chapter showed that:

- Education and prevention strategies should be considered when addressing the harm caused by methamphetamine to New Zealand communities. They enable people who have not yet tried the drug to know more about its harmful effects, potentially avoiding use;
- Six different initiatives including education and prevention strategies being used in New Zealand were included in documents gathered – *CAYAD, Stand Up!, Amplify!, What Can I Do?* and *Did You Know?* series, and *New Zealand Peer Crowd Projects*. However, it is likely that there are further initiatives in place;[55]
- Some harm reduction strategies implemented overseas have shown some promise, however proper assessments of harm reduction strategies to reduce risky stimulant use and overdose are lacking in the literature;
- In New Zealand, common outcome measures of treatment success include harm reduction, as well as abstinence. However, nationally, there is no standardised outcomes evaluation system for the addiction sector as a whole;
- New Zealand harm reduction strategies include the *Needle Exchange Programme, High Alert* website, *Festival Drug Checking,* and the *DrugHelp* and *MethHelp* initiatives. However, this is unlikely to be an exhaustive list of harm reduction strategies in place in New Zealand;[56]
- There was limited information available about the general training of frontline staff working to address methamphetamine use, dependence, and treatment in New Zealand. However, the *Bridging the Gap* resource and the *Addressing Methamphetamine Use in Primary Care* resource noted training and resources which could be used to train frontline staff;
- There are multiple initiatives in New Zealand that involve partnerships between police and other agencies to support harm reduction and reduce methamphetamine use. These include *Non-court Action, Alcohol and Other Drugs Treatment Court, Custody Unit Screening, Custody Mental Health Nurses*, the *Te Ara Oranga* project, and *Tūturu*; and
- A number of New Zealand Police operations targeting the supply of methamphetamine have also focused on directing people who use the drug to treatment services and providing prevention advice.

55 In this report, we describe prevention strategies in the broader alcohol and other drug space (which also includes methamphetamine), strategies targeting specifically methamphetamine, and strategies targeting other substances which could be adapted to target methamphetamine. All of these strategies were mentioned by Steering Group members or listed in documents provided by them.

56 In this report, we describe harm reduction strategies in the broader alcohol and other drug space (which also includes methamphetamine) and strategies targeting specifically methamphetamine.

7. Withdrawal Management and Treatment

7. Withdrawal Management and Treatment

This chapter presents findings from the literature gathered by EBPC focusing on treatment interventions and psychotherapeutic therapies used both abroad and in New Zealand to treat methamphetamine abuse. Moreover, it presents information regarding withdrawal management, pharmacotherapy treatments available, the model used to treat addiction in New Zealand, addiction treatments available to the prison population in New Zealand, individual and systemic barriers to treatment, and how COVID-19 affected treatment seeking and withdrawal symptoms in New Zealand.

7.1 International Literature

7.1.1 Withdrawal Management

In a review of literature focusing on the epidemiology, medical and psychiatric effects, and treatment of methamphetamine use, Rawson (2013) observed that dysphoric mood, anhedonia, fatigue, increased appetite, sleep disturbance, and slowing or acceleration of psychomotor activity can characterise the withdrawal syndrome after heavy long-term use of methamphetamine. According to the review of literature, withdrawal symptoms generally last from several days to three weeks, but can last up to several months.

Lee (2017) argues that as acute methamphetamine withdrawal symptoms usually last from 10 to 14 days, lasting longer than for other drugs, withdrawal support has to be provided for longer when considering people who use methamphetamine compared to other substances, which impacts the amount of funding needed for the service.

7.1.2 Pharmacotherapy

The literature is sparse and there is poor quality evidence regarding amphetamine and methamphetamine pharmacotherapy treatments (Farrell et al., 2019).

Chan and colleagues (2019) conducted a meta-analysis and systematic review of literature to assess the effectiveness of different pharmacotherapy treatments for methamphetamine and amphetamine use disorders. In total, one systematic review (including 17 randomised control trials) and 17 additional randomised control trials were included in the study. Findings showed: a) low-strength evidence that methylphenidate could reduce methamphetamine/ amphetamine use; b) moderate-strength evidence that antidepressants do not significantly affect abstinence or retention; and c) low-strength evidence or insufficient findings regarding how anticonvulsants, antipsychotics (aripiprazole), opioid antagonists (naltrexone), varenicline, and atomoxetine affected abstinence, overall use, and treatment retention.

Overall, findings suggest both that there is no effective known pharmacotherapy to date in treating methamphetamine and amphetamine use disorders, and a lack of studies in the literature investigating the effect of different pharmacotherapy treatments on methamphetamine and amphetamine use disorders (Chan et al., 2019). In this sense, more research about effective pharmacotherapies to treat methamphetamine/ amphetamine use disorder is needed, as well as studies evaluating the use of more than one substance at a given time to treat the disorder (Chan et al., 2019). Lee (2017) argues that the complex way in which methamphetamine affects the brain might be one of the reasons why a pharmacotherapy treatment which directly treats methamphetamine addiction has not been discovered.

The National Institute of Drug Abuse (2019) discusses that pharmacotherapeutic treatments targeting neuroimmune system response, cognitive enhancement, dopamine system response, other monoamines, opioid system response, GABA and glutamate systems response, and hormones are promising. In this sense, cognitive enhancers might be especially promising for clients who have cognitive deficits associated with the use of methamphetamine (Ersche & Sahakian, 2007).

7.1.3 Non-Pharmacological Interventions

A systematic review of literature by AshaRani and colleagues (2020) including 44 studies found that cognitive behavioural therapy, contingency management, exercise, residential rehabilitation-based therapies, transcranial magnetic stimulation, and matrix model were all effective interventions in promoting abstinence, and reducing methamphetamine use or craving in people who have a methamphetamine use disorder (AshaRani et al., 2020). In this review, contingency management was shown to be the most effective non-pharmacological intervention along with tailored cognitive behavioural therapy alone, or in combination with contingency management (AshaRani et al., 2020). It is important to discuss that a number of studies included in this review comprised comparisons between different types of psychosocial interventions (e.g. cognitive behavioural therapy with contingency management therapy). In this sense, these studies did not enable the comparison of treatment outcomes between a given type of intervention (e.g. cognitive behavioural therapy) and an appropriate control group in which no or minimal treatment was provided (e.g. non-structured interventions).[57,58] Additionally, this review of literature included

57 According to Grady (2018), when assessing the efficacy of a given treatment, it is important to compare findings from the group receiving the treatment to findings from an appropriate control group so scientific validity and generalisability are preserved.
58 Please also see discussion presented in Minozzi, Saulle, Crescenzo, & Amato (2016) for more information.

varied types of study design [e.g. randomised control trial[59] (although not always with a traditional non-treatment control group) , single-arm open-label trial,[60] pragmatic trial[61]], which can make it difficult to form quality and reliable conclusions collectively.

A global review by Farrell and colleagues (2019), on the other hand, discusses that the majority of the existing evidence does not support psychosocial treatments (including cognitive behavioural therapy) as being more effective than *treatment as usual*[62] in reducing stimulant use. The exceptions with evidence of success are contingency management, peer-based support groups (including 12-step programmes), and family interventions or multisystemic therapy interventions. Additional reviews of literature have suggested that contingency management is the only intervention to outperform other types of psychosocial intervention and *treatment as usual* when considering abstinence or decrease in stimulant use, although other types of treatment might not have yet been shown to be effective due to lack of appropriate studies in the field assessing effectiveness (Crescenzo et al., 2018; Minozzi et al., 2016; Ronsley et al., 2020).

In another related systematic review of literature, Stuart and colleagues (2020) assessed existing literature regarding the effectiveness of psychological treatments for methamphetamine use on psychiatric symptom outcomes. The review included ten randomised control trials reported in 14 manuscripts. Findings from three randomised control trials included in the review showed that intensive interventions had significant benefits for decreasing methamphetamine use and improving psychiatric symptomatology when compared to brief interventions and that, overall, different psychological treatments can be effective in reducing both methamphetamine use and psychiatric symptoms.

Overall, findings from a number of reviews of literature show that various psychosocial interventions are effective in reducing stimulant use and promoting abstinence, but only the contingency management approach has been shown to consistently outperform other types of psychosocial treatment such as cognitive behavioural therapy (Crescenzo et al., 2018). According to Farrell and colleagues (2019), however, contingency management has not been widely applied. Farrell and colleagues (2019) also discuss that there is some evidence in the literature regarding the effectiveness of using the contingency management approach in conjunction with the community reinforcement approach in reducing stimulant use (please see Crescenzo and colleagues, 2018).

The National Institute of Drug Abuse (2019) discusses that transcranial magnetic stimulation and neurofeedback are promising non-pharmacological treatments which need further research.

Furthermore, Ersche and Sahakian (2007) discuss that given that chronic amphetamine use has been associated with cognitive deficits, it is important to consider these in a treatment setting in order to improve treatment retention and efficacy among people who use amphetamine and have a cognitive impairment. Counsellors might consider using mapping techniques to foster planning, strategies designed originally to support patients with traumatic brain injuries to aid treatment, or neurocognitive training or remediation to enhance treatment outcomes. Cognitive remediation therapy has been shown to improve executive function, self-regulation, and quality of life in a small sample of females being treated for a substance use disorder in a therapeutic community (Marceau, Berry, Lunn, Kelly, & Solowij, 2017). It has also been shown to increase the likelihood of completing the treatment programme by 165% (when compared to clients who received *treatment as usual*; Berry, 2016, November 23). Further studies should investigate the relevance of cognitive remediation therapy to treating substance use disorder, assessing if findings can be replicated.

Farrell and colleagues (2019) also point out that residential and inpatient treatment might be more effective for those who do not engage with community treatments, although benefits of residential treatment are often not sustained. Therefore, residential patients might benefit from ongoing support after the core treatment is finished. Lee (2017) presents data from Australia to show that those who use methamphetamine and seek treatment are initially extremely successful in discontinuing use, but that after treatment is discontinued the relapse rate increases as time passes to be similar to the relapse rate of those who did not receive treatment after three years. The presenter discusses that this might be due to the cognitive impairment associated with the use of methamphetamine, which at times leads to poor decision-making. It is therefore extremely important to provide support to clients after formal treatment is discontinued in the form of peer support, booster sessions, occasional phone calls, among others.

In this context, it is worth reviewing findings from the Pathways project, which aimed to map and measure the effectiveness of services provided to clients seeking alcohol and other drug treatment in Australia (Lubman et al., 2014). The third study within this project included baseline and follow-up interviews conducted between January 2012 and February 2014 with 554 clients of alcohol and other drug services (of 796 clients interviewed at baseline). The time between baseline and follow-up interviews ranged from 7.6 to 21.2 months, with 85% of the follow-up interviews happening between nine and 15 months after baseline.

Findings from this study showed that a higher percentage of clients who had reported methamphetamine or amphetamine as their primary drug of concern (PDOC) reported being

59 A randomised controlled trial (RCT) is a trial in which participants are randomly assigned to the experimental group, receiving a specific type of treatment that is being tested, or the control group, receiving an alternative, conventional, treatment; Kendall, 2003). RCTs are seen as the most reliable design to assess the efficacy and safety of new treatments, although ethical reasoning is important when implementing RCTs (Grady, 2018).

60 According to Evans (2011), single-arm trials include a sample of participants with a targeted medical condition being given a treatment and then being followed over time to observe their response to this treatment.

61 A pragmatic trial assesses how effective a treatment is in real-life routine practice conditions (Patsopoulos, 2011).

62 Non-structured interventions, which in most cases include some form of out-patient counselling or case management.

abstinent from their PDOC in the prior month at the follow-up interview (61%) when compared to those who had reported opioids (45%), cannabis (34%), alcohol (28%), or other drugs (40%) as their PDOC (Lubman et al., 2014). The same pattern of findings regarding different PDOCs was observed when considering abstinence from *all* drugs of concern (not just their PDOC). Further chi-square analyses showed that those who reported methamphetamine or amphetamine as their PDOC presented consistently better outcomes in terms of abstinence and success[63] than those who reported other substances as their PDOC (Lubman et al., 2014).[64]

Additionally, the fourth study in the Pathways project, which included secondary data from clients stored in health sector databases, showed that the percentage of those who reported amphetamine or another stimulant as their PDOC and attended emergency departments was similar before and after treatment (Lubman et al., 2014).[65]

Overall, findings from the Pathways project suggest that clients who report methamphetamine or amphetamine as their PDOC have higher levels of substance abstinence and treatment success when compared to those who report other substances as their PDOC; and that the percentage of clients who report amphetamine or other stimulants as their PDOC and attend emergency departments is similar before and after treatment. These findings show that the level of success of a treatment can vary according to the outcome being considered. In this sense, it becomes of prime importance to consider multiple abstinence and harm reduction outcomes when considering treatment success.

Finally, the Royal Australian and New Zealand College of Psychiatrists (2019) discusses that it is also important to treat underlying issues connected to harmful substance use, and physical, psychological, and social effects arising from substance use when treating any substance use disorder. Furthermore, the organisation recommends social support services be funded in order to address the health social determinants of people with a methamphetamine use disorder.

7.1.4 Barriers to Treatment

A study conducted in the Australian Capital Territory found that lack of awareness of services by people who use methamphetamine, waiting times around services, how much treatment was perceived to cost, lack of knowledge about treatments and their effectiveness, and liking the effects of methamphetamine were perceived by people who use methamphetamine as barriers to receiving treatment (McKetin et al., 2017).

Farrell and colleagues (2019) also described in their review of literature that stigma, use of the drug as self-medication to mental health problems, low-perceived need to reduce use, and confidentiality concerns are barriers in treatment seeking by people who use stimulants.

7.2 New Zealand Literature

In the last 20 years there have been multiple advances in the New Zealand alcohol and other drug treatment space (please see timeline available in dapaanz, 2021a for further information). Among these, the dapaanz – Addiction Practitioners' Association Aotearoa New Zealand – was created in 2001 to implement and administer the standards for competent practice of alcohol and other drug workers in New Zealand (dapaanz, 2020a).

As part of their work, dapaanz has helped to professionalise the addiction sector by developing the Addiction Intervention Competency Framework[66] and the addiction practitioner role[67] (dapaanz, 2011; dapaanz, 2020a). Currently, prospect members need to attain both qualification and practice requirements before being able to register with the organisation (dapaanz, 2021c). In April 2021, there were 802 alcohol and other drug/problem gambling practitioners registered with dapaanz (2021b). Of these, 23% reported having Māori ethnicity.

Dapaanz also published different versions of their Code of Ethics through the years, establishing the ethical obligations and responsibilities of its members (dapaanz, n.d.; dapaanz, 2020a). The latest version, published in 2020, explicitly incorporated tikanga Māori to principles and provisions presented in the Code (dapaanz, 2020b).

It is important to emphasise that the complex nature of addiction requires a bio-psycho-social response to the issue (Matua Raki, 2014). In this sense, addiction practitioners do not work in isolation in the addiction sector in New Zealand, working with other health professionals who bring additional knowledge, expertise, and skills to the field (e.g. nurses, social workers, medical practitioners). Matua Raki (2014) emphasises that this, and the factors presented next have impacted the unique culture observed in the addiction workforce in New Zealand.

Firstly, members of the addiction workforce in New Zealand usually have their own lived experience with substance use/gambling disorders, which tends to reduce barriers between professionals and clients, and enable a collaborative person-

63 Treatment success was conceived as abstinence or at least a 50% reduction in the frequency of use of their PDOC.

64 As there were not multiple follow-up periods in this study, it is not possible to assess substance abstinence and treatment success over time per PDOC or if the same pattern of abstinence and treatment success would hold at further time points.

65 When considering other PDOCs, the percentage of clients with emergency department presentations was higher before than after treatment.

66 The Addiction Intervention Competency Framework establishes the values, attitudes, and skills necessary to provide specialist interventions in the alcohol and other drug, tobacco, and gambling spaces.

67 The Mental Health and Addiction Workforce Action Plan 2017–2021 describes the importance of linking education, in terms of training and development programmes, with the competencies required for workers labouring in the addiction sector (Ministry of Health, 2018b). The professionalisation of the sector was enhanced by the Substance Addiction Act 2017, which acknowledged addiction practitioners (also referred to as clinicians or counsellors) as health professionals (Ministry of Health, 2017). In this sense, addiction practitioners were required from then onwards to meet standards of care and have the necessary qualifications to work effectively in the addiction sector (Ministry of Health, 2017). Dapaanz was acknowledged as one of the specialist organisations capable of recognising the qualifications necessary to work in the field and has been leading the movement to enhance the qualifications and professionalism of the addiction workforce in New Zealand (Matua Raki, 2014; Ministry of Health, 2017). Addiction practitioners have to be registered with dapaanz in order to work in the addiction sector (Ministry of Health, 2017; Ministry of Health, 2018b).

focused approach to treatment. Secondly, the use of talking therapies as the main addiction treatment has enabled the workforce in New Zealand to develop person-focussed skills which help to engage with and retain clients in treatment. Thirdly, it is acknowledged in New Zealand that addiction is both a health and social issue. As a result, the addiction workforce is committed to working with and considering social justice issues in their practice. Lastly, the addiction workforce is focussed on harm reduction. As a result, workers have a value-neutral view of substance use and gambling and the people who show these behaviours, being able to focus on reducing the harm caused by addiction.

Ben Birks-Ang, Director of Programmes at the New Zealand Drug Foundation, emphasises that one of the fundamental differences between treatment options available in New Zealand and abroad is the quality and diversity of the therapeutic options available in New Zealand, and this is due to the breadth and depth of skill in the New Zealand addiction workforce (New Zealand Drug Foundation, June 2021). Additionally, most addiction treatment services available in New Zealand are free of charge for the client (Ministry of Health, 2018a).

7.2.1 Withdrawal Management in New Zealand

An updated version of the document *Substance withdrawal management: Guidelines for medical and nurse practitioners* was published in 2019 by Matua Raki. This document has the goal of providing guidelines about safer withdrawal management to the specialist addiction sector, the general addiction and allied workforces, and for people who use alcohol or other drugs and their family, whānau, and support people.

According to Matua Raki (2019), the purpose of withdrawal management is to make sure the person stopping or reducing the use of a given substance and those around them are safe while they experience withdrawal symptoms. Planned withdrawal management can also be used to engage the client in ongoing specialist addiction treatment, mental health care services, and primary care services; engage the person in psychosocial support; interrupt periods of heavy use due to neuroadaptation; and support pharmacotherapy reduction or stabilisation. It is of prime importance that withdrawal management is associated with ongoing treatment which addresses core issues and stressors associated with substance use. Used in isolation, withdrawal management can lead to repeated failed attempts to interrupt use which can lower tolerance to the substance at hand and increase both the risk of overdose and the physical impact of withdrawal.

Matua Raki (2019) discusses that while many people will choose to interrupt or decrease the use of a substance, this may not be the case when people are admitted, for instance, to hospitals and prisons. In these contexts, people might not reveal their substance use or be unaware of withdrawal symptoms. In this sense, it is extremely important to have screening and support processes in place.

Before a withdrawal management intervention is planned, it is important to assess factors such as the client's pattern of substance use; history of use; withdrawal risks; coexisting issues; social, personal, and community support context; motivation; immediate environment; and external sources of stress (Matua Raki, 2019). It is also important to provide information about withdrawal risks and ways to manage them, and withdrawal management and further treatment to both the person interrupting or decreasing substance use and their support people, so they are informed, can minimise risk, and can manage more effectively both withdrawal and further treatment. In this sense, clear information, both verbally and in writing, should be provided to whānau and a plan could be developed with the person interrupting or decreasing substance use to minimise risks.

It is also important to consider coexisting problems when managing withdrawal, making sure that prescribed medications do not interact altering their intended effects (Matua Raki, 2019). Furthermore, coexisting problems such as chronic pain and psychosis should be monitored continuously. Older people, younger people, pregnant women, and secure facilities and prison inmates are considered special populations in the withdrawal management space. Thus, members of these populations should be provided more in-depth support.

Rongoā Māori practices, which include mirimiri, rongoā, and karakia, can also be incorporated to withdrawal management as needed (Matua Raki, 2019). Rongoā Māori is centred around Māori wellbeing. There are rongoā providers who are credited by the Ministry of Health (https://www.health.govt.nz/our-work/populations/maori-health/rongoa-maori-traditional-maori-healing).

According to Matua Raki (2019), the severity of amphetamine-type stimulants' (ATS) withdrawal symptoms will depend on the extent and intensity of use, with those who smoke or inject methamphetamine presenting greater severity of withdrawal symptoms. Furthermore, many people who use ATS will 'crash' after discontinuing use and can sleep uninterruptedly for up to three days before waking up and experiencing withdrawal symptoms. Matua Raki (2019) discusses that most withdrawal symptoms peak between days two and ten, but some symptoms such as sleep disruption and mood variation can last for several months. Mild symptoms of ATS withdrawal are restlessness, lethargy, low energy, irritability, agitation, sleep problems, and low mood. Moderate symptoms of ATS withdrawal are poor concentration and memory, mood swings, anxiety, anger, diarrhoea, aches and pains, hunger, insomnia, and cravings. Severe symptoms of ATS withdrawal are depression, hallucinations, paranoia, and psychosis.

Methamphetamine detox interventions are not likely to be provided in hospitals in New Zealand as withdrawal symptoms from methamphetamine are not likely to be life threatening (NDIB, 2017c). In this sense, withdrawal management is more likely to be supported by out-patient services (Matua Raki, 2019). If withdrawal management is complicated by other factors such as polydrug use or coexisting issues such as psychosis, clients can have access to inpatient withdrawal management or respite withdrawal management beds. According to Matua Raki (2019), 30 beds were made available to support people with a methamphetamine use disorder as part of the 2009 *Tackling Methamphetamine* government plan. These beds

can be used both as one-off opportunities and lead-in residential programmes.

Matua Raki also published two documents which provide advice to those who are wanting or planning to stop using alcohol and other drugs (Matua Raki, 2012), and more specifically methamphetamine (Matua Raki, 2010b). These documents provide advice on how to make the decision to discontinue use, what withdrawal symptoms to expect, average duration of withdrawal symptoms, how to organise or get support while experiencing withdrawal symptoms, how to organise a safe space to go through withdrawal, how to overcome 'cravings', how to plan the days and nights while on withdrawal, how to deal with different effects of withdrawing, and how to deal with a 'slip' or relapse in use, among other topics.

The New Zealand Drug Foundation (December 2020) shared with the community a peer-reviewed infographic focusing on methamphetamine withdrawal symptoms and duration during the New Zealand COVID-19 national lockdown (25th March 2020 – 28th of April). The infographic simplified relevant information without using stigmatising and judgmental language.

According to the New Zealand Drug Foundation (December 2020), residential treatment programmes in New Zealand are at different stages of implementing changes regarding withdrawal. The New Zealand Drug Foundation (December 2020) points out that some programmes do not have the staffing capacity to address withdrawal within the programme before starting treatment per se, and are working around this limitation by requesting clients to stop using substances some days before they start the programme. However, this might not work for all clients as some might not have access to a safe space or support to go through withdrawal.

7.2.2 Pharmacotherapy

NDIB (2017c) and Matua Raki (2019) describe that there is not yet a documented effective pharmacotherapy treatment in treating amphetamine-type substance (ATS) and methamphetamine withdrawal. Instead of treating methamphetamine withdrawal per se, pharmaceuticals tend to be used to treat coexisting mental health issues such as anxiety, sleep disturbances, and psychotic episodes (NDIB, 2017c). In this sense, benzodiazepines can be used to decrease symptoms such as irritability or sleep disturbances; antidepressants can be used to decrease depressive symptoms; low levels of antipsychotics can be used to decrease sleep disturbances, agitation, and anxiety; and melatonin can be used to decrease sleep disturbances (Matua Raki, 2019). Complementary therapies such as yoga and aromatherapy can also be used to alleviate withdrawal symptoms (Matua Raki, 2019).

7.2.3 Treatment Demand and Needs

A report from NDIB (2017c) describes that the real number of people who use methamphetamine seeking help in New Zealand is unclear, but increases in the frequency of hospitalisations, helpline calls, and treatment admissions suggest that this number is high. The New Zealand Drug Foundation (2020) describes that 17% of the clients seeking community-based outpatient services in 2019 were seeking treatment for amphetamine-type substances, a third of the proportion of clients seeking treatment for alcohol. According to McFadden (2016), the intervention cost of amphetamine-type stimulants in 2014/2015 in New Zealand was $16.4 million.

The New Zealand Drug Foundation (2020) discusses that the demand for alcohol and other drug treatment services increased by 10% between 2014 and 2017, remaining stable after that. Even with this stable demand for the past two years, the addiction services workforce employed by District Health Boards in New Zealand decreased by 17 full time equivalent roles between 2018 and 2020 (New Zealand Drug Foundation, 2020).

According to White (2016, as cited by NDIB, 2017c), based on studies conducted in the United States, being able to effectively stop using methamphetamine can take a long time and relapse is common for those trying to discontinue use. Findings from the 2018 Addiction Practitioners Association Aotearoa New Zealand (dapaanz) members' survey showed that 45% of the practitioners acknowledged their clients had used methamphetamine for five to 10 years before seeking treatment (New Zealand Drug Foundation, December 2020). The New Zealand Drug Foundation (December 2020) reports that this pattern continues to be observed in New Zealand.

Thus, support before, during, and after treatment is necessary when aiming to decrease methamphetamine use and sustain abstinence, and this seems to be especially lacking in New Zealand, both before people who use the drug can access treatment, and after they have been through standard treatment (NDIB, 2017d; New Zealand Drug Foundation, December 2020). The New Zealand Drug Foundation (December 2020) discusses that supporting clients to keep long-term abstinence and working through the cognitive impairment caused by the drug is often outside of the scope of addiction support services in New Zealand.

7.2.4 Treatment Model Used in New Zealand

Regarding treatment seeking, both people who use methamphetamine and their family might initiate treatment via self-referral, doctor referral, or referral by the Drug Helpline, among others. Meaningful interactions outside the treatment space with doctors, emergency responders, police, and the justice system might also guide people who use methamphetamine towards seeking help. According to NDIB (2017d), most people who use the drug access treatment either by referral due to a health incident or by themselves. At times, the Alcohol and Other Drug Treatment Court (AODTC) might also be a pathway to treatment. Knowing others who successfully accessed treatment might also facilitate treatment seeking.

New Zealand follows a stepped care treatment logic when considering addiction services (NDIB, 2017c). In other words, the extent of the care provided varies according to client needs. A regular interaction within the stepped care approach would follow the steps below:

1. The person seeks help and is screened by a General Practioner, the Alcohol Drug Helpline, a Non-Governmental

Organisation Addiction Service, a District Health Board Addiction Service, a Community Service, or an Iwi Service;

2. If problematic use of a substance is verified, a detailed assessment is made. This includes the assessment of the motivation to discontinue use, support, treatment history, severity of the addiction, other substance use, associated issues, cultural concerns, and physical health of the client;
3. If only low needs are verified, the client is referred to an outpatient addiction service, which includes individual or group counselling support;
4. If high needs are verified, the client is referred either to a day stay or intensive addiction treatment, or to a residential care addiction service. Day stay and intensive outpatient addiction treatments include group work with clients, family, and whānau, medication for associated issues, and individual counselling. Residential addiction services include intensive treatment and group sessions with individuals, family, and whānau; and
5. Finally, the client is followed-up after treatment and ongoing care is provided when needed.

The National Organised Crime Group (NOCG; 2020a) observe that it can take up to eight weeks for the person who uses the drug to get an appointment to be screened for their substance use in New Zealand. Furthermore, they add that support services throughout the country inconsistently include support to obtain employment and accommodation.

The guidelines provided by Matua Raki (2010a) specify what care could and should be provided to people ceasing to use amphetamine-type substances and, in particular, methamphetamine. The document also specifies best practices when working with specific subgroups of the population such as Māori, Pacific Islanders, and young people. Additionally, the document discusses how to involve close relatives and whānau in the treatment process. Currently, there are support programmes in New Zealand which aim to support close relatives or whānau members of people who use drugs and have been affected by their use (Northland DHB, 2020a; Northland DHB, 2020b; Northland DHB, 2020c).

7.2.5 Treatment Approaches Used in New Zealand

There were three main treatment approaches being used in New Zealand in 2017 (NDIB, 2017c). These are presented in the next subsections. It is important to emphasise that, independent of the treatment approach being used, *case management* is extremely important in order to optimise treatment outcomes. *Case management* is a coordination role that brings together information, resources, and support for clients to achieve their goals regarding substance harm reduction or abstinence (Matua Raki, 2014). In this sense, *case management* will ensure that clients have sufficient information to make treatment choices, are linked with other services as needed, and have their needs advocated for (Matua Raki, 2014).

7.2.5.1 Brief Intervention

This type of intervention focuses on changing simple behaviours in order to decrease drug use and the harm caused by the drug. In this sense, first a discussion about how the drug affects the physical and mental health of the client takes place and then simple behavioural changes which could decrease the harm caused by the drug are discussed (NDIB, 2017c). The main goal of the treatment is for the client to introduce simple behavioural changes in their lives which could decrease harm.

Brief interventions can be provided either in a non-specialist (e.g. when drug abuse is observed after screening during a medical appointment for other health reason) or specialist setting (e.g. when addiction practitioners provide the brief intervention in an addiction treatment service after clients have requested their assistance; Matua Raki, 2014). *Brief interventions* provided in a non-specialist setting generally last from a few minutes to one hour and may also involve a follow-up session (Matua Raki, 2014). *Brief interventions* provided in a specialist setting are generally offered as an initial step in the stepped-care treatment logic and involve one to four sessions (Matua Raki 2014).

The SACS ABC Brief Intervention manual (Werry Workforce Whāraurau, 2017) details how to implement a brief intervention with the goal of decreasing substance-related harm among young people aged from 13 to 20 years old. The SACS ABC approach includes three main steps: administering the Substance and Choices Scale (A); delivering feedback and advice to the young person (B); and referring the young person to counselling/treatment (C) (Werry Workforce Whāraurau, 2017). An evaluation of the SACS ABC and E-SACS (electronic version of the SACS) resources and training suggested that SACS ABC resources were perceived to be excellent tools to be used in practice by school nurses, being simple, effective, concise and user friendly; and SACS ABC and E-SACS training were perceived by school nurses to be very effective, providing them with confidence and skills to use the tools in their work (Ang & Andrews, 2018).

Brief advice cards, including one focusing on methamphetamine use, were created by the New Zealand Drug Foundation and Werry Workforce Whāraurau (2017) to complement the SACS ABC approach, helping health professionals to discuss substance use with young people (New Zealand Drug Foundation, November 2020). The brief advice cards include situational cues which remind health professionals to discuss substance use and signalise to young people that it is OK to discuss substance use with health professionals. According to Ang and Andrews (2018), the brief advice card focusing on methamphetamine use has been heavily distributed to non-governmental organisations, public health service agencies, high schools, among other types of services and agencies.

7.2.5.2 Community Based Out-Patient Programmes

This type of intervention provides care to clients without taking them from their immediate environment. In this sense, clients attend individual or group psychosocial therapy sessions or peer support sessions in a facility but are free to go home after sessions (NDIB, 2017c). This treatment type is provided in New Zealand by addiction treatment services coordinated

by different District Health Boards and non-governmental organisations.

Since 1st July 2015, community-based outpatient adult addiction services have been requested by the Ministry of Health to collect information from patients and report it to the PRIMHD, a single data source including service activity and outcomes data for health consumers who use mental health and addiction services in New Zealand. This information is collected using the Alcohol and Drug Outcome Measure (ADOM), which includes questions focusing on demographics, type and frequency of substance use, lifestyle and wellbeing, and satisfaction with recovery (Te Pou o te Whakaaro Nui, 2015).

An evaluation of outpatient treatment programmes comprising data collected using the ADOM and including only those who used Amphetamine-Type Stimulants and who had been discharged from treatment programmes between 1st January 2017 and 31st December 2019 showed that on average, patients had decreased use from 11.1 days in the last 28 days when they first started the treatment to 2.9 days on discharge (Te Pou o te Whakaaro Nui, 2020). Likewise, fewer patients reported weekly physical health issues (18% versus 32%), mental health issues (24% versus 49%), friend/family arguments (12% versus 34%), meaningful activity issues (15% versus 35%), housing issues (9% versus 16%), and criminal activity (9% versus 20%) on discharge. Also, 53% (in comparison to 50%) of the patients reported engaging at least weekly with work, study, or caregiving activities on discharge. The extent to which patients thought they were closer to their recovery goal also increased on discharge, with an average of 6.7 in a 10-point scale on discharge in comparison to an average of 5.0 when they first started treatment.

However, community based out-patient treatment is not the most effective type of treatment for everyone as per stepped care approach logic. Bowman and colleagues (2019) reported in their research with 54 prisoners living in New Zealand that community treatment had been largely ineffective for the group they studied, reporting that prisoners acknowledged that they needed to spend time incarcerated to clear the drug from their system in order to appreciate the extent of their addiction, understand the impact the drug was having on them and others around them, and get help.

Likewise, Bowman, Morrison, and Bevan (2018) found that some of the 23 prisoners interviewed had not previously realised they were addicted to methamphetamine. Others believed they had functioned well while using methamphetamine and, it was only in hindsight, with the benefit of the *Meth and Me* treatment component offered by the Department of Corrections while they were in prison, that they realised they were engaged in some 'silly and dangerous' activities.

7.2.5.3 Residential Programmes

This type of programme includes 24-hour care inside a facility and tends to last from eight to 24 weeks (NDIB, 2017c). Each admission to the programme is estimated to cost from $15,000 to $20,000. According to Matua Raki (2014), residential programmes (also referred to as therapeutic communities) allow transformation in the client's conduct, attitudes, and emotions in an environment where these are monitored and mutually reinforced by the daily regime. Matua Raki (2014) emphasises that most residential programmes also provide a phased re-introduction of the client back into their community after treatment, providing also after-care.

According to an NDIB (2017c) report, from 2009 to the end of 2016, 54 adult residential packages had been funded by the Methamphetamine Action Plan. These had been provided by Higher Ground, Moana House, The Salvation Army, Odyssey House, Raukura Hauora O Tainui Trust, and Manaki Ora Trust. According to NDIB (2017c), a total of 400 patients were treated in 2014, 285 were treated in 2015, and 327 were treated in 2016 by these treatment providers.

NDIB (2017c) refers to high demand for residential care treatment in New Zealand, highlighting that this type of service cannot be promptly and easily expanded if necessary. Additionally, the New Zealand Drug Foundation (2020) reports that anecdotal evidence suggests that there are currently large waitlists for treatment services across New Zealand, particularly for residential programmes. Furthermore, according to the foundation, waitlists have increased also due to the effects of COVID-19.

According to numerous treatment providers, treatment needs to be available quickly once the demand is established as the motivation of people who use methamphetamine to adhere to treatment is usually only transitory (Providers, 2016 as cited by NDIB, 2017c). NDIB (2017d) describes that Higher Ground had a total of 52 spaces available in 2017 and that the waiting period for admission to the facility in March 2017 was approximately three to four months.

Odyssey House (n.d.) created a series of workbooks for young clients considering entering their alcohol and other drugs residential treatment programme, starting their detoxing programme at home, and finishing their residential treatment programme. They also created a workbook aimed at helping those supporting young people to reduce or stop using alcohol and other drugs. Together, the workbooks not only explain what is expected to happen during a residential treatment programme, but also how to prepare for it, how to sustain treatment programme benefits after leaving the residential treatment facility, and how family can support those attending residential treatment before, during, and after treatment.

Among other tips, the workbooks advise clients how to have well-defined timetables, look after their wellbeing and emotions, manage withdrawal, plan around money, celebrate progress, and minimise alcohol and other drug triggers. The material also explains that 'slip ups' can happen during treatment, adopting a kinder approach towards drug use relapse and 'getting back on track'. According to the New Zealand Drug Foundation (December 2020), Odyssey House adapted their residential group treatment programme to young people to ensure it matched their needs, focusing on the emotional and social competencies impacted by substance use.

According to NDIB (2017c), Higher Ground, Salvation Army, and Moana House have evaluated the outcomes of the care

they provide. Overall, findings within these evaluations have shown positive outcomes such as increased motivation in not using the substance, increase in abstinence rates, and lower scores in post-traumatic stress disorder and anxiety measures after treatment (King & Stephenson, 2016; NDIB, 2017c). It is important to mention that the evaluations reported here were not standardised. Thus, they used different tools and measures to assess outcomes.

7.2.6 Non-Pharmacological Interventions Used in New Zealand

An NDIB report (2017c) described that different psychotherapeutic therapies and techniques are used by addiction treatment services in New Zealand and these have been supported by several studies as effective in treating clients with methamphetamine use disorders. Likewise, Matua Raki (2014) described that the psycho-social interventions used in the addiction sector in New Zealand were either evidence-based or currently considered best practice.

Matua Raki (2014) discusses that most of the interventions used in New Zealand are based on cognitive behavioural theories of human behaviour, focusing on the person's psychology, but also considering the social context in which cognitions and behaviours happen (Matua Raki, 2014). These interventions, or talking therapies, are provided in New Zealand both through individual counselling and educational or therapeutic groups (e.g. 12-step groups and peer support groups).

NDIB (2017c) and Matua Raki (2014) described the use of cognitive behavioural therapy,[68] motivational interviewing, dialectical behaviour therapy, moral reconation therapy, contingency management, social behaviour network therapy, relapse prevention, behavioural self-control training, coping and social skills training, community reinforcement approach, 2-step approach, matrix model, traditional cultural therapies, and family inclusive practice in New Zealand.

7.2.7 Treatment Provided by the Department of Corrections

According to the New Zealand Drug Foundation (2020), many people get treatment for alcohol and other drugs for the first time in their lives only when they go to prison. According to the foundation, 1,824 people received treatment while they were in prison in 2019. Among these, 38% were under 30 years old and 48% were Māori.

NOCG (2020a) explain that the Department of Corrections support prisoners to treat their substance addiction both during and after the custodial prison sentence, following the process below:

1. All prisoners are screened for their substance use and provided a brief alcohol and other drug intervention;
2. Prisoners are then directed to different treatment programmes according to how problematic their substance use is, and the availability of programmes. Treatment programmes provided by the Department of Corrections include *Alcohol and Other Drug Brief Support Programme, Alcohol and Other Drug Intermediate Support Programme, Intensive Treatment Programme*, and *Drug Treatment Units*; and
3. Prisoners are supported to continue their treatment journey when they leave prison via aftercare workers, who support ex-prisoners to contact support groups, and the RecoverRing phoneline – a 24/7 phoneline to assist prisoners, offenders, and whānau.

According to NOCG (2020a), the reimprisonment rate has been shown to decrease between five to 10% for prisoners who went through *drug treatment units*, which are longer-term treatment programmes which last three or six months. NOCG (2020a) also describe that there is no treatment available for suspects in the community awaiting conviction or sentencing specifically. It may therefore be relevant to implement a treatment pathway specifically for this population.

Bowman and colleagues (2019) note in their report that the 54 prisoners who took part in their study had completed or were about to complete a drug treatment programme provided by the Department of Corrections. These treatment programmes included *SBIRT (Screening, Brief Intervention and Referral to Treatment), Meth and Me*, and a *DTP (Drug Treatment Programme)* with the module *Meth and Me*. Interviewees generally found the drug treatment programmes undertaken inside prison useful.

According to prisoners, the treatment programmes aided them to understand why they used the drug, also providing strategies to prevent use when they were released from prison. It seemed important to interviewees to learn during treatment about the impact that their methamphetamine use had on other people, acknowledging the burden on family and others who bought the drug from them. Regarding limitations in the treatment provided, an evaluation of the *Meth and Me* treatment component showed that the content of the course material could be improved, although interviewees still saw value in the treatment (Bowman et al., 2018).

Most interviewees in Bowman and colleagues' (2019) study planned not to use methamphetamine when they returned to the community, to find work, and to rekindle relationships with family. In this sense, it is of prime importance to provide ongoing support to prisoners before, during, and after release, helping them to harness this motivation. Support to structure their lives and make concrete plans is important in this context. Structuring a release plan and helping prisoners to find employment and accommodation on release might be a start point on their treatment journey after prison.

68 Matua Raki (2014) acknowledges contingency management, social behaviour network therapy, relapse prevention, behavioural self-control training, coping and social skills training, and community reinforcement approach as interventions based on cognitive behavioural principles.

7.2.8 Barriers to Treatment

Individual barriers identified in New Zealand research which prevent people who use methamphetamine from seeking treatment include problem denial, positive effects of the drug, pressure from peers to keep using the drug, not having correct information or having limited information about treatment options, perceived inability to stop using the drug, belief that one does not deserve to recover, shame, stigma, and lack of trust (NDIB, 2017c; NDIB; 2017d).

Barriers to treatment in New Zealand at the system level include unavailability of services, funding scarcity/lack of resourcing, limited access hours of services, limited awareness of services, and large physical distances between services available and the client (NDIB, 2017c). The diversity and availability of services in New Zealand varies across Districts and area types, with rural areas presenting generally fewer options of services than urban areas (NDIB, 2017c).

7.2.9 COVID-19 and Treatment

During the COVID-19 lockdown, NDIB and the New Zealand Drug Foundation conducted a survey of 60 drug treatment clients and 64 Alcohol and Other Drug (AOD) treatment providers (NDIB, May 2020).

Among treatment providers, 38% specified that no changes needed to be implemented to services in response to COVID-19. However, difficulty in contacting and liaising with clients was reported as a barrier, particularly for the most vulnerable clients. Service providers also reported concerns with the quality of engagement with clients, access to treatment for those without internet access, and how referrals were done. During the COVID-19 lockdown, drug addiction treatment referrals dropped, possibly due to people who use drugs not being able to have access to services which could refer them to drug addiction treatment (NDIB, May 2020). The New Zealand Drug Foundation (2020) reports that another barrier for clients accessing treatment services during lockdown was the need for some to focus first on basic needs, such as food and shelter, before focusing on addiction issues.

Additionally, both service providers and clients reported a change in demand for withdrawal management, with 28% of clients reporting withdrawal symptoms in connection to COVID-19 restrictions (NDIB, May 2020). Treatment providers reported that some of the clients were seeking treatment due to increasing drug prices and the difficulty in affording these (NDIB, June 2020).

The demand for treatment services in connection with COVID-19 was inconsistent based on treatment providers' reports, and it was likely that it would continue to be inconsistent once COVID-19 restrictions were lifted due to different patterns of drug use across the country (NDIB, June 2020). The New Zealand Drug Foundation (2020) discusses that there may be an increase over the medium and long term for treatment services due to the changes in the New Zealand drug market over lockdown.

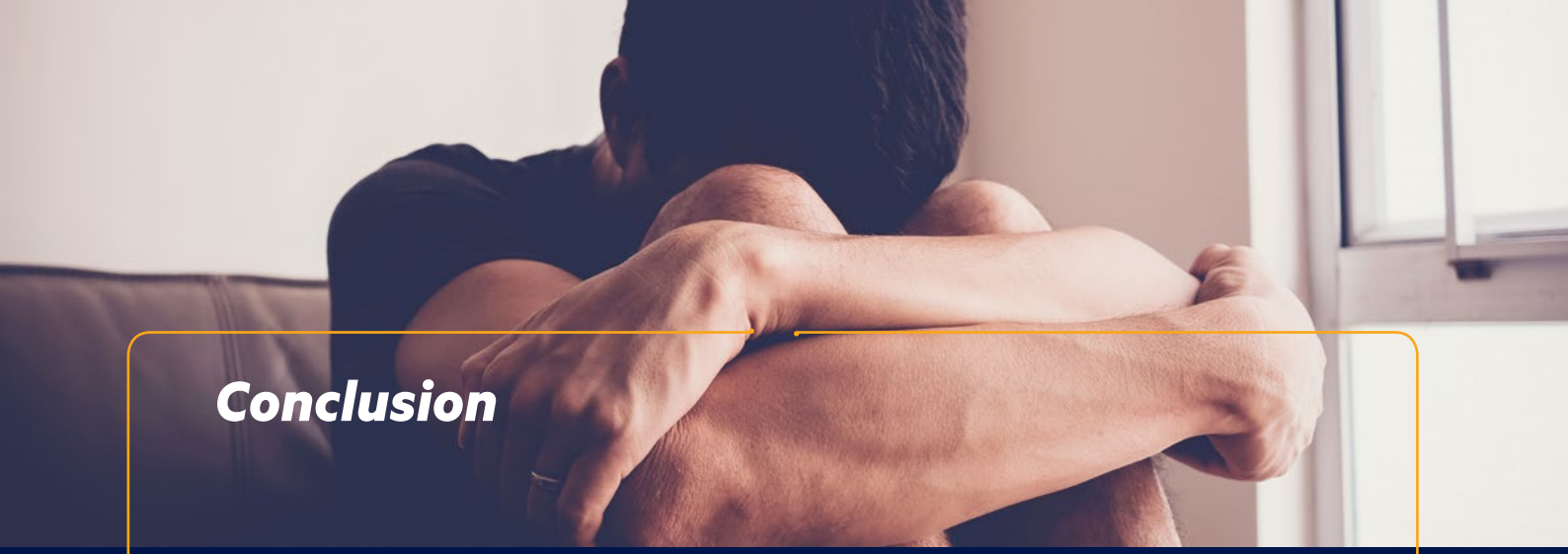
7.3 Summary

This chapter described findings from the literature gathered by EBPC focusing on the model used to treat addiction in New Zealand, and treatment interventions and psychotherapeutic therapies used both abroad and in New Zealand to treat methamphetamine abuse. Furthermore, it briefly described withdrawal management guidelines, pharmacotherapeutic options to treat methamphetamine withdrawal symptoms, addiction treatments available to the prison population in New Zealand, individual and systemic barriers to treatment, and how COVID-19 affected treatment seeking and withdrawal symptoms management in New Zealand.

Overall, findings presented in this chapter showed that:

- International literature is sparse regarding pharmacotherapy treatments for amphetamine and methamphetamine, and existing evidence is of poor quality;
- Findings from different reviews of literature show that various psychosocial interventions are effective in reducing stimulant use and abstinence, but only the contingency management approach has been shown in the literature to consistently outperform other types of psychosocial treatment. Moreover, the literature suggests that it is also important to treat underlying issues connected to harmful substance use, and physical, psychological, and social effects arising from substance use when treating any substance use disorder;
- A study from Australia showed that those who use methamphetamine and seek treatment are initially extremely successful in discontinuing use, but that after treatment is discontinued the relapse rate increases as time passes to be similar to the relapse rate of those who did not receive treatment after three years. In this sense, it is extremely important to provide support to clients after treatment is discontinued in the form of peer support, booster sessions, occasional phone calls, among others;
- In the last 20 years there have been multiple advances in the New Zealand alcohol and other drug treatment space. One of these advances was the development and professionalisation of the addiction practitioner role;
- Methamphetamine withdrawal management is usually supported by out-patient services in New Zealand, as withdrawal symptoms are not life threatening. The literature suggests withdrawal management should be associated with ongoing treatment which addresses core issues and stressors associated with substance use;
- Support before, during, and after treatment is necessary when aiming to decrease methamphetamine use and sustain abstinence, and this seems to be especially lacking in New Zealand, both before people who use the drug can access treatment, and after they have been through standard treatment;
- New Zealand follows a stepped care treatment logic when considering addiction services, with clients receiving care according to their level of need;

- As at 2017, there were three main treatment approaches being used in New Zealand – *Brief Intervention, Community Based Out-Patient Programmes,* and *Residential Programmes;*
- The Department of Corrections provides access to a number of treatment programmes to prisoners who have a methamphetamine use disorder, and these programmes are generally perceived by prisoners to be useful;
- Individual barriers which prevent people who use methamphetamine from seeking treatment in New Zealand are problem denial, positive effects of the drug, pressure from peers to keep using the drug, not having correct information or having limited information about treatment options, perceived inability to stop using the drug, belief that one does not deserve to recover, shame, stigma, and lack of trust;
- Barriers to treatment in New Zealand at the system level include unavailability of services, funding scarcity, lack of resourcing, limited access hours of services, limited awareness of services, and big physical distance between services available and the client; and
- COVID-19 was perceived by service providers to have increased difficulty in contacting clients enrolled in treatment, decreased the number of referrals to addiction treatment during lockdown, and as impacting withdrawal symptoms in people who use drugs.



Conclusion

This report included a stocktake of literature focusing on the harm methamphetamine causes to New Zealand communities. It included literature provided or mentioned by members of the Methamphetamine in New Zealand Steering Group, which includes members from multiple agencies invested in decreasing the harm methamphetamine causes to New Zealand.[69] These agencies have overseen the current stocktake of literature, bringing a wealth of knowledge and experience, and different perspectives to the table. Testament to this are the 279 documents mentioned or provided by Steering Group members to the Evidence Based Policing Centre during this piece of work.

Different chapters of the report focused on different perspectives on the topic. Chapter 3 focused on people who use the drug, presenting information about methamphetamine use prevalence in New Zealand, the journey and profile of people who use the drug, and the harmful effects of the drug on people who use it, their family, their whānau, and the community in which they live.

Chapter 4 focused on the association between methamphetamine use and other types of crimes presenting information from academic and agency-based studies assessing the association of methamphetamine use and methamphetamine-related charges with violent offending, family harm, acquisitive crimes, involvement in road trauma, and money laundering.

Chapter 5 focused on the methamphetamine business, presenting information and trends on methamphetamine production, importation, and distribution in New Zealand. Chapter 6 focused on strategies in the education, prevention, harm reduction, staff training, and partnership spaces to address methamphetamine use and treatment, presenting initiatives already in place or which could be adapted to the methamphetamine space. Finally, chapter 7 focused on methamphetamine withdrawal management and treatment, providing information on what is already known about these internationally and the withdrawal management and treatment models used in New Zealand.

Overall, the literature presented in this report showed that methamphetamine use takes place all over New Zealand and this drug reaches communities throughout the country. Thus, the potential for harm is extensive. It also showed that the New Zealand methamphetamine market is seen as extremely desirable by transnational syndicates based in the Golden Triangle and in Mexico and criminal business entities based in New Zealand. And it is likely that these groups will continue motivated to produce, import, and distribute methamphetamine in New Zealand.

However, the information presented in the report is not all negative. It also highlights strategies in the prevention, harm reduction, withdrawal management, and treatment spaces which could continue to be funded, expanded nationally, or adapted to better fit the methamphetamine space. Thus, there is some light in the end of the tunnel if work is put into these strategies.

Overall from the research the documents reviewed it can be concluded that more research is needed in the New Zealand context on the extent of the harm caused by methamphetamine in order to fully understand the magnitude of the issue. It is of prime importance to regularly collect reliable data about methamphetamine use prevalence rates in the New Zealand population and the harms associated with the drug, so information on the topic is 1) up to date; 2) can be used to portray a current picture of the issue at hand; and 3) to track changes over time in the methamphetamine space. Following this, the pathways to prevention and recovery may require further research to address the nuances of the New Zealand methamphetamine context.

The methamphetamine issue in New Zealand, though still to be fully understood, is clearly a multifaceted problem that requires a multi-agency approach to New Zealand-based future research methodology and response. A holistic view to reducing the harm caused to New Zealand individuals, whānau, and communities by the methamphetamine issue is paramount. The multi-agency Methamphetamine in New Zealand Steering Group will go some way to ensuring this approach is realised.

69 Methamphetamine in New Zealand Steering Group members belong to different groups within New Zealand Police, Department of Corrections, Higher Ground Rehabilitation Trust, Ministry of Health, Ministry of Social Development, New Zealand Customs Service, New Zealand Drug Foundation, Tūhoe Te Uru Taumatua, University of New South Wales, and University of Otago.

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