

Promising Practices in the Prevention of Problem Gambling

Robert J. Williams

Professor, School of Health Sciences, and
Coordinator, Alberta Gaming Research Institute
University of Lethbridge, Lethbridge, Alberta, Canada

Robert I. Simpson

CEO, Ontario Problem Gambling Research Centre
Guelph, Ontario, Canada

Report prepared for the Ontario Problem Gambling Research Centre,
Guelph, Ontario, CANADA

November 14, 2008

Citation:

Williams, R.J. & Simpson, R.I. (2008). *Promising Practices in the Prevention of Problem Gambling*. Report prepared for the Ontario Problem Gambling Research Centre. Guelph, Ontario, CANADA. November 14, 2008.

Direct Correspondence to:

Dr. Robert Williams
Professor, School of Health Sciences
University of Lethbridge
4401 University Drive
Lethbridge, Alberta, Canada
Ph: (403) 382-7128
Email: robert.williams@uleth.ca

PROMISING PRACTICES IN THE PREVENTION OF PROBLEM GAMBLING

Problem gambling is a behavioural disorder that currently affects about 3-4% of the adult population in Canada (Williams & Wood, in preparation). Problem gambling fits well with the concept of dependence and is characterized by:

- patterns of excessive gambling that involve betting and losing more money than can be afforded and, possibly, dedicating more time to gambling than the person wishes
- impaired control over gambling such that the affected person is consistently unable to resist temptations and urges to gamble despite knowing that he/she is over-involved
- negative consequences arising from gambling that may affect the person's psychological, financial, legal, health, and social well-being
- persistence in maintaining excessive levels of gambling despite the presence of negative consequences.

From the public health perspective, there is intrinsic merit in preventing any dependency as a strategy to improve the quality of life for a population. Problem gamblers face an additional burden compared to those with other dependencies in that they may incur substantial financial debt that may be difficult or impossible to resolve. As such, one of the principal negative consequences of the dependency cannot be addressed through treatment approaches, further emphasizing the need for effective preventive interventions. In this context, the term "intervention" refers to any initiative undertaken to intervene into the health status of a population, and includes programs, campaigns, educational resources, and policy measures. A preventive intervention is intended to introduce changes in the population in order to reduce the likelihood that a targeted problem develops. Accordingly, prevention focuses on the number of new cases developing over a period of time – the incidence rate – and endeavours to reduce it.

A large array of problem gambling prevention initiatives have been developed to date (Williams, West & Simpson, 2007a, 2007b). Unfortunately, the development, implementation, and evaluation of most have been a haphazard process. Most have been put in place because they 'seemed like good ideas' and/or were being used in other jurisdictions, rather than being derived from a good understanding of effective practices in prevention and/or had demonstrated scientific efficacy. Not surprisingly, when these initiatives are subsequently evaluated, many appear to demonstrate little positive impact and, consequently, are of limited effectiveness (Williams, West & Simpson, 2007a, 2007b).

The purpose of the present paper is to provide guidance about promising practices in the prevention of problem gambling that derives from the comprehensive review of the evidence contained in Williams, West, & Simpson's (2007) *Prevention of Problem Gambling: A Comprehensive Review of the Evidence*. While there are many different definitions of "best practice" (e.g., Kahan & Goodstadt, 2005), common to all is the notion that a best practice is a "technique with the greatest potential to produce the desired result". One step removed is the notion of a "promising practice" – one that enjoys some measure of scientific support, but not to the standard of rigor that would be required for "best practice" designation. This report acknowledges that no true "best practices" exist in relation to the prevention of problem gambling, and limits its discussion to measures for which there is some level of encouraging empirical support.

As mentioned, the ultimate desired result is a reduction in the rate of new cases of problem gambling (the incidence rate). To achieve this end, it is inescapable that gambling practices that lead to problems must be reduced among members of identified target populations. In other words, prevention will not have occurred if positive behavioural impact is not achieved. Having said this, a number of intermediate outcomes may be pursued to lay the foundations or otherwise contribute to ultimate behavioural change. These include changes in knowledge, attitudes (beliefs, perceptions, and motivations), behavioural intentions, and skills (Simpson et al., 2006).

SOURCES OF EVIDENCE

The best measure of a technique's effectiveness will always be empirical evidence that it reduces the rate of new cases. Unfortunately, this type of evidence is difficult to obtain, and is not available for the majority of problem gambling prevention initiatives to date (Williams et al., 2007a, 2007b). As mentioned, without this information it is premature to identify "best practices". While there may be merit to this argument, there remains considerable value in identifying "promising practices" before all the evidence is in.

An important lesson from the substance abuse field is that once a prevention program (or, for that matter, a treatment program) becomes established, it is very difficult to supersede it even when more effective alternatives are available. As a result, the most commonly used (and entrenched) substance abuse interventions tend to be the less effective ones (Miller, Wilbourne & Hettema, 2003; Tobler et al., 2000). Having said this, it is also important to recognize that several useful sources of evidence do exist that speak to the *likely* effectiveness of problem gambling prevention initiatives.

The first such source is research on the effectiveness of current initiatives. In lieu of a demonstrated decreased incidence of problem gambling, some results have shown a change in actual gambling behaviour. As mentioned, such change can be linked to a decreased likelihood of problem gambling, and constitutes reasonable evidence of effectiveness – it is akin to arguing that a reduction in daily caloric intake will likely reduce obesity. At a more distant level of preventive impact, other results document changes in peoples' knowledge, attitudes, behavioural intentions, and skills in ways likely to reduce the adoption of "risk" gambling practices (e.g., exceeding financial limits).

A second source of evidence concerns the vast literature on the effectiveness of prevention initiatives in allied health fields. Although problem gambling does have some unique characteristics, there tends to be considerable overlap in the nature, etiology, and course of all dependencies or addictions. Accordingly, where a counterpart initiative exists in an allied field, its effectiveness or ineffectiveness may suggest potential extension to problem gambling.

A third source of evidence concerns the *theoretical cogency* of problem gambling prevention initiatives. An intervention needs to fit into what is known about the etiology of problem gambling such that its presence should theoretically disrupt the course of events that typically leads to problem gambling. Similarly, if the intervention is intended to change "high risk" behaviour, it should be consistent with validated behaviour change models or theory. In this light, it is instructive to first review what is currently known about the etiology of problem gambling.

BIOPSYCHOSOCIAL ETIOLOGY

The biopsychosocial approach is a well accepted overarching etiology of addictive behaviour, including problem gambling (Griffiths & Delfabbro, 2001; Marlatt et al., 1988; Sharpe, 2001; Simpson et al., 2006; Williams et al., 2007b). Essentially this orientation states that a large number of biological, psychological, experiential, and social factors both contribute to and protect individuals from developing problem gambling. As a consequence, the particular pattern of risk factors that leads to problem gambling will often vary for different people, as does the age at which problem gambling develops. However, as outlined by Simpson et al. (2006) and Williams et al. (2007b), a general sequence of events can be observed:

1. *Heritable genetic factors* shape the characteristics of the brain and nervous system in ways that increase or decrease an individual's susceptibility to engagement in gambling and/or the development of problem gambling. Examples of biological risk factors include increased impulsivity, risk-seeking, vulnerability to stress and mood disorders, vulnerability to addictive behaviour¹, and compromised intellectual skills. Conversely, those who have the opposite attributes may have inherited some biologically-based protection from engaging in excessive or potentially-harmful gambling and/or developing problem gambling.
2. The likelihood of initial experimentation with gambling is influenced by the above biological propensities, combined with subsequent *environmental experiences*. Foremost among these are parental, peer group, and societal modelling of the behaviour and gambling's actual physical availability. Gambling norms are another form of environmental influence, and are reflected in the media, advertising, promotions, and "conventional wisdoms" and myths about gambling and the likelihood of winning.
3. Continued involvement in gambling is influenced by all the above factors as well as the person's *psychological make-up* and *learning experience*. Two aspects of the person's psychological make-up play a particularly important role. The first is whether the person holds erroneous cognitions (i.e., beliefs, explanations, motivations) about how gambling works. Common examples of erroneous cognitions include: failure to understand the independence of random events (or the "reload" feature), predicting outcomes, illusions of control, beliefs in 'luck', and so on. The second is whether gambling serves any psychological need for the individual (e.g., relief from negative feelings, excitement, and recognition/importance) (Blaszczynski & Nower, 2002).² With respect to learning experience, the rewarding or non-rewarding consequences of the person's early bets or gambles may be a potent determinant of whether gambling is continued or discontinued, and whether it escalates into "risk" or potentially harmful practices.
4. Once gambling is regularly engaged in, *operant and classical conditioning* begin to increase the frequency and strength of the behaviour and the physiological processes underlying it, making it progressively more difficult for the gambler to wilfully resist urges and temptations to gamble. At a psychological level, the person begins becoming *preoccupied* with thoughts of gambling and, increasingly, spends time actively planning and orchestrating opportunities to gamble. At

¹ Over-involvement with a behaviour such that negative consequences are experienced and, despite such consequences, the behaviour is maintained. This perspective applies to drinking, smoking, other drug use, eating, and sex among others.

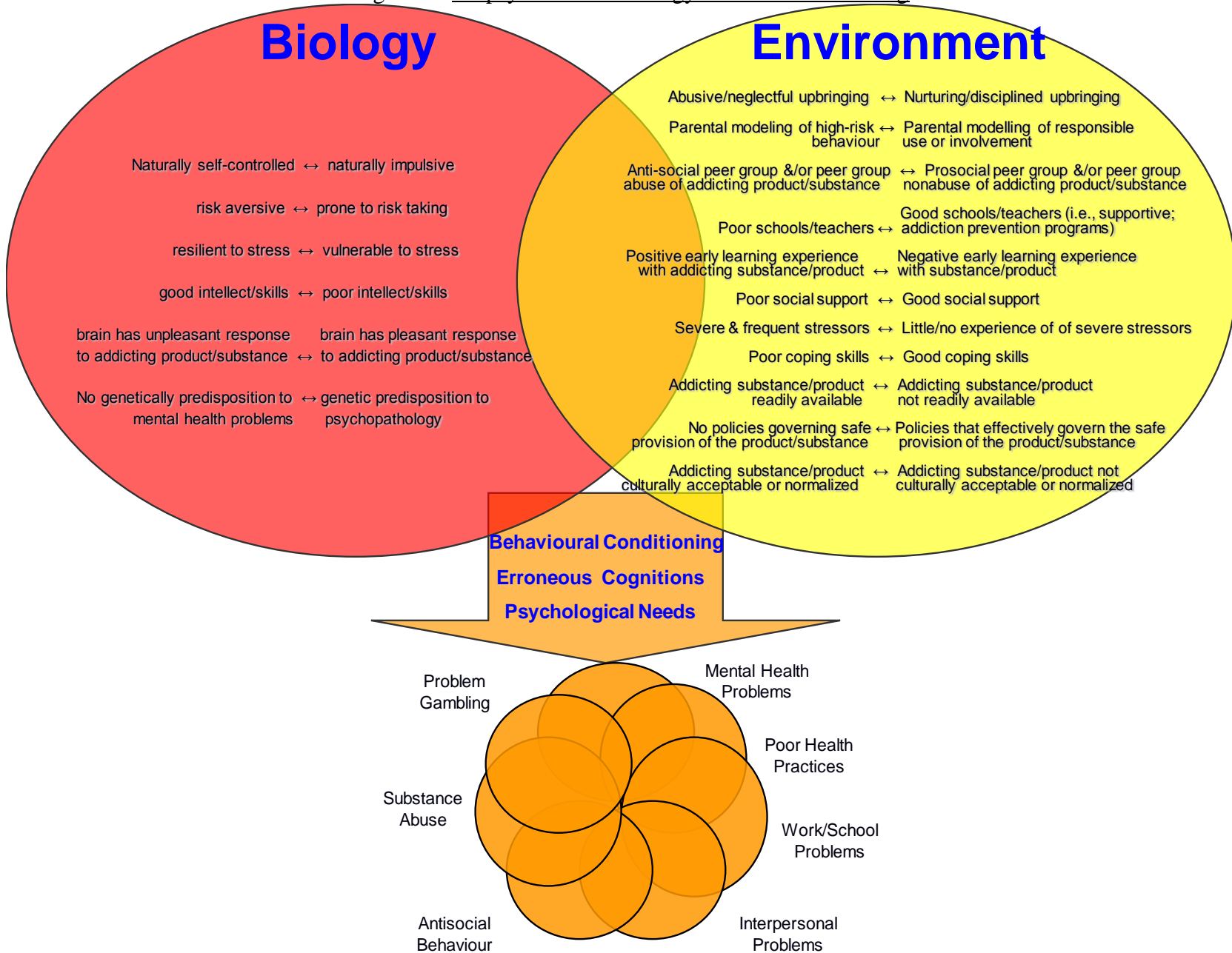
² Some of these psychological needs may derive from an abusive or neglectful upbringing, poor self-esteem, poor coping skills, lack of social supports, presence of severe stressors, etc.

a behavioural level, the person starts to play more often and longer than intended, and exceeds planned spending limits. In light of the negative consequences that begin to occur, the psychological need that gambling meets and the person's beliefs about how gambling works are important intellectual justification factors that influence whether the behaviour continues and escalates (i.e., erroneous beliefs that you are 'due for a win', 'skilful play' can recoup losses). Gambling that does progress unabated typically leads to negative consequences in a range of areas (financial, psychological, social, legal, health, employment/school). As mentioned, this pattern of impaired control, subsequent negative consequences, and persistence in excessive gambling constitutes the core attributes of "problem gambling".

In many people, the same biological and environmental risk factors that lead to problem gambling independently lead to problems in other areas, including substance abuse, mental health problems, interpersonal problems, poor health practices, school/work problems, and antisocial behaviour (Petry, 2007; Petry, Stinson, & Grant, 2005; Rush et al., 2008). These associated co-occurrences and co-morbidities often reinforce each other's existence, hampering recovery from each.

Figure 1 illustrates the etiological process described above. If we accept this theoretical framework, then several 'promising practices' in problem gambling prevention that derive immediately from it, and which are consistent with the empirical evidence, can be identified.

Figure 1: Biopsychosocial Etiology of Problem Gambling



PROMISING PRACTICES

PROMISING PRACTICE 1: Employ Multiple Educational and Policy Initiatives.

Unlike the case with vaccinations or the chlorination of water supplies, there is no single strategy or initiative that has the power to prevent problem gambling on its own. The biopsychosocial framework illustrates that all dependencies, including problem gambling, develop through a complex interaction among many endogenous attributes and exogenous stimuli.

With respect to the prevention of *alcohol* abuse, achieving effectiveness, as defined by reductions in incidence rates, has required an extensive and pervasive combination of educational and policy initiatives directed at the individual, group, and community levels (CAMH, 1999; Foxcroft et al., 2005; Holder, 2005; Slater et al., 2005; Winters et al., 2007). Similarly, the prevention of problem gambling will require a multifaceted and comprehensive approach involving an extensive combination of educational and policy interventions aimed at a range of target groups. While some individual preventive initiatives have demonstrated greater impact than others, most are helpful to some extent. Conversely, there appears to be no single measure that, by itself, has widespread potential to prevent the onset (i.e., reduce the incidence rate) of harm (Williams et al., 2007b).³

Furthermore, it is evident that external controls (in the form of policy measures) can be just as useful as educational interventions. Moreover, when policy directions are unaligned with or oppose educational messages, they tend to negate and even reverse any intended positive impact. This effect has been demonstrated in the area of impaired driving, where the availability of half-price “happy hour” drinks has been shown to effectively undermine educational messages against drinking and driving. In similar fashion, educational messages to “stay within your limit” appear to be undermined by operational policies that place automated teller machines (ATMs) in close proximity to slot machines. In recognition that the financial consequences of problem gambling are often difficult if not impossible to remediate, the need for complementary educational and policy initiatives may be even greater than for other dependencies.

PROMISING PRACTICE 2: Coordinate these Multiple Educational and Policy Initiatives.

The evidence from allied fields indicates that effective prevention requires *coordination* between effective educational initiatives and effective policy initiatives aimed at the same outcomes. Comprehensive and coordinated prevention strategies work better because each overlapping initiative reinforces the message and power of the others, creating a synergy beyond what occurs with isolated efforts (Nation et al., 1993; Stockwell et al., 2005). Key aspects of coordination are to implement initiatives simultaneously rather than sequentially, and to ensure that core messages are consistent across initiatives.

³ A caveat to this ‘everything is helpful’ notion concerns situations where the presence of weaker initiatives is deemed sufficient, thereby impeding the adoption of more effective ones.

If the desired outcome is ‘low risk’ or ‘responsible’ gambling (as opposed to ‘not gambling’), then all policy and educational messages should be aligned and convey consistent information. To illustrate, if the message is that gambling (or certain gambling practices) is potentially dangerous, then it is inconsistent and potentially confounding to describe the activity as ‘gaming’, and to exclusively emphasize how much fun it is and how quality of life will be improved with a big win. Similarly, if a core message is to stay within your financial limits, it may be inconsistent to offer loyalty programs that escalate “comps” with mounting losses, or to allow patrons to reserve particular slot machines while they take meal breaks. Such inconsistencies between operational policies and education messages need to be eliminated if significant and enduring preventive outcomes are to be achieved among gamblers.

PROMISING PRACTICE 3: Decrease the General Availability of Gambling.

While many factors contribute to participation in gambling and the onset of problem gambling, some have a much more direct and immediate relationship, and are considered “gateway” factors. Interventions that target such factors can be considered as essential components of an overall problem gambling prevention strategy. Access to gambling and its overall availability are among the most potent gateway factors.

In general, greater availability and accessibility of a product is related to increased use of that product. This is especially true when the product has dependency-forming potential, where the very nature of the dependency confounds efforts to reduce or eliminate use. For example, alcohol availability is positively associated with higher levels of consumption which, in turn, correlates with higher levels of alcohol problems (Cook & Moore, 2002; Gruenewald, Ponicki, & Holder, 1993; Rush, Gliksman & Brook, 1986). In similar fashion, jurisdictions with higher levels of gun ownership have consistently higher rates of gun-related violence (Ajdacid-Gross et al, 2006; Hepburn & Hemenway, 2004; Killias, van Kesteren, & Rindlisbacher, 2001). The evidence reviewed by Williams et al. (2007a; 2007b) indicates that gambling availability and accessibility have a similar positive (albeit complex) relationship to the prevalence of problem gambling. Accordingly, a promising problem gambling prevention practice is to decrease the general availability and/or accessibility of gambling. While there are a number of ways to achieve this end, those with the greatest empirical support include:

3.1 Limit or Reduce the Number of Gambling Venues.

There is a strong positive association between the number of casinos and slot venues per capita and the prevalence of problem gambling within jurisdictions (Williams et al., 2007a; 2007b). To a lesser extent, and within various contextual circumstances, this association also exists with bingo halls and horse racing venues (Williams et al., 2007a; 2007b). The causal direction of this relationship has been demonstrated in studies (e.g., Room, Turner, & Ialomiteanu, 1999; Jacques, Ladouceur, & Ferland, 2000; Hann & Nuffield, 2005; Blue Thorn et al., 2007) that document an increase in rates of problem gambling subsequent to casino openings (Williams et al., 2007a; 2007b). Note that the effectiveness of reducing the number of casinos and slot venues is severely compromised if this is accompanied by an increase in the number of EGMs per venue (see Promising Practice 4).

3.2 Locate Gambling Venues away from Vulnerable Populations.

Individual vulnerability is one of the strongest, if not the strongest, predictor of problem gambling. This is part of the reason why casinos were historically been placed in tourist destinations that were located away from major urban centres with working class populations. Rush, Adlaf, Veldhuizen, Corea, and Vince (2005) found that substance abuse and specific demographic factors were the strongest predictors of problem gambling status in Ontario. In Canada, the provincial problem gambling prevalence rate is *best* predicted by proportion of the population with Aboriginal ancestry (Williams et al., 2007a; 2007b). Almost equally strong is the relationship between provincial rates of alcohol dependence and problem gambling prevalence (Williams et al., 2007a; 2007b). Within most jurisdictions, these above ‘vulnerability attributes’ are found disproportionately in lower socioeconomic neighbourhoods (Welte et al., 2004). Hence, in determining the location of a new venue, the potential ‘local impact’ of that placement needs to be taken into account.

3.3 Implement Other Restrictions on Gambling Availability.

Several other methods to reduce gambling availability have the *theoretical potential* (but little or no empirical support to date) to contribute to the prevention of problem gambling. A fairly radical strategy employed in a handful of countries around the world involves restricting access to gambling to non-residents. For example, France, the Bahamas, Malaysia, Papua New Guinea, Vietnam, and Nepal do not permit residents to gamble at casinos located in their own country. In a less dramatic fashion, Australia does not permit Australian residents to gamble online at its government licensed online casino.

Another method is to restrict gambling opportunities (e.g., Electronic Gambling Machines – EGMs such as Video Lottery Terminals, slot machines, or electronic Bingo) to dedicated gambling venues rather than also having them available in bars, restaurants, etc. Although there is a lack of definitive empirical support for this approach, it may have more to do with the fact that jurisdictions that have this policy (e.g., Ontario, British Columbia) often compensate by increasing the total number of dedicated gambling venues and distributing these venues more evenly/widely (i.e., making the actual availability of gambling not significantly different from the jurisdictions that do not restrict gambling to dedicated venues) (Williams et al., 2007a; 2007b).

A final approach involves reducing the hours of operation in venues. This policy measure has been demonstrated to be effective in reducing alcohol-related harm (Babor et al., 2003; Chikritzhs & Stockwell, 2006). The limited empirical support for this strategy in relation to problem gambling may be due to the fairly minor reductions in hours of operation that have been adopted to date (e.g., only closing for a few hours every night when patronage is already at its lowest).

PROMISING PRACTICE 4: Restrict or Eliminate High-Risk Forms of Gambling.

It is a common strategy for governments to adopt policies that prohibit or restrict inherently more “dangerous” or potentially harmful forms of a product. For example, in many

countries handguns, assault rifles, and automatic weapons are prohibited, whereas hunting rifles are legally available. Similarly, drugs with greater perceived potential for dependence (e.g., cocaine, methamphetamine, heroin) tend to be illegal in most countries, with substances perceived as less harmful being controlled (e.g., prescription drugs) or legally available (e.g., alcohol).

Consistent with these principles, the most dependency-prone forms of gambling are the ones that offer the greatest frequency of reinforcement. **Electronic gambling machines** (EGMs), such as Video Lottery Terminals, electronic Bingo, and Slot Machines, epitomize this characteristic with their automated nature, variable ratio schedule, significant programmed reinforcers, their propensity for visual and auditory overload, and rapid frequency of play. There are strong within and between country correlations between the number of EGMs per capita and problem gambling rates (Williams et al., 2007a, 2007b). Furthermore, treatment providers and problem gamblers in western countries consistently identify EGMs as causing the most problems (Dowling, Smith, & Thomas, 2005).

There has been considerable research on modifying EGM operating parameters to decrease their dependency potential (see Williams et al., 2007a, 2007b for a review). These include things such as slowing the speed of play, decreasing the number of play lines, limiting the size of notes accepted on bill acceptors, pop-up messages to gamble responsibly, on-screen clocks, mandatory cash outs after a certain time, showing money versus credits, reducing the number of ‘near misses’, eliminating interactive features (e.g., ‘stop reel’ button), and establishing preset time and spending limits (by means of ‘smart cards’). Many of these characteristics reinforce erroneous beliefs that machines are due for a win or that the player can influence the outcome, and contribute to the urge for players to exceed limits once they have been reached. Policies that change Slot Machine and VLT standards in a jurisdiction reduce the “disinformation” transmitted to players, and thereby theoretically reduce the extent to which they exceed their financial and time limits for play.

While all of these parameter modifications are helpful, to date, the documented magnitude of the impact achieved by change in these structural parameters and ‘responsible gambling features’ is relatively modest (Williams et al., 2007a, 2007b). In many ways, these efforts are reminiscent of the introduction of filtered and low tar cigarettes to reduce tobacco-related harm. Such modifications initially garnered considerable support, especially with the help of the tobacco industry, but in the end, they needed to be supplanted with the substantially more effective policies and educational approaches of recent decades (in other words, EGMs will always be high-risk devices).

Beyond EGMs, **Casino table games** (e.g., baccarat) also offer a high frequency of reinforcement, and are the forms of gambling most associated with problems in many Asian countries. **Internet gambling** is another form of gambling with an unusually high association with problems due to its convenience, potentially high frequency of reinforcement, and other inherent features (Williams & Wood, 2007b; Wood & Williams, 2007; 2008).

Hence, either prohibiting or severely restricting the availability and accessibility of these three high risk forms of gambling would almost certainly reduce the incidence of problem

gambling (Williams et al., 2007a, 2007b; Wood & Williams, 2008). Here again, if restriction of the availability (rather than prohibition) is opted for, a reduction in the incidence of problem gambling is not likely to occur unless the magnitude of the reduced availability is large (i.e., these forms of gambling need to become significantly more difficult to access).

PROMISING PRACTICE 5: Restrict the Use of Tobacco and Alcohol While Gambling.

Problem gamblers are significantly more likely to smoke and to use/abuse alcohol than non-problem gamblers (e.g., Crockford & el-Guebaly, 1998; Grant, Kushner, & Kim, 2002; Petry, Stinson, & Grant, 2005; Rodda, Brown, & Philips, 2004). Accordingly, policies to restrict the use of alcohol and tobacco while gambling have theoretical potential to contribute to a comprehensive preventive strategy. For example, requiring patrons to leave the gambling area in order to smoke or drink may encourage both gamblers and problem gamblers to take breaks from gambling. Moreover, making alcohol less accessible may reduce the proportion of people who gamble while their decisions are influenced by the disinhibiting effects of alcohol. This may be of particular value when patrons feel the impulse to continue gambling when they reach their limits.

PROMISING PRACTICE 6: Restrict Access to Money While Gambling.

Anecdotal and survey data suggest that restricting ready access to cash is a potentially effective strategy for reducing the extent to which gamblers exceed their financial limits. This is especially true when gamblers are in “hot” psychological states (often as they approach their limits) and are vulnerable to impulses to continue gambling with money they cannot afford to lose. It is well established that problem gamblers access on-site cash machines significantly more frequently than non-problem gamblers (Caraniche Pty Ltd., 2005; Independent Pricing and Regulatory Tribunal, 2004). In addition, problem gamblers in treatment report that the most common reason for terminating a gambling session and leaving a gambling venue is because they have run out of money (Productivity Commission, 1999). Indeed, self-reports of problem gamblers consistently identify easy and immediate access to cash as enabling them to exceed limits and, in so doing, to exacerbate gambling-related harm (e.g., Caraniche Pty Ltd., 2005; McMillen, Marshall, & Murphy, 2004).

The majority of a sample of 418 EGM players in Victoria, Australia held the view that ATMs should not be located in gambling venues at all. Respondents deemed this measure to be the most effective harm minimization strategy available (Caraniche Pty Ltd., 2005). The logic of the measure is to create a time buffer between the impulse to obtain more money (the “hot” decision) and actual access to it. Research suggests that the amount of time to allow the impulse to dissipate may be quite short – road rage, for example can often be dissipated simply by counting to ten. In the same way, walking to another part of the gambling venue may involve enough time to decide that exceeding limits is an unwise action, and allow the urge to be dissipated.

A related measure is to eliminate the practice of allowing gambling venues to offer lines of credit to customers. In the summer of 2005, an Ontario resident who arrested for killing his bookie was found to owe \$100,000 to a commercial casino on his line of credit. Such credit

policies do not advance any cash to recipients. Rather, they simply allow players to accumulate losses up to the negotiated limit. There appears to be no defensible rationale for casinos to offer credit in light of the fact that, by definition, the practice requires borrowing money to gamble.

PROMISING PRACTICE 7: Impart Knowledge, Attitudes, and Skills to Gamblers to Inhibit the Progression to Problem Gambling.

Many of the foregoing Promising Practices can best be characterized as “policy measures”. In this sense, policies are viewed as official restrictions or controls on gambling that, as intended or unintended consequences, either promote/facilitate the adoption of risk gambling practices (i.e., potentially harmful) or inhibit the adoption of these practices. Gambling-related policies can be developed by a range of authorities, including federal, provincial, and municipal governments, gambling operators and regulators, and organizations (e.g., school boards, employers, and post-secondary institutions).

In addition to policy measures, however, educational interventions intended to change internal knowledge, attitudes, beliefs, and skills are equally important for the prevention of gambling problems. As indicated in the biopsychosocial framework, a person’s knowledge about gambling and the psychological needs served by gambling are among the critical factors that influence both the decision to gamble and the progression to problem gambling. Accordingly, educational interventions with demonstrated ability to change and shape the related knowledge, attitudes, skills, and behavioural domains should be widely offered. Principal settings and resources include primary and secondary schools, colleges/universities, gambling venues, community resources (public health and designated community educational agencies), direct mail (electronic and land-based), and the media (radio television, the Internet, text messaging, posters, billboards, etc.).

As outlined by Simpson et al. (2006), evidence from behavioural change research suggests a range of desired outcomes for effective preventive interventions. These include knowledge gains (both self-awareness and facts about gambling risk/consequences), shifts in attitudes (beliefs, perceptions, and motivations for gambling), and the development of skill bases that facilitate behaviour change. Ultimately, educational interventions must successfully change behaviour, which can be accomplished by reducing the adoption of risk gambling practices (the Risk Avoidance strategy) or by reducing/eliminating currently-held risk practices (the Risk Reduction strategy). Reducing or eliminating risk practices decreases the extent to which gamblers exceed their financial or time limits, and will affect the rate of incidence (i.e., onset) of problem gambling.

The following section further specifies the type of outcome or impact that should be pursued through educational interventions.

7.1 Increasing Knowledge of Gambling and Problem Gambling.

The type of *knowledge* that is likely to contribute to prevention includes awareness of one’s own gambling profile and the associated risks of excessive involvement. As described in Simpson et al. (2006), key knowledge gains need to be achieved in relation to:

- a) the dependency-forming potential of gambling
- b) the signs/symptoms of impaired control/problem gambling
- c) the negative consequences that arise from problem gambling
- d) the true odds of various gambling games
- e) normative levels of time and money allocations on gambling
- f) low risk limits or guidelines that predict problem-free status
- g) the gambling practices that increase the risk of impaired control and negative consequences.

While changing knowledge is unlikely to change behaviour in itself, certain knowledge gains, as outlined above, can be viewed as necessary (or facilitative) conditions for subsequent behaviour change to occur.

7.2 Correcting Erroneous Cognitions.

A particularly important sub-category of change to knowledge/beliefs is the correction of erroneous cognitions common to both gamblers and problem gamblers. Chief among gambling-related erroneous cognitions are the misunderstanding of the independence of random events (i.e., not appreciating the “reload” feature), ignoring the law of large numbers and averages, belief that outcomes can be controlled or predicted, superstitious conditioning, and selective memory for wins (Joukhador, Blaszczynski, & Maccallum, 2004; Joukhador, Maccallum, & Blaszczynski, 2003; Ladouceur et al., 2001; Ladouceur & Walker, 1996; Toneatto et al., 1997). Erroneous or faulty cognitions establish an intellectual context or foundation upon which gamblers bet more than they planned or can afford. As such, they are important contributing factors in the development of impaired control, and should be targeted in any comprehensive approach to prevention.

As mentioned in Promising Practice 4, a complementary strategy involves ensuring that such erroneous cognitions are not transmitted while players gamble. For instance, certain structural features of slot machines (e.g., the showing of near misses, the use of stop buttons, and the visual dominance of winning symbols while reels are spinning) actively “disinform” players and allow them to embrace logical but erroneous perceptions from what they believe they are seeing and experiencing. Reducing or eliminating game features and operating practices likely to foster the adoption of erroneous cognitions constitutes a significant promising practice for the prevention of problem gambling.

7.3 Fostering Appropriate Attitudes toward Gambling.

The outcomes described in Sections 7.1 and 7.2 are intended to lay the ground work for developing complementary attitudes to further reduce the likelihood of adopting risk gambling practices. Research suggests that the following key attitudes should be considered as outcomes for educational interventions and initiatives:

- a) Gambling should only come from cash dedicated to leisure expenses that the player can afford to lose
- b) Credit or debit cards should never be used for money to gamble
- c) Borrowed money should never be used to gamble
- d) Financial, health and social problems associated with problem gambling can be serious and are worth avoiding
- e) Adopting risk practices and cognitions increases the likelihood of becoming a problem gambler

7.4 Fostering Skills to Operationalize Behaviour Change.

As mentioned, although increases in knowledge and shifts in attitudes may be necessary precursors, they do not ensure behavioural change. One important lesson from allied fields of prevention research is that even when knowledge and attitudinal change is achieved, attendant changes in actual behaviour is much less common (CAMH, 1999; Duperrex et al., 2002; Faggiano et al., 2005; Franklin, Grant, Corcoran, Miller, Bultman, 1997; Grilli et al., 2004; Slater et al., 2005; Sowden & Arblaster, 2005; Stacy, Bentler, & Flay, 1994).

Similar constraints have been found in gambling research with respect to awareness campaigns directed at the general public (e.g., Auckland University of Technology, 2005; Murray, 2003; Najavits, Grymala, and George, 2003), school-based problem gambling prevention programs (e.g., Ferland, Ladouceur, & Vitaro, 2002; IGYGPHRB, 2004; Ladouceur, Ferland, & Fournier, 2003; Ladouceur, Ferland, Roy, et al., 2004), and statistical instruction about the true probabilities of gambling (e.g., Steenbergh et al., 2004; Williams & Connolly, 2006). While most of these initiatives have had positive impact on knowledge, attitudes, and gambling fallacies (or all three), few have resulted in sustained positive change in gambling behaviour.

Two noteworthy exceptions to the failure to achieve behavioural change have been recorded. The first involved a high school based prevention program implemented in Alberta (Williams, Wood, & Currie, 2008). The substantive nature of this program (up to 600 minutes over 6 sessions), its heavy emphasis on the application and practise of skills, and its focus on being a “smart gambler” are thought to be key elements responsible for the obtained reductions in problem gambling prevalence. Similarly, the animated video produced in Ontario in 2007 by the Ontario Problem Gambling Research Centre and the Ontario Lottery and Gaming Corporation was able to reduce the frequency of exceeding self set financial limits among members of the experimental group when measured immediately after the viewing. Although this impact may constitute “proof of principle” evidence that behaviour change *can* occur, it was not sustained over a period of 30 days. Researchers are subsequently looking at modifications to the intervention and to the gambling environment (e.g., removing ATMs from the slots floor) as strategies to sustain the behavioural impact.

A key to achieving behaviour change is to ensure that members of the target group identify and learn appropriate skills to assist them adopt and maintain the desired behaviour

change. In this context, skills answer questions about how to apply knowledge and attitudes to the desired behavioural change, and how to overcome obstacles to such change. Some skills will be cognitive (i.e., cognitive coping or cognitive restructuring), others will be behavioural (i.e., behavioural coping), and others yet will involve changes to motivation. Learning requisite skills also requires opportunity to practise and refine them over time, and can often be augmented by problem solving models to identify and rectify impediments to change.

PROMISING PRACTICE 8: Prevention efforts need to be sustained and long-lasting, because population-wide behavioural change takes a long time.

Even with comprehensive approaches and the most effective techniques, research in relation to tobacco and alcohol demonstrates that short term impact on behaviour is often modest and incremental and, just as often, requires prolonged periods of time (Merzel & D’Afflitti, 2003; Sowden & Stead, 2005; Wandersman & Florin, 2003). The experience with tobacco use illustrates this point well. There was no immediate or dramatic reduction in tobacco use after prevention efforts began in the mid 1960s. Instead, a very slow but progressive decline has been recorded over the past 40 years as educational efforts, policies, and public attitudes have coalesced and strengthened. Similar observations can be made in relation to the lengthy process of changing drinking practices and reducing the incidence of impaired driving.

Often changes in behaviour at a population level are reflected in changes in society’s norms, and a three-way interactive process involving health-oriented policies, societal norms, and behaviour can be observed. Most recently, the National Alcohol Strategy in Canada has adopted the strategy of creating a “Culture of Moderation” as the thematic context for comprehensive preventive activity. Related policy and educational initiatives will endeavour to establish a cultural norm that drinking is a legitimate adult choice, as long as it is done in moderation.

Similar perspectives and approaches appear to be emerging, or show potential to emerge with respect to gambling. With the valuable lessons learned, particularly in the allied fields for the prevention of smoking and problem drinking, there is reason to believe that effective educational and policy initiatives can be developed and assembled into cohesive strategies for the prevention of problem gambling. This note of optimism suggests that reductions in the incidence of problem gambling may occur over a compressed time frame with the appropriate alignment of effective educational resources, health-oriented policy, and political will.

PROMISING PRACTICE 9: Recognize that effective prevention of problem gambling almost certainly requires some inconvenience to nonproblem gamblers as well as a loss of gambling revenue.

The evidence reviewed by Williams et al. (2007a; 2007b) makes it clear that the most commonly implemented prevention initiatives (e.g., awareness campaigns, employee training, responsible gambling features on EGMs) have also tended to be the least effective ones. Furthermore, when potentially more effective measures are implemented (e.g., reducing number of EGMs, reduced venue hours, etc.), the reductions have been too minor to have a significant impact. What this reflects is the fact that *policy makers have an unrealistic desire to implement*

effective prevention policies that do not inconvenience non-problem gamblers or reduce revenues. Unfortunately, the reality is that the effective prevention of problem gambling prevention is *only likely to occur* with some level of inconvenience to non-problem gamblers and necessarily involves a loss of revenue because of the significant contribution problem gamblers make to overall gambling revenue (Williams et al., 2007b; Williams & Wood, 2007a).

The effective prevention of harm associated with potentially dangerous products has always required some inconvenience to the general public and loss of revenue. The general public accepts the fact that aggressive government policies restricting tobacco use has resulted in reduced government tobacco tax revenue. The general public also accepts the legal restrictions on their unfettered right to own and operate firearms (e.g., restricted access to handguns and automatic weapons), motor vehicles (e.g., need a driving license; seat belt law; speed limits), and alcohol (e.g., not while driving, only in licensed establishments) despite the fact these restrictions are only really needed for a small minority of people with potential to misuse these products. These are the minor sacrifices that most people willingly make to produce a safer society overall.

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