

A hand is shown holding a smooth, dark stone above a stack of four other smooth stones of various colors and textures. The background is a soft, out-of-focus landscape with a blue and orange gradient, suggesting a sunset or sunrise over water. The text is overlaid on a semi-transparent white band across the middle of the image.

# **INFORMING THE 2015 GAMBLING HARM NEEDS ASSESSMENT**

**FINAL REPORT FOR THE MINISTRY OF HEALTH**

**31 July 2015**



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## ABBREVIATIONS

CAU	Census Area Unit
DIA	Department of Internal Affairs
EGMs	Electronic gaming machines, which are also referred to as poker/pokie machine(s) or pokies
GBAS	Gaming and Betting Activities Survey
GMP	Gaming machine profit
HLS	Health and Lifestyles Survey
HSC	Health Sponsorship Council
NZDep2013	New Zealand Deprivation Index 2013
NCGM	Non-casino gaming machine(s), also referred to as poker/pokie machine(s) or pokies
NGS	National Gambling Study
NZHS	New Zealand Health Survey
PGSI	Problem Gambling Severity Index
PIDs	Player information displays (on electronic gaming machines)
TAB	New Zealand Racing Board

## EXECUTIVE SUMMARY

### Context

This report reviews recent evidence and data on gambling and provides an update of the report Informing the 2012 Gambling Harm Needs Assessment. It contributes to the Ministry of Health's integrated problem gambling strategy focused on public health, and has been used to inform the needs assessment that is required by section 318 of the Gambling Act 2003. The 2015 iteration of the Gambling Harm Needs Assessment (this report) summarises key trends and themes relating to gambling and problem gambling in New Zealand since 2012 as identified in a variety of sources, and considers the development of new trends that have emerged since the 2012 report.

### Methodology

The review is based around the following six workstreams and their related data sources:

1. Review of selected journals – review of 34 articles published in six gambling journals.
2. Review of Ministry of Health funded research – synthesis of findings from 12 research projects.
3. Prevalence of participation in gambling and risk of problem gambling – synthesis of findings and analysis of data from the 2012 National Gambling Study (NGS) and the 2011/12 wave of the New Zealand Health Survey (NZHS).
4. Gambling venues and expenditure – data analysis and spatial plotting/GIS analysis of data on different modes of gambling.
5. Problem gambling services – synthesis of findings and data analysis relating to problem gambling intervention services.
6. Harm from problem gambling - synthesis of findings related to experiences of harm related to problem gambling.

The review was conducted from March to May 2015 and related to publications from 2012 on.

### Key findings

The previously seen decline in gambling participation rates may have steadied. The 2012 National Gambling Study (NGS) figure of 80 percent of people having participated in a gambling activity in the previous year is the same as the last (2005) DIA survey and is very close to the 2010 Health and Lifestyles (HLS) figure of 81 percent.

The prevalence of problem gambling is essentially the same as in 2011/12, and the prevalence of moderate risk gambling and problem gambling has remained relatively stable over the last decade. The combined percentage of moderate-risk and severe/problem gamblers appears to be between about 1 percent and 3 percent of the adult population. However, the proportion of people participating weekly or more often in continuous forms of gambling<sup>1</sup> has declined to a

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<sup>1</sup> **Continuous gambling** is characterised by the opportunity for a continuous repeated cycle of placing a stake playing, determination and ability to collect and reinvest winnings, such as occurs with gaming machines, casino betting and horse betting. **Non-continuous** includes participation in activities like Lotto, where winnings cannot be re-invested immediately following a win.

third of the 1991 estimate and the proportion participating in four or more different gambling activities has also declined. The NGS notes that both of these behaviours are risk factors for problem gambling. It is also worth noting that the proportion of non-gamblers in the population appears to have increased.

The NGS estimates that around 84,000 adults are either experiencing significant gambling problems, or are experiencing some gambling harm and are at risk for the development of more serious problems. A larger number of people (e.g., family members, partners) are negatively impacted by the gambling of others. For example, the NGS estimates that, in the year before the survey, around 140,000 adults experienced someone in their wider family or household going without something they needed or bills not being paid because too much was spent on gambling by another person.

There are also substantial ethnic differences in the burden of gambling harm. For example, the combined rate of moderate risk gambling and problem gambling for Māori is more than three times higher than the rate for European/Others and the rate for Pacific peoples is more than four times higher. Such inequities have persisted for the past twenty years.

Total gambling expenditure has fluctuated slightly over the years, but has remained close to \$2 billion. This trend was noted in the 2012 report, which also stated that population increases and inflation likely meant a significant drop in per capita and inflation adjusted expenditure. However, if it is true that participation has declined from those years to 2011/12, then there may be a significant portion of the gambling population that is spending more.

Lotto remains the most common form of gambling undertaken in New Zealand. Expenditure by type of gambling remains much the same as in 2012 however, with NCGMs remaining responsible for over 38 percent of expenditure. This may not remain the case forever, as spending on NCGMs has dropped by almost 30 percent since 2004, while spending on Lotteries Commission products has increased over 60 percent in the same timeframe. The decline in total NCGM numbers has continued also, with 16,717 machines as at 31 December 2014, compared to 18,133 on the same date in 2011.

Māori and Pacific peoples continue to have higher average monthly gambling expenditure than other groups. Given that Pacific Island population groups had a higher level of non-gamblers, there is a high chance that there is a subgroup of Pacific peoples that gambles frequently and has very high expenditure.

No significant changes in gambling behaviour by gender over time were observed. There are certainly differences in gambling behaviour by gender, however. Males remain significantly more likely than females to have gambled on Lotto, track betting, sports betting, and casino tables. They were also more likely to have gambled on four or more activities than females. Men are more likely to be problem gamblers, and are also more likely to contact the Gambling Helpline for their own gambling problems. There are significant interactions between ethnicity and gender in relation to gambling and problem gambling.

The NZHS highlighted that the likelihood of problematic gambling increased as the level of deprivation increased. People living in neighbourhoods with the highest levels of deprivation (i.e. the most deprived) were five times more likely to report moderate-risk/problem gambling than those living in neighbourhoods with the lowest levels of deprivation (i.e. the least deprived). Neighbourhoods with higher levels of deprivation also appear to be more likely to offer opportunities for gambling. In 2014, 54.2 percent of NCGMs were located in CAUs with average deprivation deciles of 8 and higher – a slightly higher proportion than in 2011 (52.4 percent), and notably higher than 2009 (48 percent).

The New Zealand evidence continued to show that problem gamblers are at higher risk of smoking and drinking, recreational drug use and anxiety or depressive disorders. Referrals from problem gambling services were more successful when both types of service were within the same provider, and brief problem gambling telephone interventions also helped reduce psychological distress. Otherwise, there was a relative lack of new evidence on treatment of co-morbidities. The Ministry is funding a national clinical trial that includes an assessment of the effectiveness of therapies for addressing co-morbidities associated with problem gambling.

The international literature on intervention services calls for more longitudinal and empirical studies to understand the efficacy of treatments. New Zealand is producing research on the effectiveness of its intervention services including the clinical trial mentioned above. However, there will need to be more such research in future, if the results over time are to be known. A growing body of research highlights the complexity of gambling behaviours and motivations, and a number of articles stress the importance of not over-simplifying the relationship between certain gambling activities and problem gambling.

## **1. INTRODUCTION**

The Ministry of Health contracted Allen + Clarke to update the report Informing the 2012 Gambling Harm Needs Assessment (2012 report). The 2015 iteration of the Gambling Harm Needs Assessment (this report) will contribute to the Ministry of Health's integrated problem gambling strategy focused on public health, and has been used to inform the needs assessment that is required by section 318 of the Gambling Act 2003. The 2015 report summarises key trends and themes relating to gambling and problem gambling in New Zealand as identified from literature and data published since 2012. It also considers the development of new trends that have emerged since the publication of the 2012 report.

### **1.1. Relationship to previous needs assessments**

The 2015 Gambling Harm Needs Assessment builds on the two previously commissioned needs assessment reports completed in 2009 and 2012 (Allen + Clarke 2012; Francis Group 2009). It focuses on new evidence about gambling need and harm published and data collated since 2012. The 2015 update will ensure that the Ministry's strategic and operational plans are based on the most up-to-date information possible.

### **1.2. Structure of this report**

The report is structured in eight parts:

- Section 1, Introduction, sets out the terms of reference for the project, summarises the methodology and main limitations, and describes the context for the gambling environment in New Zealand.
- Section 2, Review of selected journals, identifies key themes and trends from literature sourced from six international journals and the Cochrane Database of Systematic Reviews. All selected articles were published between 2012–today, and this section includes a short overview of the 2012 review of literature findings where relevant and applicable.

- Section 3, Review of Ministry of Health commissioned research, summarises 12 research reports that the Ministry has funded since 2012, identifying the main findings and recommended areas for further research.
- Section 4, Prevalence of and participation in gambling and the risk of problem gambling, summarises and reviews the relevant results of the National Gambling Study and the 2011/12 New Zealand Health Survey.
- Section 5, Experiences of harm from problem gambling, summarises the relevant results of the National Gambling Study and the 2011/12 New Zealand Health Survey.
- Section 6, Gambling venues and expenditure, analyses data on the location of different gambling venues and expenditure data by social deprivation, for Class four non-casino gaming machine (NCGM) venues. Only venue by location by social deprivation is analysed, for NZ Racing Board, Lotto NZ and Casino venues.
- Section 7, Problem gambling services, analyses data on the Gambling Helpline and other Ministry-funded intervention services.
- Section 8, Summary of key themes and trends, identifies several key themes drawn from across the six previous sections.

### **1.3. Project terms of reference and methodology**

To update the 2015 Gambling Harm Needs Assessment report, Allen + Clarke used the same methodology as was used to develop the 2012 needs assessment. This assures that the two reports provide a consistent basis for action across a six-year timeframe. To complete the update of the 2012 Gambling Harm Needs Assessment, Allen + Clarke:

- Completed a literature review of articles published in specific journals since 2012 (see section 2 of this report)
- Reviewed and synthesized findings from Ministry of Health-commissioned research prepared since 2012 (see section 3 of this report)
- Analysed data on the prevalence of and participation in gambling and the risk of and harms associated with problem gambling (see section 4 and section 5 of this report)
- Analysed data about gambling venues and expenditure (including spatial analysis by Census Area Unit - CAU and relative social deprivation) (see section 6 of this report)
- Synthesised data about problem gambling intervention services (see section 7 of this report), and
- Identified future research questions, emerging trends, gaps and areas to be addressed in a future research programme.

The updated report will contribute to the Ministry's integrated approach to addressing problem gambling (i.e., it will inform the needs assessment section of a problem gambling strategy as required by s318 of the Gambling Act). The needs analysis and service plan will be developed by the Ministry of Health. Our methodology is based around five workstreams and related data sources (Table 1, below). Further details on data sources and methods are included in sections 2-7.

**Table 1: Workstreams, information sources and methods**

Workstream	Information source	Method
Literature review	34 articles from six international gambling journals published between 2012–2015	Literature search and review
Review of Ministry of Health funded research	12 research reports funded over 2012–2015	Research synthesis
Prevalence of participation in gambling and risk of problem gambling	National Gambling Study Gambling and Problem Gambling: Results of the 2011/12 New Zealand Health Survey	Report synthesis and data analysis
Gambling venues and expenditure	NCGM data from the DIA, data on TAB and Lottery outlets from NZ Racing Board and NZ Lotteries Commission (respectively), and NZDep2013	Data analysis, including spatial plotting/GIS analysis
Problem gambling services	Data on Gambling Helpline and other Ministry-funded intervention services, gathered from the Client Information Collection (CLIC) database, and service reporting to the Ministry of Health	Data analysis and research synthesis

#### 1.4. Assumptions and limitations

This report is designed to add to the existing body of evidence collected for and analysed in the 2012 report. The review of literature has, therefore, only considered research literature published between 2012 and today (April 2015) and from six international, peer reviewed journals. Similarly, the review of Ministry of Health funded research is restricted to studies funded from 2012-2015. It is acknowledged that these criteria will not capture all relevant research funded since the 2012 report; however, Allen + Clarke also discussed the range of identified literature with a gambling subject expert. Three further articles of relevance that did not appear in the initial literature search were subsequently identified and included in the analysis.

The literature reviewed in this report covers a wide range of studies, including different methods, information sources, definitions (eg, in what constitutes ‘problem gambling’) and country and cultural contexts. This can make it challenging when comparing findings and results across different studies. In identifying key themes and trends, we have generally considered data and evidence to be more valid, and therefore given it more importance, when we were able to validate it with data or evidence collected from other sources and/or by other methods. This includes corroborating data or findings from international studies with findings from New Zealand studies. Notwithstanding this, context does remain important to many of the research findings and we have been careful not to over-generalise. Commentary outlining this is included in section 2 of this report.

## **1.5. The gambling environment in New Zealand**

### **1.5.1. The legislative context**

The Gambling Act 2003 (the 'Act') was implemented in New Zealand to regulate and provide boundaries to the national gambling industry. Gambling in New Zealand is prohibited and illegal under the Act unless it is directly authorised, is authorised by or under the Racing Act 2003, or is private gambling (section 9 of the Act).

The purpose of the Act is to control the growth of gambling; prevent and minimise the harm from gambling, including problem gambling; authorise some gambling and prohibit the rest; facilitate responsible gambling; ensure the integrity and fairness of the games; limit opportunities for crime or dishonesty associated with gambling and the conduct of gambling; ensure that money from gambling benefits the community; and facilitate community involvement in decisions about the provision of gambling (section 3 of the Act).

The Act refers to six classes of gambling:

- Class 1 gambling (no licence required) (office sweepstakes and very small scale fundraising). The total amount of prize money must not be more than \$500 and the stakes are all paid out as prize money (section 22 of the Act).
- Class 2 gambling (no licence required) (small scale community fundraising). The total amount of prize money must not be more than \$5000 and the total amount of ticket sales must not exceed \$25,000 (sections 24, 25 of the Act).
- Class 3 gambling (Class 3 operator's licence required) (larger scale community fundraising). There is no limit on the total amount of ticket sales but the total value of the prizes offered or awarded to the winners of the gambling activity needs to exceed \$5000. The DIA must be satisfied that a certain amount of money will be returned to the community (sections 27, 28 of the Act).
- Class 4 gambling (Class 4 operator's and venue licences required) (gambling involves the operation of gaming machines). Gaming machines under Class 4 gambling means NCGMs such as poker machines. In the Act, Class 4 gambling is gambling that is not gambling of another class and that satisfies the following:
  - the net proceeds from the gambling are applied to or distributed for authorised purposes
  - no commission is paid to, or received by, a person for conducting the gambling
  - there are game rules for the gambling
  - the gambling, and the conduct of the gambling, satisfies relevant game rules (sections 30, 31 of the Act)
- Casino gambling (casino operators and venue licences required) (section 34 of the Act), and
- Gambling conducted by the New Zealand Lotteries Commission.

### **1.5.2. Gambling expenditure 2011–2014**

Gambling activities undertaken by New Zealanders in the past 12 months include the purchasing of a Lotto, Strike, Powerball or Big Wednesday ticket, playing gaming machines or table games at one of the six casinos, participating in a raffle, playing Instant Kiwi or another form of scratch

ticket, entering into money bets with friends or family, playing gaming machines (pokies) at a local pub or club, and placing a bet on a horse or dog race or betting on a sports event.

Total gambling expenditure for the four main subsectors of recorded gambling activity (TAB, New Zealand Lotteries Commission, NCGMs and casinos) has increased by 4.3 percent over the three years since the last Needs Analysis report, from \$2.005 billion in 2011 to \$2.091 billion in 2014.

Table 2 (below) shows gambling expenditure statistics for 2011-2014 for the four main gambling sub-sectors. As with the findings in the 2012 report, it shows that expenditure is highest for NCGMs, followed by casinos, then Lottery products and the TAB (racing/sports betting).

**Table 2: Gambling Expenditure Statistics 2011 – 2014**

The four main subsectors of gambling	2011 \$m	2012 \$m	2013 \$m	2014 \$m
NCGMs	856	854	826	808
Casinos	471	509	520	509
NZ Lotteries Commission	404	419	432	463
TAB	273	283	294	311
Total	2005	2065	2072	2091

Source: Gambling Expenditure Statistics, Department of Internal Affairs (2014)

**1.5.3. Problem gambling**

The Gambling Act 2003 defines a problem gambler as ‘a person whose gambling causes harm or may cause harm’. Harm is defined in the Act as harm or distress of any kind arising from, or caused or exacerbated by, a person’s gambling; and includes personal, social, or economic harm suffered by the person; or the person’s spouse/partner, family, whānau, or wider community; or in the workplace; or by society at large (Part 1, Section 4).

Problem gambling has been linked to other health problems such as alcoholism, depression and smoking (Fong et al 2011). The interrelationship between these dependencies means that it is important for intervention services to take into account the multi-faceted context surrounding problem gambling.

In order to address the complexities surrounding problem gambling, the Ministry of Health has adopted a public health approach ‘recognising the importance of prevention and addressing the determinants of health’ (Ministry of Health 2010). The Ministry of Health’s goal is government, gambling industry, communities and families/whānau working together to prevent the harm caused by problem gambling and to reduce health inequalities associated with problem gambling.

#### **1.5.4. The role of the agencies**

The primary agencies responsible for the regulation of gambling in New Zealand are: the DIA and the Gambling Commission. In addition the Ministry of Health is responsible for the strategy to prevent and minimise harm from gambling.

The Ministry of Health is responsible for the development and implementation of an integrated problem gambling strategy focused on public health. Section 317(2)(a)–(d) of the Gambling Act 2003 states that this strategy must include measures to promote public health by preventing and minimising the harm from gambling; services to treat and assist problem gamblers and their families and whānau; independent scientific research associated with gambling, including the social and economic impacts of gambling, particularly the impacts on different cultural groups; and evaluation. Key documents are Preventing and Minimising Gambling Harm, the six year Strategic Plan 2010/11–2015/6 (Ministry of Health 2010) and Preventing and Minimising Gambling Harm, the three year Service Plan 2013/14–2015/16 (Ministry of Health 2013).

The DIA is the primary regulator of the gambling sector, tasked with the administration and enforcement of gambling legislation and the licensing of gambling outside of casinos as well as providing policy advice. DIA ensures compliance with the legislation and provides public information and education. DIA collects and makes publically available gambling statistics, including:

- gambling expenditure statistics
- gaming machine venues
- numbers of gaming machines and expenditure by territorial authority
- gaming machine venues and number of gaming machines by society
- gaming machine profits.

The DIA's role also includes key regulatory aspects of gambling harm prevention and minimisation.

Pursuant to the Act the Gambling Commission is the primary regulator of casinos, including decisions whether to grant operator licences and whether to renew venue licences. It considers and decides applications by the DIA for suspension or cancellation of casino licences, and considers and decides appeals against decisions made by the DIA including decisions in respect of the NCGM sector and appeals against refusals to grant, or withdrawal of, a certificate of approval for a casino employee, or refusal to approve an associated person. The Gambling Commission specifies and can vary or revoke conditions for inclusion in casino licences (and these include conditions relating to casinos' host responsibility and responsible gambling programmes) (Gambling Act 2003, section 224).

## 2. REVIEW OF SELECTED JOURNALS

This review of selected journals examines key problem gambling research literature published since 2012 to determine whether the trends identified in the 2012 Gambling Harm Needs Assessment report (Allen + Clarke 2012) remain relevant and to identify what further research has been conducted in relation to these trends, especially in relation to understanding and addressing problem gambling through public health interventions. The review was limited to articles published since January 2012, to build on evidence reviewed in the 2009 and 2012 reports. Specifically, the literature review sought information on:

- demand for intervention services to address problem gambling related issues
- service availability and access rates
- problem gambling and socio-demographic factors including ethnicity, age, gender, deprivation index, etc.
- geographical parameters associated with gambling and problem gambling
- co-morbidities experienced by problem gamblers
- changes to the gambling environment and gambling activities by type
- gambling expenditure
- types of harm associated with problem gambling and gambling mode
- expansion of gambling facilities
- identification of problem gambling in the primary care setting, and
- interventions/responses to need.

### 2.1. Methodology

The initial literature search focused primarily on four international gambling journals:

1. Journal of Gambling Studies
2. International Journal of Mental Health and Addiction
3. Journal of Gaming Issues, and
4. International Gambling Studies.

A supplementary search also looked at literature published in the Cochrane Database of Systematic Reviews and the following journals: Addiction and the Australian and New Zealand Journal of Public Health.

A total of 369 articles were returned from the initial search, many of which related to well-established understandings about comorbidities of problem gambling, such as having mental health or personality issues, depression and anxiety, or abnormal perception and belief in chances of winning. Some excluded articles were specific to jurisdictions or communities of little relevance to New Zealand, such as Asian or European countries with different gambling laws and demographic makeups.

From this list and following an appraisal against the following criteria, Allen + Clarke selected 31 articles to be included in this review:

- currency (published between January 2012 and April 2015)
- relevance to the research scope and which added to but did not replicate material covered in the 2009 and 2012 needs assessment literature searches or material from Ministry of Health-commissioned research (see Chapter 3 of this report)
- methodological rigour (peer-reviewed and sound methodology, assessed according to the critical appraisal sheet attached in Appendix B)
- literature from New Zealand
- literature from other jurisdictions including Australia, Canada, United Kingdom, the United States, the European Community, and the OECD.

Following initial drafting of the report, three further articles of relevance that were published within the timeframe were identified and included in the review of selected journals, leading to a total of 34 reviewed articles.

The search did not return relevant articles relating to several key scope areas including demand for intervention services to address problem gambling related issues, service availability and access rates, and gambling expenditure; however, relevant material on these topics was able to be sourced through the Ministry-commissioned research and data analysis. This relevant material is discussed in sections 3-7. The literature review returned no information on identification of problem gambling in the primary care setting, cost-effective problem gambling interventions or the cost of gambling services and no information was canvassed in the other data sources assessed for this Needs Assessment. As such, these issues cannot be canvassed in this report.

## **2.2. Themes**

Returned articles are grouped essentially into the same six key themes identified from the 2012 review of selected literature:

- **Co-morbidity:** examines the interrelationship between substance abuse, mental health illness, and problem gambling behaviour.
- **Gambling characteristics:** considers how ethnicity, age and gender can influence different problem gambling behavioural patterns.
- **Gambling venue aesthetics, design features on gaming machines, gambling modes:** assesses the varying impacts that design and gambling venue features can have on triggering problem gambling behaviour.
- **Internet gambling:** explores the increase of internet gambling and how it can trigger problem gambling behaviour.
- **Intervention service delivery:** evaluates three modes of intervention services that are relevant to the New Zealand problem gambling environment.
- **Public health approach:** discusses the relationship between gambling advertising and the potential harmful effects it can have on different indigenous groups.

Of the 31 articles included in this review, only seven studies were conducted in New Zealand. However, while the majority of the studies reviewed were carried out overseas, the international

studies have been selected for inclusion in this literature review as they are relevant to the New Zealand problem gambling context.

### 2.2.1. Co-morbidity

The 2012 Gambling Harm Needs Assessment highlighted the need to integrate treatment services which address the existence of all of the correlating issues, as 'problem gambling is commonly correlated with psychological problems, substance use and mental health illnesses like depression and anxiety'. Research indicated that problem gambling prevalence rates are higher among illicit drug users, tobacco and marijuana users compared to non-gamblers. Future research should explore the association between gambling and alcohol abuse, as the relationship was not so apparent. Individuals who have suffered from childhood maltreatment have an increased likelihood of developing a problem gambling addiction.

Most articles returned in the 2015 literature search that related to problem gambling co-morbidities appeared to confirm or reiterate commonly-observed associations between problem gambling and issues such as substance abuse (including smoking and alcohol) and mental illness (eg, depression). As such, many of these articles were excluded due to the unlikelihood of contributing new material to an understanding of the New Zealand context; however, two articles relating to behaviours co-morbid with problem gambling were illustrative of how research is adding to the body of knowledge in identifying and treating problem gambling. Cartmill et al (2014) noted that anxiety and disassociation are considered indicators of 'escape style' gambling behaviour. They conducted a study of young Australian gamblers (aged 18-35, n=142) to examine the role of these disorders in their gambling habits. Participants self-selected through an online questionnaire, which the researchers noted may limit applicability of the findings to society at large, but which did not affect the relevance to the problem gambling population. This study reinforced previous research that young gamblers who gambled both on the internet and offline had higher rates of gambling problem gambling behaviours than those who only gambled offline, and that males had higher rates of problem gambling behaviour than females (Cartmill et al 2014). The study's main original finding was that anxiety and disassociation were found independently and together to predict levels of problem gambling across different types and modes of gambling behaviour in young gamblers. As well as recommending that effective prevention and treatment services address mental health issues such as anxiety and disassociation, the authors of the study strongly recommend that future research evaluate methods to redirect young gamblers' disassociative drives into more productive and challenging activities than gambling (Cartmill et al 2014).

El-Guebaly et al (2012) conducted a systematic literature of evidence related to the proposed reclassification of problem gambling as an addiction in the American Diagnostic and Statistical Manual of Mental Disorders. In doing so, the researchers examined the overlap of compulsivity and addiction in relation to problem gambling, substance use disorders, and obsessive-compulsive disorder (OCD) along phenomenological and neurobiological lines. The study found that significant overlaps existed between problem gambling and substance use disorders, with common neurotransmitter contributions, co-morbidities and treatment responses. In contrast OCD showed neurobiological differences to problem gambling and substance addictions, and had lower co-morbidity rates (el-Guebaly et al 2012). The authors of the study considered that

community treatments and pharml-therapeutic treatments for substance use disorders and problem gambling had a lot of commonalities and these forms of addiction treatment could be closely associated. While OCD showed more differences, and required different approaches generally, commonalities were observed in responses to adapted behavioural therapies across OCD, problem gambling, and substance use disorders, suggesting that these forms of therapy (an example of which is exposure therapy) could be applicable across disorders.

### **2.2.2. Gambler characteristics (ethnicity, age and gender)**

The 2012 Gambling Harm Needs Assessment suggested that gambling behaviour links to characteristics of gamblers in terms of ethnicity, age and gender. It identified one large study that examined the impact of gambling on five ethnic groups in New Zealand. This study found that Māori and Pacific gamblers who spend time playing EGMs have poorer mental health, experience more relationship issues, and have lower satisfaction with life compared to Pākehā, Chinese and Korean people. Other studies based on age characteristics focused mostly on assessing whether adolescent gamblers are likely to continue to gamble in adulthood. One study was conducted in New Zealand and considered problem gambling in older European/pākehā adults (65+ years) who gambled for money, finding that over 60 percent of them gambled frequently, and nine percent may be problem gamblers. The literature review returned two articles relating to gender and gambling that did not contribute much new information other than indicating that mothers are more likely to be concerned than fathers about the issue of gambling. The area of gender differences in engagement with gambling requires further research.

The 2015 literature search returned many articles exploring the characteristics of gamblers in terms of ethnicity, age and gender. The 2012 observations on characteristics continue to be relevant, but the research contributions made over the last three years appear to deepen our understanding in several respects. Traditionally, research into gambling characteristics has focused on aspects such as age, gender and ethnicity. Most adolescent gambling research found by Ariyabuddiphongs (2012a) was conducted in Australia, North America and Europe under the hypothesis of behaviour as a function of person and environment variables. The review recommends that advancing understanding of adolescent gambling behaviour requires exploring more developed issues than “simple person-gambling and environment-gambling factors.” Afifi et al (2013) make similar recommendations to Ariyabuddiphongs (2012a) and Boldero & Bell (2012) in advocating for a more complex and nuanced approach to exploring gambling problems, and not focusing on narrow causes. That said, the 2015 literature review returned eight articles on gambler characteristics, two of which were New Zealand studies. Most of these focused on individual aspects or gambling characteristics (i.e., four articles focused on adolescent or youth gamblers, one on older adults, and one other considered the moderating effects of both age and gender on gambling involvement).

#### **2.2.2.1. Age**

As with the 2012 needs assessment, returned literature on the age-related characteristics of gambling focused on young people, with a focus on both identifying factors influencing initiation age and possible predictors of problem gambling later in life. One study also investigated older gamblers. Age-related gambling studies appear to constitute a larger body of the literature now than they did three years ago. The articles reviewed here go further than merely identifying age-

related gambling behaviour, and add to our knowledge of the predictors of, and reasons for, gambling in age-based cohorts.

#### *Factors influencing initiation age to participate in a gambling activity*

A range of factors are thought to influence the age at which a young person may start to participate in a gambling activity. Some of the literature published since 2012 explored the familial links in more detail. Bellringer et al (2014) noted that while familial parental gambling is clearly an influence on childhood gambling, it is not known whether parental involvement in gambling or parental gambling problems are more relevant to the onset of childhood gambling. In researching familial influences on the gambling behaviour of a cohort of Pacific 9-year-olds in New Zealand (n=874), Bellringer et al also found that almost all the children in the study participated in some form of gambling, and a significant minority (27 percent) gambled for money with family and friends. This study found associations between participation in gambling for money, the effectiveness of parental monitoring, and level of household deprivation. Children living in higher levels of deprivation had greater odds for gambling than those living with no or little deprivation, and children who had ineffective parental monitoring had slightly greater odds for participation in gambling than those with effective monitoring (Bellringer et al 2014). Contrary to expectations Bellringer et al (2014) gathered from international research, the authors found no association between the children's gambling and mothers' gambling.

Ariyabhuddiphongs (2012a) conducted a narrative review of 99 studies covering adolescent gambling behaviour for the period 1990-2010. Not many of the findings on adolescent gambling behaviour are new. The study largely confirms known factors such as younger males are more likely to gamble than females, young gamblers often lie about their age, and that cognitive bias and a desire for excitement are often behind gambling behaviour. Various studies looked at by Ariyabhuddiphongs (2012a) explore familial influences where relationships with gambling behaviour are seen, but are variable. The review makes useful recommendations for future research.

#### *Predictors of problem gambling among young people*

The literature review returned three studies that explored possible predictors of problem gambling among young people: age of initiation and participation in certain types of gambling activity.

Two studies investigated whether early participation in gambling activities is likely to lead to problem gambling behaviour later in life; however, the strength of the evidence presented varied. For example, Bellringer et al (2014) cite Abbott and Volberg (2000) as having identified that a strong risk factor predicting lifetime problem gambling in New Zealand is a gambler having first gambled before aged 13 years, an observation that the authors considered to be similar to international findings. Covering similar ground, Delfabbro et al (2013) set out to explore the extent to which gambling behaviour measured during adolescence carried through to adulthood, citing the comparative lack of longitudinal investigations seeking to understand this issue. They found little stability in gambling activities undertaken across participants' lives: most study participants were not gambling in the same ways or on the same things as adults that they were in adolescence. For example, only 14 percent of young people who gambled on scratch cards reported doing so in all four years of the study, and less than five percent of those who reported gambling on card games, racing or sports were consistently involved in these activities (Delfabbro et al 2013). However, the authors did find that those who reported having at least some gambling problems at 20-21 years of age were more likely to have gambled on a number of activities at 15-16 years old, tended to have started gambling younger, and were

more likely to have reported a big win early in their gambling career. Delfabbro et al (2013) also notes that further longitudinal and prevalence studies must be undertaken to verify their findings. This one study had a relatively small sample size (n=256), and had a high number of dropout of original participants, which raised the potential for some unknown systematic difference in the remaining participants to have skewed the results in some way. However, at least initially, Delfabbro's findings appear to support those of Abbot and Volberg (2000), as cited in Bellringer et al (2014).

Complexity in understanding gambling predictors in young people is supported by Boldero & Bell (2012). This study used data from telephone interviews with 18-24 year old Australians (n=1000) to explore the chance- and skill-based dimensions that underlie the participants' relationships and behaviours with different gambling activities. The authors found that participation in skill-based gambling activities (where some skill is required to select a winner, such as horse racing or betting on sports matches) had much stronger relationships with problem gambling among young people than participation in chance-based activities (such as lottery or scratch ticket gambling). Boldero & Bell (2012) theorised that this relationship may be due to people who overestimate their skills wagering more on these types of gambling. Those who gambled on chance-based activities appeared to hold distorted beliefs about the outcomes of gambling, but appeared not to demonstrate the strong relationship with problem gambling. Boldero & Bell (2012) considered that these findings suggest that the correlates and predictors of the different levels of skill required in various activities are important to consider when looking at gambling behaviour, and that gambling activities among young people should not be considered homogenous.

#### *Problem gambling and older people*

While most age-focused literature identified in this review looked at young gamblers, Ariyabuddhiphongs (2012b) reviewed 55 gambling articles referring to older adults or the elderly. The body of literature on older adults does not use a consistent definition of what age constitutes "older" (eg, some studies define it as those aged 50 years and over; others considered older gamblers as aged 65 years and over). Ariyabuddhiphongs (2012b) found that the prevalence of problem gambling among older adults is no worse than the general population, but noted studies showing that older adults who gamble are faced with health impairment, and social and psychological issues. These findings suggest that older adult gamblers may require particular harm minimisation interventions that take their particular mental and physical health needs into account, but the relatively small body of literature on older adult gambling could be bolstered with more exploration of theory, longitudinal studies and cross-cultural research.

#### **2.2.2.2. Ethnicity**

In contrast to the 2012 literature review, the 2015 review found only three articles published in the selected journals in which aspects of ethnicity as a gambling characteristic were explored. (However, the Ministry-funded research examined in sections 3-5 considers the links between ethnicity and gambling and problem gambling in some detail.) One paper presented a qualitative New Zealand gambling study with a comparatively small number of participants of all ages from across four ethnic groups<sup>2</sup> (Tse et al 2012), one study focused on the gambling behaviours of a large sample of 9-year-old Pacific children (Bellringer et al 2014), and another reported on Pacific people's thoughts on gambling garnered through a series of consultative focus groups (Urale et al 2014).

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<sup>2</sup> Māori n=30, New Zealand European n=16, Pacific peoples n=58, and Chinese n=16

### *Ethnicity and reasons for gambling*

Tse et al (2012) noted that many New Zealanders come from cultures that do not have a history of gambling, and used their research to explore the environmental, social and cultural factors that interact with personal attributes to determine gambling behaviours. They looked at common reasons for gambling organised under economic, personal, recruitment, environmental and social reasons, and drew out differences across the four ethnic groups.

In this study, all ethnic groups cited economic reasons for gambling, such as expecting to win money, but there were differences across the ethnic groups as to how these reasons were articulated and viewed. For example, many Pacific participants referred to the need to win money to help their families, or contribute funds to their church. In comparison, NZ European participants said that they wanted to win, or needed money themselves. Chinese participants identified the attractiveness of a big return on a small investment.

Tse et al (2012) found that gambling was perceived by a number of participants as an escape mechanism from stress or boredom. For Māori and Pacific participants, gambling provided a way to escape relationship problems and family stresses, if only temporarily. Some Chinese participants reported that there were not many suitable entertainment options for Asian people in New Zealand, which made gambling more attractive (possibly dangerously so for Chinese students who were living away from home without a role model present).

Interviews conducted with problem gambling counsellors from all four ethnic groups reported that advertising was a major influence on gambling decisions (Tse et al 2012). Gambling participants supported this observation, and identified repetitive exposure and promotional campaigns targeting specific ethnic groups, such as a city casino offering special deals to Asian people, as enticements to gamble.

Tse et al (2012) acknowledged limitations in their study, referring to their observations as “snapshots” that cannot fully address the interrelationships of gambling and culture. They did however find similarities between their findings and the findings of a Canadian study that looked at gambling behaviours across six ethnic groups, including Aboriginal peoples and Canadians of British descent, who cited similar reasons for gambling as New Zealand Māori and European peoples. The article does not make many original recommendations, but does prompt readers to consider whether certain at-risk groups among different ethnicities are targeted by gambling promotional activities at disproportionate levels.

The findings of Tse et al (2012) do not alter our knowledge of the gambling behaviour exhibited by people of different ethnic groups in New Zealand in the 2012 Needs Analysis report, but the study does provide us with a richer picture of their motivations and experiences. Over time additional research should help to identify trends and common factors that will assist in developing culturally specific intervention and support services.

The study reported by Bellringer et al (2014) is focused on the gambling behaviours and familial influences of 9-year-old Pacific children in New Zealand. While there is a focus on age, the ethnicity of the sample studied is also of interest, and an indicator of where more longitudinal research is desirable in understanding the interaction of ethnic background and gambling behaviour in New Zealand. The authors noted that New Zealand surveys indicate a lower adult percentage of gambling among Pacific adults than other ethnicities, but that Pacific people appear at a higher risk of developing problem gambling. Bellringer et al (2014) note the lack of much empirical research to explain this higher level of risk, and state that increased knowledge of gambling behaviours among Pacific children, ideally followed over time, would produce much

useful information for policymakers and public health programmes. The authors also caution that this study recruited participants from one hospital in South Auckland, and thus the findings are not necessarily representative of the New Zealand Pacific population as a whole. Further data collection phases however would allow rigorous trend analysis and further study to be conducted.

Urale et al (2014) cite Abbot et al (2014a) in establishing that, after adjusting for age, Pacific people have an elevated risk of developing problem gambling, despite the fact that Pacific people are less likely than the broader population to participate in gambling. The exploratory study (n=97) presented by Urale et al (2014) investigates Pacific people's thoughts about gambling to add to our understanding of potential reasons for such unexplained gambling behaviour. The study involved a series of 12 focus groups overseen and advised by Pacific researchers, and the methodology was consulted on with an external group of Pacific problem gambling service staff. Urale et al (2014) reported that analysis of the data produced through the focus group provided some insight into factors that contribute to Pacific gambling in New Zealand. Many participants were reported as drawing a distinction between 'commercial gambling' and 'community gambling' (Urale et al 2014). Commercial gambling was defined as taking place in a commercial venue, with the aim of making quick money, and was generally viewed negatively, whereas community gambling took place in a church or community setting, with the aim of fundraising, and was generally viewed positively (Urale et al 2014). Urale et al (2014) noted that participants did not see much crossover between gambling in these different settings, with the exception mentioned by some that gambling in commercial venues could be a way to make quick money for community and church activities. Religion was notable in the analysis of focus group data, which Urale et al (2014) did not see as surprising given the high rate of religious adherence in Pacific communities. Different participants' churches seemed to have differing views on whether gambling (commercial gambling, at least) was prohibited or not (Urale et al 2014). Urale et al (2014) saw the findings from this study as raising the interesting question for future research as to what extent conceptions of the purpose and outcome of gambling influence Pacific peoples' (and other groups) risk of problem gambling.

### **2.2.2.3. Gender**

It appears that gender differences influence gambling behaviour and problem gambling tendencies. However, gender was not the primary focus of most literature reviewed here, and as such there are not many new conclusions about gender-related gambling participation to be made.

There are some observed gender differences in gambling behaviour that will likely be relevant to public health policymakers and intervention approaches. Tse et al (2012) found in their New Zealand study that the social environment associated with gambling was attractive to some women. For Māori and Pacific female participants, the social aspect of gambling was seen as a relief from boredom and familial duties. Some Asian migrant women were reported as being employed in low-skilled jobs that did not integrate them socially, and so saw the casino as a social opportunity to meet people like themselves (Tse et al 2012). Boldero & Bell (2012) noted that males in their study of young Australians aged 18-24 participated in skill-based gambling activities more than females. Delfabbro et al (2013) appears to show similar results, with sports betting and casino table games proving more popular amongst young men than young women.

The 2015 literature review returned one Canadian-based study (Afifi et al 2013) which investigated gender and age differences among gamblers and found that neither gender or age was a moderating factor on gambling involvement (using data from the Canadian Community Health Survey - CCHS). Secondary analysis of CCHS data (n=18,913) found that the nature of

people's engagement with various gambling activities (all of which were associated in some way with problem gambling) was largely a function of the frequency of their engagement with specific games. Ariyabuddhiphongs (2012a) review of adolescent gambling literature suggests different results to Afifi et al (2013), however: they identified that males (at least in adolescence) showed more gambling problems than females, tended to gamble more than females, and were significantly more likely to gamble on the internet than females.

In general the literature reviewed since 2012 relating to gambling characteristics strengthens and deepens our understanding of known characteristics and behaviours, and does not upend any previous findings. The common thread through most of the recent literature on gambling characteristics appears to be an emphasis that the motivating factors for gamblers' behaviour are not the result of simple associations between an individual factor and a gambling activity. Further longitudinal research is recommended that will lend itself to nuanced analysis that attempts to understand the complex relationships between the factors at play over time.

### **2.2.3. Gambling venue location/design features on gaming machines/gambling modes**

The 2012 Gambling Harm Needs Assessment indicated that design and aesthetic features of a gambling venue play a significant role in encouraging or deterring potential problem gamblers to continue to play, or return to the venue on multiple occasions. A key factor in problem gamblers continuing to play on gaming machines is timekeeping and lack of the perception of time. The 2012 report also highlighted that the varying forms of gambling modes available to the public have different effects on users; however, situational factors may also contribute to different effects on problem gamblers.

The 2015 literature search returned little material on venue design and aesthetics. We consider the 2012 observations on venue aesthetics continue to be relevant, and have not been particularly challenged or revised by the prevailing body of research over the last three years. However, our search did find two interesting articles on the physical accessibility and location of gambling venues, which appears to be a recent focus in studies of the physical attributes of gambling venues. The search also returned four articles related to features of Electronic Gaming Machines (EGMs): two looking at pop-up messaging and warnings, one on the use of pre-commitment features, and one New Zealand study exploring problem gambling on casino EGMs versus non-casino EGMs.

#### **2.2.3.1. Gambling venue location**

There is a small but developing body of research investigating possible links between prevalence and frequency of gambling participation and proximity to gambling venues and types of gambling activity. The links between gambling venue location and deprivation are also explored further in Chapter 6.

Understanding the impact of venue location on gambling behaviour is especially useful given the direct control that regulators can exert on EGM licences to manage density and placement of such venues. Young et al (2012) explored the association between gambling outcomes and the distance travelled from a person's home to their most frequented EGM gambling venue through a geocoded mail survey of 7,044 households in Australia's Northern Territory. The research

showed a difference in the behaviour of gamblers and non-gamblers in visiting clubs or hotels with EGMs. Gamblers preferred to visit venues closer to their homes compared to non-gamblers who did not appear to particularly favour their closest venues. The proportion of respondents who most frequently visited the closest venue to their home significantly increased with risk of problem gambling; 39.2 percent of moderate risk and 37.8 percent of high risk gamblers visited their closest venue primarily, versus 31.2 percent of non-problem gamblers (Young et al 2012).

Vasiliadis et al (2013) were also interested in the accessibility of EGMs, reviewing 39 articles from the United States, Canada, Australia, New Zealand, and Norway published between 1990 and 2011 that presented original, empirical findings related to gambling and EGM accessibility. This review suggested similar findings to that presented by Young et al (2012). Vasiliadis et al found that while both density and proximity of EGM venues are related to increased gambling involvement, proximity appears to be more strongly associated with problem gambling than density of machines or venues. As evidence they cited three studies in particular that suggested the closer gamblers are to regular gambling venues, regardless of density, the more likely they are to be problem gamblers. The authors cautioned that there are a number of dimensions of accessibility and physical venue location that the literature to date has not considered, such as the social and commercial environment of particular venues (proximity to schools, shopping areas or licensed venues, for example), or the sociodemographic makeup of particular neighbourhoods. These appear to be fruitful areas for future research, particularly in the New Zealand context as current research does not appear to drill down to this level of analysis.

EGMs have often been associated with problem gambling, but little research has compared the relative effects of EGMs in casinos versus non-casino environments. An exploratory study conducted in New Zealand by Clarke et al (2012) with a non-representative sample questioned 138 male and female problem gamblers about their EGM gambling activities and categorised them by scores on the PGSI. EGMs use in pubs and clubs proved to be a stronger, unique predictor of current problem gambling than use of EGMs in casinos, after controlling for demographic factors and total gambling activities.

#### **2.2.3.2. *Design features on gaming machines***

Three relevant studies on pop-up messages, one of which (Auer et al 2014) was focused on online EGM-style slot machine games, and one review of studies on pre-commitment systems were identified for this report.

Auer et al (2014) conducted an analysis of behavioural tracking data from two random samples of 400,000 individual online slot machine playing sessions, representing 200,000 individual gamblers. They observed that nine times more gamblers who saw pop-up messages ceased their gambling session after 1000 consecutive gambles than gamblers who had not seen the pop-up message. They concluded that pop-up messages can influence a small number of gamblers to cease or reduce their gambling, but they appear to be more useful as one social responsibility tool among others to reduce excessive play (Auer et al 2014). Munoz et al (2013) explored how graphic gambling warnings (a form of pop-up message) on EGMs affected gambler responses, surveying the activity of 103 EGM gamblers. They found that graphic warnings of the dangers of gambling were noticed and cognitively responded to with an element of fear by gamblers who were involved in their activity. Highly involved gamblers are considered more likely to be problem gamblers. Graphic warnings were considered to play on involved gamblers' sense of vulnerability, and were more likely to be noticed and paid attention to than verbal or text warnings alone (Munoz et al 2013). Munoz et al (2013) noted that their study could not explore the effect of such warnings over time, however.

Gainsbury et al (2015a) present the results of a trial of pop-up messages in commercial gambling venues in Australia, with the aim of confirming whether efficacy demonstrated in laboratory settings are repeatable. This trial involved a survey of EGM gamblers (n=667), representing a range of non-problem gamblers to problem gamblers on the PGSI, as to how well they had retained the warning messages shown on the machines they played on (Gainsbury et al 2015a). The trial involved five Brisbane, Queensland gambling venues displaying pop-up messages on their EGMs, with placements on the screen varying between the middle and periphery. The trial demonstrated that warning messages that appeared in the middle of EGM screens during play had greater impact in terms of both message recall and perceived usefulness than messages that appeared elsewhere on the screen (Gainsbury et al 2015a). Gainsbury et al (2015a) considered the results to be an important validation of laboratory results, and evidence that dynamic pop-up messages appearing in the middle of an EGM screen during play may be an effective gambling harm minimisation strategy.

Pre-commitment systems that allow EGM users to set time or financial limits in advance of their playing session are one potential method for enforcing limits and reducing excessive gambling. One review of the empirical evidence conducted by Ladouceur et al (2012) was available on the use of pre-commitment systems. Following a database search that returned 218 articles, the authors identified only 17 studies that were specific to pre-commitment and were based on empirical studies. The review showed that the majority of gamblers are receptive to the idea of using such a system, but findings on their effectiveness in actual use are inconclusive. The small evidence base and low quality of several studies suggests that further systematic trials of pre-commitment are necessary before impact on reducing problem gambling behaviour can reliably be determined (Ladouceur et al 2012).

Wohl et al (2013) looked at the relative effect of an animated educational video and pop-up messaging with monetary limit-setting in a small sample of EGM gamblers (n=72). This study aimed to empirically test the utility of the two responsible gambling tools (educational animation and pop-up messaging) simultaneously. Only recreational gamblers (assessed as non-problem or low-risk on the PGSI) were chosen as participants (Wohl et al 2013). Participants were given a set number of credits to use on EGMs in a virtual casino, and were required to watch a nine minute video prior to play. Participants in the animation condition watched an educational animation that was designed to correct common misperceptions about EGMs, such as clarifying that all outcomes were random and not linked to previous events, while the participants in the neutral condition watched a lottery-related video that made no mention of how EGMs function. Once the video had been seen, participants were invited to play the virtual EGMs, and were asked to set a limit on the number of credits they wished to spend on the EGM. Participants in the pop-up message condition received a pop-up reminder telling them their limit had been reached, and asking them if they wished to continue gambling. In the no pop-up condition, participants simply played until they wanted to stop, or ran out of credits. Participants who watched the educational animation reported significantly less gambling-related erroneous cognition than those who saw the neutral video, which was in line with the researchers' expectations (Wohl et al 2013). Also as expected by Wohl et al (2013) the participants who saw pop-up messages were more aware of when they reached their pre-set monetary limit than the non pop-up participants. Interestingly, among participants who did not experience pop-up messages, those who watched the educational animation stayed within their monetary preset limit more than those in the neutral participant group (Wohl et al 2013). For those who were reminded of the monetary limit with pop-up messages however, no difference in limit adherence was seen between those who had seen the animation and those who had seen

the neutral video (Wohl et al 2013). The authors took these findings to mean that both responsible gambling tools aided in adherence to monetary limits, but that there was no additive effect of experiencing both (Wohl et al 2013). The authors noted that the findings were not generalizable to the broader population, due to the small and unrepresentative nature of the sample group, and also cautioned that a virtual casino environment with supplied credits is not an exact substitute for a real-life gambling situation (Wohl et al 2013). However, the findings do support the efficacy of both gambling responsibility tools to some degree, and suggest further research is warranted.

The recent literature on EGM design and venue location is not yet developed enough to suggest significant changes in problem gambling intervention, but the interesting findings suggest some key areas for future research, evidence gathering and analysis. Further understanding of the interactions between gambling venue density, local facilities and the socioeconomic profile of particular areas would be useful. Further empirical evidence based on larger representative samples and longer study lengths would help us understand which problem gamblers pop-up messages and pre-commitment systems do work for, and will help us plan other services for those they do not.

#### **2.2.4. Internet gambling**

The 2012 Gambling Harm Needs Assessment highlighted internet gambling as one of the more recent modes of gambling with the potential for concern that could be linked to problem gambling behaviour: literature exploring this gambling mode had increased significantly since the 2009 report's publication. Internet gambling lends itself to greater convenience for problem gamblers, but also provides the potential for improved accessibility in accessing hard-to-reach consumers with responsible gambling messages. The 2012 report identified that further research needed to be conducted to address whether internet gambling is more likely than traditional forms of gambling to lead to a gambling problem, or whether problem gamblers are using internet gambling as another accessible opportunity to gamble.

Research on interactive gambling over the internet now appears to be an established field of research in problem gambling literature, with a number of articles initially identified as potentially useful for this review. The body of knowledge is still evolving, and the question from 2012 relating to whether internet gambling leads to more problem gambling is still open. That being said, the body of evidence is pointing to regular internet gamblers having more identifying or predictive factors in common with problem gamblers than moderate or non-gamblers.

The 2015 literature search returned two articles in particular that appeared to build on the body of knowledge seen in 2012. These articles focused on quantifying participation in internet-based gambling activities in the Australian or international context: no New Zealand-focused literature was identified. While such findings may not necessarily apply to the New Zealand context, it does provide some food for thought about the role that internet-based gambling opportunities may have on gambling participation and harm here.

Participation in internet-based gambling activities appears to be a significant format for gambling activity, and one that is likely to contribute towards gambling-related harm. Gainsbury et al (2015b) looked at the results of a large past-year gambling survey of 15,006 Australian adults, and selected a sub-sample of 2,010 gamblers to assess participation in

internet gambling activities. The survey results suggested that internet gamblers gambled on more activities and more frequently than non-internet gamblers. Internet gamblers were also more likely to be male and younger than the general gambling population. The authors noted that the above characteristics suggest that internet gamblers may represent a different cohort to non-internet gamblers, but noted that caution must still be taken in interpreting results as internet gamblers constituted a comparatively small minority of people surveyed (i.e., 8.1 percent of survey participants compared to 64.3 percent of survey participants who had gambled at least once). Gainsbury et al (2015b) considered that the results are still worthy of note however, particularly as they considered that participation in interactive gambling over the internet is increasing and the interactive methods available to gamble are evolving.

The second study returned also concluded that internet gambling participation is increasing rapidly. McCormack et al (2013) set out to examine whether the predictors of online problem gambling differ from the predictors of non-internet-based problem gambling that have been well-established in the literature previously (such as being male, young, single, having parents who gamble, smoking, and fewer educational qualifications, etc.). The study sample was 975 participants recruited through notices placed on international gambling websites. As such, the participants are an international, non-demographically representative sample. Using the PGSI, 14 percent of the sample were identified as problem gamblers, with a further 29 percent of participants considered to be at risk of problem gambling (McCormack et al 2013). These percentages were seen as high, and troubling by the authors, although the self-selected nature of the sample and lack of easily comparable general population offline gambling figure meant the authors did not have an offline population to compare them with. The hypothesis tested, however, yielded results showing that most predictors of offline problem gambling held true for the online problem gamblers: that is, online problem gamblers were more likely to be single, male, cigarette smokers, and to regularly engage in two or more gambling activities. Interestingly, one predictor of offline gambling that was difficult to verify as a factor in online gambling was age, as there appeared to be no significant difference between the age of internet gamblers and problem gambling level. This being the case, a question designed to identify whether any participants were lying about their age suggested that several participants were, and that being under the legal age for gambling was the reason (McCormack et al 2013). Having a disability was also correlated with problem gambling among participants (McCormack et al 2013), which is an interesting observation given that disability is not a known risk factor for offline problem gambling. As with Gainsbury et al (2015b), McCormack et al (2013) recommend further research to explore and test the observations made.

The literature reviewed on internet gambling highlights the need for research to continue building evidence. It is not yet clear if interactive gambling on the internet leads to more problem gambling, or if the characteristics of internet gamblers suggests different interventions from those for the general population are necessary. However, the evidence available does suggest a high proportion of internet gamblers display risk factors. With the increasing availability of internet gambling options it is important for policy planners to stay on top of this issue.

### 2.2.5. Intervention service delivery

The 2012 Gambling Harm Needs Assessment highlighted three types of intervention services, with gambling venue employees providing a first instance assessment of potential problem gamblers, and directing them to receive appropriate treatment. It noted that problem gamblers often have fear of communicating with gambling venue staff about their problem gambling. With the prevalence of internet gambling, online self-guided intervention programmes have been identified as a service that could meet the needs of problem gamblers. Evidence indicated that internet-based treatments were successful, cost effective, and allowed those who are not comfortable with face-to-face treatment or those who are constrained by their circumstances to seek help for problem gambling with relative ease. Self-exclusion programmes were thought to be successful only where problem gamblers are refused entrance if attempting to return to gambling venues, and have helped reduce problem gambling addictions. Further research specific to New Zealand would provide a clearer picture of the success of this form of intervention.

The literature on intervention service delivery since 2012 develops our understanding of key factors to consider in intervention services, but most researchers continue to call for continued evidence to be built to prove efficacy of particular interventions.

The 2015 literature review identified six journal articles and one systematic review report from the Cochrane Library on intervention services. A wide range of interventions are canvassed in the literature including in-venue identification and support, online support, and specific psychological techniques such as cognitive behaviour therapies. Several studies also investigated influencers and barriers that motivate individuals to seek help for problem gambling behaviours. Limited information was found on self-exclusion programmes however, and only one article looks at New Zealand based research (although there has been Ministry of Health funded research looking at intervention services – see Chapter 3).

#### 2.2.5.1. *In-venue support for problem gamblers*

The 2012 Gambling Harm Needs Assessment (Allen + Clarke 2012) identified gambling venue staff as a potential first line of assessment for problem gamblers. Since then, further research by Delfabbro et al (2012) examined gambling venue staff familiarity with patrons to see how well they might be able to identify the predictors of problem gambling. A total of 303 patrons were surveyed and identified on the PGSI. Venue staff were separately asked to describe their knowledge of those same patrons. Results showed that venue staff were familiar with a large number of frequent patrons (230 of the 303 participants were identified), and were able to reasonably assess the frequency of their visits. However, the staff were not so accurate at identifying problem gamblers out of the sample; their assessments of problem gambling and risk of problem gambling had little in common with the PGSI assessments produced by the surveyed participants' self-assessments. This finding suggests that venue staff may not be particularly suitable to be a first line of assessment for problem gamblers. Delfabbro et al (2012) acknowledged the limitations produced by the small size of the field test in a single jurisdiction, but suggested that the findings provide empirical support for previous research studies that consider there are considerable challenges associated with identifying problem gamblers in venues with point-in-time observations.

#### **2.2.5.2. Online counselling**

Rodda & Lubman (2014) use data from a national Australian online chat and email service to contribute further evidence for the potential of online counselling as a useful mode of service delivery for problem gamblers. A person concerned about gambling could access either service through a website called Gambling Help Online, and were then asked a series of demographic and gambling related questions that were then provided to the chat or email counsellor at the commencement of the session. Chat sessions lasted approximately 45 minutes, in a format similar to instant messaging in real time. Counsellors considered they covered about half the material they would normally cover in a phone or face-to-face session. The email service differed in that it was not conducted in real time. A client and counsellor would exchange two to three emails a week for approximately six weeks. New treatment seekers in particular found the services attractive, but further evidence remains to be produced as to the efficacy of online treatment versus other forms (Rodda & Lubman 2014).

#### **2.2.5.3. Cognitive behavioural therapy and other psychological therapy formats**

A Cochrane review of the data from 14 controlled trials of psychological therapies for pathological problem gambling supported the efficacy of cognitive behavioural therapy in reducing gambling behaviour, but the durability of the results was unknown (Cowlshaw et al 2012). The reviewers considered this was an important review to conduct given the paucity of evidence to support effective psychological therapies for problem gamblers, despite their high risk of mental health issues and personality disorders. They reviewed the available evidence for four categories of psychological therapies from the United States, Australia, Canada and Sweden: CBT, motivational interview therapies, integrative therapies (which combine elements from different types of treatments such as CBT and motivational interviews), and other psychological therapies (of which only one was found, a 12 step facilitated treatment modelled after the 12 steps of gamblers anonymous). CBT was the only therapy that had convincing evidence of efficacy, with multiple studies showing reduced gambling severity and financial loss in participants over three months following treatment (Cowlshaw et al 2012). Only one CBT study looked at a longer timeframe however, so reviewers were unable to comment on continued effectiveness. The other psychological therapies had preliminary evidence supporting their effectiveness, but the review noted there simply was not yet enough empirical evidence to reliably evaluate them. Three trials of motivational interview therapies suggested less financial loss over three months, but the reviewers noted wide confidence ranges, small sample sizes and uncertain results by gambling severity limited the reliability of such a finding. Two studies of integrative therapies yielded no significant findings. The one other therapy study reviewed did suggest reduced gambling frequency and financial loss over three months, but this was considered preliminary evidence only (Cowlshaw et al 2012). This review makes the case that psychological therapies need further empirical studies to be conducted in various jurisdictions to reliably inform future treatment planning.

#### **2.2.5.4. Influencers of help-seeking behaviours**

Ariyabuddhiphongs (2013) reviewed the literature on gambling prevention measures that can apply before, during and after gambling. Both harm reduction and responsible gambling approaches appeared to have either limited or mixed effects on gambling behaviours, with the most successful prevention measure identified being gamblers' own motivation to control gambling behaviours (Ariyabuddhiphongs 2013). Self-awareness of individuals to seek assistance with problem gambling behaviours was also explored (among other issues) by Gainsbury et al (2014). These authors looked at the motivations and barriers for Australian

problem gamblers to seek professional help for problem gambling. The most common motivating factor for seeking help was financial trouble caused by gambling, but significant barriers were low awareness of specialist services, self-denial of problem severity (a possible flip-side to Ariyabuddhipongs 2013 finding) and concerns about the availability of low-cost services that could cater for multicultural populations.

A New Zealand case study in Interactive Drawing Therapy (IDT) with Chinese migrant problem gamblers suggested that client openness and involvement in the therapeutic process can lead to positive results, in conjunction with other modalities, but this was based largely on anecdotal evidence and the researchers consider further exploration is necessary (Zhang & Everts 2012).

Other research shows that continued interventions may be necessary to ensure self-motivation for reforming problem gamblers. Some studies have shown that relapse rates for problem gamblers post-treatment can be as high as 75 percent (Hodgins et al 2007, as cited in Jackson et al 2013). Problem gamblers who successfully cease gambling are often left with a lot of unstructured free time, during which the risk of relapse is high. A small (n=30) Australian proof of concept study by Jackson et al (2013) for structured re-engagement with social and work activities (referred to as leisure substitution) suggested that such a programme had potential for significantly reducing relapse among problem gamblers (Jackson et al 2013). This structured reengagement involved participants being matched with volunteers who have no experience of problem gambling. The volunteers support the participants to find regular, scheduled activities to occupy their leisure time, and encourage them to reflect on and monitor their mood and habits as a result.

The common thread visible through the intervention literature is a call for further empirical evidence. While many treatments have promising features, it seems little is known for certain about which treatments will give which gamblers the surest chances of success. The evidence for CBT is strongest amongst intervention methods, but it is not clear how widely applicable this intensive (and often expensive) form of psychological intervention is.

#### **2.2.6. A public health approach to gambling**

The Gambling Act 2003 requires a public health approach to be taken in addressing gambling harm. The 2012 Gambling Harm Needs Assessment referred to research recommending that consideration should be given to the amount of gambling-related advertising that New Zealanders are exposed to, particularly to Māori and Pacific participants who have a higher recall than Pākehā people. With the public health approach in mind, one study recommended the development of a regulated gambling marketing and advertising environment, and to ensure that Māori and other ethnic groups in New Zealand perspectives are involved in the development and implementation of such regulations.

The public health literature available since 2012 shows a continuing focus on public gambling messages, and the impact that these have on Māori and Pacific groups in particular. The New Zealand public health approach continues to be of interest to researchers. Three of the articles identified in the 2015 literature review were New Zealand focused, and the other relevant public health article was Australian based. As with the literature noted in 2012, researchers are continuing to explore the perceptions of, and reactions to, gambling messages and issues amongst Māori and Pacific groups.

In the past, limited research has explored the ways in which the public cognitively respond to gambling industry marketing, which can be clever, multi-layered and pervasive (Thomas et al 2012). One study of 100 Australian adults who had gambled in the previous year found that individuals responded differently to marketing, possibly due to promotional targeting. Thomas et al (2012) identified young males who felt “bombarded” and “targeted” by marketing, and women and older men who made a conscious effort to resist gambling marketing. Younger men and at-risk gamblers felt influenced by incentives that were presented as attractive to them. The authors concluded that public health approaches need to be aware of the complex ways in which individuals interpret and engage with the gambling marketing messages they receive.

More New Zealanders experience the harms produced by gambling than the prevalence of problem gambling would suggest. Walker et al (2012) discussed a New Zealand Health Sponsorship Council survey (n=1774, with over-representation of Māori, Pacific and Asian peoples) which showed that around one-sixth of New Zealanders have experienced harms such as arguments about gambling, or bills going unpaid due to gambling spending. Given the considerable impact experienced, and the consistency with other research on experience of gambling related harms, Walker et al (2012) recommend benchmark measures be developed to monitor the wider harms of problem gambling and evaluate the success of public health measures.

Some researchers were not generous towards the approach taken in New Zealand to date. Adams & Rossen (2012) refer to New Zealand’s public health approach to gambling as a “missed opportunity” compromised by the inclusion of vested industry interests in the development of legislation. The public reliance on gambling industry profits is seen to prevent meaningful public health progress at reducing harmful activity, as has been seen with public health approaches to tobacco and alcohol. This article does not seem to consider whether New Zealand’s public health approach to gambling and results are out of step with other jurisdictions however, and no examples of more successful public health approaches towards gambling are presented.

Other researchers focus on the impact on public health made by those in the community, as opposed to policymakers and industry. Dyall et al (2012) identify that Māori have been involved for over a decade in gambling public action in New Zealand, and contribute to increased knowledge and advocacy among their own people of the harms of gambling and the remedies available (Dyall et al 2012). This indigenous public health contribution is seen as analogous to housework – a time consuming activity that is often done by a few for the good of the many, and not explicitly appreciated until nothing is done about it (Dyall et al 2012).

Regulatory reform of gambling marketing as called for in 2012 has not happened, but the current literature still suggests there could be more space for community involvement and monitoring than currently happens.

### **2.2.7. Conclusions**

The 2015 review indicates a growing body of research highlighting the complexity of gambling behaviours and motivations, and a number of articles stress the importance of not oversimplifying the relationship between certain gambling activities and problem gambling.

Otherwise, the literature review suggests similar results to 2012. The evidence base relating to gambling and its effects is continuing to grow, but there are still many areas where further research is required. Some researchers call for more longitudinal studies to be conducted to reliably identify trends over time, and that more empirical evidence is gained to understand the

efficacy of treatments. Studies relating to treatment continue to note that their scope (eg, small sample sizes or short timeframes) makes it difficult to draw robust conclusions.

### 3. REVIEW OF RESEARCH FUNDED BY THE MINISTRY OF HEALTH

The Ministry's key research priorities for 2010/11–2015/16 are forecast within the six-year strategic plan 2010/11–2015/16, and reiterated in the three-year service plan and levy rates for 2013/14 to 2015/16. Research priorities include: continuing to increase the evidence relating to risk and resilience factors; extending the problem gambling sample in the National Gambling Study; developing the evidence base for the effectiveness of intervention services; and building gambling harm research capacity.

Between 2012 and April 2015, the Ministry of Health commissioned and/or received 16 research projects that monitor and evaluate the development of key trends in problem gambling: these projects reflect the Ministry's research priorities, particularly related to risk and resilience. The components of the research projects completed to date include:

#### *Risk and resilience*

- The effect of gambling game characteristics, player information displays (PIDS), and pop-up technology on gambling and problem gambling in New Zealand (Palmer du Preez et al 2014)
- Exploration of the Impact of Gambling and Problem Gambling on Pacific Families and Communities in New Zealand (Bellringer et al 2013)
- Youth participation in gambling and the impact of problem gambling on young people in New Zealand (Rossen et al 2013)
- The influence of gambling venue characteristics on gamblers' behaviour (Thomas, Mora and Rive 2012)
- The effects of gambling advertising, marketing and sponsorship on gambling perceptions and behaviour (Schottler Consulting 2012)
- The impact of gambling and problem gambling on Asian families and communities in New Zealand (Sobrun-Maharaj, Rossen and Wong 2012)
- The impacts and perceptions of gambling and problem gambling on Māori families and communities in Aotearoa (Levy – in draft), and
- The nature and extent of pre-commitment among New Zealand gamblers (Schottler Consulting – in draft).

#### *Effective intervention services*

- The effectiveness of telephone gambling help interventions (Abbott et al 2012; Abbott et al 2013)
- The delivery of problem gambling services to prison inmates (McKenna et al 2013)
- Evaluation and Clinical Audit of Problem Gambling Intervention and Public Health Services (Kolandai-Matchett et al - in draft)

Neither the 2011/12 New Zealand Health Survey nor the 2012 National Gambling Study is summarised here, as key information from them is presented in sections 4-8 of this report.

At the time of preparation of Allen + Clarke's review of the commissioned research, several reports remain in draft (Levy, Schottler Consulting, Kolandai-Matchett et al): we have included

these reports and their draft findings for completeness but note that the reports are still subject to final acceptance from the Ministry of Health. Draft versions of two reports (Palmer du Preez 2014 and Thomas, Mora and Rive 2012) were summarised in the 2012 Gambling Harm Needs Assessment report and the finalised papers are summarised in this report.

Section 3.2 of this report summarises the Ministry's commissioned research, focusing on three aspects: an overview of the objectives and methodology of the project; a summary of the main findings; and identification of further areas of research identified by the report.

### **3.1. Research summaries**

#### **3.1.1. Investigation Into the Effects of Gambling Game Characteristics, PIDs and Pop-Up Technology On Gambling and Problem Gambling Behaviour in New Zealand (Palmer du Preez et al 2014)**

Pop-up messages on Electronic Gaming Machines (EGM) force a brief compulsory break in play during which information on session length and expenditure is provided on screen to the gambler. Player information displays (PIDs) are a voluntary feature, where gamblers can access similar information at any time. Palmer du Preez et al (2014) sought to understand the impacts on gambler behaviour of these technologies, as well as exploring the effects of EGM game characteristics and casino table game characteristics on gambler behaviour.

##### **3.1.1.1. Methodology**

The study used a mixed methods approach with three sequential phases of data collection:

- Phase One involved a literature review and focus groups to canvas gambler and industry staff opinions and observations in relation to the effects of game characteristics, PIDs and pop-up messages on gambler behaviour. Forty gamblers took part in six focus groups (including one Māori group, general community recruited groups and groups of current or former problem gamblers). A further three focus groups were conducted with gambling venue staff from pubs and casinos, and another two focus groups were conducted with problem gambling service staff. The Phase One gambler and service provider focus groups identified and discussed the impact and attractiveness of a range of key features both of EGMs (including PIDs and pop-up messages) and casino table games. Industry focus groups focused mainly on issues relating to PIDs and pop-up messages and gambler behaviour and experience. The focus groups provided information for the design of Phase Two in-venue observations on the type of EGMs that should be observed, and the game features and behaviours related to PIDs and pop-up messages that would be of primary interest.
- Phase Two was an in-venue observational study of the behaviour of 123 gamblers while using EGMs. The practical and theoretical focus for the observation drew from findings in Phase One.
- Phases One and Two directly informed a survey instrument used for a prospective six month longitudinal study of 521 venue-recruited gamblers in Phase Three. The game features highlighted in earlier phases as likely to be linked to important aspects of gambler behaviour were examined further, along with gamblers' exposure to, and use of, PIDs and pop-up messages.

Findings from all three phases were triangulated to inform the study findings overall.

### **3.1.1.2. Key findings**

#### *Findings of the literature review*

The literature review focused on the characteristics of games and their bearing on the kinds of interaction gamblers have with them (such as the powerful effects that structural characteristics of EGMs have on acquisition, development and maintenance of gambling and problem gambling behaviour as well as aspects of table games affecting gambling behaviour). Findings indicated that, while risk factors relevant to the individual gambler do have an effect, gambling and problem gambling behaviour is essentially a function of cognitive factors that are affected by the speed and frequency of rewards within the games. This applies to both EGMs and casino table games. It supports the argument that the combination of breaking play and providing information, such as pop-up messages on EGMs, could reduce harmful gambling, suggesting that the PIDs and pop-up messages that have been introduced to EGMs in New Zealand are possibly efficacious.

The literature also suggests that pop-up messages that move quickly or are particularly dynamic may be effective at encouraging reflection on gambling and perhaps assist some problem gamblers to control their gambling. The exact nature of the information that would be most effective to provide in pop-up messages remains less certain.

#### *Findings from gamblers' experiences*

Focus group results combined with survey findings showed that the social nature and perceived control linked with casino table games were associated with loss of control over time and money spent gambling. Gamblers who preferred table games to EGMs tended to view them as providing better value for money, taking longer to play and providing more of an experience. Those for whom a croupier is important spent consistently more time gambling over the survey period.

The focus group and survey phases found free spins and jackpots on EGMs were both associated with loss of control over time and money spent gambling. Evidence suggested that free spins, small frequent wins, low denominations and multiple lines operated together to disguise losses as wins, and encouraged gamblers to continue to play beyond their intended time in anticipation of the highly desirable free spins.

EGM gambling (and the EGM environment) was identified as potentially being more attractive to people who are, to some degree, socially isolated. It was not clear from the results however whether gamblers tend to gamble more because they are socially isolated, or gamblers tend to become socially isolated because they gamble more. The study found it was reasonable to assume that some people gamble on EGMs as a method of addressing their lack of social support.

PIDs did not seem to impact on gambling enjoyment for the majority of gamblers in any phase. The report suggested the voluntary aspect of the PIDs feature played a role here. Survey and focus group results suggested that some gamblers may have used PIDs as part of analytic play strategies. For a small number of problem gamblers there might be unintended consequences of PIDs.

#### *Influencers of control*

Pop-up messages were reported to aid control over time and expenditure by approximately one quarter of the gamblers surveyed who were aware of the messages. Reported impacts of pop-up messages in the survey generally had no effect on total time spent gambling, however. Survey participants who reported they would likely stop gambling or consider their gambling in

response to a pop-up message tended to spend less money gambling overall. Results from all three phases showed that the information presented in pop-up messages is attended to by gamblers. Therefore, pop-up messages may be used to support gamblers in making informed choices on whether to continue gambling.

There was little or no evidence that the compulsory pop-up messages impacted on the gambling satisfaction of the majority of gamblers. The observations and survey results converged to suggest that where gamblers are exhibiting signs of annoyance or distress related to pop-up messages, this behaviour is not the norm and may be indicative of potential gambling problems.

### **3.1.1.3. Possible future research**

Future research areas and policy implications that could be further explored included:

- An ongoing focus on community development/strengthening and providing a range of alternative community-based entertainment and socialisation opportunities tailored to age group, living situation and ethnicity is a worthwhile notion to explore.
- What specific pop-up messages or tailored PIDS content is most effective at helping gamblers control their behaviour?
- There was little evidence in the present research that venue staff were engaging with gamblers who may be experiencing problems. How can venue staff be encouraged to better identify and respond to potentially problematic gambling behaviour?

### **3.1.2. Exploration of the Impact of Gambling and Problem Gambling on Pacific Families and Communities in New Zealand (Bellringer et al 2013)**

Bellringer et al (2013) conducted research to:

- improve understanding of the impact of gambling on the health and wellbeing of Pacific families and communities (with a particular understanding that there are multiple Pacific ethnicities)
- inform understanding on risk and resiliency factors in relation to gambling, and
- improve understanding on the antecedents and causes of problem gambling.

#### **3.1.2.1. Methodology**

The methodology incorporated two phases.

1. The first phase involved in-depth examination of Pacific data collected for three past studies. Two of these were national studies and the third was a study that has been following Pacific children (and their parents) from their birth in the year 2000 to 2009.<sup>3</sup> The examination of data focused on Samoan, Tongan, Cook Islands and Niuean people.
2. The second phase involved 12 focus groups and 15 in-depth semi-structured interviews. The focus groups and interviews were conducted with Samoan, Tongan and Cook Islands participants. The focus groups were not ethnically separated. Participants included general community gamblers and non-gamblers (including young people aged 18 to 24

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<sup>3</sup> 1 - Assessment of the social impacts of gambling in New Zealand (2008) Centre for Social and Health Outcomes Research and Evaluation (SHORE), Massey University (Pacific data subset) 2 - Gaming and betting activities survey: New Zealanders' knowledge, views and experiences of gambling and gambling-related harm (2007) Health Sponsorship Council of New Zealand (Pacific data subset), 3 - Pacific Islands Families Study (PIF) (2000 to 2009) Centre for Pacific Health and Development Research, AUT University.

years), problem gamblers, significant others of problem gamblers and church leaders as well as gambling treatment providers and gambling venue staff. Some findings from this phase of the research have also been summarised in section 2.2.2.2 as part of a journal article (Urale et al 2014) that reported on findings from analysis of the focus group data.

### **3.1.2.2. Key findings**

*Religious, cultural and family obligations all lead to gambling decisions.*

Religion and the church were found to be very important in influencing whether Pacific people gamble. Church denominations differed in whether they endorsed any gambling, no gambling, or only gambling for fundraising purposes. Church leaders had different views on their role in guiding or intervening around gambling issues. Churches that did not allow gambling seemed to be a protective factor against problem gambling. This finding was problematized by the differing definitions churches had for whether certain activities constituted 'gambling' however (Housie for fundraising purposes, for example).

Gambling was perceived to be an easy way to make money by many participants. Migration issues were identified as placing a particular strain requiring funds to be raised for many participants. Changes in life circumstances, such as marital status, as well as co-existing behaviours including drinking alcohol, tobacco smoking and other mental health behaviours, impacted on gambling behaviour and expenditure. Change in marital status was identified as a predictor for mothers giving up gambling (both for mothers becoming single or becoming partnered). Mothers who lost employment also reduced gambling expenditure. The same factors did not hold true for fathers, but becoming depressed was a predictive factor for fathers to begin gambling. Taking up drinking alcohol was a predictive factor for starting gambling in mothers and fathers.

Focus group and interview participants expressed a strong cultural definition of what is considered to be gambling and what is not considered to be gambling among Pacific communities. Casino gambling and TAB gambling were considered 'gambling' but Lotto, Instant Kiwi and raffles were not. If the gambling was for the benefit of community or family it was considered not to be gambling. This differs from the European definition of gambling.

One of the more curious findings was the gender difference exhibited in the association of giving up drinking and giving up gambling. Taking up drinking alcohol was a predictive factor for starting gambling for both mothers and fathers in the study. However, for mothers, giving up drinking alcohol was associated with lower odds for giving up gambling whereas for fathers the converse was true, with giving up drinking alcohol being predictive of also giving up gambling. Additionally, fathers who gambled and gave up drinking alcohol reduced their mean weekly gambling expenditure by about seven dollars. These latter findings may be indicative of gender differences in reasons for gambling which would merit further study.

Generally, more negative impacts of gambling were noted than positive impacts by participants. Overall, the negative impacts of someone else's gambling were reported to be greater than the impacts of one's own gambling. Financial problems were a considerable negative impact of problem gambling and were sometimes masked, for example, by other family members helping a problem gambler's family by feeding them. Some ethnic and gender differences in relation to gambling behaviours and impacts were noted. One example of differences between ethnic groups shown by the study was the Cook Islands participants were more likely to participate in non-casino EGM gambling compared with Samoan and Tongan participants.

There was limited awareness of gambling help services for gamblers or families with Cook Islands participants being less likely to report knowing of the gambling helpline than the other ethnicities.

### **3.1.2.3. Possible future research**

Further areas for future research identified included:

- Would further study bear out the observation that Cook Islands participants in this research differed in several areas to the Tongan and Samoan participants?
- Do people of different Pacific cultures have different risk factors for problem gambling, and would they benefit from different support?
- What is behind gender differences in potential reasons for Pacific people gambling?

### **3.1.3. Youth Gambling: The health and wellbeing of New Zealand secondary school students in 2012 (Rossen et al 2013)**

Rossen et al (2013) presented findings on youth gambling from Youth'12, the third national health and wellbeing survey of secondary school students in New Zealand. The report also includes findings from the 2007 national survey, which was the first to include gambling items. The overall aim of the project was to:

- provide an accurate and detailed description of the gambling behaviour of secondary school students in New Zealand, including the impacts on young people of their own, peer and familial gambling, and
- describe risk and protective factors associated with unhealthy gambling behaviours and investigate changes over time for gambling behaviour.

#### **3.1.3.1. Methodology**

Youth'12 was a representative survey that involved 8,500 students (Years 9 to 13; 13 to 17 years of age) throughout New Zealand and included a wide range of questions about issues that contribute to the health and wellbeing of young people (such as substance use, injuries and violence, home and family) and risk and protective factors. For the purpose of this study, gambling was defined as having bet precious things for money on an activity. Rossen et al also conducted a literature review to provide an up-to-date summary and overview of national and international youth gambling and problem gambling literature, which informed the development of the project's data analysis plan and interpretation of results.

#### **3.1.3.2. Key findings**

##### *Participation*

Approximately 24 percent of students had gambled in the 12 months prior to the survey, and 10 percent had gambled in the previous four weeks. Rates were higher among males. The most common gambling activities were "Bets with friends or family", "Instant Kiwi (scratchies)", and "Cards or coin games (eg. poker)". Small, but statistically significant, decreases were observed in the amount of time and money that students spent on gambling from 2007 to 2012: the percentage of students who spent "\$20 or more per week" on gambling decreased from five percent in 2007 to 3.6 percent in 2012.

Students' attitudes, motivation and help-seeking were found to be mixed. Most students' who gambled reported usually doing so with friends or with family members. Approximately one-

third of students who had gambled (31 percent) indicated that gambling was not okay for people their age. The most common reasons for students gambling were to have fun, to win money, for a challenge, because they were bored, and for no particular reason (i.e., 'none of these responses'). Reasons for gambling were largely comparable across each wave of the survey. However, there appears to have been a decrease in the proportions of students who said that they gamble "to win money" (53 percent in 2007 and 32 percent in 2012) and "to get a buzz" (12 percent in 2007 and four percent in 2012).

#### *Problem gambling among young people*

Gambling appeared to be causing problems for some students. Despite age restrictions on certain modes of gambling, small proportions of students participated in activities that are illegal for their age group. For example, a number of students aged 16 years and under reported gambling on Instant Kiwi (n=529 students); Pub/club pokies (n=73 students); Casino tables/machines (n=57 students); and TAB betting (n=138 students). In total, 11 percent reported one indicator of unhealthy gambling (i.e., they had participated in gambling for reasons that centred on escapism and/or loss of control, gambled several times a week or more, had spent \$20 or more per week on gambling; gambled for one or more hours per day) and five percent reported two or more indicators.

The study also observed that youth gamblers have identifiable risk factors and important disparities. There were significant differences in gambling behaviour by sex and socioeconomic status. Males and students from more deprived neighbourhoods were more likely to be involved in gambling or be harmed by gambling.

Rates of gambling in the previous 12 months were similar amongst Māori, Pacific, Asian and New Zealand European students; however, Māori, Pacific, and Asian students generally reported higher rates of gambling related harm.

The study found that students with signs of unhealthy gambling were more likely to have a family member who had done something because of gambling that could have got them in serious trouble; usually gamble with someone other than friends or family members; have more accepting attitudes towards gambling; have gambled on pub/club EGMs, casino EGMs or tables, or TAB betting in the previous 12 months; and/or have attempted suicide in the last 12 months.

#### *Interventions*

Students reported that if they were to seek help from someone, it would most likely be their parents, followed by friends, school guidance counsellors, other family members, and finally, the gambling helpline. Approximately one-fifth (17 percent) said they would not look for help.

#### **3.1.3.3. Possible future research**

The researchers noted that it would be important to further develop and employ more sophisticated measures of hypothesised protective factors in future research. Other specific questions for further research identified by the authors included:

- Is there a need for further monitoring and enforcement around age-related legislation to ensure that minors are not gaining access to age-limited gambling activities?
- Does (unhealthy) youth gambling mainly occur within the context of multiple other health risks?
- Does (unhealthy) youth gambling mainly occur within the context of family gambling?

#### **3.1.4. An Investigation of the Influence of Gambling Venue Characteristics on Gamblers' Behaviour (Thomas, Mora and Rive 2012)**

Thomas, Mora and Rive (2012) investigated different aspects of the gambling environment, including the effect of venue design characteristics on both problem gamblers' and recreational gamblers' gambling behaviour. Specific aspects included the impact of gambling venue characteristics on:

- player satisfaction and enjoyment
- player behaviour
- player expenditure
- player awareness of their expenditure, time spent playing and control over gambling
- risk factors associated with onset or maintenance of at-risk and problem gambling, and
- the perceptions of self-identified problem gamblers on the characteristics that have influenced the development and severity of their problems with gambling.

##### **3.1.4.1. Methodology**

The methodology was a literature review followed up by empirical examination of different environmental factors in a New Zealand gambling context using Class 4 venues (and one New Zealand casino), focusing specifically on EGM gambling. There were three phases to the research:

1. Firstly, structured interviews were conducted with eight problem gamblers on gambling venue history and how preferences for specific venues changed as a problem developed
2. Phase Two was a pilot of the data collection phase that explored any required changes to the intended method.
3. Phase Three included the full data collection. There were four elements to this phase; measurements of the light, temperature and noise in eight pub or club type (Class 4) gambling venues, naturalistic observations of the gambling behaviour of 813 gamblers in these venues, a short on-site survey with some gamblers, and a longer off-site survey. The surveys allowed further evaluation of the physical, social and attitudinal elements that promote problem gambling in different venues.

##### **3.1.4.2. Key findings**

The literature review strongly suggested that a positive gambling environment increased the likelihood of patrons returning to gambling venues and influenced the length of time spent there. Design factors such as the aesthetics, accessibility of the layout, cleanliness and the decor were found to have an influence on the probability of consumers returning to the venue. Isolated gaming machines were found to deter controlled gambling behaviour. Music played in a higher tempo was found to increase the speed of betting. Flashing lights increased irresponsible gambling, with red lighting increasing gambling frequency in comparison to blue lighting. The literature review also found that social interaction was reported to have an effect on the behaviour of gamblers (gamblers appear to bet more when they perceive others in the environment to be doing well); a gambler's venue type history may also be strongly related to the development of gambling problems; EGM gamblers were seen as more susceptible to an onset of problems; people living in lower socio-economic areas are more likely than other people to be involved in EGM use outside of a casino environment.

The following were key findings from the empirical investigation:

- Noise from machines had a strong positive relationship with problem gambling, likely because of the escalation in machine noise that accompanies an EGM win. Noise was not seen to entice people into the gambling area however.
- Even with clocks being present on machines and in gambling areas, one in every three gamblers underestimated how long they were at the venue. Loss of sense of time also had a strong positive relationship with duration of play, a known indicator of problem gambling.
- Those gamblers who have positive social interactions with venue staff were less likely to be problem gamblers. There was already evidence of some success around staff interaction, with one in five gamblers having positive interactions with staff. That being said, greater numbers of visible staff correlated with increased problem gambling, possibly due to easier access to additional money.
- Participants that reported higher problem gambling were observed to switch between EGMs more often. About 58 percent of gamblers shifted machines, and problem gamblers were more likely to shift machines. The frequency with which someone gambles was a better indicator of self-reported problem gambling than the duration of each visit (44 percent of gamblers were at the same venue at least twice a week).

#### **3.1.4.3. Possible future research**

Areas for further research identified by Thomas, Mora and Rive included:

- The micro elements of design, such as lighting and layout, and their impact on behaviour need to be better understood. For example, what explains the finding that gambling behaviour in casinos laid out along gaming design principles are more affected by micro décor elements than those laid out in playground designs?
- What is the impact of air flow and oxygen levels in relation to gambling venues?
- Situations where when the room is enclosed within a small space and there is a high density of gamblers would be of particular interest.
- International research and local observations did not seem to agree on the impact of additional facilities on gambling behaviour. What are the effects of facilities such as ATMs and food availability on gamblers in gambling venues?

#### **3.1.5. Research to investigate the effects of gambling advertising, marketing and sponsorship on gambling perceptions and behaviour (Schottler Consulting, 2012)**

Schottler Consulting (2012) examined the marketing, advertising and sponsorship of gambling products and services within New Zealand. While some past research has examined the effects of advertising of other potentially harmful products on consumers, very little local research explored the effects of gambling marketing and advertising on the attitudes and behaviours of gamblers. As an exploratory study, the research was broad in focus and aimed to inform a diverse range of research questions. Given the limited available prior research, the study is considered to produce indicative, rather than definitive, findings.

### **3.1.5.1. Methodology**

The methodology was primarily qualitative and used three methods:

1. A literature review on the marketing, advertising and sponsorship of gambling products and services and a global scan, with a particular focus on Asian and Pacific nations, of guidelines and codes relating to gambling and general marketing and advertising.
2. Eleven focus groups were conducted with gamblers to explore the effects of gambling marketing and advertising.
3. A survey of 400 gamblers used an online research panel to further explore the effects of gambling marketing and advertising in a sample of non-problem and at-risk gamblers.

### **3.1.5.2. Key findings**

The research highlighted that advertising and marketing play a significant role in increasing the attractiveness of gambling opportunities to consumers. The study also suggested that many gambling products and activities would likely not be successful without advertising, as it plays a major role in driving the consumer urge to gamble. The only type of advertising which was not reported to increase the attractiveness of gambling was pokies venue signage.

#### *Advertising's influence of gambling behaviour*

Problem and at-risk gamblers reported some level of unplanned play due to pokies signage, but analysis of the study's survey findings indicated that this behaviour is probably infrequent and not the major cause of gambling problems. Sponsorship of gambling by poker machine trusts was not seen to particularly affect the attractiveness of gambling. Gamblers appeared to have a limited understanding of the nature of the trusts, and sponsorship played a limited role in a gambler's choice of gaming machine venue.

The study also explored ways marketing and advertising could potentially be used to create safer gambling environments. Numerous examples of tactics in marketing and advertising codes in other jurisdictions suggested standards for sponsorship and messaging that could reduce potential harm.

The most frequently viewed types of gambling advertising within New Zealand were found to be lotto advertising and casino advertising, followed by Instant Kiwi advertising. The study did not attempt to measure influence of advertising on participation, but the influence of advertising on gamblers spending more than they wanted to on gambling activities was examined. For New Zealand gamblers overall, the study found that most forms of gambling advertising had only a relatively conservative influence on gamblers spending more than they wanted to on gambling. While all effects were relatively small, casino advertising was reported to have the largest effect, followed by lotto advertising and pokies advertising. In comparison, scratch ticket and TAB advertising had the lowest overall level of influence.

#### *Awareness of advertising*

Participating in a gambling activity was seen to potentially prepare gamblers to be more aware of gambling advertising. Results of the study's survey of gamblers showed that respondents participating in a gambling activity reported seeing gambling advertising significantly more frequently than those who did not participate. In addition, a correlation was observed between awareness of gambling advertising and being at risk for problem gambling. This could not be proven to be a direct causal relationship, but was of interest to the study. Lotto advertising and scratch ticket advertising were exceptions, proving to not have the difference in awareness between problem and non-problem gamblers that other gambling activities had.

### *Impact of specific messages on participation*

The findings highlighted that gamblers focus primarily on the size of cash prize when evaluating the attractiveness of a lotto draw. The larger the cash prize, the higher the consumer attraction to purchase lotto tickets. Moderate risk and problem gamblers were also significantly more likely to purchase a ticket for all tested prize configurations, compared to non-problem gamblers. “Must Be Won” was found to be the most powerful of tested slogans with all participants. While results suggested that many gamblers would be likely to purchase a lotto ticket for “Must be Won” promotions, findings also indicated that at-risk gamblers would be particularly at-risk of spending more than they could afford on lotto purchases.

### *Impact of promotional strategies on gambling harm*

The research identified a wide range of potential ways for how promotional strategies could possibly influence gambling behaviour and create possible harm. For example, there was seen to be low informed consent about what was being purchased by many gamblers as many gambling advertising offers were misinterpreted by New Zealand gamblers, as prize values shown in gambling advertising were not always those available. Advertising content was seen to reinforce problem gambling risk factors. Some advertising materials reinforced superstitions or misperceptions about gambling, for example either playing up ‘lucky’ machines or games, or reinforcing the idea that gambling is non-random or influenced by expertise. Problem and at-risk gamblers tend to hold these misperceptions already, and harm could be caused by reinforcing or playing on them. Higher risk advertising included advertising which obfuscated the odds of winning, or prompted on-the-spot decision-making. Ranges of advertising effects that could potentially cause harm to gamblers were particularly reported for advertising relating to scratch tickets, TAB and Casinos.

### *Impact on Māori, Pacific and Asian people*

As part of the research, discussions were held with people of Māori, Pacific and Asian backgrounds about the use of cultural elements in gambling advertising. Māori, Pacific and Asian gamblers were not able to identify any current approaches to gambling advertising within New Zealand which they felt were culturally inappropriate or offensive. However, Māori and Pacific people were seen to be at higher risk of being influenced by gambling advertising which portrayed Māori or Pacific celebrities in advertising, stereotyped any particular ethnicities, reinforced common misperceptions that people of lower educational backgrounds may hold about gambling, or told stories of lower income people winning in gambling. Māori and Pacific gamblers reported the vulnerability of their communities to ‘low-priced’ gambling offers.

#### **3.1.5.3. Possible future research**

Schottler Consulting identified several areas for further research including:

- What are the effects and implications of big jackpot wins appearing to be disproportionately attractive for higher risk gamblers? How can jackpot wins best be structured to limit risk to higher-risk gamblers?
- There is considerable scope to better understand, and possibly quantify the effects of, the potential for advertising and marketing to create risk or lead to possible harm.
- Where and how should lotto points of sale best be placed to reduce the potential harm of unplanned – and possibly unaffordable – impulse buys?
- Does pokies advertising signage create problem gambling risk?

- What responsible gambling messages can best be used to balance gambling advertising and contribute to reducing potential gambling harm? How are they best used?

### **3.1.6. The Impact of Gambling and Problem Gambling on Asian Families and Communities in New Zealand (Sobrun-Maharaj, Rossen and Wong 2012)**

Sobrun-Maharaj, Rossen and Wong (2012) aimed to:

- meet a perceived gap in the body of knowledge on the issues and impacts of problem gambling on Asian families and communities
- assist with the development of effective primary prevention measures and policy initiatives
- explore and improve understanding of the roles of risk and resiliency factors in relation to Asian gambling, and their interactions with the health and wellbeing of Asian families and communities, and
- identify and explore similarities and disparities between the major Asian ethnic subgroups in New Zealand (Chinese, Indian, Korean, South-east Asian, Asian with a refugee background) for the gambling issues and factors noted above.

#### **3.1.6.1. Methodology**

The study adopted an ecological approach to exploring the impacts of gambling and problem gambling on the health and wellbeing of Asian families and communities within New Zealand and utilised an acculturation framework to assist with the analysis and interpretation of gambling-related experiences. An ecological approach is one that recognises multiple influences on health, and that individuals' behaviour may not necessarily be a direct and permanent response to their environment. Through a mixed methods qualitative design, data were gathered in four phases: review of literature; focus group discussions; individual interviews; and stakeholder group discussions.

Sixteen focus group discussions were conducted with stakeholders from each of the four major Asian ethnic groups in New Zealand and with Asians from a refugee background; 50 face-to-face interviews were completed with individuals across the five groups, and four focus group discussions were conducted with stakeholders in Auckland, Hamilton, Wellington, and Christchurch.

#### **3.1.6.2. Key findings**

The study observed that gambling amongst Asians is a complex issue that had to be understood within the wider social and institutional context in which Asians are live. Three main variables were seen as impacting Asian gambling in New Zealand: Asian culture, their settlement experience in a new environment, and the specific way they cope with their settlement experience in New Zealand. Problem gamblers were found to employ dysfunctional coping strategies to deal with settlement adversities. Adverse effects on the mental health and social and financial wellbeing of individuals, families and communities were all seen.

Significant similarities amongst the five ethnic groups include the following which may increase risk for gambling:

- Settlement, integration and social isolation issues.
- Acculturation issues such as power structure changes and intergenerational issues.
- Cultural beliefs and values such as superstition and “luck”. Limited gambling knowledge and awareness.
- Cultural beliefs and values such as stigma and face saving and spirituality and religion which may protect against gambling.
- Preference for gambling in a casino rather than pubs and playing table games rather than pokie machines.

Significant ethnic group differences the researchers identified included:

- Different groups varied in their reasons for migration and settlement expectations in New Zealand, which impacted gambling behaviours (for example skilled immigrants expect to find good employment and can experience settlement stress if those expectations are not met, whereas those with limited English who have migrated for lifestyle reasons may experience less stress).
- Gambling participation, gambling related harm and problem gambling prevalence were lowest amongst refugees, low amongst Southeast Asians and South Asians, and apparently more amongst Chinese, Koreans and international students, perhaps because they had more resources.
- English language proficiency was related to gambling behaviour; those with limited English experienced greater integration difficulties and were more at risk of gambling related problems.
- South Asians were apparently more willing to talk about problem gambling, and Chinese were less willing.
- The groups differed in expressing preference for service providers that were designed or intended for their specific ethnicity or culture, or whether they preferred generic services. There were also differences within ethnic groups in this regard.
- Some gender differences were observed within groups: women were more involved in problem gambling in Southeast Asian and Refugee groups.
- New immigrants were at greater risk for gambling, and older immigrants who were more integrated had less risk.

#### *Strategies for enhancing resilience*

Potential strategies for enhancing resilience, and other variables that protect against problem gambling, identified by the study included: utilising cultural strengths, building trust, normalising help-seeking, educating Asian communities about the dangers of gambling, and creating a supportive social and institutional environment for Asian immigrants. Sobrun-Maharaj, Rossen and Wong found a number of ethnic similarities and differences that impacted on gambling behaviour.

### **3.1.6.3. Possible future research**

Areas of further research identified:

- What is the particular role and impact of online gambling for Asian gamblers? What is the potential for information and interventions to be disseminated via technology (e.g. mobile phones, internet, social networking etc)?
- How can trust amongst Asians, especially the Chinese community, be built in order to de-stigmatise gambling-related issues, normalise help-seeking and improve their participation in problem gambling services?

### **3.1.7. The Impacts of Gambling for Māori Families and Communities: A strengths-based approach to achieving whānau ora (Levy - Report still in Draft)**

Levy (in draft) conducted a study to improve understanding of the impacts of gambling on the health and wellbeing of Māori whānau and communities, within the context of whānau ora. Whānau ora explicitly prioritises the collective wellbeing and autonomy of whānau. Fundamental to whānau ora is the understanding that the collective wellbeing of whānau is impacted on, and influenced by the wellbeing of each individual whānau member. As such the outcomes of this research are intended to inform the development of strengths-based approaches to whānau ora as an intervention strategy for problem gambling.

#### **3.1.7.1. Methodology**

This research was underpinned by principles of kaupapa Māori research, and used qualitative methods and photovoice techniques. Photovoice is a participatory approach to working with research participants to help them express their experiences by taking photos that represent their community or point of view. The pictures and their narrative are then discussed at a focus group session. The researchers felt this technique particularly suited this project as a collaborative, participatory and empowering data collection tool, allowing people with traditionally little voice to identify, represent, document and discuss their life.

A literature review was undertaken to examine the context of gambling in Aotearoa as it applies to Māori communities, including participation, modes, deprivation and problem gambling statistics. The impacts of gambling on Māori communities, both negative and positive were explored, alongside an ecological analysis of risk factors for problem gambling in Māori communities with a focus on access and availability, inequity and disadvantage, and the relationships which exist between them. The concept of resilience is also explored from an ecological perspective, with a focus on the role of social capital in addressing impacts of gambling for Māori communities.

Following the literature review, data was collected through Nine Community Group Focus Groups, nine Whānau Photovoice Focus Groups and two Community Wānanga from July 2011 to September 2012. Overall a total of 130 people participated, with 42 being male, 88 being female.

#### **3.1.7.2. Key findings**

##### *Understandings of gambling and problem gambling*

Participants understood taking a risk or a gamble to result in uncertain outcomes, with the potential for negative consequences. Some participants considered that taking a risk involved taking advantage of opportunities, and unlike their view of taking a gamble, was not solely

related to chance. Some participants were reported as believing risks were a part of everyday life choices, with gambling a factor in many life decisions.

Most participants were reported as characterising problem gambling by a lack of control, with different motivations to normal gambling. The presence of negative consequences, particularly financial and those which impacted on whānau, also characterised problem gambling in the view of participants.

Harm from problem gambling was seen as interrelated and not limited to only the individuals who gambled. Whānau were identified as being significantly harmed by gambling, particularly financially. Whānau cohesion was also seen to be affected by the harm of problem gambling. Participants also identified a range of harms which they saw as impacting specifically on a gambler's identity as Māori including loss of mana, wairua, and spiritual wellbeing.

The perceived benefits of gambling for whānau and communities were the funding received by community groups. Specific forms of gambling, such as housie, card games and raffles, provided important benefits in terms of fundraising opportunities. Benefits to Māori as a result of gambling were seen as very limited, however, with most benefits seen to go to businesses where gambling machines were located, or gamblers who won.

#### *Reasons for gambling and participation*

Reported motivations to gamble included beliefs in relation to the 'big win'; only spending a little money; being able to beat the system; seeing 'signs'; hope; and having nothing to lose. Participants perceived a potential immediate financial reward to address their whānau financial situation. Some people thought enjoyment, particularly in relation to socialising and relaxing, was motivating. Similarly, emotional relief from stress, relationships and pressures of daily life were reported. Several participants gave examples of how gambling was an intergenerational activity for some whānau. This was primarily in the context of communal gambling activities in which multiple generations would be present, although not necessarily participating in the gambling itself. The addictive gambling cycle and the easy accessibility of gambling opportunities were also commonly cited motivations.

Electronic Gaming Machines were identified as deliberately isolating people from their whānau and social connections. Deliberate strategies were identified to make people aware of the presence of EGMs, such as lights, jackpots, and sounds. Participants also identified deliberate incentives to encourage people to gamble on EGMs, such as loyalty cards, and discounts for food and drink. EGMs were popular because they required a low skill level and small investment to play.

#### *Strategies to support resilience*

The report's findings related to 'Building Whānau Strength' came primarily from analysis of the data produced through photos taken by participants, for which they were asked to take images they considered important in keeping whānau strong. Whānau strength derived from strong family foundations, close connections and the collective resources of whānau. Resources outside of the whānau which could offer support, including seminars, helplines, specialist problem gambling programmes, and health promotion agencies also played a role in strengthening whānau. Mana Tūpuna, Whakapapa, and Mana Whenua were seen as central to whānau strength and resilience, providing identity and acting as repositories of knowledge able to help with whānau healing.

### **3.1.7.3. Possible future research**

The report strongly encourages further development of strengths-based approaches to whānau ora as an intervention strategy for problem gambling. Levy emphasises that gambling should be considered as an activity which is embedded within multiple social, cultural, and economic contexts, if the impact of gambling in Māori communities is to be addressed. It may also be worth exploring the causal relationship between emotional vulnerability and problem gambling.

### **3.1.8. An exploratory study examining pre-commitment in New Zealand (Schottler Consulting – Report still in Draft)**

Schottler Consulting examined self-reported New Zealand gambler attitudes and behaviours relating to pre-commitment. Pre-commitment is defined as providing a tool to gamblers to enable the setting of money or time limits prior to commencement of gambling. It has also been researched internationally as a potential tool to minimise the harms of gambling, the harms of gambling on EGMs in particular.

#### **3.1.8.1. Methodology**

The study's methodology involved qualitative and quantitative research, which was purposely broad in focus and aimed to inform a diverse range of research questions. There were three main phases of work:

- a literature review of research on pre-commitment
- eight qualitative focus groups with at-risk gamblers
- a quantitative survey of 401 gamblers (using a commercially available research panel with a sample of ~100 surveys of gamblers of New Zealand European, Māori, Pacific and Asian backgrounds – weighted to the adult population of New Zealand gamblers by age, gender, ethnicity and risk for problem gambling).

The research did not aim to present a definitive view on pre-commitment.

#### **3.1.8.2. Key findings**

The key findings of the research highlighted that many gamblers in New Zealand already set pre-commitments for their gambling on a psychological level. Attempts to pre-commit were significantly higher in problem (mean=3.3/5), compared to non-problem gamblers (mean=2.7) (based on a scale from 1=never to 5=always). However, in spite of more frequent attempts to pre-commit, problem gamblers also reported exceeding their limits at a much higher rate than non-problem gamblers (mean=3.2 versus 1.6). This finding was consistent with findings of the literature review.

Most New Zealand based gamblers appeared to think 'short term' about the limits they set. The most common type of limit observed for lotto gamblers was weekly limits (41 percent), daily limits were typically the norm for most other main gambling activities including for scratch ticket gamblers (45 percent had daily limits), EGM gamblers (54 percent had daily limits), TAB gamblers (52 percent had daily limits) and table game gamblers (50 percent had daily limits). Longer time frames, such as monthly limits, were rare and used by only 15-28 percent of gamblers (depending on the activity). Problem gamblers were significantly less likely to set their spend limits before they went gambling.

The gamblers surveyed were generally quite positive about the concept of voluntary pre-commitment tools that would assist consumers to set and keep to their pre-commitments while gambling. 82 percent of all EGM gamblers supported limits for pokies play (including 86 percent of non-problem gamblers and 75 percent of problem gamblers). 84 percent of all TAB gamblers felt limits should be offered for TAB betting (including 85 percent of non-problem gamblers and 78 percent of problem gamblers). 72 percent of all table game gamblers felt that table limits should be offered for casino table games (including 83 percent of non-problem gamblers and 67 percent of problem gamblers). Qualitative research through focus groups, however, showed that lower support was provided for additional limits (or tools) to be implemented for lotto or scratch tickets.

When asked about the concept of mandatory limits for gambling, only 33 percent supported mandatory pre-commitment. Problem gamblers were more likely to endorse mandatory pre-commitment, with 56 percent supporting the concept, compared to only 41 percent of non-problem gamblers. Up to 30 percent of problem gamblers and 27 percent of moderate risk gamblers (17 percent of non-problem gamblers and 18 percent of low risk gamblers) reported that they would set a very high, unaffordable amount as their limit to avoid being blocked from gambling. This finding was consistent with findings of other pre-commitment studies, suggesting that mandatory pre-commitment may be associated with some unintended consequences.

The researchers found that actual intentions to use pre-commitment among gamblers were less positive than attitudes towards the concept. Only 15 percent of all EGM gamblers, 15 percent of TAB gamblers and 10 percent of table game gamblers indicated that they would 'definitely' use pre-commitment. Problem gamblers were significantly more likely to report positive intentions to use pre-commitment for all activities, when compared to non-problem gamblers.

When the study examined the unique influence of gambler ethnicity on study results, the analysis frequently showed that risk for problem gambling – rather than ethnicity itself – explained most findings. The researchers were not sure whether this finding resulted from small available samples (and associated low statistical power), or whether it meant the extent to which ethnicity uniquely influences gambling attitudes required further exploration.

### **3.1.8.3. Possible future research**

Given the exploratory nature of the study, additional research was recommended to further understand key issues and findings in more depth.

### **3.1.9. Effectiveness of Problem Gambling Brief Telephone Interventions: A Randomised Controlled Trial (Abbott et al 2012)**

Abbott et al (2012) conducted an RCT of three brief telephone interventions (relative to standard gambling helpline treatment and each other) to:

- address the lack of much existing local and international evidence base on the effectiveness of such interventions (brief motivational interviews and self-help workbooks – included in this RCT – had been examined previously in North American efficacy trials and are among only three forms of psychological intervention that are considered, on the basis of research to date, 'possibly efficacious' in the treatment of problem gambling)

- see how Gambling Helpline standard care outcomes compared with those from the two previously examined treatments, and
- identify subgroups of clients who do better with different types and intensities of intervention.

The Gambling Helpline standard service trialled was also the subject of the Uncontrolled Outcome Study report summarised in 3.1.10.

### **3.1.9.1. Methodology**

The study was designed as a single-site RCT. Participants were 462 first-time Gambling Helpline callers who met basic eligibility criteria relating to age (18 years or over), perceived problem gambling, and willingness to participate. Participants were randomly assigned to four equal sized groups, each to receive a different treatment, either:

- Gambling Helpline standard care, or
- Single motivational interview, or
- Single motivational interview plus cognitive-behavioural self-help workbook, or
- Single motivational interview plus workbook plus four follow-up motivational telephone interviews.

Callers could choose their own treatment goal (quit some or all forms of gambling, or control their gambling). The primary outcome measures were self-reports of days gambled, money lost gambling and treatment goal success. Secondary outcome measures looked at included problem gambling severity, control over gambling, gambling impacts, psychiatric comorbidity, general psychological distress and quality of life. Initial assessments were conducted by helpline counsellors prior to participants receiving a randomly allocated intervention. Further information was collected by research staff, blind to treatment allocation, within seven days after the telephone intervention and the primary and secondary outcome measures were generally repeated at three, six and 12 months post-intervention.

All Gambling Helpline counsellors involved in the trial were trained to reliably and consistently deliver motivational interviews, the standard Gambling Helpline intervention and follow-up booster sessions. Most of the 462 participants (n=451) received the applicable, randomised intervention, although only a minority of those in the fourth group received all four booster sessions (n=39). Overall trial retention was 81 percent, 74 percent and 64 percent at three-, six- and 12-months respectively, with participant retention varying slightly across the four interventions.

### **3.1.9.2. Key findings**

This study demonstrated that brief motivational interventions can be readily integrated into the everyday operations of an existing problem gambling helpline. Participants in all four intervention groups evidenced statistically and clinically significant, sustained improvement on the three primary outcome measures. Substantial improvement was also found for problem gambling severity and other measures including self-ratings of control over gambling, gambling impacts on work, social life, family and home and health, psychological distress, major and minor depression and quality of life. Little or no change was evident with respect to alcohol misuse and tobacco use. These interventions would likely perform well in other services that provide clinical assistance to problem gamblers. Prior to the RCT, efficacy of such interventions had only been demonstrated in trials involving volunteers, recruited via advertising and conducted by research teams led by the person who developed the interventions.

There were no significant outcome differences between the motivational interview and the Gambling Helpline standard care interventions, which fitted with the researchers' hypotheses. Contrary to their expectations, participants in the more intensive interventions (those with workbooks and booster session follow-ups) did not have better outcomes on the primary outcome measures than those in the first two intervention groups.

Although there were no significant primary outcome differences between participants in each of the treatment groups overall, particular subgroups of participants, including those with different treatment goals and problem severity, did significantly better with some interventions than with others. Usually these differences were evident for only one or a few outcome measures, like:

- In most cases the participants receiving the workbook and booster sessions had significantly better outcomes than their counterparts (those participants with the same characteristics or baseline position) receiving a motivational interview alone. Motivational interview participants with lower levels of belief in their success in achieving their treatment goal did worse on one outcome measure than those receiving the standard Gambling Helpline service. In this case, those in the more intensive treatment option (the group with booster sessions) had better outcomes than their motivational interview only counterparts.
- Participants who, at the baseline assessment, had more serious gambling problems or whose goal was to control or reduce, rather than quit, gambling had better outcomes in the group with booster sessions than in the standard service or motivational interview groups. Similarly, participants in the booster session group with higher levels of psychological disorder and lower alcohol misuse levels had better outcomes in relation to money lost gambling or having quit or improved control over gambling.
- The only finding related to ethnicity was that Māori in the booster session group showed greater improvement in money lost gambling (i.e., they lost less money on average) at the 12-month assessment than Māori in the motivational interview alone group.

### **3.1.9.3. Possible future research**

The study design did not allow determination of the various therapy components that contributed to the significant positive outcomes, across a range of gambling and other measures, or provide a clear indication of why similar outcomes were generally achieved in the four intervention groups. Identification of the major ingredients of effective gambling treatment remains an important object for further investigation. Other possible further research questions included:

- Can the finding that some client groups do better with particular types or intensities of intervention be replicated and expanded on?
- Would further differences in treatment response be found over time, for participants overall in each of the treatments or for subgroups within these treatments?

Would including cost-benefit analysis in future studies assist in making decisions regarding the incorporation of these and other evidence-based interventions into existing services and their optimal application to different client groups?

### **3.1.10. Effectiveness of problem gambling brief telephone interventions: An uncontrolled outcome study (Abbott et al 2013)**

Abbott et al (2013) conducted an uncontrolled outcome study to:

- ascertain whether there are differences in outcome between problem gamblers who only access telephone care, and those who also access professional counselling or therapy services additional to the initial telephone intervention, and
- identify client characteristics associated with treatment outcome.

This study was a subset of (but conducted separately from) the randomised control trial (RCT) of four different interventions to be delivered by the national Gambling Helpline, detailed in 3.1.9, and only looked at standard Helpline care (i.e., not the other forms of intervention in the RCT).

#### **3.1.10.1. Methodology**

The methodology involved a literature review to examine outcome studies and case studies relating to various treatment types in treating problem gambling. It then involved callers to the Gambling Helpline who met basic eligibility criteria relating to age, perceived problem gambling, and willingness to participate being invited to take part. These participants received brief, non-directive counselling to identify presenting concerns and establish rapport. A total of 150 callers were recruited as participants (116 of whom were participants in the RCT). Participants were followed for 12 months. They received a baseline assessment and then received the Helpline's standard care (the service was "manualised" to ensure standard delivery to all participants), which included brief screening, reflective listening to clients' concerns and, in the case of first-time callers or regular callers who were experiencing persistent difficulties, referral to face-to-face problem gambling counselling services or suggestions for self-care. Study participants identified their own treatment goal (whether to quit some or all forms of gambling, or to control their gambling). The main outcome measures looked at were self-reports of days gambled, money lost gambling and treatment goal success (the primary outcomes) and problem gambling severity, control over gambling, gambling impacts, psychiatric comorbidity, general psychological distress and quality of life.

While Abbott et al note considerable variability in the approach that face-to-face counsellors took, all Gambling Helpline counsellors involved in this study received extensive training before the study began, and their performance before and during the study was assessed for compliance and consistency. Variance in face-to-face intervention approach was beyond the scope of the study.

#### **3.1.10.2. Key findings**

The literature review identified the need for more robust research on intervention effectiveness, due to the lack of strong evidence pointing to any one of various treatment forms being significantly more effective than any other. It noted that the array of treatment services available across New Zealand meant that those participants who followed the Gambling Helpline service with face-to-face counselling would have encountered different intervention modalities, with potentially different but unknown effectiveness, which may have impacted the results in an unknown way.

The research identified two key areas of findings:

1. Clients improved substantially, both in statistical and clinical terms, with respect to problem gambling and some associated mental health problems, and most improvements occurred in the first three months, and were sustained at the 12-month assessment. They

were achieved even though most callers received only one Helpline call and did not access other, more intensive, gambling counselling or therapy. For the most part, clients showed fairly similar overall gains, irrespective of socio-demographic and other background differences.

2. Engagement in additional gambling treatment was not associated with better treatment outcome (although this does not mean that these services are not of value). Possible explanations could be that most clients who do not perceive a need for additional professional assistance do not require it, and that those who do perceive a need, obtain it and benefit. This could explain why there are generally no differences between those who do and do not receive additional therapy.

*Changes to problem gambling severity, psychiatric comorbidity and general psychological distress following intervention*

The outcomes study found substantial improvements in the primary outcome measures from baseline to three months, on both the 3- and 12- month timeframes, with these improvements being maintained at six and 12 months. Improvement in problem gambling severity measures was also noted at three months, and maintained at 12 months. Following receipt of the intervention, participants reported substantial reductions in the adverse impacts of gambling on work, social life, family/home and physical health. Most improvement occurred between baseline and three months with little change subsequently. At baseline, 96.6 percent of study participants met the PGSI criteria for problem gambling and 3.5 percent for moderate risk gambling. At 12 months, 57.5 percent were assessed as problem gamblers, 25.5 percent as moderate risk and 17 percent as non-problem or low risk. A similar pattern was found with respect to psychological distress. At baseline, 56 percent were in the clinically significant high distress category. This reduced to 12.5 percent at three months and remained slightly below this percentage at six and 12 months. Notable changes were also apparent with respect to mood disorders. There were slight reductions in smoking across the four assessment points and alcohol abuse/dependence from baseline to six months (however, at 12 months the alcohol dependence figure rebounded slightly). While most participants did not report other drug misuse problems, those indicating moderate or serious problems reduced from 12.3 percent at baseline to two percent at 12 months.

Participants who accessed formal gambling treatment services following intervention were somewhat more likely to report a reduction in time-averaged mean number of days gambled per month over the follow-up assessment period. In contrast to number of days gambled, no association was found between the uptake of formal gambling treatment services and time-averaged mean change in money lost gambling per month. In the study's multivariate analyses, baseline problem gambling severity (PGSI-12) was the only statistically significant predictor of change on this outcome measure. Participants with high scores (more serious gambling problems) improved less.

Participants who had higher belief in treatment success at baseline were more likely to have somewhat larger improvement in time-averaged self-assessment of control over gambling. On the other hand, those who perceived a high level of difficulty in overcoming their gambling problem had somewhat less improvement on this outcome measure. Participants who scored as having a low quality of life at baseline also improved less, as did those who had received treatment for a mental health problem in the past year. None of the various factors examined in relation to time-averaged, self-assessed treatment success (gambling-quit or improved) reached statistical significance in univariate and multivariate analyses.

Treatment goals for some participants in the study changed during the 12-month follow-up period, with a slight increase in people wanting to gamble in a controlled manner rather than quit all gambling altogether.

#### *Service delivery and treatment uptake by study participants*

During the first three months of the follow-up period, a third of participants reported receiving assistance for their gambling problem from a professional treatment service, with slightly more than another third obtaining informal support from family/whānau, friends, work colleagues or non-treatment professionals. Both professional and informal assistance reduced at each subsequent assessment point. At 12 months, the corresponding figures were 19 percent and 25 percent. There did not appear to be a clear preference for treatment provider and some sought help from more than one source.

The study found that males were significantly more likely than females to take up formal treatment during the first three months post-intervention (41.5 percent versus 22.1 percent). In the case of males, this applied irrespective of whether they had, or had not, previously received treatment for a mental health problem. Females who had previously received treatment were more likely to seek professional gambling treatment than females who had not previously sought treatment. None of the other socio-demographic variables including area of residence predicted uptake of treatment. Participants who had received treatment for a gambling problem and those who had received treatment for another mental health problem during the past 12 months were also more likely to engage in counselling or therapy during this period.

A large number of factors were found not to be associated with receiving formal treatment, including primary problem gambling mode (EGMs versus other); various indicators of problem gambling severity, impact and duration; motivation to overcome gambling problem; treatment goal; level of belief in treatment success; and perceived difficulty in overcoming problems. Similarly, the various measures of psychological distress, mental health disorder, substance use/misuse, suicidal ideation, quality of life, and prior treatment for an alcohol or drug problem in the past 12 months did not predict treatment engagement.

#### **3.1.10.3. Possible future research**

Abbott et al (2013) identified several areas requiring additional or supplementary research:

- Little change was evident for tobacco use and alcohol misuse: how else could these problems be addressed – would extending Helpline services, or further encouraging referral to specialist services, help?
- While most participants achieved similar outcomes, there were some client characteristics that were associated with better or worse outcomes on some measures that could merit further exploration: is there a link between poorer outcomes for problem gamblers who play machines in pubs, rather than in casinos, and who live in high deprivation areas?
- Further research is recommended to assist in the matching of clients to follow-up services: how effective are face-to-face gambling services in New Zealand and their outcomes?

### **3.1.11. Final Report on Problem Gambling Research: Delivery of Problem Gambling Services to Prisoners (McKenna et al 2013)**

McKenna et al (2013) examined problem gambling interventions in New Zealand prisons.

#### **3.1.11.1. Methodology**

The project adopted a mixed-methods approach, and consisted of four phases:

1. Phase 1 was a literature review to ascertain current academic understanding of the provision of problem gambling services in prisons internationally and locally.
2. Phase 2 included a stock-take and review of national, regional and local prison-specific policies for problem gambling interventions, to understand what the Ministry of Health and Department of Corrections policies are in this area.
3. Phase 3 was case studies of problem gambling services in two prisons, to provide an in-depth examination of problem gambling services within prisons which could then illuminate themes and issues relating to:
  - a. The context of problem gambling counselling and/or intervention service delivery;
  - b. Local, prison specific policies that relate to the provision of problem gambling and addiction services to prisoners;
  - c. Implications of local policies for delivering problem gambling services in these settings;
  - d. Prison staff and service providers' views of service delivery, including strengths and barriers to effective service provision; and
  - e. Exemplars of best practice.
4. Phase 4 was a national survey to assess prison staff and problem gambling service providers' views and opinions on the delivery of problem gambling services in correctional facilities throughout the country.

#### **3.1.11.2. Key findings**

*Interventions in a prison setting are efficacious*

Most of the existing evidence base for problem gambling service provision in prisons is based on individual case studies, and therefore is site-specific. Emerging themes considered by McKenna et al to be encouraging for future development of services included cognitive behavioural therapy (CBT), which was most commonly cited as efficacious in the treatment literature. The literature also suggested that any form of intervention for problem gambling in prisons was beneficial, with even brief or incomplete interventions resulting in some degree of behavioural change, although the increased likelihood of success of interventions at multiple stages of a prisoner's incarceration was also identified. Compared to problem gamblers in the general population, problem gamblers in prison appeared to have more comorbidities or compounding issues, such as lower educational and socioeconomic status, personality disorders, or alcohol and other drug related difficulties. New Zealand research was cited for identifying a need for gambling interventions to address specific cultural needs.

The review of the Ministry of Health and the Department of Corrections' policies identified consistency in preventing and minimising gambling related harm in prisons throughout the country. However the researchers also reported some discrepancies between these national policies and the services provided by individual prisons and service providers.

McKenna et al (2013) developed a framework to describe the provision of problem gambling services for prisoners, and report on their findings from the case study and survey phases. Four interrelated components were identified: screening and preliminary assessment; referrals; interventions; and follow-up.

#### *Screening for problem gambling severity and referral to treatment*

The Problem Gambling Severity Index (PGSI), known as the NINE (G9), was identified as pivotal in screening for problem gamblers. Usually screening was done by probation officers during standard pre-sentence assessment. There was general recognition that the NINE was easy to use and quick to apply. However, both prison staff and problem gambling providers indicated that the NINE failed to detect problem gambling for a significant number of prisoners. Solutions were proposed to improve detection by using the NINE throughout the prisoner's sentence, but it was emphasized that the NINE is a screening tool only, which should initiate the gathering of more information to enable the more detailed account of problem gambling and associated needs. The study also indicated that there was opportunity to improve the collaboration between prison staff and problem gambling providers.

The official process of referral to problem-gambling services is standard in all prisons and is primarily organised by prison staff. There appeared to be some deviation from national Department of Corrections' policy towards prison-specific processes, but the researchers noted that this part of their research was hampered by a number of 'don't know' responses to the survey. Problem gambling service providers also had a limited understanding of the referral process and felt disconnected from it. However, they expressed concern that the existing referral system missed some problem gamblers and in some cases there was a lack of communication about the results of screening procedures.

The specific intervention delivered to referred prisoners is for the service providers to determine. The study found that both prison staff and service providers agreed a general health education approach should be considered as a cost effective and appropriate method of addressing the problem gambling among the prisoner population. The study also emphasized that education would need to be combined with targeted interventions for problem gamblers, however. Another intervention finding noted that remand prisoners in New Zealand are not involved in problem gambling education or interventions, yet international research has indicated that this period of high stress is well suited to address problem gambling.

#### *Prison staff education*

Some prison staff were found to have limited knowledge of the specifics of the interventions being provided, which could affect their ability to be proactive in facilitating referral to such services. McKenna et al thought there was a need for education of prison staff on problem gambling. Similarly, they thought service providers could benefit from education on the links between screening, referral, service provision and follow-up, so that prison and provider staff understood the entire process and could facilitate the responsibilities of each other.

#### *Support following release from a correctional facility*

Prisoners released under parole board conditions were monitored by probation officers to ensure specified parole conditions, which may include criteria relating specifically to problem gambling, were adhered to. This report highlighted that the majority of prisoners serving less than a 2-year prison sentence had no such provision for systematic follow-up to address problem gambling needs. The report recommended that problem gambling service providers be involved in pre-release assessments and planning.

### **3.1.11.3. Possible future research**

McKenna et al (2013) identified that many prison staff survey responses indicated that they did not know if problem gambling interventions were effective or efficient. Further research to explore the reasons for this could be completed and may answer the question as to whether interventions have a better chance of success if prison staff knew more about them.

### **3.1.12. Evaluation and Clinical Audit of Problem Gambling Intervention and Public Health Services (Kolandai-Matchett et al - still in draft)**

Kolandai-Matchett et al (in draft) conducted an evaluation and clinical audit to assess the effectiveness of four Ministry-funded problem gambling intervention services (Brief Intervention, Full Intervention, Facilitation Services, Follow-up Services) and five public health services (Policy Development and Implementation, Safe Gambling Environments, Supportive Communities, Aware Communities, Effective Screening Environments). The research was commissioned to assess whether providers were achieving what they were contracted to achieve. The researchers considered elements of cultural practice, service delivery and quality; data management; and staff, allied organisations and service-user perspectives.

#### **3.1.12.1. Methodology**

A mixed-methods evaluation was used to collect and analyse quantitative and qualitative data. A review of national and international literature published between 2002 and 2014 was conducted to identify international best practice examples and appropriate evaluation methods. Six-monthly progress reports submitted to the Ministry by 20 problem gambling public health service providers between July 2010 and June 2013 were analysed for content, trends and best practice examples. Surveys were conducted with staff (n=64), clients (n=148) and allied agencies (n=42) of eight Ministry-selected providers to gain their perspectives on activities, outputs and outcomes of services delivered. Three focus group interviews (comprising eight to nine individuals) were carried out with staff and managers involved in delivering public health and intervention services from the eight selected organisations. Client Information (CLIC) database information submitted (M=1,840 client-sessions/month) by 19 intervention service providers between July 2010 and June 2013 was analysed to determine key trends in service delivery.

In the clinical audit, each of the eight providers' level of compliance was determined against their contract with the Ministry of Health, Health and Disability Service Standards, and other best practice guidelines. The auditors visited each provider, interviewed its staff and clients, and reviewed documentation to assess if providers had fully complied, partially complied, or did not comply with aspects relating to service delivery and quality, clients rights and cultural perspectives.

In the analysis and reporting process, triangulation was then used to compare and contrast findings from the various evaluation data sources and clinical audit observations.

#### **3.1.12.2. Key findings**

The evaluation and clinical audit produced a large number of findings related to the evaluation criteria and objectives of the research, which included quite a number of operational and service specification elements. Here we have summarised only those findings of most relevance to intervention service planning (rather than anything related to provider management).

### *Operational processes and service specifications*

The research found that staff believed that their organisations were effective in using allocated staff for delivering services. Staff also perceived that their organisations were effective in using purchase unit funding for delivering services, but a few suggested the need for additional funding to support some areas. Staff perceptions about existing knowledge and training suggested effective workforce development, but the audit process identified workforce development as an area of partial compliance. Almost a quarter of staff felt there was not enough time to complete the tasks required, challenging their ability to meet public health service outcomes.

### *Problem gambling intervention services*

Over the three year period of data the study looked at, most clients of service-providers were self-referred, rather than referred by external agencies. Of those clients that were referred, most were referred from other problem gambling services, followed by the Justice sector. Information from CLIC showed annual peaks in the number of brief interventions, suggesting an association with events where services were promoted. Provider staff suggested that self-referred clients had better outcomes than those who were compulsorily referred, who were less committed and less motivated to change.

EGMs were the most commonly cited primary mode of harmful gambling by people seeking help, but Pasifika providers had high numbers of Lotto gamblers as well. Overall two thirds of clients seeking help were gamblers, with the remaining third being significant others of gamblers. There was an even gender split of service clients, but there were fewer gambler clients who were female, and more female significant other clients than male.

Staff and clients considered that operational processes of the services ensured clients' general needs as consumers of the services were met; however the clinical audit did note that some "Service Delivery and Quality" audit criteria ("Quality management," "Plan of care", and "Planning discharge from and/or transfer between services") were identified as areas of partial compliance, and could be generally improved upon with professional development. The majority of providers audited were found to be consistently delivering less than the volume of services agreed with the Ministry.

Staff of providers reported that in their view brief interventions were effective in achieving positive outcomes for clients. Brief interventions were delivered more frequently for significant others (4,061 sessions in 2012/13) than they were for gamblers (2,565 sessions in 2012/13). Self-reported impacts for most clients of brief interventions related to their thinking about gambling harms and their realisation that they needed help. Trend numbers showed a growth in brief intervention clients over three years, mainly due to growth in significant other clients.

The majority of provider staff felt that full/workshop based interventions were effective in achieving positive outcomes for clients. However, a few clients reported the sessions to be insufficient in terms of time and change strategies. Clients' self-rated changes on the impacts of Full/Workshop-based Interventions suggested improvements in understanding gambling harms and gambling triggers, greater ability to stop or control gambling, and improvements to health, wellbeing and financial situations.

Accessing help for clients through facilitating access to other community services was seen to possibly result in positive client outcomes such as resolving issues that could positively influence gambling behaviours. Positive outcomes from facilitation services noted by clients and providers included enhanced fiscal management abilities, financial situation, and understanding and acknowledgement of gambling problems. Facilitation services appeared to be more easily

delivered seamlessly when clinicians referred clients to in-house community support services than external community services. Working relationships between providers and allied organisations were good, but the evaluation found improvements were still needed particularly in the areas of communication, contact and follow-up. The strength of the relationships depended on the frequency of contact, which in many cases was variable or infrequent.

Both clients and provider staff reported that follow-up sessions following problem gambling treatment was effective, but the clinical audit noted that seven out of eight providers did not deliver the minimum number of sessions required under their contracts. It was suggested that logistical challenges and funding often prevented the carrying out of follow-up services.

#### *Problem Gambling Public Health Services*

Some aspects of service delivery were similar across the five public health purchase units in which the evaluated intervention services were delivered. The study reported that all providers included elements of relationship development with community stakeholders and other gambling intervention services. Engagement was usually through face-to-face meetings. Such engagement with stakeholder groups was perceived to lead to:

- Increased awareness among stakeholders about gambling harms and community-related processes that can address gambling harms (i.e., stakeholder participation and action)
- Strengthened provider-stakeholder relationships
- Better-informed service decisions
- Community input into decision-making and a stronger community voice in the prevention of gambling harm, and
- Development of providers' understanding of stakeholder perceptions, situational contexts, and existing practices, which in turn provided insight for developing appropriate public health strategies and approaches.

The majority of provider reports reviewed gave little evidence of specific activities undertaken to raise awareness on the relevance of gambling-related policies to the core business of targeted sectors.

Over half of staff survey respondents reported that their organisations were effective in developing working relationships with gambling venues. Providers had mostly supported the implementation of host responsibility practices in venues. There was little evidence in providers' reports of success in supporting venue harm minimisation policies, monitoring and following up on venues' practices and enabling collaboration between gambling venues and other organisations. Less than half of staff members rated these activities as effectively carried out, and perceived pre-existing views of operators and venues to be the problem.

#### **3.1.12.3. Possible future work**

Areas for future research or policy development identified by the evaluation and clinical audit included:

- Provider staff suggested some areas of improvement in the technical aspects of the CLIC database and a need for further clarity around CLIC data collection and submission.

- The advantages of facilitating referrals to in-house services and the resultant client outcomes could be explored further to inform changes to models of service delivery.
- Brief Interventions appeared to lead to further treatment, but the evaluators could not find evidence of Brief Intervention sessions resulting in recovery without formal counselling support. Could providers have additional processes in place to obtain outcomes data from at-risk individuals who decline treatment support?
- The evaluation could not find explicit examples of public health cultural approaches designed to suit Asian clients. Would greater depth in reporting gain further clarity on health promotion approaches that meet the unique needs of Asian clients?

### **3.2. Conclusions**

Research funded by the Ministry of Health since 2012 has increased the body of research related to problem gambling in New Zealand, and builds on some of the evidence required to provide a local context to issues raised in the literature review like the prevalence of problem gambling and its impact on demographic groups of gamblers. In many ways the research summarised here confirms or supports international trends. Youth gambling shows some predictive risk factors for adult gambling, but not enough longitudinal information is available yet to understand how this carries through. Cultural, and in some circumstances gender, differences appear to be highlighted in quite a few studies. It will be important to do further work to understand the exact nature of the relationship these differences have with gambling behaviour and motivations in New Zealand populations.

The research topics appeared to deliver on the Ministry's research priority areas of risk and resilience and effective intervention services, but to what extent the gambling harm research capacity has been built is unclear.

The existing problem gambling intervention services in New Zealand are proving themselves to be of good quality, but the evidence around their efficacy needs to be strengthened. In particular, research on the effectiveness of full interventions, including any psychological therapies, would be of value. The literature review in Chapter 2 shows that there is an international need for such evidence.

## 4. PREVALENCE OF PARTICIPATION IN GAMBLING AND RISK OF PROBLEM GAMBLING

Information about the prevalence and incidence of gambling in New Zealand is found in the following two reports:

1. The first report from the National Gambling Study commissioned by the Ministry of Health (Abbott et al 2014a), and
2. The results from the New Zealand Health Survey 2011/12 (Rossen 2014 - in draft).

This section presents findings from these reports and, where appropriate, draws on the findings published in the 2012 Gambling Harm Needs Assessment to identify key trends and themes on the prevalence of gambling and the risk of problem gambling in New Zealand.

### 4.1. National Gambling Study

Report No. 1 of the National Gambling Study (NGS) - Overview and Gambling Participation (Abbott et al 2014a) - describes the purpose and methodology of the first phase of the National Gambling Prevalence and 12 Month Incidence Study. It presents and discusses gambling participation results from the study and examines change over time by making comparisons with the results of previous New Zealand and international surveys. Unless otherwise stated, all analysis, information and data presented in this section is either quoted or paraphrased from Abbott et al (2014a).

#### 4.1.1. Methodology

The primary aims of the first phase of the NGS were to:

- Inform on detailed changes in gambling participation in New Zealand
- Provide epidemiological information on problem gambling
- Inform on risk and resiliency factors for problem gambling, and
- Act as a sampling frame for a longitudinal study.

Abbott et al (2014a) selected a national sample of 6,251 people aged 18 years and older living in private households, and conducted face-to-face interviews from March to October 2012. The response rate was 64 percent and the sample was weighted to enable generalisation of the survey findings to the general adult population.

Comparison of the findings of the NGS with other studies was a major consideration for the research design. Comparison of findings with other studies, one of which is the 2011/12 NZHS survey, was expected to assist in gauging the reliability of their respective findings. The researchers also anticipated that data from these studies could perhaps be combined to obtain more precise prevalence estimates and improve statistical results.

#### 4.1.2. Key findings

##### 4.1.2.1. Types of gambling activities

Abbott et al (2014a) found that in the twelve months prior to participation in the NGS, 80 percent of participants had participated in some form of gambling; 86 percent said they had

done so at some time in the past. The researchers identified that this rate was almost the same as that reported in the 2005 DIA gambling survey, and in the 2010 Health and Lifestyles Survey.

Lotto was most popular gambling activity by far, with 62 percent of adults having participated during the previous year. This was followed by raffles (47 percent), Instant Kiwi (33 percent), bets with friends and workmates (15 percent), NCGMs (14 percent), and horse and dog race betting (12 percent). Ten percent or less participated in any other particular activity.

Gambling on overseas internet sites (other than track, sports or poker sites) was infrequent, less than one percent. Other than Lotto (17 percent), Instant Kiwi and raffle tickets (both three percent), no other activity was participated in weekly or more often by more than two percent of adults.

Table 3 (below) shows total participation in different gambling activities reported in the year prior to the NGS, and the percentage of people engaging in each activity with at least a weekly frequency. Note: some numbers do not add up to the percentages cited above due to some individuals responding for multiple modes (ie online and in person) of the same activity.

**Table 3: Total participation in gambling activities in past 12 months and weekly or more often**

Gambling activity	Total participation (percent)	
	Past year	Weekly or more often
Cards for money (not in casino)	4.5	0.3
Poker for money/prizes (commercial venue in NZ)	1.8	0.1
Poker for money/prizes (friends/family private residence)	3.2	0.1
Poker for money/prizes online	0.5	0.1
Bets with friends/workmates for money/prizes	15.3	0.6
Text game or competition	2.9	0.3
New Zealand raffle/lottery	47.1	3.0
Lotto online	5.0	1.6
Lotto from a store	60.8	16.2
Keno online	0.7	0.1
Keno from a store	2.2	0.4
Instant Kiwi tickets or other scratch tickets	33.2	3.1
Housie or bingo	1.7	0.2
Horse/dog race betting (at the track)	8.3	0.2

Horse/dog race betting (TAB in person)	7.8	0.9
Horse/dog race betting (TAB telephone, online, interactive TV)	3.0	0.6
Horse/dog race betting (overseas betting organisation or TAB)	0.4	0.1
Sports betting (TAB at event)	3.0	0.3
Sports betting (TAB in person)	3.1	0.2
Sports betting (TAB telephone, online or interactive TV)	2.0	0.2
Sports betting (overseas TAB, organisation/website)	0.4	0.1
Casino table games or EGMs (overseas)	3.8	0.0
Casino table games or EGMs (NZ)	9.7	0.2
Casino table games (NZ)	3.9	0.0
Casino EGMs (NZ)	8.4	0.1
Pub EGMs	12.2	1.2
Club EGMs	5.7	0.5
Short-term speculative investments	0.9	0.2
Overseas internet gambling for money/prizes (excluding forms of gambling listed earlier)	0.7	0.1

Source: New Zealand 2012 National Gambling Study

#### 4.1.2.2. *Frequency of gambling*

In the NGS, over 50 percent of people who reported participating in particular gambling activities did so less than monthly. Lotto was the exception, with over a half of previous year Lotto players taking part at least once a month or once a week. Slightly less than 25 percent of Lotto players identified in the NGS participated frequently (at least once a week).

For all other gambling activities, less than 20 percent of participants identified by the NGS took part weekly or more often. More than 10 percent of those who participated in internet gambling, Keno, housie or bingo, sports betting and NCGMs took part weekly or more often. In contrast, only very small proportions of people who gambled at casinos (on all forms of gambling, EGMs and table games) did so weekly or monthly. The researchers identified that frequent participation in continuous forms of gambling<sup>4</sup> decreased from 18 percent in 1991 to

<sup>4</sup> **Continuous gambling** is characterised by the opportunity for a continuous repeated cycle of placing a stake playing, determination and ability to collect and reinvest winnings, such as occurs with gaming

10 percent in 1999 and six percent in the NGS. The authors noted that this behaviour is a risk factor for problem gambling.

#### **4.1.2.3. Online and offline access**

The NGS looked at the online gambling of participants in the study versus offline gambling. For most gambling activities that can be accessed both online and offline, a large majority elected to take part offline. Five percent of adults used the internet to buy New Zealand Lotteries Commission Lotto tickets during the previous year. This percentage represented approximately eight percent of people who participated. Less than one percent of adults bought New Zealand Lotteries Commission Keno tickets online. However, this mode seemed popular with those people who play Keno; 23 percent of people who took part in New Zealand Lotteries Commission Keno during the previous year participated this way. Other interesting differences in mode of play noted by the NGS researchers in gambling activities by adults over the previous year included:

- Playing poker for money or prizes: three percent of adults played in a private residence, two percent at a commercial venue and 0.5 percent online (since it is unlawful for New Zealand gambling operators to offer online poker, this last figure probably relates to online gambling with overseas gambling operators)
- Betting on horse or dog races: eight percent of adults bet in person at a track, eight percent in person at a New Zealand TAB, three percent via telephone, online or by interactive television with the New Zealand TAB, and less than one percent through an overseas betting organisation or website
- Betting on a sports event: three percent of adults bet at the event in person, three percent in person at a New Zealand TAB, two percent via telephone, online or interactive television with the New Zealand TAB, and less than one percent through an overseas betting organisation or website.

#### **4.1.2.4. Number of gambling activities taken part in**

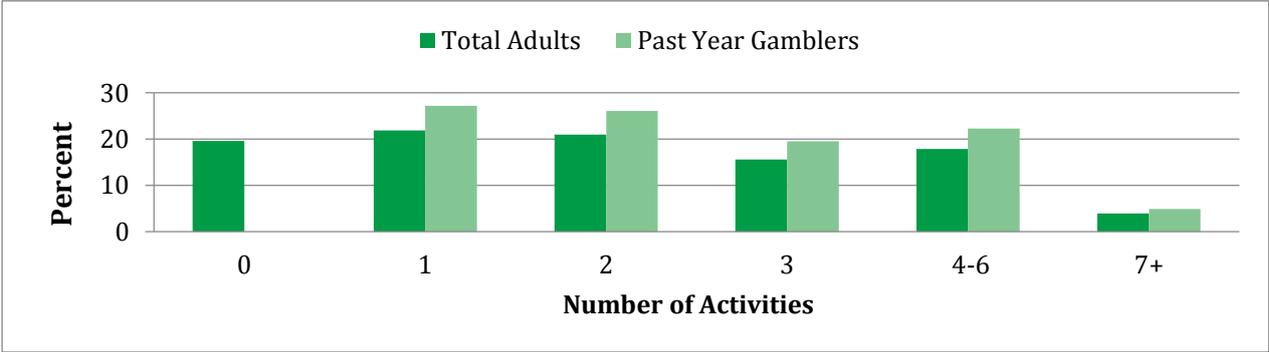
The NGS identifies that 43 percent of adults participated in one or two gambling activities during the previous year, and approximately 22 percent participated in four or more. Most people who took part in only one or two gambling activities participated less than monthly, whereas those who participated in more activities were more likely to gamble more frequently. The researchers also identified that participation in four or more activities has decreased since the last DIA survey of 2005, from 28 percent then to 22 percent in 2012.

Participation in multiple activities was apparently associated with very high reported overall gambling expenditure. The authors noted this behaviour has been found in some studies to be an independent risk factor for problem gambling. Figure 1 (below) shows the number of gambling activities engaged in by percentage of adult participants and previous year gamblers.

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machines, casino betting and horse betting. *Non-continuous* includes participation in activities like Lotto, where winnings cannot be re-invested immediately following a win.

**Figure 1: Number of gambling activities participated in during previous 12 months**



Source: New Zealand 2012 National Gambling Study

**4.1.2.5. Gambling Expenditure**

The NGS looked at average expenditures for participants on various gambling activities. Table 4 (overleaf) shows participants' average monthly expenditure by category of gambling activity. The figures were calculated by the NGS authors by summing expenditure on each activity for all people in each group, then dividing by the number of people who reported betting money on that activity in the previous year. Monthly expenditure for all respondents is that amount divided by the total number of people who took part in the survey.

**Table 4: Average typical monthly expenditure by gambling activity - previous year participants and all respondents in each activity**

Gambling activity	Average total monthly expenditure \$	
	Past year participants	All respondents
Short-term speculative investments	5,650.23	46.91
Casino table games or EGMs (NZ/overseas)	85.75	10.05
Cards for money	76.94	3.46
Casino table games (NZ)	70.75	2.74
Horse/dog race betting <sup>#</sup>	64.95	7.84
Overseas internet gambling for money/prizes	62.35	0.41
Casino EGMs (NZ)	52.28	4.41
NCGMs	48.90	7.01
Sports betting	43.33	2.13
Housie or bingo	35.46	0.59
Lotto	26.13	16.25
Keno	11.36	0.31
Bets with friends/workmates for money	11.21	1.71
New Zealand raffle/lottery	9.62	4.53
Instant Kiwi tickets or other Scratch tickets	7.30	2.42
Text game or competition	4.93	0.14

# Excludes one response of \$40,000 at track and \$100,000 overseas (note, same person)

Source: New Zealand 2012 National Gambling Study

Expenditure by both all respondents and past year gamblers is highest on short-term speculative investments (which may reflect the high cost nature of individual investments rather than constant expenditure). It is interesting that the order of gambling activities by highest amount of expenditure per past year gambler is not the same as that for the activities when averaged out by all respondents. This difference shows that popular gambling forms are not necessarily the most expensive.

Gambling expenditure appears to be increasing. The NGS identified that in 2012, the average self-reported annual gambling expenditure was \$853 per person, and compared that to \$573 (adjusted for inflation by the consumer price index) in the 2005 DIA survey. However, more forms of gambling were included in the NGS 2012 survey, so it was noted that this difference may not indicate an actual increase per person. Total gambling expenditure in New Zealand

reported to DIA over the same period increased from \$2.027 billion (2005) to \$2.065 billion (2012), in non-inflation adjusted figures. This total would suggest that per person expenditure has not risen as dramatically as self-reported expenditure might indicate, but this observation must be qualified with the note that the difference in total numbers of people gambling in those two years is not known (that is, if fewer people actually gambled in 2012, they may have gambled more per person).

Excluding short-term speculative investments, the highest proportion of self-reported expenditure was on Lotto (29 percent of past year gamblers), followed by casino gambling (18 percent), horse and dog race betting (14 percent) and NCGMs (12 percent). The NGS researchers noted that these have consistently been the four top expenditure categories in surveys since 1999.

The NGS researchers also note that self-reported expenditure has a complex relationship to actual gambling expenditure, which can make it difficult to draw conclusions from the statistics. In the NGS, as in previous surveys, reported Lotto, horse and dog race and sports betting expenditure was higher than actual official expenditure, and reported NCGM and casino gambling expenditure was lower.

#### **4.1.2.6. Differences in participation**

The authors of the NGS analysed participation and gambling behaviour differences across a number of demographic factors. This analysis can help identify those groups most likely to have gambling behaviours indicative of risk of problem gambling, and can help inform intervention service planning and responsiveness.

As in previous studies, the NGS found considerable variation across population sectors with regard to the particular gambling activities taken part in, and the intensity of participation, as measured by frequency of involvement and self-reported expenditure. Overall, males and females reported similar levels of gambling participation in the year preceding the study. However, there were some differences in how males and females were observed to participate in particular activities. Males more often took part in continuous gambling activities, and females more often purchased raffle or lottery tickets, Instant Kiwi and played housie or bingo. Males reported spending more on average.

People in the 18-24 and over 65 age groups reported gambling less than those in other age groups, and the over 65 age group also reported lower expenditure (between \$1 and \$1,980 a month, as opposed to 18-24 year olds who spent between \$1 and \$4,732). The NGS also noted that younger adults took part more often than other adults in a number of continuous gambling activities such as EGMs, casino table games, cards and sports betting. The 18-24 year old age group showed lower levels of involvement in Lotto, raffle tickets, and other lotteries.

Table 5 (overleaf) shows the percentage of adults of each ethnicity, by gender and combined, that had gambled in the previous 12 months.

**Table 5: Past 12 month gambling participation by ethnicity and gender**

Past year participation (percent)		
Ethnic group	Gender	Total adults
European/Other	Males	81.7
	Females	83.2
	Total	82.4
Māori	Males	83.7
	Females	86.2
	Total	85.0
Pacific	Males	78.1
	Females	71.1
	Total	74.5
Asian	Males	65.7
	Females	57.3
	Total	61.2

Source: New Zealand 2012 National Gambling Study

The NGS found that participants identified as Māori and European/Other ethnic groups had the highest level of previous year gambling participation, followed by Pacific people and Asians with the lowest. The authors noted that Māori and Pacific people had the highest expenditure and European/Other and Asians the lowest. They went on to note that Pacific people had similar expenditure to the general population and Asians had lower expenditure in the last DIA gambling survey in 2005. The findings suggested that expenditure in both Māori and Pacific population groups has increased substantially since 2005.

Participants who identified as regularly engaging in continuous gambling activities reported spending substantially more than participants who infrequently engaged in continuous gambling activities, or participants who regularly engaged in non-continuous gambling activities. People who participated in multiple gambling activities also had very high expenditure when compared with people who participated in one or two activities. The NGS authors highlighted that the large majority of regular casino EGM participants reported long session lengths whereas only a minority of regular pub and club EGM participants reported long sessions. They noted that previous research has suggested that long average session length is strongly associated with problem gambling. This finding was seen as a possible indication of a higher proportion of regular casino EGM participants being problem gamblers.

The NGS authors identified that some groups of participants had relatively high proportions of regular continuous gamblers. Examples shown of groups with more continuous gamblers were

Māori, Pacific people, older adults, New Zealand born, people with no formal qualifications and unemployed people. With the exception of older adults, these groups were also found to have relatively high overall gambling expenditure compared to the general adult population. The NGS authors noted that, with the exception of New Zealand-born and older people, these groups contained large proportions of people on low incomes. These groups were also seen as more likely to reside in neighbourhoods with heavier concentrations of EGM venues and TABs.

The NGS paid particular attention to the similarities and differences in Pacific and Māori gamblers. Both groups had high reported average gambling expenditure; however, a much larger proportion of Pacific people were identified as non-gamblers. This finding was taken to mean that the subgroup of Pacific people that gambles frequently has very high expenditure. Similarly, Asian reported gambling expenditure was comparable to European/Other expenditure, but a third of Asian adults were non-gamblers, and Asian participants were less likely than other subgroups to gamble regularly. This was taken to suggest that, as with Pacific people, there is a subgroup that gambles very intensively.

#### **4.1.2.7. Conclusions in the NGS**

The authors of the NGS compared their findings with the results of past gambling surveys and public information. They identified that gambling participation and official gambling expenditure in New Zealand increased significantly from the late 1980s following deregulation and the introduction of new gambling activities. Regular gambling participation began to decline following a peak during the 1990s. The proportion of adults who took part in multiple gambling activities also began declining. These trends, along with other changes in gambling-related behaviours and beliefs, were found by Abbot et al (2014a) to be consistent with the concept of adaptation. The NGS authors suggested that gambling-related problems and harm may have decreased during the past decade as a result. However, they also cautioned that self-reported gambling expenditure appeared to have recently increased. This was seen to mean that the smaller proportion of the population which participates regularly in continuous forms of gambling spends substantially more than in the past. Furthermore, while reductions occurred across most sectors of society, wide variations in participation and expenditure were seen to remain. Some groups had particularly high levels of involvement in high risk activities. Māori, Pacific peoples, adults aged 65 years and older, people who lack formal qualifications and unemployed people were identified in this category in the NGS.

## **4.2. New Zealand Health Survey Gambling and Problem Gambling Report (Rossen 2014 – in draft)**

The New Zealand Health Survey (NZHS) collects information on a wide range of topics covering health behaviours and risk factors, health conditions, health status and health service use. In the past, the NZHS was repeated at regular intervals: 1992/93, 1996/97, 2002/03 and 2006/07. From April 2011, the NZHS and the various surveys that were part of a wider survey programme have been integrated into a single survey, which is in continuous operation. Questions on gambling and problem gambling have been included in the three most recent New Zealand Health Surveys - 2002/03, 2006/07 and 2011/12. The 2011/12 New Zealand Health Survey gathered data through face-to-face interviews with more than 12,000 randomly selected adults aged 15 years and over throughout New Zealand.

In the 2012 Gambling Harm Needs Assessment, data from the operation of the survey over the six-month period July to December 2011 was analysed for information on prevalence. Since this

time, the Ministry has received a draft report that analyses the results of the full July 2011 to July 2012 year, from which the information presented here is drawn. Unless otherwise stated, all analysis, information and data presented in this section is either quoted or paraphrased from Rossen (2014 - in draft).

#### **4.2.1. Prevalence of gambling**

According to the NZHS results, 52.3 percent of all adults aged 15 years and over had gambled on at least one activity in the previous 12 months. New Zealand Lotteries' products were the most popular gambling activities amongst New Zealand adults. In the previous year, 45.2 percent of all respondents had gambled on Lotto products, and 13.6 percent had gambled on Instant Kiwi or other scratch tickets. Less than ten percent of adults had gambled on EGMs (casino and/or non-casino), track or sports betting, casino gambling (EGMs and/or tables), Keno, housie and 'other' gambling in the previous year.

#### **4.2.2. Gender**

The 2011/12 NZHS identified differences between male and female participation in certain gambling activities. Males were significantly more likely than females to have gambled on Lotto, track betting, sports betting, casino tables and 'other' activities in the previous year. Instant kiwi (or other scratch tickets) and housie were more popular amongst females than males.

Males (3.7 percent) were more likely than females (1.9 percent) to have gambled on four or more activities in the previous year. No significant difference in previous year gambling status was observed.

#### **4.2.3. Age**

Rossen (2014) observed a statistically significant association between age-group and gambling status, noting that 32.8 percent of those aged 15-24 years had gambled in the previous year, compared with more than 50 percent in all other age-groups. A few trends in age and gambling type were observed, but the author cautioned placing too much emphasis on these, as the differences were not always large or some of the confidence intervals overlapped. Participation in any EGM, casino activity, Instant Kiwi (for males but not females), sports betting and casino tables peaked with adults aged 25-34 years. The activities that were particularly popular with those aged 45-54 years were Lotto and track betting.

The 2011/12 NZHS suggested age was associated with the number of activities that people had gambled on over the previous year. The majority of 15-17 year olds (94.9 percent) had not gambled on any activity. The equivalent figure steadily decreased to 38.9 percent for 45-54 year olds and then increased slightly to 47.7 percent for those aged 65 and older. The proportion of adults who had gambled on one activity increased with age, from 25.2 percent for those aged 18-24 years to 36.3 percent for those aged 65 or more. The proportion of respondents who had gambled on four or more activities decreased with age: 4.3 percent of those aged 18-24 compared with 1.3 percent of those aged 65 or older.

#### **4.2.4. Ethnicity**

Rossen (2014) showed that ethnicity was statistically associated with gambling status. Approximately one-half of Māori (54 percent), Pacific (49 percent) and European/Other (52.7 percent) had gambled in the past 12 months compared with 37.1 percent of Asian participants. No significant interaction between ethnicity and gender was observed for previous year gambling. Ethnic differences in gambling type observed in the 2011/12 NZHS included:

- Compared with European/Other, Māori were more likely and Pacific and Asian participants less likely, to have gambled on any EGM (casino or non-casino)
- Compared with European/Other, Pacific and Asian participants were less likely to have gambled on any non-Lotto, Lotto, Instant Kiwi or other scratch tickets
- Compared with European/Other, Pacific and Asian participants were significantly less likely to have participated in track betting
- Compared with European/Other, Māori and Pacific were significantly more likely to have gambled on Keno in the past 12 months, and
- Compared with European/Other, Māori and Pacific were significantly more likely and Asian less likely to have gambled on housie in the past 12 months.

Asian participants were the most likely to have gambled on zero activities in the previous year (62.9 percent), followed by Pacific (51.9 percent), European/Other (47.3 percent) and Māori (45.9 percent). There was a general trend for greater proportions of Māori and European/Other to gamble on more activities than Pacific and Asian adults; however, Rossen (2014) cautions that small cell-sizes for some of these items mean that these results may not be representative.

#### **4.2.5. Deprivation**

Gambling on Lotto, sports betting, and 'other' activities were observed by Rossen (2014) as being significantly more prevalent amongst adults living in neighbourhoods with lower levels of deprivation. Conversely, gambling on housie was significantly associated with adults living in neighbourhoods with higher levels of deprivation. No significant differences in past year gambling status or number of gambling activities participated in were noted by deprivation.

### **4.3. Comparison of participation observed in 2011/12 NZHS and 2012 NGS**

As noted above, the 2011/12 wave of the NZHS found that approximately one-half of adults had participated in some form of gambling in the last 12 months, which conflicted with the NGS reporting a previous 12-month gambling participation rate of 80 percent.

The 2011/12 NZHS gambling report found that Lottery products were the most popular and preferred gambling activities, with almost one-half of adults having gambled on Lotto in the past year. In contrast, less than ten percent of adults had gambled on EGMs (casino and/or non-casino), track or sports betting, casino gambling (EGMs and/or tables), Keno, housie and 'other' in the previous year. Although gambling activities were categorised differently in the NGS, the authors felt the results seemed largely consistent, although the NZHS 2011/12 results appeared more conservative.

The 2011/12 NZHS gambling report noted that approximately one-third of adults had gambled on only one activity in the last 12 months, and a small proportion (three percent) had gambled on 'four or more' activities. Gambling on a greater number of activities was more prevalent amongst males, younger age groups, Māori and European/Other, those who lived in urban locations, and people who had gambled on Keno, casino tables, and EGMs (casino and/or non-casino). These findings appear inconsistent with the National Gambling Study which reported that one-fifth of adults had gambled on 'four or more' activities (although the NGS asked participants about a greater number of activities than the NZHS did).

#### **4.4. Conclusions**

Both the NGS and NZHS provide important information concerning the prevalence of gambling and problem gambling in New Zealand. Largely the trends seen in New Zealand appear consistent with international trends and risk factors, as identified in earlier Needs Analysis reports and in the literature review in Chapter 2. The information in these studies also gives us an indication of the scale of various groups' gambling whose experiences we can understand more through the Ministry of Health research summarised in Chapter 3.

The NZHS Gambling and Problem Gambling Report compares and contrasts findings from the 2011/12 NZHS with those of earlier NZHS waves and the 2012 National Gambling Study. Rossen (2014) finds similarities between the 2011/12 NZHS and the NGS, but some important differences were also identified. For example, the 2011/12 wave of the NZHS found that approximately one-half of adults had participated in some form of gambling in the last 12 months while the National Gambling Study reported a past 12-month gambling participation rate of 80 percent. The higher rate observed in the NGS is more similar to findings in past HLS and NZHS surveys. The two studies also produced some differing information concerning harm experienced from gambling, which is presented in chapter 5 of this report.

## 5. EXPERIENCES OF HARM FROM PROBLEM GAMBLING

This chapter summarises the available information on people's experiences of harm from problem gambling in New Zealand from the National Gambling Study Report Number 2: Gambling Harm and Problem Gambling (Abbott et al 2014b), and the New Zealand Health Survey 2011/12 Gambling and Problem Gambling Report (Rossen 2014).

The 2012 Needs Analysis report presented analysis on gambling harm from the Health and Lifestyles Survey (HLS) published by the Health Promotion Authority. A 2014 HLS has been conducted, but the data was not available for the present Needs Analysis. As most of the 2012 information came from this source, it is difficult to make any comparison across years.

### 5.1. Prevalence of risk of being a problem gambler

The author of the NZHS 2011/12 gambling report used the PGSI to ascertain the prevalence of risk of problem gambling. Observations over time in PGSI results from the 2006/07 and 2011/12 survey waves noted that little change had occurred in the prevalence of problem gambling, but that the proportion of non-gamblers increased and the proportions of non-problem/recreational and low-risk gamblers decreased (Rossen 2014). The NGS also applied the PGSI to its 2012 survey, and made some comparisons with the NZHS regarding problem gambling prevalence and risk factors. Comparison of the reports shows areas of congruence and some difference.

#### 5.1.1. Profile of people likely to be experiencing problem gambling

According to the NZHS 2011/12 gambling report, males were nearly twice as likely as females to be categorised as problem/moderate gamblers. Participants aged 25-34 years and 45-54 years were approximately three and a half times more likely than those aged 65 years or older to satisfy the criteria for moderate-risk/problem gambling. Māori and Pacific people were approximately three times more likely than European/Other to be categorised as moderate-risk/problem gamblers. The author of the report noted a very clear trend between deprivation and the likelihood of moderate-risk/problem gambling. As the level of deprivation in a neighbourhood increased, so too did the likelihood of problematic gambling. People living in neighbourhoods with the highest levels of deprivation (i.e. the most deprived) were five times more likely to report moderate-risk/problem gambling than those living in neighbourhoods with the lowest levels of deprivation (i.e. the least deprived).

As is expanded on in section 5.2.4, the NGS also identified a correlation between levels of deprivation and risk of problem gambling severity. Overall deprivation scores increased with risk severity (Abbott et al 2014b). However the NGS authors did emphasise that the cross-sectional nature of the NGS survey means that it is unclear exactly what the associations with gambling, problem gambling and at-risk gambling mean. Deprivation may be a consequence of problem gambling and increased participation, but they may also be associated because of common underlying influences (Abbott et al 2014b).

When Rossen (2014) compared results from the 2006/07 and 2011/12 waves of the NZHS, some significant associations were observed between ethnicity and PGSI score. Increased proportions of Māori and European/Other were classified as 'non-gamblers' in 2011/12 than in 2006/07, and of Māori and European/Other who had gambled in the past 12 months, greater proportions were gambling at 'non-problematic levels' in 2011/12 than in 2006/07. No changes

were found in the gambling status of Pacific or Asian people from 2006/07 to 2011/12, and no significant changes were observed in relation to moderate-risk/problem gambling for any of the ethnic groups. However, it was noted that these findings should be treated with caution due to small numbers in the moderate-risk/problem categories.

The NGS concurred that in comparison to New Zealand European/Other and Asians, Māori and Pacific people had much higher rates of lifetime probable pathological and problem gambling, as well as higher rates of past 12 month problem, moderate-risk and low-risk gambling (Abbott et al 2014b). After adjusting for age, the NGS authors found that Māori males were approximately four times more likely to be problem gamblers than adult males in the total population. The corresponding rates were approximately three times for Pacific males and Māori females, two for Asian males, 1.5 for Pacific females and just over one for European/Other males. European/Other females are less likely to be problem gamblers than females in the total population (Abbott et al 2014b).

When the NGS authors combined problem gambling and moderate-risk groups adjusted for age, they could see that Pacific males were over four times more likely to be problem or moderate-risk gamblers than are males in the total population. There were no differences in prevalence between European/Other males and males in the total population after adjusting for age, and European/Other females and Asian females were less likely to be problem or moderate-risk gamblers compared to females generally (Abbott et al 2014b).

#### **5.1.2. Comparison of problem gambling prevalence observed in 2011/12 NZHS and 2012 NGS**

The 2011/12 NZHS gambling report estimates that just over one percent of adults satisfied the PGSI past-year criteria for moderate-risk/problem gambling (1 percent - moderate-risk and 0.2 percent - problem) and a further two percent satisfied the criteria for low-risk gambling. These figures were lower than those obtained by the NGS, which also applied the PGSI. It estimates that 2.5 percent of adults are moderate-risk/problem gamblers (1.8 percent moderate-risk, 0.7 percent problem gambling) and a further five percent satisfy the criteria for low-risk gambling (Abbott et al 2014b).

The NGS authors identified that the results from the NZHS survey waves had overlapping confidence intervals for problem and moderate-risk gambling. As a result they considered that there was unlikely to be any significant change between the two studies, and also considered that there was a likely decrease in the prevalence of low-risk gambling.

The NGS authors also noted that the confidence intervals for the NGS 2012 survey overlapped with those from the NZHS survey waves, and observed that it was likely that the prevalence of problematic gambling, within the range assessed as moderate-risk, problem and probable pathological gambling reduced during the 1990s and since that time has remained at around the same level (Abbott et al 2014b). These findings in the NGS suggest that the prevalence of moderate risk gambling and problem gambling has remained relatively stable over the last decade, with an estimated 84,000 adults either experiencing significant gambling problems, or experiencing some gambling harm and being at risk for the development of more serious problems.

According to the NZHS, adults that satisfied the criteria for moderate-risk/problem gambling were more likely to be male, aged 25-34 years or 45-54 years, identify as Māori or Pacific, and live in urban neighbourhoods with higher levels of deprivation. This was largely congruent with other research, although it was noted that the NGS did not find any significant age differences. Problem gambling prevalence identified in the NGS did not differ by age, although adults in

younger categories had higher rates of moderate-risk gambling than adults in some of the older categories (Abbott et al 2014b). The NGS authors conducted multivariate analysis on their results to attempt to control for the fact that membership of the high risk prevalence groups overlapped. In their analyses they identified that Māori and Pacific ethnicity were the major independent risk factors for current problem gambling, followed by male gender (Abbott et al 2014b). These risk factors were also independent risk factors for combined problem and moderate-risk gambling.

There was evidence that problem gamblers have a greater overall involvement in gambling; the prevalence of problem gambling increased along with the number of activities that adults had gambled on. A relationship between a greater number of gambling activities and an increased risk of problem gambling was also observed in the NGS.

## **5.2. National Gambling Study**

Unless otherwise stated, all analysis, information and data presented in this section is either quoted or paraphrased from Abbott et al (2014b).

### **5.2.1. Co-morbidities**

As in previous studies, the NGS identified that problem gamblers and, to varying degrees, moderate-risk and low-risk gamblers, have high rates of hazardous drinking, tobacco use, other drug use, self-rated fair or poor health, psychological distress and low quality of life. The NGS identified that 60 percent of problem gamblers who had consumed alcohol during the previous year were hazardous drinkers. This was a substantially higher proportion than the 39 percent of all adults who consumed alcohol during this period. Seventy-one percent of problem gamblers smoked weekly, as opposed to 40 percent of all adults. 47 percent of problem gamblers reported using other recreational drugs in the previous 12 months, compared to 16 percent of all adults. 33 percent of problem gamblers said they were in fair or poor health, compared to 15 percent of all adults. 46 percent of problem gamblers were assessed as having a high or very high probability of experiencing clinically significant psychological distress, compared to 7 percent of all adults, and 77 percent scored below the median for quality of life, whereas 42 percent of all adults scored below this median.

As is often the case with risk factors, it was unknown to the authors of the NGS to what extent these co-morbidities are risk factors for, or consequences of, problematic gambling or whether or not they are a consequence of some shared, underlying attribute. They did however note that the longitudinal extension of the NGS will assist in clarifying the nature of these relationships.

### **5.2.2. Methods used to moderate gambling participation**

The NGS identified that just under a third of adults who took part in one or more gambling activities during the previous year used a method to stop themselves from spending too much money and/or time gambling. Substantially more people who were identified as problem gamblers (78 percent), moderate-risk gamblers (64 percent) and low-risk gamblers (54 percent) used one or more of these methods than non-problem gamblers (27 percent).

Setting a money limit in advance was the method most commonly raised by problem, moderate-risk, low-risk and non-problem gamblers (between 61 percent and 69 percent in each group). Separating money for betting from other money was also mentioned quite often by participants (between 13 percent and 28 percent). Other methods participants mentioned were getting a

trusted person to manage gambling money, leaving ATM and credit cards at home, setting a time limit and avoiding places that have betting or gambling as an attraction.

The majority of gamblers considered all moderation methods to be effective to some degree. Over half of problem and moderate-risk gamblers believed that setting a dollar figure or limit was effective, but more of these two groups (37 percent of problem gamblers and 14 percent of moderate-risk gamblers) considered this method to be ineffective than non-problem gamblers did (2 percent). More problem gamblers (19 percent) considered that separating money for betting and stopping when it was used up was ineffective than non-problem gamblers did (1 percent). More problem gamblers (45 percent) than non-problem gamblers (5 percent) considered setting a time limit to be neither effective nor ineffective.

### **5.2.3. Life Events Experienced**

Seventy-four percent of the adult population experienced one or more major life events during the 12 months preceding the NGS. At 93 percent, problem gamblers more often experienced life events during the previous 12 months than non-problem gamblers did, with 74 percent. Problem gamblers more often experienced five or more life events than the total adult population and the non-problem and at-risk groups.

As reported in the NGS, problem gamblers much more often experienced the following life events:

- major change in financial situation
- increase in the number of arguments with someone close
- major injury or illness
- legal difficulties
- marriage or finding a relationship or partner
- becoming a student.

The NGS authors also observed that moderate-risk and low-risk gamblers experienced some life events more frequently than the general population and non-problem gamblers. Examples of these life events included major change in financial situation, increase in arguments with someone close, and troubles with work, boss or superiors.

NGS participants were asked, for each event experienced, whether that particular event had triggered an increase or decrease in their gambling during the previous 12 months. A major change in financial situation (25 percent of all adults) was mentioned most often as leading to increased gambling, followed by troubles with work, boss or superiors (16 percent), death of someone close (12 percent), a major illness to self or someone close (10 percent), an increase in arguments with someone close (9 percent), an earthquake or other natural disaster (7 percent) and moving to a new town or city (5 percent). The NGS identified that some of these events were also associated with decreased gambling involvement, however. The authors noted that, with regard to whether particular life events led to increased or decreased gambling, the sample sizes for each life event were low, with large confidence intervals. This was explained to mean apparent differences in positive or negative effects were not reliable.

### **5.2.4. Deprivation**

Ninety-five percent of problem gamblers in the NGS were recorded as experiencing at least one deprivation listed in the New Zealand Deprivation Index during the previous 12 months,

compared to 44 percent of adults overall. Moderate-risk (72 percent) and low-risk (61 percent) gamblers were seen to also more often experience deprivations. The NGS authors noted that average overall deprivation scores increased with problem gambling risk severity.

Seventy-two percent of problem gamblers said they had been forced to buy cheaper food in the previous 12 months, a considerably higher percentage than the 26 percent of the general adult population that reported the same. The NGS authors also identified that higher percentages of problem gamblers had been out of paid work for more than a month than general adults (57 percent compared to 20 percent), had received income from a benefit (32 percent compared to 12 percent), continued to wear shoes with holes (28.5 percent compared to 6 percent), went without fresh fruit and vegetables (28 percent compared to 6 percent), put up with feeling cold to save heating costs (23 percent compared to 15 percent), made use of special food grants or food banks (19 percent compared to 5 percent) and received help from a community organisation (7 percent compared to 2 percent). The NGS authors went on to show that these deprivations were also experienced more often by moderate-risk and low-risk gamblers than adults generally and non-problem gamblers.

While the differences in deprivation and life events for gamblers appear significant, the authors of the NGS noted that the cross-sectional nature of the survey means that it is unclear exactly what the relationships actually are. Life events and deprivations contribute to the development of problem gambling and changes to gambling involvement. They may be a consequence of problem gambling and increased participation. They may also be associated because of common underlying influences. The longitudinal extension of the study will hopefully add to our understanding of these relationships (Abbott et al 2014b).

#### **5.2.5. Impacts of other people's gambling**

The NGS survey asked participants for each person they said they thought currently or previously had a problem with their gambling, how their relationship with that person was mainly affected. A third of adults considered that they knew someone in this category, and 23 percent of them reported that it had affected them personally. These respondents represented eight percent of total adults. Females more often mentioned being affected than males, and Māori less often mentioned being affected than adults in other ethnic groups.

Adverse financial impacts were identified most often as affecting people participants knew (21 percent), followed by loss of relationships (9.5 percent), stress to family (8 percent), loss or lack of trust (7 percent), felt anger, frustration or resentment (6.5 percent). Other effects mentioned by smaller proportions included loss of time together, fights and family violence, and family break-ups or splits (Abbott et al 2014b).

Females more often than males mentioned adverse financial impacts, loss of relationship, stress to the family, loss or lack of trust, anger, frustration and resentment and family breakup or split (Abbott et al 2014b). Most of the age categories more often than adults aged 18-24 years reported negative financial consequences.

Participants in the NGS survey were also asked whether, in their wider family or household, someone had ever had to go without something they needed, or some bills weren't paid, because too much was spent on gambling by another person. The NGS estimated that around 430,000 adults had experienced this at some time, and around a third of them had experienced this in the year before being surveyed (Abbott et al 2014b).

### **5.3. New Zealand Health Survey Gambling and Problem Gambling Report (Rossen 2014 – in draft)**

Unless otherwise stated, all analysis, information and data presented in this section is either quoted or paraphrased from Rossen (2014 - in draft).

#### **5.3.1. Ecological factors and problematic gambling**

Compared to people with no gambling problems, the 2011/12 NZHS identified moderate-risk/problem gamblers as having:

- 1.6 times the odds of drinking alcohol
- 4.7 times the odds of hazardous drinking
- 6.3 times the odds of alcohol dependence
- 4.2 times the odds of being a current smoker; and
- 3.7 times the odds of using drugs.

The NZHS gambling report found that problematic gambling was significantly associated with fair or poor self-rated health, and a high/very high probability of an anxiety or depressive disorder. The odds of an anxiety or depressive disorder rose with gambling symptom severity. Low-risk gamblers were twice as likely, and moderate-risk/problem gamblers were nearly six times as likely, as adults with no gambling problems to have an anxiety or depressive disorder.

Adults with gambling problems were observed as having greater use of health services than other adults. Moderate-risk/problem gamblers were twice as likely as those with no gambling problems to have consulted a GP in the past year. However, this group were also more likely to report having unmet health needs (not being able to see a GP when they needed to). The relationship between gambling status and having unmet health needs due to cost was also significant. Low-risk and moderate-risk/problem gamblers were twice as likely as those with no gambling problems to report that they had not seen a GP due to the cost.

#### **5.3.2. Experiencing problems due to someone else's gambling**

Two and a half percent of 2011/12 NZHS participants aged 15 years and over indicated that they had been negatively impacted by someone else's gambling in the previous 12 months. Adults that had been affected by someone else's gambling were more likely to be female, aged 25-34 years, and identify as Māori or Pacific.

Being affected by someone else's gambling was significantly associated with an individual's own gambling status. 9.5 percent of people categorised as low- or moderate-risk/problem gamblers had been affected by someone else's gambling, compared with 1.6 percent of non-gamblers. NCGMs were most associated with harm from someone else's gambling (52.9 percent), followed by casino EGMs (32 percent) and track or sports betting (22.1 percent).

### **5.4. Conclusions**

The evidence from the NGS and NZHS paints a reliable picture of problem gambling causing harm in New Zealand, both to gamblers and their families. Gamblers are certainly harmed financially, and while it is not known what causal relationship may lie between problem gambling and various co-morbidities, there is certainly evidence that more problem gamblers in

New Zealand drink, experience negative life events, and have anxiety or mental health issues than the general population. Significant others and families of problem gamblers clearly feel the negative effect of such harms also, with increased, arguments financial problems and relationship issues all indicators of the stress someone else's gambling puts them under.

## 6. GAMBLING VENUES AND EXPENDITURE

This section of the 2015 Gambling Harm Needs Assessment analyses data about gambling venues and expenditure, the location of different gambling venues, and expenditure data by social deprivation (of Class four non-casino gaming machine (NCGM) venues).

### 6.1. Gambling venues

As at 31 December 2014, there were 3,294 gambling venues in New Zealand: 39.1 percent were NCGM venues and 39.9 percent were Lotteries outlets (see Table 6, below). Since December 2011, the number of gambling venues has increased by less than one percent (an increase of 101 venues in total). Proportionally fewer of these venues are NCGM venues but there has been a substantial increase in the proportion of Lotteries outlets (up from 4.9 percent since December 2011).

**Table 6: Number of venues by type, December 2014**

Venue type	Number
NCGM venues	1287
Lotteries outlets	1313
TAB outlets	688
Casinos	6
Total	3294

Sources: Department of Internal Affairs, NZ Racing, NZ Lotteries Commission (2014).

#### 6.1.1. Expenditure on specified gambling activities

In this report, 'expenditure' refers to the amount lost or spent by players, or the gross profit of the gambling operator. Data is in actual dollars (non-inflation adjusted) for gambling operators' financial year-end. Total gambling expenditure for the four main subsectors of recorded gambling activity (TAB, New Zealand Lotteries Commission, NCGMs and casinos) has increased by 4.3 percent over the three years since the last Needs Analysis report, from \$2.005 billion in 2011 to \$2.091 billion in 2014.

Since 2004, the total gambling expenditure across the four main gambling activities (casinos, NCGMs, NZ Lotteries Commission and the TAB), has continued to remain relatively static at around \$2 billion (Figure 2 overleaf); however, the activities' relative share of that expenditure has varied over the same time.

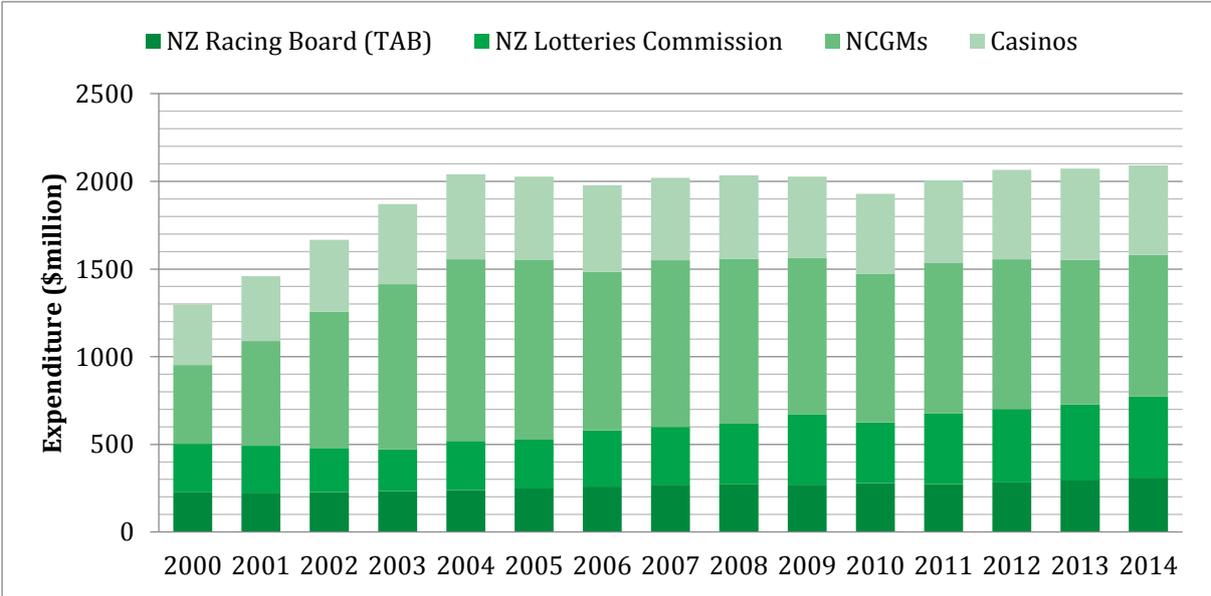
For example, since 2004, expenditure on:

- lotteries has increased by 64.2 percent
- TAB products has increased by 30.1 percent
- casinos has increased by 5.2 percent, and
- NCGMs has decreased by 21.9 percent.

Figure 15 (below) shows gambling expenditure statistics for 2000-2014 for the four main gambling sub-sectors. As with the findings in the 2012 report, it shows that gambling expenditure on NCGMs remains the largest category of expenditure: in 2014, 38.6 percent of expenditure was on NCGMS, followed by 24.3 percent at the six casinos, 22.1 percent with the NZ Lotteries Commission and 14.9 percent with TAB outlets.

No figures about expenditure on overseas online gambling is available.

**Figure 2: Gambling expenditure (\$m) by gambling activity, 2000–2014**



Source: Department of Internal Affairs 2014.

## 6.2. Gambling venues and expenditure

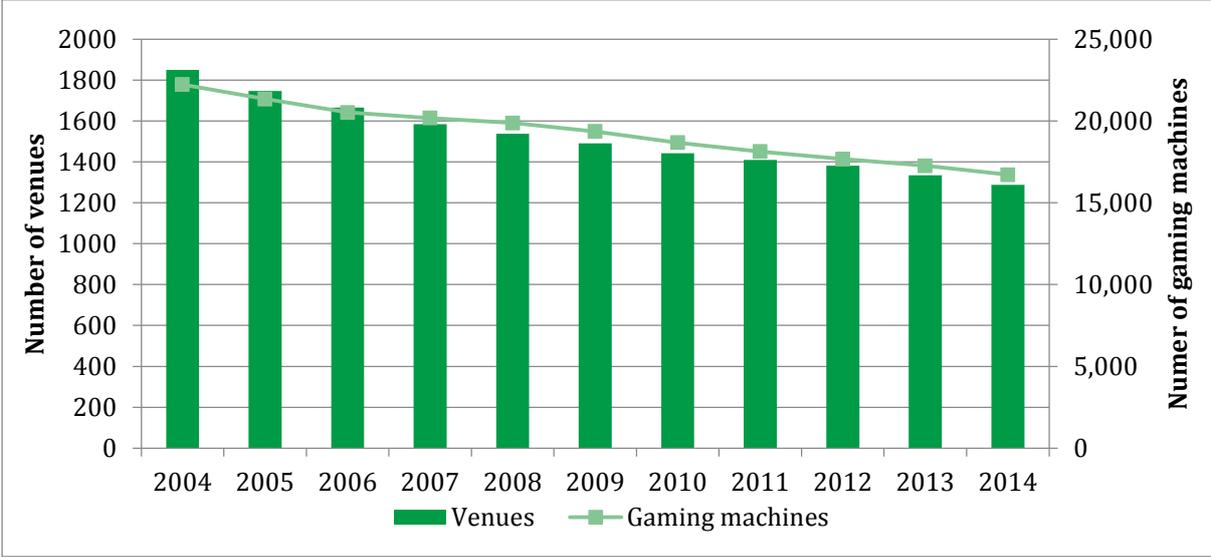
### 6.2.1. NCGMs

NCGMs are widely accessible in pubs and clubs around New Zealand. At 31 December 2014, there were 16,717 NCGMs located at 1,287 venues throughout New Zealand. This is an average of 12.99 gaming machines per venue. Based on the estimated residential population for 30 June 2013 of 4,471,100 (Statistics New Zealand 2014), these results represent one NCGM for every 267 people, or an overall density of 37.5 NCGMs for every 10,000 people.

At \$808 million, expenditure on NCGMs accounted for 38.6 percent of total expenditure in the four main gambling sub-sectors in 2014, compared to 42.7 percent in 2011 (a decrease of 4.1 percentage points). Since 2004, the number of NCGM venues has decreased by 30.4 percent and

the number of gaming machines has decreased by 24.8 percent (Figure 3). The reason for this continuing trend is not clear from the data, but is probably due to a variety of changes to the gambling and gambling regulatory environment, including sinking lid policies.

**Figure 3: Number of NCGM venues and machines, 2004–2014**

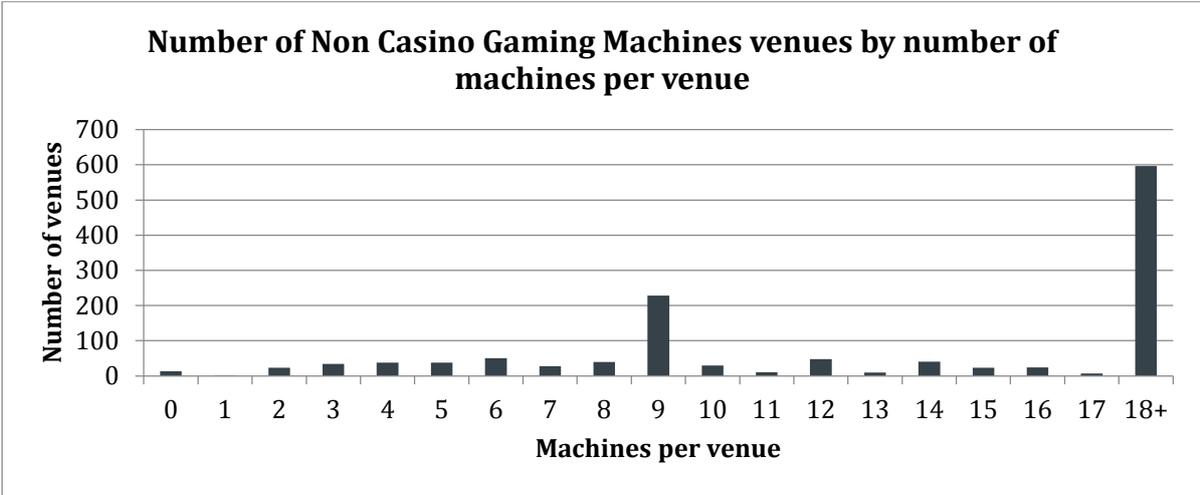


Source: Department of Internal Affairs (Data for calendar year-end).

The 2009 and 2012 Gambling Harm Needs Assessments noted that the majority (64.6 percent) of NCGMs were found in venues with 18 or more machines, which in most cases is the maximum allowable under the Gambling Act 2003.<sup>5</sup> Historically, the number of machines per venue has increased slightly with each new assessment (i.e., from 12.1 in 2005 to 12.8 in 2008 to 12.9 in 2011). Equivalent figures for December 2011 indicated that almost two thirds (64.7 percent) of machines were found in venues with 18 or more machines and that the mean number of machines per venue had increased slightly to 12.9. In the three years to 2014, the NCGMs per venue statistics have remained almost static: in 2014, 64.6 percent of machines were found in venues with 18 or more machines; the mean number of machines remained at 13. Figure 4 (below) also shows a spike in the number of venues with nine machines, the maximum number allowable for a venue that did not have a licence on 17 October 2001.

<sup>5</sup> A venue that had a licence on 17 October 2001 is allowed to have up to 18 machines provided that 18 machines were operating at the venue when relevant provisions of the Gambling Act 2003 came into effect and provided that the venue has not been without a licence for six months or more in the period since 17 October 2001. More than 18 are allowed in certain limited circumstances if two or more clubs have merged.

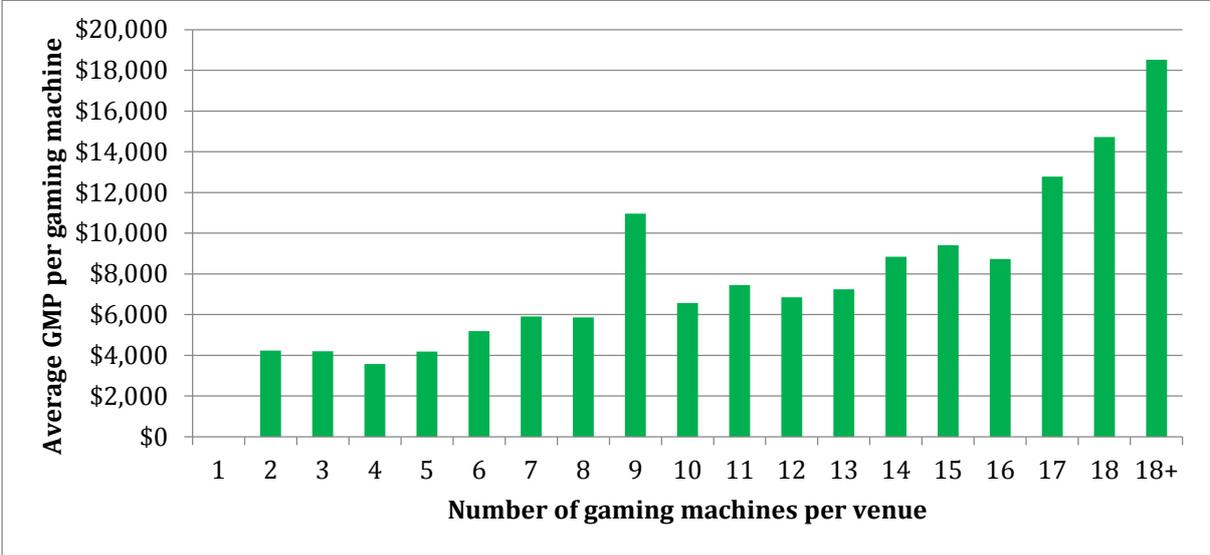
**Figure 4: Number of gaming machines per venue, December 2014**



Source: Department of Internal Affairs.

Figure 5 (below) shows that, with a few exceptions, the more gaming machines a non-casino venue has, the greater the average gaming machine profit is likely to be per gaming machine. Venues that have the maximum allowable number of gaming machines (either 9 or 18, or more than 18) have by far the highest gaming machine profit (GMP) per gaming machine.

**Figure 5: Quarterly average gaming machine profit (GMP) by number of gaming machines at venue, October–December 2014**



Source: Department of Internal Affairs.

**6.2.2. Casinos**

There are six casinos in New Zealand, located in Auckland, Hamilton, Christchurch, Dunedin and Queenstown. Casinos are regulated by the Gambling Act 2003 which prohibits the granting of

any new licences for casinos in New Zealand. In 2014, casino expenditure accounted for 24.3 percent (or \$509 million) of total expenditure in the four main gambling sub-sectors. This represents an increase since 2011, when 23.5 percent of gambling expenditure was at casinos.

While total NCGM numbers have reduced, casino EGM numbers have remained steady. Table 7 (below) lists the six casinos and the number of gaming machines at each venue. Gaming machines in casinos accounted for 14.5 percent of the 19,543 EGMs in New Zealand (as at 31 December 2014). This is a slight increase since 2011 (when 13.5 percent of EGMS were in casinos).

The Queenstown-Lakes District still has the highest density of casino gaming machines per person, followed by Hamilton. The Queenstown-Lakes result should be treated with caution as the two casinos in Queenstown are visited not just by the local or even regional population, but also by external visitors, including overseas visitors, meaning the density figures do not necessarily speak to the population the machine users are drawn from

**Table 7: Casino gaming machines, June 2014**

Casino	Number of gaming machines	Territorial authority	Estimated residential population (30 June 2014)	Casino gaming machines per 10,000 population
Auckland	1647	Auckland City	1,527,100	10.8
Hamilton	339	Hamilton City	153,100	22.1
Christchurch	500	Christchurch City	362,000	13.8
Dunedin	180	Dunedin City	124,600	14.4
Queenstown (Sky City)	86	Queenstown-Lakes District	30,900	51.8
Queenstown (Wharf)	74			

Source: Department of Internal Affairs and Statistics New Zealand June 2014 residential population estimates.

One point of note is that the number of EGMs in SkyCity Auckland is expected to increase from 1,647 to 1,877, as a result of the passing of the New Zealand International Convention Centre Act 2013.<sup>6</sup> As such, increases in the density of casino gaming machines per 10,000 population (and the resulting GMP) are expected following fulfillment of the conditions agreed upon between the Crown and SkyCity associated with the construction of the International Convention Centre.

**6.2.3. NZ Lotteries Commission outlets**

The New Zealand Lotteries Commission offers a wide range of products including Lotto, Instant Kiwi, Keno, and others. These products are sold from 1,313 outlets across the country (for the financial year 2013/14). This is an increase of 220 outlets (or 20 percent) since 2011/12.

<sup>6</sup> In return for funding the design, construction and operation of the NZICC, the New Zealand International Convention Centre Act allows SkyCity to add 230 additional single terminal gaming machines, as well as 40 additional ordinary gaming tables and 240 additional automated table terminals.

Sales of NZ Lotteries Commission products have remained stable since the 2012 Needs Analysis Report. Since 2012 total sales of Lotteries Commission products have only increased 4.3 percent, from \$948 million to \$989 million (see Table 8, overleaf). However, online sales increased from 4.7 percent of total sales to 7.5 percent.

**Table 8: Lotteries Commission Sales by mode 2012-2014, \$million**

	2012	2013	2014
Retail sales	903.5	888.1	914.8
Online sales	44.7	58.7	73.9
Total	948.2	946.8	988.7

Source: NZ Lotteries Commission, numbers provided by email 14 May 2015.

**6.2.4. TAB outlets**

The New Zealand Racing Board operates TAB outlets, with venues located throughout New Zealand. At 9 April 2015, there were 688 TAB outlets, including dedicated TAB stores and agents hosted in other businesses such as clubs and pubs. This is an increase of four outlets (or 0.6 percent) since March 2012. Table 9 (below) shows that TAB expenditure has grown by almost 10 percent since 2012, from \$283 million to \$311 million. Table 9 also shows that an increasing percentage of TAB expenditure is being spent in non-retail channels (either online, or over the phone), from 38.9 percent in 2012 to 45.3 percent in 2014.

**Table 9: TAB Expenditure by mode 2012-2014, \$million**

	2012	2013	2014
Retail outlet	173	169	170
Non-Retail	110	126	141
Total	283	295	311

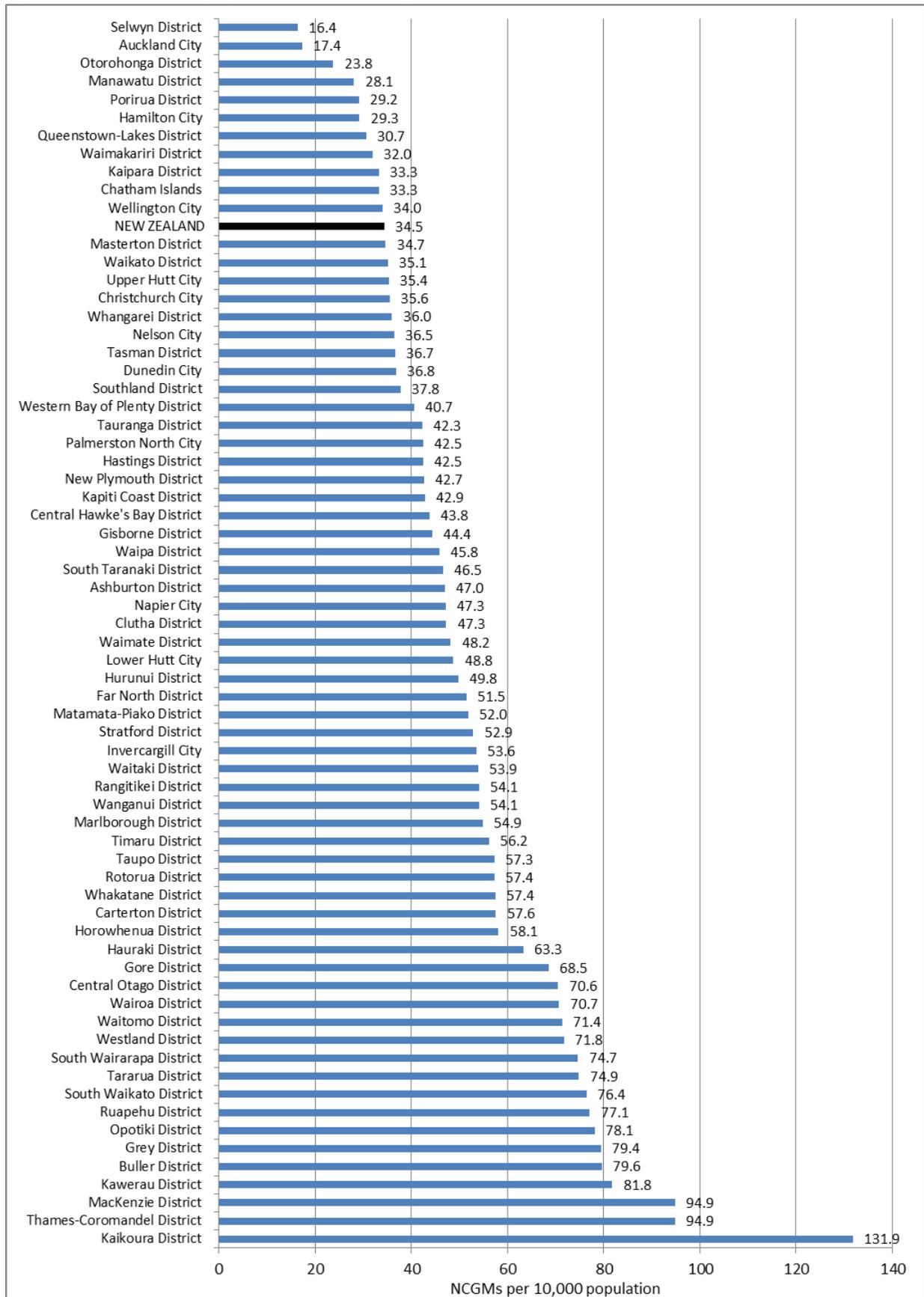
Source: NZ Racing Board, numbers provided by email 3 April 2015.

**6.3. Area-based analysis**

**6.3.1. Analysis by territorial authority**

The location of NCGMs is not consistent across all New Zealand territorial authorities. Figure 6 shows the density of NCGMs by territorial authority as at 31 December 2014. Most territorial authorities have more than New Zealand's national average of 34.5 NCGMs per 10,000 people: only 11 territorial authorities had a density below the national average. In addition, the average number of NCGMs per territorial authority continues to fall. In 2011, 16 territorial authorities had a density below that year's national average of 41.2 per 10,000 people. Invercargill recorded the highest density of NCGMs for a City Council, with 53.6 per 10,000 people (288 machines).

**Figure 6: NCGM density by territorial authority, December 2014**



Source: Department of Internal Affairs and Statistics New Zealand June 2014 residential population estimates.

As in 2011, Kaikoura District had the highest density overall with 131.9 machines per 10,000 people (although its total of machines remained steady at only 48 machines, with a population decrease responsible for the increase in density from 124.4 in 2011). Essentially density appears to be highest in territorial authorities with sparse populations. This level of data does not appear to suggest that there is any other factor at play in determining density by territorial authority boundary.

In the three years to December 2014, the number of NCGMs decreased in over half of the territorial authorities (n=47), increased in 15, and remained the same in 11 (Table 10), below, with the most significant declines taking place in city council areas. Please note - For comparison purposes, Table 10 disaggregates Auckland City into pre-SuperCity territorial authorities.

**Table 10: Changes in number of NCGMs by territorial authority, December 2011–December 2014**

Territorial authority	Number of machines (31 December 2011)	Number of machines (31 December 2014)	Variance
Auckland City	1372	1126	-246
Christchurch City	1450	1288	-162
Napier City	370	284	-86
Dunedin City	531	459	-72
Palmerston North City	428	358	-70
Nelson City	248	180	-68
North Shore City	615	554	-61
Lower Hutt City	554	496	-58
Franklin District	261	205	-56
Tauranga District	563	515	-48
Waitakere City	478	434	-44
Far North District	354	314	-40
Porirua District	198	158	-40
Manawatu District	118	81	-37
New Plymouth District	371	334	-37
Wellington City	715	681	-34
Masterton District	116	84	-32
Wanganui District	262	235	-27
Manukau City	967	942	-25

Rodney District	331	306	-25
Rotorua District	416	393	-23
Invercargill City	309	288	-21
Hastings District	347	329	-18
Whangarei District	322	304	-18
Southland District	132	115	-17
Thames-Coromandel District	278	261	-17
Hamilton City	462	448	-14
Marlborough District	260	246	-14
Selwyn District	94	81	-13
Tasman District	193	180	-13
Waitaki District	129	117	-12
South Waikato District	189	178	-11
Waitomo District	78	67	-11
Timaru District	268	258	-10
Whakatane District	207	197	-10
Central Hawke's Bay District	67	58	-9
Otorohonga District	32	23	-9
Grey District	116	108	-8
Hurunui District	67	61	-6
Queenstown-Lakes District	101	95	-6
Central Otago District	138	133	-5
Rangitikei District	83	79	-4
Tararua District	132	128	-4
Western Bay of Plenty District	191	187	-4
South Wairarapa District	77	74	-3
Westland District	65	62	-3
Gisborne District	210	209	-1

Ashburton District	154	154	0
Carterton District	50	50	0
Chatham Islands	2	2	0
Gore District	85	85	0
Kaikoura District	48	48	0
Kaipara District	69	69	0
Kapiti Coast District	219	219	0
Kawerau District	54	54	0
MacKenzie District	41	41	0
Stratford District	49	49	0
Wairoa District	58	58	0
Clutha District	80	82	2
Matamata-Piako District	171	173	2
Taupo District	199	201	2
Buller District	81	84	3
Horowhenua District	179	182	3
South Taranaki District	125	128	3
Opotiki District	65	69	4
Waimakariri District	170	174	4
Waimate District	34	38	4
Hauraki District	114	119	5
Ruapehu District	87	96	9
Upper Hutt City	139	148	9
Papakura District	203	216	13
Waipa District	203	226	23
Waikato District	189	239	50

Source: Department of Internal Affairs and Statistics New Zealand June 2014 residential population estimates.

## 6.4. Analysis by socio-economic deprivation

This section examines the relationship between socio-economic deprivation and location of gaming machine venues, numbers of machines at venues, and GMP at venues. Where useful, comparison is made with the analysis performed for the 2012 and 2009 Gambling Harm Needs Assessment reports.

### 6.4.1. Methodology

Two datasets were obtained from DIA for 1,287 NCGM venues with an indicated total of 16,717 gaming machines, for the quarter ending December 2014. One venue on the Chatham Islands was excluded from the resulting joined dataset, referred to here as the 2014 Analysis dataset and used as the base dataset for all analysis below. This dataset includes 1,286 gaming machine venues and 16,715 gaming machines.

The geocoding process inputs address information and returns a geographic coordinate which can then be used for Geographic Information Systems (GIS) analysis. Geocoding is critically dependent upon quality address information indicating the actual physical road address (road address number and name) of the venue. Particular categories of address information provided in the analysis dataset are problematic, most notably: shopping mall names (with no road address at all); "corner of" addresses (with no road address number); and road address names given with no road address number, informal road names or with only a State Highway designation – this last category being a particular characteristic of address data given for venues located in smaller towns and rural centres. Compared to 2011, address validation and geocoding issues were compounded by a change in the available geocoding software, which no longer automatically provides "street" or "suburb" level geocodes where an exact match is not available – matches are now made either exactly – against a database of valid physical addresses, or not at all.

A combination of the issues outlined above meant that it was only possible to geocode 796 (62 percent) on an automated first-pass. The remaining 490 venues were then subject to a process of investigation and address validation. Where possible, street-number level addresses were obtained and geocoded for venues where no such detail had been made available in the address dataset. Where it was still not possible to obtain a street-number level address, or where the supplied street-level address could not be validated, the nearest available street-number level address was identified and geocoded – for example "27 Smith Street" may not be valid for geocoding purposes, but "25 Smith Street" is valid and was substituted. For those venues where a geocoded coordinate was still not available, the location of the venue was plotted from GIS map data and aerial imagery and a coordinate read from GIS software. These methods, although time consuming, meant it was ultimately possible to obtain a high degree of spatial resolution for the locations of all 1,286 gaming machine venues.

All venues were then plotted using GIS software, and aggregated by the 2013 Census Area Unit (CAU) boundary within which they are physically located.

This analysis, as well as preceding 2012, 2009 and 2005 papers, are based upon assignment of the average population weighted NZDep decile rating of the CAU within which gaming machine venues, Lotto outlets and TAB outlets are located, based upon their geocoded physical address.

Although this technique is relatively straightforward to implement and understand, it does bring with it a number of important cautions and limitations upon interpretation of results. Summarised these are:

- Population weighted averages for Census Area Units, which are based upon the deprivation scores and deciles of their constituent census meshblocks, disguise heterogeneity within Census Area Units – which may lead to situations where an average value inadequately describes variation in deprivation within Census Area Units.<sup>7</sup>
- Analysis based upon demographic characteristics, including deprivation status, of the Census Area Unit within which gaming machine venues, Lotto and TAB outlets are located, may lead to the assumption that those demographic characteristics correspondingly describe the characteristics of people using those gaming machine venues. This is an analytical assumption with potential issues such as ecological fallacy and the modifiable area unit problem.<sup>8</sup>
- As noted above, many premises are located in central business districts or suburban shopping centres. As well as often possessing lower residential populations, these areas tend to be assessed by the NZDep Index of Deprivation as being more relatively deprived than surrounding residential areas. Therefore, the constituent factors driving location of gaming machine venues, Lotto and TAB outlets and high deprivation status are to some extent co-incident, and not necessarily dependent one upon the other.

The NZDep2013 Index of Deprivation, used for analysis of 2014 data, differs in detail from methods and component variables used in earlier versions of NZDep – for example the NZDep2006 Index of Deprivation, used for the 2009 and 2012 reports. This does not necessarily invalidate longitudinal comparisons, but they should be interpreted with awareness of possible issues.<sup>9</sup>

#### 6.4.2. Census Area Units with highest number of NCGMs

Table 11 (overleaf) uses Usually Resident Population, ethnicity response and age data from the 2013 census, and NZ Index of Socio-Economic Deprivation 2013 average deciles per census area unit, also derived from 2013 census variables. Grouped ethnicity responses are expressed as a fraction (percentage) of responses for that ethnicity, calculated against total ethnicity responses.

Eight of the top 10 census area units for 2014 also appeared in the top 10 for both 2011 and 2008. For 2014 compared to 2011, Cooks Gardens (Whanganui) and Auckland Central have dropped out of the top 10, to be replaced by Taupo Central and Whangarei Central.

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<sup>7</sup> This problem is dealt with in more detail in: NZDep2013 Index of Deprivation User's Manual (May 2014) Department of Public Health, University of Otago, page 12. <http://www.otago.ac.nz/wellington/otago069929.pdf> (retrieved 29 April 2015).

<sup>8</sup> For an accessible online introduction to these issues see: [http://en.wikipedia.org/wiki/Ecological\\_fallacy](http://en.wikipedia.org/wiki/Ecological_fallacy) and [http://en.wikipedia.org/wiki/Modifiable\\_areal\\_unit\\_problem](http://en.wikipedia.org/wiki/Modifiable_areal_unit_problem)

<sup>9</sup> For a discussion of these issues, please see Appendix 5 of the NZDep2013 Research Report (May 2014) <http://www.otago.ac.nz/wellington/otago069936.pdf> (retrieved 29 April 2015).

**Table 11: Ten CAUs with the highest number of NCGMs, by deprivation decile, population and ethnicity, December 2014**

CAU	Venues	Machines	Average NZDep Decile	Popn Total	European	Māori	Pacific Peoples	Asian
Willis Street-Cambridge Terrace (Wellington)	14	232	8	7329	68%	7%	2%	19%
Kuirau (Rotorua)	13	211	10	1182	37%	37%	5%	20%
Palmerston North Central	13	190	9	2865	62%	14%	4%	17%
Hastings Central	11	182	9	2814	66%	19%	4%	9%
Gisborne Central	11	173	9	3189	54%	36%	3%	5%
New Plymouth Central	9	128	7	675	71%	13%	1%	12%
Taupo Central	10	126	9	3573	60%	26%	3%	8%
Tauranga Central	8	126	7	2226	78%	8%	1%	10%
Hamilton Central	8	118	9	2928	51%	16%	4%	26%
Whangarei Central	8	117	10	174	64%	18%	5%	11%

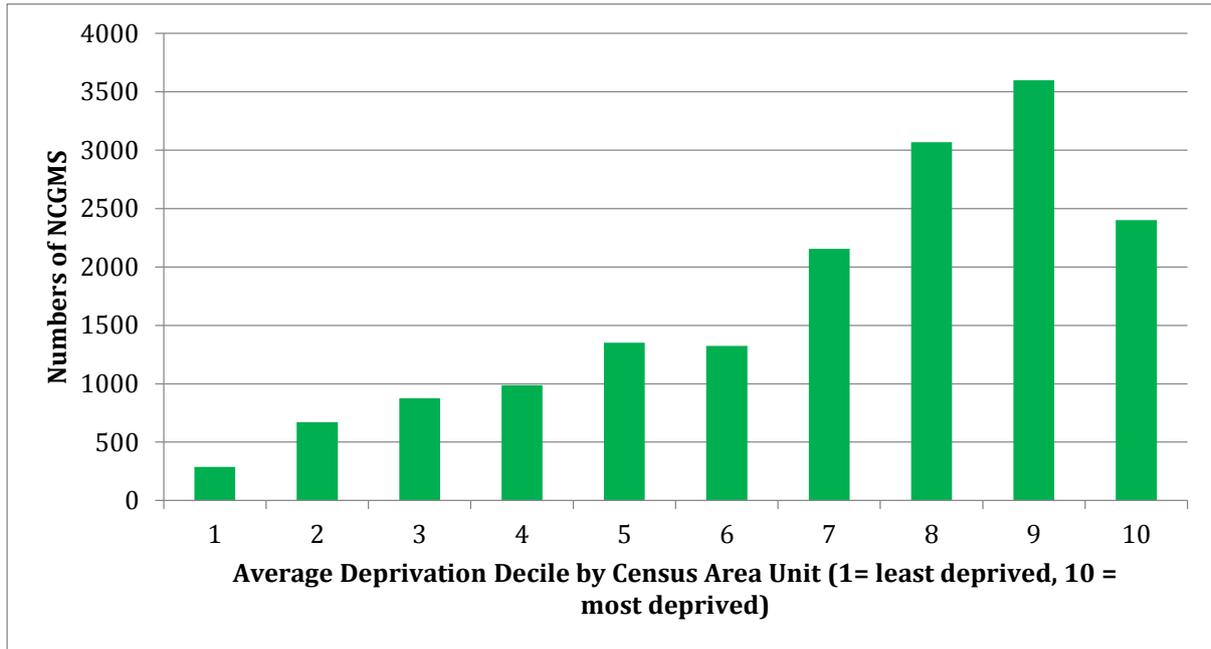
(NZDep2013 Decile: 1= least deprived, 10 = most deprived)

#### 6.4.3. NCGMs by deprivation decile

The 2009 Needs Analysis Report found that “almost half of NCGMs (48 percent) are found in areas of highest deprivation, decile 8 and higher”. Just over half (52.4 percent) of NCGMs in 2011 were located in CAUs with average deprivation deciles of 8 and higher. This represents an increase over the equivalent figure in the 2009 report (48 percent) and suggests that although overall numbers of gaming machines and venues had declined over the period 2008-2011, they did not decline at the same rate in more relatively deprived census area units. This finding is further reinforced using the 2014 analysis dataset: 54.2 percent of NCGMs in 2014 were located in CAUs with average deprivation deciles of 8 and higher – a slightly higher proportion than in 2011.

Figure 7 shows the number of NCGMs by deprivation decile, and strongly suggests that NCGMs are more heavily concentrated in CAUs with more deprivation.

**Figure 7: NCGMs by deprivation decile, 31 December 2014**



The relationship between small area deprivation status and numbers of gaming machines may also be expressed as a ratio of number of machines per 1,000 usually resident population (Figure 8).

**Figure 8: NCGMs per 1000 people by deprivation decile, 31 December 2014**

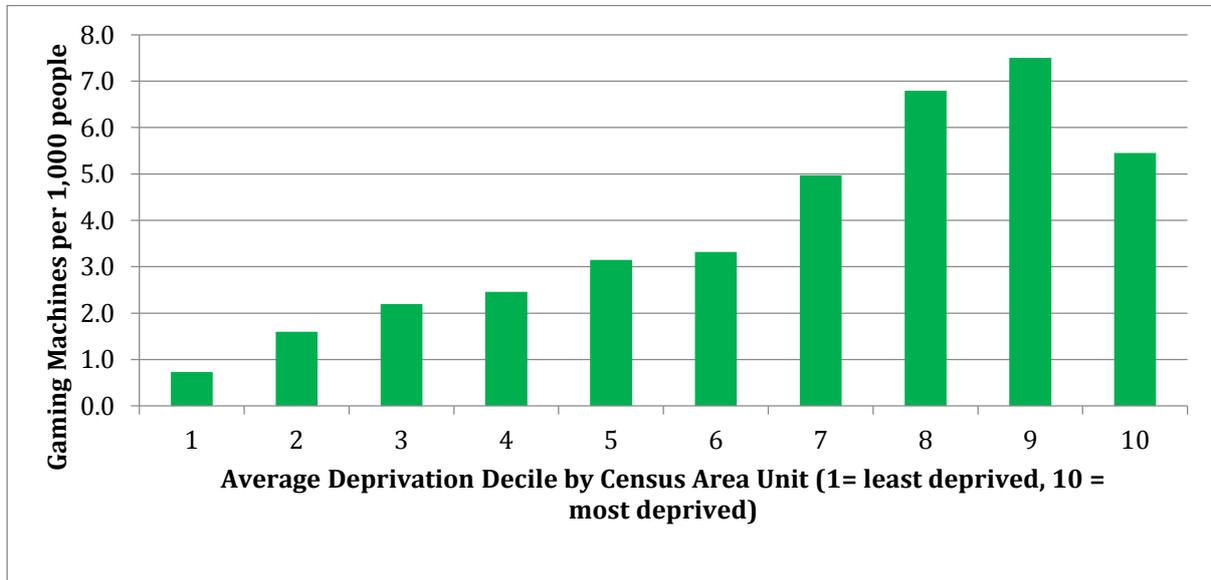


Table 12 (overleaf) shows the changes in numbers of NCGMs per 1,000 people by deprivation decile since 2011. With a minor exception (decile 2), the number of NCGMs per 1,000 people has declined across the board in 2014, compared to 2011. Although the decline has been particularly marked in deciles 6 to 10, it is still notable there are five times as many NCGMs, proportionally, in decile 9 and 10 (most deprived) CAUs as there are in decile 1 and 2 (least deprived) CAUs.

**Table 12: Non Casino Gaming Machines per 1,000 people by Deprivation Decile**

Average CAU decile	Population (2013)	NCGM 2014	Total NCGMs Per 1000 Population 2014	NCGMs 1000 Population 2011	Per Change 2011-2014
1	390,618	287	0.7	0.9	-0.2
2	419,124	671	1.6	1.5	0.1
3	397,545	875	2.2	2.6	-0.4
4	401,625	989	2.5	3	-0.5
5	429,078	1,350	3.1	3.5	-0.4
6	398,256	1,323	3.3	4.4	-1.1
7	433,629	2,155	5.0	5.6	-0.6
8	451,629	3,068	6.8	7.3	-0.5
9	479,583	3,597	7.5	8.2	-0.7
10	440,136	2,400	5.5	6	-0.5
Totals	4,241,223	16,715	3.9	4.5	-0.6
Totals Decile 1 and 2	809,742	958	1.2	1.2	0.0
Totals Decile 9 and 10	919,719	5,997	6.5	7.1	-0.6

#### 6.4.4. Caution on interpretation of NCGM venues and machines by NZDep decile of CAU

CAUs which contain central business and retail districts also tend to have higher (that is, more deprived) population-weighted deprivation deciles than those which do not. It follows that any enterprise which tends to be located in either central or suburban business districts, such as gambling premises, will also tend to be located in more deprived CAUs. In other words, the co-location of buildings containing gambling premises with buildings containing retail and other businesses within a CAU may act as an explanatory variable independent of the deprivation status of the population living within that CAU.

The association is tested here by looking at the “deprivation curve” of pharmacies located within the boundaries of the three Auckland District Health Boards, the Waikato District Health Board and the Bay of Plenty District Health Board, compared to the “deprivation curve” of NCGMs

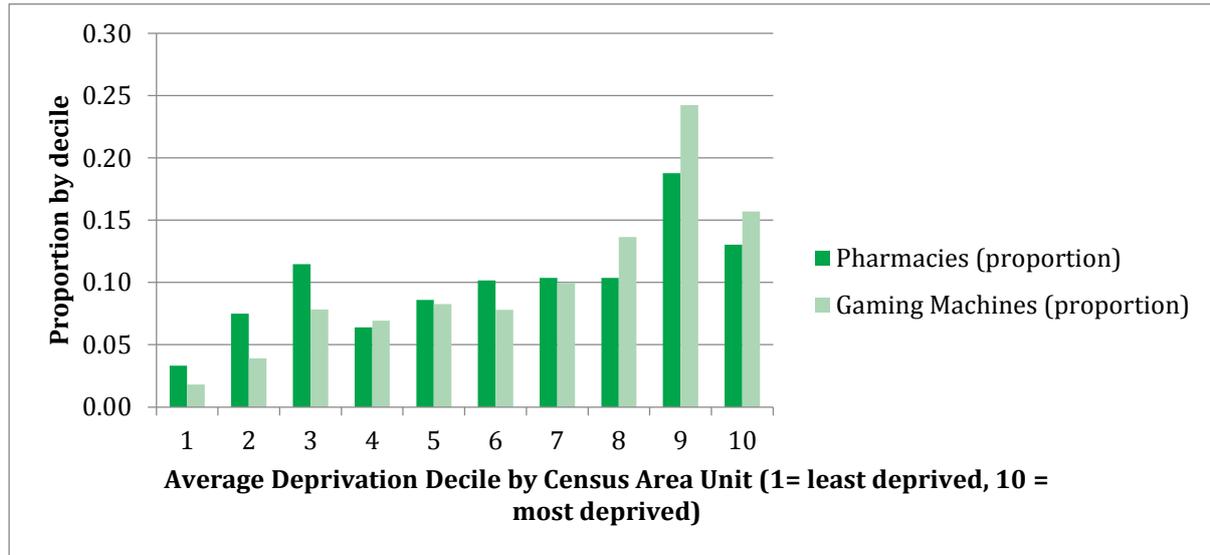
located in venues within those same boundaries. This particular test-case was chosen because pharmacies within those upper North Island boundaries were readily available in a GIS dataset, and also because pharmacies tend to be located in central and suburban business and retail districts.

The GIS dataset for pharmacies contained 453 premises. The equivalent dataset for gaming machines contained 478 premises and 6,616 gaming machines. Results are summarised in Table 13 (below) and Figure 9 (overleaf).

**Table 13: Pharmacies and Gaming Machines by Deprivation Decile of Census Area Unit 2014**

NZDep Decile	2013 Pharmacies (count)	Pharmacies (propn)	Gaming (count)	Machines Gaming (propn)	Machines
1	15	0.03	119	0.02	
2	34	0.08	258	0.04	
3	52	0.11	518	0.08	
4	29	0.06	458	0.07	
5	39	0.09	547	0.08	
6	46	0.10	516	0.08	
7	47	0.10	658	0.10	
8	47	0.10	902	0.14	
9	85	0.19	1602	0.24	
10	59	0.13	1038	0.16	
Totals	453	1.00	6616	1.00	
Deciles 1 to 2	49	0.11	377	0.06	
Deciles 9 to 10	144	0.32	2640	0.40	

**Figure 9: Pharmacies by Deprivation Decile of Census Area Unit, compared to Gaming Machines, 2014**

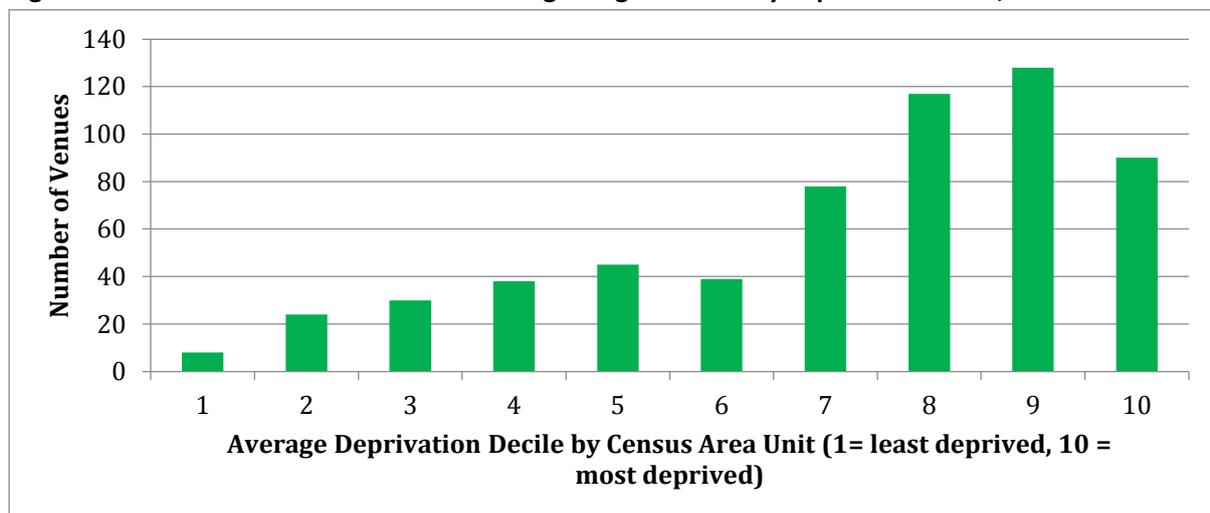


As can be seen, there is an apparent “association” between deprivation and location of pharmacies – there are almost three times as many pharmacies located within the most deprived deciles (9 and 10) of census area units compared to the least deprived deciles (1 and 2). However, the association between deprivation and location of gaming machines is stronger still – in this regional dataset there are seven times as many gaming machines located within the most deprived deciles (9 and 10) compared to the least deprived deciles (1 and 2). On this basis, therefore, it seems reasonable to propose that some of the association between deprivation and higher numbers of gaming machines is simply due to the physical location of buildings suitable for business use. However, the relative level of deprivation within a CAU also acts as a significantly stronger predictor of higher numbers of gaming machines.

#### 6.4.5. Large NCGM venues by deprivation decile

The distribution of large venues continues to reflect the distribution of all venues by NZ Deprivation deciles (Figure 10). In 2014, 56 percent of venues with 18 machines or more are located in CAUs with average deprivation deciles of 8 to 10. This figure is a slight increase on the equivalent figure (55 percent) for 2011.

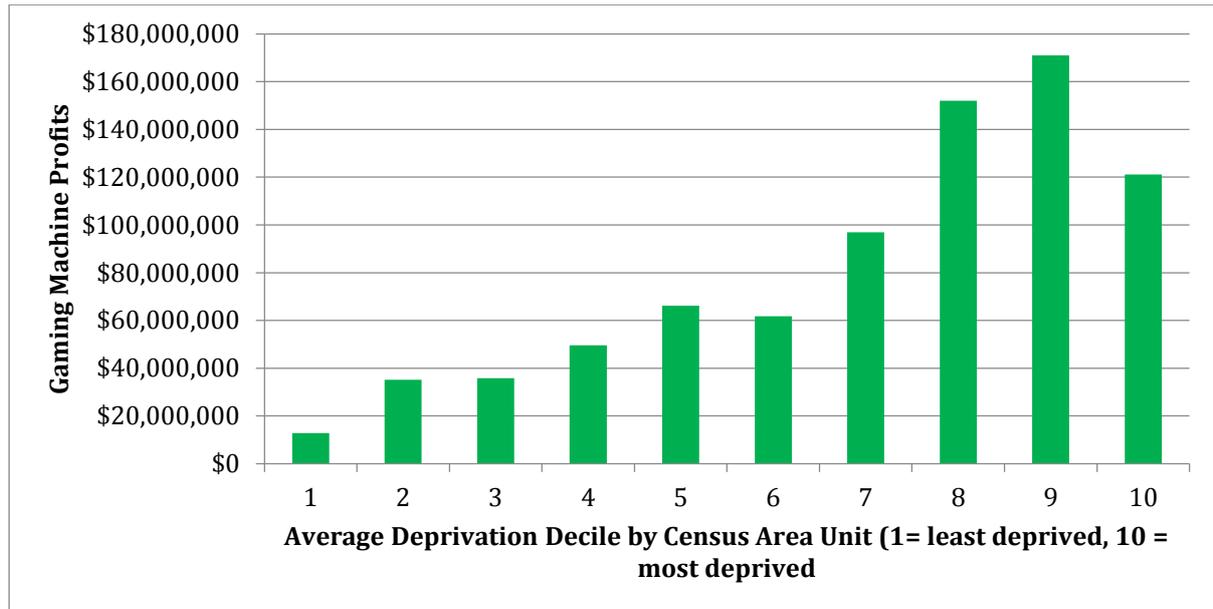
**Figure 10: Number of NCGM venues with 18+ gaming machines by deprivation decile, December 2014**



#### 6.4.6. NCGM profits by deprivation decile

The 2009 Needs Analysis report noted that “Fifty-six percent of all NCGM expenditure is occurring in CAUs with a decile rating of 8 and above”. This proportion remained basically unchanged in the December 2011 quarter where 55.5 percent of Gaming Machine Profits (GMP) were generated by venues located in Census Area Units with average deciles 8 and above. For the 2014 calendar year a near identical proportion of 55.3 percent of total GMP was generated by venues located in CAUs with average deciles 8 and above.

**Figure 11: Non Casino Gaming Machine Profits 2014 by Deprivation Decile 2014**



#### 6.4.7. Distribution of Lotto outlets by deprivation decile

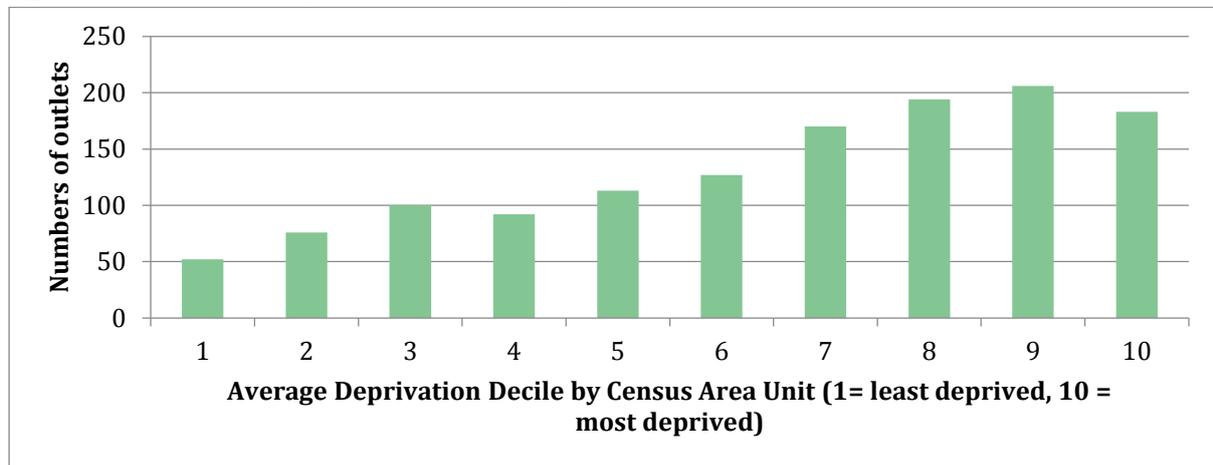
Table 14 and Figure 12 (overlaid) set out the distribution of Lotto outlets by the average NZDep2013 decile of the CAU within which they are physically located. Again, there are three times as many Lotto outlets located in decile 9 and 10 area units as there are in decile 1 and 2 area units. However, this finding should be interpreted with reference to the cautions set out.

**Table 14: Lotto outlets by Census Area Unit deprivation decile**

Average CAU NZDep2013 decile	Lotto outlets
1	52
2	76
3	100
4	92
5	113

6	127
7	170
8	194
9	206
10	183
Total	1313
Totals Decile 1 and 2	128
Totals Decile 9 and 10	389

**Figure 12: Lotto outlets by Census Area Unit deprivation decile, 31 December 2014**



**6.4.7.1. Caution on interpretation of numbers of Lotto outlets by NZDep decile of census area unit**

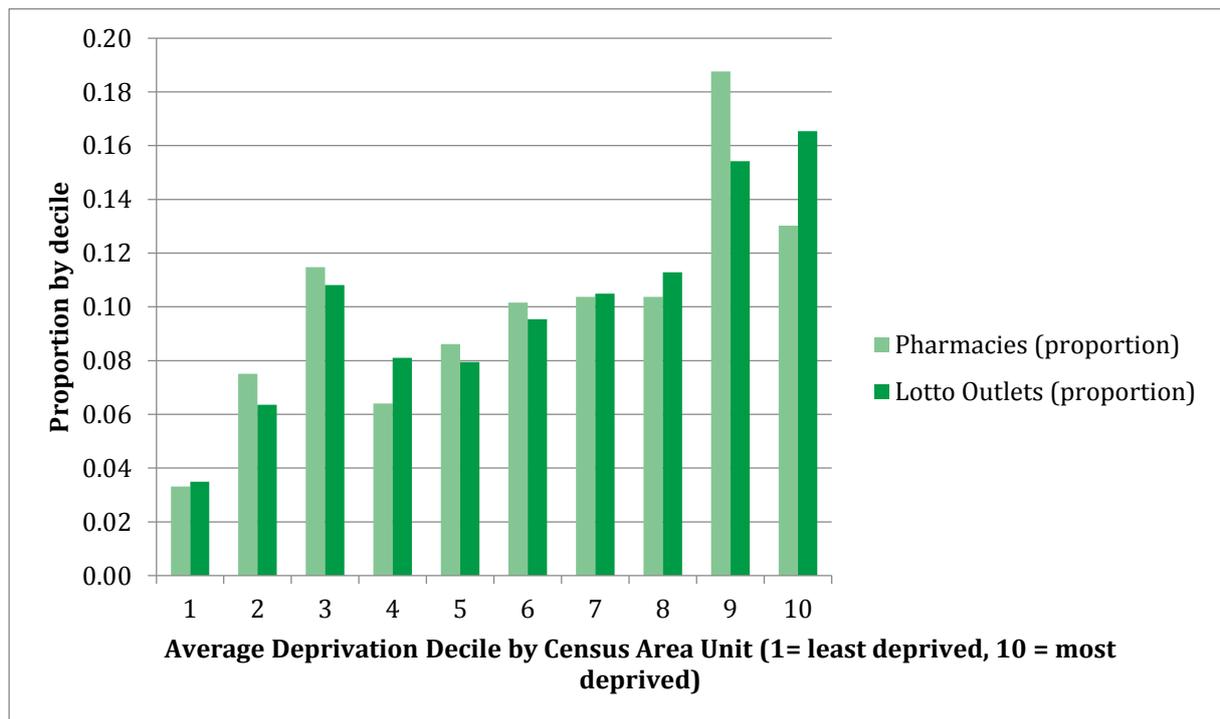
Identification of Lotto outlets by deprivation decile was achieved using the same method used for NCGM analysis above. As such, the same cautions location mentioned in section 6.4.4 apply here. As with NCGMs, the association is tested here with the “deprivation curve” of pharmacies.

**Table 15: Pharmacies and Lotto Outlets by Deprivation Decile of Census Area Unit 2014**

NZDep Decile	2013 Pharmacies (count)	Pharmacies (propn)	Lotto outlets (count)	Lotto outlets (propn)
1	15	0.03	22	0.03
2	34	0.08	40	0.06
3	52	0.11	68	0.11

4	29	0.06	51	0.08
5	39	0.09	50	0.08
6	46	0.10	60	0.10
7	47	0.10	66	0.10
8	47	0.10	71	0.11
9	85	0.19	97	0.15
10	59	0.13	104	0.17
Totals	453	1.00	629	1.00
Deciles 1 to 2	49	0.11	62	0.10
Deciles 9 to 10	144	0.32	201	0.32

**Figure 13: Pharmacies by Deprivation Decile of Census Area Unit, compared to Lotto outlets 2014**



As can be seen, there is an apparent “association” between deprivation and location of pharmacies – there are almost three times as many pharmacies located within the most deprived deciles (9 and 10) of census area units compared to the least deprived deciles (1 and 2). The level of association between deprivation and Lotto outlets is slightly higher – but quite

similar - at 3.24 times as many outlets located within the most deprived deciles (9 and 10) of census area units compared to the least deprived deciles (1 and 2).

On this basis, therefore, it seems reasonable to propose that a significant factor in the association between deprivation and higher numbers of Lotto outlets premises may be the physical location of buildings suitable for business use. It is possible that relative level of deprivation also acts as a predictor, but not as significantly as with other forms of gambling premise such as TABs (explored below), and, in particular non-casino gaming machine venues.

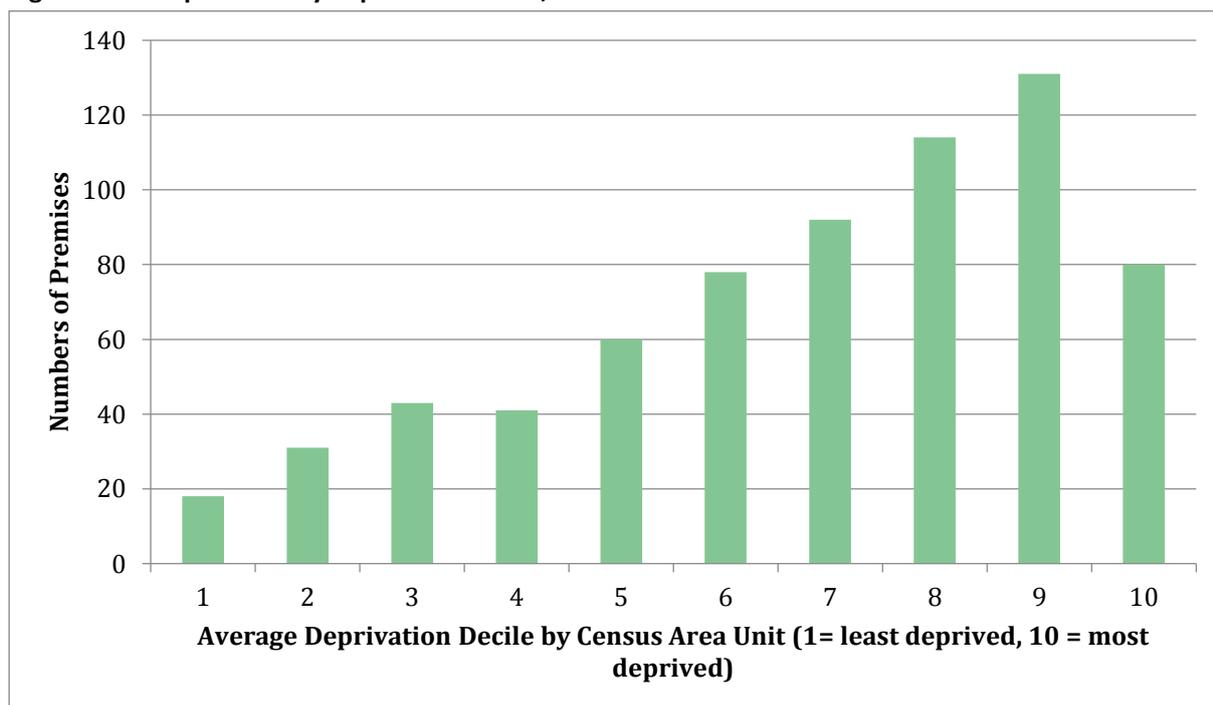
**6.4.8. Distribution of TAB premises by deprivation decile**

Table 16 and Figure 14 (overleaf) set out the distribution of TAB premises by the average NZDep2013 decile of the CAU within which they are physically located.

**Table 16: Distribution of TAB outlets by Deprivation Decile, 2014**

Average CAU NZDep2013 decile	TAB Premises
1	18
2	31
3	43
4	41
5	60
6	78
7	92
8	114
9	131
10	80
Total	688
Totals Decile 1 and 2	49
Totals Decile 9 and 10	211

**Figure 14: TAB premises by deprivation decile, 2014**



There are four times as many TAB premises located in decile 9 and 10 area units as there are in decile 1 and 2 area units. However, this finding should be interpreted with reference to the cautions set out above (relating to NCGMs and Lotteries outlets).

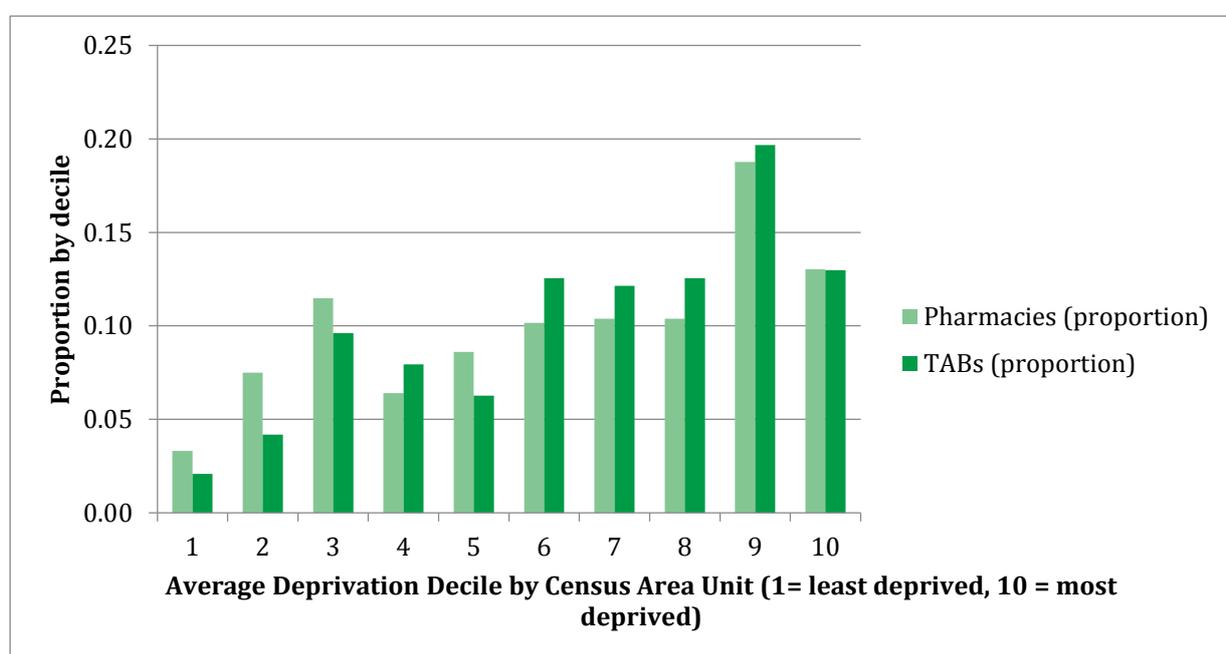
Identification of TAB outlets by deprivation decile was achieved using the same method used for NCGM and Lotto outlet analysis above. As such, the same cautions location mentioned in section 6.4.4 apply here. As with NCGMs and Lotto outlets, the association is tested here with the “deprivation curve” of pharmacies, the results of which are summarised in Table 17 (below) and Figure 15 (overleaf):

**Table 17: Pharmacies and TAB Outlets by Deprivation Decile of Census Area Unit 2014**

NZDep Decile	2013 Pharmacies (count)	Pharmacies (propn)	TABs (count)	TABs (propn)
1	15	0.03	5	0.02
2	34	0.08	10	0.04
3	52	0.11	23	0.10
4	29	0.06	19	0.08
5	39	0.09	15	0.06
6	46	0.10	30	0.13
7	47	0.10	29	0.12

8	47	0.10	30	0.13
9	85	0.19	47	0.20
10	59	0.13	31	0.13
Totals	453	1.00	239	1.00
Deciles 1 to 2	49	0.11	15	0.06
Deciles 9 to 10	144	0.32	78	0.33

**Figure 15: Pharmacies by deprivation decile of CAU compared to TAB premises, 2014**



As can be seen, there is an apparent “association” between deprivation and location of pharmacies – there are almost three times as many pharmacies located within the most deprived deciles (9 and 10) of census area units compared to the least deprived deciles (1 and 2). However, the association between deprivation and location of TAB premises is stronger – in this regional dataset there are five times as many TAB premises located within the most deprived deciles (9 and 10) compared to the least deprived deciles (1 and 2). On this basis, therefore, it seems reasonable to propose that some of the association between deprivation and higher numbers of TAB premises is simply due to the physical location of buildings suitable for business use. However, the relative level of deprivation within a census area unit also acts as a predictor of higher numbers of TAB premises.

## 7. PROBLEM GAMBLING SERVICES

Section 7 of the 2015 Gambling Harm Needs Assessment reviews the provision and uptake of problem gambling services in New Zealand. It includes analysis of data on the Gambling Helpline use and other intervention services.

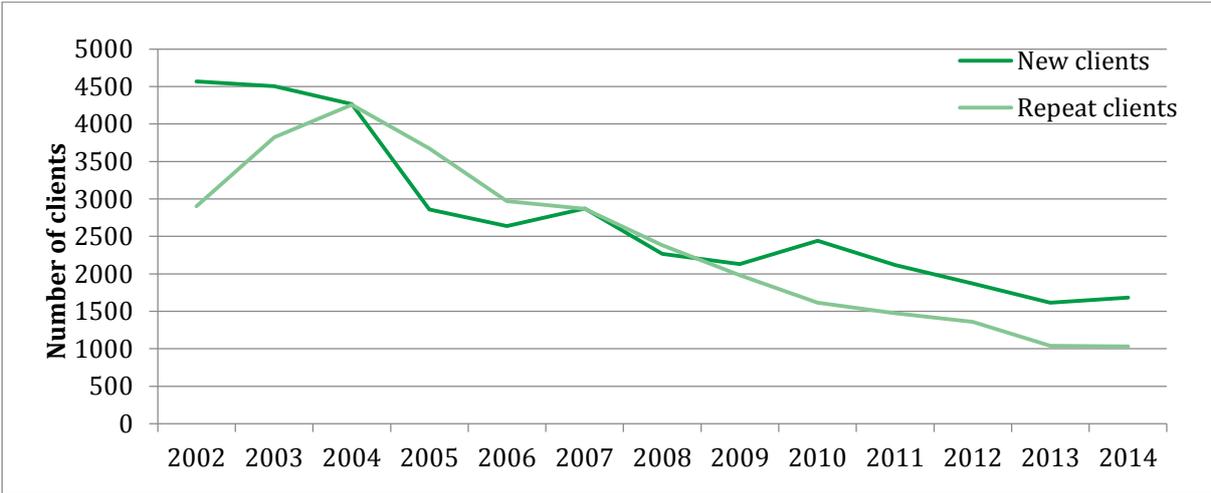
### 7.1. Gambling Helpline service

The Gambling Helpline is a 24-hour freephone helpline for those worried about their gambling behaviours or those of others. Callers may receive immediate counselling support, be referred to another gambling support organisation, or receive other information on gambling. Gambling Helpline reporting volumes used are those reported by the service, which are presented by numbers of clients, not numbers of calls. Each client may call the Helpline service multiple times over the course of their contact.

#### 7.1.1. Use of Gambling Helpline services

Figure 16 (below) shows the number of new clients and repeat clients<sup>10</sup> who accessed the Gambling Helpline between 2002 and 2014. It shows a steady decline in new and repeat clients since 2002. The 2012 Gambling Harm Needs Assessment noted that client numbers were stabilising; however, in the three years since that report, client numbers have dropped again (although these remain relatively stable compared to the steep declines of the early 2000s). There were two small differences in trends by new and repeat clients. Firstly, there was a small increase in new client numbers in 2013 and 2014 (an increase of 4.3 percent): this is only the third year since 2002 that client numbers have increased from the preceding year. Secondly, the number of repeat clients held very closely to the year before, with a decrease of eight clients, representing less than one percent.

Figure 16: Gambling Helpline clients, 2002–2014



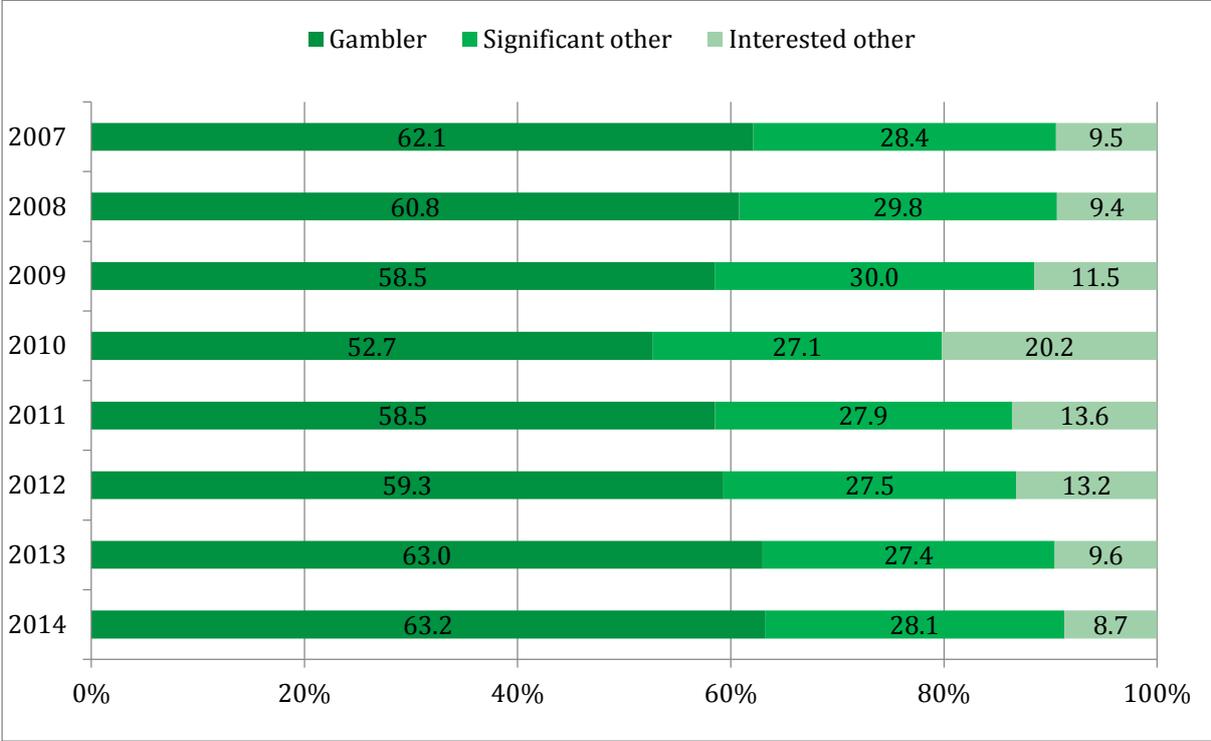
Source: Ministry of Health 2014.

During 2014, an average of 140 new clients accessed the Gambling Helpline per month.

<sup>10</sup> A New Client: the first time an individual has contacted the Helpline either by phone call or email. A Repeat client: a client who has previously contacted the Helpline.

Figure 17 (below) displays data relating to the type of new Gambling Helpline clients between 2007 and 2014. Clients are broken down into gambler, significant other and interested other<sup>11</sup>. Of the three groups of people contacting the Gambling Helpline in 2014, 63.2 percent were gamblers. This percentage has remained fairly steady over the period analysed, with slight increases since 2010 to more closely resemble the proportion seen in 2007.

**Figure 17: New Gambling Helpline clients by type, 2007–2014**



Source: Ministry of Health 2014.

**7.1.2. Gender and age of Gambling Helpline clients**

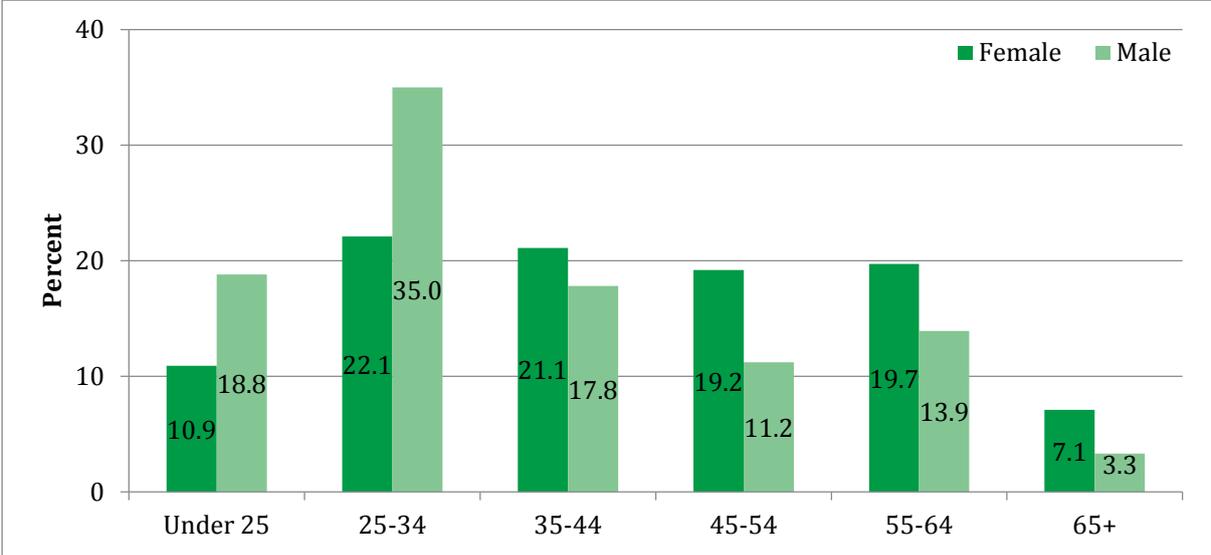
There are gender differences among those who contact the Gambling Helpline. Of the gamblers who contacted the Gambling Helpline in 2014, 60.7 percent were male and 39.3 percent were female. These numbers show a slight change from the 2012 Gambling Harm Needs Assessment, which noted that the ratio of male gamblers had remained fairly static at slightly over 50 percent since 2007. Women were more likely to be contacting the Gambling Helpline about another's behaviour: of the significant others who contact the Helpline in 2011, 74.0 percent were female and 26 percent male. This ratio, with around three-quarters of significant others being female, is in line with the numbers that have been reported since 2007.

Data on the age and gender of Gambling Helpline clients shows that clients aged under 35 years are more likely to be males whereas clients aged 35+ years are more likely to be female (Figure 18). Gambling Helpline clients aged 55–64 years are especially more likely to be female than male. These findings replicate those from the 2012 report. As noted in the literature review in Section 2, young men are more likely to experience severe problem gambling. The fact that

<sup>11</sup> Significant other: family, other relatives, friends or others personally affected by another person with a gambling problem. Interested other: media, students, researchers, general public requesting general information about gambling problems in New Zealand.

young men appear to be more likely to access Helpline than older men suggests that the same is true in New Zealand.

**Figure 18: Age and gender of Gambling Helpline clients, 2014**



Source: Ministry of Health 2014.

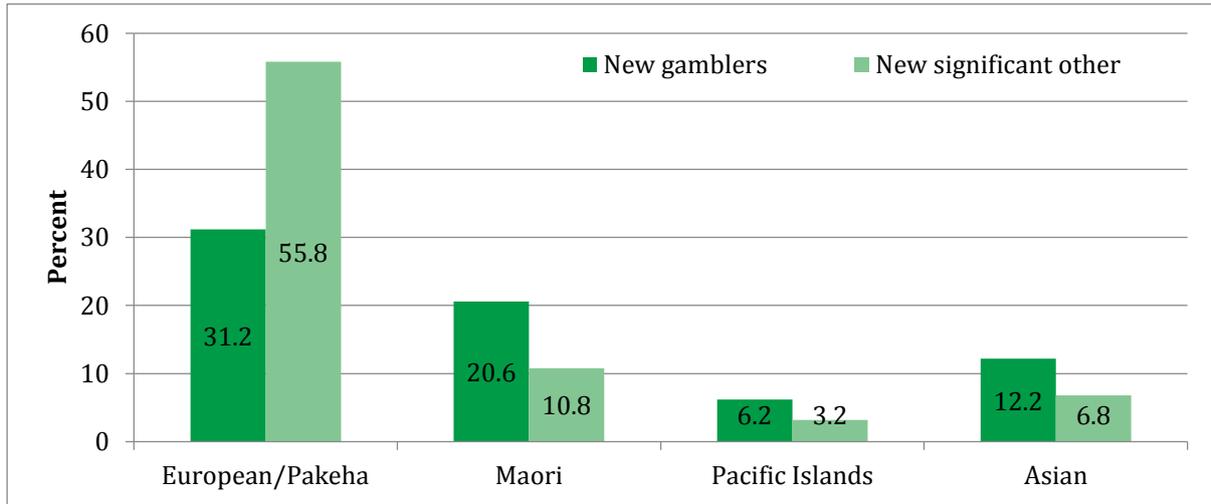
Clients under 35 years are more likely to be gamblers as opposed to significant others, as are clients aged 40-44. Clients aged 35-39, and 45+ years are more likely to be significant others than gamblers.

**7.1.3. Ethnicity of Gambling Helpline clients**

The Helpline is accessed by different ethnicities. Of gamblers and significant others who contacted the Gambling Helpline in 2014 (and who had their ethnicity recorded), 38.8 percent were European/Pākehā, 17.6 percent were Māori, 5.3 percent were Pacific people and 10.5 percent were Asian. The ethnic status of a further 19.3 percent is recorded as ‘other/multi’ while the ethnicity of the remaining 8.5 percent of clients is unknown. Given that almost one third of Gambling Helpline users have an unclear or unstated ethnicity, it is not possible to accurately determine whether ethnic groups are accessing the Helpline services in a way that is proportional. (However, when the Helpline provides a full, facilitation or follow-up service to its gambler or significant other clients, ethnicity is recorded, and Pacific people in particular seem to be under-represented among those clients.)

Figure 19 (overleaf) shows the ethnicity of new clients by type (gamblers and significant others) for 2014. As with previous years, Māori, Pacific and Asian people have more gamblers than significant others; however, for European/Pākehā a higher proportion of new clients were significant others than gamblers. No analysis is available for those whose ethnic status is recorded as ‘other/multi’ or for those who have no ethnicity recorded.

**Figure 19: Ethnicity of new Gambling Helpline clients by type, 2014**

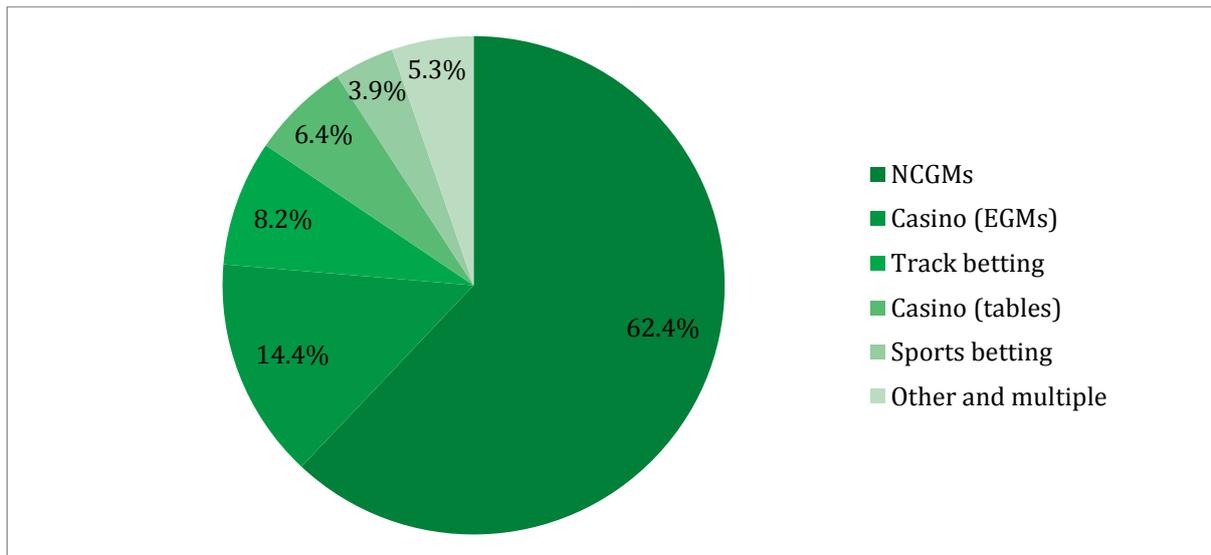


Source: Ministry of Health 2014.

#### 7.1.4. Gambling mode and new Gambling Helpline clients

Figure 20 shows that the primary mode of gambling as cited by new Gambling Helpline clients (gamblers and significant others) is NCGMs (and that this primary gambling mode makes up a significantly greater proportion than other gambling modes combined). This is consistent with previous analyses. The proportion of new Gambling Helpline clients whose primary mode of gambling was NCGMs has steadily declined from 82.4 percent in 2003, to 70.6 percent in 2011, to 62.4 percent in 2014. Over the same period (2003–2014) the proportion of clients in all the other modes has increased, although the total number of clients in these groups is still comparatively low in total numbers, being below 100 each.

**Figure 20: Primary mode of gambling of new Gambling Helpline clients, 2014**



Source: Ministry of Health 2014.

### 7.1.5. Geographic location of new Gambling Helpline callers

Table 18 shows that 34.7 percent of new Gambling Helpline clients in 2014 were from the Auckland region, a similar percentage to 2011 (32.3 percent). The Gambling Helpline does not report repeat client numbers by region. It is interesting to note that some regions, such as Whanganui, the West Coast and the Coromandel, have quite high numbers relative to their assumed populations. Future research on the Helpline service could explore this disparity.

**Table 18: New Gambling Helpline clients by region, 2014**

Region	Number	Percent
Northland	37	2.2
Auckland	581	34.7
Waikato	8	0.5
Coromandel/Thames Valley	109	6.5
Bay of Plenty	6	0.4
Gisborne	26	1.6
Hawke's Bay	58	3.5
Central North Island	8	0.5
Taranaki	18	1.1
Wanganui	211	12.6
Manawatu	10	0.6
Wellington	160	9.6
Wairarapa	31	1.9
Nelson	38	2.3
Marlborough	9	0.5
Canterbury	100	6.0
West Coast	175	10.5
South Canterbury	9	0.5
Otago	46	2.7
Southland	23	1.4
Other	10	0.6

Total	1673	100.0
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Source: Ministry of Health 2014.

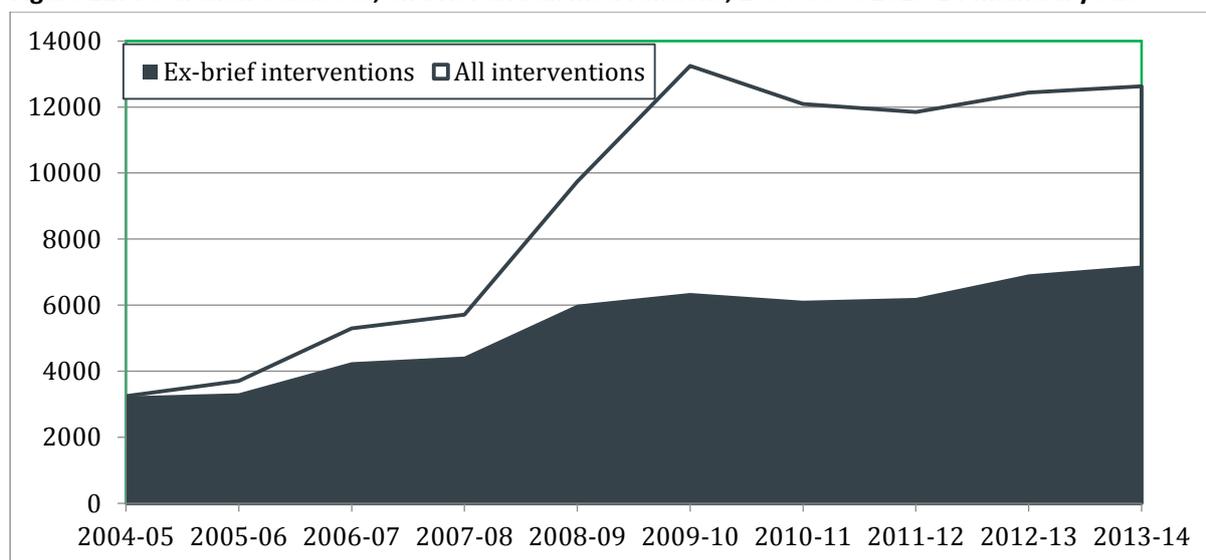
## 7.2. Problem gambling intervention services

The Ministry of Health funds a range of problem gambling intervention services. The Ministry's three year service plan for problem gambling services 2013/14 to 2015/16 identifies its approach to intervention services as including the components:

- helplines and web-based services
- psychosocial intervention and support
- data collection and reporting
- workforce development and training
- service auditing.

Data over the past ten years (Figure 21) shows the number of full, facilitation and follow-up clients (i.e., excluding those clients who received brief screening interventions only, but including the Helpline's full, facilitation and follow-up gambler and significant other clients) increased steadily to 2008-09, was relatively stable for four years, then increased in 2012-13 and 2013-14. A total of 12,627 clients received a brief screening intervention or a full, facilitation or follow-up intervention in the 2013-14 financial year, including 7,200 clients who were full, facilitation or follow-up clients. While the number of full, facilitation and follow up interventions was highest in 2012-13 and 2013-14, the total number including brief screening interventions remains lower than the peak seen in 2009-10.

**Figure 21: Total clients assisted, ex-brief and all interventions, 2004-05 to 2013-14 financial years**



Source: Ministry of Health 2014.

The number of all clients appeared to increase rapidly from 2007-08 to 2009-10, but a direct comparison between the data July 2004 – June 2008 and July 2008 to present day data has the following limitations. New service specifications for problem gambling intervention service

providers were implemented from January 2008. Equivalent intervention services provided by the Gambling Helpline have been included in the data since November 2008.

### **7.2.1. Ethnicity of intervention service users**

Data from 2013-14 show that Māori and Pacific peoples appear to have a particularly high use of all problem gambling intervention services (and they comprise the largest ethnic groups using the intervention services):

- 36.1 percent were Māori
- 19.8 percent were Pacific
- 5.6 percent were East Asian
- 38.4 percent identified as 'other' (including New Zealand European/Pākehā).

The ethnic groups who use the problem gambling intervention services continue to change. The 2012 Gambling Harm Needs Assessment noted that the proportion of Pacific clients had more than doubled over the five years preceding 2010-11 to 14.5 percent: Pacific participation in the services continues to increase. In the same year Māori clients constituted 29.9 percent: again, participation increased in 2013-14. Interventions for East Asian clients have declined from the 2010-11 level of 8.3 percent.

Rates of participation in problem gambling intervention services based on ethnicities are also significantly different to participation rates for other support services including the Gambling Helpline (see section 7.1.3 of this report).

#### **7.2.1.1. Gender of intervention service users**

There are gender differences associated with use of problem gambling interventions, with slightly more females accessing such services: for all interventions in 2013-14, 53.1 percent of clients were female and 46.7 percent were male. There has been little change in this ratio, with females consistently making up just over half of all clients. The ratios are similar, and similarly stable, for all interventions excluding brief interventions, except the ratio of female to male reverses for an as yet unknown reason (becoming slightly over 50 percent male).

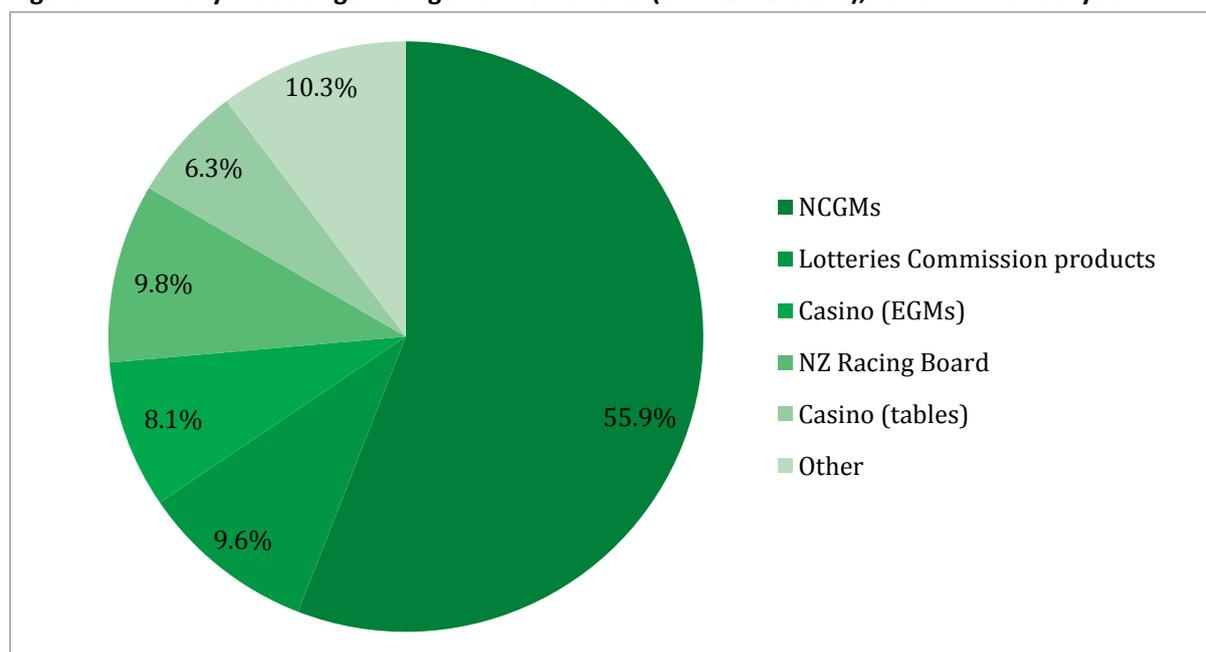
For all interventions in 2013-14, 54.9 percent of clients were gamblers while 45.1 percent were family/affected other. Excluding brief interventions, 75.1 percent of clients were gamblers and 24.9 percent were family/affected others.

### **7.2.2. Gambling mode and intervention services**

Figure 22 (overleaf) shows that for slightly over half of all new clients (all interventions) the primary mode of problem gambling was NCGMs (similar to those presenting to the Gambling Helpline). The proportion of new clients whose primary mode of problem gambling was NCGMs steadily declined from 74 percent in 2004-05 to 54.3 percent in 2010-2011. This percentage has appeared to hold fairly stable over the past three years.

In 2010-11 the proportion of new clients whose primary mode of problem gambling was Lotteries Commission products had increased sharply, from three percent in 2007-08 to 14.6 percent in 2009-11, but this number has declined in the past three years to 9.6 percent in 2013-14. The proportion of clients across other modes has tended to fluctuate, with no clear trend across the past seven years.

**Figure 22: Primary mode of gambling of all new clients (all interventions), 2013-14 financial year**



Source: Ministry of Health 2014.

### 7.2.3. Geographic location of intervention services

Table 19 (below) shows the number of clients assisted (new and follow up clients for all interventions) by territorial authority. The territorial authorities are listed in order of the total clients assisted per 10,000 population (highest to lowest). The order of authorities from highest to lowest is fairly similar to 2011, with no large changes standing out. Porirua is still at the top of the table, although total clients assisted has fallen from 683 in 2011 to 596 in 2014, a decrease of 12.7 percent. However Clutha District, which has also held at number two in the same table, has increased 8.7 percent, from 149 in 2011 to 162. The most notable observation to make on the table may be that only Westland District had no clients in 2014, whereas in 2011 six authorities had no clients at all. The numbers in the authorities at the lower end of the table are still low, and may be reflective of a lack of services in the area.

**Table 19: Total clients assisted (all interventions) per 10,000 population and problem gambling services, by territorial authority, 2013-14 financial year**

Territorial authority	Estimated residential population (30 June 2014)	Total clients assisted (all interventions)	Total clients assisted per 10,000 population
Porirua District Council	54,100	596	110.2
Clutha District Council	17,350	162	93.4

Territorial authority	Estimated residential population (30 June 2014)	Total assisted interventions)	clients (all assisted per 10,000 population)
Hastings District Council	77,400	579	74.8
Napier City Council	60,100	396	65.9
Rotorua District Council	68,500	435	63.5
Kawerau District Council	6,600	38	57.6
Gisborne District Council	47,100	213	45.2
Far North District Council	61,000	248	40.7
Whangarei District Council	84,400	324	38.4
Auckland City Council	1,527,100	5,521	36.2
Wairoa District Council	8,200	26	31.7
Hamilton City Council	153,100	482	31.5
Hutt City Council	47,556	137	28.8
Taupo District Council	35,100	100	28.5
Christchurch City Council	362,000	1,005	27.8
Ashburton District Council	32,800	91	27.7
South Waikato District Council	23,300	62	26.6
Nelson City Council	49,300	120	24.3
Upper Hutt City Council	41,800	98	23.4
Invercargill City Council	57,300	134	23.4
Waipa District Council	49,300	112	22.7
Central Hawkes Bay District Council	13,250	29	21.9
Dunedin City Council	124,600	246	19.7

Territorial authority	Estimated residential population (30 June 2014)	Total assisted interventions	Total clients (all assisted per 10,000 population)
Tauranga District Council	121,700	236	19.4
New Plymouth District Council	78,200	136	17.4
Western Bay of Plenty District Council	46,000	78	17.0
Chatham Islands Council	600	1	16.7
Manawatu District Council	28,800	48	16.7
Whakatane District Council	34,300	51	14.9
Waikato District Council	68,000	79	11.6
Wellington City Council	200,100	231	11.5
Wanganui District Council	43,400	41	9.4
Waimakariri District Council	54,400	51	9.4
Masterton District Council	24,200	21	8.7
Palmerston North District Council	84,300	73	8.7
Marlborough District Council	44,800	37	8.3
Ruapehu District Council	12,450	10	8.0
Waitaki District Council	21,700	17	7.8
Kapiti Coast District Council	51,100	38	7.4
Kaipara District Council	20,700	15	7.2
Horowhenua District Council	31,300	22	7.0
Tararua District Council	17,100	12	7.0
Stratford District Council	9,260	6	6.5
Timaru District Council	45,900	29	6.3
Gore District Council	12,400	7	5.6

Territorial authority	Estimated residential population (30 June 2014)	Total assisted interventions)	Total clients (all assisted per 10,000 population)
Kaikoura District Council	3,640	2	5.5
Grey District Council	13,600	7	5.1
Tasman District Council	49,100	25	5.1
Queenstown - Lakes District Council	30,900	15	4.9
South Taranaki District Council	27,500	13	4.7
Opotiki District Council	8,830	4	4.5
Waimate District Council	7,880	3	3.8
Buller District Council	10,550	4	3.8
Matamata - Piako District Council	33,300	12	3.6
South Wairarapa District Council	9,910	3	3.0
Selwyn District Council	49,400	13	2.6
Hurunui District Council	12,250	3	2.4
Carterton District Council	8,680	2	2.3
Waitomo District Council	9,390	2	2.1
Otorohonga District Council	9,650	2	2.1
Southland District Council	30,400	5	1.6
Thames - Coromandel District Council	27,500	4	1.5
Westland District Council	8,640	1	1.2
Hauraki District Council	18,800	2	1.1
Central Otago District Council	18,850	2	1.1
Rangitikei District Council	14,600	1	0.7

Territorial authority	Estimated residential population (30 June 2014)	Total assisted interventions)	clients Total assisted per 10,000 population
Mackenzie District Council	4,320	0	0.0

Source: Ministry of Health 2014 and Statistics New Zealand Population Estimates June 2014.

### 7.3. Conclusions

The 2012 Needs Analysis report noted that demand for full interventions had been steadily declining for 10 years, whereas the demand for brief interventions had been relatively static for the preceding four years. The 2014 figures suggest that demand for gambling intervention services appears to have stabilized in the past year, with the decline in full interventions appearing to have halted in the preceding year.

The traditional underutilisation of intervention services by Māori and Pacific gamblers may be slowly reversing, as participation of both of these groups in interventions appears to have increased slightly. The increase in Māori and Pacific callers may partly explain the stabilization in total numbers using the service.

There have been few other notable trends, with overall service usage, usage by territorial authority, and usage by gender all being consistent with usage identified in 2012. The relative percentages of primary gambling activities leading to use of intervention services continue to fluctuate.

## 8. SUMMARY OF KEY THEMES AND TRENDS

### 8.1. Overall trends

Data from the NZHS and NGS on participation rates, while not exactly aligned, suggest that the decline in gambling participation seen in 2012 may have steadied. The rate of approximately 52 percent seen in the 2011/12 NZHS is essentially the same figure as was reported in the 2012 Needs Analysis report (which was based on half of the 11/12 NZHS sample), but the NGS figure of 80 percent is very close to the 2010 HLS figure of 81 percent.

No significant change in the prevalence of problem gambling was observed by either the NZHS or NGS, with both placing the combined percentage of moderate-risk and severe/problem gamblers at approximately 1.2 percent of the adult population. However, the NZHS identifies that the proportion of non-gamblers in the population appears to have increased since then, from almost 40 percent in 2006/07 to over 54 per cent in 2011/12. Results from the NGS do not necessarily support an increase in non-gamblers, but the NGS authors do identify that the rate of adults' participation in gambling in the previous 12 months has not changed since previous 2005 and 2010 surveys, and that 80 percent participation is lower than during the 1990s when around 90 percent of adults participated frequently (Abbott et al 2014a).

Total gambling expenditure has fluctuated slightly over the years, but has remained between \$2 billion and \$2.1 billion in all but one year since 2007. This trend was noted in the 2012 report, which also stated that population increases and inflation likely meant a significant drop in per capita and inflation adjusted expenditure. However, if it is true that participation has declined from those years to 2011/12, then there may be a significant portion of the gambling population that is spending more.

No large changes in relative popularity of gambling activity were seen. Lotto remains the most common form of gambling undertaken in New Zealand. Expenditure by type of gambling remains much the same as in 2012 however, with NCGMs remaining responsible for over 38 percent of expenditure. This may not remain the case forever, as spending on NCGMs has dropped by almost 30 percent since 2004, while spending on Lotteries Commission products has increased over 60 percent in the same timeframe. The decline in total NCGM numbers has also continued, with 16,717 machines in 2014, compared to 18,133 in 2011.

### 8.2. Gambling trends by population groups

#### 8.2.1. By ethnicity

Results from the 2011/12 NZHS suggest that increased proportions of Māori and European/Other were being classified as 'non-gamblers' compared to previous years, and no significant changes were observed in relation to moderate-risk/problem gambling for any of the ethnic groups. However, the ethnic differences in prevalence of moderate-risk/problem gambling remain. The NGS noted that Māori and Pacific people remain at significantly increased risk for developing problem gambling, and in fact were the major independent risk factors identified for current problem gambling. Māori and Pacific people continue to have higher average monthly gambling expenditure than other groups. Given that Pacific ethnic groups had higher levels of non-gamblers, there is a high chance that there is a subgroup of Pacific people that gambles frequently and has very high expenditure. There may also be a similar subgroup of

Asian people that gambles very intensively. As a population group as a whole Asians were less likely to gamble than European/Other ethnicities, but their reported expenditure was similar.

### **8.2.2. Gambling trends by gender**

As in 2012, no significant changes in gambling behaviour by gender over time were observed. There are certainly differences in gambling behaviour by gender, however. Males remain significantly more likely than females to have gambled on Lotto, track betting, sports betting, and casino tables. They were also more likely to have gambled on four or more activities than females. Men are more likely to be problem gamblers, and are also more likely to contact the Gambling Helpline for their own gambling problems (though females are more likely to contact for help for their significant other). As such the NGS identified that being of male gender was a notable independent risk factor for current problem gambling.

The research literature points out that some gender differences also appear to be cultural in nature, such as the observation by Bellringer et al (2013) that giving up drinking alcohol was associated with lower odds for mothers at giving up gambling, whereas for fathers the converse was true. The NGS also noted that Māori and European/Other males and females had higher past year participation rates than males and females in the general population. Such findings are useful for further study to remember to focus on gender roles when planning culturally specific services.

### **8.2.3. Gambling trends by age**

No significant changes in gambling by age were observed. In some literature, and according to the NZHS, younger people (men in particular, 25-34 years of age) are still most likely to satisfy the criteria for problem gambling. It is interesting that the NZHS also identified that those aged 45-54 years were just as likely to satisfy problem gambling criteria as those 25-34. This finding may suggest that other predictive factors, such as ethnicity, gender and socioeconomic environment, are more influential than age.

The NGS results on age were not as definitive, however, and also appear to support the notion that other factors are more influential than age in determining gambling behaviour, or at least so interrelated as to mean age is not a strong independent variable. Problem gambling prevalence did not differ by age in the NGS results. However, people in the age categories between 25 and 64 years had higher rates of probable pathological gambling than those aged 65 years and older.

### **8.2.4. Gambling trends by deprivation**

The NZHS and NGS both highlighted that the likelihood and severity of problematic gambling increased as the level of deprivation increased. The NZHS noted that people living in neighbourhoods with the highest levels of deprivation (i.e. the most deprived) were five times more likely to report moderate-risk/problem gambling than those living in neighbourhoods with the lowest levels of deprivation (i.e. the least deprived). The NGS noted that 95 percent of problem gamblers reported experiencing at least one deprivation listed in the New Zealand Deprivation Index during the previous 12 months (compared to 44% of adults overall), and that average overall scores increased with risk severity.

Neighbourhoods with higher levels of deprivation appear to be more likely to offer opportunities for gambling. In 2014, 54.2 percent of NCGMs were located in CAUs with average deprivation deciles of 8 and higher – a slightly higher proportion than in 2011 (52.4 percent), and notably higher than 2009 (48 percent). The same appears to be true for Lotto and TAB

outlets, with three times as many Lotto outlets located in decile 9 and 10 area units as there are in decile 1 and 2, and four times as many TAB premises.

### **8.3. Co-morbidity**

The 2012 Gambling Harm Needs Assessment identified the observed associations between problem gambling and issues such as substance abuse (including smoking and alcohol) and mental illness (eg, depression). However, the evidence around co-morbidity suggested that there was a lack of information about the effectiveness of programmes designed to address co-morbidity relating to problem gambling in a New Zealand context. This appears to still be the case, as none of the New Zealand specific literature explored the effectiveness of integrated programmes. One exception to this observation is the finding of the draft evaluation of problem gambling intervention services that referrals to other services from problem gambling interventions were more successful when the service was within the same provider. It is also worth noting that the randomised control trial of problem gambling brief telephone interventions suggested that these interventions also helped reduce psychological distress.

Despite the relative lack of new evidence on co-morbid treatment, the New Zealand evidence did further suggest that smoking, drinking and having anxiety or depressive disorders are risk factors for problem gamblers, and that this risk is greater for problem gamblers than for other gamblers.

### **8.4. Problem gambling intervention services**

The 2012 Gambling Harm Needs Assessment report that demand for full interventions had been steadily declining for 10 years, whereas the demand for brief interventions had been relatively static for the preceding four years. The 2014 figures suggest that demand for gambling intervention services appears to have stabilized in the past year, with the decline in full interventions appearing to have halted in the preceding year.

The traditional under-utilisation of intervention services by Māori and Pacific gamblers may be slowly reversing, as participation of both of these groups had increased between 2010/11 and 2013/14; Māori participation in all interventions went from 34.5 percent (which in itself was a notable increase on previous years) of intervention clients to 36.1 percent, and Pacific people from 15.6 percent to 19.8 percent. The increase in Māori and Pacific people using the service may partly explain the stabilization in numbers using the service.

The international literature on intervention services calls for more longitudinal and empirical studies to understand the efficacy of treatments. New Zealand is producing research on the effectiveness of its intervention services, and the telephone RCT considered in Chapter 3 is a significant contribution to this area, at least in the realm of brief interventions. Future research will need to continue however, if the results over time are to be known. Some research into the effectiveness of full intervention therapies will also be required.

The review indicates a growing body of research highlighting the complexity of gambling behaviours and motivations, and a number of articles stress the importance of not oversimplifying the relationship between certain gambling activities and problem gambling.

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## APPENDIX A: GLOSSARY

Co-morbidity	The existence of multiple disorders in the same individual at the same time. For example, substance addiction and gambling addiction.
Continuous gambling	Participation in gambling activities where winnings can be collected and reinvested immediately following a win.
EGMs	Electronic gaming machines which are also referred to in New Zealand as pokie machines.
Gambling	Defined in the Gambling Act 2003 as ‘paying or staking consideration, directly or indirectly, on the outcome of something seeking to win money when the outcome depends wholly or partly on chance’.
(Gambling) harm	Defined in the Gambling Act 2003 as ‘harm or distress of any kind arising from, or exacerbated by, a person’s gambling; and includes personal, social, or economic harm suffered by the person; or the person’s spouse/partner, family/whānau, or wider community; or in the workplace; or by society at large’.
Incidence	The number of new cases in a specified time period (eg, annually).
Interested other	Includes media, students, researchers and general public requesting general information about gambling problems in New Zealand.
Intervention services	Defined as ‘counselling and treatment sessions delivered to people experiencing harm from gambling’, most commonly delivered on a one-on-one, face-to-face basis between a clinician and a service user.
Non-continuous gambling	Participation in gambling activities, like Lotto, where winnings cannot be re-invested immediately following a win.
Prevalence	The number of cases in a population.
Problem gambler	Defined in the Gambling Act 2003 as someone whose gambling causes harm or may cause harm.
Significant other	Includes family, other relatives, friends or others personally affected by another person with a gambling problem.

## APPENDIX B: CRITICAL APPRAISAL SHEET

Articles selected for inclusion will be assessed for methodological rigour using this checklist.

### *Purpose of research/evaluation*

What is the purpose of the study?

What is the objective(s) and the hypothesis (if appropriate)?

How was the objective(s) and hypothesis formulated?

Have identified objectives been met? Is the hypothesis proven or discounted?

### *Research/evaluation design*

What is the study design?

Is the study design appropriate for the objectives and the sample group?

How long was the study conducted for? Is this an adequate length of time?

Sample framework: Is the study sample clearly defined?

Is the sample size adequate?

Who is the study sample representative?

Where was the study population sourced from?

Who was included/not included?

Who was invited to participate but did not?

Is the response rate adequate?

Data: What information sources were accessed and how?

Did sources provide adequate information?

Is data complete?

What data is missing and how significant is this?

Does the sample size have sufficient power to detect meaningful results?

Were randomisation/blinding/meta-analytical techniques applied correctly if required?

Distorting influences: Was methodology compliance adequate?

Were justifications made for alternative methodology?

Have potential sources of confounding or bias been identified/ controlled for?

Was statistical analysis adequate (includes appropriate level of significance)?

Were relevant cultural issues considered in the study design?

### *Results and conclusions of the study*

Could the results of the study be due to bias in the study design?

Could the results of the study be due to chance in the study design?

Could the results of the study be due to significant uncontrolled confounding in the study design?

Do the results support the conclusions/recommendations?

Are the results valid and useful?

### *Conclusions about the study's internal and external validity*

To whom can the results of the study be applied?

Can the results be applied to the general population?

Did the results identify differences important to your study?

