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PREVENTIVE INTERVENTIONS FOR PROBLEM GAMBLING: A PUBLIC HEALTH PERSPECTIVE

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Chapter 1: Executive summary

This report presents a review of the literature relating to the following four aims:

- review existing literature on problem gambling prevention;
- review prevention approaches and frameworks developed for other related health and wellbeing problems, such as substance use and mental health;
- discuss the relevance of frameworks for other health and wellbeing problems for problem gambling; and
- identify health and wellbeing frameworks that have not yet been applied to problem gambling.

The background to the report lies in the need to understand and respond to problem gambling through the lens of a public health model (Chapter 3), a theme emphasised in the *Productivity Commission Inquiry Report on Gambling* (Productivity Commission, 2010). One of the Commission's recommendations called for Federal and State governments to "cooperate to ... develop national guidelines, outcome measures and datasets for prevention and early intervention measures ..." (Productivity Commission, 2010: Recommendation 7.4). The third report of the *Parliamentary Joint Select Committee on Gambling Reform* echoed this call, making repeated references to the "importance of a public health approach to problem gambling" (Parliamentary Joint Select Committee on Gambling Reform, 2012).

Public health models have often distinguished three levels of prevention. These were initially labelled *primary*, *secondary* and *tertiary* prevention but subsequently the terms *universal*, *selective*, and *indicated* were preferred. These levels apply to preventive interventions that are oriented respectively towards the whole population, those who are at increased risk of a disease or health problem, and those who already show signs of developing a disease or health problem. An example of this approach applied in Australia is the National Action Plan for Promotion, Prevention and Early Intervention for Mental Health (Commonwealth Department of Health and Aged Care, 2000). Although labelled separately, levels of prevention are often viewed as a continuum and this has been extended in health promotion models to include treatment, continuing care, and prevention of relapse across a broader spectrum of interventions.

The literature on prevention of problem gambling is reviewed in Chapters 5 and 6. Chapter 5 describes the evolution of the public health approach to gambling and problem gambling that was formulated by Korn and Shaffer (1999) in particular. Eleven important characteristics are examined in detail.

1. The departure from a medical model.
2. A continuum of gambling and problem gambling.
3. Healthy gambling.
4. Healthy gambling guidelines.
5. Identification and self-identification.
6. Secondary harms and population burden.
7. Comorbidity.
8. Population segments.
9. A developmental perspective.
10. Aetiology.
11. The Rose principle of prevention.

A public health approach can be viewed as a “meta-framework”; it has the flexibility to incorporate many features of alternative approaches (e.g. harm minimisation). There have been a number of subsequent developments, adaptations and alternative proposals to the Korn and Shaffer (1999) model, including modifications by the original authors as well as changes proposed by others. Opinions on the application of the “Rose Principle”, which implies that reduction in population levels of gambling participation should be a fundamental component of problem gambling prevention, have been notably diverse.

Chapter 6 outlines six other frameworks that have been applied extensively in the related fields of substance use and mental health and have been applied to the understanding of gambling and problem gambling (often explicitly and sometimes implicitly). The relevance and validity of each one to the prevention of problem gambling is discussed. These six frameworks are:

1. *Harm minimisation*: Harm minimisation broadly refers to strategies aiming to reduce problem behaviours and their negative consequences. Examples include, (i) providing information about responsible gambling via campaigns targeting the general population (or subgroups), (ii) pre-commitment schemes and altering the gambling environment (e.g. changing venue and machine characteristics) and (iii) self-exclusion programs. Within this framework, universal educational approaches (such as school-based programs) have had less impact than more specific efforts to reduce harms in specific gambling settings (such as gaming machine modifications).
2. *The pathways model*: This highly conceptual model posits that there are three distinct developmental pathways and three subtypes of problem gambling, (i) behaviourally conditioned, (ii) emotionally vulnerable and (iii) impulsive antisocial. While the accuracy of the subtypes is debated, the framework valuably acknowledges that problem gambling is heterogeneous, and intervention strategies might need to accommodate such diversity. A potential strength of the approach is its recognition of comorbidity, such as substance use and other mental health problems.
3. *The Stages of Change/Trans-Theoretical Model*: This model theorises six consecutive stages of behavioural change regarding many different health behaviours, (i) pre-contemplation, (ii) contemplation, (iii) action, (iv) preparation, (v) maintenance and (vi) relapse. While there are several fundamental concerns about the model, it notably identifies readiness to change and self-efficacy as important cognitive structures in predicting outcomes for people with gambling problems. Empirical evidence for the Stages of Change model is very weak, both for gambling specifically and in other related fields such as substance use. It appears to be widely used by clinicians in their choice of treatment options but it has little to offer in guiding preventive interventions.
4. *Mental health literacy*: The mental health literacy framework has proved a very useful approach to community knowledge of mental health problems, their management and their treatment. The approach could be easily adapted to apply to gambling and it would help integrate ideas relating to self-management and professional help-seeking. This framework has much to offer if applied to gambling. Improving public knowledge of problem gambling has the potential to improve recognition of problems, reduce stigma, encourage help-seeking and complement other preventive strategies.
5. *Socio-ecological models*: Socio-ecological models are valuable in directing attention at broader societal factors rather than focussing on individual behaviour. They also open up opportunities to consider the interplay between higher-level factors, such as political, policy and economic environments. These models have not featured strongly in relation to gambling, yet they are far better suited to gambling than models derived from communicable disease epidemiology.
6. *Social marketing*: This framework refers to the application of commercial marketing techniques to changing health and behaviour. The approach incorporates but is broader in scope than social advertising campaigns. A valuable component of this framework is that it recognises the importance of incorporating the socio-political environment when developing campaigns. Although there is a paucity of current evidence for the effectiveness of social marketing approaches to gambling, the evidence from other fields provides optimism that it could be a valuable strategy. A notable strength is that it

goes beyond consideration of the general public and incorporates the targeting of influential people (including industry, policy makers and politicians).

Tobacco control is acknowledged to be one of the great public health achievements of recent times. Of all successful health promotion initiatives, it is the most pertinent to gambling. Smoking and gambling have both been conceptualised as “addictive behaviours”. Chapter 7 briefly summarises the history of tobacco control based on the description provided by West (2006), which includes:

1. Social coercion.
2. Education and persuasion.
3. Tax increases.
4. Smoking restrictions.
5. Provision of smoking cessation treatments.
6. Restricting tobacco promotion.
7. Restricting sales of tobacco to minors.
8. Stop-smoking materials.
9. Incentivising smoking cessation.
10. Preventing mis-claiming by the tobacco industry.
11. Preventing engineering of tobacco products to promote addiction.
12. Requiring the tobacco industry to reduce the harmfulness of their products.
13. Promoting switching to less dangerous forms of nicotine intake.

Many (although not all) of these approaches provide valuable lessons for problem gambling prevention. There are a number of differences between the challenges posed by gambling and those relating to tobacco use.

Chapter 8 focusses on 11 key components of a public health approach to problem gambling as identified through the several preceding chapters, and discusses the significance of each and any discrepancies and controversies in the literature relating to these components. The key components identified are:

- a comprehensive and co-ordinated strategy;
- it's not just problem gambling – a dynamic perspective;
- universal, selected and indicated prevention;
- risk and protective factors;
- a continuum of risk and a continuum of harm;
- responsible gambling;
- addressing multiple harms;
- comorbidity and coordination across services and professional groups;
- community cost;
- community response; and
- an ecological perspective.

Chapter 9 provides a summary of the main points taken from the several frameworks and models relevant to gambling. It synthesises these into a contemporary health promotion framework for gambling and problem gambling, covering the continuum from universal prevention through to relapse and recovery.

A public health meta-framework is clearly an appropriate and useful approach for gambling and problem gambling and provides a basis for a contemporary health promotion framework. The flexibility of the public health approach is both an asset and a disadvantage. Adopting such a framework for gambling requires decisions on the specific components to be incorporated rather than a reliance on vague, undefined terminology. In some instances, directly contradictory strategies can lay claim to the label of a “public health approach”. That said, there is a range of identified universal, selective and indicated prevention strategies with varying levels of empirical research support for their effectiveness, either for gambling specifically or for problems in closely related fields (such as substance use).

The overriding theme that emanates from the literature review is that specific preventive interventions are less effective when conducted in isolation, and are more likely to have an impact when they are incorporated into a more comprehensive and coordinated approach.

Chapter 2: Project aims

The purpose of this research project is to help inform policy and preventive initiatives for problem gambling addressing both (i) the general population and (ii) groups considered to have a high risk for gambling problems. We also identify key lessons learned from health promotion strategies undertaken for other health and wellbeing issues that might be applied to problem gambling.

The specific aims are to:

- review existing literature on problem gambling prevention;
- review prevention approaches and frameworks developed for other related health and wellbeing problems, such as substance use and mental health;
- discuss the relevance of frameworks for other health and wellbeing problems for problem gambling; and
- identify health and wellbeing frameworks that have not yet been applied to problem gambling.

Chapter 3: Background to the project

A key theme within the *Productivity Commission Inquiry Report on Gambling* (Productivity Commission, 2010) in relation to the prevention of problem gambling was to understand and respond to problem gambling through the lens of a public health model. Indeed the importance of applying a public health approach to problem gambling was raised by many participants in the inquiry and has been a subject of discussion in academic literature over the last decade (Griffiths, 2004; Korn *et al.*, 2003; Korn and Shaffer, 1999; Messerlian *et al.*, 2004). To that end, one Productivity Commission recommendation called for Federal and State governments to “cooperate to ... develop national guidelines, outcome measures and datasets for prevention and early intervention measures ...” (Productivity Commission, 2010: Recommendation 7.4). This theme was echoed and amplified in the recent third report of the *Parliamentary Joint Select Committee on Gambling Reform* which made repeated references to the “importance of a public health approach to problem gambling” (Parliamentary Joint Select Committee on Gambling Reform, 2012). In the spirit of these calls, this report explains, reviews and evaluates public health prevention and early intervention frameworks that are relevant to problem gambling. It is intended that the report will be used as a resource for policy makers and program developers in making decisions regarding the implementation of problem gambling prevention measures.

The application of a public health model to gambling has a relatively short history but the public health approach in general has a much longer heritage and it has been applied to other areas of human health where behaviour (and more specifically risky behaviour) is related to health outcomes.

3.0 Defining public health

Public health is broadly defined as “... the science and art of preventing disease, prolonging life, and promoting health through the organised efforts of society” (Detels, 2009). Public health is therefore not only concerned with curing disease and providing treatment, but broadens the remit of public health practitioners to finding ways of preventing ill health. Public efforts for the prevention of communicable (or infectious) disease has a centuries long history, with a flurry of activity by public health pioneers in the Western world from the late 18th Century onwards (Rosen, 1958). Chronic (or non-communicable) disease prevention efforts (especially those related to working conditions), became an increasing concern for the public health movement from the late 19th century onwards, with enthusiasm growing in the 20th century (Rosen, 1958). An increasing understanding of the costs of chronic illness to government and insurers lead to efforts in the USA in the 1940s to gather an evidence-base and develop a framework for preventative action on a range of chronic illnesses (ranging from physical to mental health). These efforts culminated in the publication of a landmark report by the US Commission on Chronic Illness (1957), where the first volume *Prevention of Chronic Illness* was “dedicated [to] ... see[ing] that what is already known concerning prevention becomes part of the knowledge of all health professionals, and indeed of all people” (Commission on Chronic Illness, 1957: 5).

3.1 Primary and secondary intervention

The US Commission on Chronic Illness (1957) formulated an action plan to alleviate the burden of chronic illness in three “steps toward prevention” and first coined the phrases primary intervention and secondary intervention. Primary intervention was defined as “averting the occurrence of disease” while secondary intervention was defined as “halting the progression of a disease from its early unrecognised stages to a more severe one and preventing complications or sequelae of disease” (Commission on Chronic Illness, 1957). The three steps further explained in detail how primary prevention and secondary prevention was enacted. The three steps were:

1. *Towards health promotion*: Health promotion was defined as being a step of primary intervention specifically related to the advancement of health, as opposed to primary intervention efforts devoted towards the prevention of specific illnesses. Health promotion was therefore described as “general primary prevention” and as being “health-oriented” (Commission on Chronic Illness, 1957: 8).
2. *Towards averting the occurrence of illness*: Specific primary prevention referred to primary prevention efforts aimed at “averting the occurrence of illness” and was therefore “disease oriented”, such as preventing the exposure of hazards such as known carcinogens, or preventing accidents in the home by keeping poisons out of the reach of children. However, the report also pointed out the demarcation between primary and secondary prevention was not always clear, for example interventions to stop the spread of cancer to healthy organs was viewed as being to some extent a preventative intervention (Commission on Chronic Illness, 1957: 7).
3. *Towards early detection of disease*: The goal of secondary prevention efforts was the early detection of disease so an intervention can be applied to halt and/or slow its progress. Secondary prevention efforts were deemed to be an engagement in “case-finding” and included two activities, periodic health examinations and screening examinations, conducted to “detect unsuspected disease”, provide treatments and inform interventions. In this sense, the demarcation between secondary prevention and treatment was not clear. For instance, the report gave diabetes detection as an example of secondary prevention because it can lead to interventions that prevent blindness (Commission on Chronic Illness, 1957: 28). Later versions of the above prevention model attempted to address the ambiguity between secondary prevention and treatment by adding a tertiary prevention step specifically encompassing the treatment of a diagnosed illness in order to prevent further deterioration of health (Gordon, 1983).

In 1983, Robert Gordon noted several disadvantages of the primary and secondary intervention scheme in preventing chronic disease (and mental illnesses). Amongst these were that the terms “primary” and “secondary” may give the false impression that “primary” is best. Gordon also argued that the concept “tertiary” intervention was ambiguous because it includes some forms of treatment. Gordon argued that “prevention” should be targeted at people who are at risk but not likely to seek help, or “who are not, at the time, suffering from any discomfort or disability due to the disease or condition being prevented”, arguing that those facing symptoms and discomfort are more likely to seek help of their own accord (Gordon, 1987: 23). Gordon proposed a modified operational classification of disease prevention, described below.

3.2 Gordon’s operational classification of disease prevention

Similar to the US Commission on Chronic Illness model, Gordon’s model consisted of three levels of intervention. Unlike the US model, where the different levels referred to different *types* of intervention, the levels in Gordon’s model referred to different *target groups*, where the types of intervention depended on their appropriateness and viability for specific groups. Gordon labelled his three levels – or targets – as (i) universal, (ii) selective, and (iii) indicated:

Universal measures: are interventions targeted at everyone in the population. Gordon suggested these measures be limited to advice and actions that could be safely targeted at anyone in the population, and acted upon by anyone, without risk and without first needing to consult a health professional. Examples include providing advice that encourages the general population to engage in healthy practices, such as “maintenance of an adequate diet, dental hygiene”, as well as safe practices, such as wearing seatbelts in cars (Gordon, 1987: 24).

Selective measures: are interventions specifically targeted at groups considered to be at heightened risk because of a shared characteristic - such as age-range, occupational type or sex. At times the cost or risk associated with an intervention makes universal application of the intervention inappropriate and targeting groups with a susceptible characteristic is more efficient. Gordon described "... influenza immunization for the elderly, use of safety goggles by machinists ... avoidance of alcohol and many drugs by pregnant women" as measures targeting the prevention of illness or injury amongst at-risk groups, that would be costly and burdensome if applied universally (Gordon, 1987: 24).

Indicated measures: are interventions targeted only at individuals who have been diagnosed and found to have some abnormality or risk factor that requires intervention in order to reduce the risk of developing a more serious health problem.

3.3 Mental health prevention interventions

Gordon's classification scheme was later refined by Mrazek and Haggerty (1994) specifically for application to mental disorders and this was subsequently applied to a prevention intervention framework for mental health in Australia through the National Action Plan for Promotion, Prevention and Early Intervention for Mental Health (Commonwealth Department of Health and Aged Care, 2000). Mrazek and Haggerty modified Gordon's Model making it more suitable for mental health prevention interventions, re-defining *indicated measures* as those "applied to asymptomatic individuals with markers as well as to symptomatic individuals whose symptoms are still early and are not sufficiently severe to merit a diagnosis of a mental disorder" (Mrazek and Haggerty, 1994: 25). The three levels of prevention, i.e. universal, selective and indicated were conceptualised as part of a broader spectrum of mental health promotion, which also covered a number of levels for treatment and continuing care.

3.4 Health promotion

The "Ottawa Charter for Health Promotion" was a statement endorsed by the First International Conference on Health Promotion. The event was co-sponsored by the Canadian Public Health Association, the Federal Department of Health and Welfare Canada, and the World Health Organization, and held in Ottawa, Canada in November 1986. The Charter has become the pivotal statement in defining health promotion and in advocating for a shift beyond promoting individual health behaviours towards action on social, economic, political and environmental fronts to improve human health. Building on the definition of health as "a state of complete physical, mental and social well-being", first affirmed in the Constitution of the World Health Organisation (1948), the Ottawa Charter further characterised health as "a positive concept emphasizing social and personal resources, as well as physical capacities", and widened the obligation for ensuring health from the individual and the health sector to all social, economic and political actors. Indeed, it established an exhaustive list of prerequisites for health, namely peace, shelter, education, food, income, a stable eco-system, sustainable resources, social justice, and equity. Health promotion was therefore defined as an activity to be engaged in by "people in all walks of life ... as individuals, families and communities" as encompassed in the following five "health promotion actions".

1. *Build Healthy Public Policy.* Moving beyond the sphere of health service delivery, accountability for the health consequences of action in any policy domain should be borne by policy makers. Instruments of policy activism such as “legislation, fiscal measures, taxation and organisational change” should be used by policy makers to protect public health and “ensure safer and healthier goods and services, healthier public services, and cleaner, more enjoyable environments.”
2. *Create Supportive Environments.* This action area was based on a broad postulation termed the “socio-ecological approach to health” where activity at the individual, societal and industrial levels are interrelated with the natural environment and are thus a “global responsibility”. Therefore, activity in any of these spheres should take health outcomes into consideration, with health for individuals and the environment deemed interchangeable.
3. *Strengthen Community Actions.* Drawing on a community development framework, this action area entreats the provision of “full and continuous access to information, learning opportunities for health, as well as funding support” as prerequisites to community “empowerment”.
4. *Develop Personal Skills.* While referring to skills rather than behaviour, this action area called for individuals to be provided with opportunities to learn about how to protect their health at different life stages and manage their health issues through education in a variety of settings including school, workplace and “community settings”. This ongoing education would assist individuals “to make choices conducive to health”.
5. *Reorient Health Services.* This action area is pivoted on the demand for health services to broaden their remit from “clinical and curative services” focussed on sickness, to including service delivery focussed on the promotion of health, and integrated with other social and policy actors.

Weaknesses in the Charter’s approach include the all-embracing nature of the action areas, and the absence of explicated concrete activities to enact the intended changes.

In this chapter we have defined and discussed the evolution of public health approaches in general. Subsequent chapters review frameworks for prevention interventions as applied to problem gambling. Given that the application of prevention intervention approaches to gambling has a relatively short history we also review prevention intervention frameworks as applied to other related health and wellbeing problems, as outlined below.

Chapter 4: Methods

The present study comprises a systematic review of literature on prevention frameworks and approaches.

The first aim was to conduct a systematic review of literature on problem gambling prevention. A lack of peer reviewed research on preventive interventions for problem gambling means our search parameters needed to be broad, encompassing all peer reviewed papers and grey literature (including reports prepared by and for government, industry and non-profit organisations). We first describe the evolution of public health approaches as applied to gambling and problem gambling, identifying frameworks that have been most influential to date (Chapter 5).

The second and third aims were to conduct a systematic review of prevention approaches and frameworks for related health and wellbeing problems and to discuss their relevance for problem gambling. Related health and wellbeing issues primarily encompass substance use and mental health problems. Our search focused on reviews given the vast amount of existing literature. That is, articles were included if they reviewed multiple articles. These frameworks are described in Chapter 6. The relevance of tobacco control approaches for problem gambling is then illustrated in Chapter 7. This provides a concrete example of how lessons from related health and wellbeing problems can inform preventive intervention approaches for problem gambling.

The fourth aim was to identify health and wellbeing frameworks that have not yet been applied to problem gambling. The final chapter of this report provides a description of the key components of a health promotion approach to gambling, that encompasses the strengths of several existing frameworks and fills some of the gaps in previous preventive models applied to problem gambling.

For the purposes of this review, prevention was defined as “action taken to reduce the development of gambling problems, or to minimise them once they have arisen” and included actions directed towards individuals, groups of people considered to be at risk of problems, and the broader population. Studies were included if they were published between the years of 1992 to 2012 and were written in English.

A range of search engines were used to identify relevant peer review literature including PsychInfo, Cochrane Library and PubMed resources. The search engine “Google” was also used to explore the grey literature. A list of the search terms used for this review can be viewed in Appendix 1.

Chapter 5: The evolution of public health approaches applied to gambling and problem gambling

This chapter reviews the evolution of public health approaches that address gambling and problem gambling. Other frameworks of relevance or potential relevance to preventive interventions for problem gambling are discussed in Chapter 6.

5.0 A brief history

It is only in recent times that prevention has been seen as an important feature on the problem gambling landscape. The Benjamin Franklin axiom that “an ounce of prevention is worth a pound of cure” has intuitive appeal, and the possibility that preventive approaches may be cheaper in the long run (even by a lot less than the implied 93.75% saving) would be a strong motivator for those who are responsible for funding treatment services or for bearing the costs of the broader social impacts of problem gambling. The reality is that prevention is not always easy (or cheap). There have been notable public health achievements illustrating the success of preventive strategies, but for each of these there are other examples of failures or struggles. A quick scan of the Ten Great Public Health Achievements in the 20th Century (Centers for Disease Control and Prevention, 2013b) and the Ten Great Public Health Achievements of the United States for 2001-2010 (Centers for Disease Control and Prevention, 2013a) shows that none relate primarily to mental health. The past achievement closest to our present concern with problem gambling is tobacco control.

In spite of this general failure to reduce the incidence of most mental health problems, prevention has featured more strongly over time in the academic literature relating to gambling and problem gambling. However, prior to the year 2000, journal articles that dealt with gambling and also mentioned prevention were only rarely concerned with the type of prevention referenced by Franklin’s axiom, i.e. the avoidance of a problem or disease. More often they were concerned with prevention of relapse following treatment or the prevention of harms in gamblers who had already developed a problem. In the 1990s, however, papers began to refer to prevention in a way commensurate with Franklin’s claim. In 1993, Gaboury and Ladouceur presented results of an evaluation of the efficacy of a pathological gambling prevention program conducted in five schools in the Quebec City area for students with a mean age of 16 years (Gaboury and Ladouceur, 1993). Students in the experimental group undertook interactive lessons about the history of gambling, the true odds and “house edge”, gambling fallacies, signs, risk factors and causes of problem gambling; and skills for good decision making and problem solving. Compared to a control group, the experimental group receiving the lessons had improved knowledge and skills for coping with gambling at the end of the program and improved knowledge persisted to a six-month follow-up assessment. However, no benefits were found for gambling behaviour or attitudes towards gambling at either the end of the program or follow up.

The following year, 1994, saw two further important journal articles referring to prevention of problem gambling. In the first paper, Volberg and Abbott (1994) reported the findings of the 1991 New Zealand National Survey of Problem and Pathological Gambling in which they described patterns of gambling by demographic characteristics. The study noted that the highest prevalence of problem gambling occurred in the younger age group (18-29 year olds), and that males and unemployed people were overrepresented among pathological gamblers. They concluded that, “these data should be useful in the development of problem gambling education, prevention, treatment and research programmes around the world” (Volberg and Abbott, 1994: 982). As often the case for such blanket conclusions, however, there was no explicit guidance on how the findings could be used to inform prevention or the other suggested benefits.

In the second paper, Orford (1994) used the term “secondary prevention” in the title as well as the text of an article on the role of family and friends in coping with the development of addiction. Although focussing

primarily on alcohol and other drug problems, the study also presented data relating to the parents of a young man with a gambling problem, and the conclusions of the article appear relevant to problem gambling. Orford (1994) concluded that parents, partners and offspring of those with addictions should be viewed as appropriate recipients of primary health care services and that assisting loved ones to cope better with problematic circumstances may not only help them in their own struggles but may lead to reductions in the problem behaviour of gamblers. Whilst this message remains significant, the use of the term “secondary prevention” did not follow contemporary conventions, in which secondary prevention refers to methods of addressing a problem in its early stages. Instead Orford focussed on addictive behaviours that were already established. Regardless, family members should be considered as potential sources of help in early intervention and secondary prevention strategies.

An early reference to primary prevention can be found in the English translation of the abstract of a Czech review on pathological gambling (Nespor, 1996)¹. The Nespor (1996) article pointed out the rarity with which primary prevention was considered in the gambling literature up until that time, as well as anticipating the trends of the subsequent 17 years, where gambling became more readily available and demand became greater. These trends had been similarly predicted in a key article published by Rachel Volberg (1994) in the *American Journal of Public Health*.

The most pertinent feature of Volberg’s (1994) empirical analysis was linking the prevalence of pathological gambling (at a state level; as defined by the South Oaks Gambling Screen) to the availability of gambling opportunities, which effectively implied “probable increases in pathological gambling that loom into the future” with progressive legalisation of gambling. In short, one connotation of the term a “public health problem” is that the problem is common or its prevalence increasing – what Verweij and Dawson (2009) label an “epidemiological issue”. A second distinctive feature was captured in the sentence, “Until well into the 20th century, excessive gambling losses were regarded as an individual failing rather than a social or public health problem.” This has been described as a “causation issue” (Verweij and Dawson, 2009) indicating that the adoption of a public health approach moves away from blaming individuals for their problem. The emphasis on causation was mirrored by Volberg’s subsequent conclusion that “Researchers, treatment professionals, gaming industry, and policymakers must work together to address these issues and to develop innovative approaches for helping individuals who experience severe problems when they gamble”. This is what Verwij and Dawson (2009) have identified as a call for collective action or a “responsibility issue”.

As well as the above connotations of labelling problem gambling as a public health problem, Volberg’s paper (1994) also identified and described a number of scientific features that would become important aspects of subsequent public health approaches to problem gambling. She (1) described the “continuum of problematic gambling” with pathological gambling at one extreme, (2) identified characteristics that distinguished pathological gamblers receiving treatment from those in the general population, (3) drew attention to particular at-risk groups in the population, and (4) pointed to childhood involvement in gambling as being predictive of later problems.

1 Pathological gambling is a clinical term which has now been replaced with “Gambling Disorder” in the DSM-V

5.1 Public health models applied to gambling and problem gambling

Although Volberg's (1994) article represented a significant advance in applying a public health model to problem gambling (including a preventive approach) there is clear evidence of pre-existing concerns about gambling as a health issue within the public health professional community. The Canadian Public Health Association (CPHA) passed the following formal resolution in 1993:

1993 Resolution No. 14: Regulated Gambling in Canada: Health Impact Assessment

- whereas provincial governments and First Nations communities are considering the revenue-generating potential of casinos, video lottery terminals and other gaming activities;
- whereas numerous communities have already legalised and established gaming centres and activities accessible to large populations;
- whereas gambling can lead to a significant debt accumulation, family disruption, personal anguish, community crime and, perhaps, organised criminal activities;
- whereas pathological gambling is considered an addictive behaviour and often coincides with other addictive behaviours such as substance abuse;
- whereas the impact of gambling extends beyond individual gamblers to their families, communities and society at large;
- whereas gambling promotes a societal ethic that encourages fatalism; and,
- whereas gambling values economic return over economic responsibility;
- therefore be it resolved that the Canadian Public Health Association seek funds to coordinate a national health impact assessment of regulated gambling in Canada.

...CARRIED

Although the resolution was carried, the CPHA did not obtain funding for the proposed national health impact assessment. However, the CPHA continued to play an important role in communicating and advocating the relevance of a public health approach to gambling and a further resolution was passed in 1999 relating specifically to video lottery terminals, as follows:

1999 Resolution No. 6: Video Lottery Terminals

- whereas research has shown problem gamblers suffer an inordinately high number of emotional and physical disorders including depression, stomach afflictions, insomnia, high blood pressure, migraines and skin conditions,
- whereas problem gamblers have a higher risk of substance abuse, criminal behaviour, suicide, marital breakdown,
- whereas research has shown also that the spouses of problem gamblers report higher than normal suicide attempts, nervous breakdowns and substance abuse and that the children of problem gamblers have behavioural or adjustment problems related to school, drug or alcohol abuse, running away and arrest,

- whereas the social costs of a problem gambler have been estimated to be between \$13,200 and \$20,000 per year,
- whereas gambling revenue to provincial governments represents a transfer of wealth or a tax on those who have less ability to pay, creating further economic inequities in the population,
- whereas the amount of money spent on video lottery terminal (VLT) gambling has increased exponentially since its introduction into Canada, and
- whereas one study of VLT problem gambling clients found although almost all VLT clients studied indicated that they had gambled at some point in their lives most reported that they had experienced no problems until they began playing VLTs,
- therefore be it resolved that the Canadian Public Health Association (CPHA) lobby federal, provincial and territorial governments to ensure that: 1. Governments recognize the significant health impacts of gambling addictions 2. Governments understand the unique characteristics of VLT gambling and the serious potential effect it can have on our society,
- and further be it resolved that CPHA lobby federal, provincial and territorial governments to investigate the full range of policy options and take action to minimize the harm to the public's health from VLT gambling technology, including the restriction of access to VLTs and the elimination of government dependency on VLT revenue in annual budgets.

...CARRIED

The work of David Korn was central in the growing prominence of problem gambling in the Canadian public health sector. Korn was (and continues to be) a prominent Canadian public health physician, the first Chief Medical Officer for Ontario and a researcher in gambling and other behavioural addictions.

Korn and Shaffer's (1999) paper in the *Journal of Gambling Studies* was their first and the most comprehensive of a series of publications over a 10-year period promoting a public health perspective on gambling. It provided detailed information on public health approaches generally, as well as their application to gambling and problem gambling. The primary objectives of the paper included:

1. Creating awareness among health professional about gambling and its relationship with the health care system.
2. Examining gambling from population health, human ecology and addictive behaviour perspectives.
3. Outlining how gambling affects individuals, families and communities.
4. Proposing the strengthening of policy, prevention and treatment through public health involvement.

This paper and the several that followed placed special emphasis on prevention and early intervention for problem gambling. However, as described in Chapter 3, a public health framework incorporates features beyond prevention and early intervention, including governance, funding, provision of treatment service and research needs. Indeed the most important part of the framework is its broad and integrated perspective. The key to success is in the coordination of multiple strategies, rather than a focus on one or two isolated initiatives. Such a coordinated approach should be the aspiration of policy makers.

It is not the purpose of this report to reproduce all the detail of this series of papers but the most important aspects of the approach are described below and their relevance to prevention and early intervention is discussed. Further, we will highlight some of the challenges and difficulties with the original framework and consider ways in which these might be addressed and improved upon in the present context.

5.2 The departure from a “medical model”

Some researchers have criticised the “traditional medical model” applied to gambling, where “individuals are identified and treated for their gambling problem ... and are held accountable for their health” (Messerlian *et al.*, 2004: 149). Although the public health framework adopts a much broader perspective, it would be incorrect to represent this framework as being an anti-medical model approach. As part of their second objective, Korn and Shaffer’s (1999) paper included the examination of gambling from an “addictive behaviours” perspective (see above). In the same paper they point out that public health perspectives can address “not only the biological and behavioural dimensions related to gambling” and so clearly they do not dismiss these dimensions. Rather, the public health perspective is seen to be inclusive by accommodating what is typically described as a medical model into its broader framework. It is just as clear from the first objective above that health professionals are seen as key players in the framework and that recommended strategies to address problem gambling should include the health care system.

5.3 A continuum of gambling and problem gambling

In their original paper, Korn and Shaffer (1999) represented two different continua involving gambling and problem gambling, both being labelled as “spectrums” of behaviour. The first continuum was presented as having five levels labelled, (i) “no gambling”, (ii) “infrequent (light) gambling”, (iii) “frequent (heavy) gambling”, (iv) “problem gambling”, and (v) “pathological gambling” (see Figure 1). The distinction between pathological gambling and problem gambling was already accepted, with the former indicating the diagnostic category corresponding to DSM-IV criteria. The latter covered “sub-clinical problems” that were labelled as “meaningful”, indicating their social costs and involving the health and welfare of the public.



Figure 1: Korn and Shaffer’s (1999: 308) spectrum of gambling behaviour.

The figure above, representing the five levels of the continuum, included double-headed arrows between each of the successive levels, indicating “movement in both directions”. These arrows could potentially add an important dynamic component to the representation of gambling participation and problems but they were not mentioned elsewhere in the article.

The second continuum served the purpose of linking “public health interventions” to the gambling spectrum (see Figure 2). The figure was reproduced unchanged in Shaffer and Korn (2002) and has been utilised and adapted by other authors since. It has just three levels of (i) no gambling, (ii) healthy gambling, and (iii) unhealthy gambling.



Figure 2: Korn and Shaffer's (1999: 330) spectrum linking public health interventions to gambling.

However, there is an implied gradation within each of these levels, and an explicit distinction within unhealthy gambling which ranged from mild to moderate to severe. The purpose of this depiction was to indicate that: *harm reduction* (i.e. strategies which focus on minimising the risks and harms associated with gambling, such as industry regulation) is an appropriate intervention strategy for everyone; *primary prevention* is appropriate for non-gamblers and healthy-gamblers; *secondary prevention* strategies become appropriate somewhere in the middle of the range of healthy gambling; and *treatment*, ranging from brief to intensive, is relevant for unhealthy gambling. In short, the model embraces the principle that the intensity of intervention (and presumably the cost) is graduated in accordance with the severity of the current problem behaviour. This can be seen as a step beyond simply providing treatment for those who exceed a threshold of problem (or even pathological) gambling. However, this model omits the important dynamic component represented in the first depiction of the spectrum (Figure 1). It is not possible to determine whether this omission was an oversight. Regardless, it is simple to remedy this concern by adding a statement that interventions are intended to inhibit the flow of individuals towards the more severe end of the spectrum and that some interventions (such as specialist treatment for gambling problems) may move people in the reverse direction.

The part of the second spectrum that is not defined and remains obscure is the nature of the level that is labelled “healthy gambling”. It is unclear how “healthy gambling” might correspond to infrequent (light) gambling and frequent (heavy) gambling in the first spectrum. Others have referred to the possibility that people with current gambling problems may not necessarily be frequent or heavy gamblers. Adding a dynamic component to this order, is it necessarily the case that only individuals who gamble heavily become problem gamblers or might it be possible for those who gamble infrequently (or lightly) to progress to problem gambling without an intervening period of frequent (heavy) gambling? The crucial point is that models of this sort require an empirical

evidence base, including data from longitudinal studies, before the continua depicted can be taken to represent the natural order of gambling behaviour. Until such evidence accumulates, there remains doubt as to the validity of these spectra. The safest assumption in the meantime is to allow for the possibility that trajectories of gambling frequency may be different from those of problem gambling.

5.4 Healthy gambling

There are a number of ways in which the concept of healthy gambling can be considered. The simplest is that gamblers with some level of problem gambling (however defined or measured) are assumed to be unhealthy gamblers and that the healthy gamblers are just all the other gamblers who do not meet that definition. This simple approach becomes a little more complex if we adopt the Korn and Shaffer (1999) proposal that gambling can bring benefits as well as costs and, further, that benefits can be seen at the level of an individual gambler and not just at a societal level (such as the economic benefits of gambling revenue). The implication is that the distinction between unhealthy and healthy gambling becomes an issue of balance, i.e. whether costs outweigh benefits for an individual. However, this is not accommodated in the model and it is evident that traditional approaches to defining and measuring problem gambling do not attempt to balance benefits and costs (e.g. South Oaks Gambling Screen, Canadian Problem Gambling Severity Index).

Korn and Shaffer (1999) were explicit and clear, however, that the public health model embraced the *possibility* of such benefits from gambling and drew a parallel with the contentious issue of whether low-level alcohol use might enhance cardiovascular health. However, other than one reference (Rosecrance, 1988), they did not provide empirical evidence of any benefits of gambling on health but, rather, discussed possibilities including that gambling (1) is an important part of adult play, (2) may enhance coping strategies and competencies, such as better memory, problem solving, mathematical proficiency, concentration and hand-eye coordination, (3) like exercise, may be associated with ability to manage stress, and (4) “might provide a sense of connectedness and socialization” (Shaffer and Kidman, 2004). Nevertheless, an important point to be made here is that the label “healthy gambling”, as used in the model, does not carry with it any connotation that it represents a distinct group who have been identified as healthy. Furthermore, no conclusions can be drawn from the depiction of healthy gambling as being much more common in the population than unhealthy gambling. This is a fundamental characteristic of the model but one that is not defended or even mentioned in the text of the articles that present the well-known triangle (Korn and Shaffer, 1999; Shaffer and Korn, 2002).

5.5 Healthy gambling guidelines

Korn and Shaffer (1999) point to the opportunity to develop empirically based “healthy gambling guidelines” comparable to those used to indicate levels of responsible alcohol consumption. This would bring obvious advantages in providing advice to gamblers, so long as the empirical evidence can be accumulated. There is an important assumption underpinning this approach, however. With alcohol consumption there had been evidence for some time that low levels of consumption do not cause significant harms (across a wide range of social, psychological and health measures). This evidence informed the development of the “Australian Guidelines to Reduce Health Risks from Drinking Alcohol” (National Health and Medical Research Council, 2009). In contrast, if a risky behaviour or an environmental exposure shows a dose-response relationship with adverse outcomes (that is, where the level of adverse outcome increases or decreases progressively with the level of exposure) then this, by definition, is a situation where there is no safe level; we do not have healthy smoking guidelines or

healthy lead exposure guidelines. Fourteen years on, we still have very little evidence of how levels of gambling participation are related to possible harms (or putative benefits as raised in the previous section) from cross-sectional studies, let alone from prospective studies investigating risk over time. The cross-sectional distribution of problem gambling symptoms in relation to types and levels of gambling participation, based on the 2009 ACT Gambling Prevalence Survey is the closest attempt to date to derive responsible gambling guidelines but it is still a fairly crude approach (Davidson and Rodgers, 2011).

5.6 Identification and self-identification

One recommendation of Korn and Shaffer (1999) was the development and evaluation of a brief screening instrument for gambling problems that could be used for identification by self-assessment. The purpose behind this is to aid in identification that could lead to referral for treatment or, in the case of self-identification, to prompt self-management strategies or formal help-seeking. Several measures are now available, ranging from the commonly used Problem Gambling Severity Index (from the Canadian Problem Gambling Index) as a psychometrically developed and validated scale through to various checklists which may be used on leaflets and posters in gambling venues.

5.7 Secondary harms and population burden

A core part of the Korn and Shaffer model is the repeated reference to effects of gambling on individuals, families and communities. They outline four main reasons why impacts of gambling and problem gambling on people other than the gambler him/herself are important.

1. Family members and significant others may themselves require support including professional help. Families experience the impact of financial hardship, possible violence and substance use, and attendant interpersonal and psychological harm.
2. Family members and the broader community can play a role in supporting those who have gambling problems and encouraging them to seek more formal help.
3. The effect of gambling and problem gambling on family members is more likely to generate understanding, empathy and sympathy among the broader public than the plight of gamblers themselves. It is unlikely that a national gambling initiative would elicit the same public response as a national depression initiative (e.g. beyondblue) on account of more negative views towards people with gambling problems compared with those with depression. However, there would be greater sympathy towards family members, and children in particular, who experience secondary harms.
4. Quantifying the burden of public health problems at the population (i.e. national) level is one means of advocating for services and policy responses. The general population and decision-makers (including politicians) are influenced by the estimates of costs to society of particular problems. In recent times, attempts have been made to quantify the burden of problem gambling in several countries. The most recent Productivity Commission review of gambling in Australia updated the 1999 estimates of the social costs of problem gambling to arrive at a figure for the year 2008-09 between \$4.7 billion and \$8.4 billion, although this estimate was described as “highly conservative” (Productivity Commission, 2010). This, in part, reflected the omission of any costing of harms arising from gamblers other than those meeting criteria for problem gambling.

A feature of population burden not discussed by Korn and Shaffer (1999), but which applies to other areas of public health importance, is that moderate disorders or problems may cost more to society than severe disorders, simply because the former are more common. This could be the case with problem gambling, although there are currently no data to support this.

5.8 Comorbidity

The issue of comorbidity is central to public health approaches and Shaffer and Korn (2002) covered this topic in more detail than in their earlier article, covering substance use disorders, mood disorders, suicide, anxiety disorders, personality disorders and impulse disorders under the general heading of related mental disorders. One implication of comorbidity is that individuals may need treatment for more than one problem. Approaches to treating comorbid disorders may rely on identifying the primary disorder or could address co-occurring problems using a “holistic” approach to the individual. A second implication of comorbidity, is that problem gambling is likely to be more common amongst those seeking treatment for other related mental disorders than it is in the general population, supporting the assessment of problem gambling in such groups. Third is a corollary of the previous point, that individuals seeking help for problem gambling may be at higher risk for a range of other disorders and therefore should be screened and the need for treatment of other problems assessed. Together, these issues point to the significance of coordinated care which can occur in a variety of forms.

5.9 Population segments

Korn and Shaffer (1999; Shaffer and Korn, 2002) placed emphasis on population groups that were variously described as “vulnerable, “at risk”, and having “special needs”, including youth, older adults, ethnocultural populations, casino employees and women (although acknowledging women have lower rates of problem gambling than men). The prevalence of gambling and problem gambling in youth featured strongly in other work (Shaffer and Hall, 1996) and this focus has particular importance in understanding the adults of tomorrow. In spite of this, Korn and Shaffer (1999) did not incorporate an explicit developmental perspective in their model, which could well reflect the rarity of longitudinal studies at that time. Although the “natural history” of disorders is an integral part of their epidemiology, and epidemiology is one cornerstone of a public health perspective, Korn and Shaffer had little to say about the incidence of gambling problems (i.e. the rate of new cases occurring over a specified period), the persistence of disorders, their remission or relapse (excepting the two-headed arrows depicted in Figure 1 that were subsequently ignored).

5.10 A developmental perspective

Korn *et al.*'s (2003) article makes a passing reference that the public health perspective “encourages a life-cycle approach to measuring social and economic impacts” but, as noted above, has little to say about the development of gambling or gambling disorders in individuals over time. This omission is all the more perplexing as a landmark study on the natural history of alcoholism was cited in both Korn and Shaffer (1999) and Shaffer and Korn (2002). Vaillant's (1986) work contributed not just to a developmental understanding of alcohol use

disorders but was also influential in the general evolution of the field of developmental psychopathology which, by 1999, had made substantial contributions to the understanding of depression, anxiety disorders, antisocial personality disorder, delinquency and psychosis, as well as substance use (Cicchetti, 1989; Garmezy *et al.*, 1984). In spite of the general popularity and acceptance of the public health framework for gambling and problem gambling, it is disconnected from and ignores contemporary gambling research that has adopted a developmental psychopathology approach (e.g. Dickson *et al.*, 2002; Slutske *et al.*, 2003).

5.11 Aetiology

Shaffer and Korn presented what they labelled the “Classic Public Health Model (CPHM)” under a more general heading of “Human Ecology”. The CPHM was explicitly based on a model of communicable disease control and therefore required some adaptation to be applicable to gambling. The CPHM had four components; (1) the “host” is the individual who chooses to gamble; (2) the “agent” represents the specific gambling activities played; (3) the “vector” is the term applied to money; and (4) the “environment” is “both the gambling venue and the family, socio-economic, cultural and political context”. The relationships among these four factors were described as “complex” and the paradigm was said to invite “consideration of a broad range of prevention and treatment strategies directed toward various elements of the model”. The CPHM was not included in several later papers (Korn *et al.*, 2003; Korn, 2000; Shaffer and Kidman, 2004; Shaffer and Korn, 2002) but it re-emerged in two subsequent articles (Korn and Reynolds, 2009; Peller *et al.*, 2008) as the “Epidemiologic Triangle” model with three primary determinants (host, agent and environment). Korn and Reynold’s (2009) article also added a second “illustrative vector”, the power of advertising/promotion, to the original “money” vector. As well as demoting the importance of the vector component of the original model, there were some notable shifts in the Peller *et al.* (2008) formulation. Population biological, social and behavioural characteristics were included under the heading of “host” whereas the host previously was just the “individual who chooses to gamble”. Population characteristics were initially part of the “environment”. In the new formulation “environment” was more narrowly identified with the context of gambling and new technology environments found in gambling. “Agent” now covered “new gambling technology” whereas previously it was the specific gambling activities played.

There are a number of inherent challenges in trying to apply a model intended for communicable disease to a non-communicable (in the sense that we would normally apply this term) behaviour and the evident confusion across different publications involving the same authors compounds those problems. Rather than devote space to a list of difficulties it might suffice to point out that one of the most prominent distinguishing features of the Korn and Shaffer (1999) perspective, i.e. the continuum of gambling and problem gambling, cannot be easily integrated with the communicable disease model. One additional shortcoming of the CPHM is that developmental considerations have a comparatively minor place in the aetiology of communicable diseases. There are certainly life-stage considerations (e.g. the different impacts of Epstein Barr virus on babies, children and adults) but examples of longitudinal continuity are often disease specific and idiosyncratic (e.g. viral exposure has been linked to range of later disorders including schizophrenia, multiple sclerosis and motor neurone disease). Rather than labour the point around the difficulties and confusion surrounding the relevance of the communicable disease model to gambling and problem gambling, the overarching and perhaps most pertinent observation is that there are alternative models of chronic illness aetiology (especially within a socio-ecological framework and the emerging “population health” paradigm) which can be more readily and effectively applied to gambling.

5.12 The Rose principle of prevention

One key principle that has been incorporated into public health approaches in different fields is the idea that shifting the population distribution of a risk factor can be more effective as a preventive strategy than targeting interventions at those who are high-risk. This principle is generally attributed to Geoffrey Rose (1992) and an example would be the strategy of trying to reduce the weight levels of adults across the whole population in order to reduce the incidence of particular diseases, such as diabetes. Messerlain *et al.* (2004) outlined the Rose principle in their public health perspective for youth gambling. However it was *not advocated by Korn and Shaffer* (1999) and is typically absent from other public health formulations applied to gambling. It is important to question why such a fundamental and well-established principle is typically overlooked in the gambling field. The answer to this is presumably related to the concept of “healthy gambling” already described. Given the paucity of evidence to date to support the idea of healthy gambling, it is premature to overlook the application of the Rose principle in this field.

5.13 The public health approach as a “meta-framework”

A part of the strength of the Public Health perspective proposed by Korn and Shaffer (1999) was adopting what they labelled a “meta-framework”. The approach had a flexibility that would enable it to absorb the positive elements of other perspectives and a breadth that made it applicable to a wide range of interventions from universal preventive strategies through to treatment of those with serious problems. Inevitably this allowed others to adapt and re-interpret the framework and so the next section deals with the ways in which other researchers presented, modified and applied the public health perspective in their own investigations.

5.14 Further development of the public health perspective

In the ten-year period following Korn and Shaffer’s (1999) initial paper, there were many examples of published work which echoed or reinforced the original (Adams *et al.*, 2008; Blaszczynski *et al.*, 2004; Dickson-Gillespie *et al.*, 2008; Dyall, 2007; Marshall *et al.*, 2004; Messerlian *et al.*, 2005). This literature captured a large number of the features of the model already highlighted above. In particular, attention was drawn to the high and/or increasing prevalence of problem gambling and to the impact problem gambling has on families and communities (not just gamblers themselves). The shift in focus from individual problem gamblers to understanding the context and broader environment influencing gambling was prominent in descriptions of the public health perspective (Adams *et al.*, 2008; Marshall *et al.*, 2004) and there were often mentions of particular vulnerable population segments, including indigenous peoples in Australia and New Zealand (Broffman, 2005; Dyall, 2007). The public health perspective was also utilised as a means of structuring the types of interventions that could be applied to gambling and problem gambling. Often, this was expressed in terms of primary, secondary and tertiary interventions (Dickson-Gillespie *et al.*, 2008; Messerlian *et al.*, 2005) although Broffman (2005) preferred the labels “universal”, “selective” and “indicated” as suggested by Gordon (1983).

There were occasional instances where Rose’s principle was invoked in the gambling literature, even though this had not been part of Korn and Shaffer’s (1999) perspective. Of these, Marshall (2004) made the boldest statement that “from a public health perspective, harm reduction is best achieved by seeking to reduce overall participation in gambling” and Adams *et al.* (2008) said that “public health interventions aim to stem the rise in

gambling consumption that drive harm". Messerlian *et al.* (2004) commented that "an increase in the number of gambling venues and opportunities ... implies an increase in the number of social gamblers and, consequently, results in an increase in the number of problem gamblers." In contrast, Blaszczyński *et al.* (2004) repeatedly referred to reducing the incidence and prevalence of gambling-related harms without any direct call to reduce gambling participation. It is clear that the flexibility of the public health meta-framework enables people to attach their own particular views to the basic frame.

A further significant modification of the original Korn and Shaffer model related to the continuum of risk. In Blaszczyński *et al.* (2004) this continuum was presented as an explicit uni-dimensional gradation and it made no reference to "healthy gambling". Instead, it used labels of "low-risk", "medium-risk" and "high-risk" to indicate an increasing likelihood that individuals would make the transition to gambling related harm. Dickson-Gillespie *et al.* (2008) presented a very similar model using the labels "recreational (non-problem gamblers)", "at risk low", "at risk moderate" and "problem" gamblers. Essentially, these approaches ignore the concept of the balance between benefits and harms for individual gamblers and use a continuum that only represents harms.

In general, few authors have made use of the classic epidemiologic model (CPHM) taken from the study of the aetiology of communicable diseases. Broffman (2005) specifically described the model early in his chapter when encouraging the use of a public health perspective but did not refer to it subsequently. Messerlain *et al.* (2005) took a different "ecological approach" and described five levels of influence on youth gambling problems: (1) intrapersonal, (2) interpersonal, (3) institutional, (4) community, and (5) public policy. This is an example of socio-ecological frameworks that have been applied in epidemiology and in child development. Given their significance in other fields and their capacity to embrace a developmental or lifecourse perspective, these models are considered in more detail in the following chapter.

Chapter 6: Other frameworks relevant to prevention interventions for problem gambling

This chapter covers other frameworks that have been utilised recently in the gambling field that have specific implications for prevention. It includes six frameworks identified from the systematic literature review: (1) harm minimisation; (2) the pathways framework; (3) stages of change; (4) mental health literacy; (5) socio-ecological models; and (6) social marketing.

6.0 Harm minimisation

Definition and aims

The term “harm-minimisation” has been used in a variety of ways ranging from attempts to reduce *specific* problem behaviours and disorders (e.g. problem gambling and substance abuse) to the reduction of harms related to those behaviours. The term originated in the field of illicit drug use, encompassing interventions (such as needle exchange, bleach kits and methadone maintenance) designed to prevent blood-borne health consequences like hepatitis and HIV (see, Nower and Blaszczynski, 2004). In relation to problem gambling, harm-minimisation can be seen as any strategy that reduces the risk of negative social and personal consequences associated with gambling without necessarily requiring abstinence (Blaszczynski *et al.*, 2001). These strategies are based on two assumptions that: (1) individuals will continue engaging in potentially harmful gambling behaviours; and (2) similar to alcohol consumption (and dissimilar to smoking), it is generally accepted that there are safe levels of gambling participation (Korn and Shaffer, 1999).

With an overarching aim to reduce gambling-related harms, harm-minimisation strategies generally aim to: “protect and prevent individuals from developing gambling problems in the first instance; and to assist existing problem gamblers by providing relevant protective measures against continued loss of control/excessive gambling and offering effective treatment/rehabilitation services” (Blaszczynski, 2010).

Underlying harm-minimisation is the principal that the majority of individuals who gamble do so without negative consequences. As such, a goal is to significantly reduce the harms associated with excessive patterns of play while not unduly affecting people who gamble more moderately (Blaszczynski *et al.*, 2001). Optimally effective harm-minimisation strategies would therefore allow reasonable enjoyment and satisfaction for recreational players who participate and play in a responsible fashion (Blaszczynski *et al.*, 2004). The development and application of harm-minimisation strategies promoting “healthy-gambling” guidelines have therefore been advocated for the general public (e.g. Blaszczynski *et al.*, 2001; Korn, 2000; Korn and Shaffer, 1999; Korn and Skinner, 2000). Cantinotti and Ladouceur (2008), for example, argue a clear distinction between harm-minimisation strategies that aim to reduce (1) the money and time spent on gambling through access, gaming machine restrictions, policy, advertising and strategies, and (2) the negative consequences of gambling including marital problems, family violence and child neglect.

Harm-minimisation strategies for preventing gambling problems

Given its broad definition, it is important to clarify that the principles of harm-minimisation are broadly applicable to prevention (universal, selective and indicated) but also inform specific clinical interventions aimed at individuals who are already experiencing significant gambling-related harms, such as counselling. Research on harm-minimisation strategies in gambling (specific to prevention) are discussed below encompassing: (1) universal (incorporating public education campaigns, such as campaigns targeting all youth); (2) selective (predominantly targeting specific changes to the gambling environment); and (3) indicated (such as self-exclusion) prevention strategies.

Universal prevention strategies

Campaigns targeting the general population: Campaigns that target the general population via social marketing reflect universally applied harm-minimisation prevention strategies.

Campaigns targeting youth: Recent research has argued that the rate of problem gambling is comparatively higher amongst adolescents (5-7%) than the adult population (1-2%: see, Shaffer *et al.*, 1997). Furthermore, Gray (2007) identified that gambling behaviour starts early in life, advocated programs and campaigns to prevent or delay the start of gambling, and recommended that these programs be based on empirical research. As a key approach, prevention strategies should target youths aged around 12 to 13 years. The reviewed research also identified the need for educationally based awareness programs for parents and the general public as well as educational training programs for teachers, social service and other health professionals. This line of argument has resulted in campaigns targeting youth, particularly school based programs to minimise gambling-related harms.

Harm-minimisation strategies for youth problem gambling include promotion of responsible behaviours, informing youth about the risks associated with gambling, changing erroneous cognitions and enhancing skills needed to maintain control while gambling (Derevensky *et al.*, 2004). Programs using these strategies include media campaigns (Byrne *et al.*, 2005b), educational programs about responsible gambling (e.g. Division on Addiction at Harvard Medical School, 2000), parental guidelines for dealing with gambling-related situations within the family context (Minnesota Institute of Public Health, 1997) and assisting teachers in educating students about gambling and strategies for minimising risk (Minnesota Institute of Public Health, 1997; Nova Scotia Department of Health, 1997; Queensland School Curriculum Council, 2000).

Much of the theory and empirical research around the prevention of youth problem gambling has been undertaken by Dickson, Derevensky and Gupta (Derevensky *et al.*, 2004; Dickson *et al.*, 2002, 2004). Their approach takes a developmental perspective to problem gambling assuming that all adolescents, generally, are at-risk of engaging in risky behaviours including substance abuse, antisocial behaviours and gambling (Dickson *et al.*, 2004). Such campaigns are defined as universal as they target all children within a defined age range. The framework largely derived from research on risk and protective factors in the development of adolescent substance abuse and depression. The risk-protective factor model within the resilience framework is used as a conceptual basis for designing prevention programs for youth problem gambling. This framework points to the developmental appropriateness of the approach on universal, selective and indicated levels of prevention in a school setting; however, there is no existing evidence of the efficacy of such programs.

Research on the development of youth problem gambling is only around 10 years old. Current efforts include identifying the relevant risk and protective factors. Recent work by Dickson, Derevensky and Gupta (2008) revealed that school problems and involvement in other high-risk behaviours were predictive of problem gambling. School connectedness was a protective factor, although it seems that the absence of risk factors increases the odds of developing gambling problems, rather than the presence of protective factors. The study also shows a significant overlap between developmental risk and protective factors for problem gambling and those identified for other mental health problems and risky behaviours (e.g. substance abuse, depression and antisocial behaviours). This evidence provides empirical support for the risk-protective factor framework and suggests that in prevention of youth problem gambling, gambling behaviours should not be addressed or treated separately from other risky behaviours. Prevention initiatives that focus on multiple problem behaviours are likely to have better long-term outcomes than focusing only on factors that predict one negative outcome.

Existing evidence identifies relevant resilience, risk and protective factors in the development of youth problem gambling. However, to date, there is no evidence to support initiatives using a resilience framework, nor is there support for general school education programs preventing youth problem gambling. Similar results have been found in other fields (e.g., prevention of youth depression (Sawyer *et al.*, 2010)). It may be that strategies targeting all youth are not appropriate in prevention of risky behaviours. Alternatively, selective programs should be developed in school settings to identify children at risk for adverse pathways through universal health checks and/or screening, and targeted services (counselling, peer group programs, academic help). This would allow resources to be allocated according to need.

Outside the resilience framework, a review of other school-based prevention programs by the Productivity Commission (Productivity Commission, 2010) concluded that information about gambling provided in school settings, while limited, mostly resulted in improved understanding of gambling, odds and the associated risks but this was not related to positive behavioural change. The evidence, in fact, points to an *increase in risk-taking behaviour*, suggesting caution in the provision of school-based gambling education. However, this risk could be minimised by appropriately timing interventions and by presenting more than mere factual information about gambling. The programs reviewed (mostly Australian) primarily educated youth about gambling within a health and financial literacy framework and the focus on risk and protective factors of problem gambling was narrow.

It is important to note that opposing the idea of high rates of youth problem gambling, are many recent studies suggesting that the prevalence for youth problem gambling might be lower or similar to that of adult population, e.g. 2.1% in youth aged 14-21 in the US (Welte *et al.*, 2008) and 1.9% in adolescents aged 11-15 in Britain (Forrest and McHale, 2012). In the US research, rates of problem gambling were actually lower amongst youth than amongst adults, in surveys conducted six years apart, but using the same questionnaire (Welte *et al.*, 2011). There are clear methodological reasons why youth problem gambling rates might have previously been inflated. These include the use of different measures in adult and adolescent problem gambling prevalence surveys, scoring errors (Jacques and Ladouceur, 2003), and the possibility that young respondents may misinterpret some questions in a way that inflates problem gambling scores (Ladouceur *et al.*, 2000). These arguments are summarised in an article by Derevensky *et al.* (2003) "Prevalence Rates of Youth Gambling Problems: Are the Current Rates Inflated?"

Given the recent lower rates of problem gambling found for youth and the possibility that prevention campaigns might lead to an increase rather than a decrease in gambling behaviour and knowledge, Gray *et al.*'s (2007) and Derevensky *et al.*'s (2004; 2002) school based universal prevention approaches seem somewhat questionable. These broad strategies seem a wasteful approach to preventing problem gambling. Alternatively, selective programs could be developed in school settings through universal health checks and/or screening, and targeted services provided (counselling, peer group programs, academic help). The probable value of these programs would be embedded in a holistic approach targeting multiple problem behaviours and comorbidities as identified in the literature and the allocation of resources according to need.

Selective prevention strategies

Changes to gambling environments: When governments change gambling environments to minimise harm, their main aim is to reduce the amount of money and time spent on gambling activities. Adams, Raeburn, & De Silva (2008) describe three aspects of the environment that can be modified to reduce gambling-related harms: (1) the broad gambling environment and accessibility (by capping or reducing the number of gaming machines); (2) the product (by making modifications to gaming machines); and (3) consumer knowledge about how to reduce hazardous patterns of play (via campaigns and advertisements).

The majority of research assessing the impact of changing gambling environments has focused on modifications to electronic gaming machines (EGM) such as restricting expenditure, time and game speed, and displaying warning messages during play. Research has investigated the impact of these changes on player satisfaction and addictive /risky patterns of play (Blaszczynski *et al.*, 2005; Jardin and Wulfert, 2012; Loba *et al.*, 2002; Monaghan and Blaszczynski, 2010; Productivity Commission, 2010; Sharpe *et al.*, 2005). The findings consistently show that these modifications significantly reduce excessive patterns of play while not generally decreasing the enjoyment and recreational value for the recreational player.

Pre-commitment schemes: Another approach to machine modifications is “pre-commitment” (Ladouceur *et al.*, 2012). Broadly speaking pre-commitment schemes involve the individual committing to a certain amount of expenditure and/or a time restriction before gambling and to cessation of gambling once they reach this limit. The use of pre-commitment as a preventative measure stems from evidence showing that individuals who experience high levels of arousal (Wilkes *et al.*, 2010), dissociative states (Wanner *et al.*, 2006), and urges to continue gambling (Blaszczynski *et al.*, 2008) also tend to lose track of time (Ricketts and Macaskill, 2003), gamble longer than intended (Dickerson *et al.*, 1996), and report an inability to stop during gambling (O’Connor and Dickerson, 2003). These characteristics make it difficult for individuals to monitor and control their gambling behaviours (Carver and Scheier, 1998). Pre-commitment strategies force the punter to make decisions about money and/or time before beginning a session.

Models of pre-commitment include full, partial, mandatory and voluntary schemes (Ladouceur *et al.*, 2012; Productivity Commission, 1999). Full schemes offer all players the use of smart cards covering the operation of gaming machines across all venues (in a defined area) and play is not permitted on any machine once the pre-set limit (time and/or expenditure) has been reached. Partial pre-commitment refers to the use of cards that provide a range of options for players to monitor levels of play at their own discretion. Mandatory schemes require all players to set limits, while voluntary schemes allow players to choose whether or not to use the pre-commitment option. Hybrid systems are also possible, for instance pre-commitment may only be required for high intensity machines.

Empirical research on pre-commitment schemes is limited, however a recent review on pre-commitment trials (17 publications) revealed that the majority of gamblers think positively about pre-commitment but that non-problem gamblers consider it as personally unnecessary (Ladouceur *et al.*, 2012). In relation to involuntary schemes, few gamblers used options to set time limits. Results about the actual adherence to pre-committed expenditure and time were variable and the findings were commonly “smeared” by methodological flaws including small sample sizes, adherence protocol issues, data integrity problems (e.g. from card sharing) and failure to control for gambling outside trial conditions.

Warning signs in venues (Gray *et al.*, 2007; Productivity Commission, 2010): *Warning messages via signs in gambling venues* (e.g. information about odds, gambling-related harms, problem gambling helpline etc.) aim to increase gamblers’ knowledge and understanding about gambling and related risks. However, research suggests that such messages do not seem to change problematic patterns of play. Furthermore, gamblers who experience problems have been found to “desensitise” to signs over time. To invoke a change in behaviour, the Productivity Commission (2010) reported that warnings need to have an emotional impact and be changed periodically for a greater effect. Information signs are an important referral point for help-seeking problem gamblers. Given their low cost, information and warning signs in venues are good value for money.

Capping the number of venues or number of machines in venues may reduce the prevalence of problem gambling but it also violates a basic principle of harm-minimisation: both recreational and problem gamblers are impacted in a same way.

Restricted access to cash in gambling venues: There is considerable evidence that people with gambling problems use ATMs/EFTPOS facilities in venues more frequently than other gamblers. Although the direction of causality is sometimes unclear, there is conclusive evidence that the presence of ATMs in venues contributes to problem gambling. Another option to restrict access to cash is setting withdrawal limits for ATMs in venues, although there is no evidence of the effectiveness of this strategy.

Indicated prevention strategies

Self-exclusion: Self-exclusion is an extreme form of pre-commitment, where gamblers voluntarily bar themselves from accessing the gambling facilities at one or more gambling venues (Gainsbury, 2013). Under formal self-exclusion programs, the individual signs a document authorising staff to deny them access to venues. Self-exclusion periods vary from six months to an irrevocable lifetime ban. Self-exclusion programs are an important component of any public health strategy as they can help individuals abstain or regain control from at least one specific form of gambling behaviour for a defined time period. Contrasting the various addiction support schemes which primarily focus on counselling and treatment, self-exclusion is a strategy that specifically limits gambling environments (Nower and Blaszczynski, 2006).

The potential value of self-exclusion as a means of indicated prevention is emphasised in many reviews (e.g. Hayer and Meyer, 2011; National Gambling Impact Study Commission, 1999; Productivity Commission, 2010). Such reviews reveal that people who self-exclude are typically under a great deal of strain and are highly motivated to change gambling behaviours. Strain peaks at the time individuals decide to sign up for the program. Longitudinal research shows a clear improvement in individuals' psychosocial functioning which starts immediately after signing the exclusion agreement. A systematic review (Gainsbury, 2013) of self-exclusion programs shows that 73% to 95% of participants are likely to meet the criteria for problem gambling and the programs generally result in a reduction in gambling behaviours and the severity of problems. There is also evidence that self-exclusion results in improved psychological functioning and perceptions of control over gambling behaviour, although a lack of adherence means that complete abstinence is rare.

The limitations of self-exclusion programs include: (1) a lack of information and knowledge about existing programs amongst the general public; (2) practical difficulties and reticence surrounding signing up (including stigma); and (3) it is not completely effective in preventing individuals from entering venues or gambling elsewhere (e.g. gambling online or in other venues). A more systematic approach is needed that allows the identification of individuals who have self-excluded and then limits access to venues. As an example, some European countries require that individuals obtain access to gaming venues by scanning their passport or other forms of identification. Adherence to self-exclusion is substantially higher in such countries compared to Australia or New Zealand. Other ways of improving existing programs include providing more information and resources for excluded individuals and reducing barriers to program entry.

Targeted interventions: Another example of indicated prevention strategies are programs targeting gamblers already at-risk to develop gambling problems. The "Stop & Think!" program in the US, for instance, was developed to teach at-risk gamblers cognitive restructuring and problem solving skills to prevent the development of problem gambling (Doiron and Nicki, 2007). This randomised controlled trial included 40 at-risk gamblers (as defined by the PGSI) in the community, and the experimental group (n=20) participated in two sessions covering cognitive restructuring skills in relation to gambling. These skills were taught through a variety of methods – including an automated educational presentation, video and text vignettes, audio training tapes, and skill rehearsal. Compared with the control group (n=20), the experimental group was less at risk for developing a gambling problem after the program. The findings suggested that the program was effective in reducing irrational thinking, cognitive distortions about gambling and involvement in video lottery terminal (VLT) and other gambling behaviours, particularly at a one month follow-up.

Summary of the harm-minimisation framework

- The definition of harm-minimisation is very broad in scope. Harm-minimisation strategies can comprise any activities that reduce the risk of negative consequences from gambling, encompassing prevention and clinical interventions.
- The term “harm-reduction” has been used interchangeably with harm-minimisation but it specifically refers to activities and interventions that impact on the harms directly associated with gambling (e.g. family violence child neglect and suicide) rather than actual gambling behaviours.
- The harm-minimisation framework encompasses a developmental perspective, specific to the prevention and progression of youth problem gambling.
- Embedded in the harm-minimisation framework is the concept that the development of problem gambling should not be treated separately from the development of other at-risk behaviours (i.e. co-morbidity should be incorporated).
- As a harm-minimisation strategy, universal school-based educational initiatives may increase knowledge about gambling, but do not seem to be effective as preventative measures for problem gambling. In fact, they appear to “promote gambling behaviours”, rather than equip youth with preventative tools and strategies they can use later in life, when gambling is legal and more accessible. Selective programs targeting adolescents who are at-risk for developing problem behaviours and/or mental health disorders may be more appropriate.
- Empirical evidence shows that the most effective harm-minimisation strategies involve gaming machine modifications such as reducing the time, expenditure and the speed of the machine “spin”. Warning signs are most cost effective. Indicated interventions may be beneficial in targeting those already at risk for gambling related problems.

6.1 The Pathways framework

Definition and aims

The Pathways model (Blaszczynski, 2000; Blaszczynski and Nower, 2002) evolved from a frustration towards homogenous, yet inconsistent, definitions of the aetiology and manifestations of problem gambling and gambling related harms. This highly conceptual approach posits that negative impacts of problem gambling manifest in distinct clusters of pathology. Three distinct developmental pathways lead to gambling problems for three subgroups of gamblers: (1) behaviourally conditioned; (2) emotionally vulnerable; and (3) impulsive antisocial. This framework acknowledges that gambling and the development of problem gambling are related to dynamic interactions of economic, social and intra- and interpersonal factors as described below:

Pathway 1: This behaviourally conditioned pathway is characterised by low levels of predisposing psychopathology and gambling severity, and individuals often fluctuate between recreational and pathological gambling. These individuals are vulnerable to cognitive distortions through behavioural conditioning. They can experience psychological and gambling problems and these tend to develop as a direct consequence of their gambling behaviour. Prevention efforts for this group focus on psycho-education targeting faulty cognitions. The model proposes that this group is most likely to re-establish controlled levels of gambling following treatment and that they respond well to treatment.

Pathway 2: In the emotionally vulnerable pathway, problematic gambling is a response to pre-existing mental health issues, for example, problematic gambling develops as an attempt to cope with or escape pre-existing mental health issues. These individuals usually report adverse developmental histories and difficulties with coping and general problem-solving skills. Emotionally vulnerable individuals are likely to hold a genetic predisposition for depression and/or anxiety and they are highly likely to have a family history of pathological gambling.

Pathway 3: The impulsive-antisocial pathway is similar to pathway 2, where individuals are biologically and developmentally predisposed to emotional vulnerabilities, but they are also likely to have high levels of impulsivity. They exhibit significant problems with emotion regulation, impulsivity and symptoms consistent with personality disorders, including antisocial behaviours. Some evidence further suggests the likely presence of neurological dysfunction (Blaszczynski and Nower, 2002). Individuals in this group often have alcohol or other drug addictions, report higher rates of non-gambling related crime and are likely to have a family history of antisocial behaviours and alcohol problems. They are likely to require intensive CBT-based treatment targeting impulse control and emotional regulation over a long period of time. Given the possible presence of neurochemical imbalance, they are also likely to benefit from psychotropic medication.

Each of the three subgroups has their own distinct aetiology resulting in a range of gambling and non-gambling related problem behaviours. It is important to note that the three subgroups share some commonalities that are instrumental to the acquisition of gambling, including ecological factors, cognitive processes and behavioural reinforcement. For example, in environments where gambling is socially accepted and promoted, the incidence of pathological gambling is high. The accumulated effects of gambling on cognitive processes may skew into faulty beliefs about the probability of winning and chasing losses. Preventative interventions aim to identify and target individuals with methods tailored for each subgroup.

Given that the pathways model is not an intervention per se, efficacy is not conceptually relevant. However, applications for screening and allocating treatment resources have been proposed (Blaszczynski and Nower, 2002; Felsher *et al.*, 2010; Nower and Blaszczynski, 2004; O'Brien, 2011).

While a number of studies have attempted to use the pathways framework to describe the heterogeneity of problem gamblers, the model remains largely unsupported (for a review see, Milosevic and Ledgerwood, 2010). Recent studies on problem gambling typologies show that in both treatment seeking as well as community populations, the subgroups are defined by the level of psychopathology rather than emotional vulnerability or impulsive antisocial behaviour (Carragher and McWilliams, 2011; Ibanez *et al.*, 2001; Vachon and Bagby, 2009; Xian *et al.*, 2008). This evidence suggests 2-3 distinct subgroups, with the first incorporating people with low level gambling problems and other co-morbid conditions. The severity of issues, including gambling, mental health and substance abuse, increases across further subgroups.

Effective treatment and prevention rely upon acknowledging that gambling and problem gambling co-occur with other psychopathologies, and that these problems develop along multiple pathways. The pathways framework incorporates the complex developmental nature of the manifestation of gambling problems and comorbidities. The practical utility of the framework therefore seems to lie in the recognition and identification of comorbidities and the extent to which comorbidities are the cause or “reaction” to gambling problems. For instance, the temporal order of psychopathologies bears significance in allocation of treatment resources but there is a call for more research evidence in the comorbidity framework.

Universal prevention strategies

We were not able to identify empirical evidence assessing universal prevention strategies based on the Pathways model.

Selective prevention strategies

Nower and Blaszczynski (2004) proposed a school-based application of the Pathways model targeting all students and using a more selective approach, providing treatment for students identified as being at a high-risk of gambling problems. These authors suggested that prevention and early intervention should be tailored to address the distinct issues relevant for each subgroup as follows:

The behaviourally conditioned youth (Pathway 1) should be provided with educational programs designed to address possible cognitive distortions (or “magical thinking”) in relation to luck and odds, and to increase knowledge about probabilities, randomness and behavioural reinforcement. This type of “psychoeducation” can target and assist the whole school (students and staff) as well as those at risk in recognising risky patterns of gambling behaviour. It is not clear, however, how these students would be identified or whether the program would target all students.

For emotionally vulnerable youth (Pathway 2), the frontline approach involves the identification of individuals exhibiting internalising behaviours. A screen for problem gambling, substance abuse and mood disorders, together with family (and a possible developmental) history can be used to identify people who might be suited to appropriate early intervention, effectively redirecting adolescents away from a problem gambling pathway. These youth require holistic psychotherapeutic interventions to deal with the complexities underlying emotional vulnerabilities and risky behaviours (gambling and possibly substance use). In this approach the behaviours themselves are considered “secondary” to underlying psychopathology.

Of the three subgroups, the antisocial-impulsive youth (Pathway 3), is the easiest to identify. They are often aggressive, impulsive, have difficulty with peers, school and work, and also tend to experience problems with drugs and criminal behaviours. Impulsive-antisocial youth require individual attention and one-on-one education about gambling and other addictive behaviours. Although easy to identify, these adolescents require the most effort in preventing the escalation of multiple problem behaviours.

Overall, the conceptual framework of the Pathways model is useful in identifying and targeting emotional vulnerability and impulsivity at early stages, across different gambling “careers”. The importance of developmental and comorbid issues in the model imply that gambling issues should not be the main priority of prevention interventions or clinical treatments. Unfortunately, the lack of evidence supporting the existence of the three subgroups means the application of the above strategies is currently questionable.

Indicated prevention strategies:

The most practical utility of the model seems to lie in its relevance for treatment and prevention amongst the heterogeneous group of people already experiencing gambling problems. While all three types of problem gambling groups exhibit some common symptoms, the clinical relevance of the pathways model lies in the distinguishable aetiology and approaches to management and prognosis.

The model proposes that individuals on Pathway 1 can benefit from minimal intervention and are likely to respond well to treatment. This group is also most likely to re-establish controlled levels of gambling following

treatment. However, in terms of prevention, they would be the most difficult to identify before the culmination of gambling problems, thus universal programs broadly covering gambling related harms and cognitive distortions would be most useful for these individuals.

With regard to Pathway 2, the model suggests that individuals who are too fragile to maintain sufficient control over behaviour are more likely to benefit from treatment aiming for complete abstinence. These emotionally-vulnerable gamblers are more resistant to change and require treatment that addresses both their underlying psychological issues as well as gambling behaviours. Psychotherapy should aim to improve or change inadequate coping skills and deal with possible past trauma. Medication for depression and/or anxiety can be used to alleviate some neurochemical problems. Prevention efforts should focus on the early identification of co-morbid emotional problems and selective prevention, which in practice, should be embedded in more holistic programs targeting co-morbid disorders.

Individuals on Pathway 3 are the easiest to identify but they are not likely to seek treatment in the first instance and they are the most difficult to treat. Indicated prevention seems the most likely to assist these individuals and they are likely to require intensive CBT-based treatment targeting impulse control and emotional regulation over a long period. Comorbidity should be addressed in a similar manner to that described for pathway 2.

Summary of the pathways framework

- The framework is based on identifying different types of problem gambling. However, evidence for the existence of these groups is limited.
- Even if the groups are not accurately identified, the model raises the possibility that problem gambling is heterogeneous and, by implication, that different preventive strategies might be needed to accommodate different types of problem gambling.
- The model is developmental in nature and so acknowledges and stresses the importance of understanding vulnerability, and risk factors as well as screening over time.
- Comorbid problems fundamentally define components of the model. The existence of co-occurring gambling, substance use and mental health problems is argued as reflecting an underlying vulnerability.

6.2 Stages of Change/the Trans-Theoretical Model

Definition and aims

The Stages of Change (SOC), or the Trans-theoretical Model (TTM), proposed by Prochaska and DiClemente (e.g. DiClemente, 1986; Prochaska and DiClemente, 1983; Prochaska and DiClemente, 1986; Prochaska and DiClemente, 1991, 2005) has been applied to describe behavioural change in relation to a range of problem behaviours, including problem gambling. SOC/TTM is an overarching framework for behavioural change and it is widely used in health psychology, addictions treatment and prevention, including the prevention of cancer, HIV, obesity, eating disorders, substance abuse, problem gambling and other mental health disorders. The major aim of prevention interventions based on this model is the reduction of target behaviours that can be: (1) risk factors for illness (smoking, risky sexual behaviours; prodromes for a given mental illness), or (2) actual manifestations of the illness (problem gambling, substance abuse, self-harming behaviours). In practice the preventive utility of the model is in the cessation of behaviours with harmful consequences or initiation of behaviours leading to positive outcomes.

The framework posits that behaviour changes progress through six consecutive stages: (1) *pre-contemplation* (not intending to change); (2) *contemplation* (intending to change within 6 months); (3) *preparation* (actively planning change); (4) *action* (overtly making behavioural changes); (5) *maintenance* (taking steps to sustain change and resist temptation); and (6) *relapse*. Within this model behaviour change is viewed as a long-term cyclical process and is not necessarily a linear process.

Pre-contemplation: The individual has no intention to change the behaviour. If help seeking occurs it is likely to be attributable to external pressure and might result in short-term behavioural changes. Interventions during this stage should target increasing conscious awareness of the extent of a problem and recognition of the need to change, for instance psycho-educational techniques which provide tailored, individualised information and feedback to the person about the effects of the problematic behaviours.

Contemplation: The individual is considering but not committed to change. The person's subjective perception about the benefits resulting from change, if sufficient, will establish the transition to the next stage. Interventions during this stage should focus on motivating the individual to act, providing positive reinforcement regarding the person's ability to change their behaviours and resulting benefits.

Preparation: The individual is preparing for action towards change. Once commitment to change has been established, the task of any intervention is to strengthen the commitment to act. Interventions during this stage should target developing an action plan in accordance with the individual context.

Action: At this stage the individual becomes engaged and adopts a new attitude. The main aim of interventions is the implementation of the action plan. Over a period of three to six months, old behavioural patterns are modified and discontinued and new healthy behavioural patterns are established. Relevant interventions include a periodic review of the plan and reaffirmation of the commitment to the change (DiClemente, 2006).

Maintenance: The individual is maintaining the behavioural change over a period of time. The main aim of interventions during this stage is to avoid relapses and consolidate the gains made in the previous stage. New healthy behaviour patterns can be considered established and stable when they are automatically executed and maintained without expending excessive energy or effort. Maintenance is not a static stage but a continuous process that lasts at least six months and can extend for longer periods.

Relapse: Relapse was defined as a distinct stage in early SOC/TTM frameworks. However, relapse was later defined as a regression in the progression of stages and an expected part of the process where individuals can go back and forth between the stages. In fact, linear progression through the stages rarely takes place (DiClemente, 2006; Prochaska *et al.*, 1992; Velasquez *et al.*, 2001). After relapse, the individual might cycle through the stages before properly learning from their experience or consolidating the transformation in behaviour (DiClemente *et al.*, 1991). Interventions in the relapse stage focus on returning to the action plan, reinforcing self-efficacy and renewing confidence (DiClemente, 2006; DiClemente *et al.*, 1991).

The SOC/TTM model has also been adapted to preventing the initiation of unhealthy behaviours (Stern *et al.*, 1987). Pallonen *et al.* (1998), for example, applied the model to adolescent smoking. They defined four stages of smoking acquisition: (1) *acquisition pre-contemplation* (not intending to smoke in the foreseeable future); (2) *acquisition contemplation* (intending to smoke in the foreseeable future); *acquisition preparation* (intending to smoke in the immediate future); and *recent acquisition* (initiation of occasional or regular smoking).

In the SOC/TTM framework a range of specific cognitive structures and behavioural processes are argued as important in moving through the six stages (DiClemente *et al.*, 2000). Of these cognitive structures, *self-efficacy*

and *readiness to change* have specifically been linked to positive treatment outcomes for individuals with gambling problems.

The concept of self-efficacy is defined as one's perceived confidence in the ability to carry out specific behaviours (Bandura, 1997). In the context of problem gambling, it has been defined as an individual's perceived control of problematic gambling behaviours, for example, being capable of remaining abstinent (May *et al.*, 2003). According to SOC/TTM, a person's self-efficacy about changing their gambling behaviours increases throughout the six stages, thus, greater self-efficacy is associated with better treatment outcomes (for a review, see (Toneatto and Ladouceur, 2003). The construct of self-efficacy is not unique to SOC/TTM; it is also linked to better treatment outcomes in CBT-based interventions for problem gambling (Hodgins *et al.*, 2004).

In SOC/TTM readiness to change has been used to indicate the readiness of individuals to engage with treatment and to measure the impact of interventions targeting the uptake of health behaviours preventing HIV/STDs (readiness to engage in safe sexual practices), unwanted pregnancy (readiness to use contraception), substance abuse and stroke (readiness to initiate protective health behaviours). Readiness to change has been assessed amongst people with gambling problems. For instance, Petry (2005) developed the Gambling Readiness to Change Scale (GRTC; (Neighbors *et al.*, 2002), a 9-item measure with three items measuring each of three stages: pre-contemplation, contemplation and action. Petry (2005) found that those who scored higher in readiness to change were more likely to seek treatment and, where they did seek treatment, had better treatment outcomes, although there was quite a significant overlap between different stages of change.

The relevance of the SOC/TTM framework in relation to problem gambling

Our systematic literature review identified seven peer review journal articles describing the relevance of the SOC/TTM to problem gambling populations. Of these seven papers, two discussed the relevance of SOC/TTM for problem gambling and five were empirical studies. These seven papers are described below.

In the first of the two non-empirical papers, Clarke (2007) reviewed the barriers to substance abuse treatment with an aim to develop a model that would be applicable to problem gambling (Clarke, 2007). Clarke (2007) concluded that although SOC/TTM is often used to explain the process of change and motivation to seek treatment, socio-behavioural models and factors related to social networks far better explain the use of health care services of people with addictions than TTM/SOC. The second non-empirical paper proposed guidelines for treatment of problem gambling in adolescents based on the SOC/TTM treatments in other fields (DiClemente *et al.*, 2000). However, the guidelines were not based on empirical evidence from problem gambling research; rather they were developed by applying knowledge from other areas to problem gambling.

Amongst the five empirical studies, Petry (2005) examined the stages of change amongst people seeking treatment for problem gambling and found that the majority of individuals reported being in multiple stages at the same time and suggest that TTM/SOC should be applied with extreme caution in the treatment of problem gambling. Wohl and Stzainert (2011) examined the relationship between problem gambling, stages of change and attrition from study participation, and showed that those with a higher level of gambling symptoms and those who were at earlier stages were more likely to drop out from the study. Martin, Usdan and Turner (2012) examined the processes involved in the TTM/SOC model, self-efficacy and readiness to change over a three month period in a small group of college students with a lifetime history of problem gambling. They found that participants with more serious gambling problems had lower readiness to change scores and lower perceived self-efficacy scores than participants with less serious gambling problems. Schellinck and Schrans (2004) examined the processes involved in different stages (counter conditioning, stimulus control and reinforcement management) and found that problem gamblers used these processes in both the action and

maintenance stages. These authors concluded that the broad SOC/TTM framework can be applied to problem gambling despite the fact that this study only involved individuals who were identified to be in action and maintenance stages.

SOC/TTM strategies preventing behaviours other than gambling

While the above literature argues that the SOC/TTM framework is relevant and applicable to problem gambling, it is important to note that none of the research has specifically evaluated the efficacy of SOC/TTM strategies in preventing problem gambling. However, the framework has been widely applied to interventions for other problems and the efficacy assessed. Evidence from non-gambling research is described below.

Although SOC/TTM cannot be classified as a therapeutic tool in its own right, interventions based on the six-stage approach have been used to target the reduction of smoking, depressive symptoms, PTSD symptoms in war veterans, problem drinking, drug use, severity of chronic pain, as well as increasing adherence for taking lipid lowering medications and sun protective behaviours (Burns *et al.*, 2005; Demmel *et al.*, 2004; Henderson *et al.*, 2004; Johnson *et al.*, 2006; Prochaska *et al.*, 1992; Rooney *et al.*, 2007; Weinstock *et al.*, 2002). However, some high quality, large-scale longitudinal studies argue that existing research is limited by inadequate methodology and that stage-based interventions are ineffective in targeting and changing the aforementioned problem behaviours (Adams and White, 2003; Aveyard *et al.*, 1999; Prokhorov *et al.*, 2008).

Furthermore, a number of systematic reviews have assessed randomised control trials using SOC/TTM-based interventions targeting behaviour change regarding pregnancy and STDs (Horowitz, 2003), physical activity (Enwald *et al.*, 2012; Hutchinson *et al.*, 2000; Ickes and Sharma, 2012; Tuah *et al.*, 2011; van Sluijs *et al.*, 2004), diet and weight management (Dray and Wade, 2012; Enwald *et al.*, 2012; Riemsma *et al.*, 2002; Shaikh *et al.*, 2008; van Sluijs *et al.*, 2004), dietary intake (Bridle *et al.*, 2005; Riemsma *et al.*, 2002; Salmela *et al.*, 2009) and smoking (Bridle *et al.*, 2005; Cahill *et al.*, 2010; Grimshaw and Stanton, 2010; Riemsma *et al.*, 2002; Robinson and Vail, 2012; van Sluijs *et al.*, 2004). Overall, these reviews argue that there is little or no evidence that SOC/TTM based interventions are any better than non-stage based interventions or control groups, regardless of whether efficacy was assessed as behaviour change or progression through stages. The reviews also reveal numerous inconsistencies regarding the development and implementation of change-based interventions as applied to a range of problem behaviours. Therefore, until interventions are developed to accurately target the TTM/SOC, the efficacy of these approaches cannot be fully determined.

Indeed, in a comprehensive review of 87 empirical studies covering a range of problem behaviours Little and Girvin (2002) identified and described several fundamental flaws in SOC/TTM research. The empirical and conceptual limitations included: (1) problems with measurement; (2) a lack of empirical evidence supporting the six discrete categories; and (3) a lack of empirical evidence supporting sequential progression through stages. For instance, there is great variability in the use of measures across studies, resulting in very little concordance in the allocation of individuals to specific stages. There is also little consistency in findings defining the nature of the six stages. Indeed some research has shown that there is overlap between stages, that they might not be discrete states.

SOC/TTM strategies for preventing problem gambling

As mentioned above the SOC/TTM framework has been argued as relevant for problem gambling. However, interventions addressing the various components have not previously been assessed. DiClemente *et al.* (2000) suggested that SOC/TTM can be used in a preventative framework in screening for both the initiation and cessation of problem gambling, for example, assessing an individual's stage can help refine appropriate treatment choices.

While SOC/TTM has been widely accepted in clinical practice, its utility is largely heuristic in providing tools for screening, treatment and recovery. While the theoretical framework may be useful in assessing an individual's current readiness for change, SOC/TTM lacks a clear specification of the dynamics driving the change processes. The model exemplifies different processes of change individuals use to progress through different stages, with cognitive/experiential processes more common in the earlier stages and behavioural strategies more common in the later stages. While readiness to change and self-efficacy may be useful in predicting treatment outcomes or in assessing openness to treatment, the major conceptual and methodological flaws and weak empirical support for SOC/TTM mean that caution should be taken using the SOC/TTM framework for problem gambling interventions.

Summary of the SOC/TTM Framework

- The SOC/TTM framework is widely used to describe the process of behavioural change across many different health behaviours.
- Interventions based on the model are used in clinical practice for cessation of problem behaviours and to support the initiation of healthy behaviours. However, there is inconsistent evidence about the efficacy of these interventions, and the best quality research concludes that the model is no better than non-stage based approaches in changing behaviours.
- Cognitive processes, such as self-efficacy and readiness to change, are a driving force for behavioural change. These processes can be used to predict treatment outcomes for problem gambling.
- Empirical evidence supports the use of self-efficacy and readiness to change only in predicting treatment outcomes for people with gambling problems. This is not relevant for prevention but rather for clinical interventions.
- There are several fundamental concerns regarding the model, including a lack of evidence supporting the existence and movement through the six stages.

6.3 Mental health literacy

Definition and aims

Mental health literacy has been defined as “knowledge and beliefs about mental disorders which aid their recognition management or prevention” (Jorm *et al.*, 1997). Knowledge and beliefs in turn play an important role in impacting on whether a person receives appropriate help for mental health problems. The concept of “mental health literacy” was not completely new at the time, but Jorm *et al.*'s work, dating from the late 1990's, importantly encompassed knowledge and beliefs of the general public, of people who themselves experience mental health problems, and of professionals who deal with people who may have or be at risk of mental health problems. In a review of mental health literacy, Jorm (2012) concluded:

“the ultimate aim is a society where people with mental disorders take prompt action to seek professional help, where they receive and adhere to evidence-based treatments, where they feel supported by others in their social network, where people take preventive action to benefit themselves and their families, and where mental health services are seen as making a valuable contribution that merits public support.”

When setting up this topic of investigation, parallels were drawn with areas of physical health literacy, where knowledge is common amongst the general public. Specific examples relating to prevention included knowledge of a healthy diet, actions to prevent skin cancer, safe sex, and the link between cigarette smoking and disease incidence (Jorm, 2000; Jorm, 2012). For early intervention, examples included knowing about the early warning signs of cancer and having the ability to recognise heart attacks and strokes (Jorm, 2012). In terms of the management of physical health problems, the public has general knowledge regarding sources of treatment, available medication and use of complementary as well as medical interventions (Jorm, 2012).

Research into mental health literacy has achieved a great deal in 16 years and covers a number of facets. Jorm's (2012) review encompassed achievements with regard to:

- recognition of developing disorders to facilitate help-seeking;
- knowledge of professional help and available treatments;
- knowledge of effective self-help;
- “mental health first aid” knowledge and skills to support others;
- knowledge of prevention;
- mental health literacy and cultural diversity;
- interventions to improve mental health literacy;
- public and political support for mental health services.

All of these facets are ingredients of a public health framework.

Problem gambling literacy and prevention

Potentially, all of these issues could be addressed in relation to gambling and problem gambling and some have been already, at least in part. As an example, Moore *et al.* (2012) recently reported findings from a study of self-regulation of gambling that covered a range of self-help strategies, such as “set a time limit on how long I'll spend at a gambling venue”, “avoid gambling alone”, or “have myself voluntarily excluded from a gambling venue”. Participants rated how often they had used each of 20 strategies. The study did not set out to determine the “effectiveness” of the strategies and did not even ask individuals how well they thought the different strategies had worked for themselves but the findings are nonetheless important for indicating what people do to regulate their gambling behaviour.

There is already sufficient evidence to indicate that many individuals with significant levels of problem gambling do not self-identify as having a problem, do not seek professional help or only do so after problems are severe (Carroll *et al.*, 2011; Davidson and Rodgers, 2010). Even though attempts are made to promote self-identification (e.g. through information leaflets, web sites, media advertising), there is not a great deal of evidence as to whether this facilitates formal help-seeking.

Prevalence surveys often assess public opinion about gambling regulations and ask which services people with gambling problems have accessed. However, the concept of problem gambling literacy is virtually non-existent both in Australia and overseas. Consequently, very little is known about the general public's knowledge and beliefs about gambling and problem gambling, or how the community views interventions and services for problem gambling. There are three notable exceptions: (1) the British Gambling Prevalence Surveys (Wardle *et al.*, 2007; Wardle *et al.*, 2010), (2) the ANUpoll “Public Opinion on Gambling” (Mond *et al.*, 2011), and (3) the New Zealand Gaming and Betting Activities Survey (Walker *et al.*, 2012).

The British Gambling Prevalence Surveys (Wardle et al., 2007, Wardle et al. 2010). Researchers developing the British Prevalence Surveys noted that general public surveys assessing attitudes towards gambling have a long history of using ad hoc questions assessing regulations (Orford et al., 2009). They concluded there were no validated measures assessing general public attitudes towards gambling (Orford, 2009). They consequently developed a scale assessing positive and negative attitudes towards gambling. The findings suggested that attitudes towards gambling were generally negative: more people believed that gambling was foolish and dangerous, and of greater harm than benefit to families, communities and society as a whole. However, the majority were against the prohibition of gambling (Orford et al., 2009). These findings were replicated in the ANUPoll “Public Opinion on Gambling”.

The ANUPoll “Public Opinion on Gambling” (Mond et al., 2011). This nationally representative poll of 1213 Australian adults assessed positive and negative attitudes towards gambling (as described in the previous paragraph). The survey also assessed public knowledge and beliefs about whether people would know where to get help and types of help they considered helpful (or harmful) for gambling problems. The survey determined that 40% of the Australian adult population said they would not know where to turn if they or a family member had a problem with gambling. The most frequently nominated resources were a gambling helpline (23%), Gamblers Anonymous (19%) and the internet (16%). The adult population most often thought that psychologists or psychiatrists would be helpful (85%) with family doctors being rated as helpful about as often as self-help guides (49% and 42% respectively). This research indicates that a significant proportion of the public are uncertain about where to get help. Beliefs about interventions for gambling problems differ markedly from beliefs about other health and wellbeing problems such as depression, where General Practitioners are almost always reported as being helpful and the first port of call (Highet et al., 2002).

The ANUPoll also asked about the characteristics of people with gambling problems; and the likely causes of problem gambling. The Australian public associated problem gambling with alcohol abuse, suicide and marital problems, parental neglect and being less compassionate. Having an addictive personality and mixing with people who gamble a lot were seen as likely causes of problem gambling. Overall, public attitudes were conducive to stigma and discrimination against people with gambling problems.

The New Zealand Gaming and Betting Activities Survey (GBAS: Walker, Abbott & Gray, 2012). This national survey of 1774 adults and 199 adolescents aged 15-19 years assessed knowledge and beliefs about the signs and consequences of harmful gambling at individual, household and community levels. The majority of participants said they could describe signs that a person’s gambling was harmful, the ways that gambling might affect a person and their household, and consequences for the wider community. However, when probed for more detail, their knowledge was limited, with most responses focussing on financial harms and addiction. This research is of particular importance because, to our knowledge, there is no other general population study investigating the public’s knowledge and ability to recognise the symptoms and signs of problem gambling. It remains possible that early intervention and prevention strategies for problem gambling are hindered because individuals with gambling problems and/or their close friends and family do not recognise the signs and symptoms until they are severe. This is strongly supported by research indicating that self-identification of problems is a necessary, but not sufficient, part of the process of accessing help (Carroll et al., 2011). These results generally highlight the importance of public health approaches to educate, not only gamblers and their significant others, but also the wider community.

The New Zealand Study also asked respondents about self-help strategies that could be used to prevent or control problematic gambling behaviour. Almost three-quarters of respondents could think of strategies that people could use to avoid problem, gambling, with the most common being setting a dollar limit before leaving home.

Some of the facets covered by Jorm (2012) seem premature for the gambling field. For example, the relevance of assessing the public's knowledge of effective prevention strategies is questionable when there is so little scientific evidence about what actually works. The importance of people having the knowledge and skills to support others has been canvassed for some time (Orford, 1994) and is featured in recent materials from the Gambling Impact Society NSW, including their *Self- Help Guide for Families* (Gambling Impact Society, 2014). An evidence base is not yet available to inform the strategies that could be used by families and friends to assist those with gambling problems. In principle, however, all of the areas of work reviewed by Jorm (2012) in relation to mental health literacy are pertinent to problem gambling literacy.

One feature of the mental health literacy framework sits somewhat uncomfortably when applied to gambling. Much of the approach in mental health literacy and the associated Mental Health First Aid program is oriented towards overtly labelled "disorders" or "illnesses". For example, the Guidelines for Depression First Aid state that "Depression is a medical illness and the person cannot help being affected by depression. It is important to remind the person that they have an illness and that they are not to blame for feeling "down" (Mental Health First Aid Australia, 2008: 2). The concept of "illness" can also be utilised to convey to those with depression that they are deserving of medical attention. Clearly, the framework encompasses a medical model approach. If applied to gambling, the concepts of pathological and problem gambling would necessarily be central to a "gambling literacy" perspective.

The original concept of health literacy as outlined by Jorm (2000; 2012) also covers a range of behaviours that are relevant to the prevention of health problems, such as the disease risks associated with cigarette smoking. There are some instances where a behaviour may be both an important risk factor for disease and a part of a disorder itself. For instance, alcohol use is related to a range of adverse social, psychological and physical health outcomes and therefore features in knowledge of prevention strategies. At the same time alcohol use disorders (abuse and or dependence) can be viewed as illnesses in their own right, and all of the above facets of the mental health literacy framework are of relevance. This raises the question as to whether relationships of gambling behaviour with social, psychological and physical health outcomes should similarly be seen as a separate area of mental health literacy, distinct from the interest in pathological and problem gambling. This would represent a fundamentally different approach to that adopted in the public health frameworks described by Korn and Shaffer (1999), where problem gambling and degree of gambling participation were placed on the same continuum or spectrum.

Summary of the Mental Health Literacy Framework as applied to problem gambling

- There has been over a decade of research and many achievements made in the mental health literacy field, and an even longer history of gains with regard to the public's literacy about physical health problems.
- In contrast, there is very little understanding of the public's knowledge and beliefs about problem gambling, such as their ability to recognise signs and symptoms, or beliefs about treatments, services and service providers.
- The research currently available suggests that the public has a very limited understanding of the nature of gambling problems, primarily focussing on concrete financial harms and addiction. This lack of knowledge about signs and symptoms could hinder prevention efforts.
- The general public views problem gambling differently from other health and wellbeing issues, and does not have the same approach to help-seeking.

6.4 Socio-ecological models

Models termed social-ecological or socio-ecological have been used since the 1970s across a number of different fields although they are particularly popular in areas of health behaviour promotion. One of the earliest forms of the model, the Bronfenbrenner ecological model, was originally applied to human development (and child development particularly). Essentially, this approach elaborated on the concept of environmental influences on the individual child, by conceptualising the environment as being multilayered or multilevel. In the most common form of the model, these layers were depicted as concentric circles around the child and the layers were labelled from inner to outer layers as “microsystem”, “mesosystem”, “exosystem”, and “macrosystem”. As examples, specific features of the microsystem included the family and the child’s school. The outer macrosystem level covered attitudes and ideologies of the culture. Different versions of this model evolved to cover different topics and the labels applying to each system were varied accordingly. For example, the outer layer could cover such things as political or governance influences in areas (such as gambling) where legislation and other regulation is important. The functional part of the model is captured in the layering, in that any layer influencing the child (or whoever else is depicted in the centre) operates through other layers that are closer to the centre. Further, in many versions of the model, effects are viewed as reciprocal and not just operating towards the centre.

Some sense of the popularity of social-ecological models is gained from the diversity of areas in which they have been utilised. Examples include McLeroy *et al.* (1988) and Sokols’ (1992) models of community health promotion. The layers in these systems include intrapersonal, interpersonal, organisational, community and public policy factors. These have been applied to substance use prevention, family violence, child protection, physical activity and injury prevention. Whilst the model itself seems almost infinitely flexible and is, therefore, not something that could be proven or disproven (as with more formal theories), it does have certain advantages. In the health promotion field, it is seen to shift attention away from the individual as being the person with sole responsibility for their own health behaviours. This resonates with the traditional image of people with gambling problems as being to blame for their own behaviour. It also invites thought and discussion as to the range of possible labels for each of the several levels of influence. In this way, the socio-ecological model is inclusive and (obviously) not prescriptive. A third attraction is that the model can serve as a bridge between researchers and/or practitioners from very different disciplines and backgrounds because they can appreciate how their own areas of knowledge and expertise fit within a larger macro perspective. This has a unifying influence which is important in areas of multidisciplinary research.

Given all of the above, it is perhaps surprising that socio-ecological models are not more prominent in the gambling literature. This may well reflect the way the approach has been subsumed within the broader public health meta-framework. Messerlian *et al.* (2004); (2005) did draw on McLeroy *et al.*’s (1988) ecological perspective when developing their own public health perspective on youth gambling problems but this is a rare example in the gambling field. It is possible that the agent host environment model incorporated into Korn and Shaffer’s (1999) original paper has inhibited the inclusion of the more relevant socio-ecological view of the environment in subsequent literature on gambling.

Summary of the socio-ecological framework

- Socio-ecological models have been applied across a number of areas of health behaviour promotion.
- The emphasis on environmental influences sits well with contemporary thinking that individuals do not carry sole responsibility for their problem gambling.

- The use of a multi-layered model not only prompts thought on what environmental factors are relevant to gambling but also opens up consideration of how those layers interact with each other.
- The inclusion of community and public policy layers shifts the emphasis to broader societal factors and beyond the confines of gambling technology and venue characteristics.

6.5 Social marketing

Definition

The notion that health and healthy behaviour can be viewed as social and cultural objectives that can be merchandised is largely believed to date back to the early 1950's (e.g. Wiebe, 1951-1952). However, the term "social marketing" was not directly used with regard to social change and causes, incorporating health, until 1971, when Kotler and Zaltman defined it as:

"The design, implementation, and control of programs calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution and marketing research" (Kotler and Zaltman, 1971: 5).

Since this time many definitions of social marketing frameworks have evolved, but Gordon *et al.* (2006: 1134) suggest the following as most useful:

"Social marketing is the application of commercial marketing technologies to the analysis, planning, execution and evaluation of programs designed to influence the voluntary behaviour of target audiences in order to improve their personal welfare and that of society" (Andreasen, 1995 Gordon *et al.*, 2006: 1134).

Gordon *et al.* (2006) discuss four key features of social marketing demonstrated by this definition including that (i) it involves social marketers trying to induce behaviour change via "exchange", where the customer gains some kind of benefit from changing their behaviour, (ii) the behaviour change is voluntary and is not a result of coercion or enforcement, (iii) marketing techniques are utilised, and (iv) the ultimate goal is to improve individual welfare and society as opposed to gaining benefits for organisations undertaking the marketing exercise.

In their 1971 paper, Kotler and Zaltman (1971: 5) noted that social advertising was so commonly used that it constituted a feature of American society. Media campaigns are an important component of social marketing framework, but they are situated within a broader context. For instance, in 1991 Hastings and Haywood (1991: 136) described seven broad themes underlying social marketing and discussed their relevance to media communication in health promotion. Social marketing approaches: (1) are focused on the consumer, particularly on understanding and meeting their needs; (ii) meet people's wants and needs via a process of voluntary and mutually beneficial exchange (described above); (iii) recognise both the internal and external environments and initiatives are accordingly developed; (iv) seek to understand surrounding threats and opportunities, and match these with capabilities and resources; (v) involve setting practical, measurable and realistic objectives; (vi) target appropriate population groups (the target market), deciding on the most effective strategies for that group, and the (vii) involve the formulation, implementation, monitoring and evaluation of a marketing mix. The latter embodies the "Four P" marketing framework, where marketers aim to develop the "right product backed by the right promotion and put in the right place at the right price" (Kotler and Zaltman, 1971: 7). With regard to health, the Four P framework can be seen as follows:

Product: refers to the set of benefits associated with the desired behaviour or service use.

Price: refers to the cost or sacrifice exchanged for the promised benefits.

Place: refers to where and when the target market will perform the desired behaviour, acquire any related tangible objects and receive any associated services, and

Promotion: includes the types of persuasive communication used to convey the benefits (such as advertising or in person promotion) and associated tangible objects and services, pricing strategies, and place components (Grier and Bryant, 2005: 323-324).

Importantly, social marketing approaches also have the capacity to target groups identified as having priority or vulnerability. As mentioned above, when developing health promotion strategies it is important to give consideration to external influences (e.g. technological, political, cultural, economic) as well as influences that come from within the health promotional structure. Gordon *et al.* (2006) stressed that social marketing's emphasis on society means that approaches can apply to and target specific groups in the population including professionals, organisations and policy makers in addition to individual behaviour. The former are often outside the health promoters' control but can have direct implications for communication strategies. For instance politicians might be legitimate targets for a mass media campaign (Hastings and Haywood, 1991).

Kotler and Zoltman (1971) noted conspicuous variability in the success of media campaigns in effecting social and behavioural change, and largely assigned failure to the tendency of social campaigners to use advertising as the primary if not the only means of accomplishing social objectives. Grier and Bryant (2005) further noted that many public health professionals have an incomplete view of social marketing, that it extends beyond social advertising, promotional and communication activities. For instance, it also involves the distribution as well as the promotion of commodities (such as condoms) (Lefebvre, 2011), and the upstream lobbying of politicians and retailers (Stead *et al.*, 2007). While public health has embraced advertising and promotional approaches, and is increasingly informed by consumer research, little emphasis has been placed on comprehensive interventions that integrate the full marketing framework.

Social marketing addressing related health and wellbeing issues

There is a large body of research claiming to evaluate the effectiveness of individual social marketing programmes targeting health, however reviews pooling findings and discussing implications are less common. These reviews tend to be limited by a lack of consistent methodology and information about included studies (Stead *et al.*, 2007). Both the reviews and included studies use varying conceptualisations of social marketing (Stead *et al.*, 2007). For instance, social marketing in family planning reviews is often used to mean the free distribution of condoms whereas in other reviews it is "misconstrued as simply social advertising or communications" (Stead *et al.*, 2007: 128). Stead *et al.* (2007) completed an extensive review of adult and youth social marketing interventions covering alcohol, tobacco and other drugs as well as physical activity. This review included studies meeting six criteria: having (1) had a specific behaviour change goal; (2) used consumer research to inform the intervention; (3) considered different segmentation variables and targeted interventions appropriately; (4) used more than one element of the Four P's, as well as interventions targeting policy and person change (the latter might include the provision of training to people); (5) considered what would motivate people to engage voluntarily with the intervention and offer them something in return; (6) considered the appeal of competing behaviours and used strategies that seek to minimise this competition. They excluded interventions that only utilised mass media campaigns (social advertising) as they were judged to not have utilised the marketing mix sufficiently. Overall, the review argued there was "reasonable evidence"

that interventions utilising social marketing approaches to address substance use and physical activity can be effective, particularly in the short term. There was also evidence that interventions targeting upstream factors, including changing the behaviour of retailers, policy makers and professionals were effective. However, two main caveats were given. First, the effects of interventions preventing youth substance use tended to taper off, only a few still displayed effects two years after the intervention. Second, the results were more mixed regarding adult smoking cessation.

The application of social marketing framework to problem gambling

Over the past decade, only a small body of work has described social marketing targeting the prevention of gambling problems. Very little of this research has actually evaluated the efficacy of such campaigns. Perese *et al.* (2005) carried out an extensive literature review with the intention of informing social marketing strategies to prevent and minimise gambling harm. This review covered (i) descriptions of social marketing, (ii) public health implications of gambling and problem gambling, (iii) gambling behaviour and perceptions of gambling behaviour, (iv) indicators of behaviour change, (v) marketing strategies used by gambling industries, (vi) social marketing approaches to prevention and (vi) services for preventing and minimising gambling harm in New Zealand. They noted “a dearth of information on the application of social marketing specifically to preventing and minimising gambling related harm” (Perese *et al.*, 2005: 25). They also noted that previous social marketing efforts targeting a range of other public health topics had been successful in both reaching population groups and improving behavioural outcomes. While they were optimistic about applying social marketing to the prevention of problem gambling, they also argued that “social marketing approaches were most effective when conducted in a climate supported by legislation and policy” (Perese *et al.*, 2005: 120). This re-iterates the general criticism of social marketing as having historically paid too little attention to environmental factors, and targeting policy makers too infrequently (Grier and Bryant, 2005). Perese *et al.* (2005) concluded that the efficacy of social marketing campaigns addressing problem gambling must be rigorously evaluated.

Other papers have discussed the application of social marketing approaches to preventing problem gambling. For instance, Powell and Tapp (2009), described their paper as a “present[ation] and debate [of] the theoretical case for the use of social marketing to help reduce problem gambling in the public health context in the United Kingdom”. They concluded:

“Reducing problem gambling is difficult. Problem gamblers are often living unsatisfactory lives and lack the kind of wealth, work or extra-work activity rewards that professional people may take for granted. Gambling affords a thrill, an escape from humdrum everyday realities, and is fuelled by the mistaken belief that gambling is profitable, and a means to solve one’s financial problems. Arguably, health education on its own is limited in what it can achieve with respect to changing problematic gambling behaviours. What makes social marketing so compelling is that it starts with reality, as perceived by the client, and understands that any intervention must emerge from that reality. The self interest of the problem gambler should strongly guide the intervention—with a recognition that their self interest may well differ from pre-conceived notions held by otherwise well meaning professionals. An offer of some sort—a proposition—could be made in which a trade off may be sought with the gambler in return for behaviour change. Furthermore, the programme should be designed with the ideal of building relationships, such that long term behaviour change is effected. It is hoped that these ideas are of interest to professionals wishing to add to the armoury of health education or legislation” (Powell and Tapp, 2009: 9-10).

Notably, this study did not describe any research evaluating social marketing campaigns specifically addressing problem gambling. In addition the authors did not present any evidence backing up their characterisation of problem gambling.

A three stage social marketing campaign was run in New Zealand from 2007 through 2013 as part of New Zealand government's six year strategy for *Preventing and Minimising Gambling Harm* (National Social Marketing Centre, 2014). The main objective of "Kiwi Lives" was to "reduce the incidence of problem gambling and the impact of gambling harms in Aotearoa/New Zealand". The first stage comprised a mass media campaign aiming to "de-normalise harmful gambling behaviour in society by increasing discussion and debate about gambling and gambling harms" (National Social Marketing Centre, 2014: 6). A television advertisement sought to convey a central message that "problem gambling affects us all, we all lose". The second stage involved three different television advertisements and print media communicating the message that "together we can make it right". The advertisements depicted real life situations showing positive steps people, families and communities can take to overcome harm (Hall and Dickinson, 2009). In the third stage, radio and television advertisements were used to target people at higher risk of experiencing harms from gambling and people exposed to gambling problems who might be able to intervene before an individual's gambling becomes harmful (Research New Zealand, 2013). The core message of the third stage was "choice not chance". The advertisements showed situations where characters decided to "say something" to someone close to them, when they noticed their gambling might be causing them harm. The campaign also used radio advertising in Samoan, Niuean and Tongan languages to target Pacific and Maori peoples (National Social Marketing Centre, 2014).

The campaign strategy was designed to use a mixed marketing approach, going beyond advertising (Gordon and Moodie, 2009). For instance, they used a segmented approach to deliver campaign executions and services (Gordon and Moodie, 2009) and the objectives included "creating a supportive environment for public health and community action" (Hall and Dickinson, 2009: 10). The campaign has included the development of a website and web media for people with problems and those close to them, promoted the Gambling helpline, as well as promoted and provided more support and resources to service providers, particularly in their interactions with clients and the general public. In-venue and public health resources have also been provided (National Social Marketing Centre, 2014).

Evaluations were conducted on each stage of the "Kiwi Lives" campaign. Broadly speaking the evaluations comprised telephone surveys with large representative samples randomly drawn from the general community just after the campaigns had aired. The interviews covered the public's ability to recall the campaign and the messages, and attempted to measure change by asking participants how much they agreed to a range of statements covering how the advertisements might have changed their attitudes or behaviours. For instance, Gordon and Moodie (2009) concluded that the evaluation of the first stage of the campaign was largely successful on the basis that it was generally perceived to be (i) thought provoking, (ii) believable and (iii) relevant (2009). Similarly the second and third stage evaluations reported excellent recall and communication of messages (Hall and Dickinson, 2009; National Social Marketing Centre, 2014).

The evaluation reports argued that the campaigns had a greater impact on people who knew someone affected by gambling problems. For instance, in stage two participants who saw the ads and who knew someone affected by problem gambling were more likely to agree to statements about being more concerned, having greater understanding and feeling more able to do something about problem gambling as a result of seeing the advertisements than people who did not know someone affected by problem gambling (Hall and Dickinson, 2009). However, it is important to note that these evaluations were cross sectional and as such could not assess actual change in behaviour or attitudes. In stage three, 38% of respondents who had been exposed to some form of gambling harm and were aware of the campaign reported having taken some form of action as a result of the advertising (Research New Zealand, 2013). While at face value this statistic is somewhat appealing, it is difficult to interpret because there was no comparison group. That is, there is no way of determining the proportion of people not having seen the campaign who say they would take action. Furthermore, what people hypothetically say they would do is not a strong reflection of what they actually would do. Somewhat more

reassuring was evaluation of data from service providers suggesting an increase in the use of services. For instance calls to gambling helpline increased approximately 30% when stage two television advertisements were shown (National Social Marketing Centre, 2014).

Overall, to date evaluations of the Kiwi Lives campaign have been undertaken using social marketing research perspectives and methods, and they tend to lack academic rigour. It is interesting to note that a baseline problem gambling prevalence survey (n=12,488) was conducted in 2006/07 and comparison with the next prevalence surveys will allow change over time in gambling problems, behaviour and service use to be assessed. While it is not possible to determine whether any changes over time directly result from the campaign, improvement over time would certainly complement the findings of the cross-sectional research described above.

In another recent study Thomas *et al.* (2012) sought to explore perceptions about social marketing campaigns addressing problem gambling in Australia. In this study, 100 gamblers including varied levels of problem gambling were interviewed, and their awareness of, and interactions with, a range of existing social marketing initiatives seeking to prevent gambling risk and harm were assessed (Thomas *et al.*, 2012: 126). Key findings from these interviews included:

- The most commonly recalled messages were television commercials promoting help services and a “gamble responsibly” tag included at the end of advertising for gambling products.
- Participants generally perceived social marketing messages as saying that people should take individual responsibility for their gambling, that problem gambling was “serious but unusual”, and that the solution to problem gambling was “help seeking and counselling” (Thomas *et al.*, 2012: 128).
- Non-problem or low-risk participants reported “switching off” and those at moderate-risk or problem gambling “found it difficult to identify with, or act upon, campaign messages” (Thomas *et al.*, 2012: 129).
- Social marketing addressing problem gambling did not have the same appeal as gambling advertising and gambling venues, with social marketing messages being “drowned out”, e.g. social marketing messages in gambling venues were seen as hidden compared to the “sparkle that the pokie venues try to put across” (Thomas *et al.*, 2012: 130).
- There were unforeseen consequences of social marketing campaigns. In particular, stigma was experienced by moderate-risk and problem gambling participants, who perceived “that responsible gambling messages promoted the perception that problem gamblers were at fault for their irresponsible gambling”. Taglines such as “people who seek help end up gambling a lot less” were also perceived by people with gambling problems as implying it is “easy” to recover (Thomas *et al.*, 2012: 131).

As previously noted, social marketing can target specific vulnerable population groups, such as young people. In 2005, Byrne *et al.* reviewed North American literature on substance use campaigns targeting youth, in terms of their efficacy and transferability to gambling (Byrne *et al.*, 2005a). Issues addressed included tobacco use (12 studies), alcohol use (7 studies) and drug use (6 studies). The success of campaigns was evaluated based on measures assessing changes in attitude, knowledge and behaviour. Byrne *et al.* (2005a) proffered recommendations for youth problem gambling prevention campaigns, including the need for messages to de-normalise gambling behaviour and address industry-related issues. For example “tobacco counter-marketing campaigns have [called] attention to the actions of tobacco corporations, empowering youth to defy the industry by choosing not to smoke” (Byrne *et al.*, 2005a: 694). Other recommendations included tailoring messages to appeal and reflect the gambling engagement of specific population groups, such as those in specific age, gender, or cultural groups. Byrne *et al.* (2005a: 695) also argued that television was “an effective medium for message dissemination”. However, they cautioned that more research was needed in order to ensure messages adopted from non-gambling campaigns would be valid for problem gambling and called for rigorous evaluation

of problem gambling campaigns. Overall, Byrne *et al.* (2005a: 696) concluded that such campaigns “have the potential to affect positive change in a large number of young people”.

In 2006, Messerlian and Derevensky conducted focus groups with young people to find out about their exposure to social marketing campaigns and to gauge their preferences regarding youth gambling social marketing campaigns. A total of 175 young people were recruited from schools. This study found that young people had a strong recall of social marketing campaigns, particularly those targeting smoking and drink-driving. However, they had an aversion for “don’t do it” messages and “preaching about the harms of high-risk behaviours”, instead preferring campaigns that were informative or engaging (Messerlian and Derevensky, 2006: 302). The authors presented an optimistic outlook for social marketing as a strategy to address youth gambling, qualified by the following comment:

“In order to be effective, however, social marketing as a public health strategy needs to be part of an integrated youth gambling prevention approach which includes the implementation of healthy public and social policy as well as the development of science-based prevention programs”. (Messerlian and Derevensky, 2006: 305)

It is important to note, however, that Messerlian and Deverensky (2006) did not present any research evaluating the efficacy of campaigns specifically targeting the prevention of problem gambling amongst youth.

Summary of the social marketing framework

- The social marketing framework is informed by a broad range of marketing strategies and approaches and is broader than promotional communication practices. For instance, it incorporates the distribution of commodities, lobbying of politicians and targeting the behaviour and knowledge of retailers.
- Social marketing has the capacity to reach a large number of people and can target specific groups in the population including vulnerable and influential people.
- There is a substantial literature noting that social marketing campaigns might be appropriate to address problem gambling. However, there is a paucity of empirical evidence assessing the efficacy of social marketing campaigns for preventing harms from problem gambling.
- Social marketing campaigns may only be effective if undertaken in concert with other public health and policy interventions.
- Overall, there is a strong need for the development, evaluation and improvement of social marketing campaigns addressing problem gambling.
- Unintended negative consequences of social marketing campaigns, such as stigma, need to be carefully assessed and avoided.

Chapter 7: Potential lessons from the example of tobacco control

In Chapter 5 of this review, it was pointed out that tobacco control was the past great public health achievement with closest relevance to gambling. As well as the obvious parallel in that both areas involve a recreational activity, they are also bracketed within a broader conceptualisation of “addictive behaviours”. Both have the feature of bringing specific and serious harms to a proportion of “users” and both have the potential to cause significant harm to others. These aspects are reflected in substantial social costs and attempts have been made to quantify the economic burden arising from tobacco use and problem gambling respectively. The two activities also feature strongly in considerations of economic benefits, which incorporate the profits and community benefits (notably employment) arising from the industries involved and, specifically, the government revenues obtained from taxing these activities. It is beyond the scope of this review to delineate more precisely the similarities and differences between the two activities and how these might influence the transfer of knowledge of health promotion and prevention from one to the other. The similarity appears sufficient to justify consideration of what lessons might be taken from tobacco control with potential for use in the application to problem gambling, whilst being mindful that differences between these activities might moderate any direct transfer of knowledge.

A concise history of tobacco control was provided by West (2006), including the major components of the control strategy (i.e. influencing the behaviour of users or potential users, limiting the activities of the tobacco industry, and reducing harmful use) and thirteen approaches that “have restricted growth in, or led to a reduction in, tobacco use”. The thirteen approaches are outlined below in the order presented by West (reflecting his judgment of their relative impact, with the most important first) and each is considered briefly for relevance to gambling.

7.0 Social coercion

West (2006: 126) illustrated the key importance of social coercion by pointing to the taboo against women smoking in many parts of the world. However, he also referred to “more subtle social coercion” playing a part in the decline in smoking prevalence in parts of the developed world. The taboo around women’s participation seems pertinent to gambling in the Australian context. Whilst many women gamble, there are very marked sex differences across different gambling activities and very few women spend money on sports betting, horse and greyhound races, and casino table games. The term “taboo” may be overly strong in this context but there are clearly significant social expectations and social constraints at play. It is also likely that attitudes and expectations about children’s gambling are as influential (or more so) than legislation and regulation of underage gambling. The clearest lesson is that health promotion messages and health education are not just about targeting individuals at risk (gamblers or even heavy gamblers) but can influence general community attitudes and expectations which will, in turn, constrain gambling behaviour.

7.1 Education and persuasion

West (2006) highlighted knowledge of the harms caused by smoking and advocacy of social norms (as in the previous section) as key aspects of education and persuasion. Although, drawing attention to their probable major role in decreasing smoking prevalence, he also pointed out the lack of evidence for the effectiveness of specific campaigns and warning materials. The lack of evidence for the impact of campaigns conducted in isolation is echoed in other systematic reviews. A Cochrane review of media interventions for smoking cessation in adults concluded that “comprehensive tobacco control programmes which include mass media campaigns

can be effective in changing smoking behaviour” (Bala *et al.*, 2012: 2). However, the conclusions were tempered by reference to the variability of findings across studies and the difficulty of quantifying the “specific contribution of the mass media component” (Bala *et al.*, 2012: 11). The authors pointed out that “mass media campaigns are rarely the only component of a community-based smoking cessation intervention” and that “it is often difficult or impossible to disentangle the contribution that the separate elements make to the overall impact of a comprehensive tobacco control programme” (Bala *et al.*, 2008: 9).

7.2 Tax increases

The cost of smoking influences consumption and has a differential impact on rates of smoking across populations and across population sub-groups within populations. Essentially, increasing the price of tobacco reduces consumption and does so more substantially in groups with lower purchasing power. The use of pricing as a control strategy is tempered because the reduction mostly occurs in number of cigarettes smoked rather than the number of smokers, and people who reduce their quantity compensate by smoking each individual cigarette more intensively. How much price manipulation could influence gambling is unclear. Many gamblers attempt to limit their expenditure by nominating a periodic budget. For gamblers who are unable to regulate their expenditure in this way, any increase in unit cost (e.g. per play or per unit of time) will lead to a faster rate of loss. This is unlikely to have an effect on reducing expenditure and could plausibly lead to an increase. The parallel between tobacco control and gambling appears less valid in regard to price control.

7.3 Smoking restrictions

Bans on smoking in workplaces and enclosed public places had made an impact on smoking prevalence in a number of countries prior to 2006 (West, 2006) and more countries, including all States and Territories in Australia have since followed suit. Many countries also have laws restricting smoking in outdoor areas, especially premises for eating and drinking. Restricting gambling on a spatial basis is a very different concept from smoking bans. A large proportion of gambling is confined to specific locations by necessity, e.g. use of gaming machines, and the level of expenditure through on-line or other remote means is currently still very low in Australia. Future restrictions may well address these newer modes of gambling. Currently, regulation of gambling outlets occurs through the restriction of licenses for premises. This can be used to limit the density of outlets and to constrain the availability of products in certain locations, such as areas of low socio-economic status. On a day-to-day basis, limits on gambling are applied through opening times rather than spatial restrictions. That said, many gambling activities are available to a large proportion of the population for a substantial proportion of the day.

7.4 Provision of smoking cessation treatments

A number of countries have introduced national smoking cessation treatment programs and a number of these are funded centrally rather than on a user-pays basis. The effectiveness of such programs is obviously dependent on the availability and affordability of efficacious treatments (such as nicotine replacement therapy). At first sight, the provision of problem gambling treatment services may seem to be a parallel

approach to gambling control. However, the latter provision is more of a last line of treatment for those who have experienced significant harms (or whose families have experienced harms) as a consequence of their gambling behaviour. There is no coordinated strategy to provide for people who may wish to cease gambling or substantially reduce their gambling but who do not conform to the profile of someone with gambling problems. Rather, the detection or self-detection of problem gambling is the typical first-line approach to pointing people in the direction of appropriate help. The area of self-management or assisted management of gambling behaviour is relatively undeveloped and a pre-requisite of a large-scale treatment program would be the development of affordable and effective interventions.

7.5 Restricting tobacco promotion

In reviewing the impact of tobacco promotion restrictions, West (2006: 128) comments that there “is little evidence that restrictions short of a comprehensive ban have any effects.” However, he points to the importance of restricting tobacco promotion in those non-Western markets where smoking is less common and likely to become more affordable over time. Gambling is long-established in Australia and problem gambling shares with smoking the feature that people who have already become addicted are not likely to be influenced by advertising. Gambling promotion is extremely varied compared to smoking promotion, with some products advertised extensively through print and TV media while others (like EGMs) being promoted less overtly. The restriction of promotion may be more relevant to some types of activities than others, particularly for newer forms of gambling. This is a topic that has already created concern and public debate in relation to sports betting and on-line forms of betting. West (2006) did not comment on the impact of tobacco promotion on young people specifically, either in terms of their current smoking or their future behaviour, yet this has been seen as an especially important area by others (Sargent *et al.*, 2000). Young people have been exposed to tobacco advertising and other promotion when they are below the legally permitted age to purchase cigarettes. A similar situation currently exists for gambling advertising and promotion in Australia.

7.6 Restricting sales of tobacco to minors

West (2006: 129) argued that it is not clear whether or not restricting the sale of tobacco to minors has had a significant impact, noting “One difficulty is that children often obtain cigarettes from older friends or siblings or from vending machines”. For some gambling activities, it is logistically simpler to apply restrictions to young people, although specific regulations and monitoring may be needed to enact these restrictions. Similar to tobacco, it is also possible that adults may be encouraging or actively assisting under-age betting in some instances. These adults could be the target of health promotion strategies.

7.7 Stop-smoking materials

West (2006: 129) commented that there “is little evidence to date that booklets, leaflets or other self-help materials have a significant impact on tobacco use”, citing the findings of a Cochrane review (Lancaster and Stead, 2005) of a potential 1% impact on smoking cessation. He further referred to the lack of evaluation and quality control of internet sites for smoking cessation, an issue that has also been prominent in e-treatment (i.e.

services and information delivered or enhanced online) and self-help for mental health problems (Jorm *et al.*, 2013). The situation is likely even more problematic in regard to gambling where little is known about the efficacy of self-help strategies or the most appropriate ways of disseminating these.

7.8 Incentivising smoking cessation

In spite of the fact that smoking cessation has an immediate intrinsic incentive (less money spent on tobacco), there has been interest in providing additional extrinsic incentives, such as through Quit and Win contests (Hey and Perera, 2005 Cochrane review). A major difficulty with this approach is that it is open to misuse (West, 2006) and there is a general view that the approach has not been significant in tobacco control. Such incentivisation may be more relevant to weight loss programs, either to reward individuals or groups of people for achieving particular targets (Benedict and Arterburn, 2008; Finkelstein *et al.*, 2007) and there is more transparent verification of success. Gambling has the same potential intrinsic incentive as smoking cessation in that reduction or cessation of gambling would reduce expenditure. How people use the time gained from this and whether additional costs are incurred is an open question. It would be a challenge to envisage how external incentives could be used to reward reductions in gambling activity, other than as an adjunct to more formal treatment. There may be ways in which mutual reinforcement could be used in the context of groups trying to attain targets of gambling reduction but this would require group cohesion which itself is challenging for behaviours that are solitary in nature.

7.9 Preventing mis-claiming by the tobacco industry

Specific examples of mis-claiming for smoking were the marketing of “low tar” cigarettes and the introduction of filter tips, neither of which had significant impact on the intake of tobacco toxins (West, 2006). Although the prevention of mis-claiming is very low on the list of the thirteen approaches to tobacco control, in terms of impact, this largely reflects the history of failure to combat such claims rather than a conclusion that preventing these claims would have made no difference. Potentially, it would be possible to scrutinise claims made for gambling, either in regard to the general benefits of gambling behaviour (i.e. healthy gambling) or more specific claims around particular gambling activities (e.g. the likelihood of winning). This issue is perhaps broader than described by West (2006) because there are general public perceptions (not just gamblers’ perceptions) around concepts of “chance” and “luck” that have not necessarily arisen from claims by the industry, but are commonly held views. Something comparable occurred with tobacco, where smoking was once broadly perceived as a healthy activity.

7.10 Preventing engineering of tobacco products to promote addiction

Over time the engineering of cigarettes has radically changed. Such changes have increased the ease and palatability of smoking, effectively increasing their addictive potential. West (2006: 130) states bluntly that “there has been no attempt to regulate the tobacco industry to prevent the engineering of cigarettes to make them more addictive”. There are similarities for some gambling products, especially EGMs where considerable

research and technological innovations are used to produce machines that are more attractive to players. The characteristics of machines that encourage persistent play are well documented. Preventive efforts are made to regulate the introduction of new features. Fourteen prohibited features for EGMs are listed in the NSW Office of Liquor, Gaming and Racing's Gaming Machine Prohibited Features Register revision F (November 2011)². So, the position for gambling regulation is not as straight forward as outlined for tobacco control.

7.11 Requiring the tobacco industry to reduce the harmfulness of their products

While noting that inhaling tobacco smoke will always be harmful, West (2006) also noted that cigarettes can be re-engineered in a manner that reduces their harm. For instance, some of the known carcinogens can be removed and the tar-to-nicotine ratio can be reduced. Tobacco companies have been investing in some such products but the rate has been slow, probably "slower than it would be if governments were to lower absolute limits" on cigarette smoke toxins (West, 2006: 130). There is no simple gambling equivalent of the toxins found in tobacco that are inhaled by smokers. Initiatives that reduce the harmfulness of gambling product tend to overlap initiatives preventing the promotion of addiction (covered by the previous section). Examples include the regulation of gaming machine features and the introduction of \$1 maximum bets on EGMs.

7.12 Promoting switching to less dangerous forms of nicotine intake

Again, there is no simple gambling equivalent of the significance of nicotine in tobacco control. That said, there is merit in considering what psychological rewards are obtained through gambling and, therefore, what other activities might substitute for gambling when it becomes problematic for an individual. Substitution is an integral part of some therapies for problem gambling and is generally considered most pertinent to sustained recovery and the prevention of relapse. Whether it has a potential role in the prevention of onset of problem gambling is less clear.

2 <http://www.olgr.nsw.gov.au/pdfs/Gaming/GM%20Prohibited%20Features%20Reg%20F.pdf>

Chapter 8: The key components of a health promotion approach

This chapter of the report draws together the components of a health promotion framework that have been identified throughout previous chapters and discusses the suitability of those components for a health promotion approach to gambling and problem gambling in the current Australian context. Included in this are recent examples of the way in which some key players on the Australian landscape have advocated approaches to prevention and, in some instances, specifically recommended a public health approach.

8.0 A comprehensive and co-ordinated strategy

No preventive strategy could ever be held to be totally comprehensive; however much is achieved there is always more that can be attempted. Regardless, the most important facet of a health promotion approach is that it involves many features, and these can be brought into play simultaneously and, hopefully, in a co-ordinated fashion. Looking back over major public health achievements of recent times, none has come about through the implementation of a single free-standing initiative. Even the more straight-forward interventions (such as water fluoridation and vaccinations) require tackling the logistics of program implementation and addressing public knowledge beliefs and acceptance of such programs. With regard to gambling, there is no evidence currently suggesting that a single initiative is likely to substantially reduce the incidence of problem gambling so any meaningful reduction is more likely to arise from the collective impact of a number of initiatives. Further, there are repeated indications in the literature that individual initiatives have a greater impact when embedded within a multifaceted and co-ordinated framework. A Cochrane review of mass media interventions for smoking cessation emphasised this point throughout the report (Bala *et al.*, 2008). This article noted that “previous reviews of the literature lend some support to tobacco control media campaigns as a component of comprehensive tobacco control programs” (Bala *et al.*, 2008: 3). The conclusion of the review confirmed this point, “there is evidence that comprehensive tobacco control programmes which include mass media campaigns can be effective in changing smoking behaviour in adults” (Bala *et al.*, 2008: 9).

8.1 It’s not just problem gambling – a dynamic perspective

Within the public health approach there is widespread support for the idea that addressing problem gambling requires more than just treating people with serious disorders. A dynamic model of the development of gambling problems indicates that the incidence of new problems will continue to feed into the pool of those with problems at any one point in time. Treatment can reduce the duration (chronicity) of problem gambling and therefore can help reduce the prevalence in the population, but it also makes sense to attempt to reduce the incidence of problems. Incidence can be further sub-divided into new problems (i.e. people who have not previously had a gambling problem) and relapse (i.e. people who have had a problem previously). Although this report was not intended to cover issues of effective treatment for problem gambling, the question of recovery and relapse is a necessary component of the dynamic model contributing to prevalence in the population and should be recognised as complementary to issues of universal, selective and indicated prevention, as incorporated into the Mrazek and Haggerty (1994) health promotion framework. The current *Client Longitudinal Study* project underway at the ANU Centre for Gambling Research will hopefully lead to greater knowledge of recovery and relapse. The complementary need to understand more about the incidence of first-time problem gambling is challenging for research due to low incidence rates and would require appropriate designs to be feasible with realistic resources.

8.2 Universal, selected and indicated prevention

A public health approach to gambling and problem gambling and relevant existing health promotion frameworks all point to a graduated set of initiatives where more intensive approaches (e.g. treatment) can be provided for relatively small sections of the population and less intensive approaches are applied to larger sections. This largely comes down to cost, although coupled with a sense of justice where individuals with more serious health problems are generally considered more worthy beneficiaries of intensive services. The value of considering preventive strategies under headings of “universal”, “selected” and “indicated” (in reality these are labels applied along a continuum) lies not just in helping develop different strategies, but it also ensures that these strategies are in harmony with and reinforce each other.

8.3 Risk and protective factors

Throughout the literature on preventive and broader public health approaches to health problems there are references to risk and protective factors and to high-risk (or vulnerable) population sub-groups, and the value of identifying risk factors as a guide for directing preventive efforts is often mentioned (Volberg and Abbott, 1994). There are three ways this information can be helpful.

First, epidemiology can help elucidate causal processes leading to the development of health problems and may therefore contribute to the design of preventive initiatives and treatment. However, to date, studies of risk factors have not assisted greatly in the development of prevention for problem gambling. This is illustrated very clearly by the Victorian State Government’s *A guide to using a health promotion approach to problem gambling* (Victorian Department of Justice, 2011). This guide places considerable emphasis on the importance of addressing the “social determinants of health” whilst acknowledging that “there is still a lot to learn about the social determinants of problem gambling, as it is a relatively new field of both research enquiry and health promotion” (Victorian Department of Justice, 2011: 13). In practice, this guide provides very little to support a health promotion strategy based on evidence of social determinants. Most of the factors discussed are as likely (or more likely) to be consequences rather than determinants of problem gambling including social exclusion, unemployment, other mental disorders, social supports, and (curiously) nutrition. The guide has little to say about the huge variation in prevalence of gambling problems by age, sex, and education (Davidson and Rodgers, 2011).

The second potential use of risk factors is to point to where preventive efforts could be targeted. This could be viewed in a geographic sense or it could apply to the socio-demographic targeting of approaches, including the importance of age, sex and education as mentioned above (e.g. directing greater resources at younger men). This approach is an obvious way of incorporating selective intervention (Gordon, 1983, 1987; Mrazek and Haggerty, 1994) into a health promotion framework for problem gambling.

The third use is in the tailoring of preventive approaches to suit the different segments of the market, such as the wording of printed information or the slogans adopted for advertising campaigns. Whilst Korn and Shaffer’s (1999; Shaffer and Korn, 2002) early model referred to important population segments, the translation of this knowledge using social marketing principles has only recently become a significant feature of preventive intervention for problem gambling (e.g. Byrne *et al.*, 2005a; Gordon and Moodie, 2009; Perese *et al.*, 2005).

8.4 A continuum of risk and a continuum of harm

One area of confusion over the public health approach to gambling and problem gambling is that the ubiquitous representation of the continuum of gambling has reflected conceptually distinct dimensions. There are at least three dimensions (related yet different) covering level of participation in gambling (e.g. light/heavy, infrequent/frequent), level of harms (i.e. difficulties currently experienced arising from gambling) and level of risk. The last indicates the likelihood that an individual will progress to a level of problem gambling in the future. Leaving aside consideration of level of participation for now (see following heading) the pragmatic way of addressing risk and harm as continua is to take both of these concepts on board and view them separately. Within a dynamic model, individuals with the same level of current harms may be on quite different trajectories. One could be receiving intensive professional help and be on a path to recovery while another could be moving in the opposite direction and be at high risk of making the transition to the level of a recognised gambling problem (however defined). Clearly, current harm and risk will be correlated with each other in the general population but there is value in considering both when developing preventive strategies.

8.5 Responsible gambling

Guidelines for responsible gambling are an important goal, but we do not currently have the evidence base to achieve this and accumulating sufficient evidence will be a long quest. However, a handful of studies from Canada and the U.S. now at least indicate that the development of empirically derived quantitative responsible gambling limits is feasible (Currie, 2006; Currie *et al.*, 2011; Currie *et al.*, 2008a; Currie *et al.*, 2008b; Currie *et al.*, 2009; Quilty *et al.*, 2013; Weinstock *et al.*, 2007; Weinstock *et al.*, 2008). In these studies responsible gambling limits were estimated by modelling how measures of gambling intensity relate to problem gambling, as measured by the PGSI. These studies found similar but not identical responsible gambling limits. Synthesising findings across studies, such guidelines might include: (i) gambling no more than 1 to 5 times a month; (ii) spending no more than \$85(CAN) per month on gambling; and (iii) spending no more than 1% to 3% of gross monthly income on gambling activities. However, only the Problem Gambling Severity Index and no other measures of harm have been explored. This stands in stark contrast to research on alcohol related harms, which has incorporated injury, motor vehicle accidents and violence as forms of alcohol related harm. Furthermore, differences in the availability and types of gambling activities means that research undertaken in the U.S. and Canada may not be relevant in the Australian context.

The attractions of guidelines comparable to those for responsible drinking are obvious in that they are fairly simple to communicate and aspects, including the fundamental concept of a standard drink and the notion of special or vulnerable groups, have been absorbed into common knowledge in Australia and many other countries with similar guidelines. Such guidelines are therefore in the “further research is needed” space, but it is important that the direction of future research be guided by the public health approach. For instance, responsible drinking guidelines are not in place primarily to reduce problem drinking, but to address a whole spectrum of potential harms. It is particularly important that a wide range of social, psychological and health outcomes (including outcomes relating to families) also be incorporated into gambling research.

8.6 Addressing multiple harms

In keeping with the preceding points, harm-minimisation strategies must similarly address a range of possible harms and these may vary considerably between individuals. For some gamblers, financial difficulties may be paramount but for others the loss of time may be more pertinent. Relationship difficulties could be important for some and in other instances, gambling may be employed as an unsuccessful stress-management strategy. Just as problem gambling at more severe levels may have heterogeneous expressions, less serious harms can also be diverse across individuals and vary over time. Consequently, strategies for addressing harms (and not just gambling behaviour) need to be appropriately flexible to meet individual needs. The provision and integration of services to reflect such complex needs is covered in the following section.

8.7 Comorbidity and coordination across services and professional groups

The knowledge that people with gambling problems are at increased risk of a range of other mental health disorders can be extended (using the continuum model) to recognise that gamblers with less severe levels of harm are also likely to engage in other risky behaviours (including smoking and drinking) and are likely to experience psychological distress. This points to a need for dealing not only with comorbid disorders of clinical severity but for adopting a holistic approach to risky behaviours and psychological wellbeing that are of lesser severity. There are a number of relevant preventive initiatives already in place (e.g. addressing depression and smoking) and there may be opportunities to integrate gambling-related issues into such health promotion strategies. Where this involves particular services or professional groups, practice guidelines and training may be ways to incorporate gambling into broader initiatives. Even at the level of general educational material and self-help strategies, there could be opportunities to link gambling with other areas of personal health and wellbeing. The Victorian guide to health promotion for problem gambling is, again, illustrative of the deficiencies in current approaches. Fundamentally, this guide places responsibility for the integration of services onto Gambler's Help and other relevant service providers when a more appropriate strategy at State level would be to actively facilitate and resource integrated service provision. The current arrangement where many Gamblers Help services are contracted out to NGOs operating in a different service sector to "mainstream" health services is a fundamental obstacle to integration and this guide offers little to overcome that shortcoming. The guide also fails to identify existing health promotion strategies (especially for substance use) where integration is most likely to reap the greatest gains.

8.8 Community cost

Quantification of the cost of problem gambling for the community is one important way of getting the attention of the general public, industry, public service departments and politicians. It is a major factor in progressing the justification of a community response (see next heading). Currently, the estimation of community costs has been limited to the costs of *problem* gambling only. The equivalent exercise in relation to alcohol use would be to include only those costs attributable to individuals with alcohol use disorders. Intuitively, it makes little sense to separate out the costs of alcohol use (e.g. health problems and road traffic accidents) into those attributable

to people with alcohol use disorders and those attributable to people without a disorder. The Productivity Commission (2010: 6.36) pointed out that its estimate of costs:

“has not included any social costs experienced by recreational gamblers — who include all those classified as experiencing no or low risk, and a significant share of those categorised as experiencing moderate risks. In fact, non-problem gamblers can experience harms, such as those arising from adverse employment and health outcomes relating to their gambling (chapter 4).”

In short, the current approach to estimating costs of gambling on the community does not follow a public health approach.

8.9 Community response

One of the greatest strengths of the public health approach is that it calls for a whole-of-community response to address a problem. In the Australian context, dealing with problem gambling has predominantly been viewed as the responsibility of industry and governments (Productivity Commission, 2010). This view is complicated by any perceptions of or actual conflicts of interest arising from the receipt of gambling revenue by state and territory governments. There is therefore an opportunity to extend the approach to addressing gambling and problem gambling across a far broader constituency. This would necessarily be responsive to public views and attitudes about gambling and gambling regulation as well as support (or otherwise) for preventive interventions and treatment services. At the same time as recognising the value of collective effort, there is also a cautionary message in that spreading responsibility can dilute attention and potentially result in disparate responses rather than a coordinated and comprehensive strategy. This criticism has been directed at the explicit public health approach adopted by New Zealand following the Gambling Act 2003 which generated “initial enthusiasm” and “subsequent disillusionment” (Adams and Rossen, 2012). It is important to take on board the benefits of hindsight from the New Zealand experience in considering how to assign responsibility and accountability for future public health approaches to gambling.

8.10 An ecological perspective

Formulations within a socio-ecological framework have two key attractions. One derives from the placing of individuals at the centre of concentric spheres of influence so that some influences are seen to be near (or “proximate”) and others as more distant (or “distal”). This perspective gives rise to terminology such as the “upstream and downstream determinants of health”. With roots in psychology and epidemiology, it is expected that gambling research will follow this type of conceptual framework, and (of course) that the labelling of various layers will reflect the context of gambling activities in contemporary societies (e.g. “venues”, “state policy and legislation”). A second attraction is that the interplay between the outer layers of the model can be given some prominence. Legislation, public policy, community knowledge, media representations of gambling and so on are not static influences that ultimately impact on communities, families and individuals, but are themselves dynamic and can have reciprocal influences on each other. This has been seen in action in very recent times around Australian Commonwealth legislation, TV advertising and the very public debate about live odds. Traditionally, gambling research has not been strongly influenced by areas such as political science or social marketing but it is important to retain a perspective of macro influences and their interplay.

Chapter 9: Contemporary health promotion strategies for gambling and problem gambling

This chapter presents a synthesised health promotion strategy for the Australian context, incorporating prevention and early intervention for gambling and problem gambling and complementary initiatives to facilitate treatment and recovery (i.e. prevention of relapse) in the current Australian context.

Although a public health framework may be very appropriate for addressing gambling and problem gambling it does not imply that strategies or specific interventions within the framework are necessarily going to be effective. Generally, the scope is far broader than current resources can afford, so the immediate prerogative is to adopt approaches for which there is an existing evidence base or some other reasonable expectation of success (based on equivalent interventions in similar fields, for example). Some strategies may not be suitable because the evidence base suggests they do not work and others may not be appropriate at this time because they lack evidence. Given the weakness of the evidence base around gambling preventive interventions, there are some areas where it is premature to invest in expensive programs without realistic expectations of commensurate benefits. Three areas this report has discussed and identified as currently impractical are summarised below.

1. Despite comparatively recent calls for primary prevention of problem gambling through universal education programs (e.g. Gray *et al.*, 2007; Derevensky and colleagues, 2002; 2004), this approach now seems an unlikely prospect. There are at least three reasons for shifting away from such programs. First, the above publications based their arguments on research findings suggesting disproportionately high rates of problem gambling in youth compared to the adult population. This has not been confirmed by recent evidence (e.g. Forrest and McHale, 2012; Welte *et al.*, 2011). Second, Grey (2007) advocated that universal education programs should start early, targeting youth when aged around 12 to 13. However, recent evidence suggests that the effects of such programs do not extend beyond 2-3 years after the completion of the program (Stead *et al.*, 2007). Consequently, any impacts would disappear before such youth reached the legal age for gambling. Third, other recent evidence shows that universal prevention programs in the school context have not decreased rates of problem gambling, and some research suggests that such programs might even encourage gambling participation (Productivity Commission, 2010). Rather than dispense with the notion of universal programs, however, it would be appropriate to pitch these at more modest and achievable outcomes that are related to acquisition of information and knowledge.
2. Currently, there is no evidence base to enable the promotion of responsible gambling guidelines expressed in terms of level of participation (comparable to responsible drinking guidelines). This preventive approach is structured and depends upon the simplicity and precision of messages. It is undermined when messages cannot be expressed in straightforward ways (such as by reference to money spent or time lost). General encouragement to “gamble responsibly” is unlikely to be effective when it is unclear as to what this involves.
3. At present, we do not have information from longitudinal studies that would allow the targeting of people who are at high-risk of progressing to a level of problem gambling in the future, other than through the fact that some gamblers have already begun to experience harms. Indicated prevention is therefore feasible in the latter instance but otherwise, without solid evidence, the cost of effective approaches is too great for them to be utilised across a substantial proportion of the population.

The following outline is structured within sections relating to universal, selective and indicated prevention; initiatives to facilitate long-term care and recovery and to prevent relapse; and the relevance of community, organisational and public policy environments. Within each are considerations of what could be involved in seeking to prevent future problem gambling and what strategies are appropriate for preventing a range of harms that might arise in conjunction with gambling and problem gambling. The approach is therefore an attempt to ride two horses: (1) trying to reduce the prevalence of problem gambling; and (2) minimising the diversity of gambling-related harms. Clearly, there is some artificiality in making this distinction but being explicit about the diversity of goals has practical advantages in pointing to different (but hopefully complementary) strategies.

Table 1: Examples of interventions along the health promotion continuum.

Prevention			Treatment	
Universal	Selective	Indicated	Treatment services	Post-treatment follow-up
Information about gambling and problem gambling for the whole population: recognition, the value of professional help and self-assessment of harms	Venue-based information about gambling, problem gambling and services	‘Stop and Think’ program	Out of scope of review: see NHMRC Guidelines ^a	Routine follow-up by problem gambling services after treatment has finished
Information about available problem gambling treatment services	Pre-commitment	Other brief interventions		Responsible gambling guidelines tailored to those who have had treatment
Guidelines for responsible gambling	Opt-in to gambling venues	Self-exclusion from gambling facilities		
	Warning messages	Coordinated service delivery to address harms related to gambling (e.g. mental health problems and relationship problems)		
	Limiting venues in selected communities to protect vulnerable and disadvantaged groups			

a Guidelines provide recommendations for treatment of problem gambling based on varying levels of evidence. Recommendations cover psychological interventions, pharmacological interventions, psychological and pharmacological combined interventions and targeted interventions.

9.0 Universal interventions

As foreshadowed above, the most likely achievable outcomes for universal interventions are in the area of information and knowledge acquisition. This may have no immediate benefits for recipients but may bring about benefits in the longer term.

Considering the eventual goal of *reducing the prevalence of problem gambling*, the most pertinent information (see Table 1) relates to the recognition of problem gambling, the value of getting professional help for problem gambling, and the types of help that are available (e.g. helplines, on-line help, face-to-face counselling). This information can be oriented around recognising problem gambling in others (friends, family, colleagues) rather than self-recognition, as it is more likely to be useful in regard to others. One further important area of information (which is the exception to the rule about the lack of information on risk factors for problem gambling) is the knowledge that playing poker machines is more closely linked to problem gambling than other types of gambling activity.

In terms of a goal of *minimising harms related to gambling*, the most pertinent information to convey includes: (1) that harms are more common than problem gambling; (2) the most common manifestations of gambling-related harm; (3) that harm is necessarily a subjective and personal assessment; and (4) that harm can fall on others and not just gamblers themselves. The terminology of “harms” is not cosmetic but crucial to the purposes of (a) conveying a concept that is multidimensional and (b) ensuring that the wording is different from the labelling of problem gambling. Whatever the intention behind the use of the term “problem gambling” in a scientific context, its meaning in common parlance has come to replace previous terminology such as “gambling addiction” and it is ill-suited to conveying the broader scope of the topic being considered here.

One purpose and advantage of developing an overarching health promotion framework is to ensure that there is coordination across these universal strategies. It is important that sources of information, whether for the general public or for appropriate professionals, are consistent and reinforcing. The information itself can still be *different* and tailored to suit circumstances; for example, all people may be given information that treatment for problem gambling has beneficial effects but not everyone needs to know how to get treatment. Strategies could be applied and delivered through multiple media avenues, and as a general rule, the more that are employed the more likely is success in achieving penetration into common knowledge.

9.1 Selective interventions

Some opportunities for adopting a selective approach in respect of problem gambling lie in the possibilities of concentrating the dissemination of information (which would be similar in content to the information used for universal prevention) in areas most pertinent to the groups in society with greater risk of problem gambling (e.g. people who are younger, male, unpartnered or have lower levels of education). This could happen through workplaces, educational institutions, and sports clubs, for example. Gambling venues are the other obvious locations for the dissemination of information.

In addition to the dissemination of information, there is a range of strategies for selected prevention of problem gambling with different degrees of evidenced-based support or current likelihood of use. These cover aspects of pre-commitment, warning messages and other features of gambling venues and EGMs specifically. In terms of modifications to the gambling environment, gaming machine modifications currently represent the most

effective strategy for reducing money and time spent on gambling. However, the most cost effective initiative is placing simple signs and warnings in venues. Evidence shows warnings and signs are more likely to be noticed by non-problematic gamblers and so they are best used to convey information of relevance to *all* gamblers. Information about gambling-specific treatment is also important; both for those who might seek help for themselves and for others to pass on information to friends and family with problems (as above under universal interventions). A more radical approach (borrowing from the idea of self-exclusion but placing it at an earlier stage of the preventive continuum) would be to require opt-in arrangements for certain gambling venues. For example, card access or other forms of ID would be required to enter areas with EGMs.

When focussing on minimising gambling-related harms, an area identified as poorly understood but important for the future is improving the evidence base on self-management strategies. Current information on the strategies commonly used by gamblers in general is useful in that not all gamblers may have considered using such approaches (Moore *et al.*, 2012). It would be a valuable addition to have further information on gamblers' subjective assessments on how well self-management strategies have worked for them, which strategies they found were more successful, and which strategies were less useful.

A further important approach to selective prevention is derived from the socio-ecological perspective. This considers the availability and location of gambling venues and facilities. Given the known distribution of problem gambling by demographic and socio-economic characteristics, this information can be used in the consideration of limiting gambling opportunities in terms of location, time and medium of access. The underlying principle is to protect vulnerable and disadvantaged groups in society so that the detrimental aspects of gambling do not fall disproportionately on these sections of the population.

9.2 Indicated prevention

Approaches to indicated prevention include techniques employed in the treatment of problem gambling but delivered in a less costly way and applied to those who fall short of the criteria defining problem gambling. For example, the U.S. "Stop & Think!" program was developed to assess the impact of teaching at-risk gamblers cognitive restructuring and problem solving skills with the aim of preventing the development of problem gambling (Doiron and Nicki, 2007). In this randomised control trial, 40 people were recruited from the general population, all were at-risk gamblers (as determined by the PGSI) and had played video lottery terminals (VLTs) in the last month. At a one month follow-up the findings suggested that the program was effective in reducing irrational thinking, cognitive distortions about gambling and involvement in VLT and other gambling behaviours. Although such studies are limited in not being able to follow up the longer-term impact, they provide good evidence identifying which approaches have a short-term effect and it is possible to build longer-term follow-up onto such interventions, to determine whether individuals revert to previous patterns of gambling behaviour or maintain their reduced activity.

Self-exclusion is a further important option for indicated prevention. Although the current evidence base for the effectiveness of self-exclusion is not strong, the limitations of this approach surround adherence to exclusion during the period of intended exclusion and what is put in place at the end of this period. These issues can be addressed through improvements and enhancements of the administrative arrangements for self-exclusion. Self-exclusion significantly decreases problem gambling (participation, expenditure and harms) but also improves psychological functioning shortly after signing up for the program. The difficulties include complicated processes in signing up for programs (including stigma attached to this), low adherence rates, and lack of information for gamblers about available programs. Better and more widely-disseminated information could

be used to inform gamblers and others about opportunities for self-exclusion. (The broader dissemination of information about self-exclusion, including to friends and family of gamblers, also falls under the headings of universal and selective intervention.) As self-exclusion is an extreme form of pre-commitment, individuals are likely to benefit from some form of adjunct support or therapy, especially at the start of their exclusion. Suggestions to improve adherence rates include scanning everyone's IDs on entry to venues, as required in many European countries, and more thorough surveillance by venue staff.

For gambling-related harms, indicated prevention is necessarily linked to the nature of the harms involved for any individual. As discussed throughout this report, harms can occur amongst people who do not meet a pathological definition of problem gambling. Consequently, it may be more appropriate to address gambling behaviour and harms in the context of other psychological or interpersonal problems that bring individuals into contact with services. It is therefore essential to have coordination across service sectors and increased awareness of gambling-related harms in several professional groups, including those dealing with financial, stress-related, substance use, family relationship and employment difficulties. A holistic approach represents an ideal scenario for dealing with multiple harms but this is tempered by the pragmatics of what individual services and professionals are equipped to provide. Other approaches to case management and coordinated care may be necessary to meet local conditions and individual needs.

9.3 Long-term care and recovery and prevention of relapse

It is beyond the scope of this review to consider the issues of efficacy and effectiveness of treatments for problem gambling. Efficacy of professionally-delivered therapies is covered in depth in the review (Cowlshaw *et al.*, 2012) and the associated NHMRC Guidelines (National Health and Medical Research Council, 2011). One aspect worth mentioning here, however, is that efficacious treatments delivered in tightly controlled settings (e.g. randomised controlled trials) do not always translate into effective treatments in more typical settings. For this reason, more evidence is needed of long-term outcomes for those that have received professional help. Further, there is a dearth of evidence in relation to relapse prevention beyond the short-term outcomes typically evaluated in treatment studies. One potentially important approach, however, is the development of responsible gambling guidelines specifically for those who are in treatment or have completed treatment. Weinstock *et al.* (2007) identified the following thresholds for indicating those with problem-free gambling by using receiver operator characteristic curves: 1) gambling no more than once per month; 2) gambling no more than 1.5 hours per month; and 3) spending no more than 1.9% of monthly income on gambling. For long-term outcomes, there is little evidence currently to guide attempts to prevent relapse. As a starting point, it would seem intuitively that monitoring of the long-term progress of those that have received treatment is likely to identify relapse more quickly than waiting until former clients either return to services voluntarily, are referred by other agencies, or hit extreme difficulties (including criminal acts and suicide attempts) that bring their problems back to the notice of professionals.

9.4 Community, organisational and public policy environments: an integrated approach

When considering the overall supportive evidence for public health approaches to gambling and the more specific statements from relevant and influential bodies (Australasian Psychological Society, 2010; Productivity Commission, 2010; Public Health Association Australia, 2013; The Australian Medical Association, 2012), it is perhaps surprising that a national health promotion strategy for gambling is not already in place. Currently, a range of ad hoc interventions and strategies are applied at local levels. In terms of Korn and Shaffer's (1999) original intentions, it is important to note that gambling and problem gambling are not seen as issues of great importance within the current Australian health system. Even the treatment of problem gambling is largely invested in a system that has less internal co-ordination and fewer external linkages than would be hoped for in a system designed to provide integrated health care.

Indeed, the outer concentric rings of the socio-ecological "onion" set down an immediate and important challenge. These layers will not operate in a collective and co-ordinated way unless there are specific processes put in place to achieve those ends. At the same time, integrated exo-systems and macro-systems do not spring up overnight. It is important therefore that some bottom-up strategies are applied to building these systems. This will require liaison between state and territory governments, partnerships between government, industry and service providers in the gambling field, and an extension of the concern with meeting the needs of those with gambling problems and their families into other service sectors (including but not limited to health). It is not appropriate to pass on the responsibility for such a broad initiative to services that are already dealing with the day-to-day complexities of providing treatment to people that can be difficult to engage and where the long-term outcomes are, at best, uncertain and unpredictable for individuals.

The key contributions of co-ordination, collaboration and integration were recognised throughout the Victorian Government *Guide to Using a Health Promotion Approach to Problem Gambling* (Victorian Department of Justice, 2011). The Guide stated, for example, that "It has been shown that single interventions, such as providing health information alone, have limited impacts. Therefore, using a mix of interventions to achieve a health promotion goal is consistent with the evidence that working at both the individual and population-wide levels provides the best outcomes" (Victorian Department of Justice, 2011: 4). The essence and strength of an integrated health promotion approach is that it brings all features of the framework to bear on the problems to hand, acknowledging that one-off initiatives are less likely to succeed if the overarching structure is not in place.

Chapter 10: References

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Chapter 11: Appendices

Appendix 1: Search terms used for this review.

Database	Search Terms
SOCIAL MARKETING/SOCIAL LEARNING SEARCHES	
PsycInfo	("social marketing" OR "social learning") AND (intervention OR treatment) AND prevent* AND review
PsycInfo	("social marketing" OR "social learning") AND gambl*
PsycInfo	("social marketing" OR "social learning") AND wagering
PsycInfo	("social marketing" OR "social learning") AND betting
MEDLINE	("social marketing" OR "social learning") AND (intervention OR treatment) AND prevent* AND review
MEDLINE	("social marketing" OR "social learning") AND gambl*
MEDLINE	("social marketing" OR "social learning") AND wagering
MEDLINE	("social marketing" OR "social learning") AND betting
HEALTH PROMOTION SEARCHES	
Database	Search Terms
PsycInfo	"health promotion" AND (intervention OR treatment) AND prevent* AND review
MEDLINE	"health promotion" AND (intervention OR treatment) AND prevent* AND review
PubMed	"health promotion" AND (intervention OR treatment) AND prevent*
PubMed	"health promotion" AND ottowa charter AND prevent*
PsycInfo	"health promotion" AND gambl*
MEDLINE	"health promotion" AND gambl*
PubMed	"health promotion" AND gambl*
MENTAL HEALTH LITERACY SEARCHES	
Database	Search Terms
PsycInfo	("mental health literacy" OR "health literacy") AND (intervention OR treatment) AND prevent* AND review
PsycInfo	("mental health literacy" OR "health literacy") AND intervention AND prevent*
PsycInfo	("mental health literacy" OR "health literacy") AND intervention AND review
PsycInfo	("mental health literacy" OR "health literacy") AND intervention
PsycInfo	"mental health literacy" AND (intervention OR treatment) AND prevent* AND review
MEDLINE	"mental health literacy" AND (intervention OR treatment) AND prevent* AND review
PubMed	"mental health literacy" AND (intervention OR treatment) AND prevent*
PsycInfo	"mental health literacy" AND prevent* AND review
MEDLINE	"mental health literacy" AND prevent* AND review
PubMed	"mental health literacy" AND prevent*
PsycInfo	"mental health literacy" AND gambl*
MEDLINE	"mental health literacy" AND gambl*
PubMed	"mental health literacy" AND gambl*

HARM MINIMISATION

Database	Search Terms
PsycInfo	("harm minimisation" OR "harm minimization") AND (intervention OR treatment) AND prevent* AND review
MEDLINE	("harm minimisation" OR "harm minimization") AND (intervention OR treatment) AND prevent* AND review
PubMed	("harm minimisation" OR "harm minimization") AND (intervention OR treatment) AND prevent*
PsycInfo	("harm minimisation" OR "harm minimization") AND prevent* AND review
MEDLINE	("harm minimisation" OR "harm minimization") AND prevent* AND review
PubMed	("harm minimisation" OR "harm minimization") AND prevent*
PsycInfo	("harm minimisation" OR "harm minimization") AND gambl*
MEDLINE	("harm minimisation" OR "harm minimization") AND gambl*
PubMed	("harm minimisation" OR "harm minimization") AND gambl*

PUBLIC HEALTH AND GAMBLING SEARCHES

Database	Search Terms
Web of Knowledge	("public health" OR "population health") AND gambl*
PubMed	("public health" OR "population health") AND gambl*
PubMed	("public health model" OR "population health model") AND gambl*
PubMed	"public health approach" AND gambl*
PubMed	"population health approach" AND gambl*
PubMed	"public health framework" AND gambl*
PubMed	"population health framework" AND gambl*
PubMed	"public health perspective" AND gambl*
PubMed	"population health perspective" AND gambl*
Web of Science	"public health approach" AND gambl*
Web of Science	"public health framework" AND gambl*
Web of Science	"public health perspective" AND gambl*
PsycINFO	("public health model" OR "population health model") AND gambl*
PsycINFO	"public health approach" AND gambl*
PsycINFO	"public health framework" AND gambl*
PsycINFO	"public health perspective" AND gambl*
ProQuest	("public health model" OR "population health model") AND gambl*
ProQuest	"public health approach" AND gambl*
ProQuest	"public health approach" AND "problem gambling"
ProQuest	"public health framework" AND "problem gambling"
ProQuest	"public health perspective" AND "problem gambling"
Web of Science	"public health" AND "problem gambling"
PubMed	"public health model" AND betting
PubMed	"public health approach" AND betting
PubMed	"public health framework" AND betting

PubMed	"public health perspective" AND betting
PubMed	"public health model" AND wagering
PubMed	"public health approach" AND wagering
PubMed	"public health framework" AND wagering
PubMed	"public health perspective" AND wagering
PsycINFO	"public health model" AND betting
PsycINFO	"public health approach" AND betting
PsycINFO	"public health framework" AND betting
PsycINFO	"public health perspective" AND betting
PsycINFO	"public health model" AND wagering
PsycINFO	"public health approach" AND wagering
PsycINFO	"public health framework" AND wagering
PsycINFO	"public health perspective" AND wagering
Web of Science	"public health model" AND betting
Web of Science	"public health approach" AND betting
Web of Science	"public health framework" AND betting
Web of Science	"public health perspective" AND betting
Web of Science	"public health model" AND wagering
Web of Science	"public health approach" AND wagering
Web of Science	"public health framework" AND wagering
Web of Science	"public health perspective" AND wagering

STAGES OF CHANGE/ TRANSTHEORETICAL MODEL

Database	Search terms
PubMed	("stages of change" OR "transtheoretical") AND gambl*
Medline	("stages of change" OR "transtheoretical") AND gambl*
PsycINFO	("stages of change" OR "transtheoretical") AND gambl*

PATHWAYS MODEL

Database	Search terms
PubMed	"pathways model" AND gambl*
Medline	"pathways model" AND gambl*
PsycINFO	"pathways model" AND gambl*

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sociology.cass.anu.edu.au/centre-gambling-research

ANU Centre for Gambling Research reports
www.gamblingandracing.act.gov.au/Research.htm