

Discussion Paper: Player Tracking Rationale and Applications

Pre-commitment and other ancillary RG and player management tools such as account histories, cashless gaming, short and long-term self-exclusion, time and money limits are all features that have potential benefits for players as well as other gaming stakeholders. However, player tracking in some capacity lies at the core of the delivery and evaluative framework for defining system driven responsible gaming solutions.

4.1 Characteristics of EGM Gambling – Player Churn

Participation Rates and Regular Playing Patterns

- 4.1.1 Play of EGMs has been **normalized, positioned as a relatively common recreational activity** with about 20% to 35% of the adult population in each relevant jurisdiction in Australia, including Victoria, making at least one wager on such machines during the past year (GRA, 2008¹; 2005 Northern Territories Gambling Prevalence Study,² 2003 Victorian Longitudinal Gambling Community Attitudinal Survey³).
- 4.1.2 In 2004, it was estimated that about one-third of adults in Victoria wagered on gaming machines in the previous year with 10% taking part on a regular monthly basis (i.e., once a month or more) and 3-4% playing weekly (GRP, 2004).⁴ In 2009, **annual participation rates had declined** significantly from one in three to only about one in every five adults (21.5%) taking part in machine gambling (VDOJ, 2009).⁵
- 4.1.3 Almost all mature gaming machine markets have posted **little to no growth in the size of the player base** over the past 10 and there is **emerging evidence of declining or stagnant participation rates**⁶, although average-per-player expenditures continue to increase resulting in increased reliance on fewer adults who are spending more. Coupled with a strong focus on responsible gaming and harm

¹ Delfabbro, P (2008). A review of Australian gambling research, Gambling Research Australia.

² Young, M., Abu-Duhou, I., Barnes, T., Creed, E., Morris, M., Stevens, M., et al. (2006). Northern Territory Gambling Prevalence Survey 2005. Darwin: School for Social and Policy Research, Charles Darwin University.

³ McMillen, J., Marshall, D., Amhed, E., & Wenzel, M. 2003 Victorian Longitudinal Community Attitudes Survey on Gambling Canberra, Australia : The Centre for Gambling Research, Australian National University Gambling Research Panel (GRP), Victoria Department of Justice

⁴ (ibid)

⁵ Schottler Consulting & Hare S. Sept 2009 A Study of Gambling in Victoria: Problem Gambling from a Public Health Perspective Victoria Department of Justice, Government of Victoria

⁶ In Nova Scotia, one of the oldest wide area machine gaming markets, past year participation rates have consistently been dropping over the past decade moving from 25% in 1998 to 19% in the 2003 NS Gambling Prevalence Study to only 14% of adults playing the machines in the previous 12 months by 2007 (Nova Scotia Department of Health (NSDOH) & Focal Research, 1998; Schrans & Schellinck 2003, 2007).

minimization in response to growing public pressure regarding social costs associated with machine gambling suggests there are limited growth options for EGM gaming under the current scenario.

- 4.1.4 Regardless, in all jurisdictions where **EGMs** are available, this form of gambling **generates the largest single proportion of gaming revenues** with the vast majority of expenditure typically generated by the minority of adults taking part in the activity on a regular basis (Schrans & Schellinck 2001, 2003, 2007; Young, Abu-Duhou, Barnes, Creed, Morris, and Stevens 2004⁷; NS Department of Health & Focal Research, 1998).⁸
- 4.1.5 This skew of consumption towards a subset of customers has often been referred to as the **Pareto Principle** or more commonly the **"80/20 rule"** which holds that for most consumptive or commodity based transactions **the majority of sales come from a minority of customers** or, in a broader sense, most things in life are not distributed normally and "for many events the majority of effects are attributable to the minority of causes"; a universal principle referred to as the **"vital few versus the trivial many"**⁹.
- 4.1.6 The value of the Pareto Principle for management be it social policy, quality control, operational or otherwise, is that it **directs effort to the key segment that has the most impact on business outcomes** (i.e., 'vital few') rather than being side-tracked by the 'trivial many'. Thus, it is an important management tool in allocating resources to maximize outcomes.¹⁰
- 4.1.7 **The Pareto Principle is particularly relevant for wide area EGM gambling.** In Nova Scotia machine gamblers who play on a regular basis each month consistently are found to account for 90% to 95% of annual gaming machine revenues (Schellinck and Schrans, 2007, 2002b, 1998). This strong skew of consumption towards regular users is a phenomenon gaming operators typically monitor and

⁷ Northern Territory Gambling Prevalence Survey 2005. Darwin: School for Social and Policy Research, Charles Darwin University.

⁸ In NT Australia regular gamblers were found to contribute 76% of the total estimated self-reported annual expenditure on gambling. Notwithstanding potential error in self-reported expenditures almost 74% of reported gaming expenditure was found to be attributable to those playing pokie or gaming machines, betting on horse or greyhound races, and table games. (NT Gambling Prevalence Study 2005. p. 43) In the Nova Scotia Gambling Prevalence studies, regular monthly gamblers represented just over half of the population and were found to contribute over 90% of gaming revenues. This figure was similar in New Brunswick (94%). This same heavy skew of revenue was also observed among EGM players in the 1998 Nova Scotia Regular Video Lottery Players Study.

⁹ Vilfredo Pareto was an Italian economist who in 1906 created a mathematical formula based on his observation that 80% of the wealth in Italy was held by about 20% of the people. Thirty years later Dr. Joseph Juran, a pioneer in quality management, documented a universal principle he called "the vital few and the trivial many" that subsequently was linked to Pareto's economic observations and became known as the Pareto Principle. The actual distribution of values can vary and does not have to approximate 80/20 or even add up to 100. For example, the top 5% of users could contribute 50% of sales and the top 10% could contribute 75% of sales.

¹⁰ Pareto's Principle - The 80-20 Rule, How the 80/20 rule can help you be more effective By F. John Reh, <http://management.about.com/cs/generalmanagement/a/Pareto081202.htm>

manage carefully through loyalty member programs, or other on-site compensations (i.e., comps).

- 4.1.8 Despite the degree of apparent normalization of EGM play it must be emphasised that, on average, only a small percentage of adults are engaging in regular machine gambling in Victoria ($\approx 10\%$ or less each month) yet this relatively small group of **regular EGM players** will be contributing the **majority of the \$2.6 billion dollars generated by EGMs** in the state last year.¹¹
- 4.1.9 Therefore, for all gambling stakeholders in Victoria, **regular EGM players** constitute a primary focus and **key target for informing the decision process** as this group can be expected to drive the majority of the results and impacts experienced at an individual, family, business, and community level and hence is most relevant for social policy purposes.

Risk for Problem Gambling Among Regular Players

- 4.1.10 It is also well accepted and well documented that there is a **higher rate of risk and problem gambling among regular machine gamblers** (VDOJ, 2009, GRA 2008; NT Prevalence Study 2005; Productivity Commission 1999). Using the Problem Gambling Severity Index (PGSI) of the Canadian Problem Gambling Index (CPGI) almost one in every two regular EGM gamblers score at some level of risk. About one in every five who have ever played the machines on a regular monthly basis (past or present) self-report experiencing problems associated with this form of gambling at some time, with about 13% to 16% of current players scoring at problem levels (Caraniche Pty Ltd, 2005; Schellinck & Schrans, 2001, 2003, 2007; Nova Scotia Department of Health (NSDOH) & Focal Research, 1998, 2000; Productivity Commission, 1999; Wynne & Volberg, 1994).
- 4.1.11 At any given time **problem gamblers comprise a minority of regular players** ($\approx 13\text{-}20\%$) and typically only represent **1-2% of adults** in the population at large yet because of how they play this group collectively **accounts for a disproportionate amount of gaming revenues** ranging from **low estimates of 30% to 40%** (Williams & Wood, 2007b, 2004; Schrans & Schellinck 2003, 2008; Productivity Commission 1999) **to highs of 40% to 50%** found in the 1998 Nova Scotia Regular Video Lottery Players Study (NSHPP & Focal Research, 1998) and the 2005 Gambling Prevalence Study in Northern Territories (October 2006, p. 46).
- 4.1.12 In a prevalence study in Victoria 91% of problem gamblers identified reported involvement in EGMs and pokies, a rate four times higher than that found among non-problem gamblers (VDOJ 2009)¹².

¹¹ Government of Victoria Gaming Machine Arrangements 2012, Chapter 4: Financial Information Relating to Gaming Business P. 27-28

¹² Schottler Consulting & Hare S. (2009) A Study of Gambling in Victoria: Problem Gambling from a Public Health Perspective Victoria Department of Justice, Government of Victoria, Section 4: Profile of Problem Gamblers.

Problem Gambling Onset and Development

4.1.13 In contrast to traditional forms of gambling such as horse racing, **problems with gaming machines tend to develop very quickly** (Breen & Zimmerman, 2002). In Nova Scotia, half of those reporting problems with video lottery developed problems **within six months of taking up regular playing patterns** (NSHPP & Focal, 2000; Schellinck & Schrans, 2004a) and in other jurisdictions individuals went “from being a novice to a pathological gambler almost overnight” (Pike & Quinn, 1997).¹³ Frank Quinn, Director of the South Carolina Centre for Gambling Studies noted that in South Carolina where 36,000 gaming machines were introduced and then subsequently removed that it was not “unusual to find elderly women who have never gambled before...who met at least five of the DSM IV criteria [scoring for problem gambling] less than a month after they began gambling [on the machines].” (Quinn, 2001 p.134).

4.1.14 As Dr. Mark Dickerson has argued, control issues (i.e., impaired control) are not exclusive to problem gamblers (Dickerson 2003). **Over-spending or losing track of time or money is a common occurrence for the majority of regular players** with 70% or more reporting they at least sometimes lose track of the amount spent while gambling and on occasion will spend more time or money gambling on the machines than intended (Schellinck & Schrans 2002b, 2004c; NSDOH & Focal Research, 1998, 2000). This finding is consistent with results for Australia where only 29% of EGM gamblers reported that they “never” lose track of their EGM expenditure (McDonnell-Phillips 2006). Regardless of risk, a significant proportion of players (44%) report “irresistible urges” to continue gambling once they are involved in play (O’Connor & Dickerson, 2001). The evidence suggests loss of control while playing the machines is not an unusual experience nor is it exclusive to problem gamblers.

4.1.15 In longitudinal studies investigators have found that **players tend to move in and out of problems while gambling** (Kerr, Kinsella, Truly, Legard, McNaughton Nichols & Barnard, 2009; Haworth, 2005; Wiebe, Single & Falkowski-Ham, 2003; Nova Scotia Department of Health & Focal Research, 2000). Whilst the general pattern of gambling risk in the overall population is stable, as Barry Haworth lead investigator for the 2005 Longitudinal Gambling Study in Queensland observed “there is a high degree of change in the gambling status of individuals”(p.135).¹⁴

4.1.16 **In the case of machine gambling this consumer churn is especially strong** with approximately 25% of the regular player base either stopping or starting play at any given time often in attempts to control spending or recoup losses or alternatively in response to other outside factors interrupting play such as changes in work status, travel, health or financial issues (NSDOH & Focal Research, 1998, 2000).

¹³ As cited by Frank Quinn in “First Do No Harm: What could be done by casinos to limit pathological gambling” Managerial and Decision Economics 22: 133 142 (2001), p. 134

¹⁴ Barry Haworth, 2005 Longitudinal Gambling Study Office of Economic & Statistical Research Queensland Government p. 135

4.1.17 This finding was confirmed through qualitative follow-up with respondents taking part in the **British Gambling Prevalence Study** by the National Centre for Social Research for the UK Gambling Commission (Kerr et al, 2009):

*"It is important to note that **the categories of gamblers are dynamic rather than static**. People described moving in and out of the categories at different points in their lives including those who described themselves as feeling compelled to gamble at some point."* (p. 6)

4.1.18 Risk can vary over time in response to factors or combination of factors and events that can be categorised under the following¹⁵:

- **Personal** Attributes– personal characteristics, attitudes, beliefs, what else is going on in an individual's life (e.g., loneliness or social isolation, financial windfalls or shortfalls, mental or physical health issues, age);
- **Product** Attributes -characteristics, features and outcomes (e.g., 'spin' rates, note-acceptors, big wins, big losses, game volatility, pay-outs, bonusing, near misses);
- **Promotional** Attributes - business practices, policies, and marketing (e.g., accessibility, advertising, player incentives, loyalty programs and player clubs);
- **Policy** Attributes - regulatory policy, practices and impacts (e.g., smoking bans, hours of operation, maximum bet changes, ATM limitations,).

4.1.19 Each of these factors can affect risk for players, although for the most part research has been heavily skewed towards examining the role of personal attributes in contributing to problem gambling. There is **limited empirical data available specifically relating personal risk to product, promotion, or policy antecedents** although there is a growing body of experimental research, qualitative evidence and theory surrounding such relationships especially for problem gambling (Loba, Stewart, Klein & Blackburn, 2001; McMillen, 2002; Blaszczynski, Sharpe & Walker; 2006; AIPC, 2006; Livingston et al, 2008).

4.1.20 A recent 2009 critical review of the literature in this area led researchers to conclude very little is known about risk factors with regard to the development and maintenance of problem gambling and that **longitudinal study** (e.g., assessment of player attitudes, beliefs, characteristics, behaviours and outcomes over time) is

¹⁵ We have borrowed on the 4 P's of Marketing established by McCarthy in the early 1960's. In business the four P's of Marketing are generally referred to as Product, Place, Promotion and Price and are considered to be the controllable elements of a marketing and business plan. Essentially these are the elements in the marketing mix that are within the control of a business operator and can be used to leverage customer value and increase profitability. The elements that are considered outside of control by business are the personal attributes of the individual customer, consumer 'tastes' legislation, competition. Yet in the area of gambling these are increasingly areas that operators are tending to focus rather than those over which they have the greatest potential for impact from a business perspective; product characteristics, promotion and how it is distributed (e.g., place). (See Yudelson, J. *Adapting Mccarthy's Four Ps for the Twenty-first Century* Journal of Marketing Education, Vol. 21, No. 1, 60-67 (1999) for discussion relating 4 P's to up-dated concepts of relationship marketing and Total Quality Management).

required in order **to understand changes in risk in the normal population and the implications of such change for interventions** (Johansson, Grant, Kim, Odlaug, & Gotestam, 2009).

- 4.1.21 **A key problem** in assessing the dynamic nature of risk among players is due to **measurement limitations**; general population prevalence studies and surveys are not sensitive enough to detect changes for gaming activities with a low base rate in the population. Undertaking regular tracking surveys among regular players can address methodological shortfalls but will be expensive and time consuming. **An alternative method** for gathering timely, accurate player behaviour data **is through player tracking**.

Using Player Tracking Data to Identify and Manage Risk

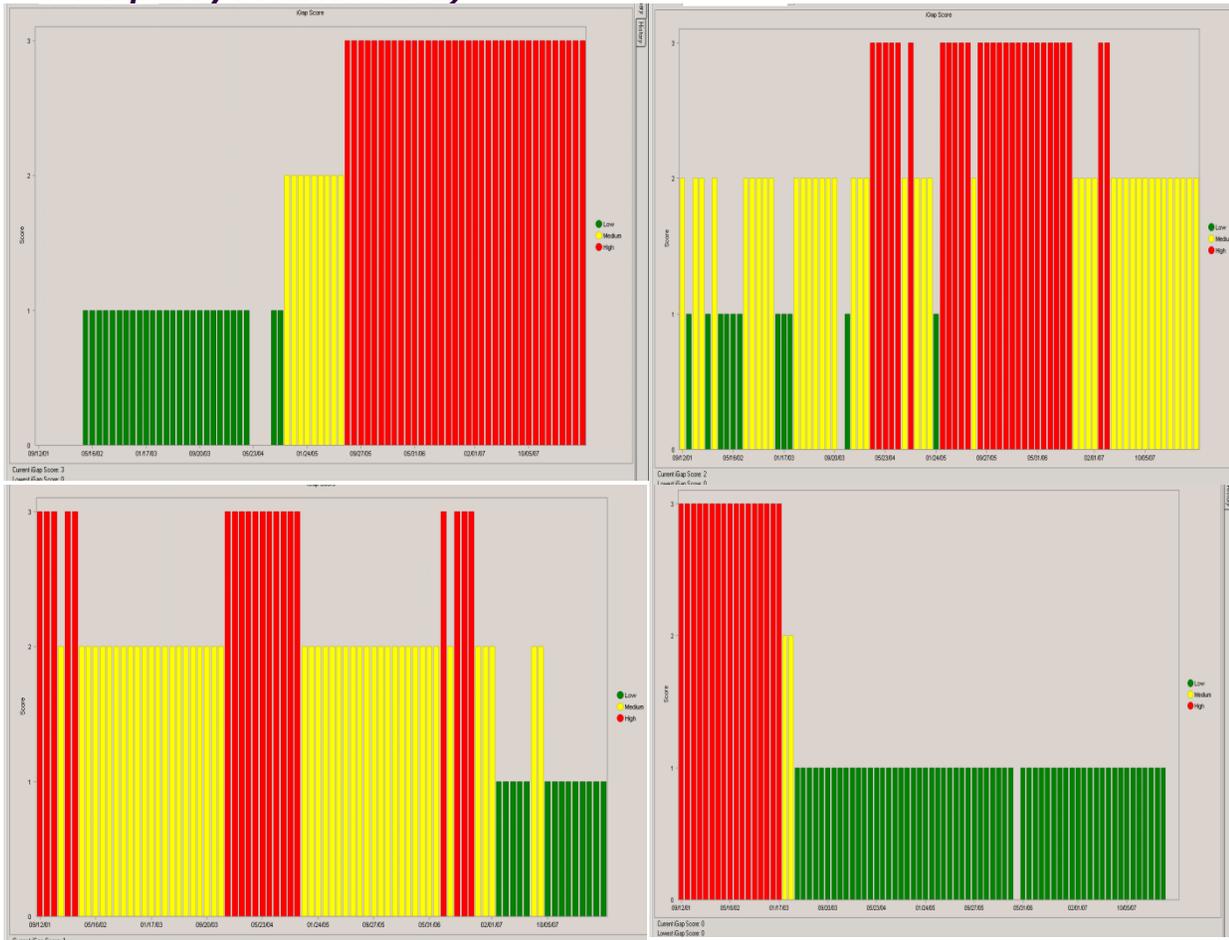
- 4.1.22 Examination of **player tracking data** for electronic gaming machines and slots **confirms player movement between risk levels** when playing the machines on a regular basis suggesting that **responsible gaming and harm reduction are universally relevant** for all those taking part in high-risk forms of gambling, in particular those who are involved in more regular or frequent playing patterns as this increases the opportunity for harm to occur.
- 4.1.23 Most **tracking data** analysis supporting these findings is **proprietary** held by gaming operators and, therefore, is not available in the public domain. However, we can cite conference presentations in which the Saskatchewan Gaming Corporation (SCG) has allowed Focal to use **examples of real player risk ratings** using the iCare Responsible Gaming Program.¹⁶
- 4.1.24 The figures below illustrate how risk profiles for loyalty club members vary over time. The monitoring component of the iCare system tracks changes in risk levels based on a unique behavioural algorithm developed by Focal Research and can link and evaluate changes in risk relative to on-site interactions with staff. The figures below are examples of fluctuations in risk over a 36 month period for four different slot machine players at a casino in Saskatchewan Canada.¹⁷ This provides a very different and dynamic view of gambling behaviour that is not possible through prevalence surveys or other surveys based on self-reported data.

¹⁶ iCare Responsible Gaming Program is a joint venture between Saskatchewan Gaming Corporation and iView Systems that since 2005 has been using algorithms developed by independent researchers Schellinck and Schrans from Focal Research to identify risk for gambling problems using casino loyalty data. The iCare system tracks risk over time for each club member as well as player outcomes following staff/player interactions in order to assess and manage host responsibility performance. <http://www.icaregaming.com>

¹⁷ Schrans, Schellinck and Focal Research Presentation, *Inside the Black Box: Using Player Tracking Data to Manage Risk*, European Association for the study of Gambling Conference, Nova Gorica Slovenia, June 2008 http://www.assissa.eu/easg/thursday/1610-ses1/schrans_tracy.pdf

Note: The iGap component of the iCare Responsible Gaming System uses three colours and levels to identify customer's level of risk for gambling problems; Red= High Risk; Yellow= Uncertain Risk; Green=Low/No Risk.

Figure 1: Examples of Changes in Regular Player Risk Profiles for Four Machine Gamblers over 36 months using the iGap System from Saskatchewan Gaming Corporation and iView Systems iCare Responsible Gaming Program (Algorithm developed by Focal Research)



4.1.25 **Examples of shifts in risk can also be found in other player research.** As noted earlier among regular monthly Video Lottery players in Nova Scotia, at any given time about one-quarter were starting or stopping play with half of these players doing so in efforts to control their gambling (NSDOH & Focal Research 1998, p. 2-5). Follow-up surveys were conducted two years later with those identified as problem gamblers in 1998 as part of a longitudinal assessment. There was **evidence of natural (24%) and assisted recovery (28%)** among half of participants (52%) with one-quarter eliminating the activity and one-quarter continuing to play the machines without problems (Nova Scotia Department of Health and Focal Research Consultants Ltd. 2000, p.15-18).

This was an important finding insofar as it indicated that for a **certain sub-segment of players** it was possible for them to **resolve their problem gambling and**

continue to play without experiencing any further difficulties, at least at the point of Time 2 follow-up (≈20-24 months following Time 1). The remaining 48% of players initially identified as problem gamblers in 1998 were continuing to engage in machine gambling at problematic levels two years later, stopping and starting as resources permitted.

- 4.1.26 Similar findings emerged from the **longitudinal study** conducted by the **Office of Economic and Statistical Research in Queensland** (Haworth, 2005). In April 2005, Queensland conducted a follow-up survey to measure gambling activity and attitudes to gambling among the Queensland population. This survey re-contacted people who had responded to the Queensland Household Gambling Survey conducted in 2003-2004, and re-administered the Canadian Problem Gambling Index (CPGI). **At follow-up more than one-quarter (≈28%) of respondents** age 18 years and older **had changed risk category** and were equally likely to have moved up or down at least one category. It was notable that those most likely to have increased risk also reported higher rates of EGM gambling.¹⁸

Haworth observed that over a 12-18 month period **43% of Problem Gamblers at Time 1 were characterised as recreational gamblers at Time 2 follow-up**; almost half of non-gamblers were gambling and 1% were now scoring at some level of risk for problems; 6.5% of recreational gamblers were at-risk for problems while 12% had stopped gambling altogether.

- 4.1.27 In a 2008 review of five longitudinal studies based on non-treatment populations conducted by Debi LaPlante, Sarah Nelson, Richard LaBrie, and Howard Shaffer, the authors **found consistent evidence of player movement between risk levels** and that problem and non-problem gamblers were equally likely to exhibit improvements or declines in their gambling behaviours and risk leading them to conclude, **“Contrary to professional and conventional wisdom suggesting that gambling problems are always progressive and enduring, this review demonstrates instability and multidirectional courses in disordered gambling” (p.52).**¹⁹

- 4.1.28 Given that **movement between risk levels** appears to be **fairly normal** among machine gamblers it is becoming increasingly important to **expand RG focus to all customers** in ensuring implementation of effective prevention and harm reduction mechanisms. Hence the rationale for offering features that have **benefits for all players** especially in terms of reducing harm as well as interrupting or preventing migration of players to higher-risk levels. **A more significant issue then**

¹⁸ See National Association For Gambling Studies 2005 (Alice Springs) Conference Proceedings p. 149-150
http://www.nags.org.au/pdf_conference/2005Proceedings.pdf

¹⁹ LaPlante, D., Nelson, S., LaBrie, R., & Shaffer, H. (2008) Stability and Progression of Disordered Gambling: Lessons From Longitudinal Studies
Canadian Journal of Psychiatry 2008;53(1):52–60 p.52

becomes how one encourages all players to use such features for pre-harm or pre-risk prevention.

Use of Services and Support among those Experiencing Problems with Machine Gaming

4.1.29 Similar to findings in other jurisdictions, in Victoria the vast **majority** ($\approx 71\%$) of those **seeking treatment** for a gambling related problem noted **involvement in wide area machine gambling** (Jackson et al., 2005)²⁰.

4.1.30 While experience of **problems with EGM gambling is comparatively more common** among regular gamblers **few of these problem gamblers seek professional assistance** (10%-25%) (VDOJ, 2009; McMillen et al, 2004; Schrans, Schellinck and Walsh 2003; Shaffer & Korn 2002). The minority who do access formal support services tend to report more extreme gambling impacts, abuse of other substances (co-morbidity), greater social isolation, more mental health issues (e.g., depression, anxiety, impaired impulse control), and less ancillary support or resources as compared to those who do not seek assistance (NSDOH & Focal Research, 2000). Often those in treatment have been referred by other agencies and, therefore, it is not surprising to discover elevated incidence of other concurrent problems or disorders among problem gamblers in treatment (e.g., substance use or mental health issues).

4.1.31 Self-presenting problem gamblers represent a small yet distinct group of those experiencing negative impacts from machine gambling, yet the vast **majority of research** on problem gambling is based on these samples of **self-selected problem gamblers or those in treatment populations**. While this is helpful for ensuring downstream services reflect the needs of those most likely access such programs this data source is **not appropriate** for informing **evidence-based decision-making for up-stream social policy applications** intended to address prevention.

4.1.32 The remaining **75% to 90% of players experiencing problems** are being harmed by their gambling activity but are **not motivated to seek formal assistance** nor are they necessarily ready and/or willing to eliminate the activity. These individuals **rarely have other concurrent disorders** (12% or less; VDOJ, 2009²¹; Schrans & Schellinck 2003) and more often look to **personal resources** in addressing their gambling as well as accessing friends and family members for support. The degree of **natural recovery** observed among machine gamblers suggests that **players can have success in regaining control over their gambling**. However, in other cases players repeatedly move in and out of problematic gambling without

²⁰ Jackson, A C, Thomas, S, Holt, T A & Thomason, N, "Change and continuity in a help-seeking problem gambling population: A five-year record", Journal of Gambling Issues, 13: 1-31, 2005

²¹ Schottler Consulting & Hare S. (2009) A Study of Gambling in Victoria: Problem Gambling from a Public Health Perspective Victoria Department of Justice, Government of Victoria Section 12: Help Seeking for Problem Gamblers

understanding or addressing the underlying risk factors until the accrued damage becomes significant, usually with implications for significant others as well as the individual player.

- 4.1.33 Currently there is **no pre-harm recognition of risk** and thus, **little** if anything **players are able to do** to actively manage their gambling **to prevent problems** from occurring in the first place. Essentially, the primary thrust of responsible gaming initiatives has been largely limited to informing players about risk factors such as spending beyond affordable limits and then referring those unable to exercise control (e.g., unable to play within desired limits) for treatment; an approach that is proving to be impractical and unsustainable.
- 4.1.34 In a meta-analysis of Studies on Early Intervention and Prevention undertaken by Monash University for Gambling Research Australia, the authors concluded that information based interventions work well in reducing gambling misconceptions but are less successful in translating into improved gambling behaviour or coping skills (GRA, 2007).²² In part this lack of evidence is due to an inability to assess behavioural impacts of interventions with any degree of precision or certainty although it would seem that simply providing players with general information about gambling is not associated with improved outcomes.
- 4.1.35 These findings underscore the need for new measures to reflect our evolving understanding of the antecedents of gambling behaviour and thus how to design effective programs, services or self-help tools that contribute to improved player outcomes. Focal Research is currently working at the forefront in this area with the Ontario Problem Gambling Research Centre (Schellinck, Schrans & Focal, 2008; Schellinck, Schrans, Bleimal & Schellinck, in press).²³
- 4.1.36 Those having **problems** with their machine gambling or **at high-risk** for developing problems were significantly more likely to cite the **role of personal affect** (i.e., depression, worry) **situational triggers** (e.g., cashing session losses; chance to win bonus, were waiting for service or others) and, most importantly, **access to additional cash or cash sources** (e.g., had large win, extra money in pocket or easy access to ATM in venue) in stimulating over-spending while gambling at the

²² Gray, K., Oakley Browne, M. and Radha Prabhu, V. (2007). Systematic Review and Meta-analysis of Studies on Early Intervention and Prevention for Problem Gambling, Monash University, Gambling Research Australia (GRA). [http://www.gamblingresearch.org.au/CA256902000FE154/Lookup/Meta-analysis/\\$file/Meta%20web%20complete%20report.pdf](http://www.gamblingresearch.org.au/CA256902000FE154/Lookup/Meta-analysis/$file/Meta%20web%20complete%20report.pdf)

²³ Focal Research has developed two new instruments for measuring gambling harm and pre-harm risk as well as problem gambling in the general population; **Focal Youth Gambling Risk Screen (FYGRS®)** and **Focal Adult Gambling Screen for Gaming Machines (FLAGS-GM®)**. Most recently, FYGRS was tested in exploratory research in Nova Scotia for Nova Scotia Health Promotion and Protection and is available on NSHPP's website [http://www.gov.ns.ca/hpp/publications/2008 Adolescent Gambling Report.pdf](http://www.gov.ns.ca/hpp/publications/2008%20Adolescent%20Gambling%20Report.pdf). Through a series of projects funded by the Ontario Problem Gambling Research Centre (OPGRC) Focal completed development and testing of the new harm and risk measure adapted for adults playing gambling machines, specifically slot machines. This builds upon previous measures developed for machine gamblers in Nova Scotia and Victoria Australia. The report is scheduled for release late fall 2009 and will be posted on the OPGRC website in 2010.

venue.²⁴ All of these factors are seen to erode the player's ability to self-regulate while at the gaming venue (McDonnell-Phillips Pty, 2005; Schellinck & Schrans 1998, 2001, 2003, 2004, Dickerson 2003; KPMG Consulting, 2002).

- 4.1.37 **Setting spending limits is a universal player strategy** that almost all players in all jurisdictions use to manage expenditure on the machines. Yet one in every five problem gamblers are only deciding how much they will spend once they are already engaged in gambling on the machine versus 6% of those who are not having problems (McDonnell-Phillips Pty, 2005. p. 124) and 74% of all machine gamblers taking part in the McDonnell-Phillips study in Victoria reported Pokies were the most difficult form of gambling to "keep to limits" (p. 135).
- 4.1.38 The primary distinction between those machine gamblers having problems and those who do not is largely related to willpower; in Queensland, as in Nova Scotia **two-thirds of players indicated willpower is the key determinant of success in setting and keeping to a budget** for play. Thus anything that occurs to erode that willpower will make most people vulnerable to over-spending.²⁵ Likewise **features or services that assist players in setting and enforcing personal limits and/or keeping track of expenditures** on the machines are **likely to be relevant and helpful to most players** at different times in their lives.
- 4.1.39 The importance of setting and adhering to affordable limits during play, the natural tendency for regular EGM players to have trouble keeping to limits, the reliance of players on willpower to enforce play decisions, the influence of on-site, personal, and game triggers in stimulating over-play and eroding willpower suggests there is value in providing players with tools to support informed choices about their personal play decisions. **By necessity this requires some capacity for keeping track of individual gambling behaviour.**

Bibliography

Allcock, C. (2002). Overview of discussion papers. In Allcock, C., Blaszczynski, A., Dickerson, M., Earl, K., Haw, J., Ladouceur, R., Leseiur, H., McCorriston, T., Milton, S., & Symond (Eds.). *Current issues related to identifying the problem gambler in the gambling venue* (pp. 2-7). Melbourne: Australian Gaming Council.

²⁴ McDonnell-Phillips Pty. Ltd. (2005). Analysis of Gambler Precommitment Behaviour. Gambling Research Australia. Melbourne: Victorian Department of Justice. p.24

²⁵ See Schellinck, T. & Schrans T., (2003a). Understanding Gambling Behaviour Using Computer Simulation, The National Association Gambling Studies Journal, 14 (2) 7 – 20.

- Allen Consulting Group. (2009). *Review of current and future trends in interactive gambling activity and regulation*. Report to the Australian Government Department of Families, Housing, Community Services, and Indigenous Affairs.
- Angervall, E. (2008). *Strategies and technologies for responsible gambling: Keeping the customers in the green*. Presentation, Svenska Spel, Business Development and International Affairs. Sweden.
- Aristocrat Technologies Australia Pty Limited. (n.d.). *Review of gambling harm minimisation measures: Pre-commitment or smart cards that enable limits to be set*. Submission to the Independent Pricing and Regulatory Tribunal of NSW. Australia.
- Australian Government: Attorney General's Department. (2003). Anti-money laundering reform: Issues paper 4. *The Gambling Industry*.
- Australian Institute for Primary Care (AIPC). (2006). *The changing electronic gaming machine (EGM) industry and technology*. Melbourne: Department of Justice
- Banks, G. (2002). The Productivity Commission's gambling inquiry: 3 years on. *Gambling Research, 15*, 7-27.
- Battersby, M., Ben-Tovim, D., Estermann, A., Tolchard B., & Dickerson M. (2001). The VAGS: A new Australian instrument for the detection of problem gambling. *Australian and New Zealand Journal of Psychiatry, 35*(Suppl.).
- Ben-Tovim, D.I., Esterman, A., Tolachard, B., & Battersby, M. (2001). *The Victorian Gambling Screen*. Victoria, Australia: Gambling Research Panel.
- Bernhard, B.J., Lucas, A.F., & Jang, D. (2006). *Responsible gaming device research report*. Las Vegas, Nevada: University of Nevada.
- Blaszczynski, P., Sharpe L., & Walker, M. (2002) *Harm minimisation in relation to gambling on electronic gaming machines*, Submission to the Independent Pricing and Regulatory Tribunal of New South Wales Review, Gambling Research Unit, University of Sydney
- Breen, R.B., & Zimmerman, M. (2002). Rapid onset of pathological gambling in machine gamblers. *Journal of Gambling Studies, 18*, 31-43.
- Caraniche Pty Ltd. (2005). *Evaluation of electronic gaming machine harm minimisation measures in Victoria*. Victoria: Office of Gaming and Racing Victorian Government, Department of Justice .
- Chan, V.K. (2009, July 11). *Using neural networks to model the behavior and decisions of gamblers, in particular, cyber-gamblers*. Macao: Springer.
- Davies, B. (2007). iCare: Intergrating responsible gaming into casino operation. *International Journal of Gambling Studies, 8*, 235-244.
- Delfabbro, P. (2008). A review of Australian gambling research. *Gambling Research Australia*.

Prepared by T. Schrans & T. Schellinck

- Delfabbro, P., Osborn, A., Nevile, M., Skelt, L., & McMillen, J. (2007). *Identifying Problem Gamblers in Gambling Venues: Final Report*. Victoria, Australia: Office of Gaming and Racing published on behalf of Gambling Research Australia.
- Department of Families, Housing, Community Services and *Indigenous Affairs*. (2008). *A national snapshot of harm minimisation strategies*. Australian Government, Department of Families, Housing, Community Services and Indigenous Affairs.
- Dickerson, M. (1993). A preliminary exploration of a two-stage methodology in the assessment of the extent and degree of gambling related problems in the Australian population. In Eadington, W.R., & Cornelius, J. (eds.) *Gambling behavior and problem gambling*. Reno Nevada: Institute for the Study of Gambling and Commercial Gaming, College of Business Administration, University of Nevada.
- Dickerson, M. (2003). Exploring the limits of 'responsible gambling': Harm minimisation or consumer protection? In *Proceedings of the 12th Annual Conference of the National Association for Gambling Studies*. Melbourne.
- Ferris, J., & Wynne, H. (2001). *The Canadian problem gambling index: Final report*. Ottawa: Canadian Centre on Substance Abuse.
- Gray, K., Oakley Browne, M. and Radha Prabhu, V. (2007). Systematic Review and Meta-analysis of Studies on Early Intervention and Prevention for Problem Gambling, Monash University, Gambling Research Australia (GRA).
- Griffiths, M. (2008). *Impact of high-stake, high-prize gaming machines on problem gambling*. Nottingham Trent University, International Gaming Research Unit.
- Griffiths, M., & Wood, R. (2008, July 8). Player card technologies in the gambling environment.
- Hafeli J., & Schneider C. (2006). The early detection of problem gamblers in casinos: A new screening instrument. *Paper presented at the Asian Pacific Gambling Conference*. Hong Kong.
- Hancock, L., Schellinck, T., & Schrans, T. (2008). Gambling and corporate social responsibility (CSR): Re-defining industry and state roles on duty of care, host responsibility and risk management. *Policy and Society*, 27, 55-68.
- Hing, N. (2003). *An assessment of member awareness, perceived adequacy and perceived effectiveness of responsible gambling strategies in Sydney clubs*. Lismore, Australia: Southern Cross University, Centre for Gambling Education and Research.
- Independent Gambling Authority. (2005). *Inquiry into smartcard technology*. South Australia. ISBN 1-921070-06-4 (print) 1-921070-07-2 (web)
- Independent Gambling Authority. (2009). *Inquiry into barring arrangements*. South Australia. ISBN 978-1-921070-38-9 (print) 978-1-921070-39-6 (online)
- iView Systems, & Saskatchewan Gaming Corporation. (2007). *Responsible gaming: The proactive approach*. Regina, Saskatchewan: Saskatchewan Gaming Corporation.

Prepared by T. Schrans & T. Schellinck

- Jackson, A.C., Thomas, S., Holt, T.A., & Thomason, N. (2005). Change and continuity in a help-seeking problem gambling population: A five-year record. *Journal of Gambling Issues, 13*, 1-31.
- Kerr, J., Kinsella, R., Turley, C., Legard, R., McNaughton Nicholl, C., and Barnard, M., (2009). Qualitative Follow-up of the British Gambling Prevalence Study 2007, National Centre for Social Research, UK Gambling Commission May 2009.
- Kirby, P. (2006). *The review of electronic gaming machine, club keno and wagering licences, and funding arrangements for the racing industry Post-2012*. Department of Justice, Gambling Licences Review Office of Gaming and Racing. Victoria: State Government of Victoria.
- KPMG Consulting. (2002). *Problem gambling - ATM | EFTPOS functions and capabilities*. Commonwealth of Australia, Department of Family and Community Services .
- LaPlante, D., Nelson, S., LaBrie, R., & Shaffer, H. (2008). Stability and progression of disordered gambling: lessons from longitudinal studies. *Canadian Journal of Psychiatry 2008, 53*(1):52-60.
- Lesieur, H.R., & Blume, S.B. (1987). The South Oaks Gambling Screen (SOGS): A new instrument for the identification of pathological gamblers. *American Journal of Psychiatry, 144*, 1184-1188.
- Livingstone, C., Woolley, R., & Keleher, H. (2009). Productivity Commission Inquiry into Australia's gambling industry.
- Livingstone, C., Woolley, R., Zazryn, T., Bakacs, L., & Shami, R. (2008). *The relevance and role of gaming machine games and game features on the play of problem gamblers*. Adelaide: Independent Gambling Authority.
- Loba, P., Stewart, S.H., Klein, R.M., & Blackburn, J.R. (2001). Manipulations of the features of standard Video Lottery Terminal (VLT) games: Effects in pathological and non-pathological gamblers. *Journal of Gambling Studies, 17*, 297-320.
- McDonnell-Phillips Pty. Ltd. (2005). *Analysis of gambler precommitment behaviour. Gambling Research Australia*. Melbourne: Victorian Department of Justice.
- McMillen, J. (2002). Policy making, social responsibility and the gambling industry. *Presented at Gambling, Law Enforcement and Justice System Issues Conference*. Edmonton, Alberta: Alberta Gaming Research Institute Conference, University of Alberta.
- McMillen, J., Marshall, D., Ahmed, E., & Wenzel, M. (2004). *2003 Victorian longitudinal community attitudes survey*. Canberra, Australia: The Centre for Gambling Research, Australian National University.
- McMullan, J.L., & D. Perrier, (2003). Technologies of crime: The cyber-attacks on electronic gambling machines. *Canadian Journal of Criminology and Criminal Justice, 159*-186.
- McMullan, J., & Perrier, D. (2007). The security of gambling and gambling with security: Hacking, law enforcement and public policy. *International Gambling Studies, 7*(1), 43-58.

- Nevada Gaming Commission, & State Gaming Control Board. (2006). *Mobile gaming system policies*. Nevada, United States.
- Nisbet, S. (2005a). Responsible gambling features of card-based technologies. *International Journal of Mental Health & Addiction*, 3 (2), 54-63.
- Nisbet, S. (2005b). Who benefits? Understanding the issues around card-based gambling. *Gambling Research*, 1(17), 26-46.
- Nisbet, S. (2005c). Alternative gaming machine payment methods in Australia: current knowledge and further implications. *International Gambling Studies*, 5(2), 229-252.
- Nisbet, S. (2006). Modelling consumer intention to use gambling technologies: an innovative approach. *Behaviour and Information Technology*, 25(3), 221-231.
- Nova Scotia Department of Health, & Focal Research Consultants Limited. (1998). *The 1997/98 Nova Scotia regular VL players' survey*. Halifax, Nova Scotia: Nova Scotia Department of Health.
- Nova Scotia Department of Health, & Focal Research Consultants Limited. (2000). *The 2000 Nova Scotia regular VL players follow-up study*. Halifax, Nova Scotia: Nova Scotia Department of Health.
- Nunkuwarrin Yunti of South Australia Inc. (2005). *Inquiry into the effectiveness of gambling rehabilitation programs in South Australia*. South Australia.
- Nunnally, J.C. (1978). *Psychometric theory*. New York: Mc-Graw Hill.
- Office of Regulatory Policy. (2009). *Report Queensland card-based gaming trials*. Queensland: The State of Queensland, Department of Employment, Economic Development and Innovation.
- Omnifacts Bristol Research. (2007). *Nova Scotia player card research project: Stage III research report*.
- Parke, J., Rigbye, J., & Parke, A. (2008). *Cashless and card-based technologies in gambling: A review of the literature*. Great Britain: Gambling Commission.
- Productivity Commission. (1999). *Australia's Gambling Industries. AusInfo Report No. 10, Volume1*. Canberra: Ausinfo.
- Productivity Commission. (2008). *Issues Paper: Gambling*. Australian Government, Productivity Commission.
- Quinn F. (2001) *First Do No Harm: What could be done by casinos to limit pathological gambling* *Managerial and Decision Economics* 22: 133 142
- Raylu, N., & Oei, T.P.S. (2002). Pathological gambling. A comprehensive review. *Clinical Psychology Review*, 22, 1009-1061.
- Reith, G. (2007). *The social context of gambling behaviour: Patterns of harm and protection international transformations: Preventing UK gambling Harm*. London: ESRC, RIGT, & Lancaster University.

Prepared by T. Schrans & T. Schellinck

- Responsible Gambling Council. (2006). *Electronic gaming machines and problem gambling*. Saskatchewan Liquor and Gaming Authority.
- Responsible Gambling Working Party. (2008). *Supporting customer commitment second progress report to the Minister for Gambling*. South Australia: Government of South Australia.
- Responsible Gambling Working Party. (n.d.). *Player Tracking and Pre-commitment Trial*. South Australia: Government of South Australia.
- Schellinck, D.A., Maddox, R.N., (1987). *Marketing research: a computer assisted approach*. New York: Dryden Press
- Schellinck, T. (2004). *Phase I: Development self-administered problem gambling screen*. Victoria Gambling Research Panel.
- Schellinck, T., & Schrans, T. (2002a). The application of computer simulations in exploring continuous consumer behaviour: The study of gambling behaviour. In *IFSAM 2002 Conference, Gold Coast Queensland*.
- Schellinck, T., Schrans, T., & Focal Research Consultants Limited. (2002b, October). *Nova Scotia video lottery responsible gaming features research*. Halifax, Nova Scotia: Nova Scotia Gaming Corporation.
- Schellinck, T., & Schrans T. (2003a). Understanding gambling behaviour using computer simulation. *The National Association Gambling Studies Journal*, 14(2) 7-20.
- Schellinck, T., & Schrans T., (2003b). Surveying all adults in a household: The potential for reducing bias in prevalence estimates and the opportunity to study households with more than one problem gambler. *Gambling Research*, 15(1), 51-61.
- Schellinck, T., & Schrans T. (2004a). Gaining control: Trends in the processes of change for the video lottery terminal gambler. *International Gambling Studies*, 4,(2), 161-174.
- Schellinck, T., & Schrans, T. (2004b). Identifying problem gamblers at the gambling venue: Finding combinations of high confidence indicators. *Gambling Research*, 16(1), 8-24.
- Schellinck, T., Schrans, T., & Focal Research Consultants Limited. (2004c, October). *Product enhancement study: Wave 2 Nova Scotia video lottery responsible gaming features research*. Halifax, Nova Scotia: Nova Scotia Gaming Corporation.
- Schellinck, T. (2006a). *Phase II: Quantitative Analysis for the Victoria Self Administered Problem Gambling Screen*. Victoria Department of Justice.
- Schellinck, T. (2006b). The Victoria self administered problem gambling screen: Development research. *Presented at 16 NAGS Conference*. Sydney, Australia.
- Schellinck, T., Schrans, T., & Focal Research Consultants Limited. (2007). *Assessment of the behavioral impact of responsible gaming device features: Analysis of Nova Scotia player-card data - Windsor trial*. Halifax, Nova Scotia. Nova Scotia Ga,omg Corporation.

Prepared by T. Schrans & T. Schellinck

- Schottler Consulting Pty Ltd. (2009a). *Pre-commitment card-based gaming trial - Sandgate. Major findings of a trial of a card-based gaming product at the Sandgate RSL.* Queensland: The State of Queensland, Department of Employment, Economic Development and Innovation.
- Schottler Consulting Pty Ltd. (2009b). *Pre-commitment card-based gaming trial – Redcliffe. Major finding of a trial of a card-based gaming product at the Redcliffe RSL.* Queensland: The State of Queensland, Department of Employment, Economic Development and Innovation.
- Schottler Consulting Pty Ltd., & Hare, S. (2009). *A study of gambling in Victoria. problem gambling from a public health perspective.* Victoria: Department of Health.
- Schrans, T., & Schellinck T., & Focal Research Consultants Limited. (2001). *2001 survey of gambling and problem gambling in New Brunswick.* Fredericton: New Brunswick Department of Health and Wellness.
- Schrans, T., Schellinck, T., & Focal Research Consultants Limited. (2002, October). *Nova Scotia video lottery responsible gaming features research.* Halifax: Nova Scotia Gaming Corporation.
- Schrans, T., & Schellinck, T., & Focal Research Consultants Limited. (2003). *2003 Nova Scotia gambling prevalence study.* Report to the Nova Scotia Office of Health Promotion.
- Schrans, T., & Schellinck, T., & Focal Research Consultants Limited. (2004, October). *Nova Scotia video lottery self exclusion process test .* Halifax: Nova Scotia Self-Exclusion Working Committee.
- Schrans, T., Schellinck, T., & Zou, Y., & Focal Research Consultants Limited. (2007). *2007 Yellow Flag post campaign evaluation.* Report to the Nova Scotia Health Promotion and Protection.
- Schrans, T., Schellinck, T., MacDonald, K., & Focal Research Consultants Limited. (2008). *2007 Nova Scotia adult gambling prevalence study.* Report to the Nova Scotia Health Promotion and Protection.
- Shaffer & Korn. (2002). *Gambling and related mental disorders: a public health analysis.* Annual reviews, 23, 171-212.
- Svenska Spel. (2007, June 29). *Press Release: Svenska Spel introduces Playscan.*
- Svetvia, E., & Michael, W. (2008). Inconsistency between concept and measurement: the Canadian Problem Gambling Index (CPGI). *Journal of Gambling Issues*, 22, 157-173.
- Tasmanian Gaming Commission. (2008). *Social and economic iImpact study into gambling in Tasmania.*
- Techlink Entertainment. (n.d.). *Summary of the Nova Scotia Gaming Corporation research project.*
- The Nationals. (2006). *The Victorian Nationals Plan for responsible gaming: Policy directions paper.*

Prepared by T. Schrans & T. Schellinck

- The Responsible Gambling Working Party. (2007). *Supporting customer commitment a progress report to the Minister for Gambling*. Government of South Australia.
- Walker, M.B., & Dickerson, M.J. (1996). The prevalence of problem and pathological gambling: a critical analysis. *Journal of Gambling Studies*, 12, 233-49.
- Williams, R.J., & Wood, R.T. (2004). The proportion of gaming revenue derived from problem gamblers: Examining the issues in a Canadian context. *Analyses of Social Issues & Public Policy*, 4(1), 1-13.
- Williams, R.J., & Wood, R.T. (2007). *The proportion of Ontario gambling revenue derived from problem gamblers*. *Canadian Public Policy*, 33(3), 367-388.
- Williams, R.J., West, B.L., & Simpson, R.I. (2007). *Prevention of problem gambling: A comprehensive review of the evidence*. Report prepared for the Ontario Problem Gambling Research Centre.
- Williams, R.J., West, B.L., & Simpson, R.I. (2008). *Prevention of problem/pathological gambling: A comprehensive review of the evidence*. Report prepared for the Ontario Problem Gambling Research Centre.
- Wood, R.T., & Williams, R.J. (2009). *Internet gambling: Prevalence, patterns, problems, and policy options*. Final Report prepared for the Ontario Problem Gambling Research Centre.
- Wiebe, J., E. Single, & A. Falkowski-Ham. (2001). *Measuring Gambling and Problem Gambling in Ontario*. Toronto: Canadian Centre on Substance Abuse and Responsible Gaming Council (Ontario).
- Wynne, H., Smith, G., & Volberg, R. (1994). *Gambling and problem gambling in Alberta*. Report to the Alberta Lotteries and Gaming Commission. Alberta: ALGC.
- Young, M., Abu-Duhou, I., Barnes, T., Creed, E., Morris, M., Stevens, M., et al. (2006). *Northern Territory Gambling Prevalence Survey 2005*. Darwin: School for Social and Policy Research, Charles Darwin University.