

Report to the Ministry of Health

Feedback to MOH re Emerging Trends in National & International Literature

Report No. 11 covering 1st July 2015 to 31st December 2015

ABACUS Counselling Training & Supervision Ltd

Literature	Findings	Comment
<p>Conceptual framework of harmful gambling: an international collaboration revised edition (September 2015) Authors: M Abbott, P Binde, L Clarke, D Hodgins, D Korn et al Gambling Research Exchange Ontario (GREO), Guelph, Ontario, Canada</p>	<ul style="list-style-type: none"> • Harmful gambling can have serious effects upon individuals, families, and society • A comprehensive conceptual framework of 'harmful gambling' that takes into account not only problem gamblers' (PGs') symptoms but also effects on society and community, and risk to population • The several authors (n=11) comprise a wide range of experts from a number of countries who have reached a consensus after review of problem gambling literature • The framework includes major gambling themes (gambling environment, exposure, types of gambling, and problem gambling resources) and general impacts of problem gambling (cultural, social, psychological and biological) • The authors believe that no one model has provided a comprehensive view of gambling-related harm that takes into account differences in countries, cultures and scientific disciplines in respect of gambling harm 	<ul style="list-style-type: none"> • Problem gambling has broad and varied definitions which can lead to complications in a range of important aspects: these include education, initiation and comparison in research, a guide for policy development, and identifying targets for treatment and effective approaches • The examination of the complexity of PG is an essential step in effective comprehensive treatment outcomes and from the focus of harm to the individual, whanau and community, this aligns well with NZ legislation (Gambling Act 2003) • From the perspective of treatment of PGs, stakeholders in the report considered that the framework could be useful in triaging client activities either prior to or during treatment, including liaising with other social determinants of their health, and perhaps especially coexisting mental health issues.

	<ul style="list-style-type: none"> • The authors reviewed a range of gambling (recreational, commercial, illegal) and defined harmful gambling as: “any type of repetitive gambling that an individual engages in that leads to (or aggravates) recurring negative consequences such as significant financial problems, addiction, or physical and mental health issues” • It also recognises that the PG’s family, social network, and community may also be negatively affected. • Harm may range from small to significant, transient to chronic • Harm as a perspective is wider than the PG’s symptoms • Theory driven research is motivated by reaching a consensus based on a harm approach, and no one theory is approved nor pathways to harmful gambling, with the focus on factors that are linked to gambling harm and developing the framework 	<p>The stakeholders’ consulter for the report “felt that harmful gambling is currently being addressed almost exclusively within the healthcare system, without much consideration of related social determinants”</p> <ul style="list-style-type: none"> • Although there is evidence for this, in NZ, the focus upon a coexisting (CEP) approach to treatment of PGs which includes related social determinants, the need to expand CEP from its initial ‘coexisting mental health problems’ to ‘coexisting mental health and other problems’ is important. In Te Ariari, the definition of CEP does focus upon mental health problems that coexist with the addiction, however in the treatment of PG there is the innovative inclusion of Facilitation as a strategy/intervention that has the ability to address these related social determinants • This framework publication provides important baseline information that can provide a guide to treatment in addition to research and policy development
<p>Single-session interventions for problem gambling may be as effective as longer treatments: results of a randomised control trial Author: T Toneatto</p>	<ul style="list-style-type: none"> • The authors noted that CBT treatment for problem gambling (PG) were supported with the best empirical evidence, with 50%-75% improvements. Combining CBT with Motivational Interviewing (MI) reduced drop-out rates, while even briefer treatments (brief advice or assessment control) could be effective over time, and that self-help manuals could be effective, especially if combined with some MI 	<ul style="list-style-type: none"> • There are important findings from this research that can impact upon treatment approaches for PG in NZ. • This may be that very brief interventions can be offered and choice made by clients as to the number of sessions that they prefer. This may result in a systematic approach to provide what the client at the stage of presentation feels they need rather than what

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- Evidence supports the most effective therapy for PG involves more than one therapy, that combines cognitive, behavioural and motivational interventions, with difficulty evaluating which of these three is the most effective
- The authors also noted that problem gamblers often disconnect from treatment early, and also prefer briefer treatments; they also note very brief interventions may be as effective as longer treatments. They referred to one study (Larimer et al 2012) where a 90 minute MI intervention was as effective as a six session CBT intervention in reducing gambling frequency and DSM PG symptoms
- This study compared cognitive, behavioural and motivational interventions in order to maximise the effect of PG treatment
- Canadian clients who were interested in treatment, were positive for at least one criteria for pathological gambling and were not being treated, were recruited by advertising. Excluded were those with serious and urgent psychiatric (e.g. suicidal, psychosis) or psychosocial crisis (e.g. homeless)
- A one year follow-up face to face assessment compared the 3 treatments in addition to a minimal intervention therapy
- The three treatments (other than minimal therapy) consisted of 6 one-hour sessions; the minimal therapy was a single 90 minute session that was mainly psycho-educational, focused upon sharing the client's assessment findings, together with

- the therapist perceives as needed. In addition, the fact that clients appear to prefer 'controlling' their gambling rather than abstinence even when they have severe symptoms and coexisting issues, is counter-intuitive, but may be important in preventing disengagement from treatment
- PGs have the added 'incentive' to win their way out of financial problems, unlike other addictions; they are often easily bored, may have less support and have higher engagement in the gambling lifestyle than a focus upon abstinence
 - A stepped approach may therefore be an option, with more 'convenient' options such as phone calls, emails, self-help books, or even after-hours groups when work obligations can be maintained
 - Evidence does indicate that PGs more than many other addiction clients may be less likely to seek help or engage in extended therapy. The need to tailor options to suit client desires and needs may be a finding that explains approval of minimal interventions despite the costs of gambling behaviour for severely affected PGs.
 - The findings of this research that even very brief interventions can be as effective as more extended therapy is an important finding that may also be important for the buy-in of PG therapists who may otherwise

	<p>handouts summarising cognitive, behavioural and MI information were shared in a didactic way, together with a discussion in which common-sense and practical advice was given. A booklet covering this was handed to the client</p> <ul style="list-style-type: none"> • Ideally 120 participants were sought, but recruitment was slow, with 99 beginning treatment, 79 completing treatment, and 74% assessed one year later. Coexisting issues were high, with about one in three taking medication for anxiety and one in five for depression • Seeking help for PG from treatment services during the year following the research treatment was low, at less than 7%. • The effect of all the treatments was moderate overall, suggesting room for improvement; however, this may have been due to the need to constrain participants to one therapy in the research, rather than offer a range according to patient needs, in usual therapy • Abstinence from gambling was not a high preference, with about one in three wanting abstinence at the end of treatment and this reduced to one in five at the follow-up. This was despite most meeting the criteria for pathological gambling when participating (80%-90% of participants with average 6-7 criteria out of ten) reducing to 40%-50% at 12 month follow-up (but may not reflect true status at follow-up as covered 12 months prior as only 5% at follow-up were gambling daily) • All treatments resulted in similar outcomes, 	<p>only offer extended therapies, or may approach initial session/s on the assumption that clients will continue to attend, rather than design initial sessions according to the clients' wishes, with options to extend the therapy as the client desires. This may be a more effective approach than focusing upon engagement or motivation in the initial session or sessions, or combining these with psycho-education, perhaps subject to clients' readiness to change level</p> <ul style="list-style-type: none"> • It is noted that research currently underway in NZ may provide further support in the future for brief intervention effectiveness.
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	<p>including confidence in controlling gambling, and desire to gamble, as well as PG criteria at 12 months post-treatment</p> <ul style="list-style-type: none"> • The single session minimal intervention was as effective as the 6-session therapies • The authors noted that evidence for increased length of therapy as a positive outcome is mixed, the issues and weight given to these (e.g. motivation, social support, empathy, or even natural recovery) rather than treatment may have more impact on positive outcomes, and this is poorly understood • The authors suggest that since PGs are often not engaged in treatment, very brief therapy may be more opportunistic, providing a range of coping skills and other supplementary interventions as clients need. This can be by self-help workbook, and booster treatments such as telephone calls • The authors note that there was no control group that didn't receive a treatment and that any improvement may have occurred without treatment at all, however the majority (60%-70%) regarded all programmes as helpful in achieving changes, with surprisingly most (not statistically significant though) electing highest approval for the very minimal intervention 	
<p>Is all Internet gambling equally problematic? Considering the relationship between mode of access and</p>	<ul style="list-style-type: none"> • The authors note that research suggests that increased accessibility and availability is related to levels of gambling problems. There has been a focus on computer gambling rather than new products available over mobile and other non- 	<ul style="list-style-type: none"> • With the growth of cell phone use, their power, screen size and app efficiency, many of the advantages of PC/computers over supplementary devices will have reduced. Younger people may no longer be more

gambling problems (2016)
Authors: S Gainsbury, Y Liu, A Russell, T Teichert
Computers in Human Behavior, 55, 717-728
<http://dxdoi.org/10.1016/j.chb.2015.10.006>

computer devices, and there may be important differences amongst gamblers who often differ over a range of factors including mode of access

- Gambling problems develop from a complex interaction of psychological, social, biological and environmental factors but little research has occurred in the impact between sociodemographic variables.
- The authors note that research suggests that Internet gambling is not of its nature more likely to cause more severe PG
- Existing research indicates that internet gamblers have greater levels of problems than land-based gamblers, with internet gamblers also tending to have land-based gambling problems, over a wider range of gambling activities and with greater expenditure and amount gambled.
- Internet gambling has additional risk factors over land-based gambling, including easy accessibility and availability of gambling, enhanced privacy, perceived anonymity, and reduced 'importance' of electronic money. Risk for these is heightened for gamblers who use mobile/supplementary devices (over computers). Mobile internet gamblers have been found to have longer and more frequent gambling sessions and greater bet size, than computer gamblers.
- Despite the advantages of these 'supplementary' devices (e.g. mobile phones, tablets) it would appear that internet gamblers would prefer to use computers for their gambling because of 'ease of

proficient that older people in use of phones accessing the internet and gambling. In addition, phones are often used for business applications and even as mainstream work devices

- Previous advantages in 2011 of 'ease of use, better security, larger screen, and better internet connection' will have changed with now fewer PC advantages, while greater prevalence of use (as a main work tool as well as entertainment) by PCs over phones and tablets will have waned
- This may suggest that the number of problem gamblers using the internet has now increased in prevalence, whereas research has fallen behind in this rapidly moving problem gambling factor. Nevertheless, the evidence from this study does have continuing relevance and suggests that these gamblers should be comprising a much higher proportion of those seeking treatment, and as this is not the case, what strategies are required to provide resources to meet this under-presenting population?
- One finding described the complexity of PG; in this study, when age was combined with marital and occupational status, they found those over 50 were three times more likely to gamble online using supplementary devices if separated or divorced than if married. Also, those over 50 who worked, were less likely to

	<p>use, better security, larger screen, and better internet connection'. This compares with their acknowledgement that the supplementary devices allow greater engagement in gambling</p> <ul style="list-style-type: none"> • Relationship between gambling problems and modes of access remains unclear and this research was designed to clarify this relationship • Mobile gambling has increased its share of gambling, with the 18% of all interactive gambling in 2012 increasing by 2018 to an estimated 45% of total interactive gross win • This online survey of 6,682 of which 4724 completed was predominantly male (86.3%), employed (59.1%) and almost half (46%) were married • Supplementary device gamblers and 'offline'/land-based gamblers were more than twice as likely to be problem gamblers and four times as likely to be moderate risk gamblers compared with computer gamblers. This may indicate that for internet gamblers, risk may not be due to the internet itself, but how the internet is being accessed. • The authors suggest that greater accessibility and convenience of accessing gambling can lead to greater engagement in gambling, greater expenditure and development of problems. These more involved gamblers may seek out the supplementary devices to enable the engagement. • An alternative explanation given is that the internet is not problematic itself in formation of addiction. Rather, as PC computers may pre-exist the 	<p>use supplementary devices to gamble with. This may be explained with having more free time and able to be away from home, thereby having more time to use these supplementary devices.</p> <ul style="list-style-type: none"> • Another expected finding was that younger people were more likely to use supplementary devices to gamble with than older people, and may be more comfortable and proficient with them • Supplementary device gambling was correlated in greater problems (possibly from greater desire to access them by existing PGs, or alternatively, these devices increase the risk of PG) with 80% of users reporting some negative gambling issues and had the highest severity scores when compared with PC/computer or land-based gamblers. These supplementary gamblers also behave differently by gambling on a wider range of activities, which the authors conclude suggests their higher level of PG could be due to the amount of time (increased) that they spend on the Internet gambling. • Although the authors state that the Internet is not of itself more likely to cause more severe PG, it would appear that devices that offer more Internet gambling use can cause problems and that supplementary devices can do just this. With the increased use of such devices rather than PCs over time, and
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	<p>gambling and are used for other reasons, the PC is not a dedicated gambling activity for the computer user, while the gambling app downloaded for a supplementary device is an intention to gamble as well as being accessible any time (unlike a PC)</p> <ul style="list-style-type: none"> • The authors acknowledge that much of the data may be out of time in that mobile phones have become far more powerful, and developed since the data collection (2011). 	<p>the reduced difference between PCs and supplementary devices, the statement becomes less significant, and Internet gambling more problematic.</p>
<p>Gambling content in Facebook games: a common phenomenon (2016) Authors: Jacques C, Fortin-Guichard D, Bergeron P, Boudreault C, Levesque D & Giroux I Computers in Human Behavior, 57, 48-53</p>	<ul style="list-style-type: none"> • The authors note that some Facebook games are being offered by companies that also offer gambling games • Online can be similar to gambling activities without a money component and can be accessible by youth • The study sought to identify whether Facebook games contained gambling content • Australian film/literature classification informs consumers of gambling content with three categories: <i>standard gambling simulations</i> (digitally simulated interactive gambling activity that is identical to mainstream gambling e.g. blackjack, roulette; <i>non-standard gambling simulations</i> (in-game credits or suchlike for wagering similar to mainstream gambling but which have player rules or other non-mainstream gambling components); <i>gambling references</i> (gambling-type characters, gambling storylines, or gambling items within the context of the video game) • The most popular one hundred Facebook games were played for 10 minutes and analysed for 	<ul style="list-style-type: none"> • Facebook games are very popular and as many gambling games exist on the Internet, exposure of many millions of players who may not participate in gambling online to gambling content may increase gambling participation in a covert process • Familiarisation is a possible process that may introduce and normalise gambling to many Facebook users who would not otherwise contemplate gambling on the internet or even land-based gambling • This research does not connect those players who are exposed to gambling content with gambling sites and therefore cannot determine causation or even that these players use gambling sites more for other possible reasons • However, although there weren't more gambling content Facebook games owned by gambling companies than non-gambling companies, the existence of gambling content was evident in over half of the 100

	<p>gambling content (standard gambling simulation, non-standard gambling simulation, and gambling references)</p> <ul style="list-style-type: none"> • Researchers concluded that these gambling items within a video game increase the potential of gambling through familiarisation, establishing beliefs, and whereas odds of winning in games are higher than gambling wins with real money, such reinforcement can raise expectations of winning at gambling • Gambling content in social games on social networking sites and others has yet to be assessed and have very large participation. Candy Crush Saga had more than 10 million active players in late 2015 and is accessible through many Internet devices such as tablets, mobile phones and computers • Some Facebook game companies also provide gambling games e.g. Zynga, and researchers suggest that there is a deliberate intention to increase gambling with those playing video games through familiarisation, with little differentiation noted by players, thereby creating a gateway to gambling • The hypotheses raised by the researchers are that gambling providers will have more gambling content in their Facebook games than non-gambling providers, and that the gambling content (category type, above) will differ for gambling providers • The 100 most popular free Facebook games were 	<p>most popular Facebook sites, which does suggest the importance of future research into this field</p> <ul style="list-style-type: none"> • In addition, that of the 100 most popular game sites n=13 were gambling themed and over half the remainder contained gambling content, suggests that many Facebook players are being exposed to a level of gambling unlikely in any other mainstream interactive behaviour • Passive behaviours such as sports events that offer direct gambling may also have increased audiences, however practising the behaviour as well as receiving inaccurate feedback as to chances of winning when money was at stake (i.e. gambling), may encourage new gamblers to incorrectly assess their level of skill and/or their chances of winning when games move from entertainment alone to risking money on perceived skill • This new field of gambling is very under-explored, with the assumption that reacting to a need is sufficient harm minimisation strategy required. However, this assumes that problem development will emerge over time as with land-based gambling and be identified and addressed effectively in a timely manner. • When such low percentages of problem gamblers seek help, with additional covert
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analysed in 2014. Sixteen of the 100 most popular games were also offered by gambling providers. In addition, 13 of the Facebook game's themes are casino-like and were analysed separately. Each of the games was analysed for their initial 10 minutes of operation

- 54% of the 100 facebook games contained gambling content with the most presenting electronic gambling machine representation (22%), next was casinos (13%) with gambling companies having more gambling content than Facebook only games
- The researchers concluded that Facebook games are more likely than not to contain gambling content. That gambling companies were more likely to have gambling content in their Facebook games was not found to be statistically different unless the 13 gambling theme Facebook games were removed, then gambling content was higher where the company also provided gambling sites
- Some limitations exist: the 10 minute analysis does exclude those facebook games where the gambling content occurs after 10 minutes and it was noted this does occur for Candy Crush; also, for dedicated gambling games that were analysed separately (n=13 casino games) it was not possible to analyse whether the greater chance of winning would encourage these players to participate in gambling sites under the misapprehension of a greater chance of winning, or the exposure increased gambling through familiarisation

issues for online gambling problems exist, and the reduced ability to control access once the problem may have gained a foothold, this argues for a proactive solution that appears to be almost overdue

- The authors raise interesting further research that will assist in the identification of problems, but also that Facebook games already contain a substantial number of both gambling themed and gambling content games amongst the most popular games available to a substantial proportion of the population, irrespective of their age.

	<ul style="list-style-type: none"> • What was found was that gambling content of Facebook games may have an as yet unknown effect on players to gamble whether or not the game is owned by a company that provides gambling sites or not, especially as many Facebook game players are under 18 years of age 	
<p>Neural and psychological underpinnings of gambling disorder: a review (2016) Authors: Grant J, Odlaug B, Chamberlain S Progress in Neuro-Psychopharmacology & Biological Psychiatry 65, 188-193</p>	<ul style="list-style-type: none"> • Thees authors sought to review the neurobiological and psychological cause/underpinnings of Gambling Disorder (GD) especially as it has now been recognised and categorised with substance-related and addictive disorders in DSM5 • <u>Neurocognition</u>: GD is impulsive in that it is often poorly thought out, risky, and has long term costs – the impulsive behaviour tends to begin in late adolescence/early childhood, and can persist, especially if no prompt interventions • Cognitive deficits similar to impulsivity often exist; deficits in inhibition, working memory (short term memory and its manipulation) planning, flexible thinking and time management • GD individuals tend to prefer smaller immediate rewards rather than larger delayed rewards to their detriment ('delay discounting') • Also compulsivity, ritualism (e.g. 'lucky numbers') • Early gambling may be driven by reward, while later more chronic gambling is driven by stress or to avert anxiety. Therefore, it may initially be driven by (impulsive) reward-seeking to later avoidance of negative outcomes or habit (compulsive) • Some deficits in thinking may be hereditary, while others may be learned from regular gambling 	<ul style="list-style-type: none"> • This paper is a useful summary of the current understandings of the brain and its processes together with psychological disorders and traits, in respect of problem gambling • Many treatment providers will recognise the behaviours described and that there is a strong relationship between neural pathways and psychological problems with those affected by their gambling • It is important to understand however, that many other issues and domains also impact upon gambling and although these are alluded to, it may well be that social or environmental drivers have much of the influence in the development, maintenance and relapsing risk for gambling. Also, that many of the recent findings at a genetic level may change, or be established through such environmental impact. • The authors do refer to hereditary risk, and this raises the need to understand what protective factors exist for the understandably less than 50% of those with GD risk who do not develop this problem. • The coexisting impact of different

- Decision-making deficits may be due to problems in the frontal cortex and insular cortex
- Neurobiology: Functional MRI and PET scans can provide pictures of urges around gambling. Some decreased activity in parts of the brain have been recorded such as the prefrontal cortex, while others have found overly large ventral striatum and right pre-frontal cortex
- Focus of research has been dopamine because of importance of reward in addiction. In substance dependence studies, dopamine receptors vary in their reduced action, which has not been found in gambling, but PG may result in higher sensitivity to dopamine when there is uncertainty
- At this stage, technology doesn't allow identification of the timing between the brain abnormalities and GD (which comes first? At-risk or caused by GD?)
- Genetic: 20% of first degree relatives of those with GD may also have GD and those with a parent with GD were 3.3 times more likely to have GD. Twin studies have found that heritability of GD is 50%-60%, and in women, low self control is associated with genetic risk for GD
- Neurobiological: many neurotransmitter systems have been associated with GD. Dopamine is involved in learning, motivation, and salience (importance, focus) of stimuli including rewards
- Other systems that may also be involved are glutamine, serotonin, noradrenalin, and opioid systems
- For example, during anticipation of winning money,

neurotransmitter systems also describes the complexity of GD and whether many of the coexisting issues are caused by the gambling or whether they pre-exist, and longitudinal studies will assist us to understand them better in the future.

- The presence of more than one personality disorder (albeit a developing and imprecise field), anxiety and other coexisting issues, further raises the complexity of GD, but also may emphasise that the current approach to address GD in a holistic approach is the appropriate strategy for good treatment outcomes.

dopamine increases the activity of the nucleus accumbens while also weakening its connection with the prefrontal cortex, leading to impulsive behaviour (can increase urge while reducing negative thoughts of losing, and of learning the consequences of the impulsive gambling)

- Research also notes that glutamate and its receptors in those with GD may be involved in long-term changes in communication between the prefrontal cortex and nucleus accumbens, which results in reward-seeking behaviours. Glutamate is also linked to the dopamine reward system and to immediate response behaviour.
- Serotonin dysfunctions in GD have been found, especially in males, and has been associated in poor decision making.
- Noradrenalin is likely to be involved in decisions when unexpected changes arise. This is likely when present for longer in the synapses - GD have higher levels of noradrenalin throughout the gambling sessions while non-problem gamblers have this only at the beginning of gambling
- Opioid receptors found widely in the limbic system are associated with reward and high enjoyment; Gambling results in elevated opioids, reduction of receptors that lower opioid action, while some research with opioids has resulted in positive problem gambling treatment
- Personality traits: GD is associated with long term impulsiveness; however, many other factors can also influence impulsiveness, such as poverty, age

	<p>and gender. Earlier age onset of gambling problems was related to more severe GD, poverty increased risk of GD, and males were more impulsive and sensation-seeking than females</p> <ul style="list-style-type: none">• Research has identified higher personality traits in GD that are similar to those with substance use disorder, with 'low conscientiousness, and low agreeableness'. Treatment dropout was related to impulsivity, and novelty seeking with severe GD, but these were not related to treatment outcome• <u>Personality Disorders</u>: these are common in GD and may contribute to the gambling symptoms being chronic. In one recent study, 45.5% of GD met criteria for at least one personality disorder, but these personality disorders were not related to GD severity. Of those GD who were also affected by an anxiety disorder, 71.4% met one or more personality disorders compared with 52.9% of GD without anxiety• The authors concluded that GD was varied in nature (heterogeneous), although impulsivity occurred in most, but the lack of neural studies does limit understanding of brain processes – dopamine, glutamine and serotonin have been implicated, as have genetic influences. Further research is required with new paradigms, and these being more of a holistic approach.	
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